

**STATE OF ILLINOIS**  
**ADLAI E. STEVENSON, Governor**



**GROUNDWATER RESOURCES IN CHAMPAIGN COUNTY**

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**URBANA, ILLINOIS**

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## SUMMARY

This investigation is part of a state - wide investigation of groundwater resources being conducted by the State Water Survey Division.

Records of more than 1400 wells have been tabulated. These wells penetrate one or more of three separate and distinct aquifers within the glacial drift. The three aquifers penetrated by wells in this area have unrelated hydrostatic heads.

The average daily pumpage from the middle deposits, the major producing aquifer considered in this report, was 7.917 million gallons. It was estimated that a total of 67,812 million gallons of water has been pumped from this aquifer. Water level pressure contour maps of the upper and middle waterbearing deposits show no similarity. Sufficient data are not available to permit the construction of a pressure contour map of the lower deposits.

Values of the coefficients of transmissibility and storage have been determined. Values of the coefficient of transmissibility ranged from

10,000 to 400,000 and averaged about 40,000. Values of the coefficient of storage ranged from 0.00024 for short periods to 0.0065 for a 46 year period, the longest for which records are available. Using a coefficient of storage of 0.0065 it was determined that the amount of water removed from storage since pumping began was about 3,187 million gallons or about 5 percent of the total amount of groundwater withdrawn.

The amount of inflow into the heavily pumped area at Champaign-Urbana is about equal to the 1948 rate of withdrawal indicating little if any recharge within the 630 contour of the cone of depression. The steep hydraulic gradient and low water levels near the area of heavy withdrawal, together with continued water level recession, suggests that the middle deposits at Champaign-Urbana have been developed to their maximum transmission rate and that some lessening of the rate of withdrawal would be necessary to maintain constant operating water levels.

## INTRODUCTION

This report covers an investigation of the ground water resources of Champaign County with specific reference to the area in and adjacent to Champaign-Urbana. In this area large quantities of water are pumped from wells finished in the glacial drift. Lesser quantities are taken from the drift at Rantoul, Fisher, Mahomet, St. Joseph, Homer, Sidney and Tolono. No waters are being secured from the underlying bedrock as the water from bedrock in this area is too highly mineralized for domestic use.

The Water Survey Division has records of more than 1400 wells drilled in Champaign County. These wells are tabulated in the Appendix. These wells penetrate one or more of three separate and distinct aquifers within the glacial drift. For the purpose of this report these aquifers will be referred to as the upper, middle, and lower water-bearing deposits of the glacial drift. Their positions compare closely with the sample study log by Horberg (1), shown in Appendix A, who refers to the three deposits as Wisconsin, Illinoian, and Kansan glacial drift. The logs of these wells show that these water-bearing formations are separated from the surface and from each other by fairly continuous beds of clay or silt. Since the water level in the wells in almost every instance is above the producing formation they are considered to be artesian.

The three aquifers penetrated by wells in this area have different hydrostatic heads and the waters have dissimilar chemical characters. The upper deposit is in general found above elevation 640 feet above Mean Sea Level in the northern part of the county and above elevation 610 in the southern part of the county. The lower deposit is usually found below elevation 550, there are, however, a few instances where pressure heads in wells indicate the presence of the middle deposit slightly below elevation 550.

Most of the high-capacity wells in the county are finished in sand and gravel deposits between elevations 550 and 610, in the middle aquifer. Unless otherwise stated, all wells referred to in this report will be those finished in this aquifer.

Four automatic water level recorders have been in continuous service since 1942, and several recorders have been operated for lesser periods of time. All of these recorders have been located in or adjacent to Champaign-Urbana, where the greatest water level fluctuations have occurred.

### Location of the Area

Champaign County is situated near the eastern boundary of Illinois about midway of its length; Ford County adjoins it on the north, Vermillion County on the east, Douglas County on the south and Piatt and McLean Counties on the west. The county comprises about 30 townships and has an area of about 1000 square miles.

The twin cities of Champaign - Urbana are the largest in the county. They house more than half the population of the county. The 1940 census showed a population of 70, 578 for the county and a population of 37, 366 for the twin cities. The other municipalities in the county that have ground water supplies have a combined population of 7,690. There are 25,522 rural inhabitants that depend on privately-owned individual wells for water. The above population figures do not include the students of the University of Illinois. The University had an enrollment of approximately 19,000 in 1949.

### History of Investigation and Previous Reports

This investigation is part of a state -wide investigation of ground water resources being conducted by the State Water Survey Division.

These investigations are being made to determine quality, quantity, movement and availability of ground water and the feasibility of further development.

Attention has been focused on the lowering of ground water levels at a number of centers in the State in recent years and some have feared that our ground water supplies are nearing exhaustion. A large part of this concern has resulted from persistent decline of the water levels in pumped wells in locally over-developed areas. Where local over -development is occurring, investigations are being made to find practical measures to alleviate the condition.

There have been several unpublished previous reports on the Champaign-Urbana water supply. At least two or three unpublished reports for other towns in the county have been prepared by Consulting Engineers, and several reports for the University, none of which have been published.

### Acknowledgements

The work was done under the general administration of Dr. A. M. Buswell, Chief, State Water Survey Division and under the supervision of Mr.

H. E. Hudson, Jr., Head of the Engineering Sub-Division. The field work was done by various members of the Division. Many of the historical data were taken from the Division files.

The writer is indebted to the many owners of wells for valuable information regarding their wells, especially to Mr. Frank C. Amsbary, Jr.,

Manager, Illinois Water Service Company and Mr. Herbert L. White, Supt. of Sanitation and Safety, Physical Plant Department, University of Illinois. Credit is due in particular to the various employees of the State Water Survey Division who from time to time secured much of the information used in this report.

## HISTORY OF MUNICIPAL WATER SUPPLIES

### Fisher

The public water supply was installed at Fisher in 1936. Water is secured from two wells. Well No. 1, drilled in 1936, has a depth of 204 feet. The well is cased with 8-inch pipe and has 20 feet of 8-inch screen. The lower 10 feet of the screen has No. 12 slot openings and the upper 10 feet has No. 10 slot openings. Well No. 2 was completed in 1947. The well has a depth of 240 feet and is cased with 10-inch pipe to 190 feet below which was installed an 8-inch No. 30 slot screen to the bottom of the well,

A production test was made on the No. 2 well June 26, 1948. After 3 1/2 hours pumping at rates gradually increased from 41 to 205 gpm. the final drawdown was 14.8 feet from a non-pumping level of 26 1/2 feet. A water level recorder installed in well No. 1 during the test showed a maximum influence of 0.1 ft. Well No. 2 is located about 275 feet west of well No. 1.

### Homer

The public water supply was installed in 1939. Water is secured from well No. 1. Well No. 1, drilled in 1939 has a depth of 72 feet. The well is of the gravel - wall type having an outside diameter of 16 inches and an inner diameter of casing and screen of 8 inches.

Well No. 2 was drilled in 1947 to a depth of 68 feet. The well has a 12 -inch casing and is screened opposite a 6 foot vein of water-bearing sand and gravel. The well had a non-pumping water level of 20 feet when completed. This well has since been drilled into bedrock and abandoned. The Village is conducting tests on an old dug well owned by the Wabash Railroad. They plan to use this well as a supplemental source if the well has sufficient productive capacity.

### Mahomet

The public water supply was installed in 1939. Water is secured from two wells, and the pumping operations are alternated between them. Well No. 1 was drilled in 1939 to a depth of 94 feet. The well is cased with 84 feet of 8-inch casing below which is 10 feet of 8-inch screen.

The top half of the screen has No. 18 slot openings and the lower half has No. 20 slot openings. A production test was made on the well September 27, 1937 which showed a production of 230 gpm. after 9 hours with a drawdown of 12 1/4 feet from a non-pumping water level of 49 feet. Well No. 2, located about 30 feet from Well No. 1, was drilled in 1943 to a depth of 96 feet.

### Philo

The public water supply was installed in 1939. Two wells have been drilled for a source of supply. Water is secured primarily from Well No. 2. Well No. 1 was drilled in 1939 to a depth of 81 feet. The well was cased with 76 feet of 10-inch casing and 5 feet of No. 50 slot 10-inch screen. When completed the well produced 73 gpm. with a drawdown of 31 feet from a non-pumping water level of 33 feet. Reference elevation is 73± MSL. In 1944 it was reported that the well produced 15 gpm. The well is now used as a standby unit.

Well No. 2 was drilled in 1945 to a depth of 44 feet. The well is cased to 37 feet with 8-inch casing below which is 7 feet of screen, the upper part having No. 50 slot openings and the lower part having No. 30 slot openings. When completed, the well produced 65 gpm. with a drawdown of 20 1/2 feet from a non-pumping level of 9 1/2 feet. Reference elevation is 710± feet MSL.

### Rantoul

A limited water supply system was installed in 1885 that included a well and windmill-operated pump. In 1895 two wells were drilled to depths of 120 feet. In 1912 the non-pumping water level in these wells was 60 feet below ground level. Well No. 3 was drilled in 1917 to a depth of 148 feet. The well was cased to 132 feet with 10-inch casing below which was installed 16 feet of No. 60 slot screen. Well No. 4 was drilled in 1922 to a depth of 142 feet and is cased with 10-inch pipe. The length and size of screen is not known. Well No. 5 was drilled in 1925 to a depth of 138 feet. This well was abandoned in 1933 as the hole was sufficiently crooked to wear

out pump parts rapidly. Well No. 6 was drilled in 1934 to a final depth of 284 feet, finished in the "Kansan" formation, the other city wells having all been finished in the "Illinoian" formation. The well is cased with a 10-inch outer casing to a depth of 150 feet and an 8-inch inner casing from the surface to a depth of 269 feet. Below this depth is a 15-foot section of 8-inch No. 40 slot screen. A test made on the well in 1934 when the well was completed showed a production of 400 gpm. with a drawdown of 78.6 feet from a non-pumping water level of 65 feet.

Well No. 7 was drilled in 1939 to a depth of 137 feet. The well is cased with 10-inch casing to 115 feet below which is 22 feet of 10-inch screen. A production test made at the time the well was completed showed a production of 480 gpm. after 4 1/2 hours, with a drawdown of 28 feet from a non-pumping water level of 64 feet. Reference elevation is 752± feet MSL.

At the present time Well No. 7 is the principal source of supply. Well No. 6 is in daily service but produces less than half that of Well No. 7. Well No. 4 is equipped for operation but is used only in case of emergency. Wells Nos. 1, 2, 3 and 5 have been abandoned.

Well No. 7's static level October 31, 1944 was 72 feet. On December 18, 1947, estimated production was 900 gpm. Pumping water level was 95 feet and non-pumping level was 82 feet after 30 minutes idle period.

#### St. Joseph

The public water supply was installed in 1940. Water is secured from two wells. Well No. 1, drilled in 1940 has a depth of 76 feet. The well is of the gravel-pack type having a 16-inch outer casing and an 8-inch inner casing that extends to 63 feet below which is 13 feet of 8-inch screen having No. 70 slot opening.

A production test made when the well was completed showed a production of 125 gpm. with a drawdown of 27 1/2 feet from a non-pumping level of 13 feet. On February 4, 1946 a test showed a production of 84 gpm. with a drawdown of 47 feet.

Well No. 2 was drilled in 1948 to a depth of 72 1/2 feet. The well is of the gravel-pack type, having a 16 - inch outer casing and an 8 - inch inner casing that extends to 60 1/2 feet below which is 12 feet of 8 - inch No. 60 slot screen. A production test made at the time the well was completed showed the well produced a maximum of 187 gpm. with a drawdown of 43 1/2 feet from a non-pumping level of 11 feet.

Reference elevation is 670± feet MSL.

#### Sidney

The public water supply was installed in 1939. Water is secured from a well drilled in 1939 to

a depth of 56 feet. The well is cased with 46 feet of 6-inch casing below which is 10 feet of 6-inch No. 14 slot screen. A production test made when the well was completed showed a production of 30 gpm. with a drawdown of 11 1/2 feet from a static water level of 22 feet. Reference elevation is 665± feet MSL.

#### Tolono

The public water supply was installed in 1895. Six wells have been drilled since that time. Wells Nos. 1 and 2, drilled in 1895, had depths of 146 feet and 145 feet respectively. These wells have been abandoned. Well No. 3 was drilled in 1901 to a depth of 157 1/2 feet. The well is cased with 145 1/2 feet of 8-inch casing below which is 12 feet of No. 60 slot 8 - inch screen. At the present time this well produces most of the supply.

Well No. 4 was drilled in 1934 to a depth of 186 feet. The well was cased to 168 feet with 10-inch casing, from 168 feet to 178 feet with 8-inch casing, below 178 feet is a 10-foot section of No. 4 slot 8-inch screen. This well has been abandoned due to sand clogging.

Well No. 5 was drilled in 1937 to a depth of 185 feet. The well is cased with 10-inch casing to 170 feet below which is 15 feet of variable slot screen. This well produced considerable sand but not much water. Since 1948 the well has been inoperative.

Well No. 6 was drilled in 1945 to a depth of 145 feet. The well was cased with 10-inch casing to 140 feet below which was installed five feet of No. 100 slot screen.

A production test made at the time the well was completed showed a production of 97 gpm. with a drawdown of 60 feet from a non-pumping water level of 77 feet.

#### Champaign-Urbana

The waterworks serving Champaign-Urbana is a privately-owned single system installed in 1885, as the result of an unsuccessful prospect for coal. A coal shaft was driven at the site of the original well field, but because of a very permeable water - bearing stratum, it proved impossible to keep the water out of the mining shaft. It was decided that there was such an abundant supply of water that the coal mine project should be converted into a water works. The mine shaft did not furnish a sufficient quantity of water so wells were drilled in the immediate area.

This original well field was located in Urbana just north of the Big Four and Wabash Railroads and west of Lincoln Avenue on a plot of ground having an area of between seven and eight acres. At the time the initial development of this field halted, there were eighteen wells drilled in it.

These had depths of from approximately 150 to 170 feet.

In the search for additional water a new well field was developed in 1915 on a one-acre plot of ground about 1600 feet north of the original well field on Goodwin Avenue at the end of Dublin Street. Eight wells were drilled at this location. The capacity of this well field became insufficient to meet the demand so seven additional wells were drilled in the original field.

In 1921 a third well field was developed about one-half mile north of the second well field on Bradley Avenue at the end of Goodwin Avenue. These wells had depth of from approximately 150 to 225 feet. A total of 47 wells have been drilled in the three fields.

BY 1945 the demand was exceeding the yield of the three fields so a search was begun for additional well field locations. After drilling five test holes, preceded by electrical earth resistivity surveys conducted by the State Geological Survey, an area about 4 miles west was decided upon as a suitable location for additional wells. Three wells have been drilled to date in this area. All are of the gravel-pack type. Well No. 48 is located approximately 2400' W. and 40' N. of the S. E. corner of Section 34, T. 20 N., R. 8 E. The well was completed in 1947 at a depth of 232 feet. It was cased with 196 feet of plain concrete casing sections and 36 feet of concrete screen sections. At the time of completion the well produced 885 gpm. with a drawdown of 15.5 feet from a non-pumping water level of 113.5 feet below the surface. Reference elevation is 764 feet MSL.

Well No. 49, drilled in 1947, is located 935 feet south and 40 feet west of the northeast corner of Section 5, T. 19 N., R. 8 E. The well was completed at a depth of 297 feet. The well is cased with 24-inch outer casing and 14-inch inner casing to a depth of 247 feet below which is 50 feet of silicon bronze shutter screen. When completed the well produced 915 gpm. with a drawdown of 25 feet from a non-pumping level of 78 feet below the surface. Reference elevation is 735 feet MSL.

Well No. 50, also drilled in 1947, is located approximately 562 feet north and 50 feet east of the southwest corner of Section 33, T. 20 N., R. 8 E. The well was completed at a depth of 299 feet. The well is cased with 228 feet of concrete casing sections and 71 feet of concrete screen sections. The sections have 17 - inch inside diameters and 22-inch outside diameters set in a 38-inch hole. When completed, the well produced 1070 gpm. with a drawdown of 13 feet from a non-pumping level of 80 feet below the surface. Reference elevation is 733 feet MSL.

#### University of Illinois

The University of Illinois developed its own source of supply in 1901 because of the lack of

adequate fire protection offered by the Company supplying water to Champaign-Urbana, who also furnished water to the University at that time. It was also the hope of the University to secure water at a slightly lower cost. The supply is obtained from drilled wells located as shown on Figure 1. The distribution systems of the University and of Champaign - Urbana are so cross -connected that water is available to the University or the Cities from either source of supply in case of emergency.

The University has drilled eleven wells up to the present time. Five of these wells were drilled prior to 1915. Three additional wells were completed in the early twenties, one in 1929 and the remaining two in 1935. The selection of the site for these wells was based primarily on the proximity of the University power plant at that time. This area has since been found to have been underlain with the only known good water-producing material on University property.

Well No. 9 was the only University well drilled below the "Illinoian" and had an original depth of 289 feet. It was reported that very little water-bearing material was encountered in the lower 40 feet. The well was finished at a depth of 250 feet. The wells had depths as follows: 1 - 149 feet, 2 - 148 feet, 3 - 142 feet, 4 - 143 feet, 5 - 175 feet, 6 - 173 feet, 7 - 172 feet, 8 - 228 feet, 9 - 250 feet, 10 - 160 feet, 11 - 161 feet. Wells 10 and 11 were the most productive at the time of completion. Well No. 10 produced 1680 gpm. with a draw down of 37 feet from a non-pumping level of 106 feet. Well No. 11 produced 1060 gpm. with a drawdown of 16 feet,

#### Champaign-Urbana Industrial Wells

There are approximately 14 industries in or near Champaign - Urbana that have wells for water supplies. A table of industrial well data is shown in Appendix B. The majority of the industries have rather small withdrawals. The Illinois Central Railroad is by far the largest user. Their production has exceeded a million gallons of water a day. The railroad has two well fields, one near the Passenger Station located near the business district of Champaign, the other at the Railroad Shops located just north of Champaign. The first shop wells were drilled in 1911. Eleven wells have been drilled, eight have been abandoned. The most recent well was drilled in 1944 to a depth of 164 feet. The well is of the gravel pack type. When completed the well produced 300 gpm. with a drawdown of 22 feet from a non-pumping level of 104 feet. The first well was drilled at the Passenger Station prior to 1908. A total of 4 wells have been drilled, three of which are still in use. These wells have depth of from 179 to 199 feet. Their productions are from 142 to 250 gpm.

Pumpage

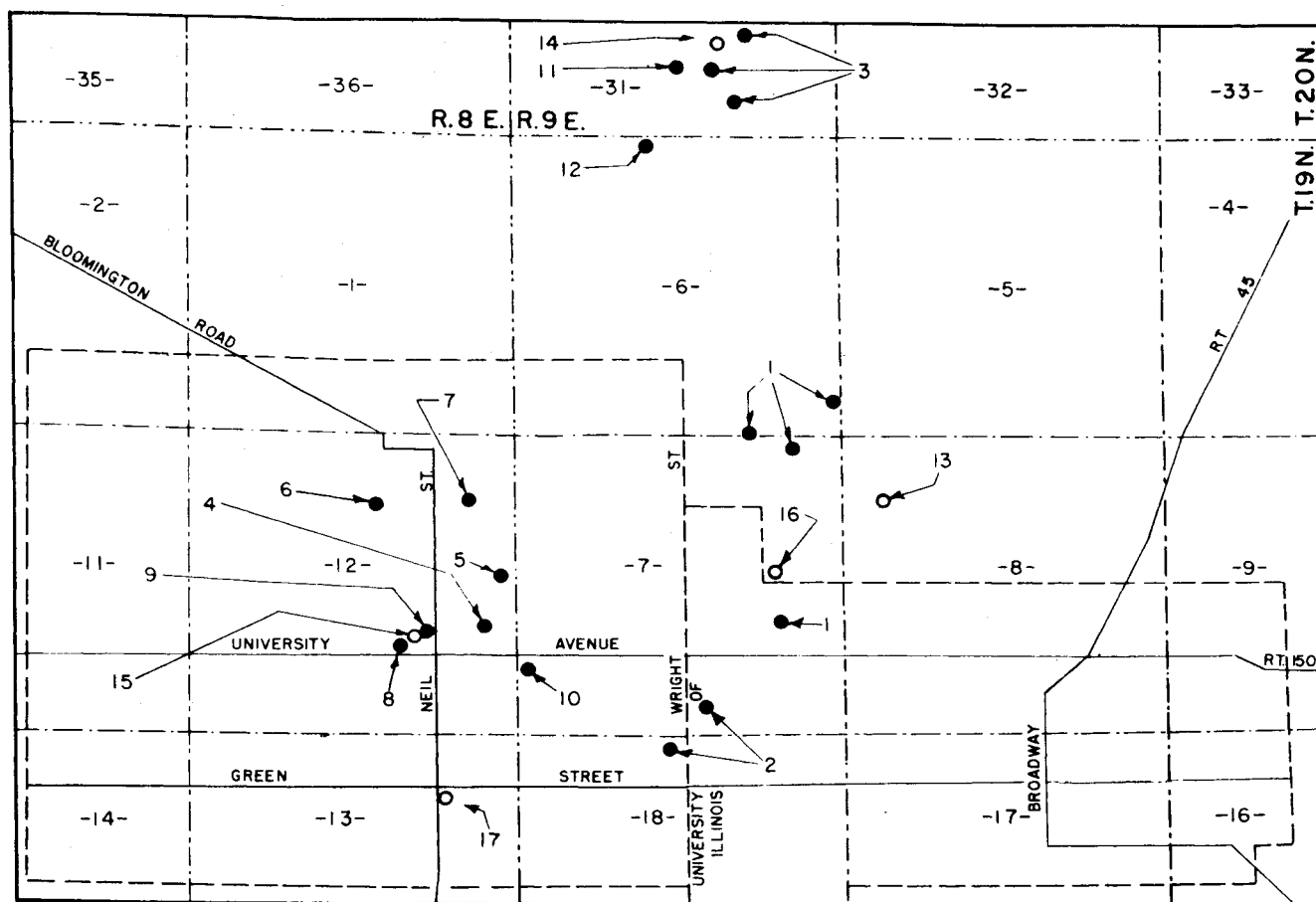
Long-time pumpage records are available for Champaign-Urbana and the University of Illinois. Long-time records for other towns and industries are not available, however, recent pumpage records are available. Figure 2 shows the pumpage for Champaign - Urbana and the University of Illinois for the period 1900-1948. The pumpage data are tabulated in Appendix C. The total withdrawal from the middle deposit in the county in 1947 was 2884 million gallons, of which 2433 million gallons was from the Champaign-Urbana field. This county pumpage includes an estimated 3000 farm wells. The pumpage in million gallons a day is broken down as follows:

Champaign-Urbana municipal	-	4.107
University of Illinois	-	0.962
Champaign-Urbana industry	-	1.66
Farm (private) wells	-	0.274
Total	-	<u>7.917</u>

It is estimated from pumpage records, operation records and from estimates based on population that 67,812 million gallons of water has been pumped from the middle deposit within the county and that 62,134 millions of this has been pumped from the Champaign-Urbana area.

Mineral Quality

Analyses of waters from six wells showing the mineral content of water from the three deposits are given in Appendix D.



**LEGEND**

**WELLS ● RECORDERS ○**

- |                                                  |                                    |                                         |                           |
|--------------------------------------------------|------------------------------------|-----------------------------------------|---------------------------|
| 1 ILL. WATER SERVICE CO<br>WELL FIELD - 39 WELLS | 5 TWIN CITY ICE CO                 | 9 S. S. KRESGE CO                       | 13 SMITH ICE CO.          |
| 2 UNIVERSITY WELL FIELD<br>11 WELLS              | 6 SMITH ICE CO. PLANT              | 10 BEATRICE MEADOW<br>GOLD DAIRIES INC. | 14 I. C. R. R. ROUNDHOUSE |
| 3 I. C. R. R. ROUNDHOUSE                         | 7 ILLINOIS POWER CO<br>STEAM PLANT | 11 CLIFFORD-JACOBS<br>FORGING PLANT     | 15 RIALTO THEATRE         |
| 4 I. C. R. R. CHAMPAIGN<br>STATION - 3 WELLS     | 8 VIRGINIA THEATRE                 | 12 SWIFT AND CO.<br>SOYBEAN PLANT       | 16 ILL. WATER SERVICE CO. |
|                                                  |                                    |                                         | 17 PRODUCERS CREAMERY     |

Figure 1. Well Locations, Champaign-Urbana



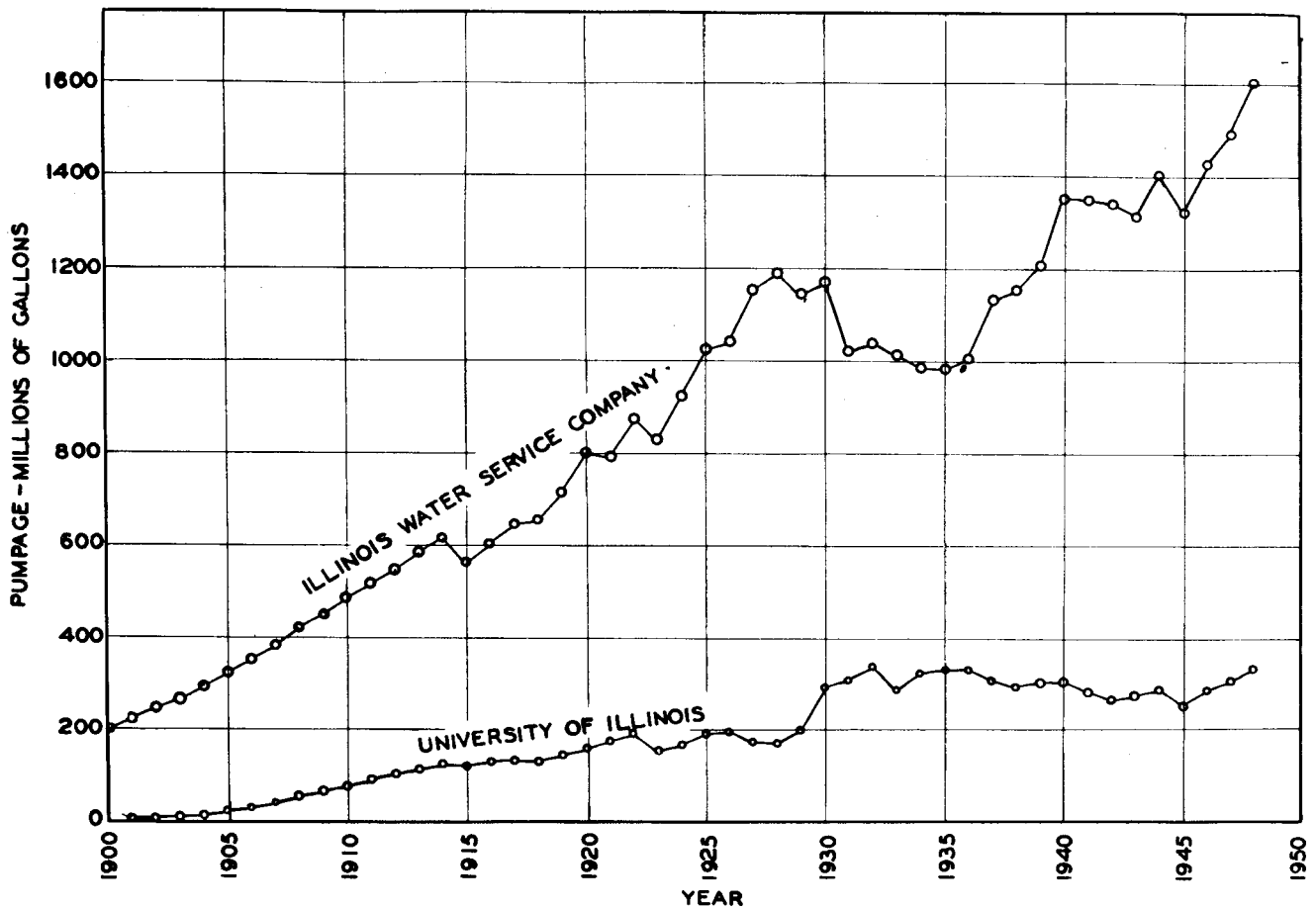


Figure 2. Pumpage for Illinois Water Service Co. and University of Illinois

## LEVELS AND MOVEMENT OF GROUNDWATER

### Groundwater Levels

Much interest has been shown in the past few years in the continued lowering of water levels in the vicinity of Champaign - Urbana. Very little change in water levels has been observed beyond the influence of the Champaign-Urbana withdrawal. Water levels in Champaign-Urbana have continued to decline since pumping began in 1885. It is reported that water levels were at about elevation 670 at the time pumpage began. By 1947, the water levels had receded to elevation 577 at the water company's north field, to elevation 605 at the University field and to elevation

625 at the I. C. Railroad roundhouse field. In all but the water company's northfield the levels are still above the producing aquifer. Here, part of the aquifer had been dewatered in the vicinity of the pumped wells. Figure 3 shows the water levels for the University Well No. 4 from 1906 to 1948 and average water levels in the water company's north field from 1921 to 1947. Figure 4 shows hydrographs of five continuous water level recorders. Their locations are shown in Figure 1. Four of these recorders have been in continuous service since 1942. The recorder in the Rialto Theater well was discontinued about the middle of 1946.

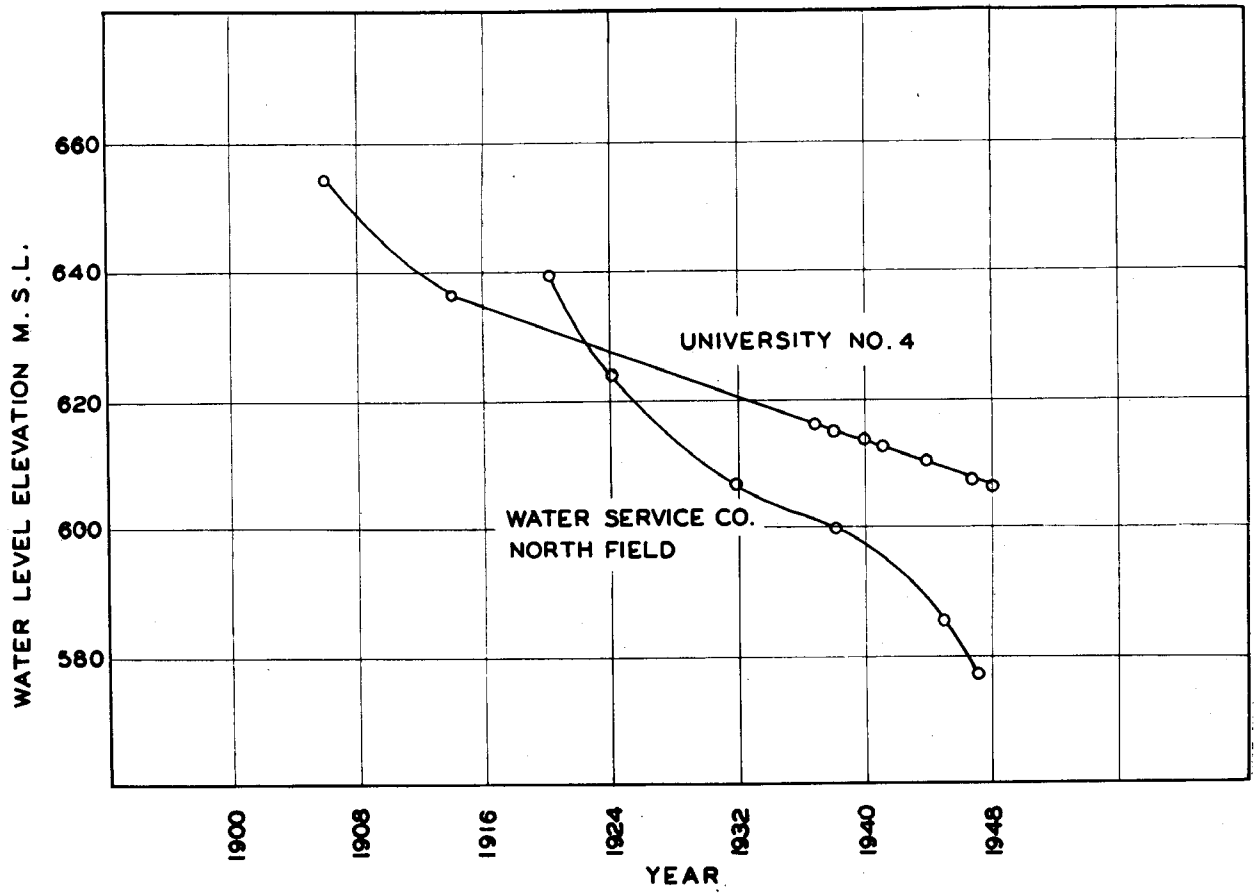


Figure 3. Water Levels, University Well No. 4 and Illinois Water Company's North Field

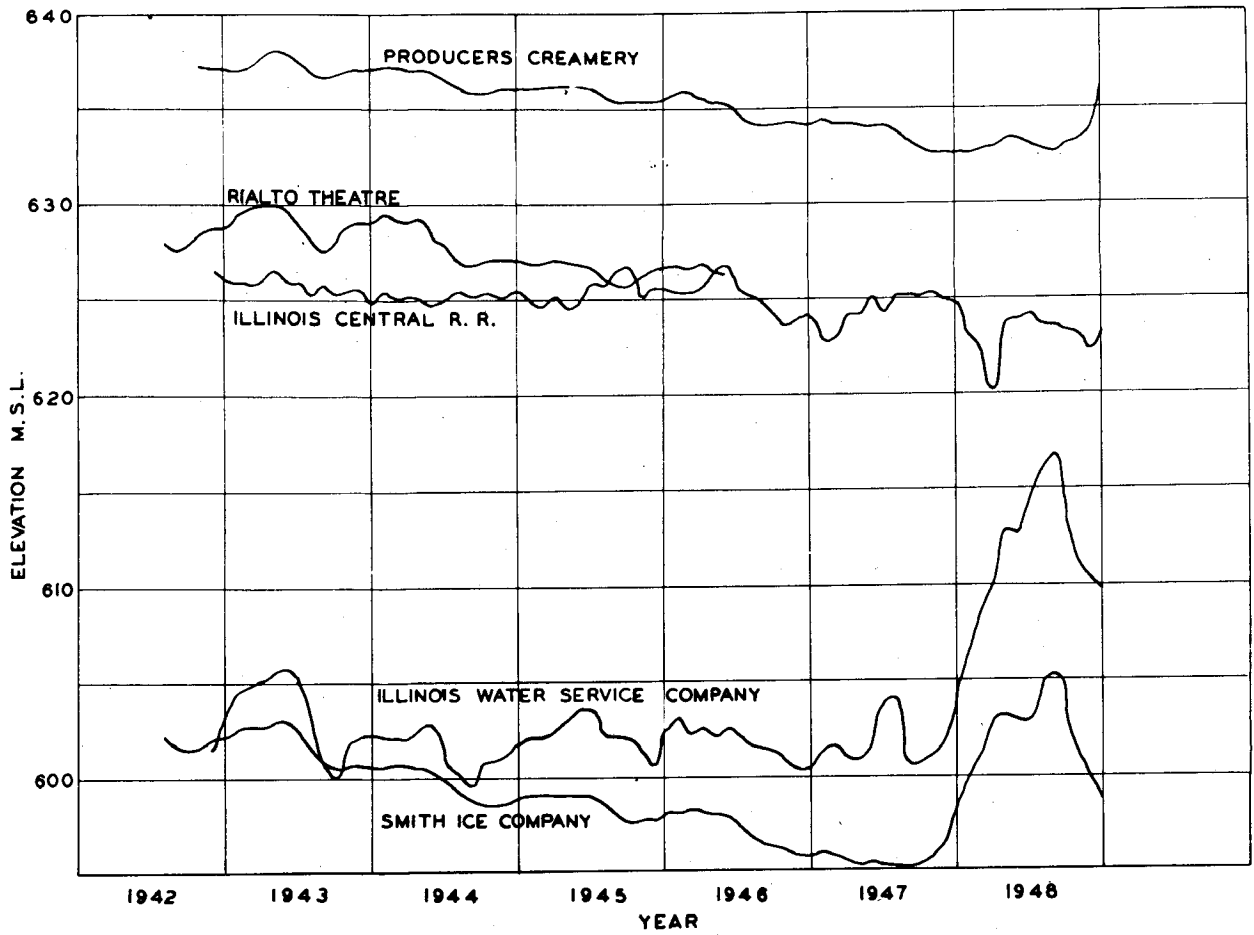


Figure 4. Water Level Recorder Hydrographs

## Movement of Groundwater, Hydraulic Gradient

Maps showing the water pressure contours of the upper and middle deposit in Champaign County have been prepared in Figures 5 and 6. The contours were based on measurements of the altitudes of water levels in the wells shown on the maps.

The elevations of the measuring points in Champaign-Urbana were obtained by instrument levels based on mean sea level 1929 adjustment. The elevations of the measuring points of the outlying wells were taken from topographic maps. In most instances the depths to water in the observed wells were furnished by the owners. In a few instances where the well was recently completed, water level measurements have also been made by personnel of this Division.

Using these elevations and the water levels obtained for the various wells interpolated from depth to water level measurements, maps showing water pressure contours of the deposits were drawn.

All of the water surface elevations of the middle deposit shown are above the top of the deposit and are considered artesian. Most of the water surface elevations of the upper deposit are above the top of the water bearing portion of the deposit.

The movement of groundwater depends on two conditions. First, the saturated material must be permeable in order that water can percolate through it and second, there must be a force (hydraulic gradient) to cause the water to move. The flow of the groundwater is directly proportional to the permeability of the water-bearing material, the hydraulic gradient, and the cross-sectional area of the material through which the water moves.

The direction of movement of the groundwater is at right angles to the contour lines. From the water pressure contour maps, Figures 5 and 6, it can be seen that the groundwater movement of the upper deposit is toward the streams, and the groundwater movement of the middle deposit for the most part is toward the Champaign-Urbana well fields.

The hydraulic gradient is determined from the contour interval divided by the distance between contour lines.

Only one large cone of depression is noted on the middle deposit contour map, this cone of depression corresponds to the heavily pumped area of Champaign-Urbana where the apex has reached an elevation 577 or below the top of the producing deposit. A small cone is noted at Rantoul where less than 20 feet of recession in water levels has been reported since pumping began in 1895. No cones of depression are noted on the upper deposit contour map, but there are gradients toward the major streams and natural drainage.

## Permeability, Transmissibility

The rate at which water is transmitted depends on the thickness and permeability of the formation and the hydraulic gradient.

The coefficient of permeability used by the State Water Survey is called the field coefficient of permeability and is defined by the U. S. Geological Survey as the number of gallons of water a day that percolated under prevailing conditions through each mile of water-bearing bed under investigation (measured at right angles to the direction of flow) for each foot of thickness of the bed and for each foot per mile of hydraulic gradient. For convenience, the term "coefficient of transmissibility", which is the product of the field coefficient of permeability and the thickness of the saturated aquifer, is used in the report.

Several pumping tests have been made in Champaign-Urbana to determine the rates of production of wells, however, in only a few instances has it been possible to observe the interference in a nearby well. Data collected during these tests were analyzed by one or more available methods. The most valuable procedure available at the present time for use in the analysis of pumping-test data is the non-equilibrium method developed by Theis (2) and further developed by Wenzel. (3)

Values of the coefficient of transmissibility of the deposits ranged from 10,000 to 400,000 and averaged about 35,000-40,000. Large values must have been present for the deposits developed by the Water Company and University. Their wells were located in the most favorable known deposits, determined by considerable test drilling. Several of the industrial wells that were drilled at random penetrated material of below-average transmissibility. In two or three instances practically dry holes have been drilled. The average value of 35,000-40,000 appears to be at about the right magnitude as the amount of water flowing through the 630 contour is calculated to be approximately the same as is being withdrawn.

## Storage

The amount of water that is released from storage when the head of an artesian aquifer declines has been called the coefficient of storage. Theis defined it as the amount of water in cubic feet that will be released from storage in each vertical column of the aquifer having a base one foot square when the artesian head is lowered one foot. Using the Theis formula, values were obtained for the coefficient of storage for the pumping tests where interference between wells could be measured.

All of these tests were for very short periods of time. The longest test was for 72 hours. It has been found that the apparent values of the

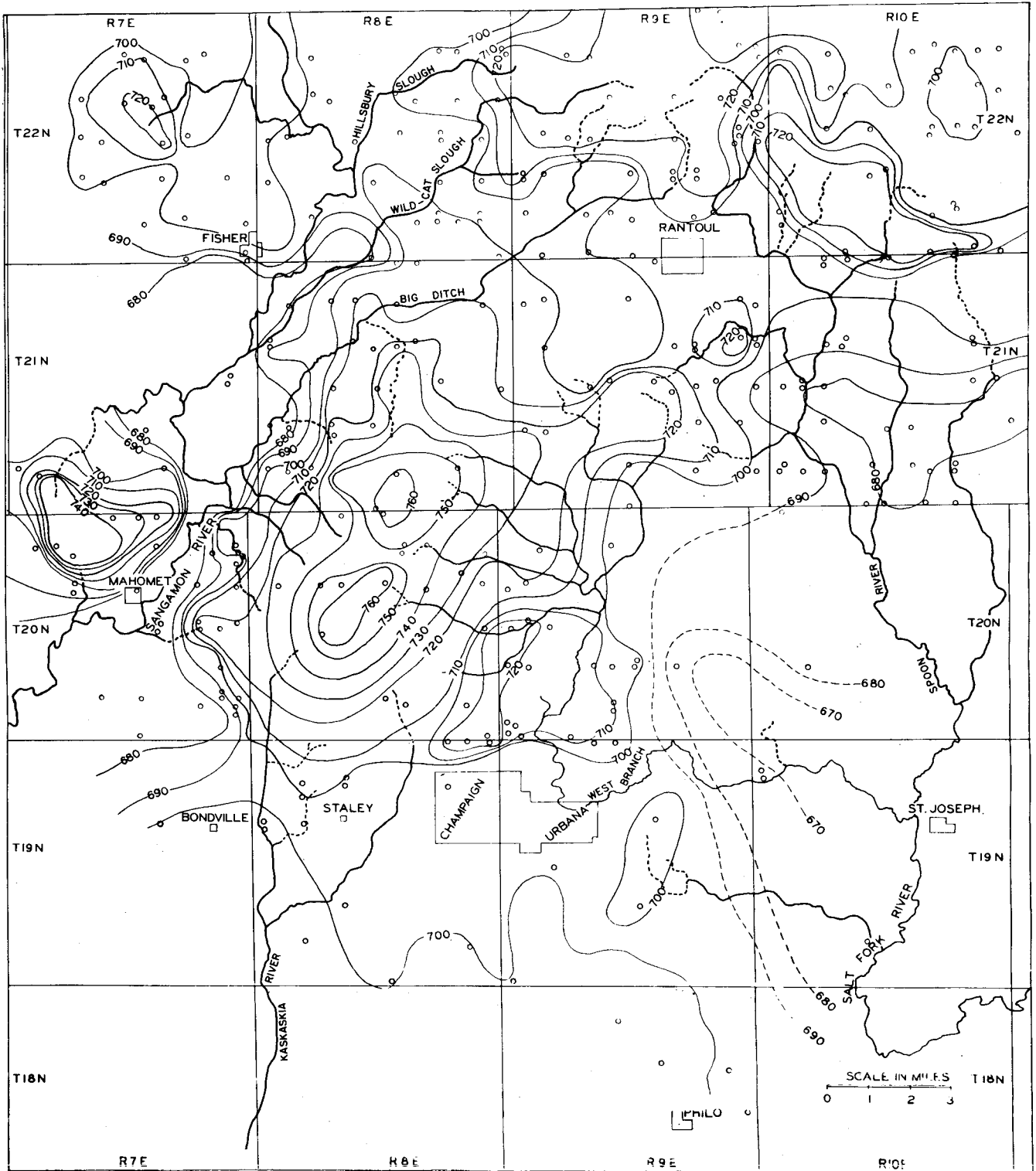


Figure 5. Water Pressure Contours for Upper Deposits

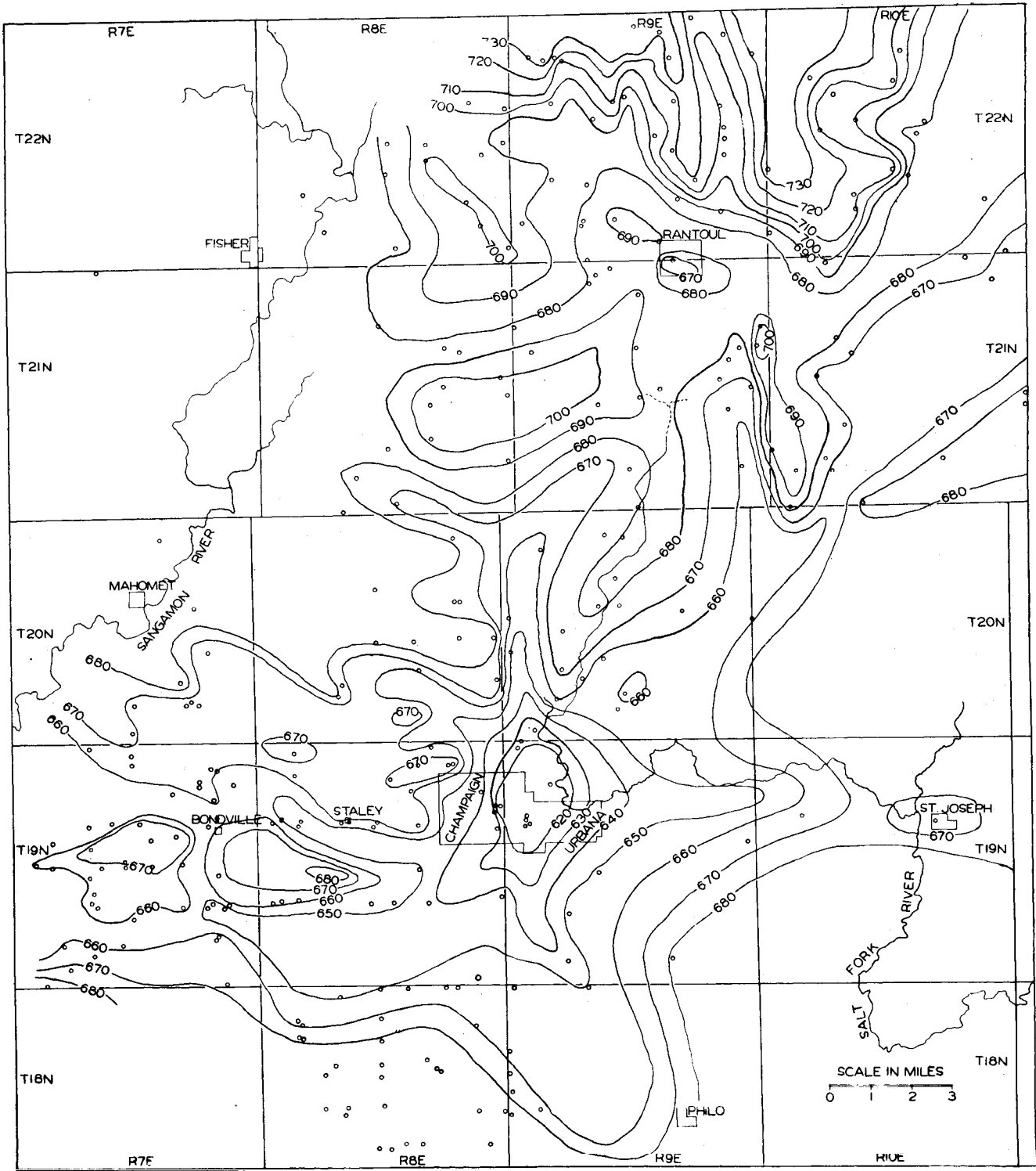


Figure 6. Water Pressure Contours for Middle Deposits

coefficient of storage increases with time. For short periods the coefficient of storage was determined to be 0.00024. For a period of 46 years, the longest that records are available, the coefficient of storage was determined to be 0.0065. This coefficient was calculated from water - level recession data obtained from the Smith Ice Co. well.

#### Use of Coefficients

If the extent of the water-producing formations and the coefficients of transmissibility and storage are known, estimates can be made of future decline of water levels and the influence between wells. The curves in Figure 7 show theoretical drawdowns which have been computed according to the Theis method, due to pumping a well at a constant rate of 500,000 gallons a day, the aquifer having a coefficient of transmissibility of 40,000 gallons a day and a coefficient of storage 0.0065. Theoretical drawdowns for other constant rates of pumpage are easily

determined since the drawdown is proportional to the rate of withdrawal.

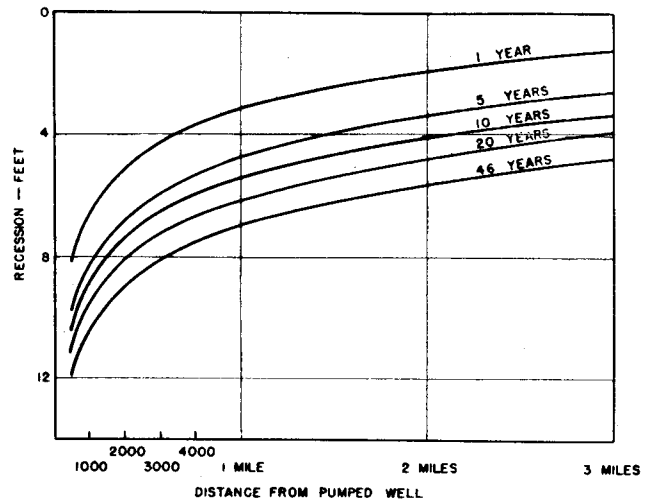


Figure 7. Theoretical Drawdown - Distance Relationship

#### DISCUSSION

The amount of water that can be withdrawn from the water-bearing deposits depends upon the amount of precipitation that percolates into them in their recharge areas, the capacity of the deposits to transmit the water to the pumped areas, and the amount of water that is withdrawn from storage in the deposits when the head declines.

Although the middle deposit is not known to outcrop near the area of this investigation there are indications that the deposits have a contact with overlying permeable material that is subject to areal recharge.

The contours on Figure 6 indicate lines of equal hydrostatic pressure. The map shows the shape of the piezometric surface, the direction of flow of groundwater, and the hydraulic gradients under which the groundwater moves. Several "high" are noted on the map. The area west of the cone of depression at Champaign-Urbana, above elevation 660, the area northwest, above elevation 680; the area north and somewhat east, above elevation 680; appear to be areas of possible recharge. The latter area coincides with a part of the flood plain of the West Branch of the Salt Fork of the Vermilion River indicating possible recharge, from the West Branch.

The mean elevation of the Sangamon River at Mahomet is approximately 665 feet. A groundwater divide is indicated between the Champaign-Urbana cone of depression and the Sangamon River. It is possible that there is some natural

discharge into the Sangamon River from the deposits west of the divide.

It has been estimated that the pressure head of the middle aquifer in the Champaign-Urbana area was originally at approximately elevation 670 feet. Using the coefficient of storage 0.0065, the amount of water removed from storage within the 670 foot contour since pumping began would be about 3, 187, 000, 000 gallons. The total amount of water that has been withdrawn within the area is approximately 62, 134, 000, 000 gallons, about 20 times the amount that could have come from storage.

The rate at which water is transmitted depends on the transmissibility of the formation and the hydraulic gradient. The contour having an altitude of 640 feet above sea level as shown on the water pressure contour map has a length of 18.4 miles, the average hydraulic gradient across this contour is 13.5 feet to the mile, the average coefficient of transmissibility is 30,000 gallons a day. On the basis of these estimates the inflow across the 640 foot contour was computed to be 7,500,000 gallons a day.

The contour having an altitude of 630 feet has a length of 11 miles, the average hydraulic gradient across this contour is 23 feet to the mile, the average coefficient of transmissibility is 30,000 gallons a day. The inflow across the 630 foot contour would then be 7,600,000 gallons a day.

The actual withdrawal within the 630 foot contour during 1947 averaged 6,700,000 gallons

or slightly less than the calculated inflow. There is the possibility that not all of the withdrawal has been recorded or that the coefficient of transmissibility is actually somewhat lower than the value used.

These data indicate that the middle or producing deposit at Champaign-Urbana has been developed to its maximum transmission rate.

No attempt has been made to evaluate the hydrologic characteristics of the lower deposit penetrated by the two most recent wells drilled by the Water Company about 5 miles west of their Champaign-Urbana field. (Wells Nos. 49 and 50). At the time the wells were completed the pressure heads appeared to be about 10 feet lower than nearby wells finished in the middle deposit. Pumping tests of these two wells were made shortly after completion. Calculations based on data from the test of Well No. 49 showed a coefficient of transmissibility of 212,000 and a coefficient of storage of 0.0094.

#### FOOTNOTES

1. Horberg, L., Sample study No. 13965, State Geological Survey Division.
2. Theis, C. V., The relation between the lowering of the piezometric surface and the rate and duration of discharge of a well using groundwater storage: Am. Geophys. Union Trans., pp. 519-524, 1935.
3. Wenzel, L. K., Methods for determining permeability of water-bearing materials: U. S. G. S. Water Supply Paper 887, Washington, 1942.

APPENDIX A  
SAMPLE STUDY LOG

STRATA	THICKNESS	DEPTH
Studied by L. Horberg, State Geological Survey 12/45		
Pleistocene System		
Wisconsin drift		
Till silty, sandy, calcareous, oxidized, yellow	10 ft.	10 ft.
Till, silty, sandy, calcareous, gray	30	40
Same, trace oxidized	30	70
Till calcareous, dark brownish-gray	5	75
Illinoian drift		
Sand, medium to coarse and silt, leached, greenish-gray	5	80
Silt, sandy, calcareous, greenish-gray, possibly till	5	85
Sand, silt & gravel, calcareous, partly oxidized, yellowish gray	10	95
Sand, medium to coarse, clean, partly oxidized, yellowish-gray	5	100
Gravel, up to 1/4", slightly sandy, gray	15	115
Silt, sandy, calcareous, gray possibly till	5	120
Till, sandy, calcareous, yellowish-gray	10	130
Gravel up to 1/4", sandy, slightly cherty, calcareous, gray	5	135
Sand, medium, silty, gravelly, yellowish-gray	5	140
Silt, sand & gravel, calcareous, gray, possibly till	10	150
Granular gravel, silty, sandy, calcareous	15	165
Gravel, up to 1/4", silty, sandy, calcareous	5	170
Same, very silty, possibly till	5	175
Till, calcareous, gray	35	215
Same, sandy, yellow	5	215
Kansan (?) drift		
Sand, fine to medium, silty, slightly calcareous, light gray	5	220
Same, clean	5	225
Gravel, up to 1/4", Some coarse sand, calcareous, oxidized grains	10	235
Same, sandy	5	240
Same, up to 3/4"	5	245
Same, silty	5	250
Same, granular silty	5	255
Same, up to 1/2", silty	10	265
Same, very silty, & sandy	5	270
Same, clean, oxidized, yellow	5	275
Same, medium to coarse, gravelly, slightly silty	5	280
Same, clean	5	285
Gravel, up to 1/2", some sand, partly oxidized, clean	5	290
Ended in same formation at 300', NS last 10'		
County of Champaign	SS No. 13965	14-20N-7E



APPENDIX B

CHAMPAIGN-URBANA INDUSTRIAL WELLS

<u>Name</u>	<u>Depth</u> ft.	<u>Diam</u> in.	<u>Gpm.</u> <u>Capacity</u>	<u>Name</u>	<u>Depth</u> ft.	<u>Diam.</u> in.	<u>Gpm.</u> <u>Capacity</u>
I. C. Roundhouse				Swift Bean Mill	170	8	100
#1	189	8	100	Twin City Ice Co.			
#2	166	8	100	#2	168	8	80
#3	169	8	100	#3	168	8	100
#4	168	8	100	#1	166	8	
#5	165	8	100	Smith Ice - Champ.			
#6	163	8	100	#1	170	6	75
#7	169	8	100	#2	170	6	50
#8	175	8	100	#3	170	10	75
L-B #1				Smith Ice - Urbana			
#2		16	400	#1	179	8	
#3		16	450	#2	179	8	
I. C. Station				Kresge	180	8	200
#1	199	10	200	Rialto	189	8	150
#2	178	10	100	Virginia	178	12	300
#3	160	10		Sears, Roebuck - T.H.	195		
#4	160	10	100	Producers Creamery	170±	8	30
Clifford- Jacobs				I-I Power Co.			
#1	176	8	100	Power House	173	12	240
#2	176	8	100	Gas Plant	172	8	75

APPENDIX C

PUMPAGE

<u>Year</u>	<u>Illinois Water</u> <u>Service Co.</u> million gallons	<u>University</u> <u>of Illinois</u> million gallons	<u>Year</u>	<u>Illinois Water</u> <u>Service Co.</u> million gallons	<u>University</u> <u>of Illinois</u> million gallons	<u>Year</u>	<u>Illinois Water</u> <u>Service Co.</u> million gallons	<u>University</u> <u>of Illinois</u> million gallons
1901	223	4	1917	647	134	1933	1016	287
1902	246	12	1918	657	134	1934	989	322
1903	269	15	1919	731	146	1935	980	331
1904	292	18	1920	800	160	1936	1006	338
1905	324	27	1921	790	174	1937	1133	311
1906	356	34	1922	869	189	1938	1156	292
1907	388	44	1923	830	154	1939	1203	302
1908	420	56	1924	923	162	1940	1350	302
1909	452	68	1925	1026	184	1941	1349	280
1910	484	78	1926	1042	196	1942	1335	262
1911	517	90	1927	1156	176	1943	1313	274
1912	549	102	1928	1182	170	1944	1401	288
1913	581	116	1929	1141	200	1945	1321	253
1914	613	128	1930	1168	292	1946	1432	288
1915	560	126	1931	1020	309	1947	1499	301
1916	605	128	1932	1040	339	1948	1612	338

## APPENDIX D

## MINERAL ANALYSES

Sample of water collected December 17, 1948 from Well No. 1 owned by the Village of Mahomet, Illinois' Location: 2350' S. & 1100' E. of NW. corner of Section 15, T. 20 N., R. 7 E. Depth of well: 94'. Rate of pumping: 170 gpm. after 25 min.

## LABORATORY NO. 116, 781

		<u>ppm.</u>	<u>epm.</u>			<u>ppm.</u>	<u>epm.</u>
Iron (total)	Fe	2.6		Silica	SiO <sub>2</sub>	19.9	
Manganese	Mn	0.1		Fluoride	F	0.1	
Calcium	Ca	116.4	5.82	Chloride	Cl	21.0	0.59
Magnesium	Mg	51.2	4.21	Nitrate	NO <sub>3</sub>	0.6	0.01
Ammonium	NH <sub>4</sub>	0.1	0.01	Sulfate	SO <sub>4</sub>	100.4	2.09
Sodium	Na	9.4	0.41	Alkalinity	(as CaCO <sub>3</sub> )	388.	7.76
Turbidity		18		Hardness	(as CaCO <sub>3</sub> )	502.	10.03
Color		0		Residue		545.	
Odor		0		Free CO <sub>2</sub>	(calc.)	97.	
Temperature		53.5° F.		pH	= 7.1		

Sample of water collected at 11:45 P. M., January 19, 1949 from Well No. 50 owned by the Illinois Water Service Co., Champaign, Illinois. Location of well: approx. 562' N. & 50' E. of SW. corner of Section 33, T. 20 N., R. 8 E. Depth: 302'. Rate of pumping: 1200 gpm. after 2 days pumping.

## LABORATORY NO. 117, 042

		<u>ppm.</u>	<u>epm.</u>			<u>ppm.</u>	<u>epm.</u>
Iron (total)	Fe	0.8		Silica	SiO <sub>2</sub>	19.2	
Manganese	Mn	Tr.		Fluoride	F	0.1	
Calcium	Ca	50.3	2.52	Chloride	Cl	2.0	0.06
Magnesium	Mg	26.9	2.21	Nitrate	NO <sub>3</sub>	0.2	Tr.
Ammonium	NH <sub>4</sub>	0.8	0.04	Sulfate	SO <sub>4</sub>	0.0	0.00
Sodium	Na	26.0	1.13	Alkalinity	(as CaCO <sub>3</sub> )	292.	5.84
Turbidity		Tr.		Hardness	(as CaCO <sub>3</sub> )	237.	4.73
Color		0		Residue		288.	
Odor		0					

Sample of water received March 15, 1949 from Well No. 48 owned by the Illinois Water Service Co., Champaign, Illinois. Location of well: approx. 2400' W. & 40' N. of SE. corner of Section 34, T. 20 N., R. 8 E. Depth: 233'.

## LABORATORY NO. 117, 517

		<u>ppm.</u>	<u>ppm.</u>	<u>epm.</u>			<u>ppm.</u>	<u>epm.</u>
Iron (total)	Fe	3.2			Silica	SiO <sub>2</sub>	24.4	
Manganese	Mn	0.0			Fluoride	F	0.5	
Calcium	Ca	61.2	3.06		Chloride	Cl	3.0	0.09
Ammonium	NH <sub>4</sub>	3.2	0.18		Sulfate	SO <sub>4</sub>	1.0	0.02
Sodium	Na	63.0	2.74		Alkalinity	(as CaCO <sub>3</sub> )	388.	7.76
Turbidity		22			Hardness	(as CaCO <sub>3</sub> )	248.	4.96
Color		0			Residue		403.	
Odor		0						

Sample of water collected December 18, 1948 from Well No. 6 owned by the Village of Rantoul, Illinois.  
Location of well: 165' N. & 1070' W. of NE. corner, Section 34, T. 22 N., R. 9 E. Depth: 293' Rate of  
pumping: 450 gpm. after 1 hr.

## LABORATORY NO. 116, 796

		<u>ppm.</u>	<u>epm.</u>			<u>ppm.</u>	<u>epm.</u>
Iron (total)	Fe	1.4		Silica	SiO <sub>2</sub>	22.8	
Manganese	Mn	0.1		Fluoride	F	0.1	
Calcium	Ca	80.4	4.02	Chloride	Cl	2.0	0.06
Magnesium	Mg	31.4	2.59	Nitrate	NO <sub>3</sub>	0.2	Tr.
Ammonium	NH <sub>4</sub>	2.9	0.16	Sulfate	SO <sub>4</sub>	3.5	0.07
Sodium	Na	27.6	1.20	Alkalinity	(as CaCO <sub>3</sub> )	392.	7.84
Turbidity		8		Hardness	(as CaCO <sub>3</sub> )	331.	6.61
Color		0		Residue		395.	
Odor		0		Free CO <sub>2</sub>	(calc.)	49.	
Temperature		54.7° F		pH	= 7.3		

Sample of water collected December 18, 1948 from Well No. 7 owned by the Village of Rantoul, Illinois.  
Location of well: 185' N. & 1140' W. of NE. corner, Section 34, T. 22 N., R. 9 E. Depth: 137'. Rate of  
pumping: 900 gpm. after 2 hr.

## LABORATORY NO. 116, 797

		<u>ppm.</u>	<u>epm.</u>			<u>ppm.</u>	<u>epm.</u>
Iron (total)	Fe	2.8		Silica	SiO <sub>2</sub>	16.8	
Manganese	Mn	0.1		Fluoride	F	0.3	
Calcium	Ca	59.8	2.99	Chloride	Cl	2.0	0.06
Magnesium	Mg	36.6	3.01	Nitrate	NO <sub>3</sub>	0.1	Tr.
Ammonium	NH <sub>4</sub>	2.8	0.16	Sulfate	SO <sub>4</sub>	3.3	0.07
Sodium	Na	14.0	0.61	Alkalinity	(as CaCO <sub>3</sub> )	332.	6.64
Turbidity		9		Hardness	(as CaCO <sub>3</sub> )	300.	6.00
Color		0		Residue		322.	
Odor		0		Free CO <sub>2</sub>	(calc.)	43.	
Temperature		54° F.		pH	= 7.3		

Sample of water collected December 9, 1948 from Well No. 1 owned by the Village of Homer, Illinois.  
Location of well: 2300' N. & 1500' W. of SE. corner, Section 8, T. 18 N., R. 14 W. Depth: 72'. Rate of  
pumping: 50 gpm. after 2 hrs.

## LABORATORY NO. 116, 703

		<u>ppm.</u>	<u>epm.</u>			<u>ppm.</u>	<u>epm.</u>
Iron (total)	Fe	1.0		Silica	SiO <sub>2</sub>	24.6	
Manganese	Mn	Tr.		Fluoride	F	0.5	
Calcium	Ca	64.3.	3.22	Chloride	Cl	17.0	0.48
Magnesium	Mg	24.7	2.03	Nitrate	NO <sub>3</sub>	9.1	0.15
Ammonium	NH <sub>4</sub>	Tr.	Tr.	Sulfate	SO <sub>4</sub>	19.5	0.41
Sodium	Na	65.1	2.83	Alkalinity	(as CaCO <sub>3</sub> )	352.	7.04
Turbidity		97.		Hardness	(as CaCO <sub>3</sub> )	263.	5.25
Color		0		Residue		437.	
Odor		0		Free CO <sub>2</sub>	(calc.)	57.	
Temperature		54° F.		pH	= 7.2		

## APPENDIX. E, PRIVATE WELLS

Location	Date Drill- ed	Depth Feet	Diam. Ins.	SWL Ft. to Water	Ref. Elev. MSL.	W. L. in city		Daily Pump age, Gals	Remarks	Bottom Hole Elev.
						MSL.	GPM.			
<u>17N-7E</u>										
Sec. 1, SW 1/4	1891	112	2	8					3hrs. per day	
Sec. 2, SW 1/4	1891	105	2							
Sec. 2, NE 1/4	1925	120	2	30						
Sec. 3, SE 1/4	1890	100	2	6						
Sec. 4, NE 1/4		65	2						2hrs. per day	
Sec. 4, SE 1/4	1917	120	2	30						
Sec. 4, SW 1/4	1941	75		15						
Sec. 5, SW 1/4		35	2	10						
Sec. 6, SE 1/4	1928	60	2	18			3		1hr. per day	
Sec. 7, SW 1/4	1928	100	3	18					1hr. per day	
Sec. 9, SW 1/4	1925	60	6	15						
Sec. 9, NE 1/4	1914	113	3	14						
Sec. 10, SE 1/4	1901	112	2	12			12		1hr. per day	
Sec. 10, SE 1/4	1908	110	2	12						
Sec. 11, NE 1/4	1916	110	2						10hrs. per day	
Sec. 11, SW 1/4		125	2	30					3 1/2hrs. per day	
Sec. 12, NE 1/4	1892	130	2						3hrs. per day	
Sec. 12, SE 1/4	1918	118	2	18					4hrs. per day	
Sec. 13, SW 1/4	1902	110	3	15			2 1/2	60-75		
Sec. 15, NW 1/4	1920	120	3	15					Not using	
Sec. 16, NW 1/4	1928	115	3							
Sec. 16, SE 1/4	1908	103	3	25				300		
Sec. 17, NE 1/4	1923	126	3	30(?)				500		
Sec. 17, SE 1/4	1920	120	3	30(?)						
Sec. 18, NE 1/4		165	3					300	Water fades out after 3hrs. pumping	
Sec. 19, NW 1/4	1930	180	3	60				420		
Sec. 21, NW 1/4	1923	120	2	50						
Sec. 22, NW 1/4	1910	120	3						1/2hr. per day	
Sec. 22, SE 1/4	1905	115	2	20					Pumps about 1050GPD in summer	
Sec. 23, NW 1/4	1928	180	3	50				630		
Sec. 23, NE 1/4	1925	115	2							
Sec. 24, NE 1/4	1919	40	2	8			3			
Sec. 24, SE 1/4	1928	104	2	55			5		Used 1hr. per day	
Sec. 25, NW 1/4	1939	90	3	30	692	662				602
Sec. 25, NW 1/4	1928	112	3	20					5hrs. per day	
Sec. 25, NW 1/4	1918	105	2	20					1hr. per day	
Sec. 25, SE 1/4	1900	95	3						Used for school house	
Sec. 26, NW 1/4	1910	98	3	25					Used 1 1/2hrs. per day	
Sec. 28, NE 1/4	1909	120	3						Used 2hrs. per day	
Sec. 29, SE 1/4	1918	87	3	20				630		
Sec. 30, SE 1/4	1902	140	3	20			10			
Sec. 30, NW 1/4	1940	45	3							
Sec. 32, NW 1/4	1918	109 1/2	3	16			12			
Sec. 33, NW 1/4	1910	85	3	9				500		
Sec. 33, NE 1/4	1905	125	3	16			4	GPHr		
Sec. 34, NW 1/4	1914	125	2	17					3/4hr. per day	
Sec. 34, SE 1/4	1916	505	4				3		1hr. per day	
Sec. 35, SW 1/4	1910	192	2							
Sec. 35, NW 1/4	1912	110	3							
Sec. 36, NW 1/4	1905	65	3	12					1hr. per day	
Sec. 36, SW 1/4	1941	91	3	16						
<u>17N-8E</u>										
Sec. 2, NW 1/4	1917	130	2	25						

<u>Location</u>	<u>Date Drill- ed</u>	<u>Depth Feet</u>	<u>Diam. Ins.</u>	<u>SWL Ft. to Water</u>	<u>Ref. Elev. MSL.</u>	<u>W.L in MSL</u>	<u>Capa- city G P M</u>	<u>Daily Pump age, Gals.</u>	<u>Remarks</u>	<u>Bottom Hole Elev.</u>
<u>17N-8E(Contd)</u>										
Sec. 4, NE 1/4	1924	117	3	50	710	660				593
Sec. 4, NW 1/4	1940	118	2	20-25	718	696(?)				600
Sec. 5, SW 1/4	1908	110	2	25	690	665				580
Sec. 6, NW 1/4	1939	123	2	16-20						
Sec. 6, NW 1/4	1940	117	2	16-20						
Sec. 7, SE 1/4	1908	115	2		690					575
Sec. 12, SW 1/4	1940	148	2							
Sec. 12, SW 1/4	1940	148	2	50			2-4			
Sec. 12, NE 1/4	1940	110	2	40			4			
Sec. 20, SE 1/4	1922	165	2	150	695	545				530
Sec. 20, SW 1/4	1941	92	3	20						
Sec. 22, SE 1/4	1940	90	3							
Sec. 28, NE 1/4	1923	102	2	100	700	600				598
Sec. 34, NW 1/4	1929	102	2	25	700	675		168	Used 1hr. per day	598
<u>17N-9E</u>										
Sec. 9, NE 1/4	1940	53	4	13						
Sec. 27, SW 1/4	1940	67	3	8						
Sec. 28, NW 1/4	1940	56	3	14						
Sec. 29, NE 1/4	1940	55	3							
<u>17N-14W</u>										
Sec. 5, SW 1/4	1939	100	6	11						
Sec. 19, NW 1/4	1939									
<u>18N-7E</u>										
Sec. 4, NW 1/4	1941	116	2 1/2	22	689	667				573
Sec. 5, SE 1/4	1900	190	2		695					605
Sec. 6, SW 1/4		100			710					610
Sec. 8, NW 1/4		150	2		688					538
Sec. 8, NW 1/4		125	2		693					568
Sec. 13, SW 1/4	1943	300			690					390
Sec. 13, SW 1/4	1944				690			500		
Sec. 13, SE 1/4		125	2	30	688	658		200		563
Sec. 14, NE 1/4	1940	111	3		694			500		583
Sec. 14, NE 1/4	1941	111	3		692					581
Sec. 16, NE 1/4		103			692			100		589
Sec. 17, NE 1/4	1922	103	3		695			200		592
Sec. 18, SE 1/4	1890	150	2	15	690	675		500		540
Sec. 19, NW 1/4		150		10	701	691				551
Sec. 20, NE 1/4		96	2		698			100		602
Sec. 20, NW 1/4		80	2		685			150		605
Sec. 21, NW 1/4	1938	232	2	80	697			100		465
Sec. 22, NE 1/4		165	2		691			300		526
Sec. 22, NW 1/4		140	2	16	689			100		549
Sec. 23, NE 1/4	1941	95	2		687					592
Sec. 23, NE 1/4		65	2		687					622
Sec. 26, SE 1/4	1925	115	2	20						
Sec. 27, SE 1/4		115	2 1/2						Used 2hrs. per day	
Sec. 28,	1940	80	3	15						
Sec. 31, SE 1/4	1898	100	2	20					Used 2hrs. per day	
Sec. 31, SW 1/4	1902	85	2	18					Used 2hrs. per day	
Sec. 33, SE 1/4		115	2							
Sec. 34, SE 1/4		115	2	30					Used 4hrs. per day	
Sec. 34, NW 1/4	1900	65	2	40					Used 6hrs. per day	
Sec. 34, SW 1/4	1900	90	2				5			

<u>Location</u>	<u>Date Drill- No.ed</u>	<u>Depth Feet</u>	<u>Diam. Ins.</u>	<u>SWL Ft. to Water</u>	<u>Ref. Elev. MSL.</u>	<u>W. L. in MSL.</u>	<u>Capa- city G P M.</u>	<u>Daily Pump- age, Gals.</u>	<u>Remarks</u>	<u>Bottom Hole Elev.</u>
<u>18N-7E(Contd.)</u>										
Sec. 34,NW 1/4	1941	87	3		?					
Sec. 35,SE 1/4	1900	110	2	15			5		Used 2hrs. per day	
Sec. 35,SW 1/4	1926	160	2				5		Used 2hrs. per day	
Sec. 36,SW 1/4		87	2				3			
<u>18N-8E</u>										
Sec. 1,NE 1/4	1915	100	2 1/2		730		5	75-100		630
Sec. 1,NE 1/4	1923	100	2		735		4	168	Used 1/2hr. per day	635
Sec. 1,SW 1/4	1902(?)	150(?)	2		735			20	Water very bad	585
Sec. 1,SW 1/4	1892	137	2		736			140		599
Sec. 2,NE 1/4	1905	154	2	30	743	713		84	Used 1/2hr. per day	589
Sec. 2,NE 1/4 1	1900(?)	150	2	65(?)	743	678		630		593
Sec. 2,NE 1/4 2	1908	154	2	30	750	720	2	210		596
Sec. 2,NW 1/4	1910	156	2		749			84		593
Sec. 2,NW 1/4	1917	150	2		749			60		599
Sec. 2,SE 1/4	1916(?)	200	3		742			420		542
Sec. 2,SW 1/4		165	2		746			350		581
Sec. 2,NW 1/4		156	2	49	740	691				584
Sec. 2,SW 1/4		165	2		745					580
Sec. 3,NE 1/4	1914	162	2	40	751	711				599
Sec. 3,NE 1/4 3	1940	173	3		755			500		582
Sec. 3,NW 1/4	1933	165	2	40	740	700		420	Used 2 1/2hrs. per day	575
Sec. 4,NE 1/4 4	1912	170	2	40	734	694				564
Sec. 4,NE 1/4	1915	167	2	40	735	695		210	Used 1 1/2hrs. per day	568
Sec. 4,SE 1/4		165			737					572
Sec. 4,SE 1/4 5		165			732					567
Sec. 4,SW 1/4		126	2	32	694	662		336	Used 1 1/2hrs. per day	568
Sec. 4,SE 1/4	1933	160			695					635
Sec. 4,SE 1/4	1903	160			693					533
Sec. 4,SE 1/4	1916	123	2		730					607
Sec. 5,NE 1/4 6	1928	155	2	30	699	699		42	Used 1hr. per day	544
Sec. 5,NW 1/4	1920	132	3		693			630	Used 2 1/2hrs. per day	561
Sec. 5,SW 1/4 7	1930	155	2	40	689	649		168	Used 1 1/2hrs. per day	534
Sec. 6,NE 1/4		140	2		694			420	Used 2hrs. per day	554
Sec. 6,SE 1/4 8	1915	126	2	32	690	658		210	Used 1 3/4 hrs. per day	564
Sec. 7,NE 1/4 9	1919	100	2	30	700	670		500	Used 3hrs. per day	600
Sec. 8,NW 1/4 10	1907	122	2	32	700	668		336	Used 2hrs. per day	578
Sec. 8,SE 1/4 11		145	2		691					546
Sec. 8,SE 1/4	1914	145	2 1/2	50	696	646		252	Used 1hr. per day	551
Sec. 9,SE 1/4 12	1914	145	3	60	725	665				580
Sec. 9,NE 1/4 13	1930	145	2	45	716	671		210	Used 1hr. per day	571
Sec. 10,NE 1/4		165			750					585
Sec. 10,NW 1/4 14		165	2		747			350		582
Sec. 10,SE 1/4	1902	157	2	90	744	654		210	Used 1 1/2hrs. per day	587
Sec. 10,NW 1/4	1930	165	3	60	748	688				583
Sec. 10,NE 1/4					751					
Sec. 11,NW 1/4		160						500		
Sec. 11,SW 1/4 15	1920	165	3	60	743	683				578
Sec. 11,SW 1/4	1900	157	2	45	742	697		210	Used 1 1/2hrs. per day	585
Sec. 11,NW 1/4	1909	165	2		745					580
Sec. 12,NE 1/4	1887	160	2		730			166		570
Sec. 12,SW 1/4	1908	130	2		742					612
Sec. 12,NW 1/4		135	2		742					607
Sec. 12,SE 1/4		100	2		715					615
Sec. 12,NW 1/4				4	742	638				
Sec. 14,NW 1/4 16	1923	150	2	40	741	701		336	Used 2hrs. per day	591
Sec. 14,SE 1/4					745					
Sec. 14,NE 1/4		136	2		742					606

Location	No.	Date Drill- ed	Depth Feet	Diam. Ins.	SWL Ft. to Water	Ref. Elev. MSL.	W. L. in MSL.	Capa- city GPM	Daily Pump age, Gals.	Remarks	Bottom Hole Elev.
18N, 8E(Contd.)											
Sec. 15, SW 1/4		1898	118	2	30	720	690				602
Sec. 15, SE 1/4		1900	130	2		741					611
Sec. 16, NE 1/4 17			145	3	60	727	667		504	Used 2hrs per day	582
Sec. 16, SW 1/4		1898	96	2	30	692	662		210	Used 1hr. per day	596
Sec. 16, SE 1/4			125	2		705					580
Sec. 17, NE 1/4 18		1930	145	2 1/2	30	700	670			Used 1/2hr. per day	555
Sec. 17, SE 1/4			135	2	30	696	666				561
Sec. 18, SE 1/4			120	4	30	700	670		275		580
Sec. 19, NW 1/4		1910	130	3		700			500		550
Sec. 20, NW 1/4			127	2		700			294	Used 1 1/2hrs. per day	573
Sec. 21, NW 1/4 19		1921	130	2	16	690	674		252		560
Sec. 21, SE 1/4		1898	127	2	20	710	690		252	Used 1 1/2hrs. per day	583
Sec. 22, SW 1/4		1910	127	2	35	710	675	252	252		583
Sec. 22, SE 1/4 20		1903	144	2	60	737	677		84	Used 1/2hr. per day	593
Sec. 22, SE 1/4 21		1928	152	2	50	730	680		420		578
Sec. 23, SW 1/4			148	2	60	730	670		210	Used 1 1/2hrs. per day	582
Sec. 24, NE 1/4 22		1903	160	2	40	710	670		294	Used 1hr. per day	550
Sec. 24, NW 1/4 23		1903	155	2	40	740	700		210	Used 2hrs. per day (Gas in well)	585
Sec. 24, SE 1/4 24		1890	160	2	60	710	650		168	Used 1/2hr. per day	550
Sec. 25, SE 1/4		1905	146	2		720				Used 1hr. per day	574
Sec. 26, SE 1/4		1915	150	8	40	720	680	40		Used 10hrs. per day	570
Sec. 26, SE 1/4		1895	160	8	40	720	680	50		Used 10hrs. per day	560
Sec. 27, SE 1/4		1915	160	3	100	720	670	5		Used 1hr. per day	560
Sec. 28, SE 1/4		1900	122	3	25	700	675		252	Used 1 1/2hrs. per day	578
Sec. 28, SE 1/4		1915	122	2	30	700	670	2	168	Used 1hr. per day	578
Sec. 29, SE 1/4		1905	115	2	20	695	675	2 1/2	294	Used 2hrs. per day	580
Sec. 29, SE 1/4		1918	120	2	48	695	647	2 3/4	630	Used 2hrs. per day	575
Sec. 29, SE 1/4		1905	118	3	50	695	665	7			577
Sec. 30, NE 1/4		1907	133	2	35	700	665	2	252	Used 1 1/2hrs. per day	567
Sec. 30, SE 1/4		1902	120	2	25	695	670	2 1/2		Used 1hr. per day	575
Sec. 30, SE 1/4		1931	116	2	40	695	655	2 1/2		Used 1hr. per day	579
Sec. 31, SW 1/4			140	3	25	691	666				551
Sec. 31, SW 1/4		1928	112	2	30	692	662	4+	1250	Used 3hrs. per day	580
Sec. 32, NE 1/4		1908	120	2	30	695	665	2	252	Used 1 1/2hrs. per day	575
Sec. 33, NE 1/4		1903	160	2	60	700	640		252	Used 1 1/2hrs. per day	540
Sec. 33, SW 1/4			108	2	50	690	640				582
Sec. 34, SE 1/4		1895	120	2	30	720	690	1 1/1	126	Used 1hr. per day	600
Sec. 35, SW 1/4		1895	130	2	40	720	680		420	Used 2hrs. per day	600
Sec. 36, SE 1/4		1915	160	2	60	705	645	5	504	Used 2hrs. per day	545
Sec. 36, SW 1/4		1900	120	2	40	720	680		84	Used 2hrs. per day	600
<u>18N-9E</u>											
Sec. 3, SE 1/4		1918	67	2		750				Used 1hr. per day	683
Sec. 3, NE 1/4		1910	55	3		711		16		Used 1hr. per day	656
Sec. 4, NW 1/4			95	2		745			25		650
Sec. 4, SE 1/4		1938	86	2	60	752	692		150		666
Sec. 4, NE 1/4			160	2		770			840		610
Sec. 5, NW 1/4		1902	160	1 1/2		704			40		544
Sec. 5, SE 1/4		1900(?)	60-70	2		712			30		642
Sec. 5, NW 1/4		1880	72	2		712			200		640
Sec. 5, SW 1/4		1890	75	2		712			100		637
SE 5, NE 1/4			115	2		752			84	Used 1/2hr. per day	637
Sec. 6, NW 1/4		1900	120	3		687			84		567
Sec. 6, NW 1/4		1900	180	3		689			25		509
Sec. 6, SW 1/4		1892	80	2 1/2		685		15			605
Sec. 6, NW 1/4			120	3		695			75		675
Sec. 6, NW 1/4			175			685		5	120		610
Sec. 6, SE 1/4		1932	60	2		705		1	50		645

Location	No.	Date Drilled	Depth Feet	Diam. Ins	SWL Ft. to Water	Ref. Elev. MSL	W. L. in MSL	Capacity GPM	Daily Pumpage, gals	Remarks.	Bottom Hole Elev.
<u>18N-9E(Contd.)</u>											
Sec. 6, NW 1/4	25	1928	124	2		742			252	Used 1/2hr. per day	618
Sec. 6, NW 1/4		1900	100	3		687			210	Used 3/4hr. per day	587
Sec. 6, NW 1/4							718				
Sec. 6, NW 1/4						717					
Sec. 7, NE 1/4		1892	160	3		701			100		541
Sec. 7, NE 1/4		1897	51	2		708					657
Sec. 7, NW 1/4		1917	83	2 1/2		680		5	1900		597
Sec. 7, NW 1/4		1891	81	2		680			1900		599
Sec. 7, SW 1/4	26		120	2	30	680			252	Used 2hrs. per day	560
Sec. 7, NW 1/4				83	2	40	680		6		
Sec. 7, NW 1/4		1920	80			720					640
Sec. 7, SW 1/4						721					
Sec. 10, SE 1/4		1908	80	3	40	731	691			Used 1hr. per day	651
Sec. 13, NE 1/4		1915	78	2	10	692	682	4		Used 1/2hr. per day	614
Sec. 17, NW 1/4		1895	125	2	50	680		2 1/2	336	Used 2hrs. per day	555
Sec. 17, NE 1/4	153	1942	130	3	30	700	670			Used 3hrs. per day	570
Sec. 18, SW 1/4		1895	140	2	60	720	660	1 1/2	168	Used 1 1/2hrs. per day	580
Sec. 18, NW 1/4			112	3	30	710	680				598
Sec. 19, NE 1/4	28	1920	100	3	30	693	663	2	210	Used 1 1/2hrs. per day	583
Sec. 19, NW 1/4	29		135	2	30	720	690		168	Used 1hr. per day	585
Sec. 24, NE 1/4		1940	54	2	14	726	712	5			672
Sec. 30, SW 1/4			140	2	30			1	168	Used 2hrs. per day	
<u>18N-10E</u>											
Sec. 18, NW 1/4		1895	30' dug 6' bored	2	18+			12 1/2		Used 1hr. per day	
<u>19N-7E</u>											
Sec. 1, SW 1/4	30	1916	130	4	65	723	658	5			593
Sec. 2, SE 1/4	31	1919	125	2	60	731	671	5		Used 2hrs. per day	606
Sec. 2, SE 1/4	32		135	4	60	724	664	5		Used 3hrs. per day	589
Sec. 2, SW 1/4		1943	120	3		730				Used 6hrs. per day	610
Sec. 2, SE 1/4			118	2	40	725	685			Used 2hrs. per day	607
Sec. 2, SE 1/4		1946	178	4	56	710	654			Used 1 1/2hrs. per day.	532
Sec. 2, NE 1/4		1946	146	2 1/2		720				Used 1hr. per day.	574
										54°F.	
Sec. 2, SW 1/4		1924	152	2	60	725	665			Used 1 1/2hrs. per day.	573
										54.5°F.	
Sec. 2, SE 1/4			150	2		730				Used 1hr. per day	580
Sec. 2, NW 1/4			125	2		715				Used 1hr. per day.	590
										54°F.	
Sec. 3, NE 1/4	33		160	4	90	712	624	5			552
Sec. 3, SE 1/4		1909	170	4	65	718	653	5			548
Sec. 3, SE 1/4		1900	120	2		720				Used 5hrs. per day.	600
										56°F.	
Sec. 3, NE 1/4		1920	205	3	70	715	645			Used 1/2hr. per day.	510
										55.5°F.	
Sec. 3, NE 1/4		1907	150	2		715				Used 3 1/2 hrs. per day	565
										53.5°F.	
Sec. 4, SE 1/4		1943	90	2		710					20
Sec. 4, NE 1/4	34		148	4	40	709	669	5			61
Sec. 4, SE 1/4	35	1914	145	4	35	704	669	5			59
Sec. 5, NE 1/4	36		115	4	55	716	661	5			01
Sec. 6, NW 1/4			210	4	90	710	620	5			00
Sec. 7, NW 1/4			225	3	100	710	610	5			85
Sec. 7, NE 1/4			175	4	60	710	650	5			35
Sec. 8, NE 1/4		1939	237	2 1/2	40	690	650			50.2°F.	53
Sec. 8, NW 1/4			165	4	60	703	643				38
Sec. 8, NE 1/4			180	4	50	692	642	5			12



<u>Location</u>	<u>No.</u>	<u>Date Drill ed</u>	<u>Depth Feet</u>	<u>Diam. Ins</u>	<u>SWL Ft. to Water</u>	<u>Ref. Elev. MSL</u>	<u>W. L. in MSL</u>	<u>Capa- city GPM</u>	<u>Daily Pump- age, gals</u>	<u>Remarks.</u>	<u>Bottom Hole Elev.</u>
<u>19N-7E(Contd.)</u>											
Sec. 9, SE	1/4	1932	117	2 1/2	50	702	652	5			585
Sec. 9, NW	1/4		190	4	40	702	662	5			512
Sec. 10, NE	1/4	37	130	4	75	721	646	4 1/2			591
Sec. 10, SW	1/4	38	1894	135	2	712	687	5			577
Sec. 10, SE	1/4		1898(?)	150	2	722	692				49°F. 572
Sec. 10, SE	1/4		1937	130	2	722	682				49°F. 592
Sec. 10, SE	1/4		1926	273		782	691				509
Sec. 11, NE	1/4	39	138	2	45	719	674	5			581
Sec. 11, NE	1/4	40	1922	140	4	730	680	5	Used 3hrs. per day		590
Sec. 11, SW	1/4		1947	213	4	723					49°F. 510
Sec. 12, SW	1/4	41	128	4	60	719	659	5			591
Sec. 12, NW	1/4	42	130	2 1/2	60	711	651	5			581
Sec. 12, SE	1/4		1900	129	3	705	677		Used 2hrs. per day		576
											52°F.
Sec. 12, NW	1/4		1900	150	2	715			Used 1hr. per day.		565
											50.5°F
Sec. 13, NE	1/4		1912	168	4	705					537
Sec. 13, SE	1/4		1912	150	2	705					555
Sec. 13				105		717					612
Sec. 13			1928	145	2 1/2	717			Used 2hrs. per day		572
Sec. 13, NE	1/4			140	2	705			Used 4hrs. per day		565
											55°F.
Sec. 13, NE	1/4		1947	147	2 1/2	705	655				558
Sec. 13				139	2 1/2	715	677	5			576
Sec. 13, NW	1/4		1914	145	3	716	666	5			571
Sec. 14, NE	1/4			100	2	725					625
Sec. 14, SW	1/4			139	2	696	654	5			557
Sec. 14, NE	1/4	43	1925	135	2 1/2	70	720	5			585
Sec. 14, NE	1/4	44	43	118	3	717	673	5			599
Sec. 15, NW	1/4		1908	146	2 1/2	715	675				569
Sec. 15, NE.	1/4		1942	165	2 1/2	720	660				54.1°F. 555
Sec. 15, NE	1/4		1914	60	2 1/2	721	696	5			661
Sec. 15, NW	1/4	45	1925	140	2 1/2	721	679	5			581
Sec. 16, NE	1/4			200	2 1/2	705					505
Sec. 16, SE	1/4			123	2 1/2	711	671				588
Sec. 16, NE	1/4			146	3	710	668	5			564
Sec. 16, NE	1/4		1924	146	3	700	663				49°F. 565
Sec. 17				125	2	700	675		Used 2hrs. per day		575
Sec. 17, NE	1/4		1947	148	2 1/2	701	655				553
Sec. 17, NE	1/4		1938	145	3	702	664				557
Sec. 17, NW	1/4		1919	150	2 1/2	698	638	5			548
Sec. 17, NE	1/4	46		145	2	694	629				549
Sec. 18, NE	1/4	47	1930	151	2 1/2	701		5			550
Sec. 18, SE	1/4		1919	140		700	662	5			560
Sec. 19, SW	1/4		1924	132	2	690	656	5			558
Sec. 20, SE	1/4	48	1919	145	2	708	668	5			563
Sec. 20, NW	1/4		1904	134	2 1/2	695	655	5			561
Sec. 20, NE	1/4	49	1915	100	2 1/2	703	663	5			603
Sec. 21, SW	1/4		1947	153	3	710	660				557
Sec. 21, NE	1/4			180	2 1/2	40-50	712	667(?)			54.5°F. 532
Sec. 21, SW	1/4		1914	110	2 1/2	708	666	5			598
Sec. 21, NW	1/4	50	1919	130	2 1/2	700	665	5			570
Sec. 21, NE	1/4	51	1922	115	2	712	652	5			597
Sec. 22, SE	1/4	52	1928	140	2 1/2	705	675	5			565
Sec. 22, NW	1/4	53	1914	136	2 1/2	721	681	5			585
Sec. 23, NE	1/4			70	2	712	682	5			559
Sec. 23, SE	1/4	54	1919	130	2 1/2	705	630	5			575
Sec. 24, SW	1/4	55	1904	145	2	704	664	5			559
Sec. 24, NW	1/4	56	1914	136	3	708	670	5			572
Sec. 25, NW	1/4	57	1904	128	2 1/2	704	650	5			576

Location	No.	Date Drill- ed	Depth Feet	Diam. Ins	SWL Ft. to Water	Ref. Elev. MSL	W. L. in MSL	Capa- city GPM	Daily Pump- age, Gals	Remarks.	Bottom Hole Elev.	
<u>19N-7E(Contd.)</u>												
Sec. 25, SW	1/4	58	1909	134	2 1/2	35	702	667	5		568	
Sec. 26, SE	1/4	59		140	2 1/2	35	703	638	5		563	
Sec. 26, NE	1/4	60	1930	128	2 1/2	70	705	635	5		577	
Sec. 27, NW	1/4		1912	130	2 1/2	80	717	637	5		587	
Sec. 28, NE	1/4	62	1931	165	2 1/2	50	713	663			548	
Sec. 28, NW	1/4	63	1894	150	2 1/2	40	708	668	5		558	
Sec. 28, SE	1/4	64	1909	144	2 1/2	45	704	659	5		560	
Sec. 29, SW	1/4	65	1914	135	2 1/2	40	707	667	5		572	
Sec. 30, NW	1/4		1914	140	2 1/2	35	790	655	5		550	
Sec. 31, SE	1/4	66	1921	162	2 1/2	27	709	682	5		547	
Sec. 32, NW	1/4	67	1925	146	4	55	703	648	5		557	
Sec. 32, SE	1/4			140	4	32	710	678	5		570	
Sec. 33, NW	1/4		1918	185	2	80	710	630	5	Used 2hrs. per day	525	
Sec. 34, SW	1/4		1930	200	2 1/2	38	700	662	5		500	
Sec. 34, NE	1/4		1922	125	2 1/2		701		5		576	
Sec. 35, NW	1/4		1914	127	2 1/2		700		5		573	
Sec. 36, SW	1/4	68	1894	140	2	35	701	666	6		561	
<u>19N-8E</u>												
Sec. 1, NE	1/4		1932	60	2	30	752	722			692	
Sec. 1, NW	1/4		1914(?)	65	2	29	760	731	5	Used 1/2hr. per day	695	
Sec. 1, SW	1/4			40	3	30	753	723		Dug well, not used	713	
Sec. 2, NE	1/4		1941									
Sec. 2, SW	1/4		1929	40			756			Dug well	716	
Sec. 2, NE	1/4		1923	60	2	20	762	747	3 1/2	Used 12hrs. per day	702	
Sec. 2, NE	1/4		1915	165	2	65	765	700	3 1/2	Used 2hrs. per day	600	
Sec. 2, NW	1/4		1923	200	2	100	772	672	4		572	
Sec. 2, NW	1/4		1901	16	5	12	760	748	5	Used 1/2hr. per day	544	
Sec. 2, NW	1/4		1925	210	4	75	760	685	10	Used 2hrs. per week	550	
Sec. 2, SE	1/4			200	2		771				571	
Sec. 2, SW	1/4			200	2		759		2		559	
Sec. 2, SW	1/4		1890	86	2		761		2-3		675	
Sec. 2, SW	1/4			175	2		764		3		589	
Sec. 2, SE	1/4			135	2	100	760	660		504	Used 5hrs. per day	625
Sec. 2, SE	1/4	70	1933	176	2	80	760	680	2	Used 1/2hr. per day	584	
Sec. 2, SE	1/4	69	1939	166	2 1/2	76	760	684		Used 4-5hrs. per day	594	
Sec. 3, NE	1/4		1907	164	6	75	754	679			590	
Sec. 3, SW	1/4	71	1924	220	2	90	790	700	3	252	Used 1hr. per day	570
Sec. 4, NE	1/4		1920	78	2	20	792	792			Used 8hrs. per day	614
Sec. 4, SW	1/4			115	3		750				Used 1hr. per day	635
Sec. 4, SW	1/4			90	2	50	752	702	4	1050	Used 3hrs. per day	662
Sec. 4, SE	1/4		1912	70-80	1 1/2		790		2		710	
Sec. 4, SE	1/4			76	2		790		2-3	Used 2hrs. per day	714	
Sec. 5, SW	1/4			124	2		720			Used 1/2hr. per day	596	
Sec. 5, SE	1/4		1937	165	2		750			Used 3hrs. per day	585	
Sec. 5, SW	1/4		1900	123	2		725			Used 2hrs. per day	603	
Sec. 5, NE	1/4		1942	105	2		735			Used 1hr. per day	630	
Sec. 5, SW	1/4			120	2	50	717	667	3	420	Used 1 1/2hrs. per day	697
Sec. 5, SE	1/4			100	2	35	750	715	4	336	Used 1hr. per day	650
Sec. 5, SW	1/4		1902	120-125	2		711		8	294	586	
Sec. 6, NE	1/4				2		710				53.5°F.	
Sec. 6, SE	1/4	72		160	2	50	716	666	3 1/2	588	Used 2hrs. per day	556
Sec. 6, NE	1/4	73		130	1 1/2	35	713	678			583	
Sec. 7, NE	1/4		1912	130	2 1/2		722			Used 8hrs. per day	592	
Sec. 7, SW	1/4		1937	98	3	40	705	665			607	

<u>Location</u>	<u>No.</u>	<u>Date Drill- ed</u>	<u>Depth Feet</u>	<u>Diam. Ins.</u>	<u>SWL Ft. to Water</u>	<u>Ref. Elev. MSL.</u>	<u>W. L. in MSL.</u>	<u>Capa-city GPM</u>	<u>Daily Pump- age, Gals.</u>	<u>Remarks</u>	<u>Bottom Hole Elev.</u>
<u>19N-8E(Contd.)</u>											
Sec. 7, SE	1/4	1945	125	2		710				Used 2hrs. per day	585
Sec. 7, SW	1/4	1920	120	3						Used 1hr. per day	
Sec. 7, NE	1/4	1917	150	2		715				Used 1hr. per day	565
Sec. 7, SE	1/4	1900	126	2	55	705	650	7 1/2	630	51°F. Used 2hrs. per day	579
Sec. 8, NW	1/4		40		15	719	704			Dug well	679
Sec. 8, SE	1/4		242	2	8	730	722			Used 3hrs. per day	488
Sec. 8, SE	1/4	1936	130	2		720				50°F.	590
Sec. 8, SW	1/4	1907	125	2		710				Used 1hr. per day	585
Sec. 8, NW	1/4	1911	44	3	10	720	710			Used 1 1/2hr. per day	676
Sec. 8, NW	1/4	1890	44	3	10	715	705			Dug well 49°F. Used 1hr. per day	671
Sec. 8, SE	1/4	1918	120	2		740				49°F.	620
Sec. 8, SW	1/4	74 1900	125	2	85	704	619			47°F.	579
Sec. 8, NW	1/4	75 1913	20	3	15	711	696		200	Used 1/2hr. per day	671
Sec. 8, SE	1/4	1926	212	2		732		2 1/2	50		520
Sec. 8, SE	1/4	76 1936	150	3		718		2-3	400		568
Sec. 8, SE	1/4	1926	135	2		732		3			597
Sec. 9, NW	1/4			2		750				Used 1 1/2 hr. per day	
Sec. 9, SW	1/4		192	2		710				Used 2hrs. per day	508
Sec. 9, NW	1/4	1932	120	2	60	750	690			Used 3hrs. per day	630
Sec. 9, SW	1/4	1919	192	2		751		3		47°F.	559
Sec. 9, NE	1/4	1912(?)	76-80	1 1/2		755		3-4			675
Sec. 9, NW	1/4	77 1937	80	2		751		2			671
Sec. 9, SW	1/4	1937	120	2		751		2			631
Sec. 9, SE	1/4	78 1900	140	2	70	732	662	2 3/4	336	Used 1 1/2 hr. per day	592
Sec. 9, SW	1/4	79 1936	132	2 1/2	85	744	659	4	336	Used 1 1/2hr. per day	612
Sec. 9, SW	1/4	1914	132	2	85	739	654				607
Sec. 12, NE	1/4	1922	173	12	80	737	657			Used 2hrs. per day	564
Sec. 12, NE	1/4		172	8 & 0 1		745				Smith Ice Co.	573
Sec. 12, SE	1/4	1912	170	8	90	732	642	100		Twin City Ice Co.	562
Sec. 12, SE	1/4	1928	170	8	90	732	642			Twin City Ice Co.	562
Sec. 12, SE	1/4	1931	170	8	90	732	642			Twin City Ice Co.	562
Sec. 12, SE	1/4		30			735				Beatrice Creamery Well, Champaign	705
Sec. 13, SW	1/4	1915	185	2	85	770	685	3	122	Used 1/2hr. per day	585
Sec. 14, NW	1/4		75	2		783					708
Sec. 15, NW	1/4		36	2	16	732	716				696
Sec. 15, NE	1/4	80 1925	240	3	110	779	669	6	504	Used 1hr. per day	539
Sec. 15, SW	1/4	1937	123	2		775			100		652
Sec. 15, NW	1/4	1940	102	2		730				Kenwood Golf Club	628
Sec. 16, NE	1/4	81 1895	137	2	75	728	653	3	736	Used 3hrs. per day	591
Sec. 16, SW	1/4	1900	160	2	75	742	667	4	336	Used 1hr. per day	582
Sec. 16, SW	1/4		100	2		743		3	252		643
Sec. 16, NW	1/4	1946	190	4		740				Used 1hr. per day	550
Sec. 17, NE	1/4	1930	180	2		735				Used 2 1/2hrs. per day	555
Sec. 17, SE	1/4	1890	95	2		741				52°F. Used 1hr. per day	645
Sec. 17, NW	1/4	1931	114	3	40	710	670			Used 1 1/2hr. per day	596
Sec. 17, NE	1/4	1923	166	3	80	705	625			Used 1/2hr. per day	539
Sec. 17, NE	1/4		120	3		745				Used 1/2hr. per day	625
Sec. 17, NE	1/4	1947	155	6	104	730	626	50			575
Sec. 17, NW	1/4	1947	136	6	90	725	635	30			589
Sec. 17, ?		1902(?)	165	2		748		4	450		583
Sec. 17, SE	1/4	1900	160	2	70	741	671	3	252	Used 1hr. per day	581
Sec. 17, NE	1/4	82 1929	160	2		735		3	252	Used 1hr. per day	575
Sec. 17, NW	1/4	1929	114	3	55	703	648	8		Used 1hr. per day	589

<u>Location</u>	<u>No.</u>	<u>Date Drilled</u>	<u>Depth Feet</u>	<u>Diam. Ins.</u>	<u>SWL Ft. to Water</u>	<u>Ref. Elev. MSL.</u>	<u>W. L. in MSL.</u>	<u>Capa - city GPM</u>	<u>Daily Pump - age, Gals.</u>	<u>Remarks</u>	<u>Bottom Hole Elev.</u>	
<u>19N -8E(Contd.)</u>												
Sec. 17, SE	1/4	1892	16	2		711		3	110		685	
Sec. 18, NW	1/4		22	4	15	705	690			Used 2hrs. per day	683	
Sec. 18, SW	1/4	1946	110	2		705				Dug well Used 1/2 hr. per day	595	
Sec. 18, NW	1/4	1916	87	2	44	705	661			55°F. Used 3hrs. per day	618	
Sec. 18, NW	1/4	1941	33	3	18	704	686			Dug well	671	
Sec. 18, SW	1/4		128	3		705					577	
Sec. 18, NE	1/4	1923	151	3	80	705	625	6		Used 3/4hr. per day	554	
Sec. 19, SW	1/4	83	130	2	50	711	661	4	672	Used 2hrs. per day	581	
Sec. 19, SE	1/4	84	1910(?)	110	2	50	704	654	3	Used 1/2hr.per day	544	
Sec. 20, NE	1/4	85	1889	132	2	30	730	700	4	672	Used 2hrs. per day	568
Sec. 20, NE	1/4		1902	100	2		711		3	150	611	
Sec. 20, SW	1/4		1905	78	2	40	702	662	6	504	Used 1hr. per day	604
Sec. 21, SE	1/4	86	120	2	80	733	653	3 1/4	546	Used 2hrs. per day	613	
Sec. 21, NW	1/4	87	1905	121	3	40	722	682	4	504	Used 1 1/2 hrs. per day	601
Sec. 22, NE	1/4	88	1917	118	2		728		2-3	450	610	
Sec. 22, SE	1/4		1895	155	2		737		3	420	582	
Sec. 22, SW	1/4	89	1900	170	2	80	734	654	3 3/4	630	Used 2hrs. per day	564
Sec. 23, NW	1/4		1915(?)	122	2	75	727	652	5	420	Used 1hr. per day	605
Sec. 23, SW	1/4		1915(?)	140	2	90	733	643	4	504	Used 11/2hrs.per day	593
Sec. 24, SW	1/4		1946	154		70	728	658			574	
Sec. 24, SE	1/4	90	120	2	80	725	645	5	210	Used 1/2hr. per day	605	
Sec. 24, SW	1/4		40 dug	3	5-25	755	730			Limited use	715	
Sec. 25, SW	1/4		119	2	80	740	660				621	
Sec. 25, S W	1/4		1910(?)	121	2	80	741	661	4	662	Used 2 hrs. per day	620
Sec. 25, NE	1/4		120	2	70	730	660	3	420	Used 1 1/2 hr. per day	610	
Sec. 26, SE	1/4			3				10				
Sec. 26, SE	1/4	1905	146	2	40	740	700		100		594	
Sec. 26, NW	1/4	1941	160	2		743		3-4			583	
Sec. 26, SW	1/4	1917	126	2	90	744	654	3 1/3	840	Used 3hrs. per day	618	
Sec. 26, NW	1/4	1910	120	2	70	735	665	7	840	Used 11/2hr.per day	615	
Sec. 26, NW	1/4	1922	100	2		734		3	100		634	
Sec. 26, SW	1/4		165	3		745			630		580	
Sec. 26, NE	1/4	1927	100	2		740					640	
Sec. 27, SW	1/4	1910	150	2	70	750	680	5	630	Used 11/2hr. per day	600	
Sec. 27, NW	1/4	1931	165	2	80	737	657	3	252	Used 1hr. per day	572	
Sec. 28, NW	1/4	1940	95			704					609	
Sec. 28, SE	1/4	1941		3				5				
Sec. 28, NW	1/4	1940	102			720					618	
Sec. 28, NW	1/4	1940	100	2		720		3			620	
Sec. 28, NW	1/4		30	3	20	728	708		210	Used 1hr. per day	668	
Sec. 28, SE	1/4	1910	150	2	70	746	676	6	504	Used 1hr. per day	596	
Sec. 29, NW	1/4			3				5		Used 1/2hr. per day		
Sec. 29, NW	1/4			2				3.2		Used 2hr. per day		
Sec. 29, SE	1/4	1900	175	2	50	704	654	3 3/4	630	Used 2hr. per day	529	
Sec. 29, SW	1/4	1905	57	2	10	701	691	4	662	Used 2hr. per day	644	
Sec. 30, NE	1/4		125	2	50	702	652	4	504	Used 1 1/2hr. per day	677	
Sec. 30, NW	1/4		130	2	50	710	660	3 1/2	294	Used 1hr. per day	580	
Sec. 31, SE	1/4	1910	89	2	35	695	660	4	462	Used 1 1/2hr. per day	606	
Sec. 32, SW	1/4	1905(?)	78	2 1/2	50	701	651	4		Used 1/2hr. per day	623	
Sec. 32, NW	1/4		80	2	50	701	651	5	420	Used 1hr. per day	621	
Sec. 33, NE	1/4			2				4.5		Used 1hr. per day		
Sec. 33, NE	1/4	1940	172	2		736		3-4	294		564	
Sec. 33, NE	1/4	1939	172	3		732					560	
Sec. 33, SE	1/4	1929	170	2	125	731	606	3	504	Used 2hrs. per day	561	
Sec. 33, SW	1/4	1915	132	2	55	701	646	2 1/4	252	Used 1 1/2hr. per day	569	
Sec. 34, NW	1/4		85	2		751			15		666	
Sec. 34, NW	1/4	1920	127	2	55	732	677	4	336	Used 1hr. per day	605	
Sec. 34, SE	1/4	1900	200	3	140	753	613	5	420	Used 1hr. per day	553	

Location	No.	Date Drilled	Depth Feet	Diam. Ins.	SWL Ft. to Water	Ref. Elev. MSL.	W. L. in MSL.	Capacity GPM	Daily Pump - age, Gals.	Remarks	Bottom Hole Elev.
<u>19N -8E.(Contd.)</u>											
Sec. 34, SW	1/4	1913	85	3	40	742	702			Used 4-5hrs. per day	657
Sec. 35, NE	1/4		165	2	90	743	653	2	840	Used 5hrs. per day	578
Sec. 35, SW	1/4	1912	175-200	2		748		3			548
Sec. 35, SW	1/4	1938	195	2	90	751	661	2		Used 1/2 hr. per day	556
Sec. 35, SE	1/4	1894	166	2		744		4	126		578
Sec. 36, SW	1/4	1908	143		10	738	728			Used 1hr. per day	595
Sec. 36, SE	1/4	1943	163	4		731					568
Sec. 36, SW	1/4	1808	145	2		739					594
Sec. 36, SW	1/4	1939	156	2		739		3	50		583
Sec. 36, NW	1/4		82	2	40	740	700	4	336	Used 1hr. per day	658
Sec. 36, SW	1/4	1905	160	3	75	741	666		40		581
Sec. 36, SW	1/4	1931	164	2	80	738	658				574
Sec. 36		1940	133	3		740			300	Savoy, Grain &Coal Co. well	607
Sec. 36		1940	156	2		740			300		584
Sec. 36, SW	1/4	1945	165	2	90	738	648	3-4			573
<u>19N -9E</u>											
Sec. 1, NE	1/4	1928	80	2	20	680	660			50.5 °F.	600
Sec. 4, NW	1/4	1940	34	2	20	723	703				689
Sec. 4, NE	1/4	1942	59	2		723					664
Sec. 4, SW	1/4	1934	30	3	14	732	718	4		Dug well	702
Sec. 4, NW	1/4	1940	50	3	44	735	691	5		Used 3/4hr. per day	685
Sec. 4, NE	1/4	1938	38	3	18	726	708	3			688
Sec. 5, NE	1/4	1880	100	4		730		10		Used 1hr. per day	630
Sec. 5, NE	1/4	1937	150	2		730		2.2		Used 2hrs. per day	580
Sec. 5, SW	1/4	1916	125	1 3/4		740		2.2		Used 2hrs. per day	615
Sec. 6, NW	1/4	1937	176	8	100	735	635				559
Sec. 6, NW	1/4	1948	236	15		730					494
Sec. 6, NE	1/4	1944		5							
Sec. 6, NE	1/4	1944		5							
Sec. 6, SE	1/4									Dug well	
Sec. 6, NE	1/4	1910	175	2		750		1 1/2		Used 3hrs. per day	575
Sec. 6, SW	1/4	1936	143	2	90	742	652			Used 6-8hrs. per day	599
Sec. 7, NE	1/4	1929	225	2	150	744	594	2.2		Used 5hrs. per day	519
Sec. 7, NE	1/4	1934	175	2	60	738	678	5		Used 1 1/2hr. per day	563
Sec. 7, SW	1/4	1944	184	10	122	728	606				544
Sec. 7, SW	1/4	1925	169	10							
Sec. 7, SW	1/4		172	6		734					562
Sec. 8, SE	1/4		24	6		711					687
Sec. 8, NE	1/4	1940	43	3	25	705	680	10			662
Sec. 9, NE	1/4	1942	98	2	50	715	665			East well	53.8°F. 617
Sec. 9, NE	1/4	1943	98	2	50	715	665			West well	53.8°F. 617
Sec. 10, SE	1/4	1927	80	2	20	680	660				50.5°F. 632
Sec. 11, SW	1/4	1904	110	2	50	720	670				50°F. 610
Sec. 11, NE	1/4	154 1946	94	2	30	695	665				54°F. 601
Sec. 11, NE	1/4	1907	75	2	14	698	684				623
Sec. 11, NE	1/4	1936	84	2	20	700	680				616
Sec. 11, NE	1/4	1898	75	4	28	705	677				630
Sec. 11, NE	1/4	1946	108	4	24	705	681				58.4°F. 597
Sec. 12, SE	1/4	1918(?)	85-90	2	12	690	678				52.5°F. 600
Sec. 12, NW	1/4	1897	80	2	14	690	676				610
Sec. 13, SE	1/4	91 1902	226	2	20	693	673	7		Used 2hrs. per day	467
Sec. 20, NW	1/4	1931	36	2	30	735	705				699
Sec. 20, SW	1/4		40	3		733				Dug well	693
Sec. 20, SE	1/4								25		
Sec. 21, SE	1/4								84		
Sec. 21, SE	1/4		50+	2		751		4			701
Sec. 21, SE	1/4		52	3		752			840		700
Sec. 21, SE	1/4	1942	52			750		1/2	25		698
Sec. 21, SW	1/4	1930	59	2		761					702

<u>Location</u>	<u>No.</u>	<u>Date Drill- ed</u>	<u>Depth Feet</u>	<u>Diam. Ins.</u>	<u>SWL Ft. to Water</u>	<u>Ref. Elev. MSL.</u>	<u>W. L. in MSL.</u>	<u>Capa city GPM.</u>	<u>Daily Pump age, Gals.</u>	<u>Remarks</u>	<u>Bottom Hole Elev.</u>
<u>19N-9E(Contd.)</u>											
Sec. 21, NW 1/4			165	3		7 50		4	168		585
Sec. 21, NW 1/4	92	1923	165	3	100	752	652				587
Sec. 27, NW 1/4		1931	43	2	30	722	692				679
Sec. 28, SW 1/4		1940	48	3		741			756		693
Sec. 28, NW 1/4		1925	60	2		748					688
Sec. 28, SE 1/4			28	4	15	6 80	665			Goes dry quickly	652
Sec. 29, NE 1/4			85	2		7 46			168		661
Sec. 29, SE 1/4			65	2		7 35			168		670
Sec. 29, SE 1/4				2		742			400-500		
Sec. 29, SE 1/4		1930	40	2	20	740	720				700
Sec. 29, SW 1/4		1930	116	2	50	716	666				600
Sec. 29, NE 1/4	93		100+	2	75	731	656		400		631
Sec. 30, SE 1/4			106	3		7 01			84		595
Sec. 30, SW 1/4			80	2		7 27			210		647
Sec. 31, SW 1/4		1935(?)	20	1 1/2	18	718	700			Goes dry quickly	698
Sec. 31, NE 1/4			35	2		7 02			100		667
Sec. 31, SE 1/4			20	2		6 95					675
Sec. 31, SE 1/4			20	2		6 95					675
Sec. 31, NE 1/4		1930	42	2	39	701	662				659
Sec. 31, NW 1/4			85	2		7 21			25		636
Sec. 31, SW 1/4		1898	160	2 1/2		718			294		558
Sec. 31, S W 1/4		1937	130	2		720			25		590
Sec. 32, NW 1/4	94	1930	116	2	65	707	642				591
Sec. 33, NW 1/4		1942	70	3		735			42		665
Sec. 33, SW 1/4		1940	40	3						Used 5hrs. per day	
Sec. 33, SE 1/4		1913	60	3		727			250		667
Sec. 33, NE 1/4			35	3	25	7 25	700		252	Dug well	690
Sec. 34, NE 1/4	95	1915	113	2	10	698	688	3		Used 1hr. per day	585
<u>19N-10E</u>											
Sec. 6, SW 1/4			28	4	8	680	672			Dug well	652
Sec. 6, NW 1/4			22	4	8	6 80	672			Dug well	658
Sec. 8, SW 1/4		1913	86	2	8	682	674			Used 1 1/4hrs. per day	596
Sec. 8, SW 1/4			125	2	27	6 81	654				47°F. 556
<u>19N-14W</u>											
Sec. 19, SE 1/4		1940	65	2		681					616
<u>20N-6E</u>											
Sec. 24, SE 1/4			78	2		7 00					622
Sec. 25, NE 1/4		1944	38	4	16	700	684				662
<u>20N-7E</u>											
Sec. 1, SE 1/4		1933	65	4	40	742	702	5		Used 2hrs. per day	677
Sec. 1, SE 1/4		1943	97	2		722					625
Sec. 1, SW 1/4			60	2		7 12					652
Sec. 1, NE 1/4						745					
Sec. 1, NW 1/4			30		20	7 20	700			Dug well	690
Sec. 2, NE 1/4			100	2	60	680	620	5			580
Sec. 3, SE 1/4			100	2	50	750	700	5			650
Sec. 3, NE 1/4		1894	38	4	20	745	725	4		Dug well	707
Sec. 3, NW 1/4		1940	58	4	33	766	733				708
Sec. 4, NE 1/4		1903	110		45	780	735				670
Sec. 4, SE 1/4			125	2 1/2	90	700		5			575
Sec. 5, SW 1/4			90	3	45	8 00	755	5		Used 2hrs. per day	710
Sec. 6, NE 1/4		1926	110	2	80	800	720	5			690

<u>Location</u>	<u>No</u>	<u>Date Drill- ed</u>	<u>Dept Feet</u>	<u>Diam. Ins.</u>	<u>SWL Ft. to Water</u>	<u>Ref. Elev. MSL.</u>	<u>W.L. in MSL.</u>	<u>Capa- city GPM</u>	<u>Daily Pump- age, Gals</u>	<u>Remarks</u>	<u>Bottom Hole Elev.</u>
<u>20N - 7E(Contd.)</u>											
Sec. 6, SE 1/4			125	2	80	780	700	4 1/2			655
Sec. 6, SW 1/4		1909	130	2	55	788	733	5			658
Sec. 7, SW 1/4			90	2	70	730	670	5			640
Sec. 8, SE 1/4		1922	110	2	70	769	699				659
Sec. 8, NE 1/4		1914	80	2	40	800	760				720
Sec. 8, NE 1/4		1899	80		50	809	759	5			729
Sec. 8, NE 1/4			180	2		802					622
Sec. 9, NW 1/4		1916	82	2	58	770	712	5			698
Sec. 9, NE 1/4		1923	225	5	110	760	650	5	Used 1hr. per day		535
Sec. 9, SE 1/4		1925	165	2	90	790	700	5			625
Sec. 10, SW 1/4		1934	85	2 1/2	60	730	670	6			645
Sec. 10, SE 1/4		1932	90	2							
Sec. 11, NE 1/4			100			712					612
Sec. 11, SE 1/4		1900	70	2	25	740	715				670
Sec. 11, SE 1/4		1931	97	2	40	725	685	5			628
Sec. 12, SE 1/4			50	2		720					670
Sec. 12, NE 1/4		1900	100	2	45	740	645				640
Sec. 12, NW 1/4		1900	100	2	55	740	685				640
Sec. 12, NW 1/4			108	2		750					641
Sec. 12, NE 1/4		1904	107	2	40	740	700	5			633
Sec. 12, NE 1/4		1898	100	2	40	740	700	5			640
Sec. 12, SE 1/4		1941	69	4	30	745	715			51 °F	676
Sec. 13, SE 1/4		1899	100	2	60	780	720	5			680
Sec. 13, SW 1/4		1904	125	2	60	755	695	5			630
Sec. 14, NE 1/4		1941	107	3		730					623
Sec. 14			90	2		755					665
Sec. 14, SE 1/4		1919	85	2	37	780	743	5			695
Sec. 14, SE 1/4			200	2 1/2	80	790	710	5			590
Sec. 15, NE 1/4		1944	100	6	60	680	620				580
Sec. 15, NW 1/4		1933	67	4	49	721	672		Used.2 1/2hrs. per day		654
Sec. 15, SE 1/4		1930	102	4		710		5			608
Sec. 15, NE 1/4			75	2 1/2	50	715	665	5			640
Sec. 15, SE 1/4		1944	65	3	45	722	675				657
Sec. 16, NE 1/4		1926	175	2 1/2	80	773	693	5			598
Sec. 16, NE 1/4		1926	107	2	50	700	650	6	Used 3hrs. per day		593
Sec. 17, SW 1/4		1924	110	2	80	710	630	5	Used 2hrs. per day		600
Sec. 17, NW 1/4			100	2 1/2	80	720	640	5			620
Sec. 17, NE 1/4		1904	20	3 1/2	10	705	695	3	Used 1hr. per day Dug well		685
Sec. 18, SW 1/4		1884	40	2	40	720	680	4			680
Sec. 18, NE 1/4		1895	165	2	50	720	670	5			555
Sec. 18, NE 1/4			210	2	110	713		5			503
Sec. 19, SW 1/4			86			700					614
Sec. 19, SW 1/4			120	2 1/2	80	700	620				580
Sec. 19, SW 1/4		1899	110	2	70	700	630				590
Sec. 19, NW 1/4		1941	79	4	35	710	675				631
Sec. 19, SE 1/4			75	2	60	688	628	4			613
Sec. 20, NW 1/4		1919	170	2 1/2	80	703	653				533
Sec. 20, SE 1/4			80	2 1/2	60	690	630	5			610
Sec. 21, SW 1/4		1927	110	2	50	695	645	4			585
Sec. 21, NE 1/4			105	2	45	672	629	5			567
Sec. 21, NW 1/4		1917	185	4	20	670	650	5			485
Sec. 21, NW 1/4		1920	184	4	28	690	662	8	Used 2hrs. per day		506
Sec. 21, NE 1/4		1938	180	2	20	705	685			52.2 °F	525
Sec. 22, NE 1/4		1918	40	4	20	690	670	5			650
Sec. 22, NW 1/4		1947	80	2 1/2	18	680	662	9		60.5°F	600
Sec. 23, SE 1/4	96	1914	150	4	70	735	665	5			585
Sec. 23, NE 1/4			100	5	65	775	710	7			675
Sec. 23, NE 1/4			70	2		710					640
Sec. 23, SE 1/4		1936	174	2		732		500			558
Sec. 23, SW 1/4				2		710					





Se	No.	Date Drill- ed	Depth Feet	Diam, Ins.	SWL Ft. to Water	Ref. Elev. MSL.	W. L. in MSL.	Capa- city GPM	Daily Pump, age, Gals.	Remarks	Bottom Hole Elev
<u>20N - 7 E(Contd.)</u>											
Sec. 34, NE 1/4		1917	120	2		730				Used 1hr. per day 58 °F.	610
Sec. 34, NW 1/4		1914	160	4	45	710	665	5			550
Sec. 34, SW 1/4		1914	90	2 1/2	30	702	672	5		Used 2hrs. per day	612
Sec. 34, NE 1/4			170	4	65	720	660	5			550
Sec. 35, SW 1/4		1925	99	2		720				Used 2hrs. per day 53.5°F.	621
Sec. 35, NW 1/4			110	2		735				Used 1/2hr. per day 53 °F.	625
Sec. 35, NE 1/4			100	2	70	740	670			Used 3hrs. per day 52.5°F.	640
Sec. 35, SE 1/4		1935	155	2		715				Used 1/2hr. per day 55 °F.	560
Sec. 35, NE 1/4	98		160	2	60	730	670	4			570
Sec. 35, NW 1/4	99		165	2 1/2	70	732	662	4			567
Sec. 36, NE 1/4			30		15	698	683			Dug well.	668
Sec. 36, NE 1/4			13		9	702	693			Dug well.	689
Sec. 36, SE 1/4			26			710				Dug well.	684
Sec. 36, SE 1/4			38		30	730	700				692
Sec. 36, SE 1/4		1900(?)	20	3	11	742	731		40-50	Dug well	722
Sec. 36, NE 1/4		1941	40	4		700					660
Sec. 36, SW 1/4		1935	125	2	60	725	665			Used 1/2hr. per day 53.5°F.	600
Sec. 36, NW 1/4			125	2		745				53.5°F.	620
Sec. 36, SE 1/4		1946	128	3		725				Used 6hrs. per day 54 °F.	597
Sec. 36, SW 1/4			126	2		745				Used 2hrs. per day 53.5°F.	619
Sec. 36, NW 1/4		1916	135	4	40	740	700	5			605
<u>20N-8E</u>											
Sec. 1, SE 1/4		1928	137	2	70	752	682				615
Sec. 2, SW 1/4		1910	40	3	10-20	766	746	6	378	Dug well	726
Sec. 2, SE 1/4		1933	185	3	80	761	681				576
Sec. 3, SE 1/4		1904	30	4	14	765	751	5	420	Dug well.	735
Sec. 3, NW 1/4		1877	38	2	28	765	737				727
Sec. 3, SE 1/4			160			752				59°F.	592
Sec. 4, NW 1/4			130	2	15	752	737		400		622
Sec. 5, NW 1/4			80	2		740					660
Sec. 6, SE 1/4						742					
Sec. 6, NE 1/4			200	2	30	735	705				535
Sec. 7,		1920	67	2		720					653
Sec. 7, SE 1/4		1932	40	2	26	763	737				723
Sec. 8, SE 1/4		1923	80	2	25	780	755			51°F.	700
Sec. 8, SW 1/4			165	2		780				Used 2-3hrs. per day	615
Sec. 9, SE 1/4			170	2	80	785	705			50°F.	615
Sec. 9, SW 1/4			150	2	30	790	760				640
Sec. 10, SW 1/4		1910	30	4	18	782	764	4	336	Dug 30ft.	737
Sec. 10, NE 1/4		1900	30	4	15	761	746	3 1/3	420	Used 1 1/2hrs. per day	731
Sec. 11, NE 1/4		1910	140	2	70	760	690	3	504	Used 2hrs. per day	620
Sec. 11, NW 1/4		1923	162	2	62	763	701	3 1/2	294	Used 1hr. per day	601
Sec. 12, NE 1/4		1924	50	2	20	745	725	4	336	Used 1hr. per day	695
Sec. 12, SE 1/4			42	2	25	740	715				698
Sec. 13, NE 1/4		1890	140	2	25	731	706	3	252.	Used 1hr. per day	591
Sec. 13, SW 1/4		1900	145	2	75	751	676	5	252	Used 3/4hr. per day	606
Sec. 14, SE 1/4		1890	145	2	75	750	675	5	420	Used 1hr. per day	605
Sec. 14, NW 1/4	100	1914	50	4	10-20	760	740	2 1/2	420	Used 1hr. per day	670
Sec. 15, NE 1/4		1931	150	2	60	766	706	2 1/2	420	Used 2hrs. per day	616
Sec. 15, NW 1/4		1933	175	3	90	777	687	4	1050	Used 3hrs. per day	602
Sec. 16, NW 1/4		1905	215	2		810				53 °F.	595
Sec. 16, NE 1/4			200	2	80	772	692				572

<u>Location</u>	<u>No.</u>	<u>Date Drill- ed</u>	<u>Depth Feet</u>	<u>Diam. Ins.</u>	<u>SWL Ft. to Water</u>	<u>Ref. Elev. MSL</u>	<u>W. L. in MSL</u>	<u>Capa- city GPM</u>	<u>Daily Pump - age, Gals</u>	<u>Results</u>	<u>Bottom Hole Elev.</u>
<u>2 ON -8E(Contd.)</u>											
Sec. 17, SE 1/4		1912	100		4	825	821				45°F. 725
Sec. 17, NW 1/4		1933	175	2		800					625
Sec. 17, NE 1/4			165	2	75	805	730				640
Sec. 17			150	1 1/2		795				Used 2hrs. per day	645
											52° F.
Sec. 18, NE 1/4			190	2	27	775	748	1		Used 1/2hr. per day	585
Sec. 19, SE 1/4		1939	167	2	40	755	715			Used 3hrs. per day	53.5°F. 588
Sec. 19, SE 1/4		1930	44	2		755				Used 1/2hr. per day	711
											50°F. 53°F.
Sec. 20, NE 1/4		1920	210	4	180	805	625				595
Sec. 20, NE 1/4		1920	75	4	4	785	781	20		Used 2hrs. per day	710
Sec. 20, NW 1/4			200	4		822					622
Sec. 22, NW 1/4	101	1905	227	2	110	792	682	3	252	Used 1hr. per day	565
Sec. 22, NE 1/4		1895	30	4	23	763	740	4	336	Used 1hr. per day	733
Sec. 23, SW 1/4			50	4	20	772	752	3	126	Dug well	722
Sec. 24, NE 1/4			32	3	14	735	721	10	840	Used 1hr. per day	703
Sec. 24, NW 1/4		1930	129	2 1/2	60	740	680	4	336	Used 1hr. per day	611
Sec. 25, SE 1/4		1905	160	4	70	740	670	3 1/2	630	Used 2hrs. per day	580
Sec. 25, NW 1/4		1917	150	2	65	760	695	3 1/2	840	Used 3hrs. per day	610
Sec. 26, SE 1/4				3				10			
Sec. 26, NE 1/4		1928	85	2	55	748	693	3 1/2	420	Used 1 1/2hrs. per day	663
Sec. 26, SE 1/4		1917	152	2	80	755	675			Dunham School well	603
Sec. 26, SW 1/4			145	4	80	771	691	4	504	Used 1 1/2hrs. per day	626
Sec. 26, NW 1/4		1933	166	2	100	760	660	4 1/2	756	Used 2hrs. per day	594
Sec. 27, SW 1/4			135	2	100	812	712	2	84	Used 1/2hr. per day	677
Sec. 27, NW 1/4		1910	250	2	125	805	680	3	756	Used 3hrs. per day	555
Sec. 28, SE 1/4		1941		3				5			
Sec. 29, NW 1/4				3				5		Used 1/2hr. per day	
Sec. 29, NW 1/4				2				3.2		Used 2hrs. per day	
Sec. 31, SE 1/4			130	2		710				Used 1hr. per day.	50°F. 580
Sec. 31, NW 1/4		1944	112	2	60	720	660			Used 1/2hr. per day	608
											53.5°F.
Sec. 33, NE 1/4				2				4.5		Used 1hr. per day	
Sec. 34, NW 1/4		1930	90	2	40	791	751	3 1/2	630	Used 2hrs. per day	701
Sec. 34, NE 1/4	102	1924	60	2	45	747	702				46°F. 687
Sec. 35, NW 1/4		1920	200	2	100	770	670	3	504	Used 2hrs. per day	570
Sec. 36, NW 1/4		1910(?)	50	2	30	743	713	5	840	Used 2hrs. per day	693
Sec. 36, SE 1/4			50	3 1/2	30	754	724	4	1050	Used 3hrs. per day	704
										Dug well	
<u>2 ON -9E</u>											
Sec. 4, NE 1/4		1900		2		729		4.5		Used 8hrs. per day	
Sec. 4, SE 1/4		1939	110	2	48	730	682	2 1/2		Used 3hrs. per day	620
Sec. 5, NE 1/4		1934		2		738		4.5		Used 1/2hr. per day	
Sec. 7, NE 1/4				4		740				Dug well	
Sec. 7, SE 1/4		1891	40	3 1/2	20	739	719	9		Used 1 hr. per day	699
Sec. 8, NW 1/4		1901	40	5	5	739	734	12		Used 3hrs. per day	699
Sec. 8, NW 1/4		1896	160	1	70	730	640	1		Used 4hrs. per day	570
Sec. 8, SW 1/4		1911	139	2		731		3.5		Used -1 1/2hrs. per day	594
Sec. 9, SE 1/4				2		731		5.5			
Sec. 9, NW 1/4						731	10			Used 2hrs. per day	
Sec. 9, NW 1/4						729				Used 1 1/2hrs. per day	
Sec. 9, NE 1/4		1904	102	2	50	730	680				628
Sec. 13, NE 1/4		1940	76	3		710					634
Sec. 16, NW 1/4						721				Used 2hrs. per day	
Sec. 16, SW 1/4		1939		2		736		4.5		Used 6hrs. per day	
Sec. 16, SW 1/4		1900(?)	30	3	17	730	713	13		Dug well	700
Sec. 16, SE 1/4		1933	100	2	56	730	674	12		Used 2hrs. per day	630
Sec. 16, SW 1/4		1910	120	2	49	750	701	3 1/2		Used 1/2hr. per day	630

Location	No.	Date Drill- ed	Depth Feet	Diam. Ins	SWL Ft. to Water	Ref. Elev. MSL	W. L. in MSL	Capa- city GPM	Daily Pump- age, gals	Remarks	Bottom Hole Elev.
<u>2 ON - 9E( Contd.)</u>											
Sec. 16, NE 1/4		1906	128	2	10	734	724	3		Used 1/2hr. per day	606
Sec. 17, NE 1/4		1920	172	2	35	740	705	3		Used 1hr. per day	568
Sec. 18, SE 1/4		1940	52	2		730					678
Sec. 18						740				Used 1/2hr. per day	
Sec. 18, SE 1/4		1940	54	2	24	752	728	1 1/2		Used 1hr. per day	698
Sec. 18, NW 1/4		1895	24	4	20	734	714	7		Used 1/2hr. per day	694
Sec. 18, SW 1/4		1880	160	2	65	764	699	4 1/2		Used 1/2hr. per day	604
Sec. 19, SE 1/4			90	2	35	740	705	3		Used 3hrs. per day	650
Sec. 19, SW 1/4		1900	168	2	85	737	652	5 1/2		Used 2hrs. per day	569
Sec. 19, NW 1/4		1900	32	4	20	756	736	13		Used 2hrs. per day	724
Sec. 20, NW 1/4				2				3.2		Dug well.	
Sec. 20, SE 1/4		1890	36	4		727		3 1/2		Used 1 1/2hrs. per day	691
Sec. 20, NW 1/4		1931	178	2	60	735	675			Used 1hr. per day	557
Sec. 20, NW 1/4	103	1903	30	5	26	739	713	10		Used 1hr. per day	709
										Dug well.	
Sec. 21 SW 1/4		1940	138	2	75	725	650	3 1/2		Used 2hrs. per day	587
Sec. 21, SE 1/4		1925	93	2	25	725	700	3		Used 2hrs. per day	632
Sec. 22, SW 1/4		1940	118	2		737					619
Sec. 22, SW 1/4		1925	53	2	18	735	717	3		Used 1hr. per day	682
Sec. 24, SE 1/4		1900		4				5		Used 1hr. per day	
										Dug well.	
Sec. 26, NW 1/4		1870	30	4	27	697	675	13 1/2		Used 2hrs. per day	661
Sec. 27, NW 1/4		1933	57	2	4	710	706	3 1/2		Used 6-8hrs. per, day	663
Sec. 28, NE 1/4		1923	90	3	24	726	702	5			636
Sec. 28, SE 1/4	104	1928	130	1 1/2	65	730	665	1 1/2		Used 1/2hr. per day	600
Sec. 28, NW 1/4		1920	40	4	22	732	710	6		Used 1hr. per day	692
										Dug well	
Sec. 28, SE 1/4		1890	40	4	30	730	700	6 1/2		Used 2hrs. per day	690
										Dug well.	
Sec. 28, NW 1/4		1896	124	2	67	727	660	3 1/2		Used 12hrs. per day.	603
Sec. 29, NE 1/4	105	1940	108 1/2	2	85	726	641				618
Sec. 29, SE 1/4		1918	176	2		725		1 1/2		Used 4hrs. per day	549
Sec. 29, SW 1/4			20	4	22	730	708	8		Used .1hr.per day	690
Sec. 29, SW 1/4		1931	144	2		730		4		Used 1/2hr. per day	584
Sec. 29, NW 1/4		1929	120	2	60	732	672	5		Use 2hrs. per day	612
Sec. 29, SW 1/4	106	1920	140	2	65	730	665	6		Used 2hrs. per day	590
Sec. 30, NE 1/4		1890	36	2 1/2	26	742	716	6		Used 1hr. per day	706
Sec. 30, NW 1/4		1926	80	2	12	738	726	12		Used 12hrs!, per day	658
Sec. 30, SW 1/4		1870	40	4	30	705	675	8		Used 2hrs. per day	665
Sec. 31, SW 1/4			50	4	30	712	682	3		Used 2hrs. per day	662
Sec. 31, SW 1/4		1931	15	5		715		2		Used 1/2hr. per day	700
Sec. 31, SW 1/4		1924	17	3	14			2			
Sec. 31, SW 1/4		1940	11	3	11	715	704			Used 2hrs. per day	704
Sec. 31, SW 1/4		1940	12	6	10	715	705			Bucket & rope well.	703
Sec. 31, SW 1/4			26	2	22	715	693	3		Used 1hr. per day	689
Sec. 31, SW 1/4		1931	60	3	40	754	714	5	50		694
Sec. 31, SW 1/4		1939	148	2		707		4 1/2		Used 2-3hrs. per day	559
Sec. 31, SW 1/4		1931	12	1 1/2	10	714	704	2		Used 1hr per day	702
Sec. 31, SW 1/4		1938	15	4	13	719	706				704
Sec. 31, SW 1/4		1929	176	8							
Sec. 31, SW 1/4		1923	176	8							
Sec. 31, SE 1/4		1944	164	5	97	726	629				562
Sec. 31, SE 1/4		1923	170	5	90	717	627				547
Sec. 31, SE 1/4		1944	185	5							
Sec. 31, SE 1/4		1944	158	5							
Sec. 31, SE 1/4		1944	168	5							
Sec. 31,SE 1/4		1944	185	5							
Sec. 31, SE 1/4		1944	195	5							

<u>Location</u>	<u>No.</u>	<u>Date Drilled</u>	<u>Depth Feet</u>	<u>Diam. Ins.</u>	<u>SWL Ft. to Water</u>	<u>Ref. Elev. MSL</u>	<u>W. L. in MSL</u>	<u>Capacity GPM</u>	<u>Daily Pumpage Gals</u>	<u>Remarks</u>	<u>Hole Elev.</u>
<u>20N-9E(Contd.)</u>											
Sec. 31, SW	1/4	1925	14	4	14	705	691			Dug well	691
Sec. 31, SW	1/4	1926	20	1	18	705	687	2		Used2hrs. per day	685
Sec. 31, SW	1/4	1939	12	3	9	715	706	2		Used5hrs. per day	703
Sec. 31, SW	1/4	1933	160	2		715		2		Dug well	
Sec. 31, SW	1/4		12	4	12					Used 2 12hrs. per day	555
Sec. 31, SW	1/4		45	2	15	703	688	2		Used2hrs. per day	
Sec. 31, SW	1/4	1933	148	2		711		3		Used4hrs. per day	658
Sec. 31, SW	1/4	1937	170	2	30	743	713	2		Used4hrs. per day	563
Sec. 31, SW	1/4	1937	170	2	30	743	713	2		Used2hrs. per day	573
Sec. 31, SW	1/4	1935	30	10	26	708	682	2		Used2hrs. per day	678
Sec. 31, SW	1/4	1937	127	2	94	707	613	2		Used3hrs. per day	580
Sec. 32, NE	1/4	1900	30	4	32	737	705	5		Used2hrs. per day	707
Sec.32, SE	1/4	1918	40	4	32	738	706	5		Dug well	
										Used2hrs. per day	698
Sec. 32, NE	1/4	1920	97	2	35	742	707	2.2		Dug well.	
Sec. 32, SW	1/4	1923	32	4	30	723	702			Used 3/4 hr. per day	645
Sec. 32, SW	1/4	1923	175	2	50	710	660	2.2		Used4hrs. per day	691
Sec. 32, SW	1/4	1941	92	2		720		3		Dug well.	
Sec. 33, NE	1/4	1933	118	2	30	732	702	3 1/2		Used 1 12hr. per day	535
Sec. 33, NE	1/4	1890	36	4	18	744	726	1 1/2		Used 46hrs. per day	628
Sec. 33, NE	1/4	1940	22	6		750				Used4hrs. per day	614
Sec. 33, NE	1/4	1936	110	3	75	722	647	6 1/2		Used15hrs. per day	708
Sec. 33, NE	1/4	1924	36	2	33	709	676	2		Dug well	728
Sec. 33, SW	1/4	1910	30	4	27	737	710	4		Used12hrs. per day	612
Sec. 33, SW	1/4	1916	35	2	30	727	697	2		Used4hrs. per day	673
Sec. 33, NE	1/4	1921	35	1 1/4	7	724	717	1 1/2		Dug well	
Sec. 33, NW	1/4	1891	65	4	55	728	673	4		Used 12hr. per day	707
Sec. 33, SW	1/4	1926	35	1 1/4	25	731	706	1 1/2		Used6hrs. per day	692
										Used12hrs. per day	689
										Used2hrs. per day	663
										Dug well	
										Used 12hr. per day	696
<u>20N-10E</u>											
Sec. 5, NW	1/4		90	3		670					
Sec. 6, NE	1/4	1902	90	2	25	712	687	2 1/2	210	Used1hr. per day	580
Sec 7, NW	1/4		70	2 1/2		710					622
Sec. 29, NW	1/4	1936	70	2 1/2	13	695	682				640
											625
<u>21N-7E</u>											
Sec. 1		1913	38	3 1/2	26	713	687		336	Dug well	675
Sec. 1			16			711			42		555
Sec. 13, SE	1/4	1811	14	3		701				Dug well	687
Sec. 13			30	3	20	735	715		1520	Dug well	705
Sec. 1 3, SW	1/4	1940	54	2	35	712	677				658
Sec. 13, SW	1/4	1940	54	2	35	712	677				658
Sec. 20		1941	76	2	50	741	691				665
Sec. 20		1941	85	2	41	741	700				656
Sec. 20		1941	76	2	50	741	691				665
Sec. 20		1941	85	2	41	741	700				656
Sec. 20, SW	1/4	1942	90	2		750					54.4F. 660
Sec. 25			30			?				Dug well	
Sec. 25			62	3	20	712	692		210		650
Sec. 27, SW	1/4	1943	218	2		745					527
Sec.27,SE	1/4	1943	78	2	30	735	705				53°F.657
Sec. 27, NW	1/4	1898	90	2	80	750	670				56.2°F.660
Sec. 30, SW	1/4	1893	85	2	75	783	708				53.5°F.698

<u>Location</u>	<u>No.</u>	<u>Date Drill- ed</u>	<u>Depth Feet</u>	<u>Diam. Ins.</u>	<u>SWL Ft. to Water</u>	<u>Ref. Elev. MSL</u>	<u>W. L. in MSL</u>	<u>Capa city GPM</u>	<u>Daily Pump - age, Gals.</u>	<u>Remarks</u>	<u>Bottom Hole Elev.</u>
<u>21N - 7E(Contd.)</u>											
Sec. 31, NE 1/4		1918	87	2	30	768	738				54 °F681
Sec. 33, NW 1/4		1942	227	2	60	760	700				56 °F533
Sec. 36			25	3	10	711				Dug well	686
Sec. 36			20	2		712				Driven well	692
<u>21N - 8E</u>											
Sec. 1, NE 1/4			30			722					692
Sec. 1, NW 1/4			85	2		724			1000		639
Sec. 1			50			?					
Sec. 2, NE 1/4			50	2		730					680
Sec. 2, NW 1/4			270	2		725					455
Sec. 2			30			?				Dug well	
Sec. 3, SE 1/4		1897	75	3		724				Dug well	649
Sec. 3, NE 1/4		1932	80	2 1/2	14	725	711		600		645
Sec. 3, NW 1/4		1940	58	4	33	730	697				672
Sec. 4, NE 1/4		1900	175	2		728					553
Sec. 4, SE 1/4		1910	70	2		728					658
Sec. 4, SW 1/4			28	4 1/2	22	732	710		500	Dug well	704
Sec. 5, SE 1/4		1942	50	4	25	728	703		1000		678
Sec. 6			75	2 1/2	20				252		
Sec. 7, SE 1/4		1940				726					
Sec. 7, SW 1/4			75	2	15	710	695		840		635
Sec. 7, NE 1/4			50	3	20	701	681		2100		651
Sec. 8, SW 1/4			85			727					642
Sec. 8, NW 1/4			20	3		720			100	Dug well	700
Sec. 8, NE 1/4		1898	54	3		745			400	Dug well	691
Sec. 8, SE 1/4			60	2		715			400		655
Sec. 9, SW 1/4		1923	66	4	14	725	711		300		659
Sec. 9, NW 1/4			28	3	20	735	715		400	Dug well	607
Sec. 9, NE 1/4			70	2	45	725	680		350		655
Sec.10, NW 1/4		1900	25	4	20	725	705		250		700
Sec.10, SW 1/4			27			730		15			703
Sec.10, SE 1/4		1919	85	3	15	735	720		1000		650
Sec.11, SE 1/4		1941	180	2		732			400		552
Sec.11, SW 1/4			215	3	25	730	705		600		515
Sec.11, NE 1/4		1900	190			721					531
Sec.11, NW 1/4		1914	196	2	45	730	685		1500		534
Sec.12, NW 1/4			18	3 1/2	16	730	714			Dug well	712
Sec.12, NE 1/4			197	2		734			400		537
Sec.13, SE 1/4		1941	150	3	75	775	700				625
Sec.14, NE 1/4			190	2	35	738	703		250		548
Sec.14, SW 1/4	107	1941	110	2	24	750	726		400		640
Sec.14, SE 1/4			130	2		755			300		625
Sec.14, SE 1/4		1935	140	2	16	772	756		1000		632
Sec.15, SW 1/4		1921	87	3		730			600		643
Sec.15, NW 1/4			30	3	10	737	727		50	Dug well	707
Sec.16			75(?)			731					656
Sec.16			125			714			168		589
Sec.16, SE 1/4		1921	90	2		732			200		642
Sec.16, NE 1/4			18	3	10 1/2	730	719 1/2		600		712
Sec.16, NW 1/4		1918	240	2		715					475
Sec.16, SW 1/4		1932	135	2		742					607
Sec.17, NW 1/4		1931	200	3		718					518
Sec.17, SW 1/4			65	2		717			294		652
Sec.18, NE 1/4			90	2		720			420		630
Sec.18, NW 1/4			20	3	15	705	690			Dug well	685
Sec.18, NW 1/4		1900	78	3	15	736			350		658
Sec.18, SE 1/4		1900	174	2		710					536
Sec.19, SW 1/4		1920	65	2	15	725	710		250		660

<u>Location</u>	<u>No</u>	<u>Date Drill- ed</u>	<u>Depth Feet</u>	<u>Diam. Ins.</u>	<u>SWL Ft. to Water</u>	<u>Ref. Elev. MSL.</u>	<u>W. L. in MSL</u>	<u>Capa - city GPM</u>	<u>Dai l y Pump - age Gals.</u>	<u>Remarks</u>	<u>Bottom Hole Elev.</u>
<u>21N -8E(Contd.)</u>											
Sec. 19, SE 1/4			30	3		711				Dug well	681
Sec. 19, SW 1/4		1941	185	2		725			100		540
Sec. 20, SW 1/4		1917	80	2		716			200		636
Sec. 20, SE 1/4		1880±	27	3 1/2	1 7 1/2	745	727 1/2		400	Dug well	718
Sec. 20, NW 1/4			140	4		730	660		1000		590
Sec. 20, NE 1/4			30	3		18	731	713		Dug well	701
Sec. 21, NE 1/4		1910	96	2		6	738	732			642
Sec. 21, SE 1/4			30			15	740	725			710
Sec. 22, NE 1/4			135	3		15	742	727			607
Sec. 22, SE 1/4		1900	250	2			775		200		525
Sec. 23, SW 1/4		1900	165	2		50	758	708			593
Sec. 23, NW 1/4			150	2		30	753	723			603
Sec. 23, NE 1/4			140	2			782				642
Sec. 24, NE 1/4		1941	135			65	772	707			637
Sec. 25, SE 1/4	108	1930	157	2		55	750	695		500	593
Sec. 25, SE 1/4		1941	130	2			762				632
Sec. 26, SE 1/4			140	2			771				631
Sec. 26, NW 1/4	109	1900	145	2		25	772	747		300	627
Sec. 26, SE 1/4			140	2			775				635
Sec. 27, NW 1/4		1939	100				753				653
Sec. 27, NE 1/4		1903	240	3			772			250	532
Sec. 27, SW 1/4		1942	224	4		87	756	669			532
Sec. 27, SE 1/4		1903	165	2			783				618
Sec. 27, SW 1/4		1939	100				753				653
Sec. 28, NE 1/4		1939	37	3			742			300	705
Sec. 28, SW 1/4			90	2			741				651
Sec. 29, SW 1/4			90	2 1/2		25	736	711		336	646
Sec. 29, NW 1/4			80	2 1/2			733				653
Sec. 29, NE 1/4			21	3		10 1/2	738	727 1/2		Dug well	717
Sec. 30, SW 1/4		1941	25	1 1/2			705				680
Sec. 30, SW 1/4			40	3			710			200	670
Sec. 30, NW 1/4		1943	67	2		45	705	660			638
Sec. 30, NW 1/4		1907	34	8		20	695	675		150	661
Sec. 30, NW 1/4		1940	153	2		29	705	676		800	552
Sec. 30, SW 1/4			40	3		15	715	700		100	675
Sec. 30, NE 1/4			75	2 1/2			710				635
Sec. 30, NE 1/4			33	2 1/2			731				697
Sec. 30, SE 1/4			80	2 1/2		30	722	692		336	642
Sec. 31			50				716				666
Sec. 31, SW 1/4							731				
Sec. 31			60	2 1/2			723				663
Sec. 31, NE 1/4			75	2			725				650
Sec. 31, SE 1/4			42	4			744				702
Sec. 31, NE 1/4			20 1/2	3			740			500	720
Sec. 32, NE 1/4			70	2		5	755	750		2500	685
Sec. 32, SE 1/4	110	1900	130±	2		40	765	725		200	635
Sec. 33, NW 1/4		1918	70	2			755			300	685
Sec. 33, NW 1/4		1939	113	4		78	750	672		400	637
Sec. 33, SE 1/4			25	3		12	782	770		200	757
Sec. 33, NE 1/4		1900	150	2		50	785	735		300	635
Sec. 34, NW 1/4			25	4		18	780	762		300	755
Sec. 34, NE 1/4			248	2			780			250	532
Sec. 34, SW 1/4		1942	180	4			786			200	606
Sec. 35			170	2 1/4			760				590
Sec. 35, SE 1/4			170				770			300	600
Sec. 35, NE 1/4			140	2			761				621
Sec. 35, NW 1/4			265	2			782			300	517
Sec. 35, NE 1/4		1923	140	2			762			50	622
Sec. 36, SE 1/4							752			150	

Location	No.	Date Drill- ed	Depth Feet	Diam. Ins.	SWL Ft. to Water	Ref. Elev. MSL.	W.L. in MSL.	Capa- city GPM	Daily Pump- age Gals.	Remarks	Bottom Hole Elev.
<u>21N-9E</u>											
Sec. 1, SW	1/4	1920	50	2	23	733	710	3 1/2		Used 2 hrs. per day	683
Sec. 3, NW	1/4	1913	120	2 1/2	30	752				Used 1 1/2 hrs. per day	632
Sec. 4, NW	1/4	1896	112	2	62	730	668				618
Sec. 4, SE	1/4	111 1923	128	2	65	758	693	3	420		630
Sec. 5, NW	1/4	1922	87	2	30	728		16		Used 1/2 hr. per day	641
Sec. 5, NE	1/4	112 1900	115	2	60	738	678	5		Used 2 1/4 hr. per day	623
Sec. 6, SE	1/4	1903	100	2	25	732	707	3 1/2		Used 4 hrs. per day	632
Sec. 7, SW	1/4	1913	134	2	52	735	683	9		Used 1 1/2 hr. per day	601
Sec. 7, NW	1/4		120	2	30	735	705				615
Sec. 9, NE	1/4	1919	110	2		750		3	256		640
Sec. 11, NW	1/4		120	2		737		4	756		617
Sec. 12, SE	1/4	113 1900	80	2	20	722	702	4 1/2		Used 6 hrs. per day	642
Sec. 12, SW	1/4	1920	30	5	7	730	723	4 1/2		Dug well	700
Sec. 12, SW	1/4		100	2	6	730	724	4 1/2		Used 5 hrs. per day	630
Sec. 12, NE	1/4	1900	50	2	30	731	701	4 1/2		Used 2 hrs. per day	681
Sec. 13, NW	1/4	1939	90	2	48	740	692	5		Used 3 hrs. per day	650
Sec. 13, NW	1/4	114 1900	100	2	55	732	677	2 1/2			632
Sec. 13, NE	1/4	115 1930	120	2	30	733	703	4 1/2		Used 10 hrs. per day	613
Sec. 13, NW	1/4		125	2	60	735	675	2.2		Used 12 hrs. per day	610
Sec. 14, SE	1/4	115a 1920	100	2	64	735	671	5 1/2		Used 1 1/2 hr. per day	635
Sec. 14, NW	1/4	1920	100	2	20	731	711	4 1/2		Used 2 hrs. per day	631
Sec. 14, NW	1/4		90	2	20	731	711	4 1/2		Used 2 hrs. per day	641
Sec. 14, NW	1/4	1936	82	2	40	730	690	3.2		Used 2 hrs. per day	648
Sec. 14, NW	1/4		130	1 1/2	100	731	631	3		Used 2-3 hrs. per day	601
Sec. 14, SE	1/4	1895	98	2		740		3 3/4	630	Used 3 1/2 hrs. per day	642
Sec. 15, NE	1/4	1910	80	2	25	731	706	3		Used 1 hr. per day	651
Sec. 15, NE	1/4	1914	90	2	18	730	712	3		Used 3 hrs. per day	640
Sec. 15, SW	1/4	1920	75	2	10	735	725	2 1/2		Used 6 hrs. per day	660
Sec. 16, SW	1/4	1895	35	3	20	740	720		420		697
Sec. 16, NE	1/4	116 1911	125	2	50	738	688			Used 1/2 hr. per day	613
Sec. 17, NW	1/4	1900	103	2	40	768	728	3 1/2	630		665
Sec. 18, NE	1/4	1895	124	2	75	770	695		504		646
Sec. 19, SW	1/4		140	2		755					615
Sec. 20, NW	1/4	1900	96	2		750		10	840		654
Sec. 20, NE	1/4	117 1895	85	2	35	732	697		610		747
Sec. 21, NE	1/4	118 1898	97	2	37	733	696	1 3/4	294	Used 2 hrs. per day	636
Sec. 22, NE	1/4	1920	120	2 1/2	50	732	682	6.7		Used 2 hrs. per day	612
Sec. 22, NE	1/4		90	2	10	731	721	3	504	Used 2 hrs. per day	641
Sec. 23, SW	1/4	1918	105	2	8	738	730	3	252	Used 1 hr. per day	633
Sec. 23, NW	1/4	1937	85	2	25	730	705	5	294	Used 2 1/4 hr. per day	641
Sec. 24, NE	1/4		60	2	8	703	695	2	210	Used 1 1/2 hrs. per day	643
Sec. 24, NW	1/4	1931	87-98	2 1/2	46	712	666	6		Used 1 hr. per day	614
Sec. 24, SW	1/4	119 1892	110	2	10	722	712		420	Used 2 hrs. per day	612
Sec. 25, NW	1/4	1933	84	2		710		1 1/2	126	Used 1 hr. per day	626
Sec. 25, SE	1/4	1905	65	2		710		4		Used 1 hr. per day	645
Sec. 28, SE	1/4	1933	78	2	35	730	695				652
Sec. 28, SW	1/4	1940	150			730					580
Sec. 30, NW	1/4		119	2 1/2	30-40	765	730(?)				646
Sec. 30, NE	1/4		150	2 1/2	30-40	762	722		200		612
Sec. 32, SE	1/4			3						Used 1 hr. per day	
Sec. 33, SW	1/4			2						Used 3 hrs. per day	
Sec. 33, SW	1/4			2				5.5		Used 3 hrs. per day	
Sec. 33, SE	1/4	120 1925	95	3	45	730	685	10		Used 1 hr. per day	635
Sec. 33, NE	1/4	1930	113	2	55	728	673	2 1/2	210	Used 1 hr. per day	615
Sec. 35, NW	1/4	1928	85	2	30	736	706	4		Used 3/4 hr. per day	651
Sec. 36, NE	1/4		75	2	22	715	693	5	1260	Used 3 hrs. per day	640
Sec. 36, NW	1/4	1931	104	2 1/2	50	711	661	2 3/4	336	Used 1 1/2 hr. per day	607

Location	No.	Date Drilled	Depth Feet	Diam. Ins.	SWL Ft. to Water	Ref. Elev. MSL	W. L. in MSL	Capacity GPM	Daily Pumpage Gals	Remarks	Bottom Hole Elev.
<u>21N-10E</u>											
Sec. 2, NE 1/4		1890	135	2	115	791	676		294	Used 2 1/2hrs. per day	656
Sec. 2, NW 1/4			135	2	110	786	676				651
Sec. 4, NE 1/4		1924	55	2	22	742	720		210	Used 1 1/4hrs. per day	687
Sec. 4, NW 1/4		1922	86	2	36	726	690	4 1/2		Used 7hrs. per day	640
Sec. 5, NE 1/4		1933	45	2	24	728	704	5	315	Used 3/4hr. per day	683
Sec. 5, NW 1/4	121	1927	88	2	18	719	701	4	336	Used 1hr. per day	631
Sec. 5, NW 1/4		1898	74	2	25	722	697	3	252	Used 1hr. per day	648
Sec. 8, SE 1/4	122	1903	80	2	16	697	681	2	336	Used 2hrs. per day	617
Sec. 11, SE 1/4		1930	110	3	50	758	708				648
Sec. 13, SW 1/4		1913	60	2	45	725	680	1 1/2	252	Used 2hrs. per day	665
Sec. 14, SE 1/4		1912	70	2	40	740	700		168	Used 1 1/2hr. per day	670
Sec. 14, NE 1/4		1927	90	2	45	746	701	3 1/4	546	Used 2hrs. per day	656
Sec. 17, NW 1/4		1929	68	2	18	701	683	3 1/2		Used 1 1/2hr. per day	633
Sec. 17, SW 1/4		1902	85	2	30	697	667	2	252	Used 1 1/2hr. per day	612
Sec. 17, NE 1/4	123	1903	85	2	25	698	673	7	294	Used 2 1/2hrs. per day	613
Sec. 18, SE 1/4		1898	50	2	8	697	689		168	Used 1hr. per day	647
Sec. 19, NW 1/4		1930	70	2	7	702	695	3 1/4	420	Used 1 1/2hr. per day	632
Sec. 19, NE 1/4			45	2	20	700	680	1 1/2	252	Used 2hrs. per day	655
Sec. 20, SE 1/4		1940									
Sec. 20, SW 1/4		1896	50	2	8	694	686	2	84	Used 1 1/2hr. per day	644
Sec. 20, NW 1/4		1900(?)	60	2 1/2	8	701	693	7	210	Used 1 1/3hr. per day	641
Sec. 24, NE 1/4	124	1930	120	2	35	722	687	3	756	Used 3hrs. per day	602
Sec. 24, SE 1/4	125	1922	97	2	50	722	672	2 3/4	126	Used 1 1/2hr. per day	625
Sec. 26, SW 1/4		1931	52	3	5	690	685	4	630	Used 2hrs. per day	638
Sec. 27, NW 1/4		1920	50	2	4	690	686	4	420	Used 1 1/4hrs. per day	640
Sec. 27, SW 1/4		1931	50	2 1/2	4	687	683	4 1/2	168	Used 1 1/2hr. per day	637
Sec. 28, NE 1/4		1933	65	2	5	691	686	5		Used 1hr. per day	626
Sec. 28, SW 1/4		1898	50	2	8	691	683		146		641
Sec. 29, SW 1/4		1895	102	2	25	701	676	4 1/2		Used 1 1/2hr. per day	599
Sec. 29, SW 1/4		1898	102	2 1/2		701		3 1/2		Used 1hr. per day	599
Sec. 30, SW 1/4		1931	97	2	20	710	690	3	126	Used 1 1/2hr. per day	613
Sec. 31, NW 1/4		1898	45	2	20	715	695	1 1/2	252	Used 2hrs. per day	670
Sec. 31, NE 1/4		1895	82	2	12	708	696	3 1/4	630	Used 2hrs. per day	626
Sec. 32, NW 1/4		1894	50	2	10	701	691		210	Used 1hr. per day	651
Sec. 32, NE 1/4		1892	92	2	25	690	665	2 1/2	420	Used 2hrs. per day	598
Sec. 33, SW 1/4	126	1925	651	2 1/2	4	686	682	2	252	Used 1 1/2hr. per day	621
Sec. 33, SE 1/4		1925	45	2	6	685	679	4	336	Used 1hr. per day	640
Sec. 34, SE 1/4		1930	53	2 1/2	4	685	681	5 1/2	714	Used 1 1/2hrs. per day	632
Sec. 34, NE 1/4		1915	50	3	4	689	685	7	294	Used 1 1/2hr. per day	639
Sec. 35, SW 1/4		1930	45	2	4	682	678	6	630	Used 1 1/2hr. per day	637
Sec. 35, NW 1/4		1932	43	2 1/4	4	687	683	4	336	Used 1hr. per day	644
<u>21N-11E</u>											
Sec. 6, SW 1/4		1929	60	2	40	750	710	4	672	Used 2hrs. per day	690
Sec. 6, NW 1/4		1910	65	2	35	754	719	4	294	Used 1 1/2hr. per day	689
Sec. 7, SE 1/4		1892	67	2	18	769	751	5	1050	Used 2 1/2hrs. per day	702
Sec. 18, SE 1/4		1926	165	2	65	760	695	2 1/4	630	Used 3 1/2hrs. per day	595
Sec. 18, NW 1/4		1912	137	2	65	766	701	4	630	Used 2hrs. per day	629
Sec. 19, NW 1/4			90	2	30	724	694				634
Sec. 19, NE 1/4		1931	85	2	50	734	684	1 1/2	210	Used 2hrs. per day	649
Sec. 30, NW 1/4			60	2	20	732	712	2 1/2	210	Used 1hr. per day	673
Sec. 31, SE 1/4		1900	130	2	70	743	673	6	630	Used 1 1/4hr. per day	613
Sec. 31, NW 1/4		1892	112	2	65	750			84	Used 1 1/2hr. per day	638
<u>21N-14W</u>											
Sec. 4, SW 1/4		1933	61	2	30	712	682				651
Sec. 4, SW 1/4		1933	196	2	30	713	683				517
Sec. 5, SW 1/4		1916	202	2	35	721	686	3 1/4	336	Used 1 1/4hr. per day	519



<u>Location</u>	<u>No.</u>	<u>Date Drill- ed</u>	<u>Depth Feet</u>	<u>Diam. Ins.</u>	<u>SWL Ft. to Water</u>	<u>Ref. Elev. MSL.</u>	<u>W. L. in MSL.</u>	<u>Capa- city GPM.</u>	<u>Daily Pump- age Gals.</u>	<u>Remarks</u>	<u>Bottom Hole Elev.</u>
<u>21N-14W(Contd.)</u>											
Sec. 5, NE 1/4		1887	200	2	30	716	686	3 1/4	504	Used 1 1/2hr. per day	516
Sec. 6, SW 1/4		1894	118	2	18	736	718	3 1/2	294	Used 1 hr. per day	618
Sec. 6, NW 1/4		1925	160	2	30	740	710	4 1/2			580
Sec. 7, SE 1/4		1916	125	2	80	722	642	6	378	Used 3/4hr. per day	597
Sec. 7, SW 1/4		1885	100	2	40	741	701		126	Used 1 1/2hr. per day	641
Sec. 8, SE 1/4		1923	117	2	95	728	633	3	840	Used 3 1/2hr. per day	611
Sec. 8, NE 1/4		1892	80	2		701		1 3/4	126	Used 1hr. per day	621
Sec. 9, NW 1/4		1921	109	2	18	701	683	6	630	Used 1 1/2hr. per day	592
Sec. 9, NE 1/4			72	2	15	719	704	1 1/2	756	Used 6hrs. per day	647
Sec. 17, SW 1/4			125	2	35	712	677	2 1/2	210	Used 1hr. per day	587
Sec. 17, SE 1/4		1892	119	2	80	741	661	2 1/2	126	Used 1 1/2hrs. per day	622
Sec. 18, SW 1/4		1915	101	2	42	740	698		294	Used 2 1/2hrs. per day	639
Sec. 18, SE 1/4		1932	106	2	35	721	686		84	Used 1/2hr. per day	615
Sec. 19, SW 1/4		1926	98	2	55	741	686	4 1/2	420	Used 1hr. per day	743
Sec. 20, NE 1/4			102	2	75	732	657		126	Used 1 1/4hr. per day	630
Sec. 21, SW 1/4		1915	120	2	80	754	674	3 1/4	630	Used 2hrs. per day	634
Sec. 28, NE 1/4		1925	115	2	85	753	668	5	546	Used 1 1/4hr. per day	638
Sec. 28, SE 1/4		1927	148	2	80	775	695		126	Used 1 1/2hr. per day	627
Sec. 28, NW 1/4		1926	140	2	90	762	672	3	672	Used 2 1/2hrs. per day	622
Sec. 29, SE 1/4		1933	125	2	45	772	727	1 1/2		Used 1hr. per day	649
Sec. 29, NE 1/4		1933	115	2	80	764	684		84	Used 1/2hr. per day	149
Sec. 30, NE 1/4		1905	135	3	85	755	670	3	336	Used 1 1/2hr. per day	620
Sec. 31, SW 1/4		1933	102	2	55	760	705	4 1/4	1050	Used 3hrs. per day	658
Sec. 31, NW 1/4			140	2	65	761	696		336	Used 5hrs. per day	621
Sec. 32, SE 1/4		1930	83	2	50	749	699		630	Used 1 3/4hr. per day	666
Sec. 33, SW 1/4			162	2	65	740	685				578
Sec. 33, NE 1/4		1932	180	2	75	772	697	3 1/2	336	Used 1 1/2hr. per day	592
<u>22N-7E</u>											
Sec. 2, SE 1/4		1928	195	4	40	720	680		840	Used 2-4hrs. per day	625
Sec. 2, SW 1/4		1900-05	125	2		727			252	Used 2hrs. per day	602
Sec. 3, SW 1/4			85	2		730			210	Used 1hr. per day	645
Sec. 4, SE 1/4		1908	28	3	10	731	721		294	Used 1/3hr. per day	703
Sec. 4, SE 1/4		1933	55	2		735					680
Sec. 6, SW 1/4			80	4	20	750	730				670
Sec. 8, SE 1/4		1915	72	4	32	741	709				669
Sec. 10, SE 1/4		1900	103	2	20	731	711				628
Sec. 10, NW 1/4		1930	65	3	20	733	713		336	Used 1hr. per day	668
Sec. 11, NW 1/4		1905	80	4	35	734	699		840	Used 3hrs. per day	654
Sec. 11, SW 1/4		1918	75	3	35	730	695		504	Used 2hrs. per day	655
Sec. 15, SE 1/4		1928	90	2	50	726	676				636
Sec. 16, NE 1/4		1905	46	2	3	730	727		252	Used 1 1/2hr. per day	684
Sec. 16, NW 1/4		1918	172	2	90	740	650		336	Used 2hrs. per day	568
Sec. 17, SE 1/4		1924	65	2	30	732	702	15	900	Used 1hr. per day	667
Sec. 17, NW 1/4		1910	198	2	100	744	644			Used 1 1/2hr. per day	546
Sec. 18, SE 1/4		1928	170	4	60	740	680				570
Sec. 19, SE 1/4		1912	122	2	80	740	660				618
Sec. 20, SE 1/4		1912	90	3	25	735	710		336	Used 1 1/2hr. per day	645
Sec. 21, NW 1/4		1912	86	2	40	741	701		378	Used 1hr. per day	655
Sec. 22, NE 1/4		1915	52	3	5	732	727				680
Sec. 22, SE 1/4		1908	65	2	35	728	693	4		Used 1hr. per day	663
Sec. 24, SE 1/4		1897	114	3	70	740	670		140	Used 1 1/2hr. per day	626
Sec. 24, SW 1/4		1919	100	3	30	739	709		588	Used 2hrs. per day	639
Sec. 26, SW 1/4		1905-10	52	3	15	735	720			Used 1hr. per day	683
Sec. 26, SE 1/4		1908	180	3	30	740	710		504	Used 1hr. per day	560
Sec. 27, SE 1/4		1930	57	2	30	733	703		252	Used 1 1/2hr. per day	676
Sec. 28, NW 1/4		1922	96	2	50	748	698		210	Used 1hr. per day	652
Sec. 29, NW 1/4		1913	203	2	30	743	713			Used 1hr. per day	540
Sec. 29, SE 1/4		1930	205	2	65	748	683		630	Used 6hrs. per day	243

<u>Location</u>	<u>No.</u>	<u>Date Drill- ed</u>	<u>Depth Feet</u>	<u>Diam. Ins.</u>	<u>SWL Ft. to Water</u>	<u>Ref. Elev. MSL.</u>	<u>W. L. in MSL.</u>	<u>Capa- city GPM.</u>	<u>Daily Pump- age Gals.</u>	<u>Remarks</u>	<u>Bottom Hole Elev.</u>
<u>22N-7E(contd.)</u>											
Sec. 29, SW 1/4		1941	72	4	36	?		5			
Sec. 30, NW 1/4			60	4	12	740	728	3	504	Used 2hrs.per day	680
Sec. 30, SE 1/4			140	2		742			336	Used 3hrs.per day	602
Sec. 31, SE 1/4		1931	70	3		744				Used 2hrs.per day	674
Sec. 31, NW 1/4		1914	22	2 1/2	18	740	722		420	Used 1/2hr.per day	613
Sec. 32, SE 1/4		1900	75	2	35	745	710		336	Used 1hr.per day	670
Sec. 32, NW 1/4		1915	75	2		743		2 1/4	1470	Used 8hrs.per day	668
Sec. 33, SW 1/4		1918	80	2	30	740	710		630	Used 2-3hrs.per day	660
Sec. 34, SE 1/4			70	2		740				Used 6hr.per day	670
Sec. 34, NW 1/4		1920	55	3	45	741	696		420	Used 1hr.per day	686
Sec. 35, SW 1/4		1905	80	2	45	733	688		600	Used 3hrs.per day	653
Sec. 35, SE 1/4		1928	210	2	70	732	662		420	Used 3hrs.per day	522
Sec. 36, SE 1/4		1917	45	3	27	718	691	5-6		Used 1hr.per day	673
Sec. 36, NE 1/4		1922	86	3	20	716	696		672	Used 3hrs.per day	630
Sec. 36, SE 1/4		1905	45	3	20	720	700			Used 4hrs.per day	675
										Dug well	
Sec. 36, SE 1/4		1919	100	2	40	721	681			Used 2hrs.per day	621
<u>22N-8E</u>											
Sec. 1, NW 1/4		1900	105	2	70	751	681		924		646
Sec. 1, SE 1/4		1895	100	2	27	766	739		294		666
Sec. 2, SE 1/4		1898	50	2	35	722	687		420		672
Sec. 2, SW 1/4		1900	60	2	20	722	702		504		662
Sec. 3, NW 1/4			65	2	40	727	687		168	Used 1hr.per day	662
Sec. 4, NW 1/4		1900	40	2		725			840	Used 12hrs. per day	685
Sec. 4, NE 1/4		1940	55	2	30	?		3 1/2			
Sec. 5, NE 1/4		1910	28	2	8	725	717	2			697
Sec. 5, SW 1/4		1920	170	2	82	718	636	7		Used 2hrs.per day	548
Sec. 6, NE 1/4		1927	60	3	18	718	700			Used 1hr.per day	655
Sec. 6, NW 1/4		1900	32	3	16	724	708			Used 1 1/2hr.per day	692
										Dug well	
Sec. 7, NE 1/4		1914	170	2		721			420		551
Sec. 8, NW 1/4		1914	40	2	20	719	699		504		676
Sec. 8, SW 1/4		1920	35	3	20	718	698				683
Sec. 9, SE 1/4		1933	30	3		711			210	Used 1hr.per day	681
Sec. 10, SW 1/4		1900	72	4	12	712	700		504	Used 2hrs.per day	640
					10						
Sec. 11, SW 1/4		1920	185	2	0	720	620	3		Used 1hr.per day	535
Sec. 12, NE 1/4		1902	19	2	5	733	728	13	336		714
Sec. 12, SW 1/4		1918	124	3	20	725	705		756		601
Sec. 12, NW 1/4		1940	112								
Sec. 13, NE 1/4		1919	85	3	20	724	704	2	756		639
Sec. 13, SE 1/4		1895	250	4	37	725	688		420		475
Sec. 14, NE 1/4		1915	80	2	20	724	704			Used 3hrs.per day	644
Sec. 14, SW 1/4		1918	75	4	30	725	695		630		650
Sec. 15, SW 1/4		1917	85	2	30	718	683	3-4	840	Used 3hrs.per day	633
Sec. 15, NE 1/4		1929	85	2	12	723	711		840	Used 1 3/4hr.per day	638
Sec. 16, SW 1/4		1915	138	2	80	720	640	6	1134		582
Sec. 17, SE 1/4		1915	138	2	80	720	640	8	840		582
Sec. 17, NE 1/4		1913	70	3	25	721	696			Used 5hrs.per day	651
Sec. 18, SE 1/4		1895	35	3	25	721	696			Used 1/2hr.per day	686
Sec. 19, SW 1/4		1900	114	3	70	740	670		336	Used 1hr.per day	626
Sec. 19, NW 1/4		1919	72	2	20	720	700				648
Sec. 20, SW 1/4		1930	110	2		720				Used 4hrs.per day	610
Sec. 20, NW 1/4		1929	172	2	60	723	663			Used 2hrs.per day	551
Sec. 21, NW 1/4		1898	24	4	6	712	706		168	Dug well	688
Sec. 22, SW 1/4	127	1923	175	2	40	719	679	3	252	Used 1hr.per day	544
Sec. 22, SE 1/4		1920	70	3	60	723	663	3 1/2		Used 1 1/2hr.per day	653
Sec. 23, NW 1/4		1902	78	2	25	724	699		630	Used 1hr.per day	646

<u>Location</u>	<u>No.</u>	<u>Date Drilled</u>	<u>Depth Feet</u>	<u>Diam. Ins.</u>	<u>SWL Ft. to Water</u>	<u>Ref. Elev. MSL.</u>	<u>W. L. in MSL.</u>	<u>Capacity GPM.</u>	<u>Daily Pumpage Gals.</u>	<u>Remarks</u>	<u>Bottom Hole Elev.</u>
<u>22N-8E(Contd.)</u>											
Sec. 23, SE 1/4		1923	80	4		730			630		650
Sec. 24, NW 1/4	128	1910	81	3	30	723	693				642
Sec. 25, SW 1/4		1908	73	3	25	722	697	7	420		649
Sec. 25, NW 1/4		1927	74	3	20	721	701	8		Used 1/2hr. per day	647
Sec. 26, SW 1/4		1895	25	3	20	721	701		336	Dug well	696
Sec. 26, NW 1/4	129		30	4	30	726	696		252		696
Sec. 28, SE 1/4		1913	190	2	135	725	590				535
Sec. 28, NE 1/4		1890	24	3	10	725	715		168	Dug well	701
Sec. 29, NE 1/4		1914	120	3	20	725	705	4	420	Used 1 1/4hr. per day	605
Sec. 29, SW 1/4		1892	33	3	15	710	695			Dug well	677
Sec. 30, NW 1/4		1929	65	2	8	725	717	4	1050	Used 2hrs. per day	660
Sec. 31, NW 1/4		1919	71	2		722				Used 1 1/2hr. per day	651
Sec. 32, NE 1/4		1902	68	2	40	710	670		630		642
Sec. 33, SE 1/4		1920	80	2	40	720	680		126	Used 2hrs. per day	640
Sec. 34, NW 1/4		1919	200	2	60	733	673			Used 1hr. per day	533
Sec. 34, NE 1/4		1919	55	2	15	731	716		84		676
Sec. 35, NW 1/4		1915	35	2	10	725	715				690
Sec. 35, NE 1/4		1929	35	3	12	727	715		1260		692
Sec. 35, SE 1/4		1909	188	3	24	732	708		400		544
Sec. 36, SE 1/4			90	3	20	723	703			Used 1/2hr. per day	633
Sec. 36, NW 1/4		1919	40	2	22	722	700	7	1260	Used 2hrs. per day	682
<u>22N-9E</u>											
Sec. 1, SE 1/4		1921	90	2	35	772	737	4 1/4			682
Sec. 1, SW 1/4		1905	105	2	50	767	717		210	Used 1/2hr. per day	662
Sec. 2, NW 1/4		1932	129	2	60	772	712		294		643
Sec. 2, NE 1/4		1900	87	2	50	765	715		210	Used 1 1/2hr. per day	678
Sec. 3, SW 1/4		1929	140	2	50	810	760		630		670
Sec. 3, NE 1/4	130	1905	140	2	60	793	733		42	Used 1hr. per day	653
Sec. 4, SW 1/4		1912	130	2	35	810	775		252		680
Sec. 4, NE 1/4		1895	146	2	60	810	750				664
Sec. 5, SW 1/4		1926	181	2	84	790	706	4	420		609
Sec. 5, SE 1/4		1910	165	2		810			588		645
Sec. 6, SW 1/4	131	1903	205	2	40	770	730			Used 1 1/2hr. per day	565
Sec. 6, SE 1/4		1932	207	2		790		4	504		583
Sec. 7, NE 1/4	132	1897	165	2	40	791	751	4	504		626
Sec. 8, NW 1/4		1920	135	2	65	782	717		210		647
Sec. 8, NE 1/4	133	1895	120	2	60	782	722		504		662
Sec. 9, NW 1/4		1894	87	2	48	813	765		210	Used 1 1/2hr. per day	726
Sec. 9, SE 1/4			185	2	100	792	692		420	Used 1 1/2hr. per day	607
Sec. 10, NE 1/4	134	1900	155	2	70	809	739	4	630	Used 2hrs. per day	654
Sec. 10, NW 1/4			150	2		809			210		659
Sec. 11, SE 1/4		1898	126	2	40	787	747	6		Used 2hrs. per day	661
Sec. 12, NE 1/4	135	1915	110	2	30	761	731		504	Used 3hrs. per day	651
Sec. 13, NW 1/4		1924	170	2	85	780	695	3 1/2	336	Used 1 1/4hr. per day	610
Sec. 14, NE 1/4		1907	140	2	70	781	711				641
Sec. 14, SE 1/4	136	1915	175	2	70	780	710	7	1050	Used 2hrs. per day	605
Sec. 15, NE 1/4	137	1915	160	2	100	812	712	7	420	Used 1hr. per day	652
Sec. 15, SW			170	2	90	796	706	3	252	Used 1hr. per day	626
Sec. 16, SE 1/4		1913	70	2	30	771	741	4	630	Used 1 3/4hr. per day	701
Sec. 16, SW 1/4	138	1910	120	2	70	780	710		336	Used 2hr. per day	660
Sec. 17, NE 1/4		1895	137	2	60	752	692	3		Used 3/4hr. per day	615
Sec. 18, SE 1/4		1915	16	2	8	737	729	8	210	Used 1/2hr. per day	721
Sec. 18, NE 1/4	139	1907	221	2	52	750	698		210	Used 1 1/2hr. per day	529
Sec. 19, SE 1/4		1915	72	2	40	727	687				655
Sec. 19, SW 1/4		1895	80	4	15	728	713				648
Sec. 20, NE 1/4		1933	40	2	15	741	726	10			701
Sec. 20, NW 1/4			12	3	6'12'	735	726(?)		630	Used 2hrs. per day Dug well	723

<u>Location</u>	<u>No.</u>	<u>Date Drill- ed</u>	<u>Depth Feet</u>	<u>Diam. Ins.</u>	<u>SWL Ft. to Water</u>	<u>Ref. Elev. MSL.</u>	<u>W. L. in MSL.</u>	<u>Capa- city GPM.</u>	<u>Daily Pump- age Gals.</u>	<u>Remarks</u>	<u>Bottom Hole Elev.</u>
<u>22N-9E(Contd.)</u>											
Sec. 21, SW 1/4		1895	140	2	50	729	679	4-5	546	Used 1 1/2hr.per day	589
Sec. 21, SE 1/4		1913	80	2	60	751	691		336		671
Sec. 22, NE 1/4	140	1920	120	2	60	780	720	2	420	Used 2 1/4hrs.per day	660
Sec. 22, SE 1/4		1910	45	2	20	742	722	3	252	Used 1hr.per day	697
Sec. 23, SW 1/4		1901	40	3	20	745	725	4	420	Used 1 1/2hr.per day	700
Sec. 23, SE 1/4		1933	72	2	30	762	732	4	420	Used 1 1/2hr.per day	690
Sec. 24, NW 1/4		1905	145	2	70	781	711	2 1/2	420	Used 2hrs.per day	636
Sec. 24, NW 1/4		1903	120	2	70	775	705	2 1/2	630	Used 3hrs.per day	655
Sec. 25, NW 1/4		1895	108	2	98	750	652		420		642
Sec. 25, NE 1/4	141	1895	150	2	45	765	720	4	504	Used 1 1/2hr.per day	615
Sec. 26, NW 1/4	142	1911	105	2	41	760	720		84	Used 1hr.per day	655
Sec. 26, SE 1/4			90	2	45	735	690		84	Used 1/2hr.per day	645
Sec. 27, SW 1/4		1923	90	2	84	740	656	6	504	Used 1hr.per day	650
Sec. 27, NE 1/4	143	1931	75	2	50	735	685	3	336	Used 1 1/2hr.per day	660
Sec. 28, SW 1/4		1917	78	2	25	724	699				646
Sec. 29, NE 1/4	144	1911	87	3	40	724	687	12	2200	Used 2hrs.per day	637
Sec. 29, SE 1/4		1895	85	2	15	726	711	5		Used 3/4hr.per day	641
Sec. 30, NW 1/4		1902	115	2	15	730	715	5		Used 2hrs.per day	615
Sec. 30, SW 1/4		1916	92	2	30	724	694	6		Used 1hr.per day	632
Sec. 31, NW 1/4		1933	87	2		730		6		Used 1/2hr.per day	643
Sec. 31, SE 1/4		1918	85	2	30	724	694	3		Used 1 1/4hr.per day	639
Sec. 32, SE 1/4		1894	90	2	20	730	710		1470		640
Sec. 32, NE 1/4	145	1916	200	2 1/2	50	726	676		168		526
Sec. 33, SE 1/4		1915	123	2	22	740	718	7	3150		617
Sec. 33, NE 1/4		1911	49	3	17	741	724		504		692
Sec. 34, NE 1/4			125	2	65	652	687	3	630	Used 2hrs.per day	527
Sec. 34, NW 1/4	146		120	2	60	750	690		420	Used 2hrs.per day	630
Sec. 34, SE 1/4		1918	142	10	75	752	677	29	840		610
Sec. 35, NW 1/4			60	4	35	741	706	6	840	Used 1 1/2-2hrs.per day	681
<u>22N-10E</u>											
Sec. 1, SW 1/4		1904	44	2		734		5 1/2		Used 1/4hr.per day	690
Sec. 3, SE 1/4		1928	73	2	50	752	702		672	Used 2hrs.per day	697
Sec. 3, NW 1/4			90	2		743			420	Used 2 1/2hrs.per day	653
Sec. 4, SE 1/4			60	2		750			126	Used 1hr.per day	690
Sec. 5, NW 1/4		1885	110	2		750			420	Used 3hrs.per day	640
Sec. 7, NW 1/4		1895	114	2	40	762	702		252	Used 1 1/2hr.per day	648
Sec. 7, SE 1/4			175	2		770			420	Used 1 1/2hr.per day	595
Sec. 8, NW 1/4		1895	112	2	30	761	731	3	420	Used 2hrs.per day	649
Sec. 8, SW 1/4			140	2	40	765	725		630	Used 3hrs.per day	615
Sec. 9, SE 1/4		1895	95	2 1/2	45	761	716		210	Used 2 1/2hrs.per day	666
Sec. 10, NW 1/4	147	1880	97	2	50	755	705		630	Used 3hrs.per day	658
Sec. 11, NW 1/4		1927	72	2	50	740	690	6	420	Used 3/4hr.per day	668
Sec. 11, SE 1/4		1916	72	2	50	750	700		126	Used 1hr.per day	678
Sec. 11, NE 1/4			40	2	25	740	715		336	Used 1hr.per day	700
Sec. 12, NW 1/4		1923	87	2	40	751	711		1134	Used 4hrs .per day	664
Sec. 13, NW 1/4		1932	80	2	50	751	701		252	Used 1/2hr .per day	671
Sec. 14, SE 1/4		1913	85	2	50	751	701		336	Used 2hrs.per day	666
Sec. 14, SW 1/4		1916	82	2	45	761	716		294	Used 3/4hr.per day	679
Sec. 15, SE 1/4			110	2	85	765	680	4	840	Used 2 1/2hrs.per day	655
Sec. 16, SW 1/4		1914	120	2	60	760	700	4	504	Used 2hrs.per day	640
Sec. 17, SW 1/4		1930	170	6	80	790	710		630	Used 3hrs.per day	620
Sec. 17, NE 1/4		1893	122	2	60	765	705		210	Used 3/4hr.per day	643
Sec. 19, SW 1/4	148	1890	190	2 1/2	50	790	740	3 1/2	294	Used 1hr.per day	600
Sec. 20, SW 1/4		1928	186	2		810		2 1/2	630	Used 3hrs.per day	624
Sec. 20, SW 1/4			196	2		796					590
Sec. 21, SE 1/4		1895	118	2		770	726	3 1/2	504	Used 2hrs.per day	652
Sec. 22, SW 1/4			165	2		770		4	336	Used 1hr.per day	605
Sec. 22, NE 1/4		1890	127	2	97	769	672	2	630	Used 4hrs.per day	642

<u>Location</u>	<u>No.</u>	<u>Date Drilled</u>	<u>Depth Feet</u>	<u>Diam. Ins.</u>	<u>SWL Ft. to Water</u>	<u>Ref. Elev. MSL.</u>	<u>W. L. in MSL.</u>	<u>Capacity GPM.</u>	<u>Daily Pumpage Gals.</u>	<u>Remarks</u>	<u>Bottom Hole Elev.</u>
<u>22N-10E(Contd.)</u>											
Sec. 24, NE 1/4		1918	96	2	40	754	714	3	504	Used 1 3/4hr. per day	658
Sec. 24, SW 1/4		1926	115	2		750			804	Used 4hrs. per day	635
Sec. 25, SW 1/4	149	1880	105	2	80	762	682	5	630	Used 1 1/2hr. per day	657
Sec. 26, SW 1/4		1900	110	2	80	792	712		420	Used 1 1/2hr. per day	682
Sec. 26, SW 1/4		1885	120	2	90	800	710		504	Used 2hrs. per day	680
Sec. 27, NW 1/4	150	1930	107	2	90	770	680		630	Used 4hrs. per day	663
Sec. 28, NW 1/4		1890	160	2	70	804	734	4	294	Used 3/4hr. per day	644
Sec. 28, SW 1/4		1930	170	2	80	790	710		210	Used 3hrs. per day	620
Sec. 29, SW 1/4			130	2		770			126		640
Sec. 30, SE 1/4		1933	120	2	30	751	721		420	Used 4hrs. per day	631
Sec. 30, SW 1/4		1890	85	2	40	740	700	3 1/2	470	Used 5hrs. per day	655
Sec. 31, NW 1/4	151	1925	90	2	40	722	682	6	420	Used 1hr. per day	632
Sec. 32, SE 1/4			45	2	25	737	712		588	Used 3hrs. per day	692
Sec. 33, SW 1/4		1897	84	2		740					656
Sec. 33, NW 1/4		1929	96	2		747	756	5	756	Used 2hrs. per day	651
Sec. 34, SE 1/4		1895	103	2	40	790	750	4	336	Used 1hr. per day	687
Sec. 34, NE 1/4		1890	110	2	80	780	700		336	Used 1 1/2hr.	670
Sec. 35, SE 1/4			103	2	72	792			462	Used 2hrs. per day	689
Sec. 35, SW 1/4		1926	97	2		782		3	504	Used 2hrs. per day	685
Sec. 36, SW 1/4			138	2		781			210	Used 2hrs. per day	643
Sec. 36, SW 1/4	152	1933	122	2	95	763	668	5	420	Used 1/2hr. per day	641
<u>22N-11E</u>											
Sec. 1, NW 1/4		1918	57	2		730					673
Sec. 1, SE 1/4		1930	50	2	20	719	699			Used 2hrs. per day	669
Sec. 12, NE 1/4		1932	60	2	25	740	715		630	Used 2 1/2hrs. per day	680
Sec. 13, NE 1/4		1933	50	2 1/2		731		3 1/4	284	Used 1hr. per day	681
Sec. 13, SE 1/4			65	2	59	733	674		252		668
Sec. 24, NW 1/4			96	2	40	745	708	2 1/2	284	Used 1 1/2hr. per day	749
Sec. 25, SE 1/4		1829	84	2	34	731	697	3		Used 4hrs. per day	647
Sec. 25, NE 1/4		1931	75	2	25	730	705	1 1/2	420	Used 4hrs. per day	655
Sec. 36, SE 1/4			120	2	50	748	698	4		Used 3 1/2hrs. per day	628
<u>22N-14W</u>											
Sec. 4, SW 1/4		1923	62	2	35	720	685		420	Used 1 1/2hr. per day	658
Sec. 5, SE 1/4		1933	65	2	41	742	702	3 1/2	420	Used 1 1/2hr. per day	677
Sec. 5, SE 1/4		1929	50	2	20	730	710	3	420	Used 2 1/2hr. per day	680
Sec. 6, SE 1/4		1932	175	4		719		4	1680	Used 5hrs. per day	544
Sec. 7, SW 1/4			60	2	8	721	713	2 1/2	630	Used 2 1/2hrs. per day	661
Sec. 7, NW 1/4			94	4	6	730	724				636
Sec. 8, SE 1/4			37	2	10	711	701				674
Sec. 9, NW 1/4			60	2	20	715	695	1 3/4	210	Used 2hrs. per day	655
Sec. 16, NW 1/4		1932	43	3	16	706	690	2 1/2	1512		663
Sec. 16, SW 1/4		1930	40	2	16	703	687	2	168	Used 2hrs. per day	663
Sec. 17, NE 1/4		1929	40	2	16	702	686	1 3/4	126	Used 1 1/2hr. per day	662
Sec. 18, NE 1/4			93	2	20	710	690	3 1/4	630	Used 2hrs. per day	617
Sec. 19, NW 1/4		1930	120	2	50	730	680	2	294	Used 1 3/4hr. per day	610
Sec. 19, SE 1/4		1913	42	2	38	726	688	3 1/2	1260		684
Sec. 20, SW 1/4		1930	52	2	15	721	706	4	1050		669
Sec. 20, SE 1/4			46	2	6	710	704	2	126	Used 1/2hr. per day	664
Sec. 28, NE 1/4		1925	40	2	20	702	682			Used 1/2hr. per day	662
Sec. 28, NE 1/4				2		700					
Sec. 29, SW 1/4		1928	91	2	18	722	704		882	Used 2hrs. per day	631
Sec. 29, NW 1/4			57	2	20	721	701	3 1/2		Used 1 1/4hr. per day	664
Sec. 30, SE 1/4		1914	33	2	5	722	717	3 1/2	284	Used 1hr. per day	689
Sec. 30, SW 1/4		1930	65	2	15	741	726	4	1050		676
Sec. 31, SW 1/4		1919	90	2	22	730	708	3	504	Used 2hrs. per day	640

<u>Location</u>	<u>No.</u>	<u>Date Drill- ed</u>	<u>Depth Feet</u>	<u>Diam. Ins.</u>	<u>SWL Ft. to Water</u>	<u>Ref. Elev. MSL.</u>	<u>W. L. in MSL.</u>	<u>Capa- city GPM.</u>	<u>Daily Pump- age Gals.</u>	<u>Remarks</u>	<u>Bottom Hole Elev.</u>
<u>22N-14W(Contd.)</u>											
Sec. 31, SE 1/4		1916	87	2	32	724	692	3	504	Used 2hrs. per day	637
Sec. 32, SW 1/4			80	2	18	718	700	4	504	Used 3 1/2hrs. per day	638
Sec. 32, NE 1/4		1928	52	2	20	710	690	2	252	Used 1 1/2hr. per day	658
Sec. 33, NW 1/4		1902	60	2	7	694	687	2	168	Used 1hr. per day	634