UNITED STATES DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY
WATER RESOURCES DIVISION
GROUND WATER BRANCH

# RESULTS OF TEST DRILLING AND AQUIFER TESTS IN JEROME, LINCOLN, AND MINIDOKA COUNTIES, IDAHO

By

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Prepared in cooperation with the
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# RESULTS OF TEST DRILLING AND AQUIFER TESTS IN JEROME, LINCOLN, AND MINIDOKA COUNTIES, IDAHO

By

William C. Walton

## INTRODUCTION

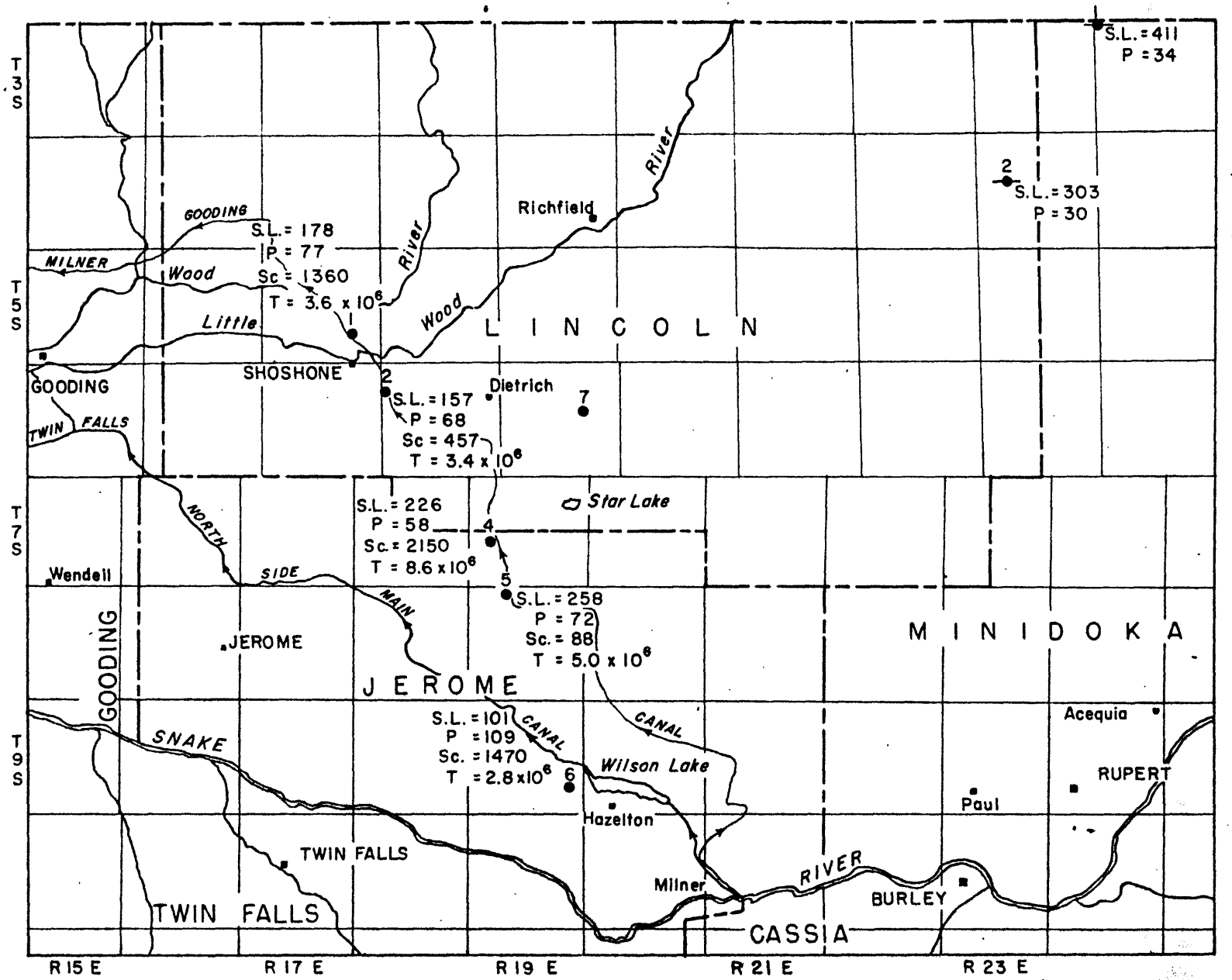
The U. S. Geological Survey, in cooperation with and at the request of the Bureau of Reclamation, is investigating the ground-water resources of several areas in the Snake River Plain. The studies are an integral part of the Bureau of Reclamation's comprehensive investigation and evaluation of undeveloped land and water resources of the upper and middle Snake River Basin. This report summarizes the results of the 1957 test-drilling program of the Bureau of Reclamation along the Milner-Gooding Canal in Jerome and Lincoln Counties. Data on ground-water levels in areas of Lincoln and Minidoka Counties where observation wells were not available were also obtained. The investigation included drilling 6 test and 2 observation wells and pumping 5 wells to compute aquifer characteristics, and was made to determine the feasibility of developing large ground-water supplies from wells in that area.

Inspection of test drilling and most water-level, discharge, and atmospheric-pressure measurements during the aquifer tests were by K. H. Fowler and W. C. Walton under the supervision of H. G. Crosthwaite and assisted by other personnel of the U. S. Geological Survey. This report was prepared under the immediate supervision of M. J. Mundorff, district geologist, U. S. Geological Survey, Ground Water Branch, Boise, Idaho. Work in Idaho is under the general supervision of A. N. Sayre, chief of the Ground Water Branch.

## Scope of report

The report describes the conditions encountered during test drilling and the data collected during 5 aquifer tests. Aquifer-test data were analyzed to determine the specific capacities of pumped wells and the coefficients of transmissibility of the Snake River basalt in the vicinity of 5 test wells. Well-construction data were reviewed in relation to the performances of these test wells, and well-loss constants were determined using step-test data. The results of this investigation and information obtained from studies in other parts of the plain were used for estimating the potential yields of the 5 test wells and for evaluating the effects of pumping of the wells on water levels in the area.

Well logs and casing records for the 6 test wells and 2 observation wells are given in graphic form in the appendix to this report together with aquifer-test data, including pumping rates, drawdown data and graphs of water levels and atmospheric pressures. The locations of the wells are shown in figure 1.




EXPLANATION

- Test well
- 2 Observation well
- S.L. Static water level in feet below land surface
- P Penetration of well in feet below water table
- Sc. Specific capacity in gpm/ft.
- T Coefficient of transmissibility in gpd/ft

N

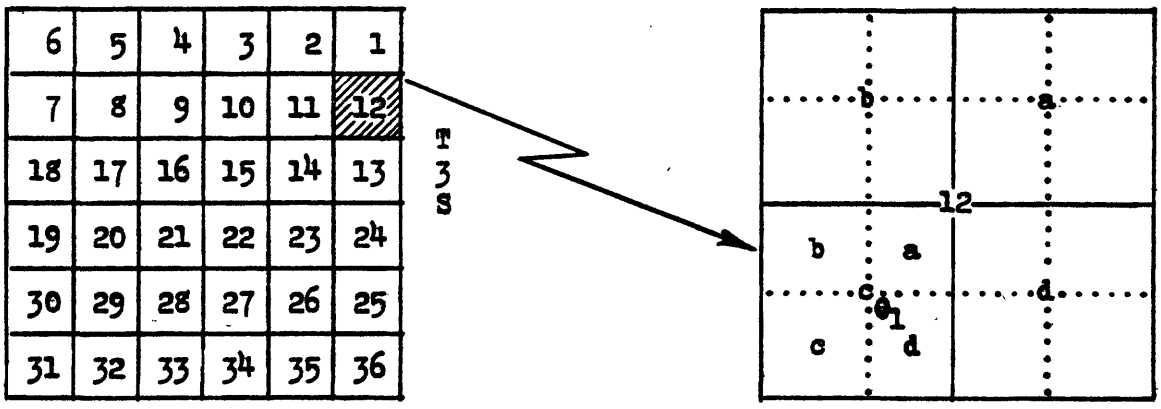
0 6 12 MILES
SCALE

FIGURE 1.--MAP SHOWING LOCATIONS OF TEST AND OBSERVATION WELLS.

(PAGE 5 FOLLOWS)

## Well-numbering system

The well-numbering system used in Idaho indicates the locations of wells within the official rectangular subdivisions of the public lands, with reference to the Boise baseline and meridian. The first two segments of a number designate the township and range. The third segment designates the section and is followed by two letters and a numeral, which indicate the quarter section, the 40-acre tract, and the serial number of the well within the tract. Quarter sections are lettered a, b, c, and d in counterclockwise order, from the northeast quarter of each section (see diagram). Within the quarter sections 40-acre tracts are lettered in the same manner. Well 3S-32E-12cd1 is in the SE¼SW¼ sec. 12, T. 3 S., R. 32 E., and is the first well visited in that tract.




R. 32 E.

3S-32E-12

3S-32E-12cd1

## TEST DRILLING

Cable-tool (percussion) rigs were used for drilling the test and observation wells. The drillers' logs and construction features of the wells are represented graphically in figures 2-9. Drilling records are given in table 1. Samples of cuttings were obtained at 5-foot intervals from all drill holes. Frequent inspections of drilling, and measurements of depths of wells, lengths of casing, water levels, and deviations of wells from vertical alinement were made by the U. S. Geological Survey and the Bureau of Reclamation.

Most of the drilling was in Snake River basalt which ranges from black through gray, reddish-brown, and brown to brick-red in color. The basalt occurs in dense to porous and highly vesicular or rough, angular and broken flow sheets. Beds of cinders and windblown, lacustrine, and alluvial sediments are intercalated in the basalt. Some of the sedimentary interbeds were unstable, especially where they occurred below the water table, and casing was needed at some places to prevent caving.

An unbroken unit of the basalt itself is relatively impermeable, but porous, permeable zones along contacts between separate flows, and joints and other fractures yield and transmit large amounts of ground water to wells. The water-bearing openings differ greatly in size and are irregularly distributed and interconnected.

Table 1.—Drilling records

| Well number | | Date | | Depth (feet) | Diameter of casing (inches) | Depth of casing (feet) | Static water level (feet below land surface) | Date |
|---|---|---|---|---|---|---|---|---|
| U.S.G.S. | U.S.B.R. | Started | Completed | | | | | |
| 5S-17E-26ac1 | TW-1 | 6-26-57 | 8- 2-57 | 253.5 | 21-16 | 200.7 | 179.44 | 11- 5-57 |
| 6S-18E- 7bc1 | TW-2 | 6- 1-57 | 6-24-57 | 223.8 | 21 | 8.4 | 156.66 | 11- 1-57 |
| 7S-19E-19aa1 | TW-4 | 6-10-57 | 6-27-57 | 279.9 | 21-16 | 208.4 | 226.17 | 10-23-57 |
| 8S-19E- 5da1 | TW-5 | 7- 5-57 | 8-27-57 | 329.1 | 21-16 | 197-277 | 257.71 | 10- 7-57 |
| 9S-19E-25bb1 | TW-6 | 4-26-57 | 5-27-57 | 207.6 | 21-16 | 134 | 101.06 | 10- 1-57 |
| 6S-19E-14bc1 1/ | TW-7 | 8- 7-57 | - | 191 | 21-18 | 106 | - | - |
| 4S-24E- 6bb1 | Obs-1 | 7- 7-57 | 8- 1-57 | 445.1 | 21-6 5/8 | 444.4 | 411.17 | 8- 1-57 |
| 5S-23E-17ca1 | Obs-2 | 6-18-57 | 7- 1-57 | 332.7 | 21-6 5/8 | 332.7 | 303.04 | 7- 2-57 |

1/ Well abandoned before reaching water.

## Well 5S-17E-26acl (TW-1)

Sandy clay materials between the depths of 29 and 36 feet, 82 and 90 feet, 141 and 157 feet, and 188 and 198 feet were unstable and caved into the hole. To prevent caving, especially from the zone below the water table (188-198 feet), 202 feet of 16-inch I.D. casing was set to a depth of 201 feet. The driller reported losing 95 percent of the cuttings while drilling between the depths of 245 and 255 feet.

## Well 6S-18E-7bcl (TW-2)

Drilling conditions in the basalt were not unusual and only 10 feet of surface casing was set at 8.4 feet. The driller reported losing 90 percent of cuttings while drilling between the depths of 215 and 221 feet.

## Well 7S-19E-19aal (TW-4)

Clayey but water-bearing materials were encountered between the depths of 151 and 166 feet. The static water level (perched water table) in this zone was 148 feet below land surface. The regional water table was encountered at a depth of 226 feet. To prevent caving from the clayey zone (151-166 feet) and from a loose cinder zone (166-170 feet) 209.5 feet of 16-inch I.D. casing was set to a depth of 208.4 feet. Perched water (leakage from the Milner-Gooding canal about 100 feet east of the well and from nearby irrigation ditches) could be heard running into the well until a few weeks after the irrigation season. The driller reported losing 90 percent of cuttings while drilling between the depths of 262 and 270 feet.

## Well 8S-19E-5dal (TW-5)

Water-bearing silty sand was encountered between the depths of 206 and 223 feet. The static water level (perched water table) in this zone was 208 feet below land surface. The regional water table was encountered at a depth of 258 feet. To prevent caving in the silty sand zone (206-223 feet) the 20-inch hole was drilled to 277 feet and the lower 5 feet of hole was filled with concrete. Eighty feet of 16-inch I.D. casing was set in the well to a depth of 277 feet. The concrete was allowed to cure for 24 hours and a 16-inch hole was drilled through the concrete and down to 329 feet. The driller reported losing 80 percent of cuttings while drilling between the depths of 297 and 310.

## Well 9S-19E-25bbl (TW-6)

To prevent caving of loose basalt and cinders between the depths of 114 and 134 feet, 136 feet of 16-inch I.D. casing was set in the 20-inch hole to a depth of 134 feet. The 16-inch casing was perforated between the depths of 114 and 134 feet. The perforations are $\frac{1}{2}$x1$\frac{1}{2}$ inch slots, 8 slots per row, and the rows are spaced 6 inches apart. The driller reported losing 95 percent of cuttings while drilling between the depths of 125 and 137 feet, and 80 percent of cuttings while drilling between the depths of 195 and 200 feet.

## Well 6S-19E-14bcl (TW-7)

To prevent caving from the sand zone (91-96 feet) and other loose materials, 107.5 feet of 18-inch I.D. casing was set in the 20-inch hole which was drilled to 105 feet. The casing was driven to a depth of 106

feet. An 18-inch hole was drilled to a depth of 175.5 and a 10-inch pilot hole was drilled from that depth to 191 feet. Drilling in the basalt between the depths of 96 and 105 feet and 128 and 166 feet was slow. Caving from a loose zone between the depths of 170 and 191 feet made drilling an 18-inch hole very difficult and the Bureau of Reclamation decided to abandon the hole. The water table was not reached by the well.

## Well 4S-24E-6bb1 (Obs-1)

To prevent caving of loose material and to keep ground air from moving in and out of the hole in response to changes of atmospheric pressure, 445.9 feet of 6 5/8-inch O.D. casing was set in the well. (Movement of ground air is detrimental to the use of a well for observational purposes). The casing was perforated between the depths of 420 and 444 feet. The perforations are 3/8x4 inch slots spaced 10 to a row, and rows are spaced 2 feet apart.

## Well 5S-23E-17ca1 (Obs-2)

To prevent movement of ground air in and out of the hole and caving of loose materials, 333.7 feet of 6 5/8-inch O.D. casing was set in the 10-inch hole. The casing was perforated between the depths of 310.7 and 330.7 feet. The perforations are 3/8x6 inch slots, 10 slots in a row, and the rows are spaced 2 feet apart.

## EXPLANATION OF TERMS

The hydraulic properties of an aquifer are commonly expressed in terms of the coefficients of transmissibility, T, and storage, S. The coefficient of transmissibility is defined as the rate of flow of water in gallons per day through a vertical strip of the aquifer 1-foot wide and extending the full saturated thickness of the aquifer under a hydraulic gradient of 100 percent (1 foot per foot) and at the prevailing temperature of the water. The coefficient of storage of an aquifer is defined as the volume of water it releases from or takes into storage per unit surface area of the aquifer per unit change in the component of head normal to that surface and is expressed as a decimal fraction.

The yield of a well may be expressed in terms of its specific capacity. The specific capacity of a well is defined as the yield of the well in gallons per minute per foot of drawdown. Specific-capacity data should include the factors of time and discharge because the specific capacity of a well varies both with the duration of pumping and with the pumping rate.

The drawdown in a pumped well has two components, the head loss due to the laminar flow of water in the aquifer towards the well and the head loss (well loss) resulting from the turbulent flow of water in the aquifer in the immediate vicinity of the well, through the well screen, and in the well casing. Well loss, in feet, may be represented approximately by the following relationship (Jacob, C. E., 1947):

$$\text{well loss} = CQ^2$$

where C is the "well-loss" constant, its dimensions being $sec^2/ft^5$, and Q is the rate of pumping in cubic feet per second. A decrease in the specific capacity of a well with an increase in the pumping rate indicates well loss.

Because water levels in wells in the Snake River basalt are affected by fluctuations in atmospheric pressure, drawdown data must be adjusted for changes in atmospheric pressure before they are used to determine the hydraulic properties of the aquifer. As the atmospheric pressure increases the water level falls, and as the atmospheric pressure decreases the water level rises. The ratio of the change in water level, in feet, in a well to the change in atmospheric pressure, in feet, is known as the barometric efficiency (B.E.) of the well and is usually expressed as a percentage. The barometric efficiencies of 4 test wells were determined by comparing prominent atmospheric-pressure fluctuations with corresponding water-level changes during time intervals when water levels were unaffected by pumping.

## DESCRIPTION AND ANALYSIS OF TEST DATA

Tests on most wells were limited in duration to 8 hours by the cost of pumping and available funds. Water levels were measured manually with a steel tape or with an electric water-level indicator. Deep-well turbine pumps were used in the tests and the rates of pumping were measured by freely discharging or submerged orifices at or near the ends of the discharge pipes. Atmospheric-pressure fluctuations were recorded by an automatic microbarometer.

Recovery data were used to determine the coefficient of transmissibility of the aquifer because such factors as changes in pumping rates, slight development of wells during pumping, and pump failures, produced erratic time-drawdown data. The modified nonequilibrium formula (Cooper and Jacob, 1946) and a method described by Ferris, (1951) were used to compute the coefficients of transmissibility from semilogarithmic graphs of time-recovery data. Well-loss constants were determined from step-test data (Jacob, 1947).

Details of tests are given in table 2. The results of the tests made on test wells 1, 2, 4, 5, and 6 are summarized in tables 2 and 3. Aquifer-test data are given in the appendix.

Table 2.---Test and specific-capacity data

| Well number | | Date and hour | | Duration of test (hours) | Pumping rate(s) (gpm) | Drawdown (feet) | Specific capacity (gpm/ft) |
|---|---|---|---|---|---|---|---|
| U.S.G.S. | U.S.B.R. | Started | Stopped | | | | |
| 5S-17E-26ac1 | TW-1 | 11- 5-57, 1:25p | 11- 6-57, 1:25p | 24 | 1,030<br>1,630<br>2,030 | 1.49 | 1,360 |
| 6S-18E- 7bc1 | TW-2 | 11- 1-57, 12:06p | 11- 1-57, 8:06p | 8 | 1,460<br>1,820 | 3.98 | 457 |
| 7S-19E-19aa1 | TW-4 | 10-23-57, 10:26a | 10-23-57, 6:30p | 8 | 1,630 | 0.76 | 2,150 |
| 8S-19E- 5da1 | TW-5 | 10- 8-57, 1:15p | 10- 8-57, 8:55p | 8 | 1,330 | 15.09 | 88 |
| 9S-19E-25bb1 | TW-6 | 10- 2-57, 8:46a | 10- 2-57, 4:46p | 8 | 2,230 | 1.51 | 1,470 |

Table 3.—Coefficients of transmissibility, well-loss constants, and barometric efficiencies.

| Well number U.S.G.S. | Well number U.S.B.R. | Coefficient of transmissibility (gpd/ft) | Well-loss constant ($sec^2/ft^5$) | Barometric efficiency (percent) Rising | Barometric efficiency (percent) Falling | Depth of penetration below water table (feet) |
|---|---|---|---|---|---|---|
| 5S-17E-26ac1 | TW-1 | $3.6x10^6$ | 0.01 | 80 | - | 77 |
| 6S-18E- 7bc1 | TW-2 | $3.4x10^6$ | 0.14 | - | - | 68 |
| 7S-19E-19aa1 | TW-4 | $8.6x10^6$ | - | 57 | - | 58 |
| 8S-19E- 5da1 | TW-5 | $5.0x10^6$ | 0.21 1/ | 55 | 56 | 72 |
| 9S-19E-25bb1 | TW-6 | $2.8x10^6$ | - | 71 | 53 | 109 |

1/ See page 17.

## Well 5S-17E-26ac1 (TW-1)

The coefficient of transmissibility of the basalt aquifer was calculated (see figure 11) to be $3.6x10^6$ gallons per day per foot (gpd/ft) using the recovery data given in table 4. The specific capacity of the well for a pumping period of 8 hours and a pumping rate of 2,030 gpm is 1,360 gallons per minute per foot of drawdown (gpm/ft).

The well-loss constant, 0.01, computed from step-test data (well was pumped at constant fractions of full capacity for 1 hour periods at beginning of test), is very low and the well loss for a pumping rate of 2,030 gpm, 0.22 foot, is small in comparison to the total drawdown of 1.49 feet. Well 5S-17E-26ac1 extends 77 feet below the water table. The specific capacity of the well is about as high as aquifer conditions permit for the depth of penetration.

## Well 6S-18E-7bcl (TW-2)

The coefficient of transmissibility of the basalt aquifer was calculated (see figure 13) to be $3.4 \times 10^6$ gpd/ft using the recovery data given in table 5. The specific capacity of the well for a pumping period of 5 hours and a pumping rate of 1,820 gpm is 457 gpm/ft.

The well-loss constant, 0.14, computed from step-test data (well was pumped at constant fractions of full capacity for short periods at the beginning of the test), is relatively high and the well loss for a pumping rate of 1,820 gpm, 2.23 feet, is an appreciable part of the total drawdown of 3.98 feet. The casing in well 6S-18E-7bcl does not extend below the water table (figure 3). The well-loss constant for well 5S-17E-26acl (0.01) is much smaller than that for well 6S-18E-7bcl (0.14). The casing in well 5S-17E-26acl extends below the water table and the coefficient of transmissibility of the basalt is about the same in the vicinity of both wells. It is possible that well 6S-18E-7bcl only partially penetrates a permeable zone in the basalt (depth of penetration below the water table of well 6S-18E-7bcl, 68 feet, is less than that of well 5S-17E-26acl, 77 feet) and as a result the area through which water enters the well is limited. The specific capacity of the well might be increased if the well were deepened about 20 feet. Deepening of the well, however, may not be justified because the drawdown for a pumping rate of 4 cubic feet per second is small, only 4 feet, with the well at its present depth.

## Well 7S-19E-19aal (TW-4)

The coefficient of transmissibility of the basalt aquifer was calculated (see figure 15) to be $8.6 \times 10^6$ gpd/ft using the recovery data given in table 6. The specific capacity of the well for a pumping period of 8 hours and a pumping rate of 1,630 gpm is 2,150 gpm/ft.

Well 7S-19E-19aal extends 58 feet below the water table. The specific capacity of the well is about as high as aquifer conditions permit for the depth of penetration.

## Well 8S-19E-5da1 (TW-5)

The coefficient of transmissibility of the basalt aquifer was calculated (see figure 17) to be $5.0 \times 10^6$ gpd/ft using the recovery data given in table 7. The specific capacity of the well, 88 gpm/ft for a pumping period of 8 hours and a pumping rate of 1,330 gpm, is very low compared to the specific capacities of the other wells.

The well-loss constant 0.21, computed from step-test data collected for short periods of time during the first few minutes of pumping when the pumping rate was being adjusted is high. The well loss for a pumping rate of 1,330 gpm, 1.96 feet, is appreciable.

Based on the computed coefficient of transmissibility of the basalt aquifer and on the results of tests on other wells, the specific capacity of the well should be more than 1,500 gpm/ft. It is possible that the 16-inch liner (figure 5) effectively seals a highly permeable water-bearing zone in the basalt (between the depths of 258 and 277 feet) from the well. The specific capacity of the well might be greatly increased

if the 16-inch liner were perforated between the depths of 258 and 272 feet. If the casing were perforated, the well would have to be resealed to prevent caving from the perched-water-table zone between the depths of 206 and 223 feet.

## Well 9S-19E-25bb1 (TW-6)

The coefficient of transmissibility of the basalt was calculated (see figure 19) to be $2.8 \times 10^6$ gpd/ft using the recovery data given in table 8. The specific capacity of the well is 1,470 gpm/ft for a pumping period of 8 hours and a pumping rate of 2,230 gpm. The well extends 109 feet below the water table. The specific capacity of the well is about as high as aquifer conditions permit for the depth of penetration.

## POTENTIAL YIELDS OF TEST WELLS

The potential yields of the test wells are limited in large part by the diameters of the wells, because, as shown by the results of the aquifer tests, the basalt aquifer will yield more water to the wells than can be withdrawn with the largest pumps which can be placed in the wells.

A study of pump, well-construction, and aquifer-test data indicates that optimum yields of test wells are as given in the table below:

| Well no. | | Optimum yield | |
|---|---|---|---|
| U.S.G.S. | U.S.B.R. | gpm | cfs |
| 5S-17E-26ac1 | TW-1 | 2,700 | 6 |
| 6S-18E- 7bc1 | TW-2 | 3,600 | 8 |
| 7S-19E-19aa1 | TW-4 | 2,700 | 6 |
| 9S-19E-25bb1 | TW-6 | 2,700 | 6 |

The yield of well 8S-19E-5dal (TW-5) may be 6 cfs after the well is reconstructed. The optimum yields were determined to be slightly less than the maximum amounts of water that can be pumped from the wells because excessive well losses will occur at higher rates of pumping.

## Estimated drawdowns and pumping levels

The order of magnitude of drawdowns and pumping levels can be obtained by using the results of aquifer tests and by estimating aquifer conditions based on the results of geologic and hydrologic studies made in other parts of the Snake River plain.

According to the water-table map given by Stearns, Crandall, and Steward (1938), ground water in the Snake River basalt in the vicinity of the test wells is moving in a southwesterly direction toward and discharges into the Snake River. Withdrawals from the test wells will be balanced in large part by a decrease in discharge of ground water to the Snake River. To reduce discharge to the Snake River requires changing the gradient of the water table (lowering water levels by taking water out of storage in the aquifer) throughout the area between the test wells and the river. Considerable time will elapse before the gradient is changed throughout the area affected and the cone of influence created by pumping reaches approximate equilibrium, at which time water will no longer be taken from storage within the aquifer. Computations made assuming values of T and S of $3.2 \times 10^6$ gpd/ft and 0.05 respectively and distances of 30 and 13 miles from the pumped well to the river and to an observation point respectively indicate that time in the magnitude of 130 years will elapse before approximate (0.02 deviation from absolute equilibrium)

equilibrium conditions prevail. Before the cone of influence stabilizes it will extend to and be affected by the northern boundary of the aquifer, about 5 miles north of well 5S-17E-26acl (TW-1).

Computations of drawdowns and pumping levels in the test wells were made taking into account the two hydrogeologic boundaries mentioned above (Snake River, a recharge boundary, and the border of the Snake River basalt aquifer, a barrier boundary) and assuming that the average coefficients of transmissibility and storage of the aquifer within the area of influence of pumping are $3.2 \times 10^6$ gpd/ft and 0.05 respectively. The records for observation wells 9S-19E-1aal and 6S-18E-22aal indicate that at the beginning of irrigation seasons the water table in the vicinity of the test wells may be as much as 7 feet below the water levels measured during the aquifer tests. The hydrogeologic boundaries intersect at an angle of about 45 degrees and the image-well theory (Ferris, 1951) and the nonequilibrium formula (Theis, 1935) were used to solve flow problems associated with the aquifer situation. Computed drawdowns and pumping levels as the result of pumping the 5 test wells indefinitely at optimum rates (total of 32 cfs) 5 months of each year during the irrigation season are given in the table below:

| Well no. | | Pumping rate (gpm) | Drawdown (feet) | Pumping level (feet below land surface) |
|---|---|---|---|---|
| U.S.G.S. | U.S.B.R. | | | |
| 5S-17E-26acl | TW-1 | 2,700 | 4 | 189 |
| 6S-18E- 7bcl | TW-2 | 3,600 | 13 | 177 |
| 7S-19E-19aal | TW-4 | 2,700 | 4 | 237 |
| 8S-19E- 5dal | TW-5 | 2,700 | To be computed after well is reconstructed and tested. | |
| 9S-19E-25bbl | TW-6 | 2,700 | 4 | 112 |

The long-term drawdowns given above include interferences between wells listed below:

| Well no. U.S.G.S. | Well no. U.S.B.R. | Drawdown in feet due to pumping other 4 test wells |
|---|---|---|
| 5S-17E-26acl | TW-1 | 0.6 |
| 6S-18E- 7bcl | TW-2 | 0.5 |
| 7S-19E-19aal | TW-4 | 0.6 |
| 8S-19E- 5dal | TW-5 | 0.5 |
| 9S-19E-25bbl | TW-6 | 0.2 |

The interferences listed above were computed for equilibrium conditions. Interferences between wells after pumping for one irrigation season are much less than the values given. For example, the drawdown in well 5S-17E-26acl as the result of pumping the other 4 test wells for one irrigation season is about 0.3 foot; interference for equilibrium conditions is 0.6 foot. The order of magnitude of the regional lowering of the water table as the result of pumping the 5 test wells is indicated by the amount of interference between wells.

The drawdowns and pumping levels given in this report are only approximate estimates of the effects of pumping because:

1. The coefficient of storage of the basalt aquifer could not be determined from aquifer-test data and is therefore unknown.

2. The coefficients of transmissibility computed from test data pertain only to the portions of the Snake River basalt sampled during the tests (approximate cylinders with diameters in the magnitude of 3 miles); the effects of long-term pumping will spread to much greater

distances (more than 30 miles from the pumped well) and drawdowns will be affected by the unknown average hydraulic properties of the Snake River basalt within the large area under the influence of pumping.

3. The test wells only partially penetrate the Snake River basalt and the effects of partial penetration are unknown; the thickness of the Snake River basalt and the hydraulic connection between water-bearing zones penetrated by wells and deeper zones are unknown.

4. Well-loss constants are not known for all test wells.

5. The effective radii of the test wells are unknown.

6. The magnitudes of fluctuations of the water table (annual and long-term cycles) in the vicinity of the test wells are unknown.

## CONCLUSIONS

Drilling experience indicates that the beds of cinders and wind-blown, lacustrine, and alluvial sedimentary materials interbedded in the Snake River basalt in the vicinity of the test wells are frequently unstable and casing is needed to prevent caving. Planning of future production wells should anticipate installation of casing in most wells drilled along the Milner-Gooding Canal.

The results of aquifer tests indicate that the coefficient of transmissibility of the Snake River basalt along the canal is high and ranges between $2.8 \times 10^6$ and $8.6 \times 10^6$ gpd/ft. The highest values of T, $8.6 \times 10^6$ and $5.0 \times 10^6$ gpd/ft, were computed from data for wells 7S-19E-19aal (TW-4) and 8S-19E-5dal (TW-5) respectively. The values of T computed from data for wells 5S-17E-26acl (TW-1), 6S-18E-7bcl (TW-2), and 9S-19E-25bbl (TW-6) ranged between $2.8 \times 10^6$ and $3.6 \times 10^6$ gpd/ft and

averaged $3.2 \times 10^6$ gpd/ft, indicating that the coefficient of transmissibility of the Snake River basalt is fairly uniform over large areas. The coefficients computed represent the average hydraulic property of the basalt aquifer within the cone of influence created by pumping. A test 8 hours in duration may sample an approximate cylinder of basalt having a diameter in the magnitude of 3 miles.

The test wells only partially penetrated the Snake River basalt. The average depth of penetration below the water table was only 77 feet. Massive layers of relatively impermeable basalt and fine-grained interbeds often locally separate water-bearing zones penetrated by wells from deeper zones in the basalt. It is probable, therefore, that the coefficient of transmissibility of the entire thickness of the Snake River basalt exceeds the values of T determined from the results of the tests.

It is impossible to compute the coefficient of storage with any degree of accuracy using only data from a pumped well. However, the results of the tests do show that the coefficient of storage of the Snake River basalt in the vicinity of the test wells is characteristic of water-table conditions.

Study of the test data and analysis of the effects of heavy pumping indicate that future production wells should extend at least 100 feet and perhaps 150 feet below the water table to reduce well-entrance velocities and prevent large decreases in the yields of wells. Permeable water-bearing zones occurring at or near the water table may be dewatered by heavy pumping. It is possible that the specific capacity of well 8S-19E-5dal (TW-5) was reduced from more than 1,500 gpm/ft to 88 gpm/ft as the result of sealing a liner in a highly permeable water-bearing zone (about

20 feet in thickness) near the water table. Unpublished data in the files of the U. S. Geological Survey indicate that the yields of several wells in the Minidoka North Side Pumping Division area, about 30 miles southeast of the test well, recently decreased greatly as the result of a small decline in the water table. At least part of this decrease is believed to be due to small depth of penetration below the water table.

Values of specific capacity of the 5 wells tested ranged between 88 and 2,150 gpm/ft. The specific capacities of 3 of the 5 test wells were more than 1,300 gpm/ft. The yield of well 8S-19E-5dal (TW-5) which had the lowest specific capacity probably could be greatly increased by reconstructing the well.

A study of pump, well-construction, and aquifer-test data indicates that optimum pumping rates for the test wells having diameters of 20 and 16 inches are 8 and 6 cfs respectively. Drawdowns at these rates are small (the drawdowns in 3 of the 5 test wells for a pumping rate of 6 cfs were computed to be in the magnitude of 4 feet); pumping levels range between 112 and 237 feet below land surface. If starting diameters of future production wells were increased to 24 inches the yields of the wells probably would exceed 8 cfs.

Studies made using the results of the aquifer tests and other geologic and hydrologic data on the occurrence and movement of water in the Snake River basalt indicate that large quantities of water can be withdrawn from wells along the Milner-Gooding Canal without seriously depleting the aquifer. Computations made for a 5-well system capable of yielding 32 cfs during the irrigation season indicate that the regional lowering of the water table in response to the pumping would be in the

magnitude of one-half foot. The increase in the regional lowering of the water table as the result of pumping greater quantities of water will be approximately proportional to the increase in withdrawals. Interferences between wells will depend upon the spacing of the wells and pumping rates. Because interference between wells is so small a part of the total pumping lift, spacing is comparatively unimportant, except that a large number of wells should not be drilled within a small area.

The coefficient of storage of the Snake River basalt could not be determined from the results of the tests because observation wells were not available. Computations of drawdowns were made using an assumed value of S based on experience in other parts of the Snake River plain. Before plans are made to develop large supplies of ground water it is important that more complete aquifer tests be made in the area utilizing two observation wells at different distances from the test well. More complete aquifer tests could be made by using the existing test wells if properly spaced observation wells were drilled near them, so that the coefficient of storage of the basalt aquifer could be determined. In addition, aquifer tests could be made in several existing irrigation wells in Lincoln, Jerome, and Gooding Counties to determine the regional variation in the hydraulic properties of the Snake River basalt.

To date little is known about the effects of heavy pumping on water levels in the Snake River basalt. The Minidoka North Side Pumping Division project appears to offer an unusual opportunity for a detailed quantitative study of the effects of a heavy concentration of pumping and would provide important data on the hydraulic properties of the Snake River basalt and on response of the aquifer to pumping. This data would be useful in planning future projects.

## REFERENCES

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Ferris, J. G., 1951, in Wisler, C. O., and Brater, E. F., Hydrology, chap. 7, Ground Water: John Wiley and Sons, Inc., New York.

Jacob, C. E., 1947, Drawdown test to determine effective radius of artesian well: Am. Soc. Civ. Eng. Trans., v. 112, p. 1047-1070.

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Theis, C. V., 1935, The relation between the lowering of the piezometric surface and the rate and duration of discharge of a well using ground water storage: Am. Geophys. Union Trans., pt. 2, 16, 519-524.

# A P P E N D I X

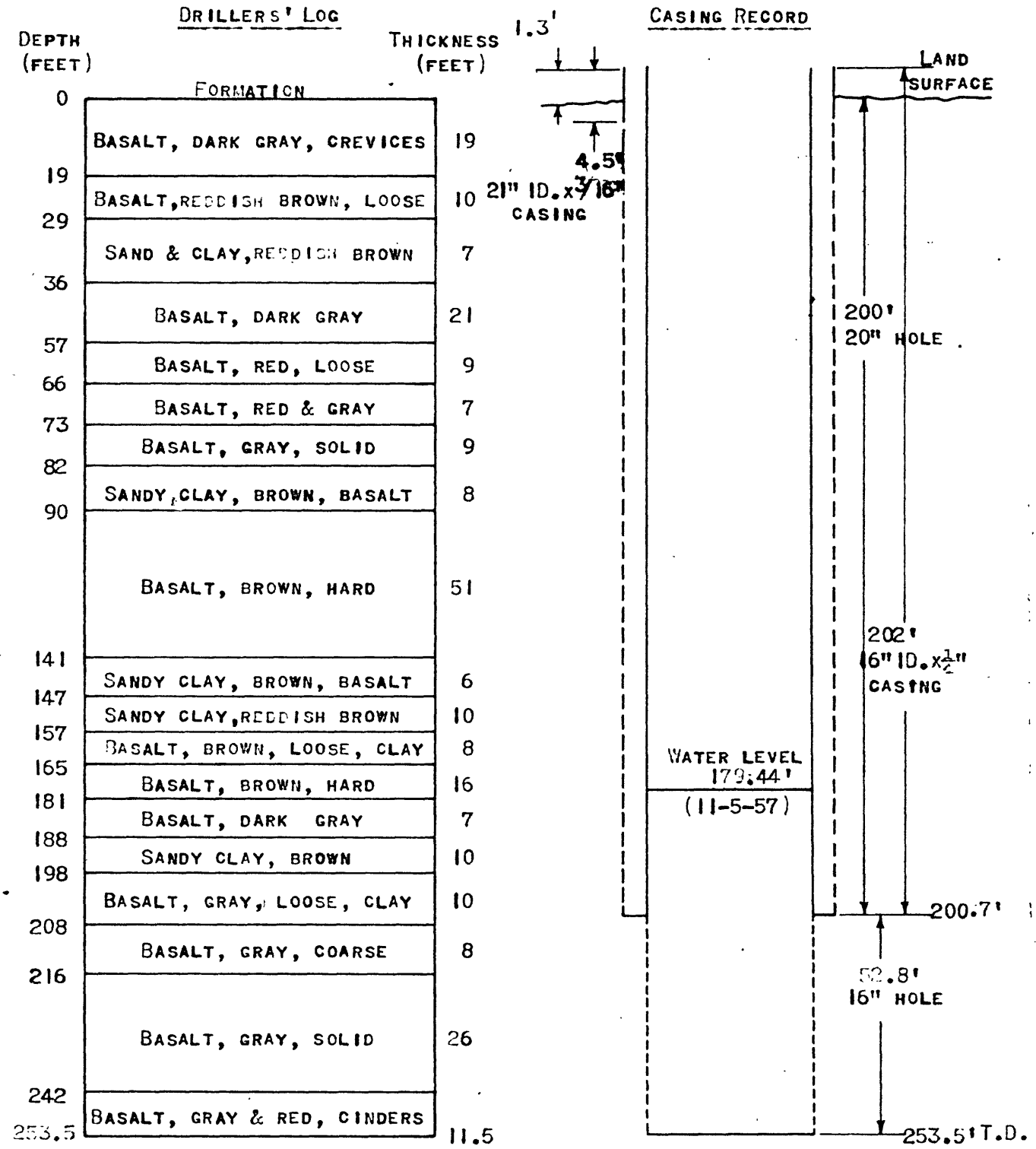


FIGURE 2.—DRILLERS' LOG AND CASING RECORD FOR WELL 5S 17E-26AC1 (TW-1)

(NOT TO SCALE)

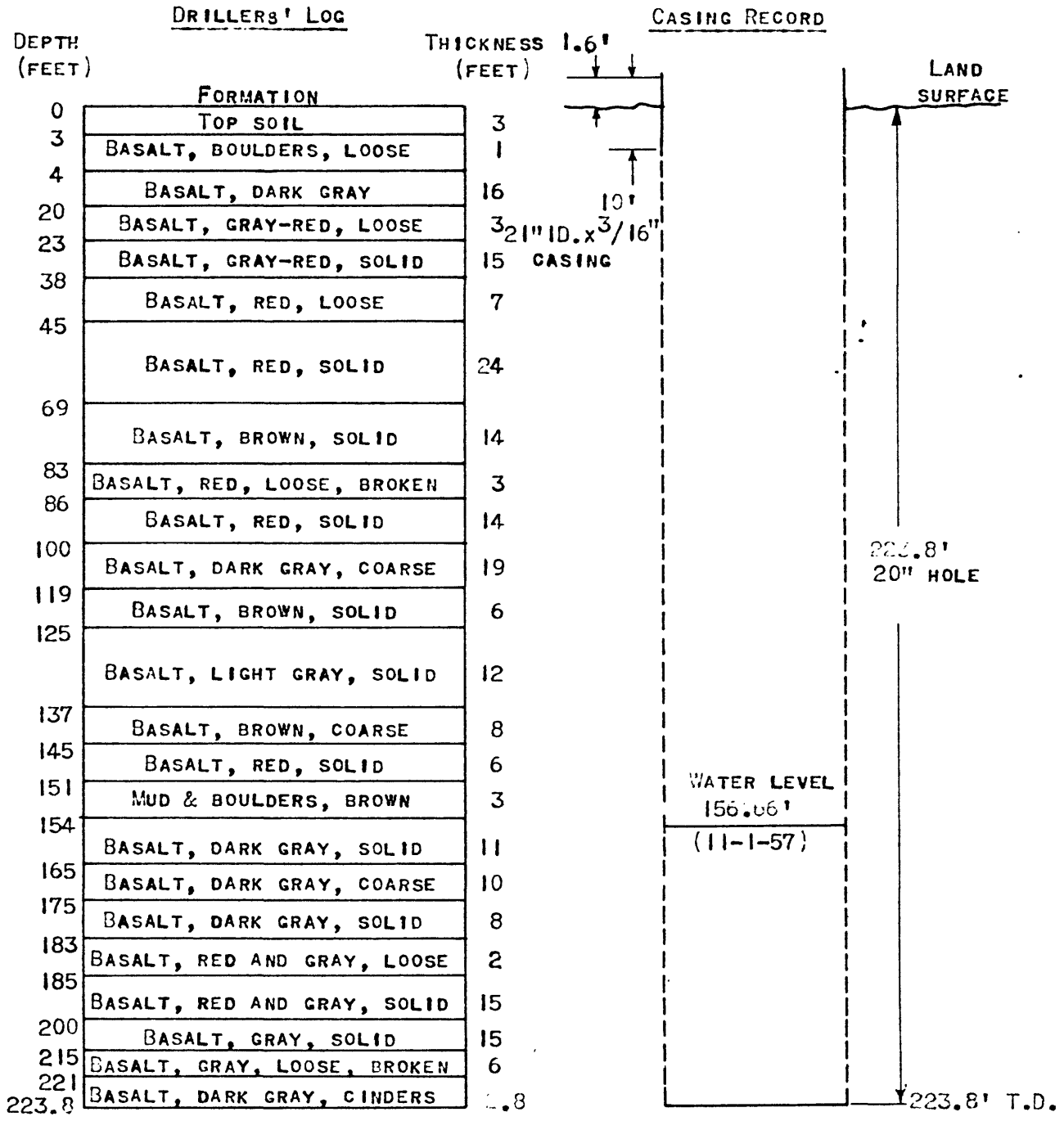


FIGURE 3.—DRILLERS' LOG AND CASING RECORD FOR WELL 6S 18E-7BC1 (TW-2)

(NOT TO SCALE)

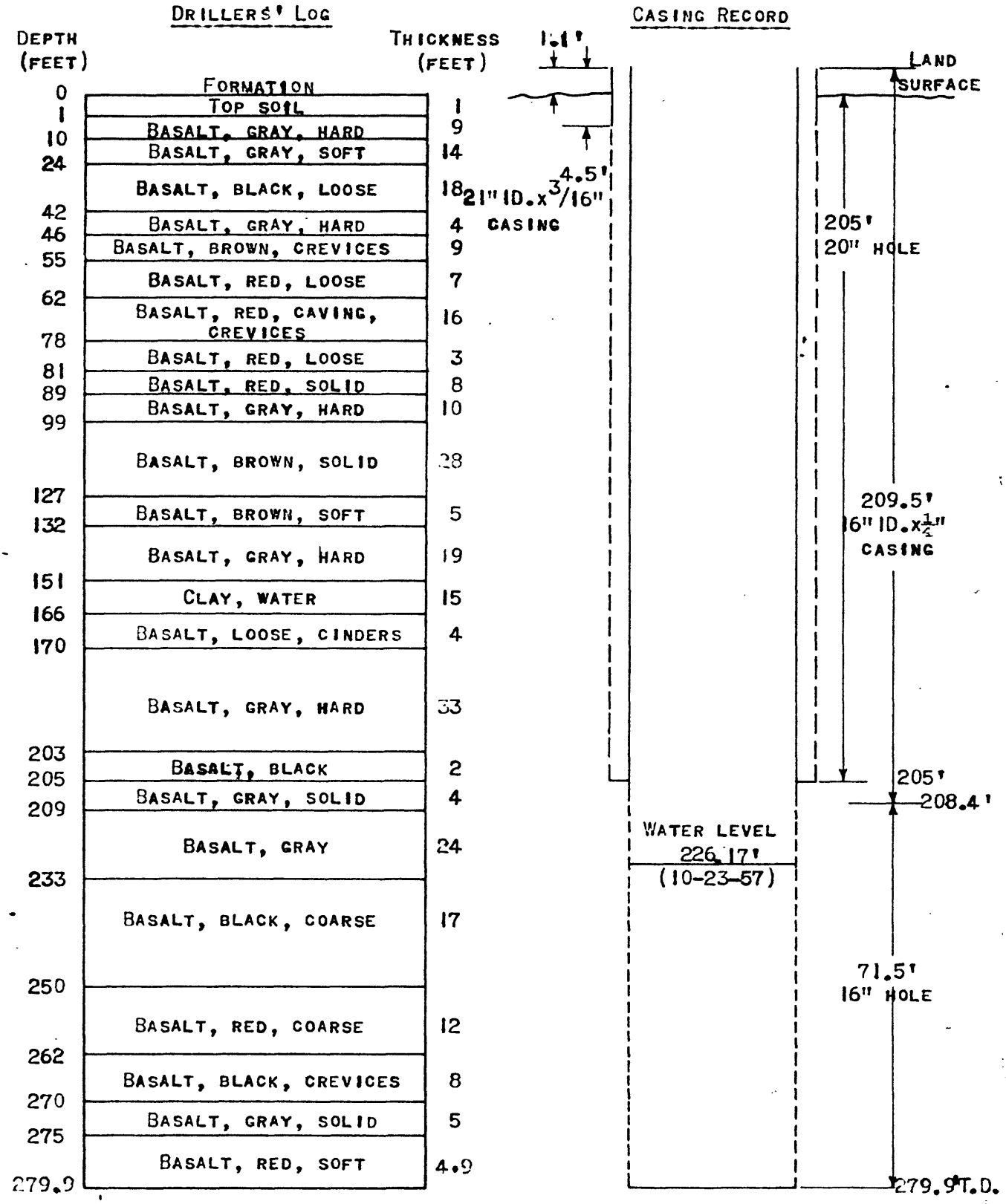


FIGURE 4.—DRILLERS' LOG AND CASING RECORD FOR WELL 7S 19E-19AA1 (TW-4)

(NOT TO SCALE)

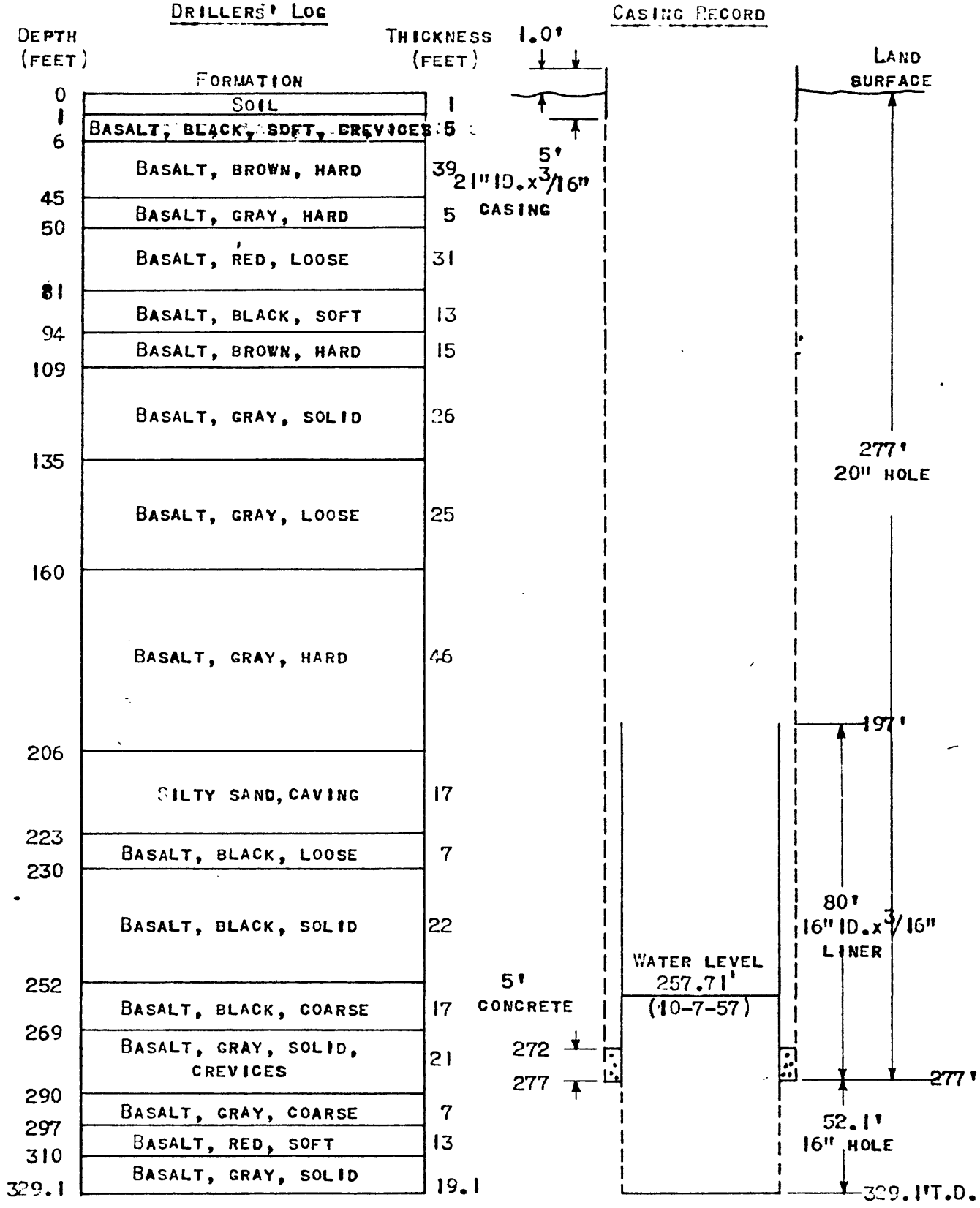


FIGURE 5.—DRILLERS' LOG AND CASING RECORD FOR WELL 8S 19E-5DA1 (TW-5)

(NOT TO SCALE)

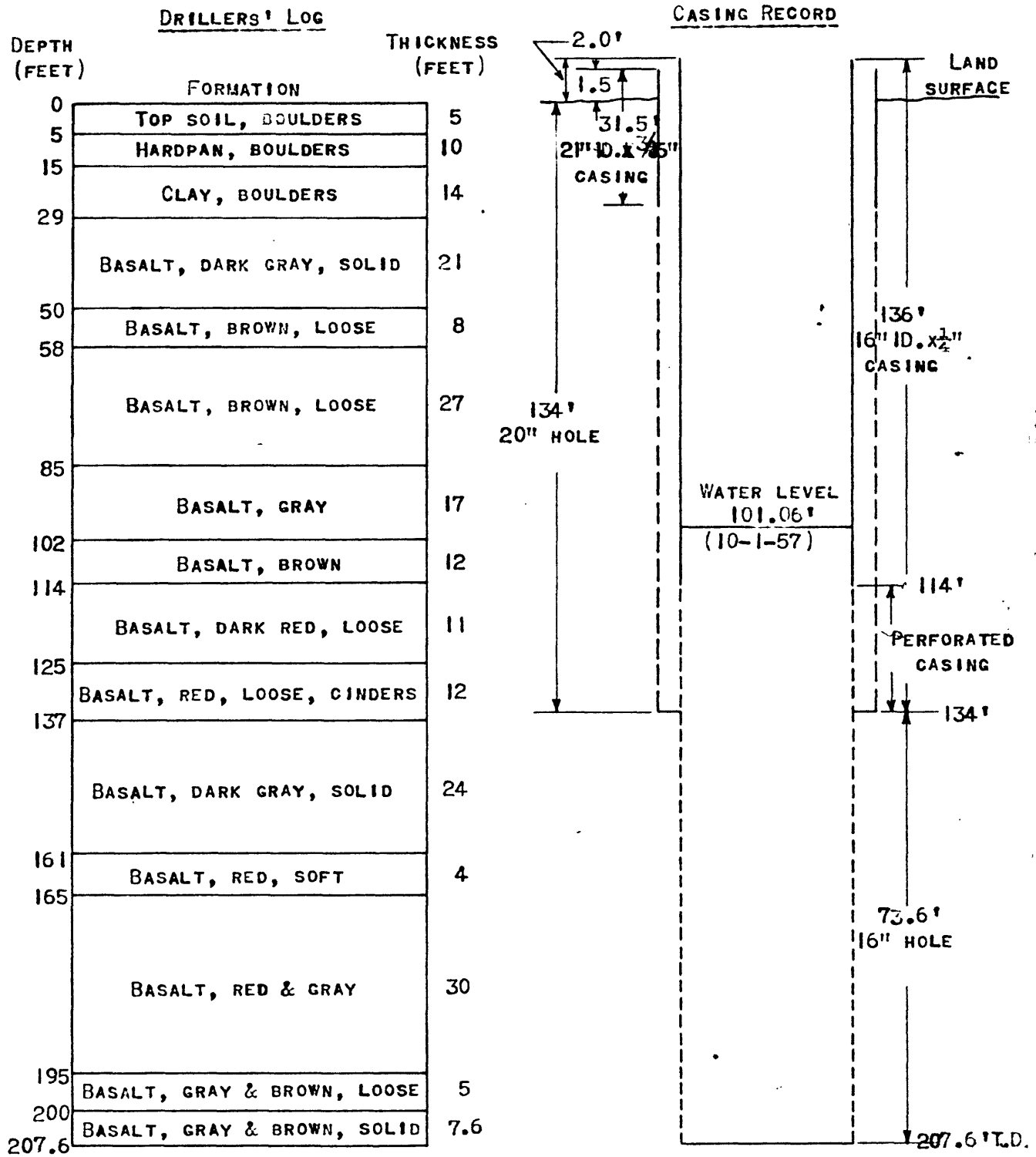


FIGURE 6.--DRILLERS' LOG AND CASING RECORD FOR WELL 9S 19E-25BB1 (T.-6)

(NOT TO SCALE)

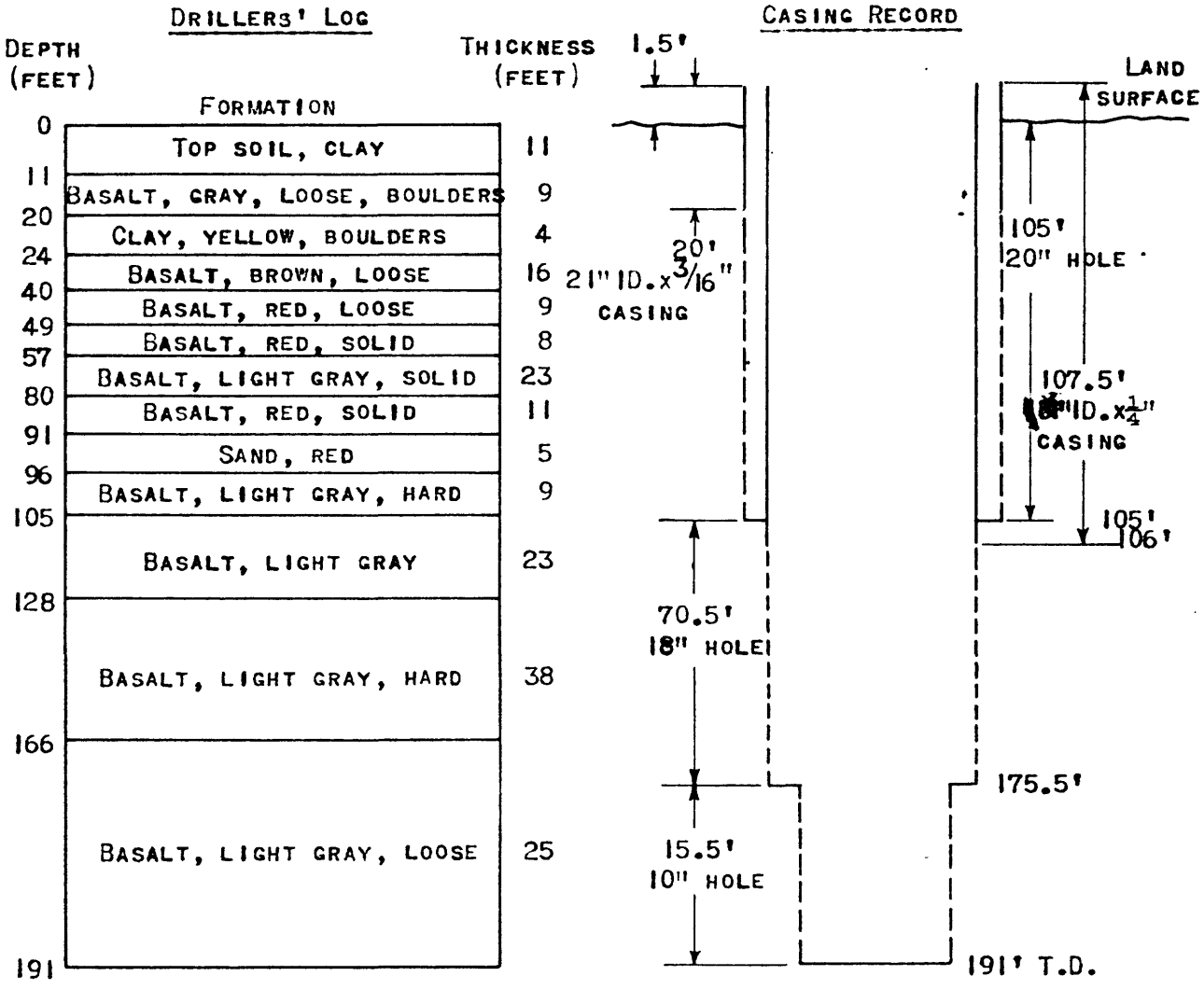


FIGURE 7.--DRILLERS' LOG AND CASING RECORD FOR WELL 6S 19E-14BC1 (TW-7)

(NOT TO SCALE)

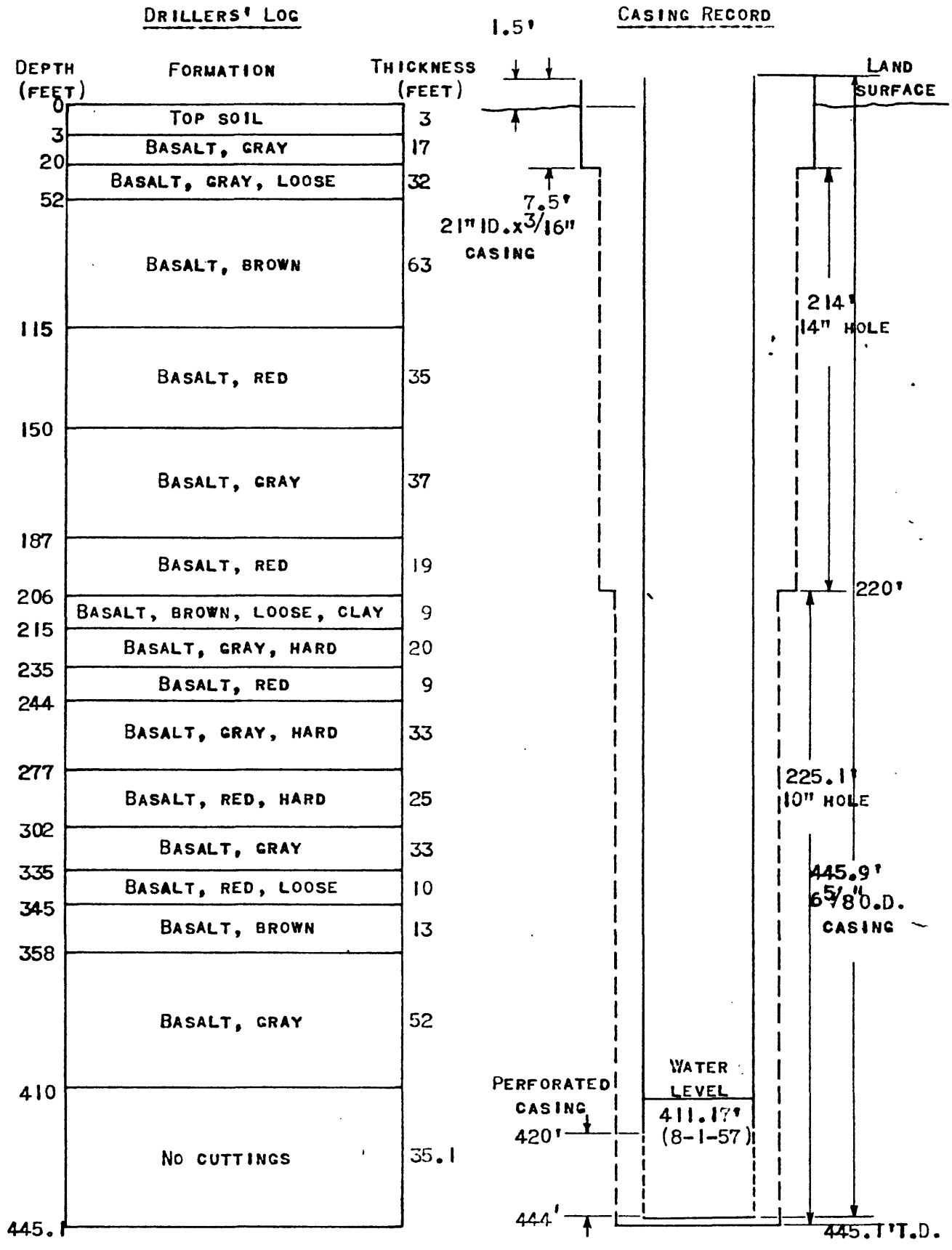


FIGURE 8.--DRILLERS' LOG AND CASING RECORD FOR WELL 4S 24E-6BB1 (OBS.1)

(NOT TO SCALE)

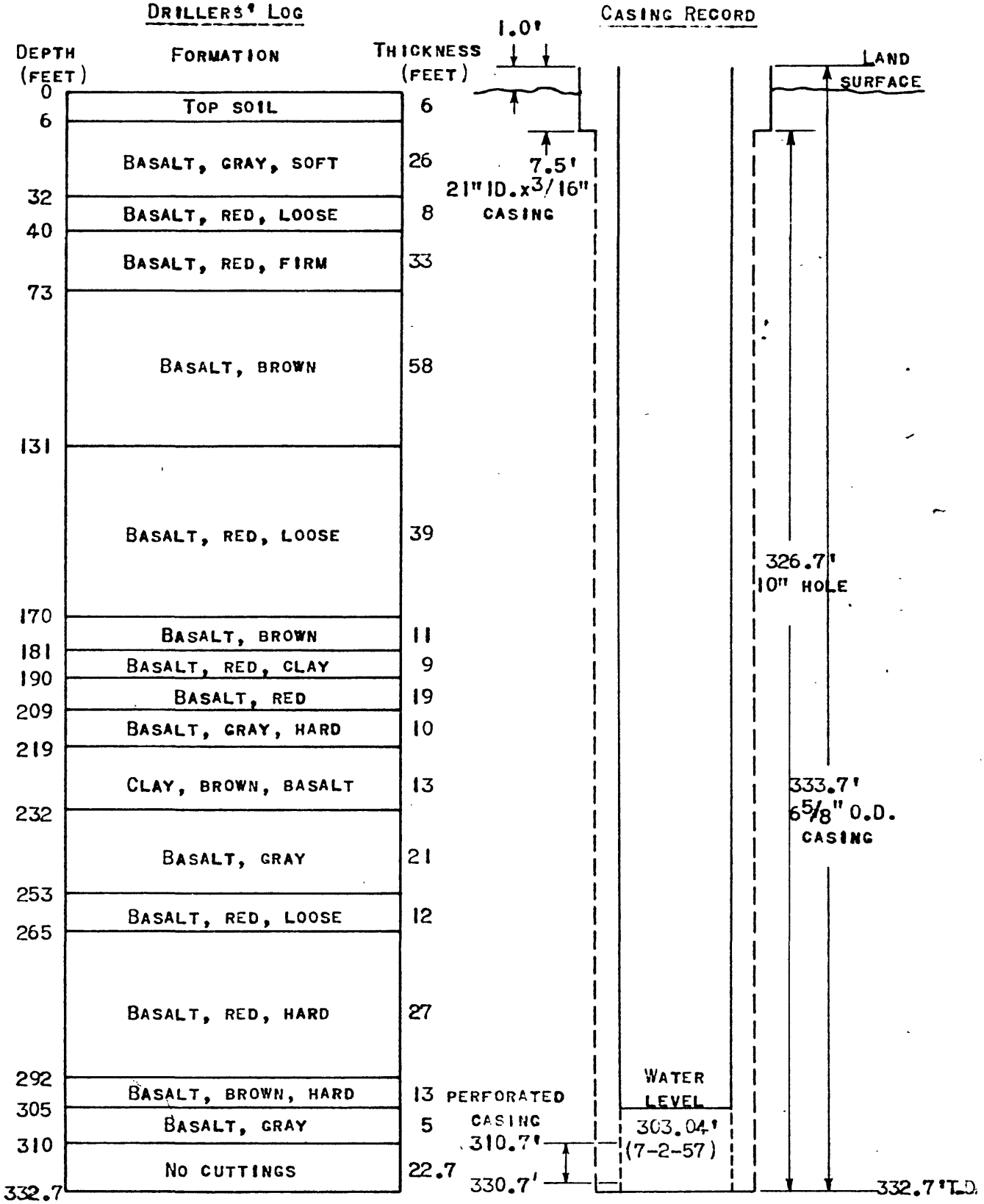


FIGURE 9.--DRILLERS' LOG AND CASING RECORD FOR WELL 5S 23E-17CA1 (OBS. 2)

(NOT TO SCALE)

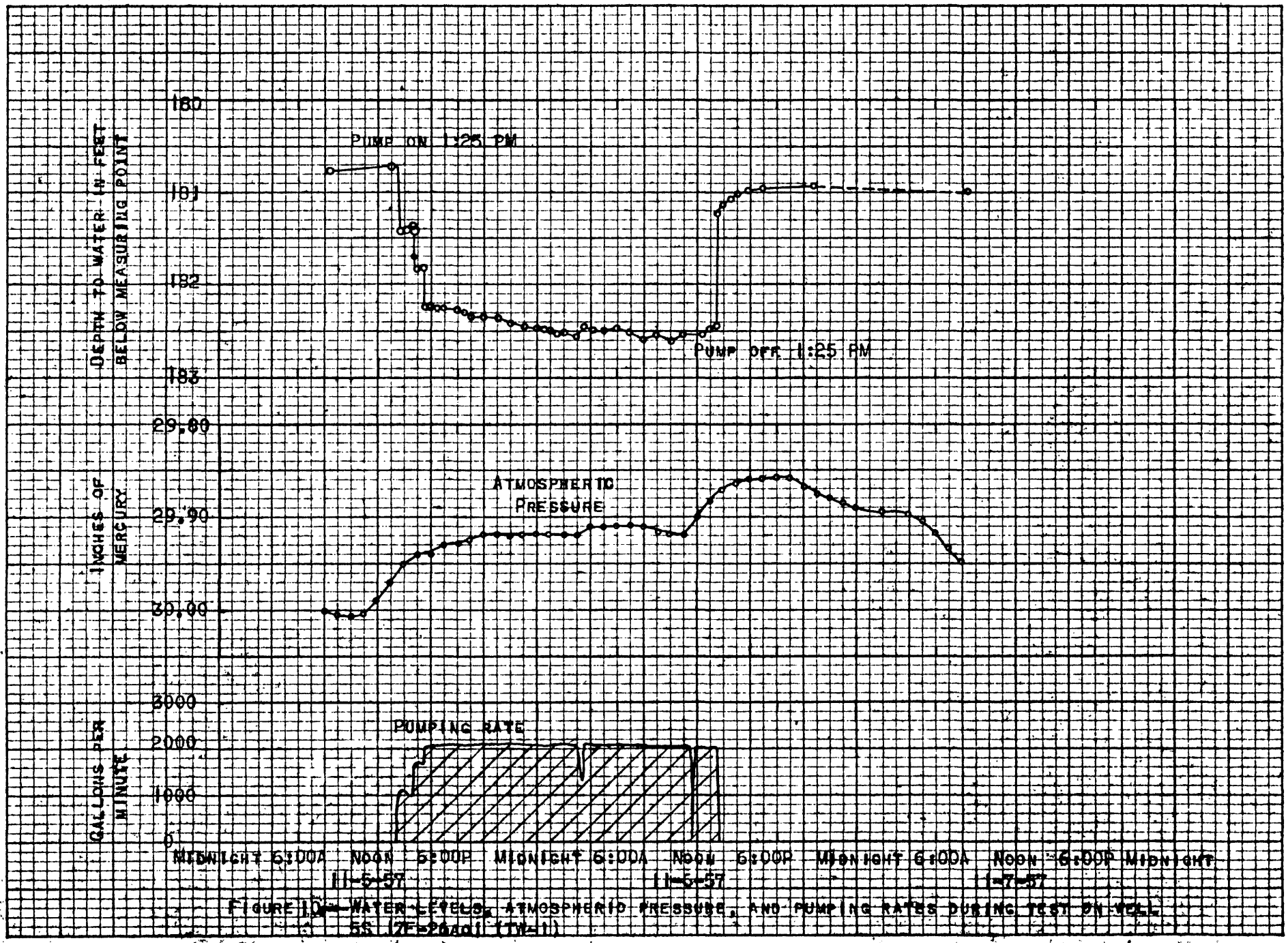


FIGURE 10.—WATER LEVELS, ATMOSPHERIC PRESSURE, AND PUMPING RATES DURING TEST ON WELL 5S 12E-20Add (TW-1)

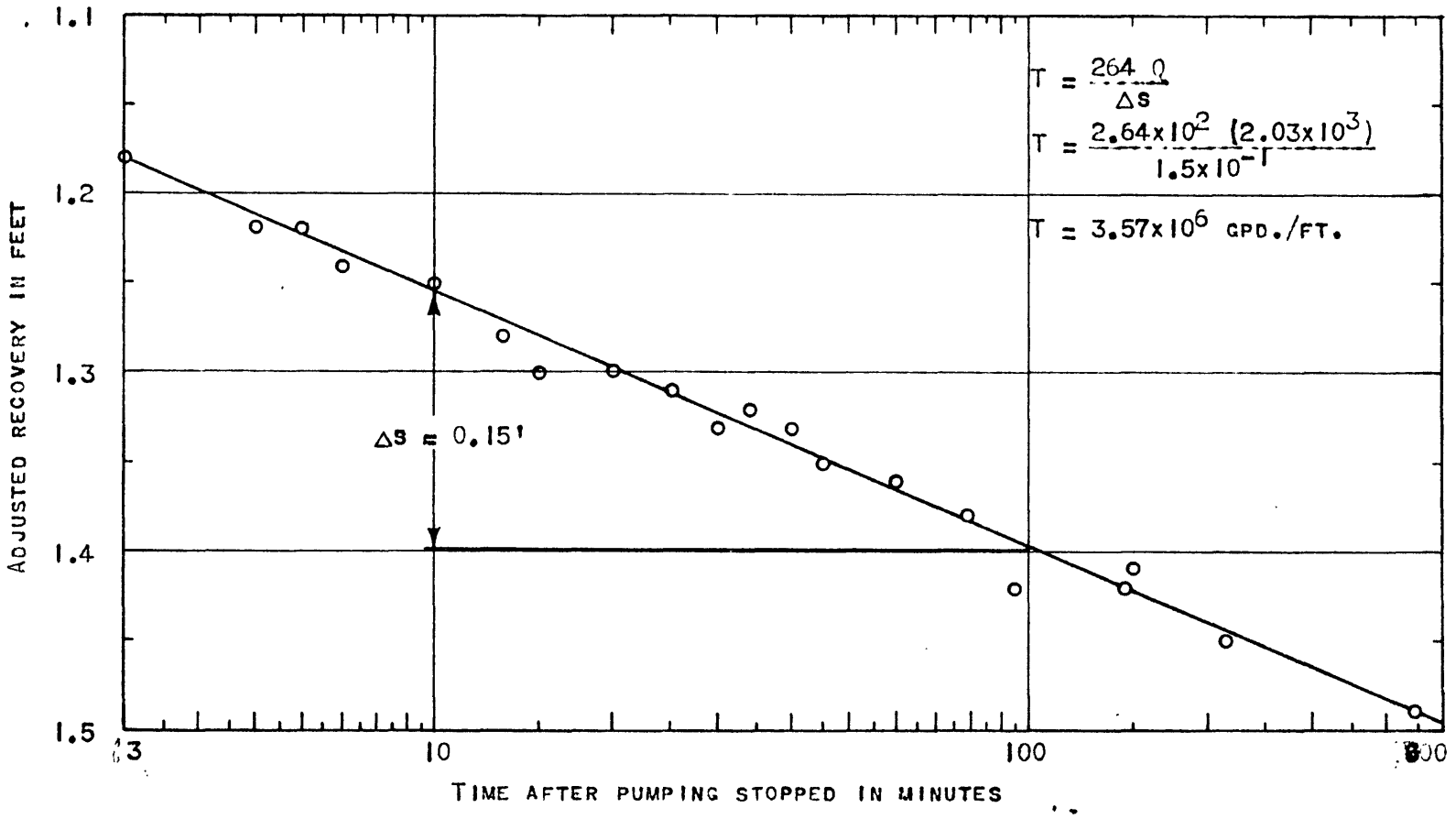


FIGURE 11.--SEMILOG TIME-RECOVERY GRAPH FOR WELL 5S 17E-26A01 (TW-1)

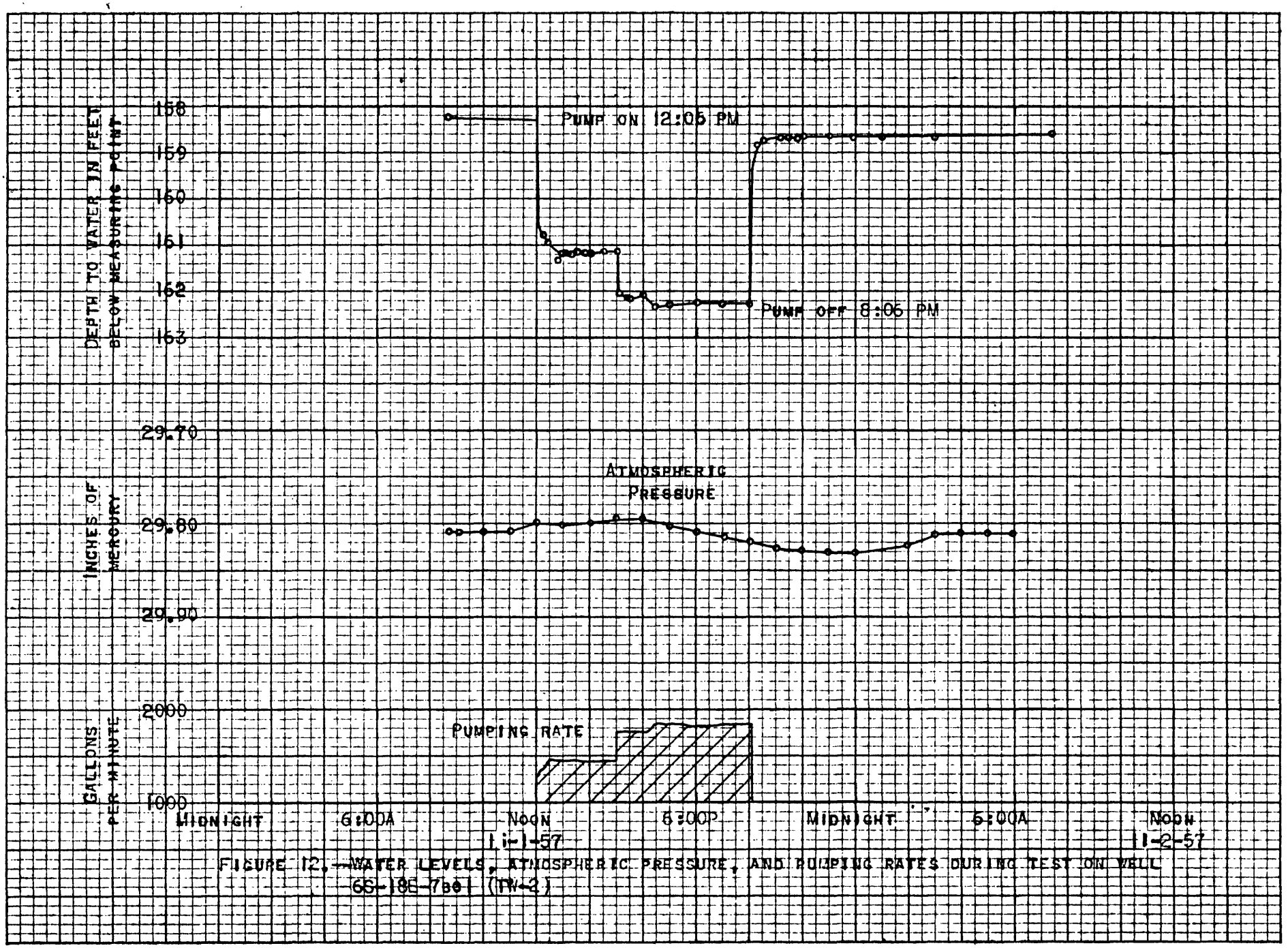


FIGURE 12.—WATER LEVELS, ATMOSPHERIC PRESSURE, AND PUMPING RATES DURING TEST ON WELL 6S-18E-7b01 (TW-2)

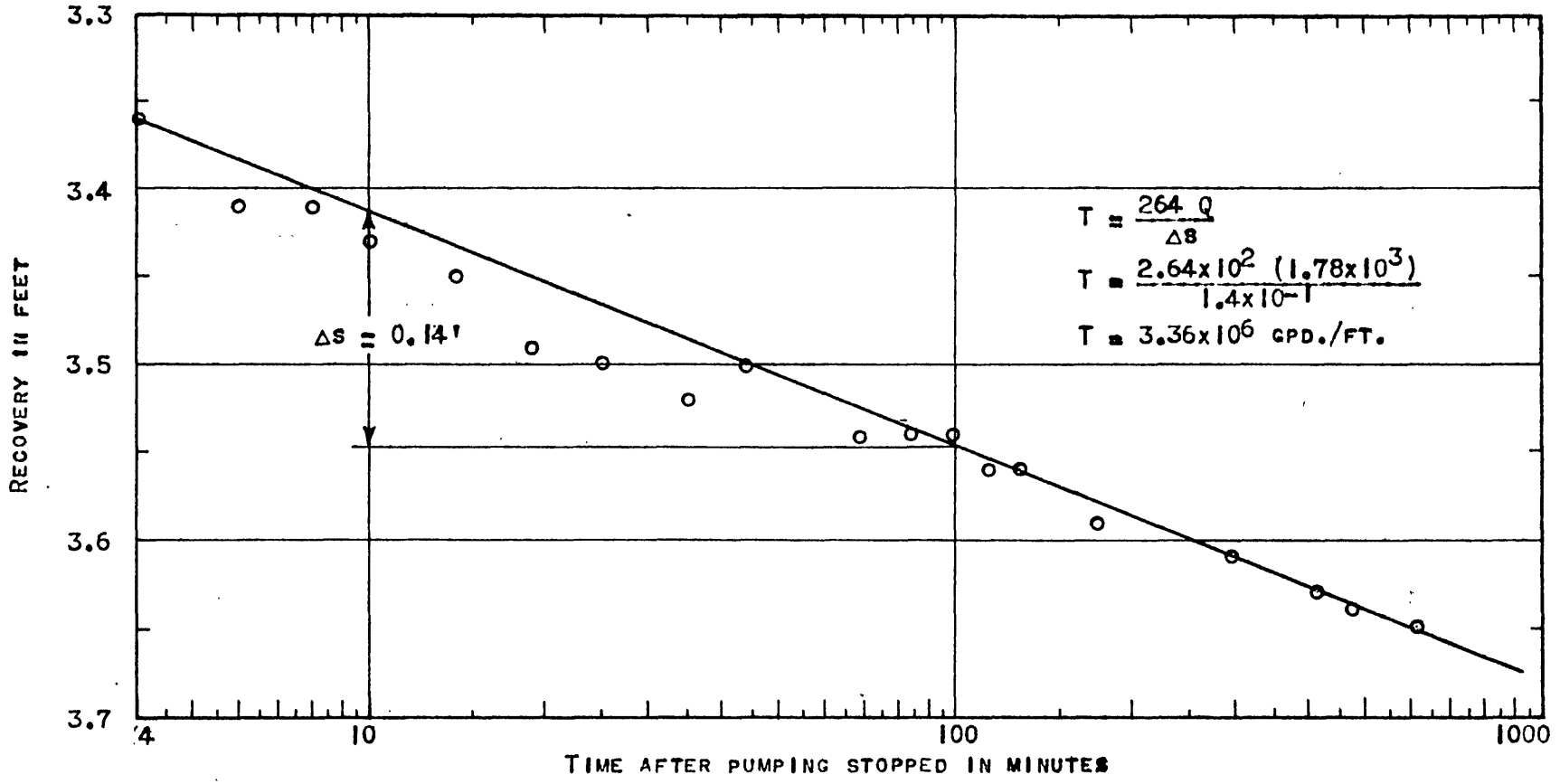


FIGURE 13.--SEMILOG TIME-RECOVERY GRAPH FOR WELL 6S 18E-7B01 (TW-2)

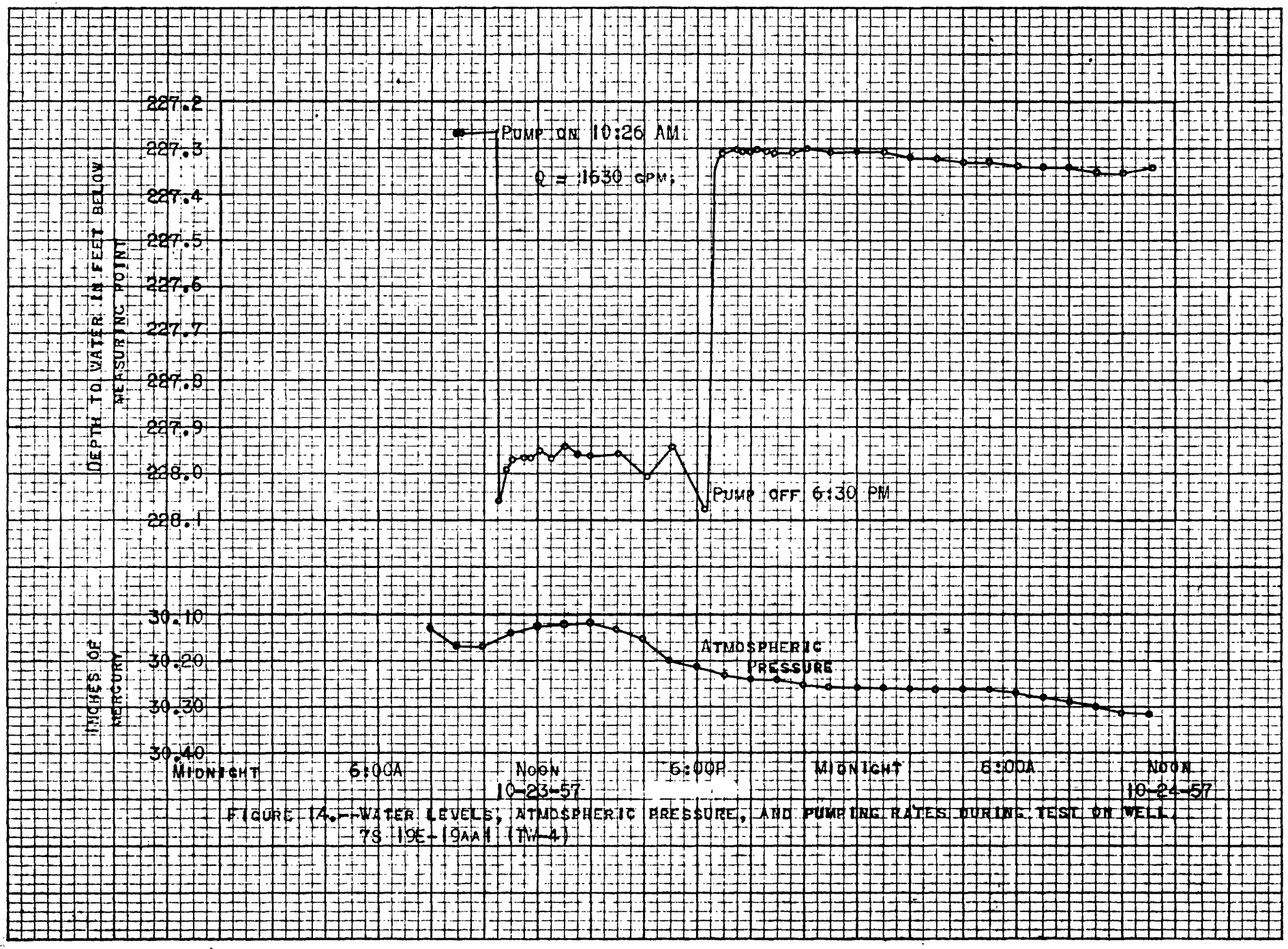


FIGURE 14.--WATER LEVELS, ATMOSPHERIC PRESSURE, AND PUMPING RATES DURING TEST ON WELL 7S 19E-19AA1 (TW-4)

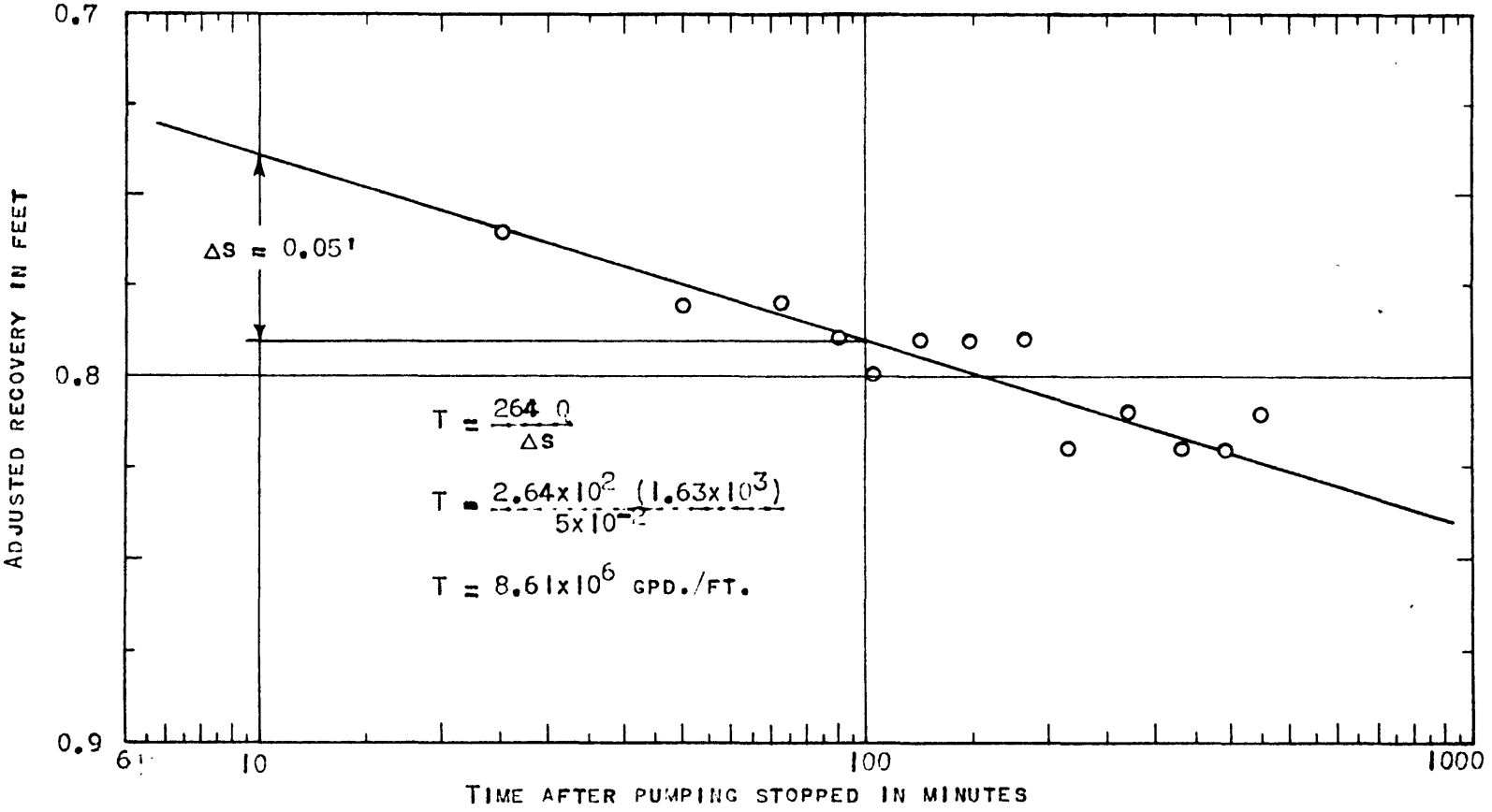


FIGURE 15.--SEMILOG TIME-RECOVERY GRAPH FOR WELL 7S 19E-19AA1 (TW-4)

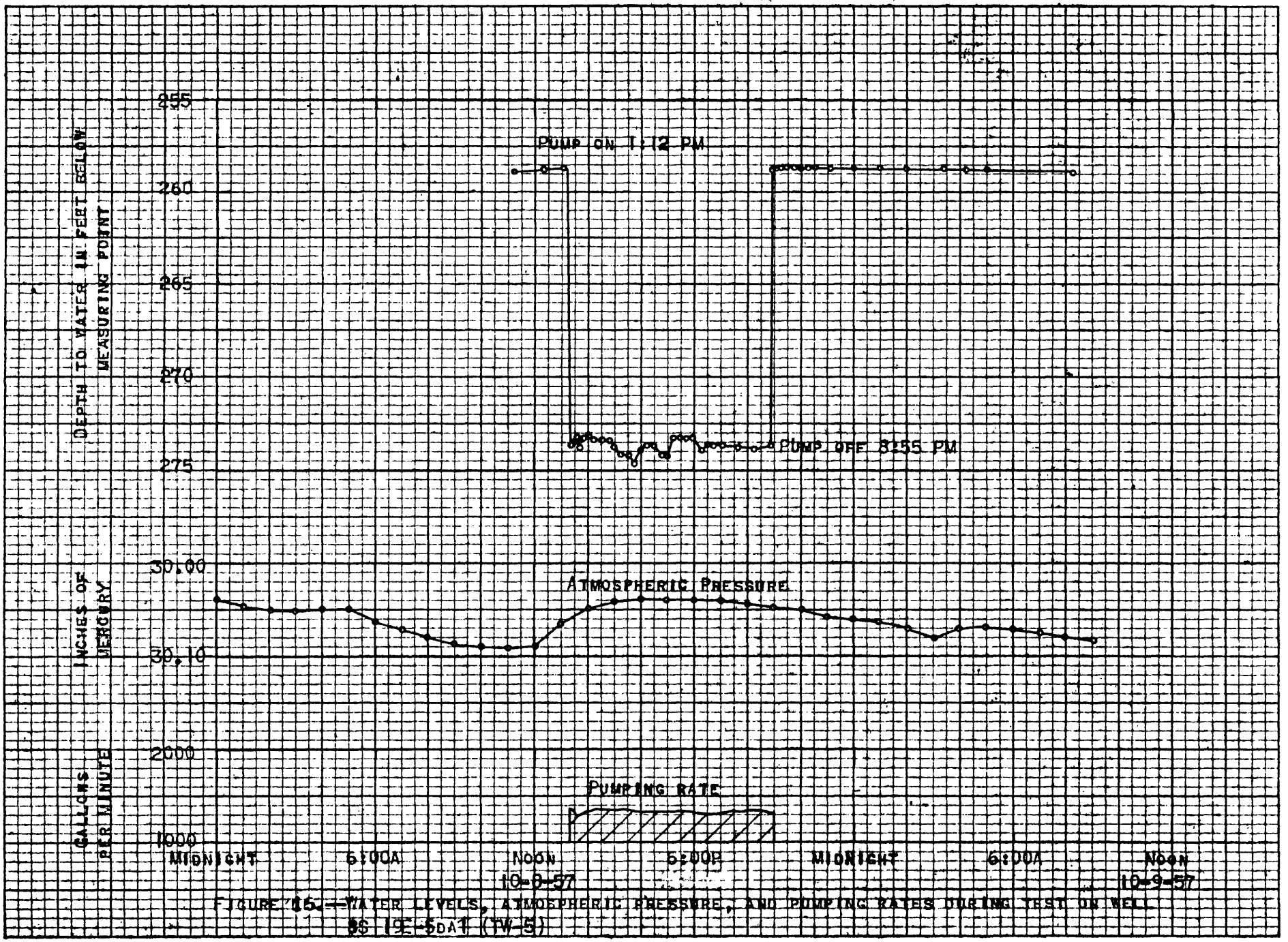


FIGURE 15.--WATER LEVELS, ATMOSPHERIC PRESSURE, AND PUMPING RATES DURING TEST ON WELL 8S 19E-5DA1 (TW-5)

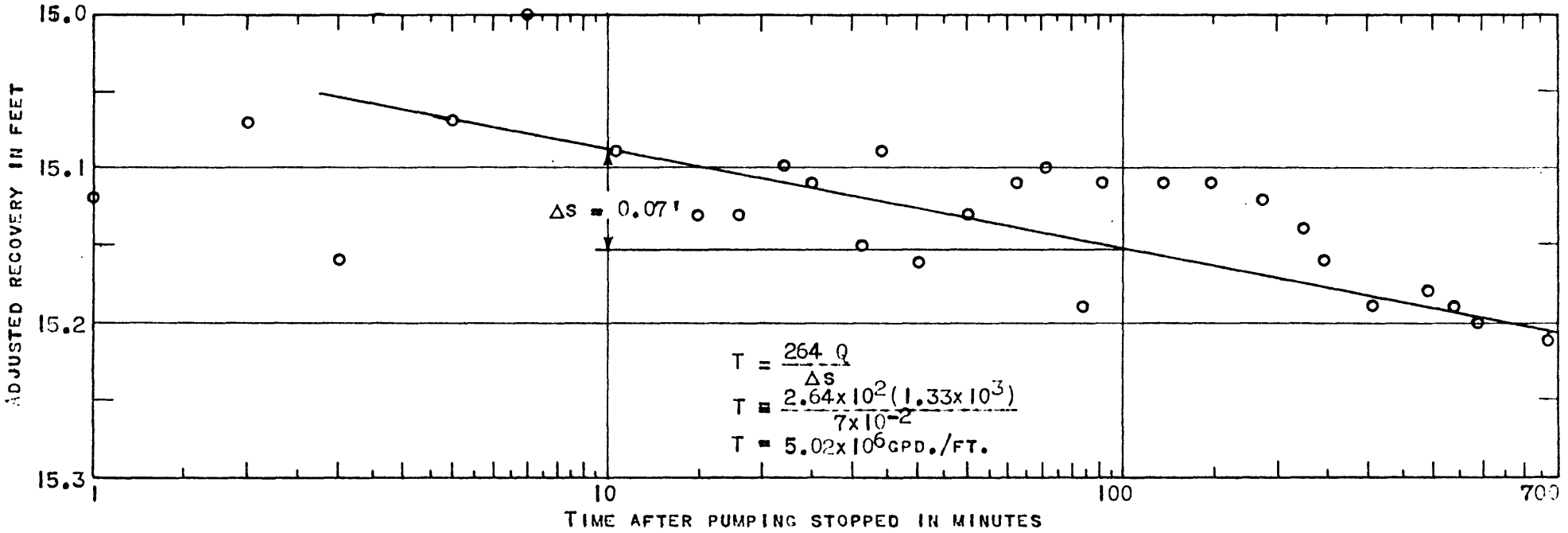


FIGURE 17.--SEMILOG TIME-RECOVERY GRAPH FOR WELL 8S 19E-5DA1 (TW-5)

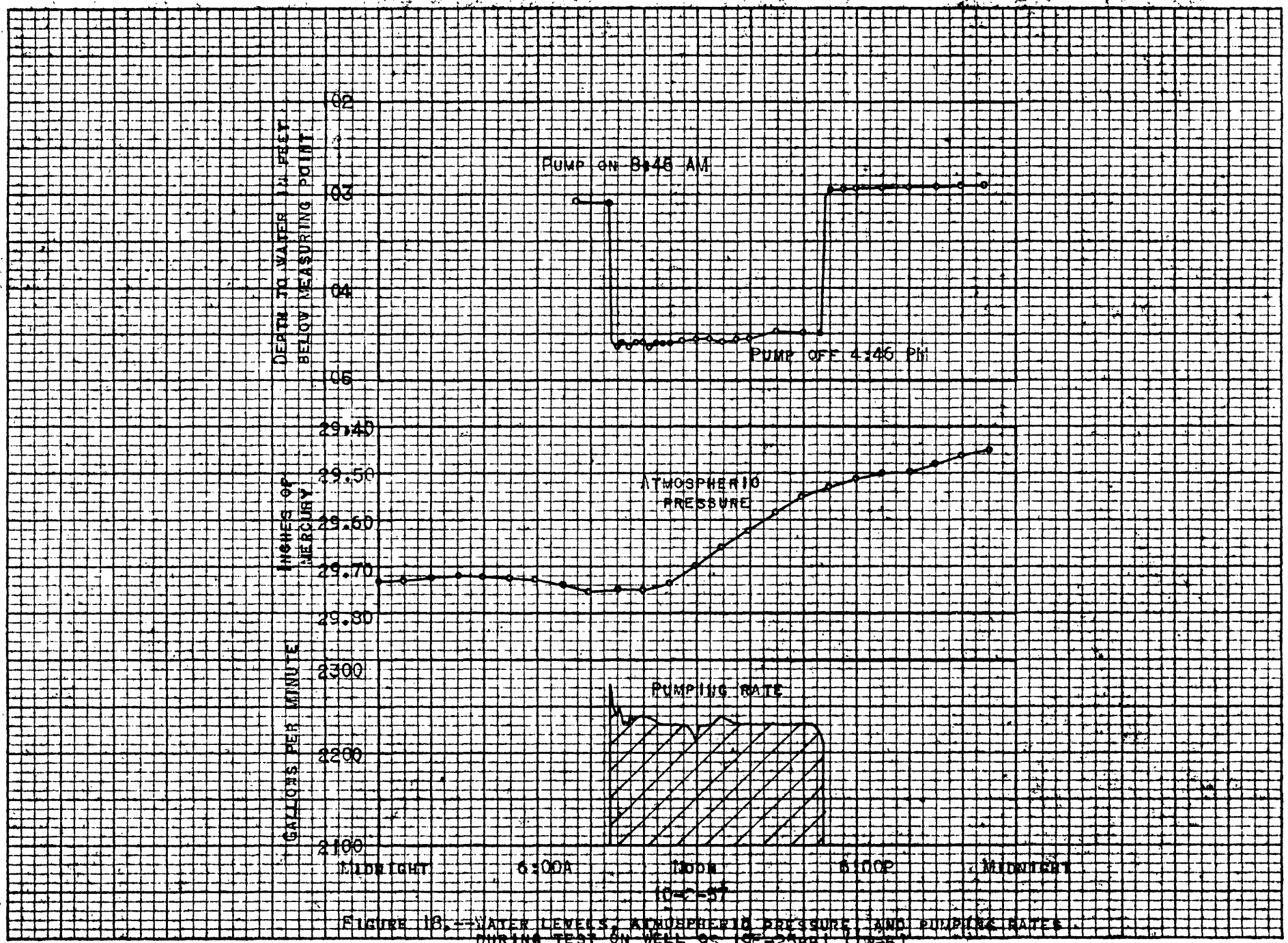


FIGURE 18.--WATER LEVELS, ATMOSPHERIC PRESSURE, AND PUMPING RATES DURING TEST ON WELL 9S 19E-25B01 (1W-6)

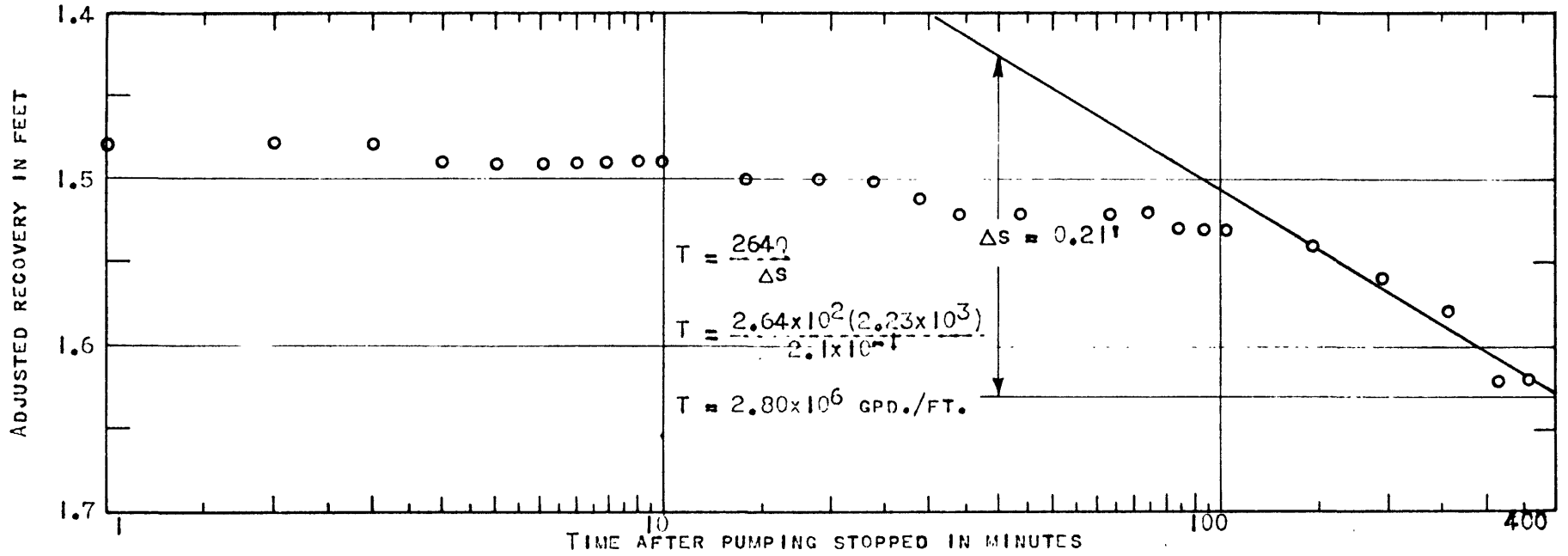


FIGURE 19.--SEMILOG TIME-RECOVERY GRAPH FOR WELL 9S 19E-25DB1 (TW-6)

Location of test LINCOLN COUNTY

Well number 5S 17L-26AC1 (TW-1)

Date of test 11/5-7/57

UNITED STATES
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GEOLOGICAL SURVEY
AQUIFER-TEST-DATA SHEET

TABLE 4

Sheet no. 1 of 8 Sheets

Prepared by WCW Date 1/15/58

Type of data TIME-DRAWDOWN

| Date 1957 | Time | Time since pumping STARTED in minutes | Depth to water in feet below measuring point | Depth to water in feet below measuring point | Drawdown in feet | | | Discharge in gallons per minute |
|---|---|---|---|---|---|---|---|---|
| 11/5 | 8:16A | | 180.77 | | | | | |
| | 1:00P | | 180.74 | | | | | |
| | 1:25 | PUMP ON | | | | | | |
| | 1:26 | 1 | 181.33 | 180.74 | 0.59 | | | 440 |
| | 1:27 | 2 | 181.43 | DO | .69 | | | 600 |
| | 1:28 | 3 | 181.46 | DO | .72 | | | 830 |
| | 1:29 | 4 | 181.40 | DO | .66 | | | 880 |
| | 1:30 | 5 | 181.44 | DO | .70 | | | 970 |
| | 1:31 | 6 | 181.40 | DO | .66 | | | 970 |
| | 1:32 | 7 | 181.39 | DO | .65 | | | 1,020 |
| | 1:33 | 8 | 181.40 | DO | .66 | | | 1,040 |
| | 1:34 | 9 | 181.40 | DO | .66 | | | 1,050 |
| | 1:35 | 10 | 181.41 | DO | .67 | | | 1,080 |
| | 1:37 | 12 | 181.48 | DO | .74 | | | 1,100 |
| | 1:39 | 14 | 181.44 | DO | .70 | | | 1,110 |

Location of test LINCOLN COUNTY

Well number 5S 17E-26AC1 (TW-1)

Date of test 11/5-7/57

UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY
AQUIFER-TEST-DATA SHEET

TABLE 4 -- CONTINUED

Sheet no. 2 of 8 Sheets

Prepared by WCW Date 1/15/58

Type of data TIME-DRAWDOWN

| Date 1957 | Hour | Time after pumping STARTED in minutes | Depth to water feet below measuring point | Previous trend in feet below measuring point | Drawdown or recovery in feet | Barometric correction in feet | Corrected drawdown or recovery, feet | Discharge in gallons per minute |
|---|---|---|---|---|---|---|---|---|
| 11/5 | 1:41P | 16 | 181.43 | 180.74 | 0.69 | | | 1,140 |
| | 1:43 | 18 | 181.46 | DO | .72 | | | 1,120 |
| | 1:46 | 21 | 181.41 | DO | .67 | | | 1,120 |
| | 1:49 | 24 | 181.49 | DO | .75 | | | 1,120 |
| | 1:52 | 27 | 181.43 | DO | .69 | | | 1,160 |
| | 1:55 | 30 | 181.36 | DO | .62 | | | 1,140 |
| | 1:58 | 33 | 181.38 | DO | .64 | | | 1,010 |
| | 2:01 | 36 | 181.37 | DO | .63 | | | 1,010 |
| | 2:04 | 39 | 181.38 | DO | .64 | | | 1,010 |
| | 2:07 | 42 | 181.37 | DO | .63 | | | 980 |
| | 2:10 | 45 | 181.33 | DO | .59 | | | 1,000 |
| | 2:15 | 50 | 181.37 | DO | .63 | | | 930 |
| | 2:20 | 55 | 181.39 | DO | .66 | | | 980 |
| | 2:25 | PUMPING RATE | INCREASED | | | | | |
| | 2:26 | 1 | 181.79 | 181.39 | .40 | | | 1,300 |

Location of test LINCOLN COUNTY

Well number 5S 17E-26AC1 (TW-1)

Date of test 11/5-7/57

UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY
AQUIFER-TEST-DATA SHEET

TABLE 4 — CONTINUED

Sheet no. 3 of 8 Sheets

Prepared by WCW Date 1/15/58

Type of data TIME-DRAWDOWN

| Date 1957 | Hour | Time after pumping STARTED in minutes | Depth to water feet below measuring point | Previous trend in feet below measuring point | Drawdown or recovery in feet | Barometric corrections in feet | Corrected drawdown or recovery, feet | Discharge in gallons per minute |
|---|---|---|---|---|---|---|---|---|
| 11/5 | 2:27P | 2 | 181.81 | 181.39 | 0.42 | | | 1,360 |
| | 2:28 | 3 | 181.81 | DO | .42 | | | 1,480 |
| | 2:29 | 4 | 181.83 | DO | .44 | | | 1,570 |
| | 2:30 | 5 | 181.83 | DO | .44 | | | 1,570 |
| | 2:31 | 6 | 181.83 | DO | .44 | | | 1,620 |
| | 2:32 | 7 | 181.81 | DO | .42 | | | 1,630 |
| | 2:34 | 9 | 181.86 | DO | .47 | | | 1,620 |
| | 2:36 | 11 | 181.92 | DO | .53 | | | 1,620 |
| | 2:38 | 13 | 181.86 | DO | .47 | | | 1,670 |
| | 2:40 | 15 | 181.83 | DO | .44 | | | 1,670 |
| | 2:43 | 18 | 181.86 | DO | .47 | | | 1,690 |
| | 2:46 | 21 | 181.81 | DO | .42 | | | 1,690 |
| | 2:49 | 24 | 181.86 | DO | .47 | | | 1,690 |
| | 2:52 | 27 | 181.85 | DO | .46 | | | 1,690 |
| | 2:55 | 30 | 181.86 | DO | .47 | | | 1,690 |

Location of test LINCOLN COUNTY

Well number 5S 17E-26AC1 (TW-1)

Date of test 11/5-7/57

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DEPARTMENT OF THE INTERIOR
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AQUIFER-TEST-DATA SHEET

TABLE 4 — CONTINUED

Sheet no. 4 of 8 Sheets

Prepared by WCW Date 1/15/58

Type of data TIME-DRAWDOWN

| Date 1957 | Hour | Time after pumping STARTED in minutes | Depth to water in feet below measuring point | Previous reading in feet below measuring point | Drawdown or recovery in feet | Barometric correction in feet | Corrected drawdown or recovery, feet | Discharge in gallons per minute |
|---|---|---|---|---|---|---|---|---|
| 11/5 | 3:00P | 35 | 181.87 | 181.39 | 0.48 | | | 1,690 |
| | 3:05 | 40 | 181.88 | DO | .49 | | | 1,650 |
| | 3:10 | 45 | 181.86 | DO | .47 | | | 1,660 |
| | 3:15 | 50 | 181.87 | DO | .48 | | | 1,650 |
| | 3:20 | 55 | 181.87 | DO | .48 | | | 1,660 |
| | 3:24 | 59 | 181.84 | DO | .45 | | | 1,660 |
| | 3:25 | PUMPING RATE | INCREASED | | | | | |
| | 3:26 | 1 | 182.19 | 181.87 | .32 | | | 2,020 |
| | 3:27 | 2 | 182.24 | DO | .37 | | | 2,020 |
| | 3:28 | 3 | 182.26 | DO | .39 | | | 2,040 |
| | 3:29 | 4 | 182.28 | DO | .41 | | | 2,020 |
| | 3:30 | 5 | 182.24 | DO | .37 | | | 2,030 |
| | 3:31 | 6 | 182.29 | DO | .42 | | | 2,020 |
| | 3:32 | 7 | 182.28 | DO | .41 | | | 2,020 |
| | 3:34 | 9 | 182.27 | DO | .40 | | | 2,020 |

Location of test LINCOLN COUNTY

Well number 5S 17E-26AC1 (TW-1)

Date of test 11/5-7/57

UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY
AQUIFER-TEST-DATA SHEET

TABLE 4 — CONTINUED

Sheet no. 5 of 8 Sheets

Prepared by WCW Date 1/15/58

Type of data TIME-DRAWDOWN

| Date 1957 | Hour | Time after pumping STARTED in minutes | Depth to water feet below measuring point | Previous trend in feet below measuring point | Drawdown or recovery in feet | Barometric corrections in feet | Corrected drawdown or recovery, feet | Discharge in gallons per minute |
|---|---|---|---|---|---|---|---|---|
| 11/5 | 3:36P | 11 | 182.23 | 181.87 | 0.36 | | | 2,020 |
| | 3:38 | 13 | 182.24 | DO | .37 | | | 2,020 |
| | 3:40 | 15 | 182.23 | DO | .36 | | | 2,020 |
| | 3:45 | 20 | 182.24 | DO | .37 | | | 2,020 |
| | 3:48 | 23 | 182.27 | DO | .40 | | | 2,020 |
| | 3:51 | 26 | 182.28 | DO | .41 | | | 2,020 |
| | 3:54 | 29 | 182.29 | DO | .42 | | | 2,020 |
| | 4:00 | 35 | 182.24 | DO | .37 | | | 2,030 |
| | 4:05 | 40 | 182.24 | DO | .37 | | | 2,030 |
| | 4:10 | 45 | 182.25 | DO | .38 | | | 2,040 |
| | 4:15 | 50 | 182.25 | DO | .38 | | | 2,040 |
| | 4:28 | 63 | 182.26 | DO | .39 | | | 2,040 |
| | 4:35 | 70 | 182.26 | DO | .39 | | | 2,040 |
| | 4:45 | 80 | 182.28 | DO | .41 | | | 2,040 |
| | 5:00 | 95 | 182.26 | DO | .39 | | | 2,030 |

Location of test LINCOLN COUNTY

Well number 5S 17E-26A01 (TW-1)

Date of test 11/5-7/57

UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY
AQUIFER-TEST-DATA SHEET

TABLE 4 — CONTINUED



Prepared by WCW Date 1/15/58

Type of data TIME-DRAWDOWN

| Date 1957 | Hour | Time after pumping STARTED in minutes | Depth to water feet below measuring point | Previous trend in feet below measuring point | Drawdown or recovery in feet | Barometric corrections in feet 1/ | Corrected drawdown or recovery, feet | Discharge in gallons per minute |
|---|---|---|---|---|---|---|---|---|
| 11/5 | 5:15P | 110 | 182.30 | 181.87 | 0.43 | | | 2,030 |
| | 6:00 | 155 | 182.29 | DO | .42 | +0.01 | 0.43 | 2,030 |
| | 7:00 | 215 | 182.35 | DO | .48 | + .01 | .49 | 2,050 |
| | 9:00 | 335 | 182.37 | DO | .50 | + .02 | .52 | 2,050 |
| | 11:00 | 455 | 182.45 | DO | .58 | + .02 | .60 | 2,050 |
| 11/6 | 12:30A | 545 | 182.48 | DO | .61 | + .02 | .63 | 2,040 |
| | 1:30 | 605 | 182.54 | DO | .67 | + .02 | .69 | 2,040 |
| | 3:00 | 695 | 182.55 | DO | .68 | + .02 | .70 | 2,035 |
| | 4:36 | 791 | 182.41 | DO | .54 | + .03 | .57 | 2,030 |
| | 6:02 | 877 | 182.48 | DO | .61 | + .03 | .64 | 2,035 |
| | 7:00 | 935 | 182.52 | DO | .65 | + .03 | .68 | 2,030 |
| | 8:05 | 1,000 | 182.41 | DO | .54 | + .03 | .57 | 2,030 |
| | 11:50 | 1,225 | 182.23 | DO | .36 | + .02 | .38 | 2,000 |
| | 1:23P | 1,438 | 182.44 | DO | .57 | + .02 | .59 | 2,000 |
| | 1:25 | PUMP OFF | | | | | | |

1/ BASED ON COMPUTED B.E. OF 80 PERCENT AND A BASE LINE OF 29.94 INCHES OF MERCURY.

Location of test LINCOLN COUNTY

Well number 5S 17E-26AC1 (TW-1)

Date of test 11/5-7/57

UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY
AQUIFER-TEST-DATA SHEET

TABLE 4-- CONTINUED

Sheet no. 7 of 8 Sheets

Prepared by WCW Date 1/15/58

Type of data TIME-RECOVERY

| Date 1957 | Hour | Time after pumping STOPPED in minutes | Depth to water feet below measuring point | Previous [illegible] in feet below measuring point | Drawdown or recovery in feet | Barometric [illegible] in feet 1/ | Corrected drawdown or recovery, feet | Discharge in gallons per minute |
|---|---|---|---|---|---|---|---|---|
| 11/6 | 1:27P | 2 | 181.24 | 182.44 | 1.20 | | | |
| | 1:28 | 3 | 181.26 | DO | 1.18 | | | |
| | 1:30 | 5 | 181.22 | DO | 1.22 | | | |
| | 1:31 | 6 | 181.22 | DO | 1.22 | | | |
| | 1:32 | 7 | 181.20 | DO | 1.24 | | | |
| | 1:35 | 10 | 181.19 | DO | 1.25 | | | |
| | 1:38 | 13 | 181.16 | DO | 1.28 | | | |
| | 1:40 | 15 | 181.14 | DO | 1.30 | | | |
| | 1:42 | 17 | 181.19 | DO | 1.25 | | | |
| | 1:45 | 20 | 181.14 | DO | 1.30 | | | |
| | 1:50 | 25 | 181.13 | DO | 1.31 | | | |
| | 1:55 | 30 | 181.11 | DO | 1.33 | | | |
| | 2:00 | 35 | 181.11 | DO | 1.33 | -0.01 | 1.32 | |
| | 2:05 | 40 | 181.10 | DO | 1.34 | - .01 | 1.33 | |
| | 2:10 | 45 | 181.08 | DO | 1.36 | -..01 | 1.35 | |

1/ BASED ON COMPUTED B. E. OF 80 PERCENT AND A BASE LINE OF 29.88 INCHES OF MERCURY.

Location of test LINCOLN COUNTY

Well number 5S 17E-26AC1 (TW-1)

Date of test 11/5-7/57

UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY
AQUIFER-TEST-DATA SHEET

TABLE 4 -- CONTINUED



Prepared by WCW Date 1/15/58

Type of data TIME-RECOVERY

| Date 1957 | Hour | Time after pumping STOPPED in minutes | Depth to water feet below measuring point | Previous trend in feet below measuring point | Drawdown or recovery in feet | Barometric corrections in feet | Corrected drawdown or recovery, feet | Discharge in gallons per minute |
|---|---|---|---|---|---|---|---|---|
| 11/6 | 2:25P | 60 | 181.07 | 182.44 | 1.37 | -0.01 | 1.36 | |
| | 2:43 | 78 | 181.05 | DO | 1.39 | - .01 | 1.38 | |
| | 2:59 | 94 | 181.01 | DO | 1.43 | - .01 | 1.42 | |
| | 3:50 | 145 | 181.00 | DO | 1.44 | - .02 | 1.42 | |
| | 3:55 | 150 | 181.01 | DO | 1.43 | - .02 | 1.41 | |
| | 5:00 | 215 | 180.97 | DO | 1.47 | - .02 | 1.45 | |
| | 8:55 | 450 | 180.94 | DO | 1.50 | - .01 | 1.49 | |
| 11/7 | 8.23A | 1,138 | 181.00 | DO | 1.44 | + .06 | 1.50 | |
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Location of test LINCOLN COUNTY

Well number 6S•18E-7b01 (TW-2)

Date of test 11/1-2/57

UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY
AQUIFER-TEST-DATA SHEET

TABLE 5

Sheet no. 1 of 4 Sheets

Prepared by WCW Date 1/15/58

Type of data TIME-DRAWDOWN

| Date 1957 | Hour | Time after pumping STARTED in minutes | Depth to water feet below measuring point | Previous trend in feet below measuring point | Drawdown or recovery in feet | Barometric correction in feet | Corrected drawdown or recovery, feet | Discharge in gallons per minute |
|---|---|---|---|---|---|---|---|---|
| 10/31 | 5:45P | | 158.31 | | | | | |
| 11/1 | 8:35A | | 158.26 | | | | | |
| | 12:06P | PUMP ON | | | | | | |
| | 12:09 | 3 | 159.52 | 158.26 | 1.26 | | | 1,230 |
| | 12:15 | 9 | 160.79 | DO | 2.53 | | | 1,350 |
| | 12:17 | 11 | 160.70 | DO | 2.44 | | | 1,380 |
| | 12:23 | 17 | 160.98 | DO | 2.72 | | | 1,400 |
| | 12:29 | 23 | 160.53 | DO | 2.27 | | | 1,450 |
| | 12:45 | 39 | 161.34 | DO | 3.08 | | | 1,460 |
| | 12:50 | 44 | 161.20 | DO | 2.94 | | | 1,470 |
| | 1:00 | 54 | 161.16 | DO | 2.90 | | | 1,460 |
| | 1:10 | 64 | 161.20 | DO | 2.94 | | | 1,470 |
| | 1:20 | 74 | 161.20 | DO | 2.94 | | | 1,460 |
| | 1:30 | 84 | 161.16 | DO | 2.90 | | | 1,460 |
| | 1:45 | 99 | 161.20 | DO | 2.94 | | | 1,460 |

Location of test LINCOLN COUNTY

Well number 6S 18E-7bc1 (TW-2)

Date of test 11/1-2/57

UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY
AQUIFER-TEST-DATA SHEET

TABLE 5 -- CONTINUED

Sheet no. 2 of 4 Sheets

Prepared by WCW Date 1/15/58

Type of data TIME-DRAWDOWN

| Date 1957 | Hour | Time after pumping STARTED in minutes | Depth to water feet below measuring point | Previous trend in feet below measuring point | Drawdown or recovery in feet | Barometric corrections in feet | Corrected drawdown or recovery, feet | Discharge in gallons per minute |
|---|---|---|---|---|---|---|---|---|
| 11/1 | 2:30P | 144 | 161.14 | 158.26 | 2.88 | | | 1,450 |
| | 2:59 | 173 | 161.17 | DO | 2.91 | | | 1,450 |
| | 3:00 | PUMPING RATE | INCREASED | | | | | |
| | 3:01 | 1 | 162.05 | DO | 3.79 | | | 1,760 |
| | 3:05 | 5 | 161.76 | DO | 3.50 | | | 1,740 |
| | 3:10 | 10 | 162.04 | DO | 3.78 | | | 1,740 |
| | 3:15 | 15 | 162.14 | DO | 3.88 | | | 1,770 |
| | 3:20 | 20 | 162.14 | DO | 3.88 | | | 1,760 |
| | 3:30 | 30 | 162.12 | DO | 3.86 | | | 1,760 |
| | 4:00 | 60 | 162.04 | DO | 3.78 | | | 1,740 |
| | 4:30 | 90 | 162.33 | DO | 4.07 | | | 1,830 |
| | 5:00 | 120 | 162.29 | DO | 4.03 | | | 1,830 |
| | 6:00 | 180 | 162.23 | DO | 3.97 | | | 1,830 |
| | 7:00 | 240 | 162.24 | DO | 3.98 | | | 1,820 |
| | 8:00 | 300 | 162.24 | DO | 3.98 | | | 1,820 |

Location of test LINCOLN COUNTY

Well number 6S 18E-7b01 (TW-2)

Date of test 11/1-2/57

UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY
AQUIFER-TEST-DATA SHEET

TABLE 5 — CONTINUED

Sheet no. 3 of 4 Sheets

Prepared by WCW Date 1/15/58

Type of data TIME-RECOVERY

| Date 1957 | Hour | Time after pumping STOPPED in minutes | Depth to water feet below measuring point | Previous trend in feet below measuring point | Drawdown or recovery in feet | Barometric corrections in feet | Corrected drawdown or recovery, feet | Discharge in gallons per minute |
|---|---|---|---|---|---|---|---|---|
| 11/1 | 8:05P | 305 | 162.18 | 158.26 | 3.92 | | | |
| | 8:06 | PUMP OFF | | | | | | |
| | 8:07 | 1 | 158.63 | 162.24 | 3.61 | | | |
| | 8:10 | 4 | 158.88 | DO | 3.36 | | | |
| | 8:12 | 6 | 158.83 | DO | 3.41 | | | |
| | 8:14 | 8 | 158.83 | DO | 3.41 | | | |
| | 8:16 | 10 | 158.81 | DO | 3.43 | | | |
| | 8:18 | 12 | 158.85 | DO | 3.39 | | | |
| | 8:20 | 14 | 158.79 | DO | 3.45 | | | |
| | 8:25 | 19 | 158.75 | DO | 3.49 | | | |
| | 8:30 | 24 | 158.74 | DO | 3.50 | | | |
| | 8:41 | 35 | 158.72 | DO | 3.52 | | | |
| | 8:50 | 44 | 158.74 | DO | 3.50 | | | |
| | 9:15 | 69 | 158.70 | DO | 3.54 | | | |
| | 9:30 | 84 | 158.70 | DO | 3.54 | | | |

Location of test LINCOLN COUNTY

Well number 63 18E-7dc1 (TW-2)

Date of test 11/1-2/57

UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY
AQUIFER-TEST-DATA SHEET

TABLE 5 -- CONTINUED



Prepared by WCW Date 1/15/58

Type of data TIME-RECOVERY

| Date 1957 | Hour | Time after pumping STOPPED in minutes | Depth to water feet below measuring point | Previous [illegible] in feet below measuring point | Drawdown or recovery in feet | Barometric corrections in feet | Corrected drawdown or recovery, feet | Discharge in gallons per minute |
|---|---|---|---|---|---|---|---|---|
| 11/1 | 9:45P | 99 | 158.70 | 162.24 | 3.54 | | | |
| | 10:00 | 114 | 158.68 | DO | 3.56 | | | |
| | 10:15 | 129 | 158.68 | DO | 3.56 | | | |
| | 12:00 | 174 | 158.65 | DO | 3.59 | | | |
| 11/2 | 2:00A | 297 | 158.63 | DO | 3.61 | | | |
| | 4:00 | 414 | 158.61 | DO | 3.63 | | | |
| | 5:00 | 474 | 158.60 | DO | 3.64 | | | |
| | 7:20 | 614 | 158.59 | DO | 3.65 | | | |
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Location of test JEROME COUNTY

Well number 7S 19E-19AA1 (TW-4)

Date of test 10/23-24/57

UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY
AQUIFER-TEST-DATA SHEET

TABLE 6

Sheet no. 1 of 3 Sheets

Prepared by WCW Date 1/14/58

Type of data TIME-DRAWDOWN

| Date 1957 | Hour | Time after pumping STARTED in minutes | Depth to water feet below measuring point | Previous trend in feet below measuring point | Drawdown or recovery in feet | Barometric corrections in feet 1/ | Corrected drawdown or recovery, feet | Discharge in gallons per minute |
|---|---|---|---|---|---|---|---|---|
| 10/22 | 1:19P | | 227.09 | | | | | |
| | 6:55 | | 227.14 | | | | | |
| 10/23 | 8:59A | | 227.27 | | | | | |
| | 9:02 | | 227.27 | | | | | |
| | 10:26 | PUMP ON | | | | | | |
| | 10:34 | 12 | 228.06 | 227.27 | 0.79 | | | |
| | 10:38 | 16 | 228.01 | DO | .74 | | | |
| | 10:41 | 19 | 227.98 | DO | .71 | | | 1,630 |
| | 10:45 | 23 | 227.99 | DO | .72 | | | |
| | 10:49 | 27 | 227.99 | DO | .72 | | | |
| | 10:53 | 31 | 227.99 | DO | .72 | | | |
| | 11:03 | 41 | 227.97 | DO | .70 | | | |
| | 11:06 | 44 | 227.99 | DO | .72 | | | |
| | 11:20 | 58 | 227.97 | DO | .70 | +0.01 | .71 | |
| | 11:30 | 68 | 227.97 | DO | .70 | + .01 | .71 | 1,640 |

1/ BASED ON COMPUTED B. E. OF 57 PERCENT AND A BASE LINE OF 30.15 INCHES OF MERCURY.

Location of test JEROME COUNTY

Well number 7S 19E-19AA1 (TW-4)

Date of test 10/23-24/57

UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY
AQUIFER-TEST-DATA SHEET

TABLE 6 -- CONTINUED



Prepared by WCW Date 1/14/58

Type of data TIME-DRAWDOWN

| Date 1957 | Hour | Time after pumping STARTED in minutes | Depth to water feet below measuring point | Previous trend in feet below measuring point | Drawdown or recovery in feet | Barometric corrections in feet | Corrected drawdown or recovery, feet | Discharge in gallons per minute |
|---|---|---|---|---|---|---|---|---|
| 10/23 | 11:42A | 80 | 227.97 | 227.27 | 0.70 | +0.01 | 0.71 | |
| | 12:02P | 100 | 227.95 | DO | .68 | + .01 | .69 | |
| | 12:30 | 128 | 227.97 | DO | .70 | + .01 | .71 | |
| | 1:00 | 158 | 227.94 | DO | .67 | + .02 | .69 | |
| | 1:30 | 188 | 227.97 | DO | .70 | + .02 | .72 | 1,640 |
| | 2:00 | 218 | 227.96 | DO | .69 | + .02 | .71 | |
| | 3:00 | 278 | 227.96 | DO | .69 | + .01 | .70 | 1,630 |
| | 4:01 | 339 | 228.01 | DO | .74 | — | .74 | 1,630 |
| | 5:01 | 399 | 227.94 | DO | .67 | - .03 | .64 | 1,630 |
| | 6:10 | 468 | 228.08 | DO | .81 | - .05 | .76 | 1,570 |
| | 6:30 | PUMP OFF | | | | | | |
| | 6:50 | 20 | 227.31 | 228.03 2/ | 0.72 | + .05 | .77 | |
| | 6:55 | 25 | 227.32 | DO | .71 | + .05 | .76 | |
| | 7:20 | 50 | 227.30 | DO | .73 | + .05 | .78 | |
| | 7:42 | 72 | 227.31 | 228.04 | .73 | + .05 | .78 | |

2/ BASED ON A BASE LINE OF 30.15 INCHES OF MERCURY.

Location of test JEROME COUNTY

Well number ~~7S~~ 19E-19AA1 (TW-4)

Date of test 10/23-24/57

UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY
AQUIFER-TEST-DATA SHEET

TABLE 6 -- CONTINUED

Sheet no. 3 of 3 Sheets

Prepared by WCW Date 1/14/58

Type of data TIME-RECOVERY

| Date 1957 | Hour | Time after pumping STOPPED in minutes | Depth to water feet below measuring point | Previous trend in feet below measuring point | Drawdown or recovery in feet | Barometric corrections in feet | Corrected drawdown or recovery, feet | Discharge in gallons per minute |
|---|---|---|---|---|---|---|---|---|
| 10/23 | 8:00P | 90 | 227.31 | 228.04 | 0.73 | +0.06 | 0.79 | |
| | 8:14 | 104 | 227.30 | DO | .74 | + .06 | .80 | |
| | 8:32 | 122 | 227.31 | DO | .73 | + .06 | .79 | |
| | 8:58 | 148 | 227.31 | DO | .73 | + .06 | .79 | |
| | 9:32 | 182 | 227.31 | DO | .73 | + .06 | .79 | |
| | 10:02 | 212 | 227.30 | 228.05 | .75 | + .07 | .82 | |
| | 11:00 | 270 | 227.31 | 228.05 | .74 | + .07 | .81 | |
| | 12:00 | 330 | 227.31 | 228.06 | .75 | + .07 | .82 | |
| 10/24 | 1:00A | 390 | 227.31 | 228.06 | .75 | + .07 | .82 | |
| | 2:00 | 450 | 227.32 | 228.06 | .74 | + .07 | .81 | |
| | 4:00 | | 227.33 | | | | | |
| | 6:00 | | 227.34 | | | | | |
| | 8:00 | | 227.34 | | | | | |
| | 10:00 | | 227.35 | | | | | |
| | 11:04 | | 227.34 | | | | | |

Location of test JEROME COUNTY

Well number 8S 19E-5DA1 (TW-5)

Date of test 10/8-9/57

UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY
AQUIFER-TEST-DATA SHEET

TABLE 7

Sheet no. 1 of 6 Sheets

Prepared by WCW Date 1/8/58

Type of data TIME-DRAWDOWN

| Date 1957 | Hour | Time after pumping STARTED in minutes | Depth to water feet below measuring point | Previous trend in feet to measuring point | Drawdown or recovery in feet | Correction in feet 1/ | Corrected drawdown or recovery, feet | Discharge in gallons per minute |
|---|---|---|---|---|---|---|---|---|
| 10/7 | 5:15P | | 258.71 | | | | | |
| | 5:17 | | 258.71 | | | | | |
| | 5:22 | | 258.71 | | | | | |
| 10/8 | 11:15A | | 258.80 | | | | | |
| | 12:26P | | 258.77 | | | | | |
| | 1:07 | | 258.74 | | | | | |
| | 1:15 | PUMP ON | | | | | | |
| | 1:16 | 1 | 268.56 | 258.73 2/ | 9.83 | -0.01 | 9.82 | 1,000 |
| | 1:17 | 2 | 269.41 | DO | 10.68 | - .01 | 10.67 | 1,040 |
| | 1:18 | 3 | 269.98 | DO | 11.25 | - .01 | 11.24 | 1,050 |
| | 1:19½ | 4½ | 276.81 | DO | 18.08 | - .01 | 18.07 | 1,370 |
| | 1:20 | 5 | 277.14 | DO | 18.41 | - .01 | 18.40 | 1,380 |
| | 1:28 | 13 | 273.53 | DO | 14.80 | - .01 | 14.79 | 1,330 |
| | 1:30 | 15 | 273.45 | DO | 14.72 | - .01 | 14.71 | 1,340 |
| | 1:31 | 16 | 273.40 | DO | 14.67 | | | 1,330 |

1/ BASED ON COMPUTED B. E. OF 54.7 PERCENT AND BASE LINE OF 30.04 INCHES OF MERCURY. ADJUSTED FOR ATMOSPHERIC PRESSURE OF 30.04 INCHES OF MERCURY.

Location of test JEROME COUNTY

Well number 8S 19E-5DA1 (TW-5)

Date of test 10/8-9/57

UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY
AQUIFER-TEST-DATA SHEET

TABLE 7 -- CONTINUED

Sheet no. 2 of 6 Sheets

Prepared by WCW Date 1/8/58

Type of data TIME-DRAWDOWN

| Date 1957 | Hour | Time after pumping STARTED in minutes | Depth to water feet below measuring point | Measuring point feet above land surface | Drawdown or recovery in feet | Barometric corrections in feet | Corrected drawdown or recovery, feet | Discharge in gallons per minute |
|---|---|---|---|---|---|---|---|---|
| 10/8 | 1:32P | 17 | 273.26 | 258.73 | 14.53 | | | |
| | 1:34 | 19 | 273.24 | DO | 14.51 | | | 1,330 |
| | 1:35 | 20 | 273.13 | DO | 14.40 | | | 1,290 |
| | 1:37 | 22 | 272.79 | DO | 14.06 | | | 1,290 |
| | 1:39 | 24 | 272.68 | DO | 13.95 | | | 1,300 |
| | 1:41⅓ | 26⅓ | 272.25 | DO | 13.52 | | | 1,300 |
| | 1:45 | 30 | 273.40 | DO | 14.67 | | | 1,330 |
| | 1:50 | 35 | 273.36 | DO | 14.63 | | | 1,330 |
| | 1:55 | 40 | 273.27 | DO | 14.54 | | | 1,330 |
| | 1:59 | 44 | 273.27 | DO | 14.54 | | | 1,330 |
| | 2:06 | 51 | 273.44 | DO | 14.71 | | | 1,330 |
| | 2:10 | 55 | 273.27 | DO | 14.54 | | | 1,350 |
| | 2:15 | 60 | 273.28 | DO | 14.55 | | | 1,350 |
| | 2:20 | 65 | 273.21 | DO | 14.48 | | | 1,350 |
| | 2:25 | 70 | 273.56 | DO | 14.83 | | | 1,360 |

Location of test JEROME COUNTY

Well number 8S 19E-5DA1 (TW-5)

Date of test 10/8-9/57

UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY
AQUIFER-TEST-DATA SHEET

TABLE 7 — CONTINUED

Sheet no. 3 of 6 Sheets

Prepared by WCW Date 1/8/58

Type of data TIME-DRAWDOWN

| Date 1957 | Hour | Time after pumping STARTED in minutes | Depth to water feet below measuring point | Previous trend in feet below measuring point | Drawdown or recovery in feet | Barometric corrections in feet | Corrected drawdown or recovery, feet | Discharge in gallons per minute |
|---|---|---|---|---|---|---|---|---|
| 10/8 | 2:30P | 75 | 273.35 | 258.73 | 14.62 | | | 1,360 |
| | 2:35 | 80 | 273.39 | DO | 14.66 | | | 1,350 |
| | 2:40 | 85 | 273.34 | DO | 14.61 | | | 1,360 |
| | 2:45 | 90 | 273.38 | DO | 14.65 | | | 1,350 |
| | 2:55 | 100 | 273.51 | DO | 14.78 | | | 1,330 |
| | 3:16 | 121 | 268.20 | DO | 9.47 | | | |
| | 3:20 | 125 | 275.17 | DO | 16.44 | | | 1,360 |
| | 3:36 | 141 | 274.33 | DO | 15.60 | | | 1,370 |
| | 4:10 | 175 | 273.66 | DO | 14.93 | | | 1,330 |
| | 4:40 | 205 | 274.14 | DO | 15.41 | | | 1,360 |
| | 5:20 | 245 | 273.12 | DO | 14.39 | | | 1,320 |
| | 6:16 | 301 | 273.95 | DO | 15.22 | | | |
| | 7:15 | 360 | 273.48 | DO | 14.75 | | | 1,320 |
| | 7:45 | 390 | 273.63 | DO | 14.90 | | | 1,330 |
| | 8:21 | 426 | 273.82 | DO | 15.09 | | | 1,330 |

Location of test JEROME COUNTY

Well number 8S 19E-5DA1 (TW-5)

Date of test 10/8-9/57

UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY
AQUIFER-TEST-DATA SHEET

TABLE 7 — CONTINUED

Sheet no. 4 of 6 Sheets

Prepared by WCW Date 1/8/58

Type of data TIME-RECOVERY

| Date 1957 | Hour | Time after pumping STOPPED in minutes | Depth to water feet below measuring point | Depth to water feet below measuring point | Drawdown or recovery in feet | Barometric correction in feet | Corrected drawdown or recovery, feet | Discharge in gallons per minute |
|---|---|---|---|---|---|---|---|---|
| 10/8 | 8:55 | PUMP OFF | | | | | | |
| | 8:56 | 1 | 258.71 | 273.82 | 15.11 | +0.01 | 15.12 | |
| | 8:57 | 2 | 258.76 | DO | 15.06 | + .01 | 15.07 | |
| | 8:58 | 3 | 258.67 | DO | 15.15 | + .01 | 15.16 | |
| | 9:00 | 5 | 258.76 | DO | 15.06 | + .01 | 15.07 | |
| | 9:02 | 7 | 258.83 | DO | 14.99 | + .01 | 15.00 | |
| | 9:03 | 8 | 259.05 | DO | 14.77 | + .01 | 14.78 | |
| | 9:04 | 9 | 259.13 | DO | 14.69 | + .01 | 14.70 | |
| | 9:05 1/8 | 10 1/8 | 258.74 | DO | 15.08 | + .01 | 15.09 | |
| | 9:07 | 12 | 258.84 | DO | 14.98 | + .01 | 14.99 | |
| | 9:10 | 15 | 258.70 | DO | 15.12 | + .01 | 15.13 | |
| | 9:13 | 18 | 258.70 | DO | 15.12 | + .01 | 15.13 | |
| | 9:17 | 22 | 258.73 | DO | 15.09 | + .01 | 15.10 | |
| | 9:20 | 25 | 258.72 | DO | 15.10 | + .01 | 15.11 | |
| | 9:26 | 31 | 258.69 | 273.85 | 15.14 | + .01 | 15.15 | |

Location of test JEROME COUNTY

Well number 8S 19E-5DA1 (TW-5)

Date of test 10/8-9/57

UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY
AQUIFER-TEST-DATA SHEET

TABLE 7 — CONTINUED

Sheet no. 5 of 6 Sheets

Prepared by WCW Date 1/8/58

Type of data TIME-RECOVERY

| Date 1957 | Hour | Time after pumping STOPPED in minutes | Depth to water feet below measuring point | Previous trend in feet below measuring point | Drawdown or recovery in feet | Barometric correction in feet | Corrected drawdown or recovery, feet | Discharge in gallons per minute |
|---|---|---|---|---|---|---|---|---|
| 10/8 | 9:29P | 34 | 258.75 | 273.83 | 15.08 | +0.01 | 15.09 | |
| | 9:35 | 40 | 258.69 | 273.84 | 15.15 | + .01 | 15.16 | |
| | 9:45 | 50 | 258.72 | 273.84 | 15.12 | + .01 | 15.13 | |
| | 9:57 | 62 | 258.75 | 273.85 | 15.10 | + .01 | 15.11 | |
| | 10:06 | 71 | 258.76 | 273.85 | 15.09 | + .01 | 15.10 | |
| | 10:19 | 84 | 258.68 | 273.86 | 15.18 | + .01 | 15.19 | |
| | 10:26 | 91 | 258.76 | 273.86 | 15.10 | + .01 | 15.11 | |
| | 10:55 | 120 | 258.77 | 273.87 | 15.10 | + .01 | 15.11 | |
| | 11:24 | 149 | 258.77 | 273.87 | 15.10 | + .01 | 15.11 | |
| 10/9 | 12:01A | 186 | 258.77 | 273.88 | 15.11 | + .01 | 15.12 | |
| | 12:36 | 221 | 258.77 | 273.90 | 15.13 | + .01 | 15.14 | |
| | 1:01 | 246 | 258.76 | 273.91 | 15.15 | + .01 | 15.16 | |
| | 2:00 | 305 | 258.76 | 273.93 | 15.17 | + .02 | 15.19 | |
| | 3:25 | 390 | 258.78 | 273.94 | 15.16 | + .02 | 15.18 | |
| | 4:15 | 440 | 258.79 | 273.96 | 15.17 | + .02 | 15.19 | |

Location of test JEROME COUNTY

Well number 8S 19E-5DA1 (JW-5)

Date of test 10/8-9/57

UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY
AQUIFER-TEST-DATA SHEET

TABLE 7 -- CONTINUED

Sheet no. 6 of 6 Sheets

Prepared by WCW Date 1/8/58

Type of data TIME-RECOVERY

| Date 1957 | Hour | Time after pumping STOPPED in minutes | Depth to water feet below measuring point | Previous trend in feet below measuring point | Drawdown or recovery in feet | Barometric corrections in feet | Corrected drawdown or recovery, feet | Discharge in gallons per minute |
|---|---|---|---|---|---|---|---|---|
| 10/9 | 5:00A | 485 | 258.79 | 273.97 | 15.18 | +0.02 | 15.20 | |
| | 8:35 | 670 | 258.82 | 274.00 | 15.18 | + .03 | 15.21 | |
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Location of test JEROME COUNTY

Well number 9S 19E-25BB1 (TW-6)

Date of test 10-2-57

UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY
AQUIFER-TEST-DATA SHEET

TABLE 8

Sheet no. 1 of 5 Sheets

Prepared by WCW Date 1-7-58

Type of data TIME-DRAWDOWN

| Date 1957 | Hour | Time after pumping STARTED in minutes | Depth to water feet below measuring point | Previous trend in feet below measuring point | Drawdown or recovery in feet | Barometric corrections in feet | Corrected drawdown or recovery, feet | Discharge in gallons per minute |
|---|---|---|---|---|---|---|---|---|
| 10/1 | 1:30P | | 103.06 | | | | | |
| | 1:35 | | 103.06 | | | | | |
| | 3:30 | | 103.07 | | | | | |
| | 4:15 | | 103.07 | | | | | |
| | 5:15 | | 103.04 | | | | | |
| 10/2 | 7:22A | | 103.09 | | | | | |
| | 8:40 | | 103.08 | | | | | |
| | 8:46 | PUMP ON | | | | | | |
| | 8:59 | 13 | 104.64 | 103.08 | 1.56 | | | 2,230 |
| | 9:04 | 18 | 104.62 | DO | 1.54 | | | |
| | 9:08 | 22 | 104.67 | DO | 1.59 | | | 2,250 |
| | 9:12 | 26 | 104.61 | DO | 1.53 | | | 2,230 |
| | 9:15 | 29 | 104.59 | DO | 1.51 | | | 2,235 |
| | 9:20 | 34 | 104.58 | DO | 1.50 | | | 2,230 |
| | 9:25 | 39 | 104.60 | DO | 1.52 | | | 2,235 |

Location of test JEROME COUNTY

Well number 9S 19E-25bc1 (TW-6)

Date of test 10-2-57

UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY
AQUIFER-TEST-DATA SHEET

TABLE 8 -- CONTINUED

Sheet no. 2 of 5 Sheets

Prepared by WCW Date 1-7-58

Type of data TIME-DRAWDOWN

| Date 1957 | Hour | Time after pumping STARTED in minutes | Depth to water feet below measuring point | Previous trend in feet below measuring point | Drawdown or recovery in feet | Barometric corrections in feet 1/ | Corrected drawdown or recovery, feet | Discharge in gallons per minute |
|---|---|---|---|---|---|---|---|---|
| 10/2 | 9:30A | 44 | 104.65 | 103.08 | 1.57 | | | 2,240 |
| | 9:35 | 49 | 104.60 | DO | 1.52 | | | 2,235 |
| | 9:40 | 54 | 104.58 | DO | 1.50 | | | 2,240 |
| | 9:50 | 64 | 104.57 | DO | 1.49 | | | 2,240 |
| | 10:00 | 74 | 104.59 | DO | 1.51 | | | 2,240 |
| | 10:10 | 84 | 104.62 | DO | 1.54 | | | 2,235 |
| | 10:22 | 96 | 104.60 | DO | 1.52 | | | 2,235 |
| | 10:32 | 106 | 104.59 | DO | 1.51 | | | 2,230 |
| | 10:45 | 119 | 104.60 | DO | 1.52 | | | 2,235 |
| | 11:00 | 134 | 104.58 | DO | 1.50 | +0.01 | 1.51 | 2,230 |
| | 11:31 | 165 | 104.56 | DO | 1.48 | + .02 | 1.50 | 2,230 |
| | 12:00 | 194 | 104.54 | DO | 1.46 | + .03 | 1.49 | 2,215 |
| | 12:27P | 221 | 104.56 | DO | 1.48 | + .04 | 1.52 | 2,230 |
| | 12:57 | 251 | 104.57 | DO | 1.49 | + .06 | 1.55 | 2,240 |
| | 1:32 | 286 | 104.55 | DO | 1.47 | + .07 | 1.54 | 2,240 |

1/ BASED ON COMPUTED B. E. OF 52.6 PERCENT AND A BASE LINE OF 29.75 INCHES OF MERCURY.

Location of test JEROME COUNTY

Well number 9S 19E-25 B B1 (TW-6)

Date of test 10-2-57

UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY
AQUIFER-TEST-DATA SHEET

TABLE 8 — CONTINUED

Sheet no. 3 of 5 Sheets

Prepared by WCW Date 1-7-58

Type of data TIME-DRAWDOWN

| Date 1957 | Hour | Time after pumping STARTED in minutes | Depth to water feet below measuring point | Previous trend in feet below measuring point | Drawdown or recovery in feet | Barometric corrections in feet | Corrected drawdown or recovery, feet | Discharge in gallons per minute |
|---|---|---|---|---|---|---|---|---|
| 10/2 | 2:00P | 314 | 104.52 | 103.08 | 1.44 | +0.07 | 1.51 | 2,230 |
| | 3:00 | 374 | 104.47 | DO | 1.39 | + .10 | 1.49 | 2,215 |
| | 4:00 | 434 | 104.48 | DO | 1.40 | + .11 | 1.51 | 2,230 |
| | 4:42 | 476 | 104.46 | DO | 1.38 | + .13 | 1.51 | 2,215 |
| | 4:46 | PUMP OFF | | | | | | |
| | 4:47 | 1 | 102.98 | 104.46 | 1.48 | | | |
| | 4:48 | 2 | 102.98 | DO | 1.48 | | | |
| | 4:49 | 3 | 102.98 | DO | 1.48 | | | |
| | 4:50 | 4 | 102.97 | DO | 1.49 | | | |
| | 4:51 | 5 | 102.97 | DO | 1.49 | | | |
| | 4:52 | 6 | 102.97 | DO | 1.49 | | | |
| | 4:53 | 7 | 102.97 | DO | 1.49 | | | |
| | 4:54 | 8 | 102.97 | DO | 1.49 | | | |
| | 4:55 | 9 | 102.97 | DO | 1.49 | | | |
| | 4:56 | 10 | 102.97 | DO | 1.49 | | | |

Location of test JEROME COUNTY

Well number 9S 19E-25BD1 (TW-6)

Date of test 10-2-57

UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY
AQUIFER-TEST-DATA SHEET

TABLE 8 -- CONTINUED

Sheet no. 4 of 5 Sheets

Prepared by WCW Date 1-7-58

Type of data TIME-RECOVERY

| Date 1957 | Hour | Time after pumping STOPPED in minutes | Depth to water feet below measuring point | Previous trend in feet below measuring point | Drawdown or recovery in feet | Barometric correction in feet 1/ | Corrected drawdown or recovery, feet | Discharge in gallons per minute |
|---|---|---|---|---|---|---|---|---|
| 10/2 | 5:00P | 14 | 102.96 | 104.45 | 1.49 | +0.01 | 1.50 | |
| | 5:05 | 19 | 102.96 | DO | 1.49 | + .01 | 1.50 | |
| | 5:10 | 24 | 102.96 | DO | 1.49 | + .01 | 1.50 | |
| | 5:15 | 29 | 102.95 | DO | 1.50 | + .01 | 1.51 | |
| | 5:20 | 34 | 102.95 | DO | 1.50 | + .02 | 1.52 | |
| | 5:30 | 44 | 102.95 | DO | 1.50 | + .02 | 1.52 | |
| | 5:40 | 54 | 102.94 | 104.44 | 1.50 | + .02 | 1.52 | |
| | 5:50 | 64 | 102.94 | DO | 1.50 | + .02 | 1.52 | |
| | 6:00 | 74 | 102.94 | DO | 1.50 | + .02 | 1.52 | |
| | 6:10 | 84 | 102.94 | DO | 1.50 | + .03 | 1.53 | |
| | 6:20 | 94 | 102.93 | 104.43 | 1.50 | + .03 | 1.53 | |
| | 6:30 | 104 | 102.93 | DO | 1.50 | + .03 | 1.53 | |
| | 7:12 | 146 | 102.93 | 104.42 | 1.49 | + .06 | 1.54 | |
| | 8:00 | 194 | 102.93 | 104.41 | 1.48 | + .08 | 1.56 | |
| | 9:00 | 254 | 102.92 | 104.40 | 1.48 | + .10 | 1.58 | |

1/ BASED ON A COMPUTED B. E. OF 70.8 PERCENT.

Location of test JEROME COUNTY

Well number 9S 19E-25BB1 (TW-6)

Date of test 10-2-57

UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLOGICAL SURVEY
AQUIFER-TEST-DATA SHEET

TABLE 8 — CONTINUED

Sheet no. 5 of 5 Sheets

Prepared by WCW Date 1-7-58

Type of data TIME-RECOVERY

| Date 1957 | Hour | Time after pumping STOPPED in minutes | Depth to water feet below measuring point | Previous trend in feet below measuring point | Drawdown or recovery in feet | Barometric corrections in feet | Corrected drawdown or recovery, feet | Discharge in gallons per minute |
|---|---|---|---|---|---|---|---|---|
| 10/2 | 10:00P | 314 | 102.90 | 104.39 | 1.49 | +0.13 | 1.62 | |
| " | 10:46 | 360 | 102.90 | 104.38 | 1.48 | + .14 | 1.62 | |
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