Water Levels and Artesian Pressures in Observation Wells in the United States 1953

Part 6. Southwestern States and Territory of Hawaii

Prepared under the direction of A. N. SAYRE, *Chief, Ground Water Branch*

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PREFACE

This report was prepared by the Geological Survey in cooperation with the States of Arizona, California, Nevada, and New Mexico, with the Territory of Hawaii, and with other agencies, by personnel of the Water Resources Division under the direction of:

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WATER LEVELS AND ARTESIAN PRESSURES IN OBSERVATION WELLS IN THE UNITED STATES IN 1953

Part 6. SOUTHWESTERN STATES

INTRODUCTION

By A. N. Sayre

The publication of records of water levels and artesian pressures annually in the United States was begun by the Geological Survey in 1935. Prior to 1940 the records for each year were published in a single volume--1935, 777; 1936, 817; 1937, 840; 1938, 845; 1939, 886. Since 1940 records have been published in six annual volumes, covering the northeastern, southeastern, north-central, south-central, northwestern, and southwestern sections of the country. Hawaii is included in the southwestern section. The following table gives the numbers of Water-Supply Papers from 1940 through 1953.

Year	North-eastern (1)	South-eastern (2)	North-central (3)	South-central (4)	North-western (5)	South-western (6)
1940	906	907	908	909	910	911
1941	936	937	938	939	940	941
1942	944	945	946	947	948	949
1943	986	987	988	989	990	991
1944	1016	1017	1018	1019	1020	1021
1945	1023	1024	1025	1026	1027	1028
1946	1071	1072	1073	1074	1075	1076
1947	1096	1097	1098	1099	1100	1101
1948	1126	1127	1128	1129	1130	1131
1949	1156	1157	1158	1159	1160	1161
1950	1165	1166	1167	1168	1169	1170
1951	1191	1192	1193	1194	1195	1196
1952	1221	1222	1223	1224	1225	1226
1953	1265	1266	1267	1268	1269	1270

The objectives of the observation-well program are to provide a day-to-day evaluation of available ground-water supplies, to facilitate the prediction of trends in ground-water levels that will indicate the probable status of important ground-water supplies in the future, to delineate present or potential areas of detrimentally high or low ground-water levels, to aid in the prediction of the base flow of streams, to determine the several forces that act on a ground-water body, and to demonstrate the interplay of those forces in the ground-water regimen, to furnish information for use in basic research, and to provide long-term continuous records of fluctuations of water levels in representative wells. These selected records serve as a framework to which many short-term records collected during an intensive investigation may be related.

Water levels in wells are seldom stationary but move up or down a fraction of an inch or many feet within a short time. Water-table wells may be influenced by direct recharge from precipitation, withdrawals from wells or springs, evapotranspiration by vegetation, evaporation from the soil, and changes in atmospheric pressure. Artesian wells are influenced over large areas by changes in the rate of pumping from other wells, changes in atmospheric pressure, earthquakes, ocean tides, earth tides, and recharge from precipitation, although the recharge may not be noticeable immediately. When accurate comparisons of water levels are made it is desirable to apply corrections for these influences, several of which may be compensating or additive according to the conditions at those particular times.

Water-level measurements are given in feet with reference to land-surface datum or sea-level datum. Land-surface datum is a precise datum plane that is approximately at land surface at each well. Mean sea level (msl) is the datum plane on which the national network of precise levels is based. When some measurements in a table are above and others are below the plane of reference, a plus (+) or minus (-) sign is placed immediately preceding the first entry in each column. Readings between minus signs are below the plane of reference and those between plus signs are above the plane of reference.

For the most part, discussions of precipitation in this report are based on data furnished by the United States Weather Bureau.

Measurements of water levels and artesian pressures in wells were made under the direction of the district supervisors of the Ground Water Branch in the several States.

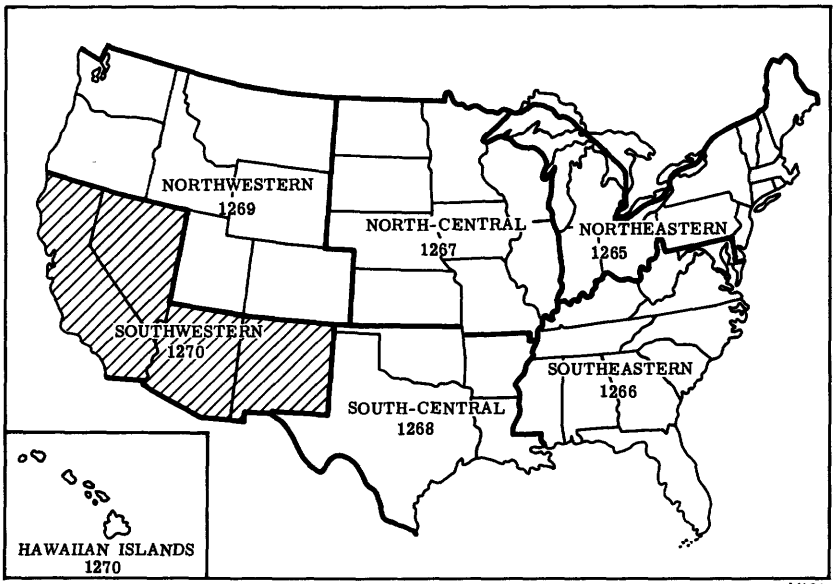


Figure 1. --Outline map of the United States showing areas included in each of the six water-supply papers on water levels and artesian pressures in observation wells in 1953. The shaded area indicates the States included in this volume. 16456

Penn Livingston had general charge of the nationwide observation-well program; Verda M. Dougherty assembled and edited the reports.

ARIZONA

By L. C. Halpenny and others

The following personnel assisted in collecting and analyzing the data for this report: M. B. Booher, J. M. Cahill, R. L. Cushman, C. S. English, R. H. Garside, D. K. Greene, E. K. Morse, R. S. Stulik, Mrs. N. D. White, N. P. Whaley, and H. N. Wolcott. Messrs. Booher and Cahill compiled most of the pumpage data. Messrs. Wolcott and Cushman and Mrs. White aided in preparation of the manuscript.

Scope of Water-Level Program

The water-level program is an integral part of the ground-water investigations in Arizona. The program of financial cooperation with the Arizona State Land Department included a substantial part of the observation-well program. As a part of the State cooperative project, field work was completed in the Harquahala Plains area and the Lower San Pedro basin, and was continued in the Palomas Plain area. The program of filing drill cuttings from deep wells was continued in cooperation with the State Land Department, the University of Arizona, and the Museum of Northern Arizona. Work was continued on the Navajo, Hopi, and Papago Indian Reservations, financed by transfer of funds from the Bureau of Indian Affairs. A re-evaluation of the ground-water resources of the Gila Bend area was made, financed by transfer of funds from the Corps of Engineers. The long-range investigation of the springs along the Mogollon Rim was continued, and an investigation of the ground-water situation along the Little Colorado River was begun. These projects were financed with Federal funds. Investigation of the water-bearing character of the deep aquifers in central and southern Arizona was continued during the year. The program to record changes in the quality of ground water was continued by the periodic resampling of selected wells. The 1953 Arizona observation-well program included water-level measurements in approximately 1,800 wells and maintenance of recording gages on 9 wells. The rate of discharge in gallons per minute was measured in 894 wells. Nearly 6,000 irrigation wells were in use in Arizona during the year, not including wells equipped with pumps requiring 5 horsepower or less. The measurements made in a few representative wells are tabulated in this annual water-level report to show typical fluctuations in stage of the water table in the ground-water basins of the State. Figures 2-15 show location of observation wells. A few representative graphs are included to show the fluctuations in relation to those of previous years. Those who wish to obtain water-level measurements made in observation wells not included in this report can do so by consulting the open files in the offices of the Geological Survey, Ground Water Branch, at Tucson and Phoenix.

The following reports on the ground-water resources of Arizona were prepared and released to the open file by the Geological Survey in 1953:

Geology and ground-water resources of the Douglas Basin, Ariz., by D. R. Coates and others, typewritten, 96 p.

Geophysical and geological reconnaissance to determine ground-water resources of Chiu Chuischu area, Papago Indian Reservation, Ariz., by C. B. Yost, Jr., mimeographed, 19 p.

The Navajo country, Arizona-Utah-New Mexico, by J. W. Harshbarger, C. A. Repenning, and J. T. Callahan, The physical and economic foundation of natural resources, Part IV, Subsurface facilities of water management and patterns of supply--Type-Area studies, p. 105-129, House of Representatives, Interior and Insular Affairs Committee, 1953.

Preliminary report of investigations of springs in the Mogollon Rim region, Arizona, by J. H. Feth, typewritten, 113 p.

Pumpage and ground-water levels in Arizona in 1952, by L. C. Halpenny, mimeographed, 28 p., 10 figs. (Water-Supply Paper 1226.)

Water resources of the Chuska Mountains area, Navajo Indian Reservation, Ariz. and N. Mex., by J. W. Harshbarger and C. A. Repenning, typewritten, 52 p.

Memorandum on ground-water resources and geology of Rainbow Valley-Waterman Wash area, Arizona, by H. N. Wolcott, mimeographed, 13 p.

Precipitation

The following, written by L. R. Jurwitz, Section Director, is quoted from the Annual Summary, 1953, Climatological Data, U. S. Weather Bureau:

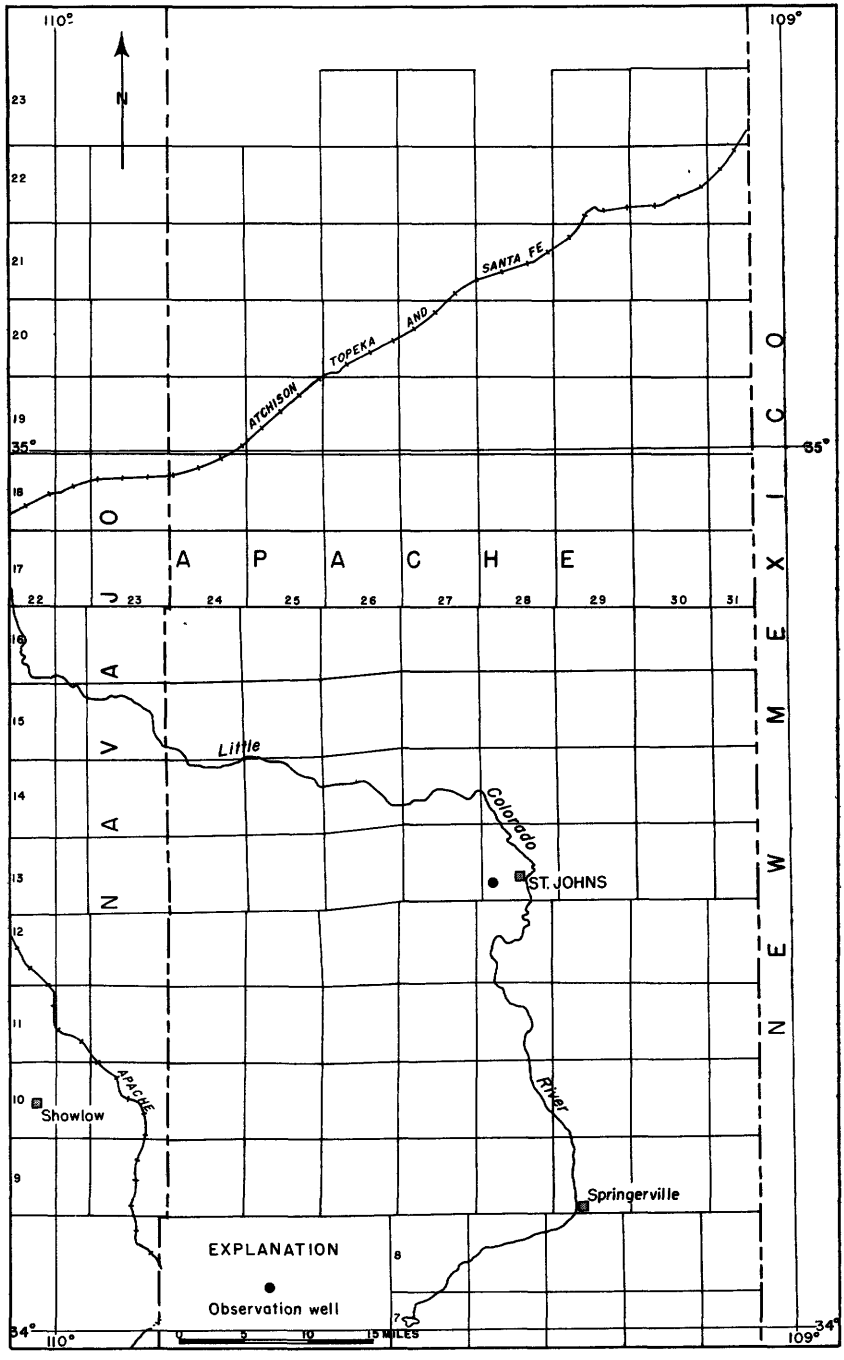


Figure 2.--Location of observation well in Apache County, Ariz., 1953.

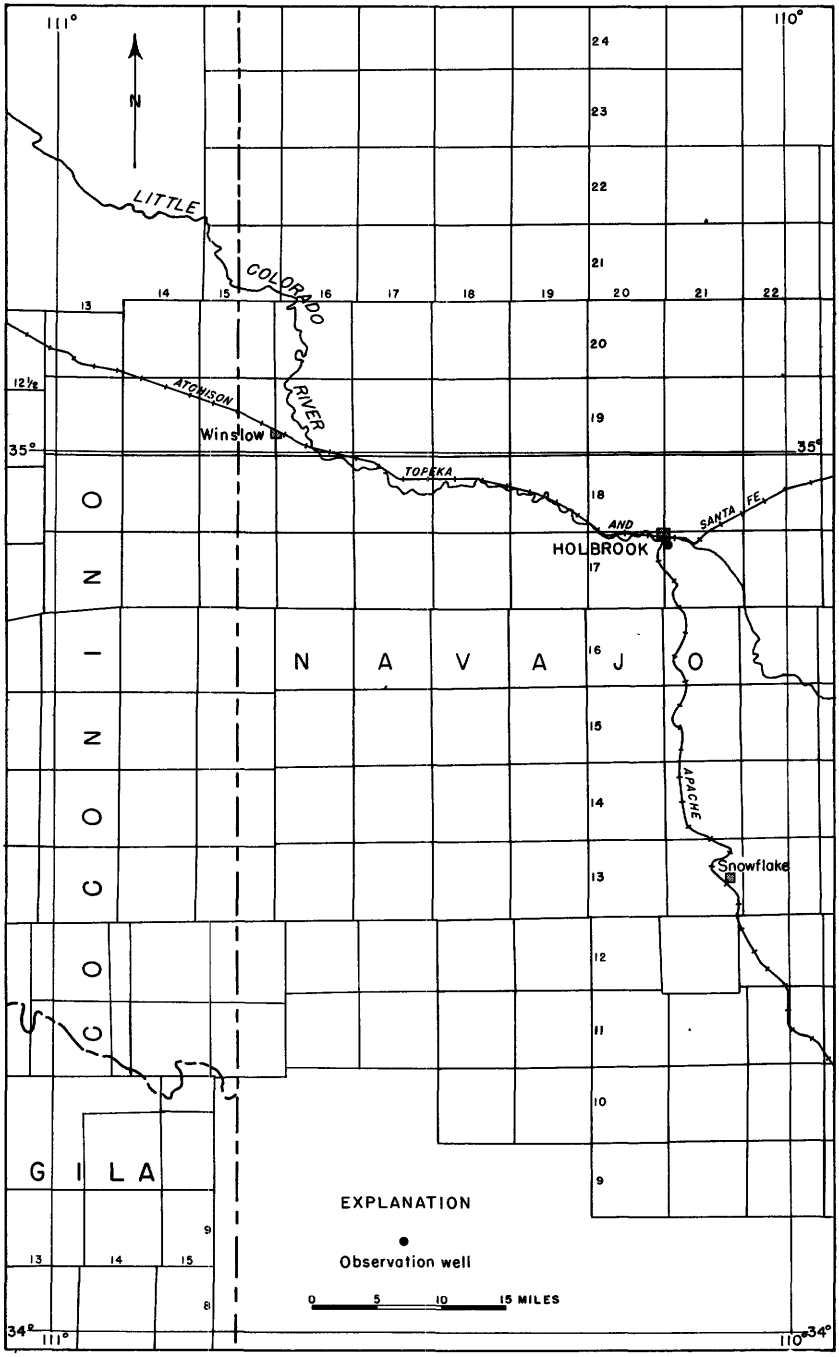


Figure 3. --Location of observation well in Navajo County, Ariz., 1953.

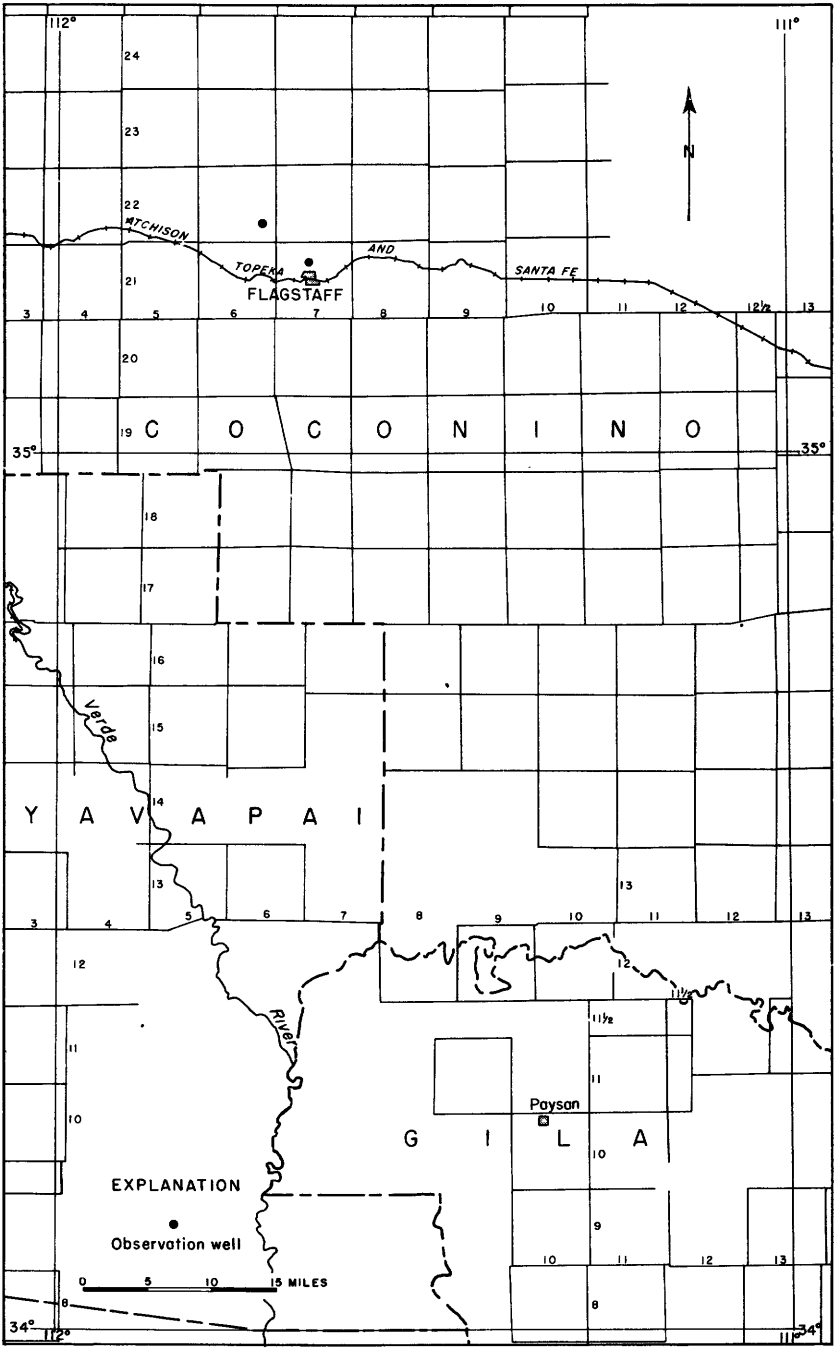


Figure 4. -Location of observation wells in Coconino County, Ariz., 1953.

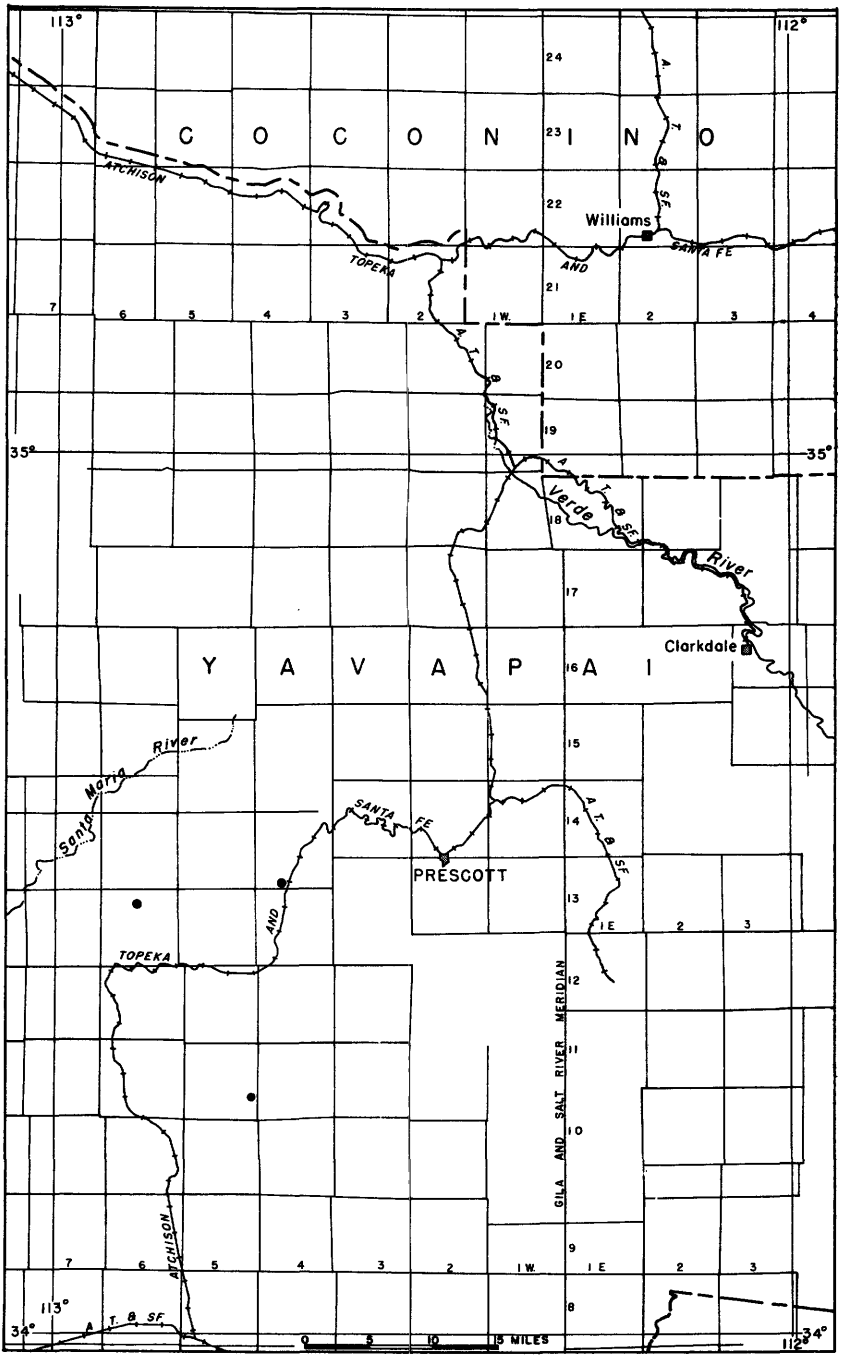


Figure 5.--Location of observation wells in Yavapai County, Ariz., 1953.

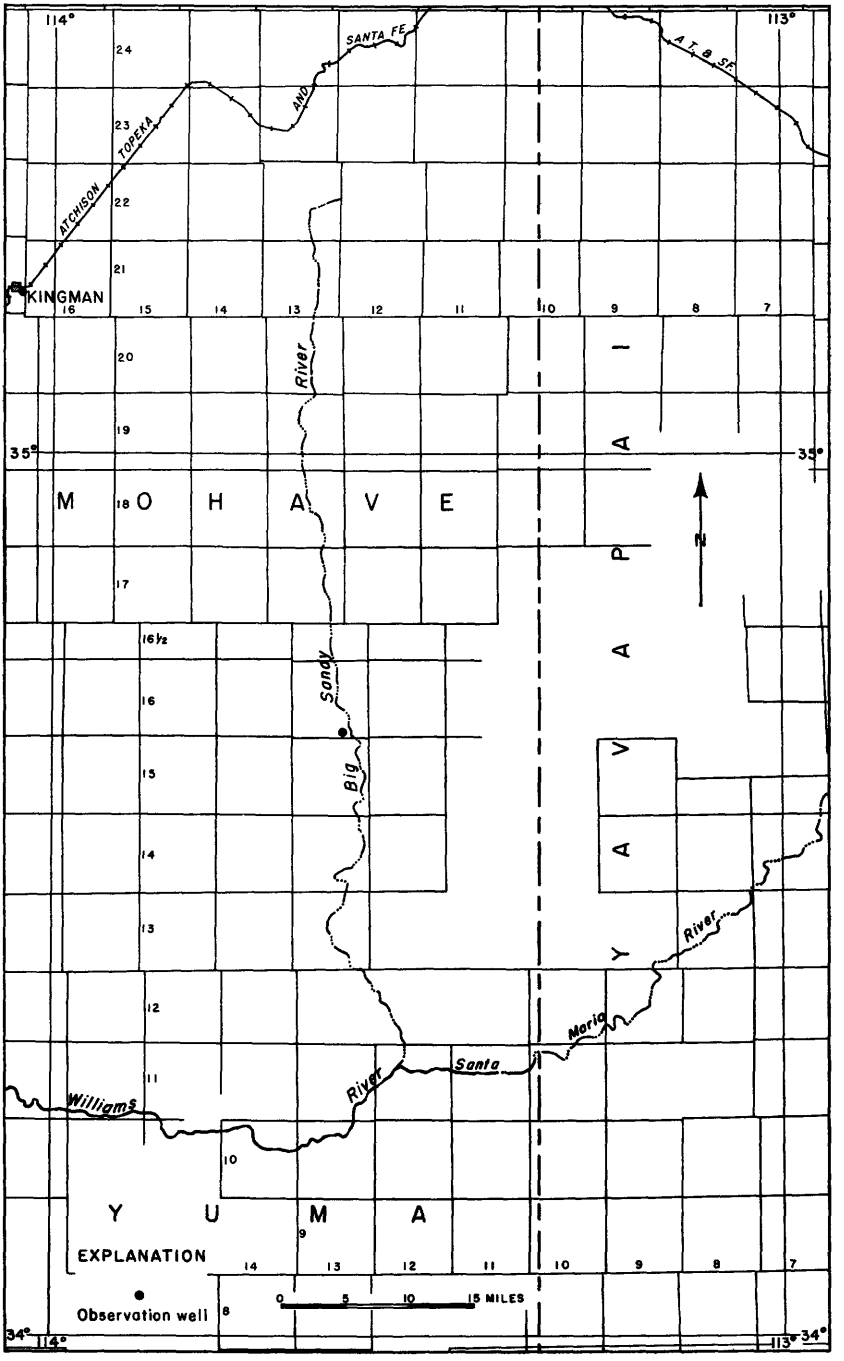


Figure 6. - -Location of observation wells in Mohave County, Ariz., 1953.

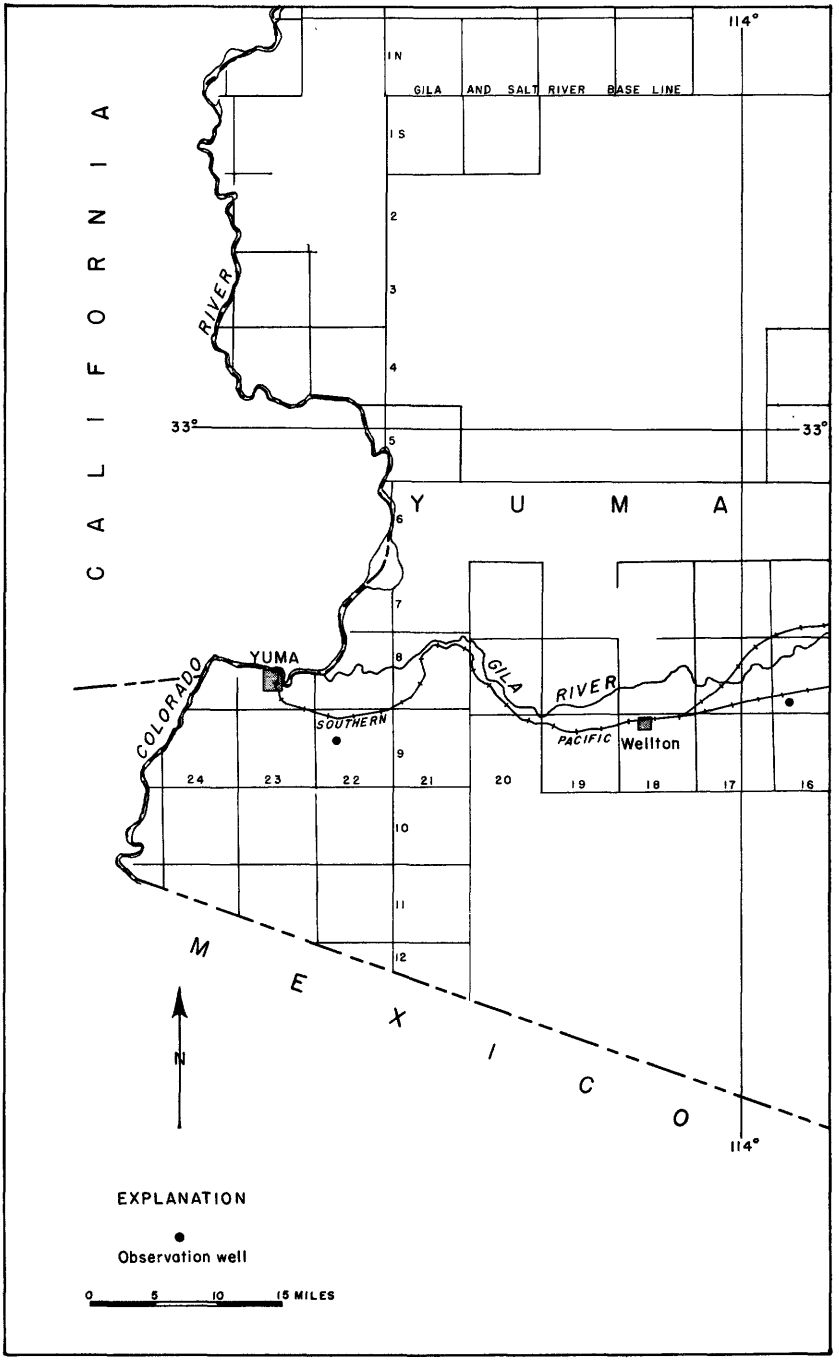


Figure 7. --Location of observation wells in Yuma County, Ariz., 1953.

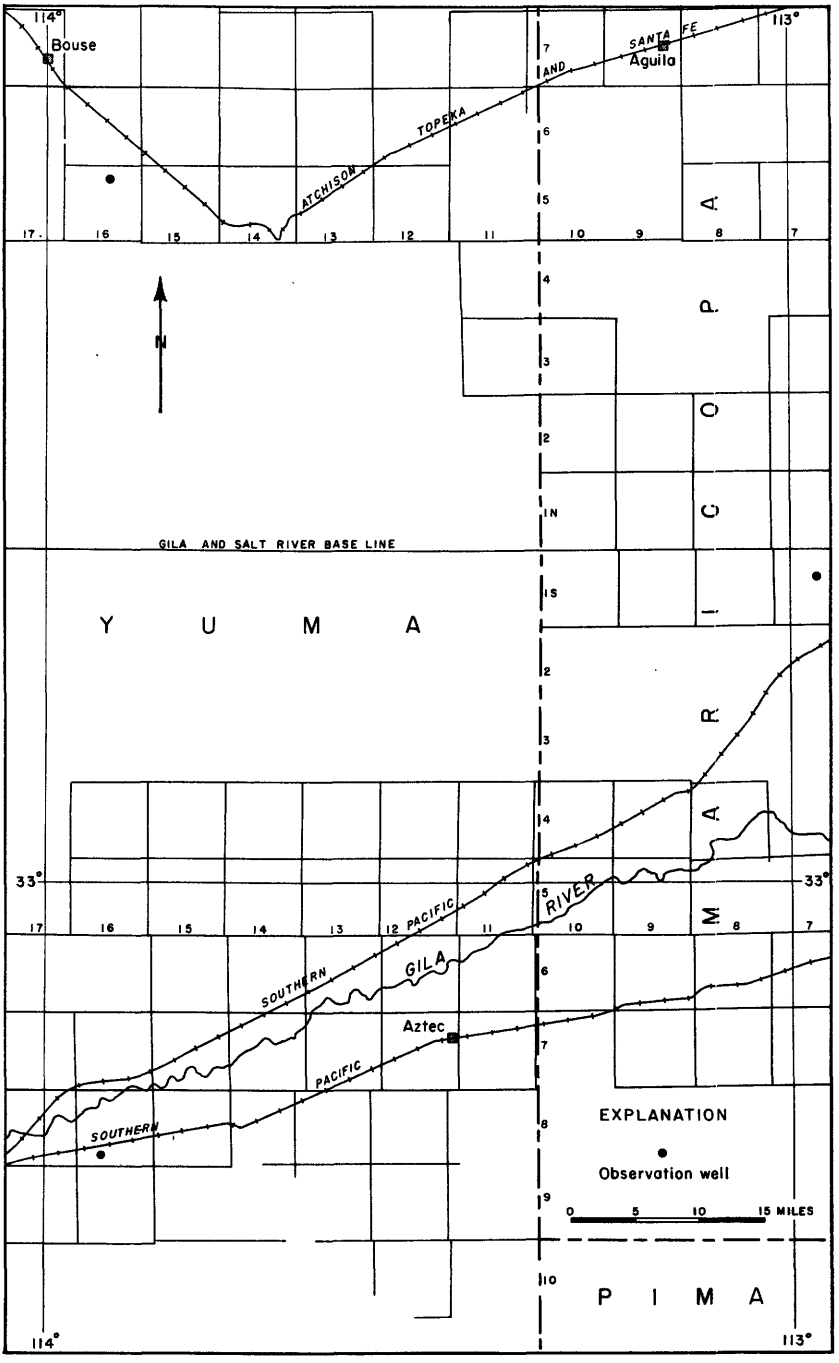


Figure 8. --Location of observation wells in Yuma and Maricopa Counties, Ariz., 1953.

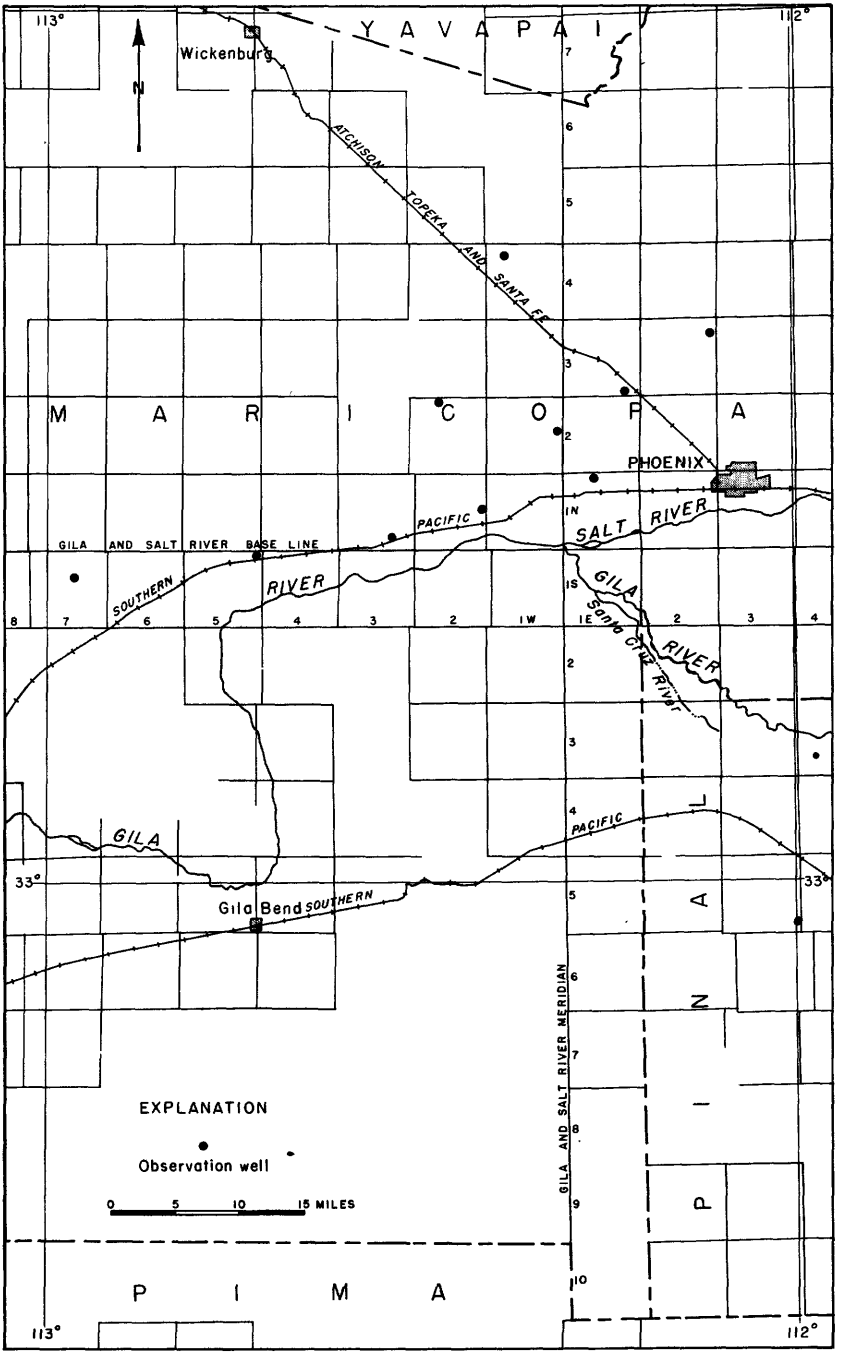


Figure 9.--Location of observation wells in Maricopa County, Ariz., 1953.

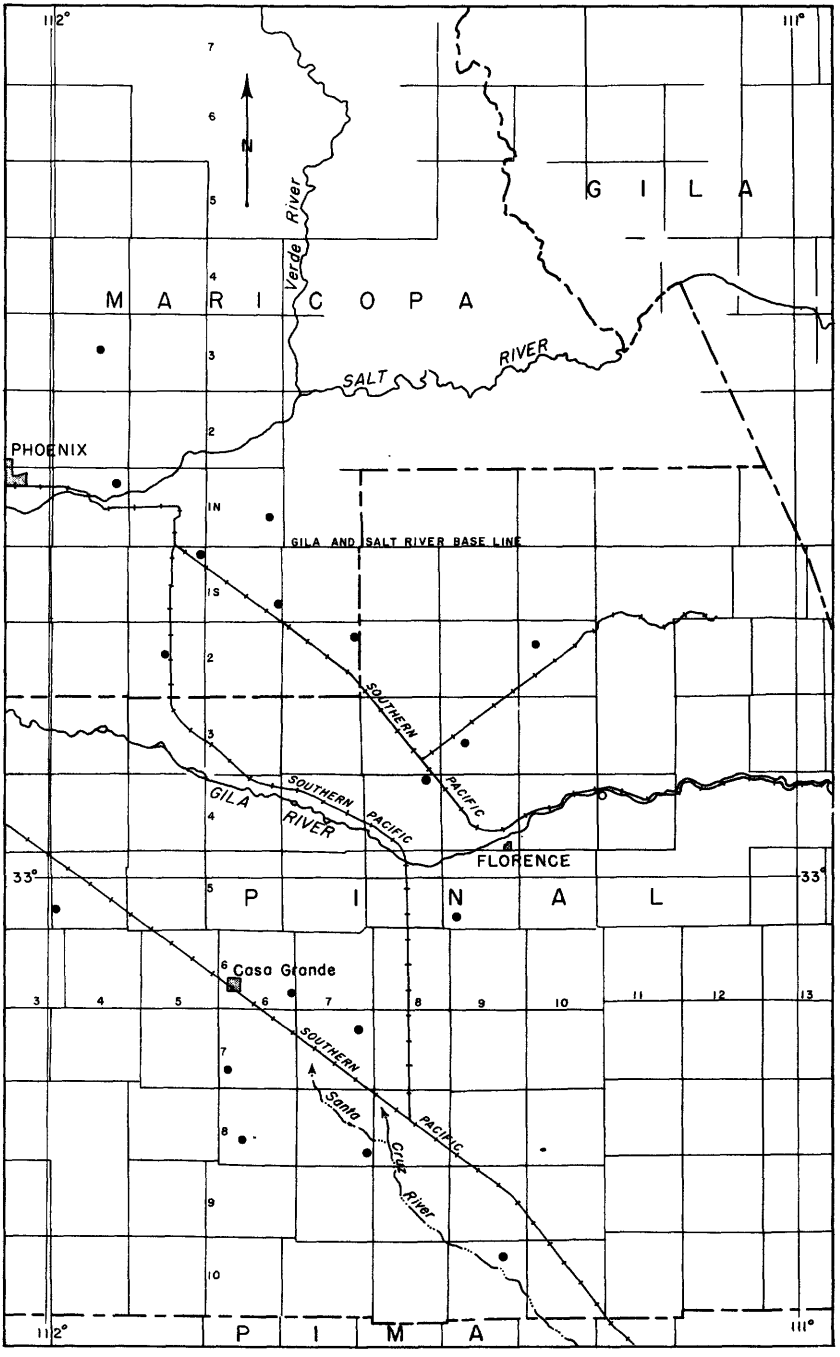


Figure 10. --Location of observation wells in Maricopa and Pinal Counties, Ariz., 1953.

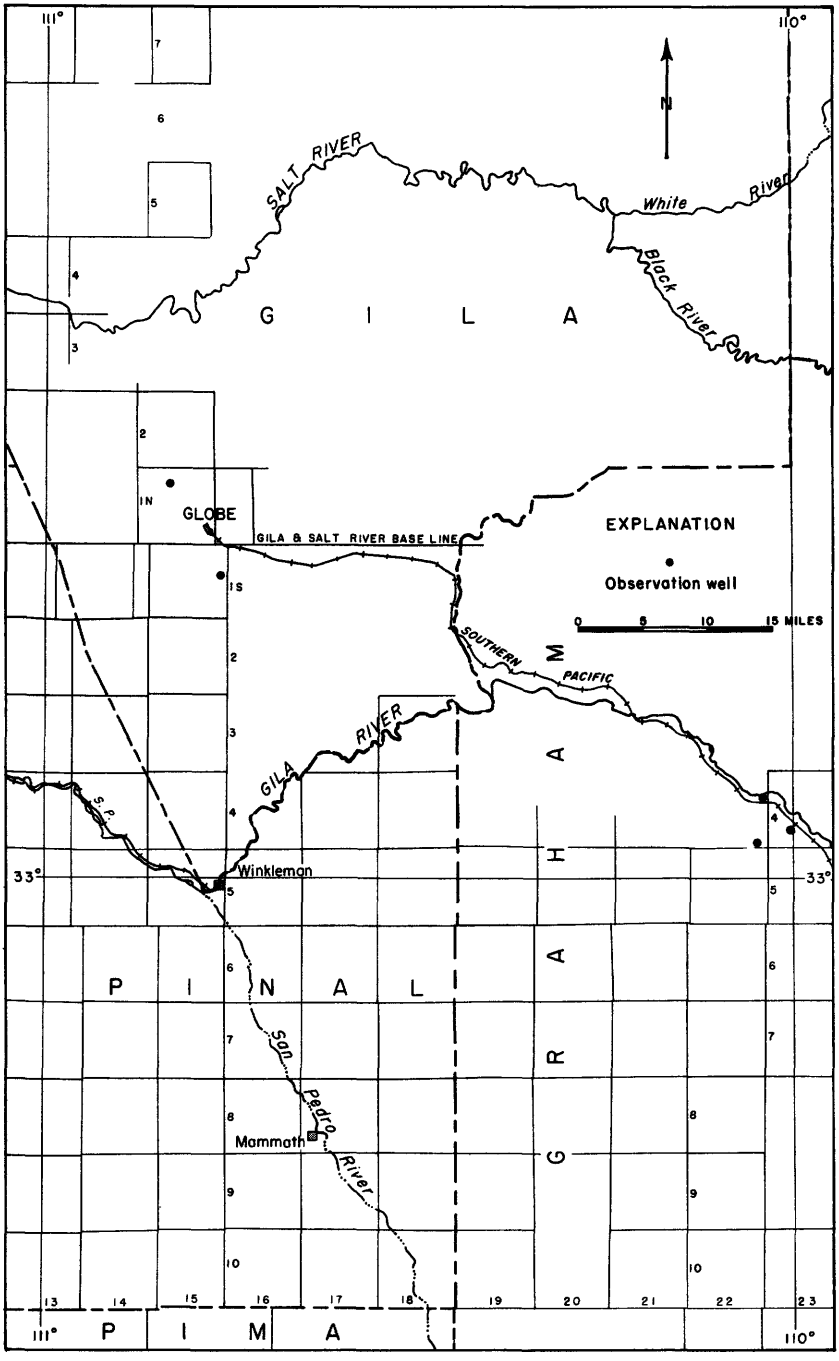


Figure 11. --Location of observation wells in Gila and Graham Counties, Ariz., 1953.

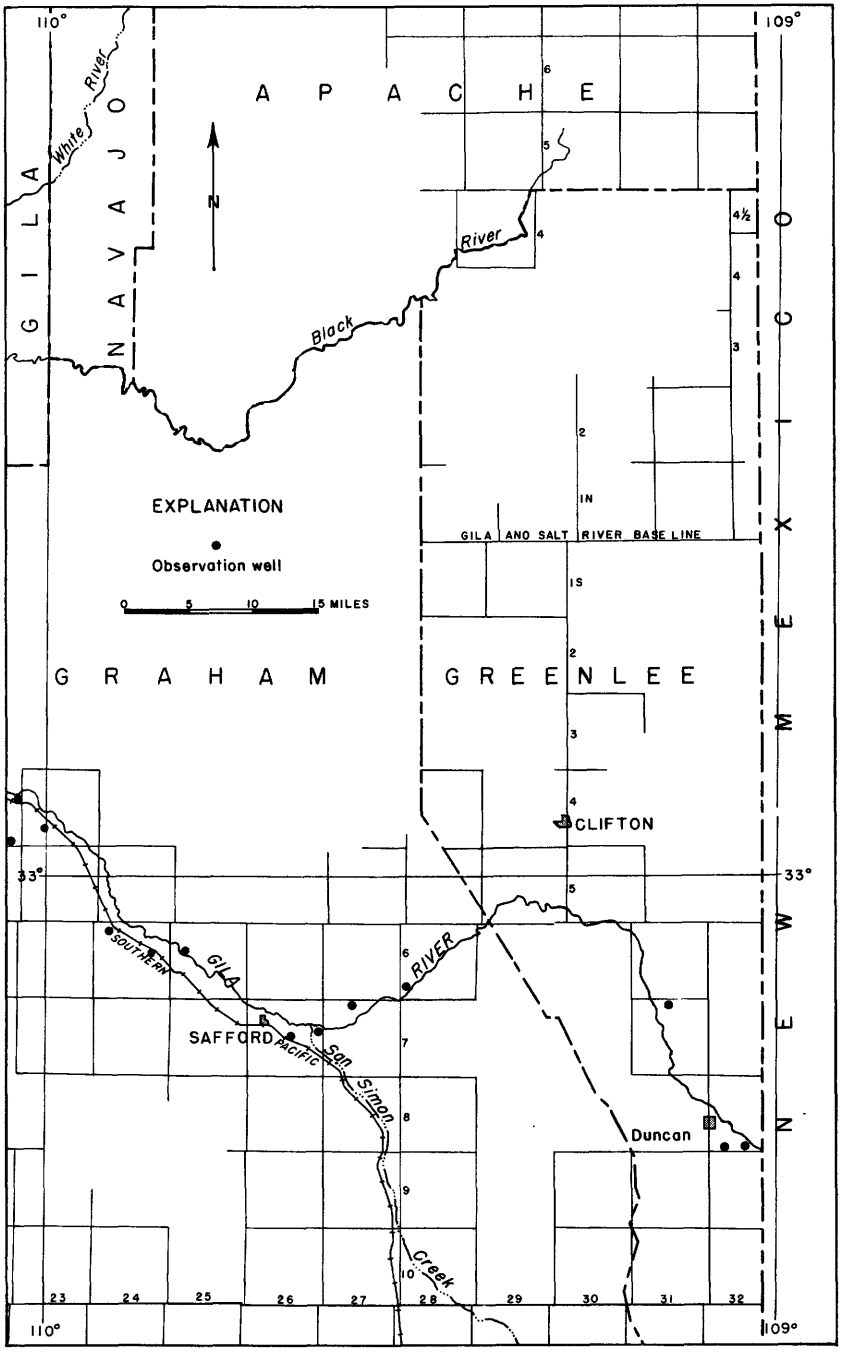


Figure 12. --Location of observation wells in Graham and Greenlee Counties, Ariz., 1953.

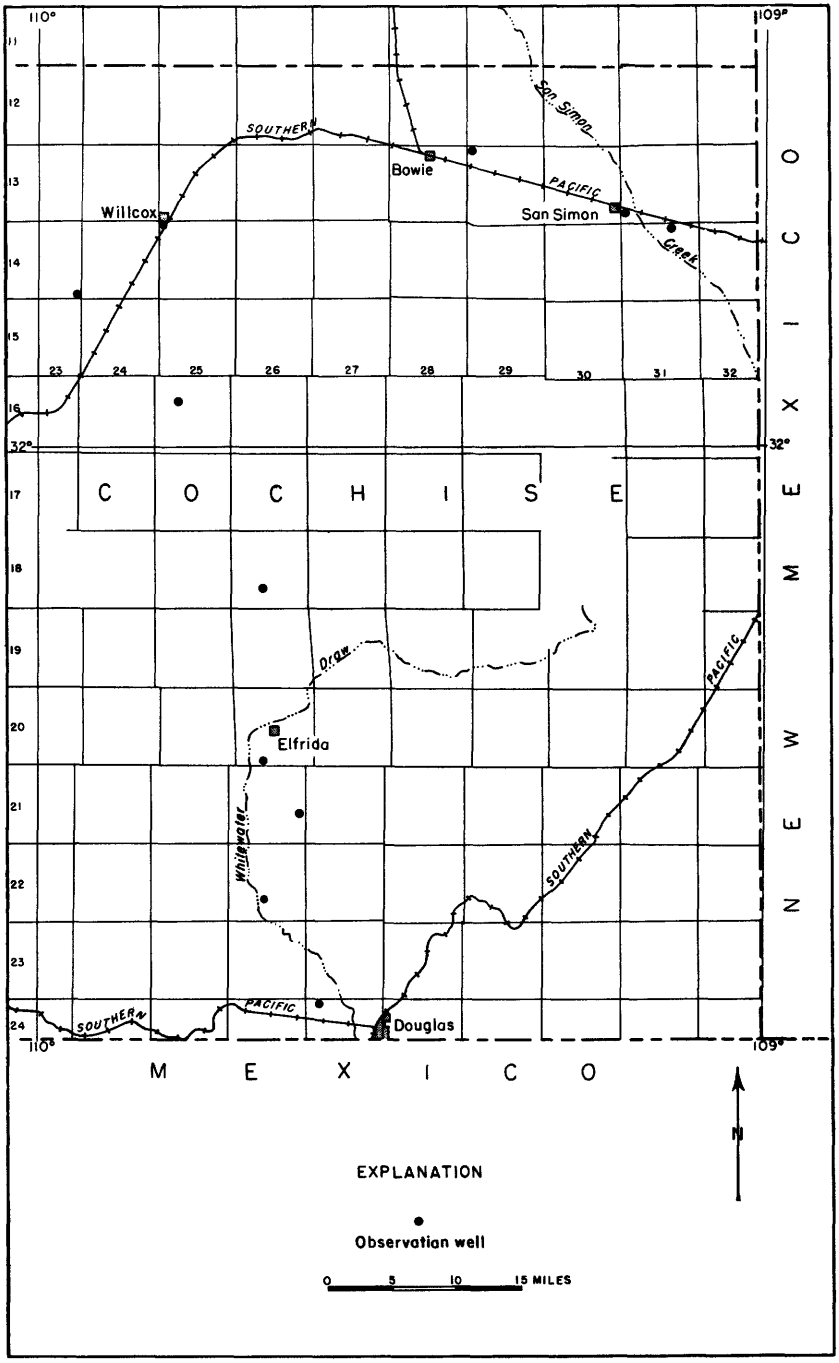


Figure 13. --Location of observation wells in Cochise County, Ariz., 1953.

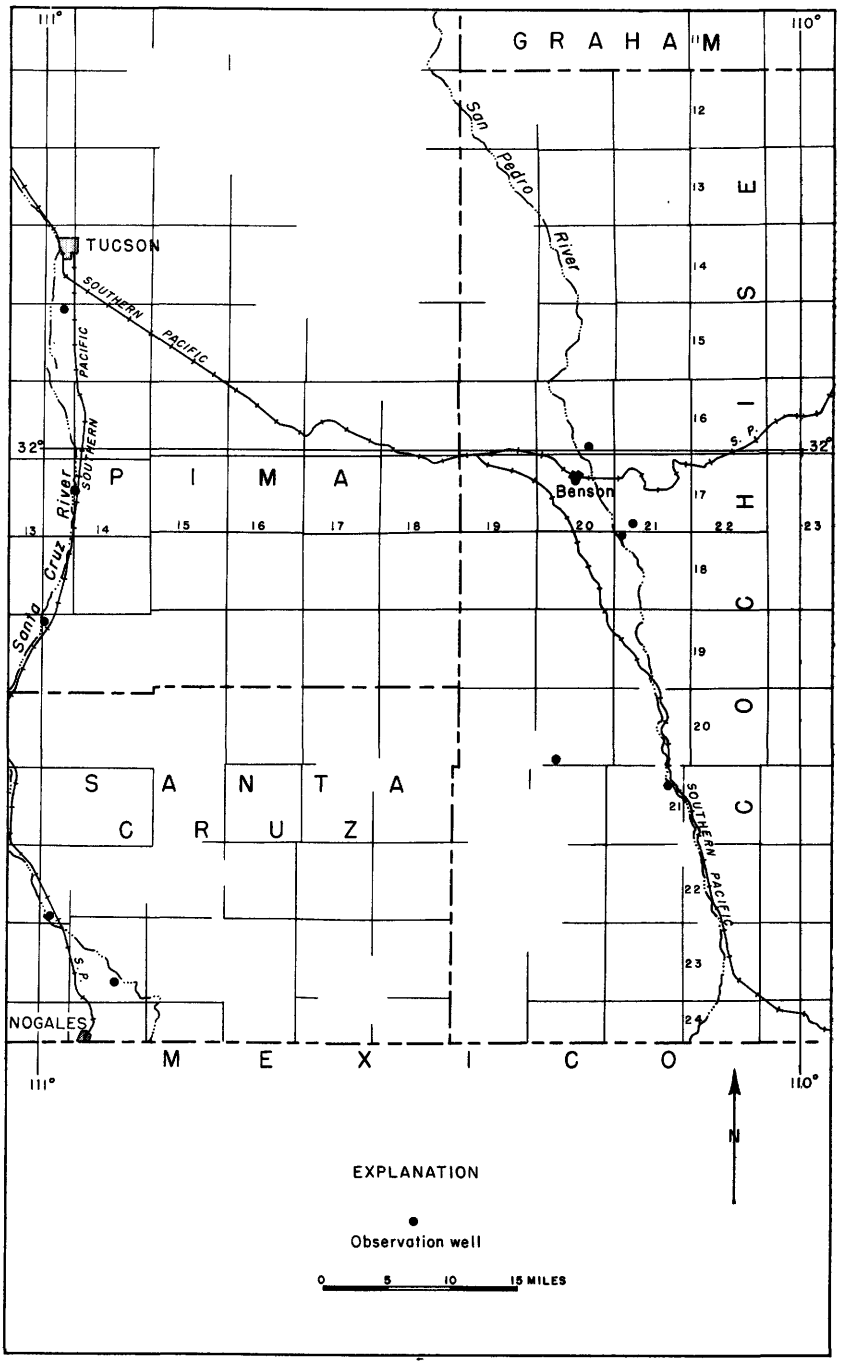


Figure 14. --Location of observation wells in Cochise, Pima, and Santa Cruz Counties, Ariz., 1953.

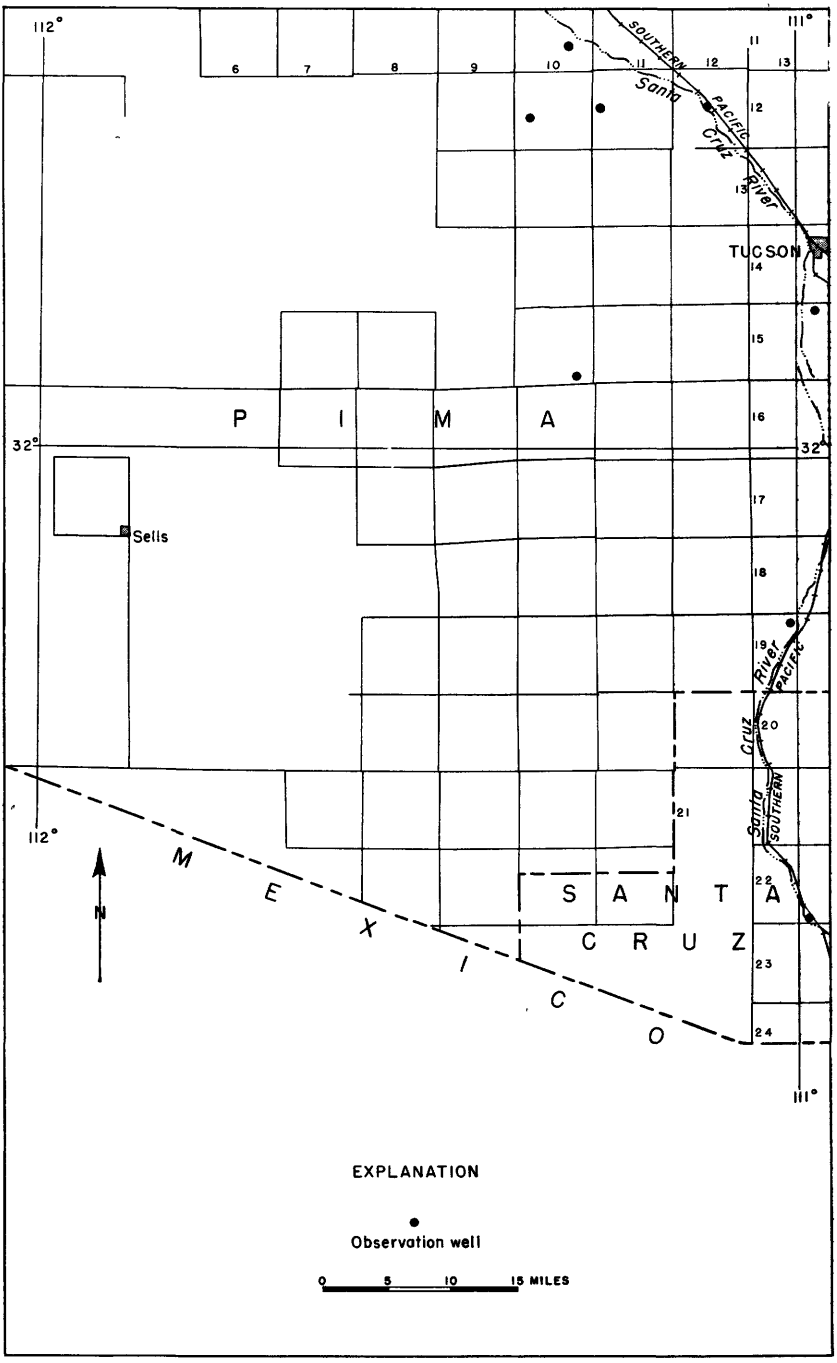


Figure 15.--Location of observation wells in Pima and Santa Cruz Counties, Ariz., 1953.

The year, 1953, proved to be one of the driest years in the history of Arizona. The average precipitation computed from the seven divisions was 7.84 inches, or 62 percent of normal. This precipitation average was practically equal to that of the dry year, 1900, but was slightly greater than the 1950 total which stands at the lowest record since the State summaries began in 1895. Eleven months out of the twelve in 1953 received below-normal precipitation. Average temperature for the year was exactly normal. The year began dry and with one of the warmest Januarys of record. A few good storms swept through the State in late February and early March with the greatest precipitation amounts in the central and southeastern portions .... The summer precipitation brought much-above-normal amounts but tapered off rapidly in the southern portions during August. The 4-month period, September through December, with 0.87 inch total average precipitation, was the driest similar period in the State's climatological history .... The wide spacing between precipitation periods, with the dry weather aggravated by persistent high winds, seriously deteriorated ranges during the late winter and spring months. Showers during July and August temporarily relieved the drought condition in the north and central portions, but in the southern portions little benefit resulted beyond July. Lack of precipitation for the remainder of the year intensified the drought and brought stock water supplies to a critically low point .... Irrigation water supplies held adequate in the Salt and Verde River systems as well as in the Agua Fria due to a large carry-over at the beginning of the year. The San Carlos project, however, had to rely on pumped water. A number of severe storms during the year dealt considerable damage in the State. Total annual runoff figures for 1953 as measured by the U. S. Geological Survey include: Salt River near Roosevelt, 230,200 acre-feet; Tonto Creek near Roosevelt, 39,330 acre-feet; and Verde River above Horseshoe Dam, 184,400 acre-feet.

Pumpage

The following table contains records of pumpage for the period from 1949 to 1953, inclusive. It is based on a continuing inventory of pumpage in the major areas of ground-water development in the State. Areas in which records of pumpage were not collected include: Upper San Pedro Valley, Lower San Pedro Valley, Cactus Flat-Artesia area, St. Johns area, Snowflake-Taylor area, Hunt area, Woodruff area, Joseph City area, Chino Valley, Williamson Valley, Skull Valley, Peeples Valley, Date Creek area, Big Sandy Valley, Valentine area, and Parker area. On the basis of partial data it is estimated that pumpage for irrigation in these areas was approximately 75,000 acre-feet in 1953. Adding this quantity to the figures given in the table and rounding the total, it is evident that total pumpage in the State in 1953 was slightly over 4,800,000 acre-feet. This quantity is about a million acre-feet greater than in 1952, and about $2\frac{1}{2}$ times as much as diversions of surface water in 1953. According to data provided by the University of Arizona in January 1954, about 1,300,000 acres was cultivated in the State in 1953. The data also indicate that cash income from farm and ranch production was about 370 million dollars in 1953, a decrease of about 10 percent over 1952. Factors other than irrigated acreage must be considered with respect to the increased pumpage in 1953. The pumping season was longer. The drought increased the demand for irrigation water. The announcement in August of cotton quotas to be imposed in 1954 resulted in the fall planting of winter grains in areas that otherwise would not have required irrigation until the following spring.

Pumpage, in acre-feet, from wells in principal ground-water areas in Arizona

Area	1949	1950	1951	1952	1953
Cochise County					
San Simon Basin a/	(b)	(b)	(b)	15,000	25,000
Willcox Basin	28,000	35,000	38,000	39,000	75,000
Douglas Basin	30,000	35,000	38,000	42,000	45,000
Graham County					
Safford Valley	40,000	90,000	125,000	70,000	120,000
Greenlee County					
Duncan Valley c/	11,000	23,000	33,000	17,000	30,000
Maricopa County					
Salt River Valley area d/	1,644,000	1,852,000	1,910,000	2,000,000	2,300,000
Waterman Wash area	(e)	(e)	(e)	(e)	28,000
Harquahala Plains area	(e)	(e)	(e)	(e)	20,000
Gila Bend area	67,000	59,000	110,000	120,000	145,000
Dendora area	5,000	6,000		6,000	5,000
Pima County					
Part of Santa Cruz Basin	150,000	180,000	240,000	250,000	380,000
Pinal County					
Part of Santa Cruz Basin and Gila River Basin	1,100,000	1,000,000	1,030,000	950,000	1,400,000

Pumpage, in acre-feet, from wells in principal ground-water areas in Arizona--Continued.

	1949	1950	1951	1952	1953
Santa Cruz County					
Part of Santa Cruz Basin	31,000	21,000	30,000	27,000	27,000
Yuma County					
Palomas Plain area	8,000	9,000	15,000	26,000	47,000
Wellton-Mohawk area	45,000	46,000	50,000	40,000	16,000
South Gila Valley	56,000	56,000	62,000	60,000	60,000
Northern Yuma County f/	(b)	(b)	(b)	(b)	28,000

a Includes Bowie area.
b Not determined.
c Does not include Virden Valley, N. Mex.
d Includes Queen Creek area, Maricopa and Pinal Counties.
e For 1949-52, inclusive, was included in Salt River Valley area.
f Ranegras Plain and McMullen Valley.

Interpretation of Water-Level Fluctuations

Pumpage is greatest in Maricopa and Pinal Counties, and consequently public interest is greatest in the water-level fluctuations in those counties. The discussions that follow include statements about water-level fluctuations in each of the 14 counties of Arizona, listed alphabetically. The detail provided in each discussion is determined by the complexity of the water-level changes and by the number of ground-water areas into which each county is divided.

Apache County.--Water levels in wells in the St. Johns-Springerville area were somewhat higher than in 1952, the rises ranging from 2 feet to more than 6 feet. The rises in water level are attributed to the fact that precipitation in the area in July, preceding the measurements of the wells, was nearly twice normal. The majority of wells in the area are comparatively shallow and climatic conditions are quickly reflected by rising or declining water levels. There has been no perceptible permanent change in the amount of ground water stored in this area since the water-level measurements were begun. Precipitation at Springerville in 1953 amounted to 9.93 inches, about 75 percent of normal.

Cochise County.--The four principal ground-water areas in Cochise County are the San Simon basin, the Willcox basin, the Douglas basin, and the Upper San Pedro basin. In the San Simon basin there are two main areas of ground-water development, near San Simon and Bowie, respectively. Pumpage in 1953 was about 25,000 acre-feet, an increase of 10,000 acre-feet over 1952. Most of the wells in the vicinity of San Simon are under artesian pressure. In the center of this area the artesian head declined approximately 10 feet in 1953 (see fig. 16, well (D-14-31)3ddd). The pressure heads ranged from a maximum of 10 feet above land surface to about 65 feet below land surface. Specific capacity of the wells is 3 to 7 gpm (gallons per minute) per foot of drawdown and pumping lifts ranged from 70 to 140 feet. Precipitation at San Simon was 4.86 inches in 1953, about 60 percent of normal. In the Bowie area, additional lands were placed in cultivation in 1953. During the year, water levels declined from about 5 to 15 feet in and near the cultivated areas. The greatest declines were in the center of the area (see fig. 16). The depth to the water table in the area ranges from 40 to more than 185 feet and the pumping lift was from about 140 to nearly 300 feet. The range in specific capacity of the wells is 5 to 35 gpm per foot of drawdown. Precipitation at Bowie was 7.42 inches in 1953, about 80 percent of normal.

In the Willcox basin there are two principal areas of ground-water withdrawal: the Stewart area, northwest of Willcox; and the Kansas Settlement area, southeast of Willcox. Pumpage in the basin was about 75,000 acre-feet in 1953, nearly double that of 1952. Most of the increase is attributed to the addition of newly cultivated land in the Kansas Settlement area. In the Stewart area the maximum decline of the water table in 1953 was about 8 feet and the average was more than 3 feet. Depths to water range from about 30 to 100 feet and pumping lifts range from about 60 to 140 feet. Specific capacities ranged from 10 to 30 gpm per foot of drawdown. In the Kansas Settlement area about 24,000 acres was cultivated in 1953, an increase of 10,000 acres over 1952. The decline of water levels averaged about 5 feet and was as much as 8 feet in the center of the area. Depths to water in the irrigated area in 1953 ranged from 30 to about 175 feet, the pumping lifts ranged from 70 to about 225 feet, and specific capacities ranged from 10 to 40 gpm per foot. Figure 17 shows wells (D-14-23)36baa and (D-14-25)6cac outside the cultivated areas in the Willcox basin, and both hydrographs show declines of about half a foot in 1953. Precipitation at Willcox was 7.91 inches in 1953, about two-thirds of normal.

In the Douglas basin, the quantity of ground water withdrawn in 1953 was about 45,000 acre-feet. The water table declined during the year (see fig. 17) from a minimum of less than a foot in wells outside the cultivated area to as much as 7 feet in the irrigated area. The average decline was between 2 and 3 feet. Depth to water in the irrigated parts of the Douglas basin is about 30 to 100 feet. Specific capacities of wells averaged about 15 gpm per foot in 1953. Precipitation at Douglas was 6.75 inches in 1953, about 50 percent of normal. In the Upper San Pedro basin water levels in wells declined a foot or less during the year (see fig. 17). Precipitation at Fairbank was 4.82 inches, about 40 percent of normal.

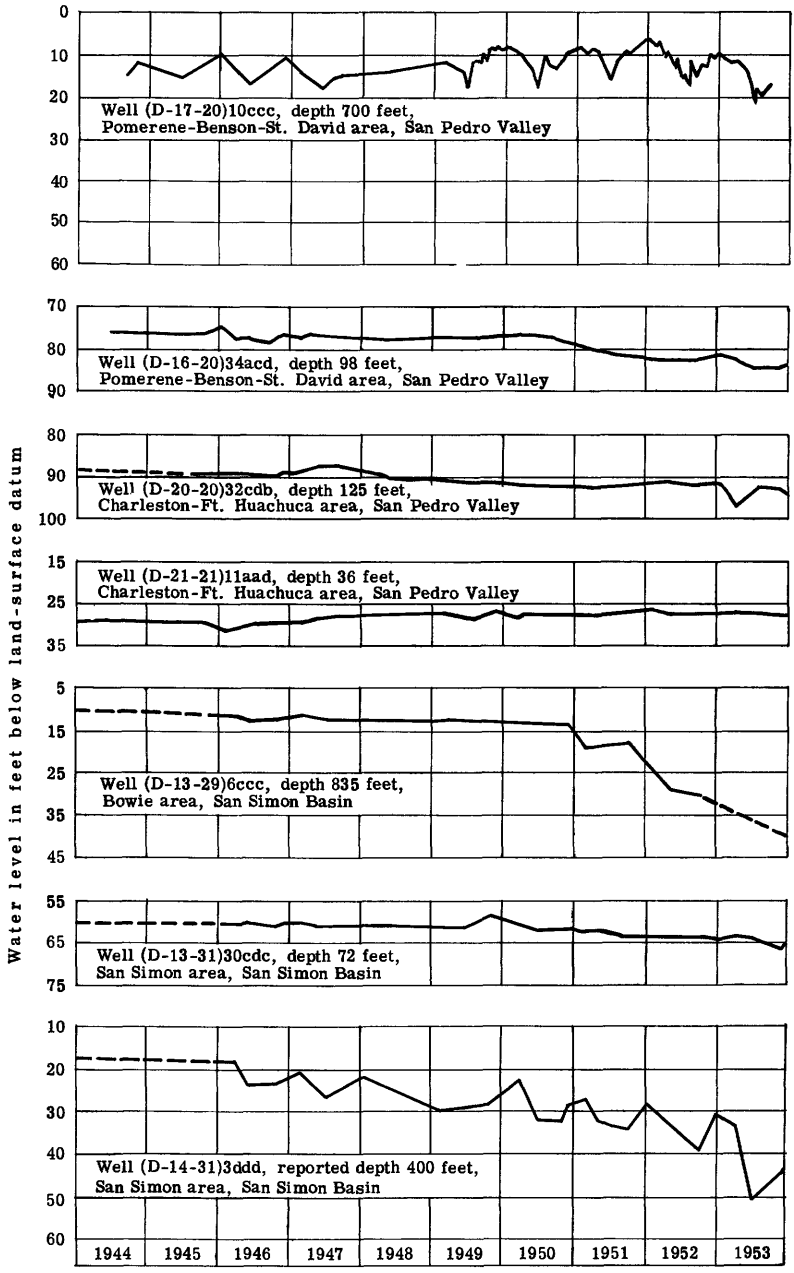


Figure 16. --Water levels in wells in San Pedro Valley and San Simon Basin, Cochise County, Ariz., 1944-53.

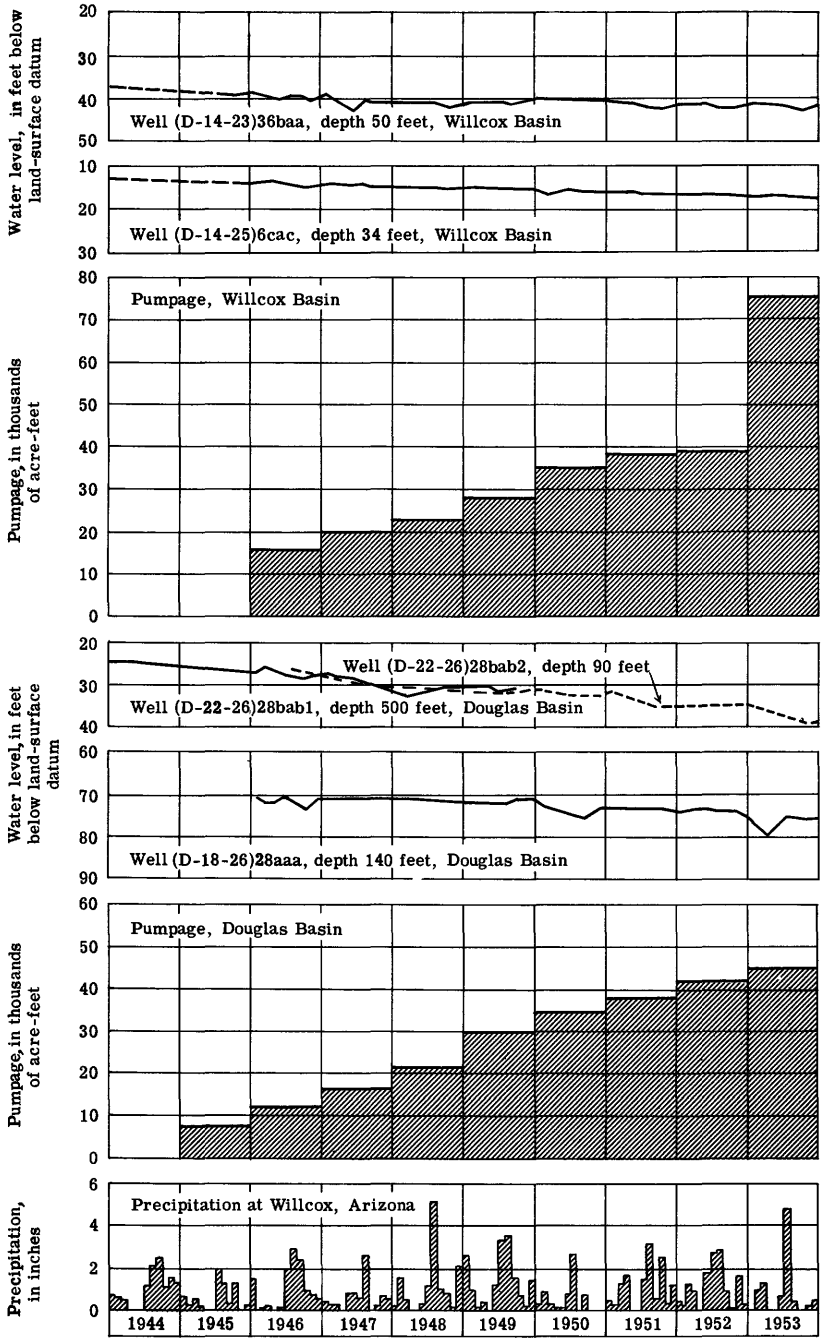


Figure 17.--Water levels in wells, pumpage in Willcox and Douglas Basins, and precipitation at Willcox, Cochise County, Ariz.

Coconino County.--Declines averaging about 1.5 feet were observed in most of the shallow wells in Coconino County. These wells receive water from lava beds or valley-fill materials and are liable to reflect climatic changes more readily than deeper wells. The decline in water levels in the area from Flagstaff to Williams can be attributed to a deficiency in precipitation. Precipitation at Flagstaff in 1953 was 12.81 inches, about 70 percent of normal. In a deep well near Flagstaff, supplied by water derived from the Coconino sandstone, the water level rose about a foot and did not reflect the deficiency in precipitation.

Gila County.--Water levels in wells tapping the shallow alluvium along Pinal Creek fluctuated widely during the year, owing to withdrawals and to occasional recharge from runoff in the creek. Deeper wells in the area also showed considerable fluctuations during the year. Water levels in most of the wells measured showed a net decline during 1953, ranging from a fraction of a foot to about 10 feet. Precipitation at Globe was 8.86 inches in 1953, slightly over half of normal.

Graham County.--In the Safford Valley of Graham County, ground-water levels showed an average net decline of about 6 feet in 1953. By areas, the average net decline of the water table was as follows: San Jose-Safford area, 8 feet; Safford-Pima area, 8 feet; Pima-Cork area, 3 feet; Cork-Geronimo area, 2 feet; and Pima-Eden area, 3 feet. The water level in well (D-6-28)31aac (fig. 18) showed a net lowering of about 12 feet in 1953 and reached the lowest level of the period of record for the well. The water level in well (D-7-26)22bac (fig. 18) declined 16 feet in 1953, and in well (D-6-24)5acc the decline was approximately 5 feet. Precipitation at Safford was 4.81 inches in 1953, about 50 percent of normal. The amount of surface water available for irrigation in 1953 was about 80,000 acre-feet less than the amount diverted in 1952. Pumpage in Safford Valley in 1953 amounted to 120,000 acre-feet, an increase of 50,000 acre-feet over the previous year. Water levels in Aravaipa Valley of Graham County showed an average decline of nearly 2 feet in 1953. The preceding year there was little or no decline in the water levels in this area.

Greenlee County.--Water levels in wells in Duncan Valley between the Arizona-New Mexico State line and Sheldon showed an average decline of about 4 feet in 1953. The larger declines occurred in the upstream portion of the area, near the State line, where the valley is widest and pumpage is heaviest. In the area from Sheldon downstream to York the average decline was about $2\frac{1}{2}$ feet. Figure 19 shows graphically the water levels in three representative wells in the valley. Pumpage in 1953 amounted to 30,000 acre-feet, an increase of 13,000 acre-feet over 1952. The amount of surface water diverted for irrigation in 1953 was less than half the amount available in 1952. Precipitation at Duncan was 7.24 inches in 1953, about 75 percent of normal.

Maricopa County.--The water-level situation in Maricopa County was complicated in 1953 by a longer and drier growing season, and by the change in crop acreage that resulted from the cotton cutback. Many farms were planted to winter grains instead of being allowed to lie idle until the 1954 cotton-planting season. The net result was an extremely irregular water-table surface beneath the cultivated areas at the end of the year. Averaging of water-table declines in the various areas was made difficult, and individual water-level measurements in any given well may not necessarily conform to the areal pattern. In the Queen Creek-Higley-Gilbert area, the average decline in 1953 was about 6 feet. The average decline was about 12 feet in those cultivated areas where surface water is not available: Outside the cultivated area the water table declined about 4 feet and, where surface water supplemented pumped water, the decline was slightly less. Part of the area lies in Pinal County, but hydrologically it is in the Salt River Valley area. Therefore the water-level and pumpage data are included with those of Maricopa County. The persistent downward trend of water levels in the Tempe-Mesa-Chandler area was again evident in 1953. The average decline for the year was about 5 feet, compared to the less-than-normal decline in 1952. The 1953 decline was not greatly different than the average for the past 6 or 7 years. In the Phoenix-Glendale-Tolleson area, the average water-table decline for the year was between 6 and 7 feet. There, also, the surface of the water table was extremely irregular, and the average decline could not be determined more precisely. In this area the decline was greatest in Deer Valley. In the Litchfield-Beardsley-Marinette area a persistent downward trend, interrupted by a slight rise in 1951, was continued in 1953. The net decline in the area during the year averaged about 9 feet, a rate about the same as the annual average since 1946. As usual, net declines in the Liberty-Buckeye-Hassayampa area were much less than elsewhere in the Salt River Valley, averaging about 2 feet in 1953. This area is at the outflow end of the basin and the water levels are affected by recharge from irrigation water applied over the entire valley.

Water levels in wells in areas draining into the Salt River Valley, such as Waterman Wash, Lower Centennial Wash, and Harquahala Plains, showed varying declines, but there is not yet sufficient information on these areas to establish a well-defined trend. Pumpage during 1953 in the Salt River Valley area reached a new high of 2,300,000 acre-feet, not including pumpage in the Waterman Wash and Harquahala Plains areas which have heretofore been included with the Salt River Valley figure. If figures for these areas are added for comparative purposes, the total is about 2,400,000 acre-feet, as against 2,000,000 acre-feet in 1952. Although a small amount of this increase may be attributed to the addition of cultivated land, most of it is probably the result of the longer growing season and the change in crop types. Rainfall at Phoenix during 1953 amounted to 2.85 inches, about 40 percent of normal. Figure 20 shows the cumulative net changes of average water level in various parts of Salt River Valley. Cumulative net changes of average water level in the entire Salt River Valley area since 1930 are shown graphically in figure 21.

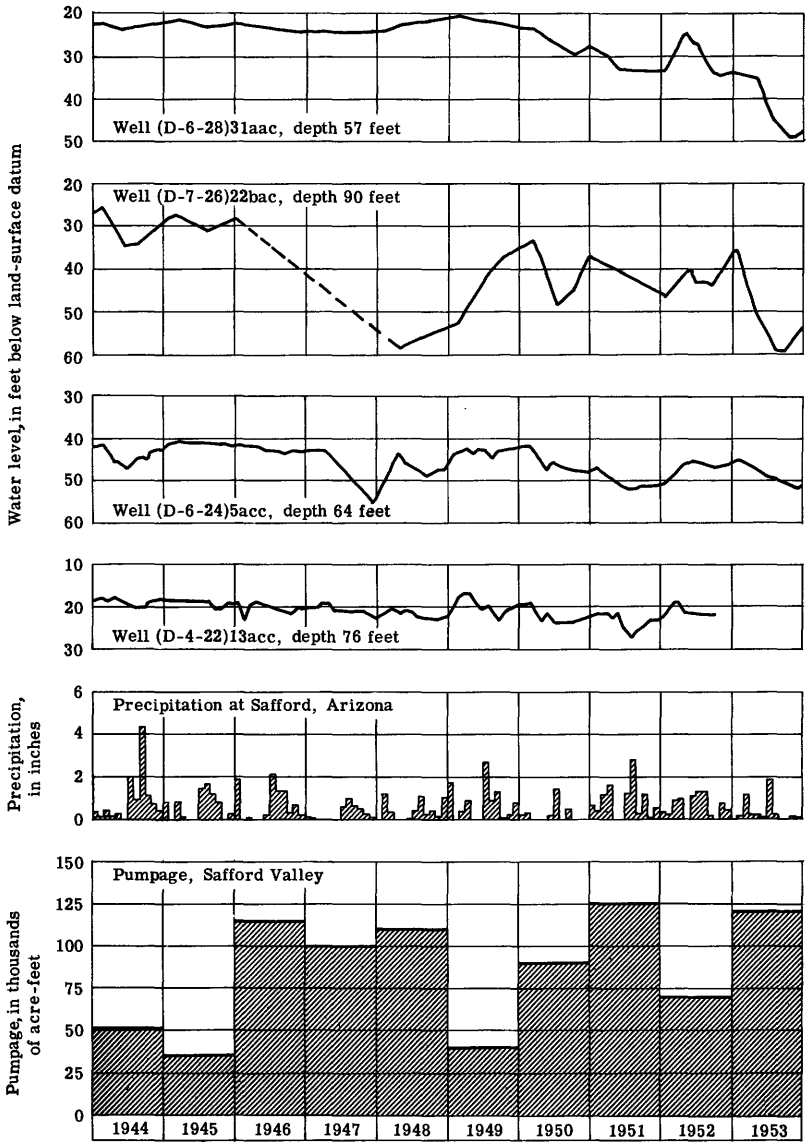


Figure 18. --Water levels in wells, precipitation at Safford, and pumpage in Safford Valley, Graham County, Ariz., 1944-53.

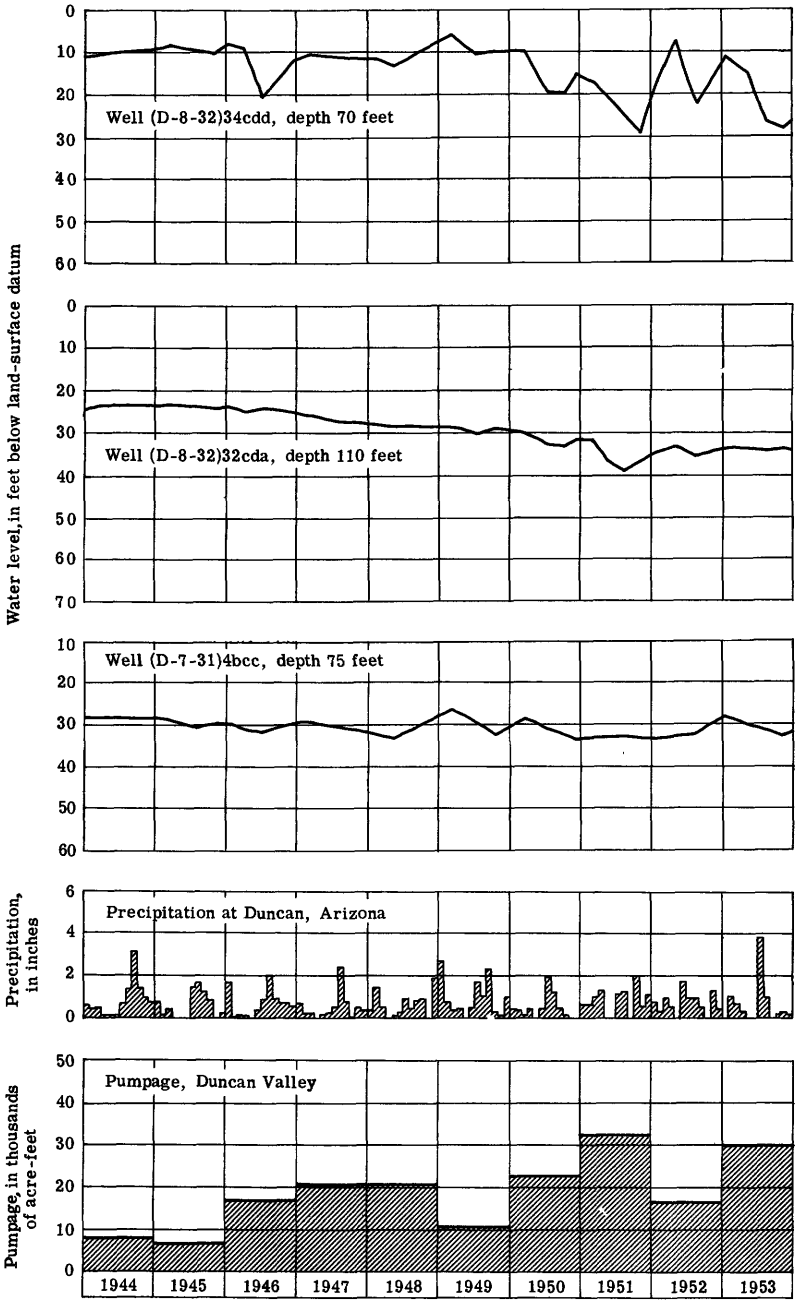


Figure 19.--Water levels in wells, precipitation at Duncan, and pumpage in Duncan Valley, Greenlee County, Ariz., 1944-53.

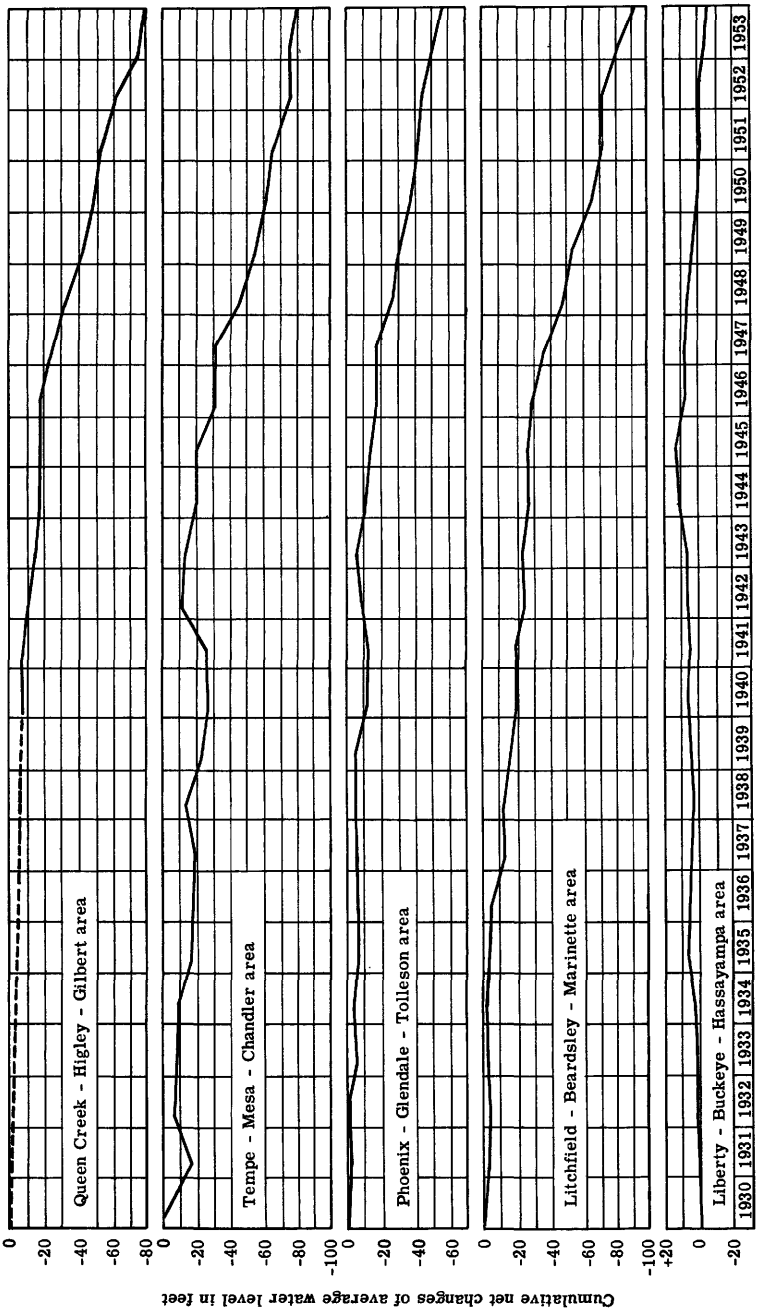


Figure 20.--Cumulative net changes of average water level in various parts of Salt River Valley, Maricopa County, Ariz., 1930-53.

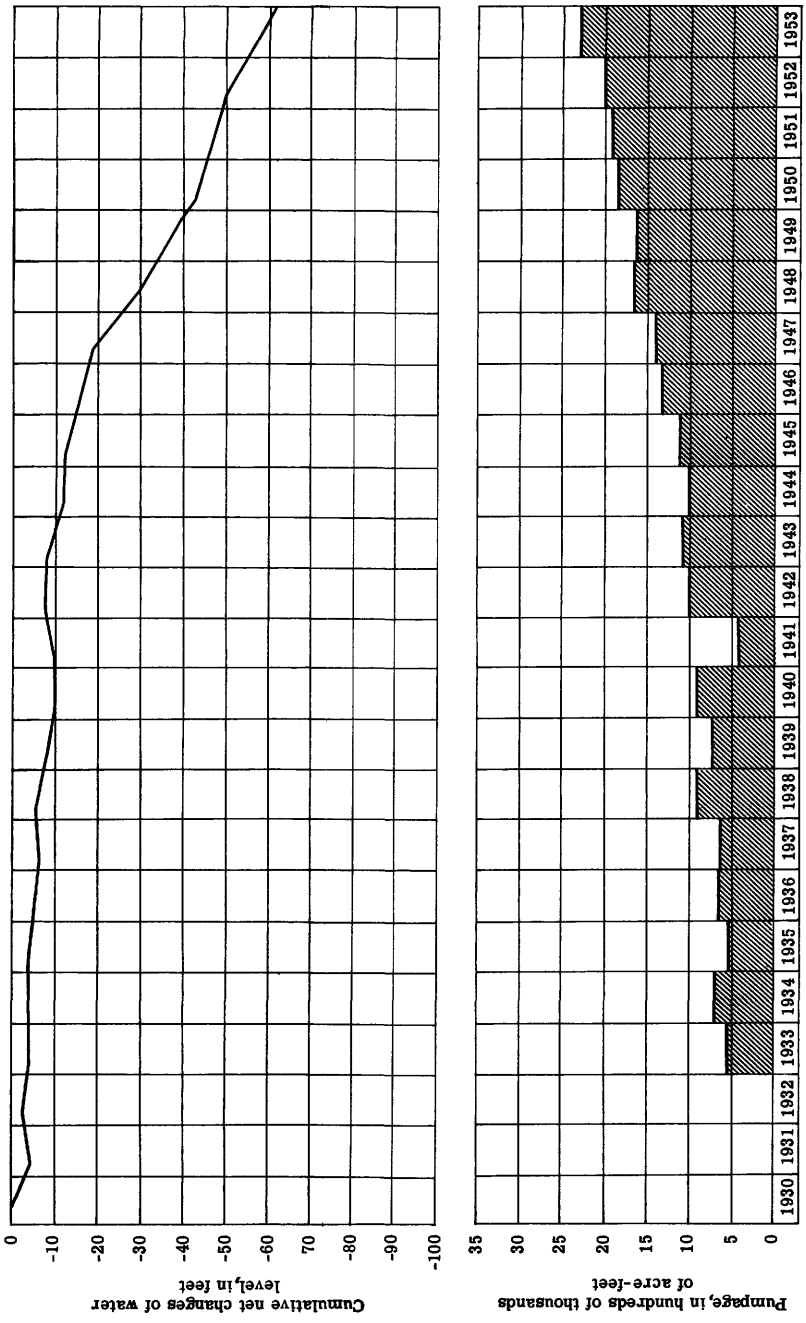


Figure 21.--Cumulative net changes of average water level and pumpage for irrigation in Salt River Valley, Maricopa County, Ariz.

Water levels in the Gila Bend and Dendora areas showed varying small declines during 1953, averaging about 2 feet. As in other parts of the region, pumping on some farms was almost continuous throughout the winter months, and the resulting irregularities in the water table were difficult to average. Pumpage in the Gila Bend area amounted to 145,000 acre-feet in 1953, an increase of 25,000 acre-feet over the previous year. In the Dendora area the total pumpage was about 5,000 acre-feet, a decrease of about 1,000 acre-feet from 1952. Rainfall at Gila Bend was 2.68 inches, about 50 percent of normal.

Mohave County.--Water levels in wells near Wikieup in the Big Sandy Valley showed slight declines from 1952, attributed primarily to the effects of the continuing period of drought. Precipitation at Wikieup in 1953 was 5.71 inches, about 50 percent of normal. Measurements in wells in the Kingman area showed varying slight rises of the water levels, and those in the Hackberry-Valentine area showed slight declines. No large fluctuations were observed in either area, and the variations are believed to be of a seasonal nature. At Kingman the total precipitation in 1953 was 6.89 inches, about 70 percent of normal.

Navajo County.--The observation wells measured in this area derive water either from the Coconino sandstone or from alluvium along the Little Colorado River. Fluctuations of water levels in these wells were generally small in 1953, although slight rises were somewhat more common than declines. No consistent long-term trend, either upward or downward, has thus far been observed. Precipitation at Holbrook was 6.48 inches in 1953, about 80 percent of normal.

Pima County.--Ground-water levels in most of Pima County declined further in 1953 as a result of continued large-scale pumping. The ground-water conditions are discussed by areas, as follows: (1) Avra-Marana area; (2) Tucson-Cortaro area; (3) Tucson area; (4) Tucson-Continental area; (5) Rillito-Tanque Verde Creek area; and (6) Pantano Wash area. In the Avra-Marana area, the average decline in water levels amounted to nearly 6 feet. In the downstream part of this area the average decline was approximately 8 feet and, where pumpage was heaviest, local net declines were as much as 12 feet. Depths to the water table in the Avra-Marana area ranged from 165 to 320 feet in 1953. The water-level fluctuations for well (D-15-10)35aaa (fig. 22), are considered representative for the southern part of the area. Water levels in the Tucson-Cortaro area declined an average of 5 feet in 1953. In the southern part of the area, near Tucson, declines of as much as 7 feet occurred. The depth to water ranged from about 65 feet near Tucson to 120 feet north of Cortaro. Water-level fluctuations in a representative well (D12-12)16bad in the Tucson-Cortaro area, are shown graphically in figure 22. This well shows a consistent downward trend during the spring and summer, with a slight rise after the pumping season ended. Water levels in the Tucson area continued to decline in 1953, though the amount of decline in different parts of the area varied considerably. The water level in well (D-15-13)2cca (fig. 22) showed a net lowering of 2 feet during the year. An average decline of about 2 feet occurred in the city of Tucson well field south of town. In the well field northeast of the city, the net lowering was approximately 4 feet. In other parts of the city, principally the north section, the net decline was between 5 and 6 feet. Depth to water in the Tucson area ranged from about 45 feet in wells near the Santa Cruz River to 160 feet near the eastern city limits. In the Tucson-Continental area water levels declined an average of 5 feet during the year. Declines of as much as 11 feet were measured in the area between Sahuarita and Continental. The water levels in well (D-17-14)18cab are considered representative of the area around Sahuarita (fig. 22). Depths to water in the Tucson-Continental area ranged from 20 feet near the Santa Cruz River just south of Tucson to 120 feet in wells farthest from the river near Continental. Net declines in water levels in the Rillito-Tanque Verde Creek area averaged about 5 feet in 1953. In the Pantano Wash area, water levels declined as much as 4 feet in 1953. Although the amount of acreage under cultivation in Pima County increased only slightly in 1953, the quantity of water pumped reached a record high of 380,000 acre-feet. The increase in pumpage is attributed to a longer pumping season, to the deficiency in rainfall, and to the planting of winter grains. Precipitation at Tucson was 6.47 inches in 1953, about 60 percent of normal.

Pinal County.--Generally, the water-level decline in the irrigated portion of the Lower Santa Cruz area in Pinal County was greater in 1953 than for any previous year of record. This greater decline in 1953 is attributed to the continuation of pumping for most of the year, thus causing greater withdrawals and preventing the normal winter recovery of the water table in most sections of the area. Pumpage in Pinal County was 1,400,000 acre-feet in 1953, an increase of 450,000 acre-feet over 1952. Figure 23 shows graphically the cumulative decline of the water table since 1940 in the three major irrigated areas of Pinal County: the Casa Grande-Florence area; the Eloy area; and the Maricopa-Stanfield area. The graphs are based on annual water-level measurements in several hundred wells in these areas. Water levels in the Casa Grande-Florence area showed an average net decline of nearly 9 feet in 1953. About halfway between Coolidge and Casa Grande, declines of as much as 20 feet were measured. In the area between Coolidge and Florence the net decline of the water table ranged from 5 to 10 feet, and averaged over 6 feet. In the vicinity of Sacaton, on the Gila River Indian Reservation, water levels declined as much as 7 feet. The quantity of ground water withdrawn in the area in 1953 was about 400,000 acre-feet. The decline of the water table indicates that most of the water was withdrawn from storage, and the volume of sediments unwatered was about 1,400,000 acre-feet. The depth to water in the area ranged from about 35 feet, in wells near Ashurst-Hayden Dam, to 160 feet south of Coolidge near the canal. The average discharge from 70 wells measured in the area

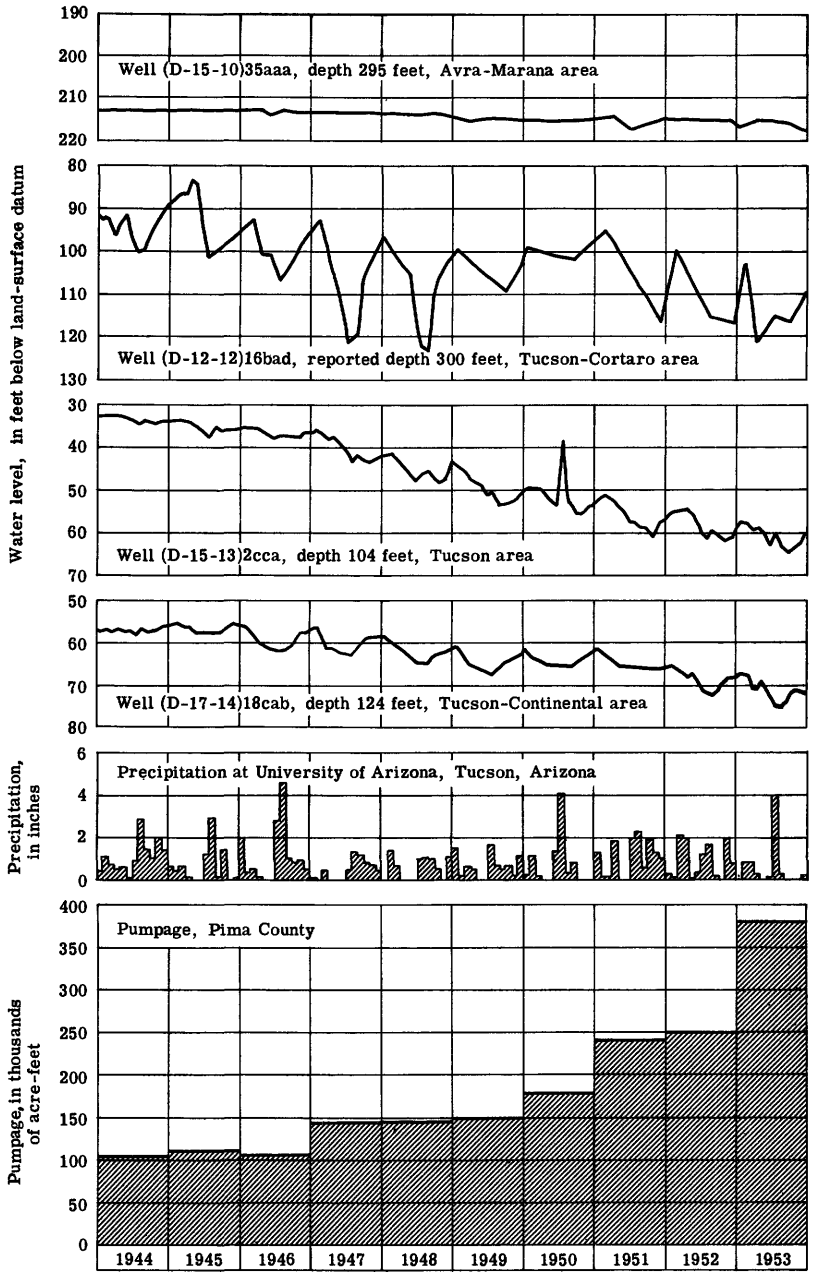


Figure 22.--Water levels in wells in the Avra-Marana, Tucson-Cortaro, and Tucson-Continental areas, precipitation at Tucson, and pumpage, Pima County, Ariz., 1944-53.

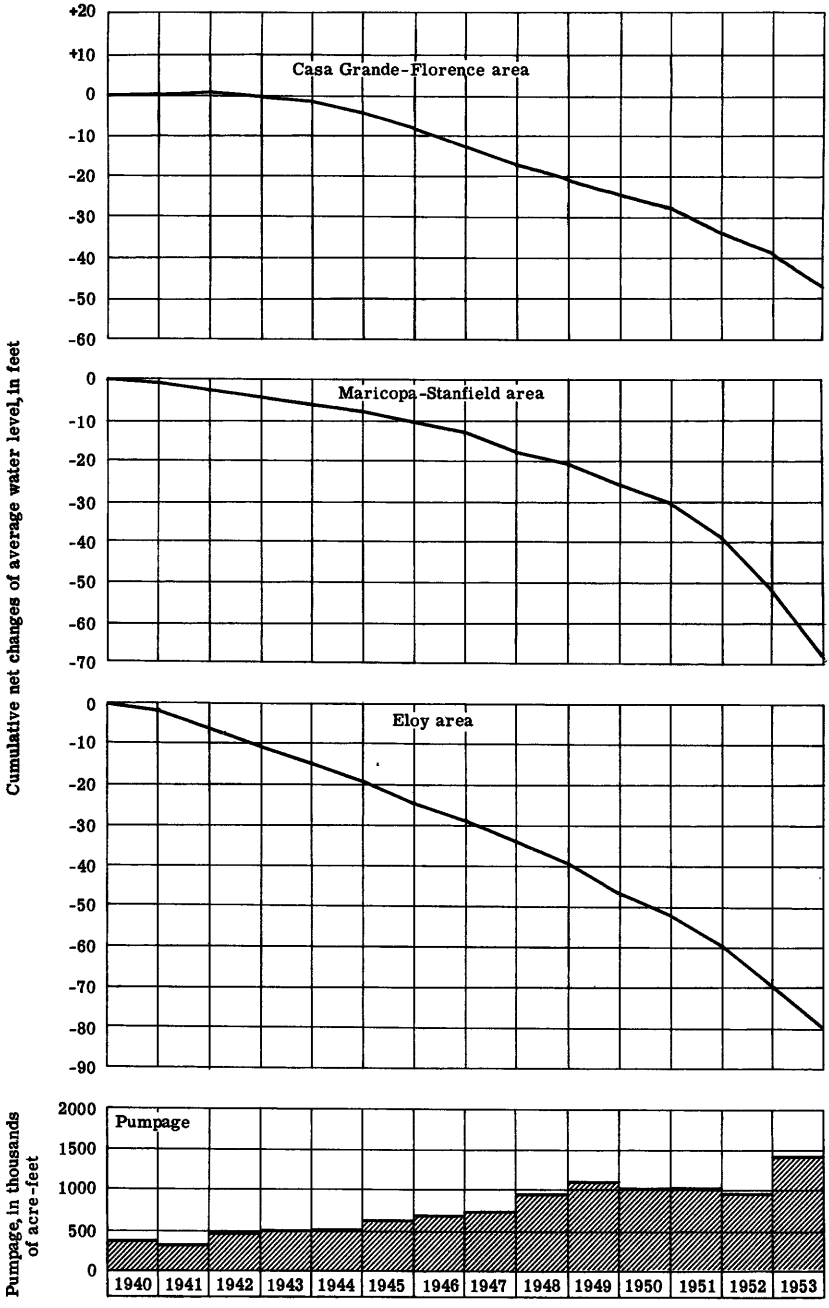


Figure 23. --Cumulative net changes of average water level and pumpage in portions of Santa Cruz Basin within Pinal County, Ariz., 1940-53.

during the pumping season was less than 1,000 gpm. Precipitation at Casa Grande was 3.84 inches in 1953, about 50 percent of normal. In the Maricopa-Stanfield area, the average decline in 1953 was nearly 18 feet. South of State Highway 84, the declines were as much as 35 feet. Between State Highway 84 and the southern boundary of the Maricopa Indian Reservation, the decline in water levels averaged about 15 feet. In the vicinity of the town of Maricopa the decline was about 5 feet. The quantity of ground water pumped in 1953 was about 550,000 acre-feet, and the volume of sediments unwatered was about 3,000,000 acre-feet. The depth to water in the area ranged from about 50 feet north of the town of Maricopa to about 350 feet in the southwest part of the area. The average discharge of 120 wells measured during the season was about 1,400 gpm. In the Eloy area, average decline was more than 10 feet in 1953. Between Eloy and the Florence-Casa Grande Canal, maximum declines of as much as 20 feet were measured. The total quantity of water withdrawn in the Eloy area in 1953 was about 450,000 acre-feet, and the total volume of alluvium unwatered was about 2,000,000 acre-feet. The depth to water in the Eloy area in 1953 ranged from about 100 feet along the north and west edges of the area to about 250 feet south of Eloy. The average discharge of 143 wells measured in the area in 1953 was less than 1,200 gpm. Precipitation at Eloy was 7.36 inches for 1953.

Santa Cruz County.--In the Santa Cruz River valley of Santa Cruz County, large-scale pumping of ground water for irrigation caused further declines in water levels during 1953. Figure 24 shows the hydrographs for two wells in the area. Well (D-22-13)35dcd, representative of the more heavily pumped area between Calabasas and Tubac, shows a net decline of a little over 3 feet, about average for the area. Well (D-23-14)27baa is considered representative of the area of less pumping between the International Boundary and Calabasas. The average decline there was about a foot. In the area between Tubac and the Pima-Santa Cruz County line, there was a net decline of about 2 feet during the year. The depth to water averages about 40 feet along the Santa Cruz River. Pumpage in Santa Cruz County was 27,000 acre-feet in 1953, the same as in 1952. Precipitation at Nogales was 10.49 inches in 1953, about two-thirds of normal.

Yavapai County.--Water levels in wells in this county showed smaller fluctuations than in 1952. The range was from a decline of about 3 feet in Peeples Valley to a rise of approximately 2 feet in Chino Valley. However, the fluctuations appear to be largely seasonal, and no area in Yavapai County shows a distinct trend of water levels. A downward trend may have been established in Chino Valley, but the period of observation by this agency is too short to serve as a basis for stating a positive conclusion. Precipitation at Prescott in 1953 was 16.65 inches, about 83 percent of normal.

Yuma County.--Water levels in wells in the Ranegras Plain area of northern Yuma County generally showed small but consistent declines. The decline ranged from about 4 feet in the southeast part of the valley to as little as 0.2 foot in well (B-5-16)10ddd in the central part of the valley. Water levels in wells near Bouse showed declines averaging about a foot. A decline of 2.2 feet was observed in well (B-5-13)22cc, approximately 2 miles south of Salome. The decline was greater near Nord's Ranch, in the narrows about 6 miles south of Salome. Precipitation at Bouse amounted to 1.70 inches in 1953. At Salome, the amount was 3.99 inches, about 50 percent of normal. Pumpage in northern Yuma County, including Ranegras Plain and McMullen Valley, amounted to approximately 28,000 acre-feet during the year. In the Wellton-Mohawk area of southern Yuma County, the introduction of surface water by the new canal from the Colorado River reversed the former downward trend of water levels, and wells in the area showed an average water-level rise of about a foot in 1953. Pumpage in the area decreased correspondingly, and amounted to about 16,000 acre-feet as against 40,000 acre-feet in 1952. This reversal of ground-water conditions occurred though precipitation at Wellton in 1953 totaled 0.62 inch, about 14 percent of normal. In the South Gila Valley and Yuma Mesa areas the rise in water levels continued in 1953 and amounted to slightly over a foot. Total pumpage for the year was approximately 60,000 acre-feet, practically the same as for 1952. An additional amount of surface water was available from the new canal. Precipitation at Yuma in 1953 was only 0.42 inch, less than 12 percent of normal. Pumpage in the Lower Gila Valley and precipitation at Yuma are shown in figure 25.

Acknowledgments

Many irrigation districts, power companies, and individuals cooperated in furnishing the information contained in this report. The following organizations were particularly helpful in furnishing data on which the figures for pumpage were based: Arizona Public Service Co.; Buckeye Irrigation District; Bu-Gas Distributors; Citizens Utility Co.; City of Douglas; City of Nogales; City of Tucson; Cortaro Farms; Duncan Utilities Co.; Eloy Light and Power Co.; Gila Water Commissioner; Goodyear Farms; Maricopa County Municipal Water Conservation District; Mohawk Municipal Water Conservation District; Natural Gas Service Co.; Roosevelt Irrigation District; Roosevelt Water Conservation District; Rural Electrification Administration; Safford Municipal Utilities; Salt River Valley Water Users' Association; San Carlos Irrigation District; Trico Electric Cooperative; Tucson Gas Electric Light and Power Co.; U. S. Bureau of Indian Affairs; and U. S. Bureau of Reclamation.

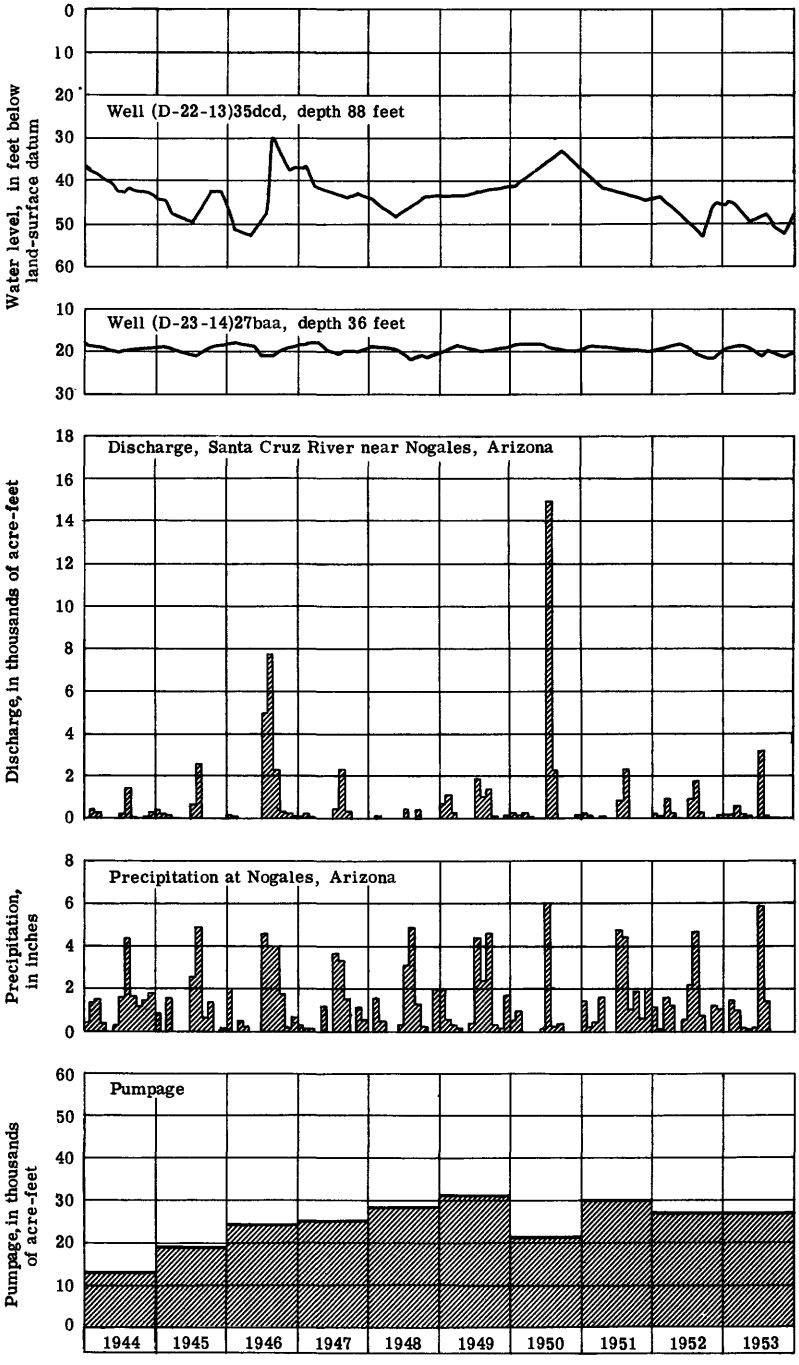


Figure 24.--Water levels in wells in Santa Cruz Valley, discharge of Santa Cruz River near Nogales, precipitation at Nogales, and pumpage in Santa Cruz County, Ariz., 1944-53.

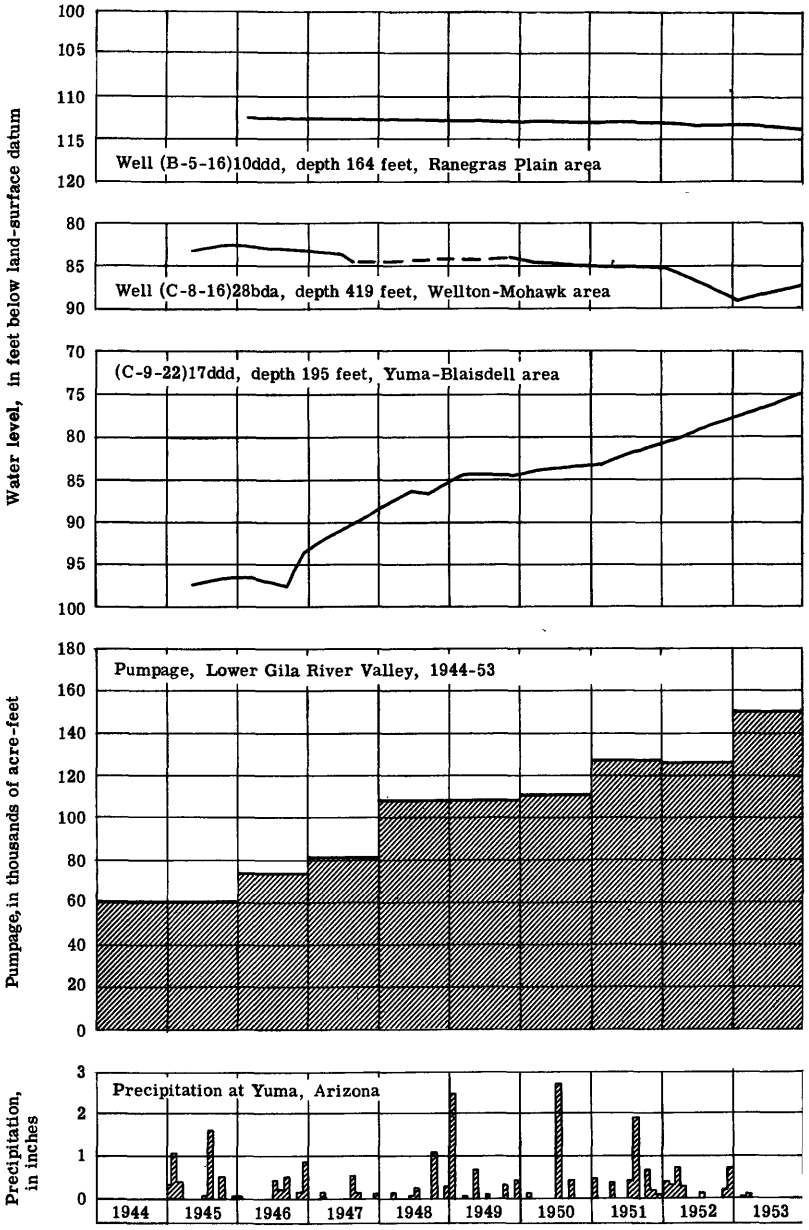
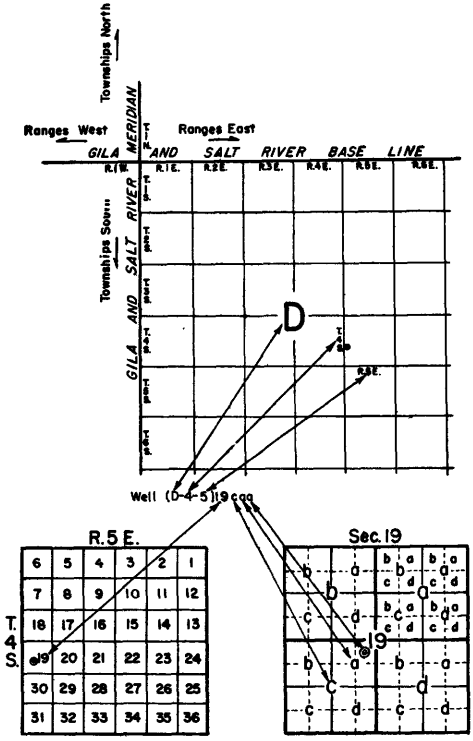


Figure 25. --Water levels in wells in Ranegras Plain, Wellton-Mohawk, and Yuma-Blaisdell areas, pumpage in Lower Gila Valley, and precipitation at Yuma, Yuma County, Ariz.

Well-Numbering System

Wells are numbered in accordance with the Bureau of Land Management system of land subdivision. The first digit of a well number indicates the township, the second the range, and the third the section in which the well is situated. The lowercase letters--a, b, c, and d--following the section number indicate the well location within the section; the first letter denotes the 160-acre tract; the second the 40-acre tract; and the third the 10-acre tract. The letters are assigned in a counterclockwise direction, beginning in the northeast quarter. If the location is known within a 10-acre tract, three lowercase letters are shown in the well number. Where there is more than one well in the smallest significant tract, consecutive numbers beginning with 1 are added as suffixes. The land survey of Arizona is based on the Gila and Salt River base line and meridian, which divide the State into four quadrants. These quadrants are designated by the capital letters A, B, C, and D. All lands north and east of the base point are in A quadrant; those north and west are in B quadrant, and so on through C and D quadrants. For example, well number (D-4-5)19 designates the well as being in sec. 19, T. 4 S., R. 5 E., in the southeast quadrant.



Well Descriptions and Water-Level Measurements

(Water levels are in feet below land-surface datum unless otherwise indicated.)

Apache County

(A-13-28)29ca. E. L. Johns. Drilled domestic water-table well in gravel, diameter 12 inches, depth 50 feet. Highest water level 8.43 below lsd, Aug. 7, 1950; lowest 24.35 below lsd, June 11, 1947. Records available: 1944-53. July 30, 16.35.

Cochise County

(D-13-29)6ccc. A. R. Spikes. Drilled stock and irrigation artesian well in sand and gravel, diameter 6 inches, reported depth 835 feet. Land-surface datum is about 3,675 feet above msl. Highest water level 9.49 below lsd, May 2, 1941; lowest 30.13 below lsd, Oct. 14, 1952. Records available: 1941-42, 1944, 1946-47, 1949-52. No measurement made in 1953.

(D-13-31)30cdc. Elmer Franklin. Drilled domestic water-table well in sand and gravel, diameter 4 inches, depth 72 feet. Land-surface datum is about 3,610 feet above msl. Highest water level 58.70 below lsd, Nov. 2, 1949; lowest 66.82 below lsd, Dec. 16, 1953. Records available: 1940-42, 1944, 1946-53. Jan. 15, 64.21; Apr. 13, 63.75; July 22, 64.12; Dec. 16, 66.82.

(D-14-23)36baa. Fay Proctor. Drilled domestic and stock water-table well in sand and gravel, diameter 6 inches, depth 50 feet. Land-surface datum is about 4,210 feet above msl. Highest water level 36.05 below lsd, May 13, 1942; lowest 42.93 below lsd, June 11, 1947. Records available: 1942, 1944-53. Jan. 20, 40.99; July 24, 41.57; Oct. 27, 42.32.

(D-14-25)6cac. E. T. Dunlap. Drilled domestic water-table well in sand and gravel, diameter 6 inches, depth 34 feet. Land-surface datum is about 4,166 feet above msl. Highest water level 12.00 below lsd, May 14, 1942; lowest 17.33 below lsd, Oct. 27, 1953. Records available: 1942, 1944-53. Jan. 20, 16.78; May 11, 16.94; July 24, 17.07; Oct. 27, 17.33.

(D-14-31)3ddd. A. G. Pierce. Drilled unused artesian well in sand and clay, diameter 8 inches, reported depth 400 feet. Land-surface datum is about 3,690 feet above msl. Highest water level 17.20 below lsd, Apr. 24, 1942; lowest 51.64 below lsd, July 23, 1953. Records available: 1941-42, 1946-53. Jan. 15, 31.11; Apr. 13, 33.34; July 23, 51.64; Dec. 16, 45.13.

(D-16-20)34acd. L. A. Scott. Drilled domestic and stock water-table well in sand and gravel, diameter 6 inches, depth 98 feet. Highest water level 70.42 below lsd, June 12, 1941; lowest 84.33 below lsd, July 23, 1953. Records available: 1941-42, 1944-53. Jan. 19, 81.31; Apr. 16, 82.37; July 23, 84.33; Nov. 4, 84.32.

(D-16-25)16add. W. D. Wear. Drilled stock water-table well in sand and gravel, diameter 6 inches, depth 65 feet. Land-surface datum is about 4,190 feet above msl. Highest water level 33.99 below lsd, June 7, 1944; lowest 42.27 below lsd, Jan. 19, 1953. Records available: 1942, 1944-53. Jan. 19, 42.27; May 12, 38.75; July 28, 37.96; Oct. 28, 40.51.

(D-17-20)10ccc. City of Benson. Drilled unused artesian well in sand and gravel, diameter 4 inches, reported depth 700 feet. Highest water level 6.06 below lsd, Jan. 20, 1952; lowest 26.31 below lsd, July 4, 1953. Records available: 1944-53. Measurement discontinued.

Daily highest water level from recorder graph*

Day	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	9.57	.....	9.02	12.35	12.90	14.37	22.00	.....	19.20
2	9.68	.....	.....	12.54	12.70	14.47	22.50	.....	20.07
3	9.71	.....	9.11	11.98	13.45	14.50	22.75	.....	19.39
4	9.72	.....	.....	11.22	13.27	14.35	22.75	.....	19.60
5	10.35	.....	8.85	11.51	12.48	14.30	21.71	.....	18.86
6	9.64	.....	8.87	11.78	13.00	14.30	21.72	.....	18.23
7	9.78	.....	8.95	11.17	13.60	14.65	20.22	.....	18.65
8	9.94	.....	9.58	10.73	13.83	14.40	19.46	.....	18.04
9	10.21	10.62	9.33	10.99	13.09	15.58	18.23	.....	18.40
10	9.83	10.94	8.81	11.04	13.26	15.75	.....	.....	18.30
11	9.96	10.65	8.90	11.46	13.00	16.90	.....	.....	.....
12	10.41	10.62	.....	11.65	12.73	16.98	.....	.....	.....
13	10.35	10.57	.....	11.39	13.55	16.89	.....	.....	.....
14	9.78	10.41	.....	11.11	13.45	16.31	.....	.....	18.14
15	9.79	10.37	.....	11.11	13.45	16.55	.....	.....	.....
16	10.05	10.30	.....	12.15	12.75	17.40	.....	.....	.....
17	9.76	10.79	.....	12.29	12.58	18.08	.....	.....	.....
18	9.53	10.17	.....	11.83	12.83	18.10	.....	.....	18.04
19	9.85	10.73	.....	11.13	12.83	17.77	.....	.....	18.80
20	10.26	10.21	.....	12.06	12.71	17.46	.....	.....	18.25
21	9.71	10.16	.....	11.89	13.99	18.46	.....	20.90	18.77
22	9.53	10.64	.....	11.30	13.79	17.97	.....	19.90	18.20
23	.....	10.18	10.95	10.81	13.96	18.50	.....	20.00	18.28
24	.....	10.19	11.44	10.95	14.72	18.80	19.55	19.57	18.19
25	.....	9.78	11.38	10.73	14.50	19.20	19.49	20.05	17.50

(D-17-20)10ccc--Continued.

Day	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
26	.....	9.52	11.72	11.31	14.13	19.53	19.75	20.41	17.85
27	.....	9.50	12.18	12.41	14.37	20.60	17.77	19.55	17.67
28	.....	9.47	12.43	11.32	14.27	20.73	.....	18.93	17.93
29	.....		12.47	11.67	14.16	20.11	.....	18.57	17.03
30	.....		11.87	11.67	14.17	21.05	.....	19.22	17.15
31	.....		11.98		14.19		.....	19.00	

* No record for October, November, and December.

(D-17-21)32bad. Boquillas Cattle Co. Drilled domestic and stock artesian well in sand and gravel, diameter 6 inches, reported depth 520 feet, cased to 500. Highest water level 16.92 below lsd, Dec. 9, 1946; lowest 21.51 below lsd, Apr. 6, 1950. Records available: 1944-53. Jan. 21, 26.39, pumping; Apr. 30, 37.09, pumping; July 29, 26.77, pumping; Dec. 3, 20.05.

(D-18-21)6aab. Walter Haymore. Drilled domestic water-table well in sand and gravel, diameter 4 inches, depth 60 feet. Highest water level 25.62 below lsd, Mar. 30, 1946; lowest 36.15 below lsd, Dec. 3, 1953. Records available: 1944-53. Jan. 21, 33.94; Apr. 30, 32.38; Dec. 3, 36.15.

(D-18-26)28aaa. Frank Geers. Drilled stock water-table well in sand and gravel, diameter 6 inches, depth 140 feet. Land-surface datum is 4,267.8 feet above msl. Highest water level 70.65 below lsd, Dec. 21, 1949; lowest 75.37 below lsd, Oct. 27, 1953. Records available: 1946-53. Jan. 13, 75.83, pumped recently; Apr. 10, 79.72, pumping; July 22, 74.76; Oct. 27, 75.37.

(D-20-20)32cdb. Lon Hunt. Drilled unused water-table well in sand and gravel, diameter 6 inches, depth 125 feet. Highest water level 86.17 below lsd, Apr. 2, 1941; lowest 96.54 below lsd, Apr. 30, 1953. Records available: 1941-43, 1945-53. Jan. 21, 91.55; Apr. 30, 96.54, nearby well being pumped; Aug. 10, 92.51; Dec. 3, 92.90.

(D-20-26)33add. Frank Sproul. Drilled irrigation water-table well in sand and gravel, diameter 16 inches, depth 64 feet, perforations 24-64. Land-surface datum is 4,124.2 feet above msl. Highest water level 22.46 below lsd, May 27, 1942; lowest 55.58 below lsd, Oct. 26, 1953. Records available: 1942, 1944-53. Jan. 14, 42.33; Apr. 10, 49.31, nearby well being pumped; July 2, 54.18; Oct. 26, 55.58.

(D-21-21)11aad. J. L. Parker. Dug unused water-table well in sand and gravel, diameter 4 feet, depth 36 feet. Highest water level 26.85 below lsd, Jan. 31, 1952; lowest 30.69 below lsd, Apr. 9, 1941. Records available: 1941, 1944-53. Jan. 21, 27.31; Apr. 30, 27.21; Aug. 10, 27.49; Dec. 3, 27.70.

(D-21-26)24baa. McNeal Cemetery. Drilled domestic water-table well in sand and gravel, diameter 8 inches, depth 196 feet. Land-surface datum is 4,195.8 feet above msl. Highest water level 112.00 below lsd, Jan. 31, 1946; lowest 124.92 below lsd, Oct. 26, 1953. Records available: 1946-53. Jan. 14, 121.96; Apr. 9, 122.91, pumping; July 21, 123.55, pumping; Oct. 26, 124.92.

(D-22-26)28bab2. J. E. Brophy. Drilled irrigation water-table well in sand and gravel, diameter 8 inches, depth 90 feet. Highest water level 26.42 below lsd, July 25, 1946; lowest 39.36 below lsd, Oct. 23, 1953. Records available: 1946-47, 1949-51, 1953. Jan. 13, 34.81; Oct. 23, 39.36.

(D-24-27)5bdb. Fred Price. Dug stock water-table well in sand and gravel, diameter 8 feet, depth 82 feet. Land-surface datum is about 3,996 feet above msl. Highest water level 54.30 below lsd, May 26, 1942; lowest 60.76 below lsd, July 21, 1953. Records available: 1942, 1944-53. Jan. 12, 60.67; Apr. 9, 60.61; July 21, 60.76.

Coconino County

(A-21-7)9ddc. Pinewood Dairy. Dug stock water-table well in gravel, diameter 4 feet, depth 25 feet. Highest water level 11.93 below lsd, June 5, 1945; lowest 19.34 below lsd, Oct. 15, 1948. Records available: 1944-51, 1953. July 30, 14.42.

(A-22-6)26aaa. City of Flagstaff. Drilled unused water-table well in Coconino sandstone, diameter 16 inches, reported depth 1,021 feet. Highest water level 129.68 below lsd, Sept. 28, 1945; lowest 131.13 below lsd, July 5, 1952. Records available: 1944-53. July 30, 130.40.

Gila County

(A-1-15)9aad. Kenneth Hoopes. Drilled unused water-table well in sand and gravel, diameter 12 inches, depth 160 feet. Highest water level 39.25 below lsd, Apr. 9, 1952; lowest 90.40 below lsd, Oct. 3, 1950. Records available: 1945-53. Jan. 26, 64.91; Apr. 14, 58.59; July 6, 64.57, nearby well pumped recently; Oct. 29, 72.47, nearby well pumped recently.

(D-1-15)13bad. Schniffen. Drilled unused water-table well in sand and gravel, diameter 6 inches, depth 105 feet. Highest water level 3.50 below lsd, May 5, 1949; lowest 38.87 below lsd, Apr. 11, 1951. Records available: 1946-53. Jan. 26, 6.47; Apr. 14, 6.06; July 7, 16.40.

Graham County

(D-4-22)13acc. Aubrey Rabb. Drilled irrigation water-table well in sand and gravel, diameter 10 inches, depth 76 feet. Land-surface datum is 2,641 feet above msl. Highest water level 14.31 below lsd, Mar. 18, 1941; lowest 27.63 below lsd, July 30, 1951. Records available: 1939-52. No measurement made in 1953.

(D-4-22)35ddd. Pat Hinton. Drilled stock water-table well in sand and gravel, diameter 6 inches, depth 75 feet. Land-surface datum is 2,859.5 feet above msl. Highest water level 17.08 below lsd, Feb. 11, 1943; lowest 39.36 below lsd, Mar. 29, 1940. Records available: 1939-44, 1946-53. Jan. 28, 36.96, pumping; Aug. 4, 32.95, pumped recently; Oct. 19, 38.35, pumped recently.

(D-4-23)29adc. Silas Jarvis. Drilled irrigation water-table well in sand and gravel, diameter 16 inches, depth 83 feet, cased to 83, perforations 53-73. Land-surface datum is 2,705.7 feet above msl. Highest water level 46.10 below lsd, Mar. 18, 1941; lowest 63.23 below lsd, Feb. 15, 1948. Records available: 1940-53. Jan. 28, 54.16; Mar. 2, 53.38; May 4, 60.15; May 6, 60.34; Nov. 3, 60.56; Dec. 1, 58.86; Dec. 29, 57.79.

(D-6-24)5acc. Eldon Palmer. Drilled irrigation water-table well in sand and gravel, diameter 16 inches, depth 64 feet. Land-surface datum is 2,779.6 feet above msl. Highest water level 38.93 below lsd, May 29, 1941; lowest 54.67 below lsd, Dec. 28, 1947. Records available: 1940-53. Feb. 2, 45.30; Mar. 2, 45.98; June 29, 49.42; Aug. 3, 49.50; Nov. 3, 50.76; Dec. 1, 51.26; Dec. 29, 50.48.

(D-6-24)13cbb. W. J. Preston. Drilled domestic water-table well in sand and gravel, diameter 5 inches, depth 48 feet. Land-surface datum is 2,828.8 feet above msl. Highest water level 29.15 below lsd, May 28, 1942; lowest 45.79 below lsd, Jan. 22, 1952. Records available: 1939-40, 1942-53.

Date	Water level	Date	Water level	Date	Water level	Date	Water level
Jan. 28	39.57	May 6	a39.79	Sept. 29	42.36	Dec. 1	43.50
Feb. 2	39.52	Aug. 4	40.83	Oct. 26	42.94	29	43.67
Mar. 2	39.80	31	41.26	Nov. 3	43.07		

a Pumping.

(D-6-25)17ddd. Vance Marshall. Drilled irrigation water-table well in sand and gravel, diameter 16 inches, depth 46 feet. Land-surface datum is 2,821.6 feet above msl. Highest water level 10.77 below lsd, May 26, 1941; lowest 21.32 below lsd, Nov. 3, 1953. Records available: 1939-46, 1948-50, 1952-53.

Jan. 26	16.38	June 1	17.70	Oct. 26	21.14	Dec. 1	21.05
Feb. 9	16.70	Aug. 3	19.60	Nov. 3	21.32	29	20.50
Mar. 2	19.61	31	21.16				

(D-6-28)31aac. J. W. Earven. Drilled irrigation water-table well in sand and gravel, diameter 16 inches, depth 57 feet. Highest water level 17.14 below lsd, Apr. 16, 1941; lowest 49.16 below lsd, Nov. 2, 1953. Records available: 1940-53.

Jan. 29	34.05	May 4	35.42	Aug. 3	45.16	Oct. 19	48.85
Feb. 2	32.85	5	35.43	6	45.21	Nov. 2	49.16
Mar. 2	32.89	June 1	36.90	31	46.67	30	49.10
30	33.64	29	41.06	Sept. 26	48.20	Dec. 28	48.18

(D-7-26)13dcd. E. M. Claridge. Drilled irrigation water-table well in sand and gravel, diameter 20 inches, depth 80 feet, cased to 80, perforations 35-70. Land-surface datum is about 2,962 feet above msl. Highest water level 11.73 below lsd, May 25, 1942; lowest 55.15 below lsd, June 29, 1953. Records available: 1940-53.

(D-7-26)13dcd--Continued.

Date	Water level	Date	Water level	Date	Water level	Date	Water level
Jan. 29	25.32	May 5	44.55	Aug. 6	54.64	Nov. 2	45.96
Feb. 2	25.24	June 1	48.22	Sept. 28	54.88	30	42.16
Mar. 2	29.80	29	55.15	Oct. 19	48.53	Dec. 28	40.34
May 4	43.82	Aug. 3	51.70				

(D-7-26)22bac. Lee Johns. Drilled irrigation water-table well in sand and gravel, diameter 16 inches, depth 90 feet, cased to 90. Land-surface datum is 2,950.3 feet above msl. Highest water level 20.27 below lsd, May 25, 1942; lowest 61.26 below lsd, Sept. 28, 1953. Records available: 1940-53.

Jan. 29	35.27	May 5	50.59	Aug. 5	59.35	Nov. 2	57.55
Feb. 2	34.85	June 1	56.40	Sept. 28	61.26	30	54.63
Mar. 2	35.93	Aug. 3	59.00	Oct. 19	59.04	Dec. 28	51.80
May 4	50.22						

(D-7-27)4dad. Zelma Clonts. Drilled irrigation water-table well in sand and gravel, diameter 16 inches, depth 81 feet, cased to 81, perforations 10-60. Land-surface datum is about 3,012 feet above msl. Highest water level 9.32 below lsd, Apr. 16, 1941; lowest 36.32 below lsd, Oct. 19, 1953. Records available: 1940-50, 1952-53. Jan. 29, 23.21; Feb. 2, 20.25; Oct. 19, 36.32; Nov. 2, 35.35.

Greenlee County

(D-7-31)4bcc. Barney & Frazier. Drilled irrigation water-table well in sand and gravel, diameter 20 inches, depth 75 feet. Land-surface datum is 3,544.4 feet above msl. Highest water level 24.25 below lsd, May 5, 1941; lowest 33.31 below lsd, Dec. 28, 1950. Records available: 1939-43, 1945-53. Jan. 27, 28.23; May 7, 30.18; Nov. 12, 32.76.

(D-8-32)32cda. Lavar Merrill. Drilled domestic water-table well in sand and gravel, diameter 4 inches, depth 110 feet. Land-surface datum is 3,716 feet above msl. Highest water level 22.68 below lsd, Mar. 15, 1945; lowest 38.56 below lsd, Aug. 27, 1951. Records available: 1939-53. Jan. 27, 33.14; May 7, 33.37; Aug. 5, 34.05; Nov. 12, 33.96.

(D-8-32)34cdd. Floyd McDaniels. Drilled irrigation water-table well in sand and gravel, diameter 18 inches, depth 70 feet. Land-surface datum is about 3,687 feet above msl. Highest water level 6.60 below lsd, Mar. 1, 1949; lowest 28.18 below lsd, Nov. 12, 1953. Records available: 1939-43, 1945-53. Jan. 27, 11.00; May 7, 14.94; Aug. 5, 26.59; Nov. 12, 28.18.

Maricopa County

(A-1-1)4aaa. Isabell-Hartner Ranches. Drilled unused water-table well in sand and gravel, diameter 20 inches, depth 158 feet. Land-surface datum is about 1,025 feet above msl. Highest water level 54.93 below lsd, Jan. 14, 1946; lowest 98.32 below lsd, Nov. 5, 1951. Records available: 1946-52. No measurement made in 1953.

(A-1-4)11bcb. J. B. House. Drilled domestic water-table well in sand and gravel, diameter 6 inches, depth 201 feet. Highest water level 36.75 below lsd, Feb. 21, 1946; lowest 88.32 below lsd, Oct. 27, 1953. Records available: 1946-53. Feb. 3, 68.68; Oct. 27, 88.32.

(A-1-6)23daa. Logan Stillwell. Drilled domestic water-table well in sand and gravel, diameter 10 inches, depth 408 feet. Land-surface datum is 1,375.7 feet above msl. Highest water level 229.20 below lsd, Mar. 19, 1946; lowest 334.52 below lsd, Oct. 20, 1953. Records available: 1946, 1948-53. Feb. 24, 313.70; July 17, 329.02; Oct. 20, 334.52.

(A-3-1)35baa. Otis Cook. Drilled domestic water-table well in sand and gravel, diameter 6 inches, depth 217 feet. Highest water level 54.47 below lsd, Mar. 20, 1946; lowest 120.53 below lsd, Oct. 28, 1953. Records available: 1946-53. Feb. 3, 103.25; Oct. 28, 120.53.

(A-3-2)12caa. John M. Jacobs. Drilled unused water-table well in sand and gravel, diameter 20 inches, depth 417 feet, perforations 179-390. Land-surface datum is 1,309.7 feet above msl. Highest water level 253.96 below lsd, Feb. 21, 1949; lowest 321.48 below lsd, Oct. 28, 1953. Records available: 1948-53. Oct. 28, 321.48.

(A-3-4)15ddd. David and Leona Gooze. Drilled unused water-table well in sand and gravel, diameter 6 inches, depth 193 feet, uncased. Highest water level 165.82 below lsd, Mar. 24, 1946; lowest 171.46 below lsd, Oct. 21, 1952. Records available: 1946-53. Feb. 4, 168.07; Nov. 10, 168.20.

(B-1-2)13acd. Roosevelt Irrigation District. Drilled irrigation water-table well in sand and gravel, diameter 20 inches, depth 155 feet, perforations 40-130. Land-surface datum is 958.9 feet above msl. Highest water level 39.0 below lsd, Apr. 30, 1928; lowest 73.25 below lsd, Mar. 27, 1950. Records available: 1928-31, 1934-41, 1944-45, 1947-53. Feb. 16, 69.39; Oct. 29, 71.04.

(B-1-3)34bbb. Roosevelt Irrigation District. Drilled irrigation water-table well in sand and gravel, diameter 20 inches, depth 200 feet, perforations 74-176. Land-surface datum is 916.7 feet above msl. Highest water level 54.2 below lsd, June 1, 1944; lowest 76.32 below lsd, Nov. 3, 1952. Records available: 1928-53. Feb. 16, 64.38; Oct. 29, 66.25.

(B-2-1)13cba2. R. E. McMurchy. Drilled unused water-table well in sand and gravel, diameter 20 inches, depth 135 feet. Highest water level 104.87 below lsd, Feb. 25, 1953; lowest 111.90 below lsd, Nov. 17, 1953. Records available: 1952-53. Nov. 20, 1952, 106.44; Feb. 25, 1953, 104.87; Nov. 17, 111.90.

(B-2-2)4dcb. Maricopa County Municipal Water Conservation District No. 1. Drilled unused water-table well in sand and gravel, diameter 20 inches, depth 500 feet, perforations 204-484. Highest water level 183.7 below lsd, May 17, 1940; lowest 247.40 below lsd, Nov. 17, 1953. Records available: 1940-42, 1946-53. Feb. 25, 242.44; Nov. 17, 247.40.

(B-4-1)8daa. Maricopa County Municipal Water Conservation District No. 1. Drilled unused water-table well in sand and gravel, diameter 20 inches, depth 500 feet, perforations 182-484. Land-surface datum is about 1,335 feet above msl. Highest water level 180.0 below lsd, Nov. 28, 1938; lowest 236.87 below lsd, Nov. 16, 1953. Records available: 1938, 1940-42, 1944, 1946-53. Feb. 24, 232.25; Nov. 16, 236.87.

(C-1-5)1aab. Charles Yokum. Drilled stock water-table well in sand and gravel, diameter 6 inches, depth 185 feet. Highest water level 62.77 below lsd, Oct. 25, 1946; lowest 79.94 below lsd, Nov. 6, 1952. Records available: 1946-53. Feb. 16, 76.34; Oct. 29, 77.89.

(C-1-7)15bbb. Lee C. Underdown. Drilled unused water-table well in sand and gravel, diameter 20 inches, depth 650 feet, perforations 164-254. Highest water level 178.22 below lsd, Mar. 4, 1949; lowest 182.45 below lsd, Dec. 11, 1952. Records available: 1949-53. Feb. 27, 180.37.

(D-1-5)1bbb. Salt River Valley Water Users' Association. Drilled domestic water-table well in sand and gravel, diameter 16 inches, depth 180 feet. Land-surface datum is 1,222.2 feet above msl. Highest water level 67.20 below lsd, Dec. 10, 1945, Feb. 18, 1946; lowest 145.25 below lsd, Oct. 26, 1953. Records available: 1945-53. Jan. 28, 127.58; Oct. 26, 145.25.

(D-1-6)25aaa. Roosevelt Water Conservation District. Drilled domestic water-table well in sand and gravel, diameter 18 inches, depth 223 feet. Land-surface datum is 1,324.1 feet above msl. Highest water level 92.76 below lsd, May 26, 1941; lowest 142.91 below lsd, Oct. 22, 1953. Records available: 1939-53. Feb. 25, 138.27, pumped recently; Oct. 22, 142.91.

(D-2-5)15bbb. L. S. Breckler. Drilled domestic water-table well in sand and gravel, diameter 6 inches, depth 200 feet. Land-surface datum is 1,214 feet above msl. Highest water level 40.2 below lsd, Mar. 23, 1945; lowest 102.36 below lsd, Oct. 26, 1953. Records available: 1945-53. Jan. 28, 93.97; Oct. 26, 102.36.

(D-2-7)12ddd. L. M. Mecham. Drilled irrigation water-table well in sand and gravel, diameter 20 inches, depth 600 feet, perforations 250-585. Highest water level 177.00 below lsd, Feb. 28, 1948; lowest 233.08 below lsd, Feb. 24, 1953. Records available: 1948-53. Feb. 24, 233.08.

Mohave County

(B-16-13)34dd. Dr. A. E. Carter. Dug domestic and stock water-table well in sand and gravel, diameter 4 feet, depth 20 feet. Highest water level 13.76 below lsd, Oct. 1, 1945; lowest 18.50 below lsd, Aug. 3, 1951. Records available: 1945-53. Feb. 11, 14.70; July 21, 16.61.

(B-21-17)24cd. E. A. Kier. Drilled domestic water-table well in sand and gravel, diameter 6 inches, depth 120 feet. Highest water level 101.46 below lsd, Aug. 14, 1944; lowest 112.49 below lsd, Sept. 19, 1952. Records available: 1944-53. Feb. 13, 110.87; July 22, 109.42.

Navajo County

(A-17-21)7bb. Arizona State Highway Department. Drilled unused water-table well in Coconino sandstone, diameter 10 inches, depth 110 feet. Land-surface datum is 5,110.5 feet above msl. Highest water level 39.51 below lsd, June 3, 1948; lowest 44.13 below lsd, July 2, 1952. Records available: 1944-53. July 30, 41.07; Oct. 21, 41.56.

Pima County

(D-11-10)22add. Tom Greenfield. Drilled domestic and irrigation water-table well in sand and gravel, diameter 20 inches, reported depth 600 feet, cased to 600, perforations 145-582. Highest water level 140.66 below lsd, Feb. 28, 1940; lowest 185.56 below lsd, Oct. 23, 1953. Records available: 1940, 1942, 1945-48, 1950-53. Feb. 3, 174.58; July 22, 183.16; Oct. 23, 185.56.

(D-12-10)20ddc. B. Wong. Drilled domestic water-table well in sand and gravel, diameter 7 inches, depth 222 feet. Land-surface datum is 2,021.4 feet above msl. Highest water level 184.79 below lsd, Apr. 15, 1940; lowest 211.20 below lsd, July 22, 1953. Records available: 1940, 1942, 1944-53. Feb. 3, 202.68; Apr. 22, 206.37, nearby well being pumped; July 22, 211.20, nearby well being pumped; Oct. 23, 207.08.

(D-12-11)18ddd. J. E. Glover. Drilled domestic and stock water-table well in sand and gravel, diameter 10 inches, depth 218 feet. Highest water level 189.37 below lsd, June 13, 1941; lowest 213.71 below lsd, Oct. 23, 1953. Records available: 1940-42, 1944-47, 1949-53. Feb. 3, 209.32; Apr. 22, 212.88; Aug. 4, 212.50, nearby well being pumped; Oct. 23, 213.71.

(D-12-12)16bad. Cortaro Water Users' Association. Drilled unused water-table well in sand and gravel, diameter 24 to 18 inches, reported depth 300 feet, cased to 292, perforations 75-285. Highest water level 74.71 below lsd, Feb. 20, 1940; lowest 123.33 below lsd, Aug. 25, 1948. Records available: 1939-53. Feb. 2, 103.29; Apr. 22, 121.60, nearby well being pumped; July 6, 115.77; Oct. 21, 116.94.

(D-15-10)35aaa. State of Arizona. Drilled unused water-table well in sand and gravel, diameter 6 inches, depth 295 feet. Highest water level 212.17 below lsd, Oct. 7, 1948; lowest 216.59 below lsd, Oct. 22, 1953. Records available: 1940-42, 1944, 1946-53. Jan. 22, 216.49; Apr. 21, 215.34; July 30, 215.53; Oct. 22, 216.59.

(D-15-13)2cca. City of Tucson. Dug and drilled unused water-table well in sand and gravel diameter 12 inches, depth 104 feet. Highest water level 31.70 below lsd, July 29, 1942; lowest 64.12 below lsd, Sept. 25, 1953. Records available: 1942-53.

Date	Water level	Date	Water level	Date	Water level	Date	Water level
Jan. 27	57.36	Apr. 27	58.62	July 27	59.83	Oct. 23	63.54
Feb. 24	57.96	May 25	60.03	Aug. 27	63.30	Nov. 23	62.60
Mar. 26	58.74	June 25	62.79	Sept. 25	64.12	Dec. 22	60.82

(D-17-14)18cab. Arizona State Highway Department. Dug and drilled observation water-table well in sand and gravel, diameter 36 to 12 inches, depth 124 feet, cased to 124, perforations 73-123. Highest water level 52.16 below lsd, Jan. 2, 1940; lowest 75.68 below lsd, Sept. 1, 1953. Records available: 1939-53.

Daily highest water level from recorder graph

Day	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	.....	.....	.....	.....	.....	.....	.....	.....	74.57	72.44	71.21	71.42
2	.....	.....	.....	.....	.....	.....	.....	.....	74.57	72.29	71.22	71.51
3	.....	.....	.....	.....	.....	.....	.....	.....	.....	72.15	71.25	71.51
4	.....	.....	.....	.....	.....	.....	.....	.....	.....	72.03	71.23	71.43
5	.....	.....	.....	.....	.....	.....	.....	.....	.....	71.98	71.22	71.54
6	.....	67.47	.....	.....	.....	.....	.....	.....	.....	71.84	71.28	71.48
7	.....	.....	.....	.....	.....	.....	.....	.....	.....	71.76	71.29	71.49
8	.....	.....	.....	.....	.....	.....	.....	.....	74.48	71.68	71.31	71.60
9	67.88	.....	.....	.....	.....	.....	.....	.....	74.44	71.56	71.27	71.55
10	.....	.....	.....	.....	.....	.....	.....	.....	74.42	71.45	71.31	71.48
11	.....	.....	.....	.....	.....	.....	.....	.....	74.38	71.47	71.31	71.66
12	.....	.....	.....	.....	.....	.....	.....	.....	74.34	71.44	71.31	71.58
13	.....	.....	.....	.....	.....	.....	72.80	.....	74.31	71.40	71.33	71.57
14	.....	.....	.....	.....	.....	.....	.....	74.30	74.29	71.34	71.32	71.57
15	.....	.....	.....	.....	.....	.....	.....	74.32	74.28	71.29	71.34	71.58
16	67.96	.....	.....	.....	.....	.....	.....	74.34	74.19	71.26	71.34	71.61
17	.....	.....	.....	.....	.....	.....	72.92	74.36	74.08	71.26	71.34	71.61
18	.....	.....	.....	.....	.....	.....	72.94	74.39	73.92	71.21	71.34	71.61
19	.....	.....	.....	.....	.....	.....	72.99	74.40	73.78	71.20	71.41	71.62
20	.....	.....	.....	.....	.....	.....	73.09	74.41	73.66	71.26	71.30	71.59
21	.....	.....	.....	.....	.....	.....	73.39	74.45	73.58	71.17	71.46	71.58
22	.....	.....	.....	.....	69.09	.....	74.46	74.42	73.45	71.20	71.42	71.69
23	67.80	.....	.....	70.61	.....	.....	73.76	74.44	73.33	71.20	71.42	71.65
24	.....	.....	.....	.....	.....	.....	73.82	74.46	73.23	71.19	71.44	71.65
25	.....	.....	.....	.....	.....	.....	73.88	74.50	73.13	71.20	71.43	71.59

(D-17-14)18cab--Continued.

Day	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
26	.....	.....	.....	.....	.....	.....	73.97	74.52	73.01	71.21	71.45	71.58
27	.....	68.66	70.93	.....	.....	.....	74.28	74.56	72.93	71.21	71.47	71.61
28	.....	.....	.....	.....	.....	.....	74.36	74.54	72.82	71.17	71.46	71.64
29	.....		.....	.....	.....	.....	.....	74.57	72.69	71.21	71.46	71.65
30	67.63		.....	.....	.....	72.42	.....	74.56	72.62	71.21	71.44	71.68
31	.....		.....		.....		.....	74.55		71.22		71.64

(D-19-13)3baa. Owner's No. W1. Farmers Investment Co. Dug and drilled irrigation water-table well in sand and gravel, diameter 96 to 10 inches, depth 246 feet, cased to 246, perforations 42-224. Highest water level 47.44 below lsd, Oct. 3, 1939; lowest 79.83 below lsd, Feb. 19, 1952. Records available: 1939-53. Jan. 16, 68.91; Jan. 23, 68.08; Jan. 30, 66.26; Feb. 6, 68.33.

Pinal County

(D-2-10)8ccc. E. M. Little. Drilled unused water-table well in sand and gravel, diameter 8 inches, depth 437 feet. Highest water level 396.82 below lsd, Jan. 22, 1946; lowest 411.72 below lsd, Feb. 28, 1941. Records available: 1939-53. Feb. 24, 402.49; Oct. 20, 403.56.

(D-3-9)20aaa. Elmer C. Von Glahn. Drilled irrigation water-table well in sand and gravel, diameter 20 inches, depth 600 feet, perforations 285-585. Highest water level 222.70 below lsd, Feb. 17, 1949; lowest 268.30 below lsd, Nov. 12, 1952. Records available: 1942, 1948-52. No measurement made in 1953.

(D-4-8)2ccc. Arizona Ranches, Inc. Drilled unused water-table well in sand and gravel, diameter 20 inches, depth 237 feet. Land-surface datum is 1,530.5 feet above msl. Highest water level 157.96 below lsd, June 12, 1941; lowest 214.15 below lsd, Oct. 20, 1953. Records available: 1941-53. Feb. 24, 205.44; Oct. 20, 214.15.

(D-4-11)7cca. Bureau of Indian Affairs, well 7. Drilled unused water-table well in sand and gravel, diameter 20 inches, reported depth 162 feet, cased to 80. Land-surface datum is 1,560.4 feet above msl. Highest water level 15.30 below lsd, June 29, 1943; lowest 44.14 below lsd, Nov. 24, 1948. Records available: 1942-53. Feb. 11, 25.05; May 12, 22.93; Aug. 31, 28.88; Nov. 19, 33.50.

(D-5-4)30cbb. Harrison & Harris. Drilled domestic water-table well in sand and gravel, diameter 14 inches, depth 188 feet. Land-surface datum is 1,242.7 feet above msl. Highest water level 81.05 below lsd, Mar. 13, 1942; lowest 155.95 below lsd, Nov. 18, 1953. Records available: 1942-53. Feb. 9, 150.56; May 13, 153.20; Sept. 2, 166.06, nearby well being pumped; Nov. 18, 155.95.

(D-5-9)29ada. Bureau of Indian Affairs well 76. Drilled unused water-table well in sand and gravel, diameter 16 inches, reported depth 616 feet, perforations 134-440. Land-surface datum is 1,520 feet above msl. Highest water level 114.24 below lsd, Feb. 6, 1944; lowest 167.35 below lsd, July 8, 1952. Records available: 1942-53. Feb. 11, 160.26; May 12, 165.10; Aug. 31, 166.14; Nov. 19, 163.40.

(D-6-6)25ddd. H. L. Early. Drilled irrigation water-table well in sand and gravel, diameter 16 inches, depth 171 feet. Land-surface datum is 1,438.3 feet above msl. Highest water level 39.00 below lsd, Apr. 18, 1940; lowest 85.22 below lsd, Sept. 14, 1951. Records available: 1940-52. No measurement made in 1953.

(D-7-6)30add. A. R. Chapman. Dug and drilled unused water-table well in sand and gravel, diameter 20 inches, depth 100 feet. Land-surface datum is 1,443.6 feet above msl. Highest water level 52.64 below lsd, Mar. 12, 1942; lowest 87.80 below lsd, Sept. 11, 1951. Records available: 1942-52. No measurement made in 1953.

(D-7-7)11cdd. E. C. Grasty. Drilled irrigation water-table well in sand and gravel, diameter 20 inches, depth 460 feet, perforations 100-430. Land-surface datum is 1,498.2 feet above msl. Highest water level 85.93 below lsd, Mar. 11, 1942; lowest 177.23 below lsd, Nov. 24, 1953. Records available: 1942-53. Feb. 10, 166.84; Nov. 24, 177.23.

(D-8-6)29acc. Leon Zagouies. Drilled unused water-table well in sand and gravel, diameter 20 inches, depth 282 feet, perforations 75-208. Land-surface datum is 1,501.2 feet above msl. Highest water level 63.89 below lsd, Sept. 12, 1941; lowest 121.40 below lsd, Sept. 1, 1953. Records available: 1941-53. Feb. 10, 103.26; May 12, 113.84; Sept. 1, 121.40; Nov. 24, 109.76.

(D-8-7)25ddd. R. E. Hamilton. Drilled irrigation water-table well in sand and gravel, diameter 20 inches, depth 997 feet. Land-surface datum is 1,614.8 feet above msl. Highest water level 124.47 below lsd, Mar. 24, 1941; lowest 227.20 below lsd, Dec. 3, 1952. Records available: 1940-52. No measurement made in 1953.

(D-10-9)10dba. H. H. Cake. Drilled domestic water-table well in sand and gravel, diameter 8 inches, depth 188 feet. Land-surface datum is about 1,798 feet above msl. Highest water level 143.36 below lsd, July 3, 1941; lowest 170.28 below lsd, Feb. 21, 1952. Records available: 1941-52. No measurement made in 1953.

Santa Cruz County

(D-22-13)35dcd. T. T. Pendleton. Drilled irrigation water-table well in sand and gravel, diameter 20 inches, depth 88 feet. Highest water level 16.01 below lsd, Oct. 25, 1939; lowest 53.27 below lsd, Sept. 18, 1952. Records available: 1939-53.

Date	Water level	Date	Water level	Date	Water level	Date	Water level
Jan. 9	44.44	Feb. 27	44.76	Aug. 14	47.91	Nov. 10	52.24
16	44.46	Apr. 24	46.54	Sept. 11	50.51	Dec. 8	47.62
23	44.96	May 22	49.79	Oct. 13	51.75		

(D-23-14)27baa. Ramon Michelena. Dug unused water-table well in sand and gravel, diameter 5 feet, depth 36 feet, concrete casing to 9, open hole 9-36. Highest water level 16.78 below lsd, Mar. 26, 1941; lowest 21.80 below lsd, July 28, 1948. Records available: 1939-53.

Jan. 9	19.74	Mar. 27	18.84	July 17	21.04	Oct. 13	20.78
16	19.63	Apr. 24	18.71	Aug. 14	19.67	Nov. 10	20.90
23	19.52	May 22	19.44	Sept. 11	20.00	Dec. 8	20.50
Feb. 27	19.26	June 19	20.41				

Yavapai County

(B-11-5)25dab. Mr. Towne. Drilled unused water-table well in sand and gravel, diameter 8 inches, depth 212 feet. Highest water level 23.60 below lsd, July 16, 1952; lowest 40.80 below lsd, Aug. 4, 1951. Records available: 1946, 1948-49, 1951-53. May 15, 25.40; July 24, 27.39.

(B-13-6)9dd. J. W. Ropeter. Formerly J. S. Reagan. Dug irrigation water-table well in sand and gravel, diameter 6 feet, depth 22 feet. Highest water level 13.98 below lsd, Jan. 17, 1945; lowest 17.97 below lsd, Aug. 4, 1951. Records available: 1945-49, 1951-53. May 15, 16.31; July 24, 16.15.

(B-14-4)33ab. C. C. McLain. Formerly Mr. Sine. Drilled unused water-table well in sand and gravel, diameter 16 inches, depth 73 feet. Highest water level 11.03 below lsd, Apr. 14, 1945; lowest 17.64 below lsd, Aug. 4, 1951. Records available: 1944-49, 1951-53. May 6, 14.86; July 23, 16.96; Nov. 4, 16.90.

Yuma County

(B-5-16)10ddd. Crowder Cattle Co. Drilled unused water-table well in sand and gravel, diameter 16 inches, depth 164 feet. Highest water level 112.60 below lsd, Feb. 21, 1946; lowest 113.30 below lsd, July 20, 1953. Records available: 1946, 1948-53. Feb. 26, 113.17; July 20, 113.30.

(C-7-16)33aaa. Mohawk Municipal Water Conservation District. Drilled unused water-table well in sand and gravel, diameter 20 inches, depth 83 feet. Highest water level 28.30 below lsd, May 3, 1945; lowest 36.25 below lsd, Jan. 29, 1952. Records available: 1945-52. Measurement discontinued.

(C-8-16)28bda. Formerly 722. Bob Anderson. Drilled domestic well in sand and gravel, diameter 16 inches, depth 419 feet. Highest water level 82.62 below lsd, Dec. 19, 1945; lowest 85.14 below lsd, Jan. 29, 1952. Records available: 1945-47, 1949-53. Feb. 21, 1951, 85.00; Jan. 29, 1952, 85.14; Feb. 10, 1953, 89.00, pumping.

(C-9-22)17ddd. Archie J. Griffin. Drilled unused water-table well in sand and gravel, diameter 16 inches, depth 195 feet. Land-surface datum is 210.5 feet above msl. Highest water level 77.15 below lsd, Feb. 11, 1953; lowest 97.63 below lsd, Sept. 5, 1946. Records available: 1945-53. Feb. 11, 77.15.

CALIFORNIA

By L. C. Dutcher, W. J. Hiltgen,
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Scope of Water-Level Program

This report shows the progress made in 1953 in the measurement of water levels in California by the Geological Survey in cooperation or collaboration with several other Federal, State, and local agencies. Also, it reviews the general scope of certain other water-level programs in the State in which the Geological Survey did not participate, but concerning which general information is available.

The following table indicates the distribution of observation wells and the scope of water-level measurements covered by this report, arranged by counties in alphabetical sequence. As the table shows, the report covers water-level measurements during 1953 in 404 observation wells distributed in 8 of the 58 counties in the State. One of these 8 counties, San Joaquin, is in the central part; the other 7 are in the southern part of the State, south of the Tehachapi Mountains. For 2 of the 8, San Diego and Santa Barbara Counties, the water-level measurements in this report cover all the principal ground-water areas; for the other 6 counties only scattered basins or areas are covered.

Distribution of observation wells in California in 1953
(for which water-level records are given in this report)

County	Number of observation wells	Number of wells with recording gages
Kern County:		
Antelope Valley, part	2	0
Los Angeles County:		
Antelope Valley, part	58	0
San Gabriel River basin	1	1
Coastal plain	8	0
Orange County:		
Coastal plain	21	0
Riverside County:		
San Jacinto Valley	5	0
San Bernardino County:		
Mojave River basin	67	0
Santa Ana River basin	7	0
San Diego County:		
San Luis Rey River basin	7	0
San Dieguito River basin	3	0
San Diego River basin	5	0
Sweetwater River basin	1	0
Otay River basin	1	0
Tia Juana River basin	2	0
San Joaquin County:		
Mokelumne River basin	24	0
Santa Barbara County:		
Carpinteria Basin	18	0
Goleta Basin	24	1
Santa Ynez Valley	86	6
San Antonio Valley	4	0
Santa Maria Valley area	46	0
Cuyama Valley	14	0
	404	8

In addition to this program in which the Geological Survey participated, systematic measurements of water level were made by numerous agencies in widely scattered and extensive parts of California. In the southern part of the State the California Department of Public Works, Division of Water Resources, continued to assemble from various agencies records of water levels in wells in the South Coastal Basin and in Antelope and San Jacinto Valleys. These assembled records for 1949 are published in the Division's Bulletin 39-R which continues the series beginning with Bulletin 39, published in 1932. These programs of water-level measurement by the several agencies are listed in the following tables.

Programs of water-level measurements by public agencies in the South Coastal Basin in 1953

Subarea and agency	Wells measured and frequency of measurements			
	Semi-annually	Quarterly	Monthly	More frequently
Coastal plain, Los Angeles County:				
San Gabriel Valley Protective Association			71	
City of Long Beach			21	39
Los Angeles County Flood Control District	a578		26	
California Division of Water Resources (West Coastal Basin)	200			
Coastal plain, Orange County:				
Orange County Flood Control District		52	382	50
San Fernando Valley:				
Los Angeles Division of Water and Power	153		91	30
Los Angeles County Flood Control District	72		43	
Soil Conservation Service (Western part of valley)			30	
Raymond Basin:				
California Division of Water Resources	100			
San Gabriel Valley:				
Los Angeles County Flood Control District	178		58	
San Gabriel Valley Protective Association			80	
Upper Santa Ana Valley:				
Chino Basin				
San Bernardino County Flood Control District	328		27	98
San Bernardino Valley				
San Bernardino Valley Water Conservation District		152		
San Bernardino Water Department		136	24	
Cucamonga Basin				
San Bernardino County Flood Control District	14			
Riverside Basin				
San Bernardino County Flood Control District	2		1	
Colton Basin				
San Bernardino County Flood Control District	1			
San Jacinto Valley:				
Riverside Flood Control and Conservation District	b66		18	
California Division of Water Resources	b160			
Elsinore area, Riverside County:				
California Division of Water Resources	b50			
Santa Margarita River Valley:				
California Division of Water Resources	800			

a Includes 75 shallow test holes.
b Annual measurements.

Programs of water-level measurements by public agencies in the southern California desert areas in 1953

Subarea and agency	Wells measured and frequency of measurements			
	Annually	Semi-annually	Quarterly	Monthly
Tehachapi Valley, Kern County:				
Soil Conservation Service				45
Mojave River basin, San Bernardino County:				
San Bernardino County Flood Control District		175		a55
Morongo Valley, San Bernardino County:				
San Bernardino County Flood Control District		8		
Yucca-Twentynine Palms area, San Bernardino County:				
San Bernardino County Flood Control District		101		
Lucerne Valley, San Bernardino County:				
San Bernardino County Flood Control District		23		
Borrego Valley, San Diego County:				
U. S. Geological Survey	54	14		
Coachella Valley, Riverside County:				
Coachella Valley County Water District			50	

a Semiannual measurements after Apr. 13, 1953.

Precipitation

A weather summary for California for the calendar year 1953 is quoted from the annual report of climatological data issued by the U. S. Weather Bureau:

> In 1953 much above-normal temperatures characterized the month of January and much below-normal precipitation, the month of February. March, April, May and June were generally cool with greatest below-normal temperature anomalies occurring in May and June. July was a good month for agriculture, and August was characterized by an unusual storm during the last week with unprecedented precipitation amounts reported at many stations in northern California. Warm and very dry weather occurred during September with dry conditions continuing generally to the end of the year, except for a period in November with heavy rains occurring in northern California resulting in flooding on some rivers and smaller streams. Very hot weather occurred in the south coastal area during the last week of November. Temperatures during December were generally above normal throughout the State; however, precipitation was well below normal, ranging from about 5 percent of normal in southern California to about 40 percent of normal in northern portions.

Where there is a marked seasonal range in precipitation, such as prevails throughout California and the remainder of the Pacific Coast region, ground-water storage generally is greatest and natural ground-water levels are highest during or somewhat after the height of the wet season, but during the following dry season the unconfined ground-water storage is depleted by natural discharge, and water levels recede in wells. This depletion continues until soil-moisture deficiencies have been replenished by the first rains of the next wet season. Thus, for the climatic conditions of California the ground-water level commonly is related less closely to precipitation within the calendar year than to precipitation within a "water year" which spans one wet season and the following dry season--that is, which ends in midautumn. For this treatment of climatic conditions and for the following summary treatment of runoff the water year is taken as ending September 30, the most practicable average date for near-maximum depletion of unconfined ground-water storage and near-minimum runoff.

The following table shows the monthly distribution of statewide average precipitation in California for the 57-year period ending with 1953. The very marked seasonal range in precipitation is apparent. Of the 23.99 inches total for the 12 months, about 80 percent falls during the 5 months November-March, and less than 4 percent falls during the 4 summer months June-September.

Statewide average monthly and yearly precipitation, 1897-1953

Month	Inches	Percent of yearly total	Month	Inches	Percent of yearly total
October	1.29	5.4	April	1.70	7.1
November	2.48	10.3	May	.94	3.9
December	4.02	16.8	June	.33	1.4
January	4.69	19.6	July	.08	.3
February	4.28	17.8	August	.10	.4
March	3.67	15.3	September	.41	1.7
Total	20.43	85.2		3.56	14.8
The year				23.99	100.0

The following table shows the precipitation during the water year ending September 30, 1953, at 15 representative stations in the State, expressed both in inches and in percentage of the average for the 60 years ending September 30, 1950. The 15-station average was 91 percent of the 60-year average, and the median of the group was 86 percent of the 60-year average. The regional distribution of the rainfall over the State is well illustrated by this table. That is, for the central and southern coast ranges the rainfall was 20 to 35 percent below average, except at San Francisco where it was slightly above average. For the remainder of the State the rainfall was not more than 16 percent below average, with 6 stations reporting greater than average.

Precipitation in the year ending September 30, 1953, and percent of 60-year average at 15 representative stations

Province	Station and county	Precipitation, 1952-1953	
		Inches	Percent of 60-year average a/
Northern Coast Ranges	Eureka, Humboldt	47.90	124
Coast Ranges of central and southern California	San Francisco, San Francisco	21.16	104
	San Luis Obispo, San Luis Obispo	16.90	80
	Santa Barbara, Santa Barbara	13.37	75
	Los Angeles, Los Angeles	9.33	65
	San Bernardino, San Bernardino	12.83	77
	San Diego, San Diego	6.54	65
	Cuyamaca, San Diego	26.46	69
Great Valley (California Trough)	Red Bluff, Tehama	23.53	102
	Stockton, San Joaquin	12.01	86
	Fresno, Fresno	9.61	102
Sierra Nevada	Nevada City, Nevada	53.00	107
	West Point, Calaveras	32.88	84
Great Basin (Southwestern Bolson province)	Indio, Riverside	4.45	132
	Needles, San Bernardino	4.02	89

a/ Average for years ending Sept. 30, 1891 to 1950.

Runoff

The runoff in the northern and central California streams during the water year ending September 30, 1953, ranged from considerably above normal to as much as 23 percent below normal. Representative of the runoff in the northern and central parts of the State is the year's total for Trinity River at Lewiston, in the north coastal drainage, which was 165 percent of normal; for the North Fork of the American River at North Fork Dam, 111 percent; and for Kings River at Piedra, in the southern Sierra drainage, 77 percent. Runoff in the southern part of the State was far below normal, as indicated by the runoff at the following 3 gaging stations: Santa Ana River near Mentone, where the runoff was 46 percent of the 57-year mean; the Arroyo Seco near Pasadena, which reported a runoff equal to 21 percent of a 39-year mean; and Santa Ysabel Creek near Mesa Grande, where the runoff was only 12 percent of the 32-year mean. The runoff measured at the gaging station on the Santa Ana River was affected by regulation at Big Bear Lake.

Interpretation of Water-Level Fluctuations

San Diego County.--During 1953 the observation-well program in the 6 principal coastal valleys of San Diego County was intensively reviewed. When the observation-well program was started in 1937, the selection of most wells with respect to depth and distribution was adequate. Changes in the location and regimen of pumping draft and the drought which began in 1944 have made the review necessary. Of the 48 wells reported for 1952, it was found that 11 were dry,

3 were nearly dry, and 16 were either too close to other observation wells or not representative of ground-water conditions in the valleys. Thus, the records for only 18 wells were continued. In addition, the record for a new well, 11/4W-18C2, is included in this report.

Wells in the coastal valleys of San Diego County, Calif., for which measurements have been discontinued

	San Luis Rey River basin	
10/3W-1	10/3W-20P3	11/5W-13b
-1b	-29C2	-13c
-15	11/5W-13a	
	San Dieguito River basin	
12/1W-33	12/1W-36D1	
	San Diego River basin	
14/1W-36R1	15/1E-17B1	15/1W-24a
15/1E-2R2	-19D1	-24b
-7	-20B1	-27
-16C1	15/1W-13N2	16/2W-16
-17a	-13R5	16/3W-22
-17b	-23H3	-24
	Tia Juana River basin	
18/2W-34	19/2W-4	

The areal distribution of observation wells in several valleys was found to be inadequate. Accordingly, 16 additional wells were selected as candidate wells, and the records for most of these will be published in future years.

The rainfall in San Diego County during 1953 was far below average. Stream discharge and hence recharge to ground water was also low. In some valleys there was no runoff. As a result, the water levels in most observation wells had a net decline from the year-end levels in 1952 to those in 1953, and in many the levels in 1953 were the lowest of record.

In the San Luis Rey River basin, water levels from November 1952 to November 1953 in 6 wells declined an average of 5.0 feet. The levels in 5 of the wells were the lowest of record for the common period 1940-53. Inland from the coast for about 5 miles the "static" water levels were locally 9 feet below and nowhere more than 30 feet above sea level. Within 3 miles of the coast, sea-water intrusion has rendered useless several public-supply and irrigation wells.

In San Pasqual Valley, in the upstream part of San Dieguito River basin, water levels from November 1952 to November 1953 in 2 of the 3 wells measured declined an average of 1.4 feet. The third well was pumping in November 1952 so no comparison is available. Well 12/1W-33J1 reached the lowest level of record for the period 1943-53, and the levels in the other 2 wells were below the average for the same period. In the coastal part of San Dieguito River basin, where no observation wells have been maintained, water levels between the coast and 5 miles inland were only 5 to 10 feet above sea level. Essentially all irrigation wells, which supply water to alfalfa and row crops, had pumping levels below sea level. It is reported that wells 2 to 3 miles inland from the coast have been rendered useless by sea-water intrusion.

In the upper part of San Diego River basin, water levels from November 1952 to November 1953 in 3 of the 4 wells measured declined an average of 3.1 feet. The fourth well rose nearly 0.7 foot. The level in well 15/1W-24D7 reached the lowest of record for the period 1941-53, and the levels in 2 wells were within 2 feet of the record low. In Mission Valley, which is the coastal part of San Diego River basin, the water level from November 1952 to November 1953 in well 16/3W-23K3 declined 2.9 feet and was within 2 feet of the record low for the period 1937-53. The "static" water levels in 1953 ranged from 5 feet above sea level near Mission Bay to 25 feet above sea level about 6 miles inland. It is reported that wells within 2 miles of the bay were obtaining potable water. However, in about 1906 the Oldtown well field, now abandoned, was reportedly rendered useless as a source of supply by sea-water intrusion.

In the coastal part of Tia Juana River basin, water levels from November 1952 to November-December 1953 in the 2 observation wells declined an average of nearly 4 feet. The level in well 18/2W-34J1 reached the lowest of record for the period 1927-53, and the level in well 18/2W-33L1 was within 1 foot of the lowest level for the same period. Since August the level in well 18/2W-33L1, which is 2 miles from the ocean, has been slightly below sea level. In well 18/2W-34J1, which is 3.4 miles from the ocean, the levels were between 8 and 15 feet above sea level. Although no sea-water intrusion is reported, the low levels are conducive to inland movement from the coast.

In Sweetwater River basin the water level from November 1952 to December 1953 in well 17/1W-19Q2, which is about 6 miles from San Diego Bay, rose 0.5 foot and was about 75 feet above sea level. There is no report of sea-water intrusion into the basin. In Otay River basin the water level from November 1952 to December 1953 in well 18/2W-22F1, which is about 2 miles from San Diego Bay, declined 4.9 feet and was slightly below sea level from August to December. Within 1.5 miles of the bay, wells less than 50 feet deep obtain water of usable quality for public supply, whereas deeper wells tap poor quality water not suitable for this purpose.

Coastal plain in Los Angeles and Orange Counties.--In the coastal plain in Los Angeles and Orange Counties for 1953, no extensive program of water-level measurement was undertaken by the Geological Survey. However, extensive programs for periodic measurements of observation wells are being continued by several local agencies--in Orange County chiefly by the Orange County Flood Control District and in Los Angeles County chiefly by the Los Angeles County Flood Control District, the San Gabriel Valley Protective Association, the city of Long Beach, and the California Division of Water Resources. For the observation wells tabulated in this report, the water-level measurements in addition to those made by the Geological Survey have been furnished by one or more of these agencies. In this report, records are included for 3 wells in the main coastal basin in Los Angeles County, for 16 wells in the main coastal basin in Orange County, for 4 wells in the west (coastal) basin in Los Angeles County, and for 5 wells in the so-called West Basin southwest of the Newport-Inglewood uplift in Orange County. Of the 29 wells for which records for 1952 were included in Water-Supply Paper 1226, all except those for well 4S/12-8P1 appear in this report. Of these wells, records for 23 were furnished by local agencies and 5 in Orange County are permanent observation wells which were measured by the Geological Survey once during 1953. In February 1953, a report on salt-water contamination in the coastal part of Orange County, the fourth and last of a series of annual reports on the area, was released to the public.

Records published by the U. S. Weather Bureau for 3 rainfall stations in the coastal plain of Los Angeles and Orange Counties--Los Angeles at the north edge, Long Beach near the southwest edge, and Santa Ana near the southeast edge--indicate that rainfall on this area in the calendar year 1953 was far below normal and only about 35 percent of the 60-year average for the 3 stations. Because it spans the rainy season, use of the water year gives a more consistent approach to the relation of rainfall to runoff and to ground-water replenishment. However, because water-level records are tabulated in the annual reports on a calendar year basis, the following table summarizes rainfall records not only for the 1952-53 water year but for the 1953 calendar year as well.

Rainfall, in inches, for three stations on the coastal plain in Los Angeles and Orange Counties

Date	Station					
	Los Angeles		Long Beach		Santa Ana	
	Current	Departure	Current	Departure	Current	Departure
October 1952	0.00	-0.68	0.00	-0.54	0.00	-0.71
November	3.13	+1.93	4.14	+3.35	2.62	+.84
December	3.31	+.68	3.64	+.81	3.09	+.08
January 1953	1.08	-1.30	1.43	-.57	1.13	-1.00
February	.33	-3.04	.18	-2.78	.54	-2.48
March	.48	-1.88	.47	-1.41	.79	-1.65
April	.91	-.26	1.50	+.63	1.20	+.26
May	.03	-.23	.11	-.12	.03	-.35
June	.06	-.01	.05	-.01	....	....
July	.00	.00	.02	+.02	.00	-.01
August	.00	-.02	T	-.03	.00	-.05
September	T	-.27	T	-.21	.00	-.19
The water year 1952-53	9.33	-5.30	11.54	-.86	9.40	-5.26
October	T	-.50	.00	-.47	.00	-.65
November	1.11	+.08	1.33	+.37	1.01	-.07
December	.08	-3.03	.02	-2.67	.13	-2.79
The calendar year 1953	4.08	-10.46	5.11	-7.25	5.03	-8.98

Following a trend that has continued for several years, the spring recovery of water levels was generally below that of 1952, resulting from the use of ground water to supplement below-normal rainfall in preirrigation for certain types of crops. Of the 16 wells reported for the main coastal basin in Orange County, the lowest water levels for the periods of record occurred in 5 wells during 1953. The lowest water level for the periods of record for all the wells reported for the main coastal basin in Los Angeles County occurred in 1953. The midyear or late year

1953 measurements at 3 of the 4 wells reported in the West (coastal) Basin in Los Angeles County were the lowest for the period of record. The following table summarizes water-level fluctuations in 20 selected observation wells in the coastal plain in Los Angeles and Orange Counties. In this table, water levels at year-end are compared with the year-end levels of 1952 and with those of the low-water year 1936. The data are tabulated separately in 3 groups: the main coastal basin in Orange County, the main coastal basin in Los Angeles County, and the West Coastal Basin in Los Angeles County. Within the main coastal basin water levels in 13 index wells in Orange County show a net decline of 6.2 feet in the year 1953 and a net drop of 18.5 feet since 1936; 2 index wells in Los Angeles County show a net decline of 10.4 feet in 1953 and a net drop of 23.8 feet since 1936. Within the West Basin 2 index wells in Los Angeles County show a net drop of 6.0 feet in 1953 and a net drop of 53.5 feet since 1936.

Summary of water-level fluctuations in selected observation wells on the coastal plain in Los Angeles and Orange Counties, Calif.

Well	Water level at end of December, in feet above (+) or below (-) sea level a/			Net rise (+) or decline (-) in water level, in feet	
	1936	1952	1953	1936-53	1952-53
	Wells in the main coastal basin--Orange County				
3S/11-36Q2	+18.2	+1.4	-11.3	-29.5	-12.7
4S/10-22L2	+10.2	-.9	-5.4	-15.6	-4.5
4S/11-19K1	+10.9	-3.2	c-16.6	-27.5	-13.4
5S/10- 9D1	+10.0	-7.5	-12.7	-22.7	-5.2
5S/10-28B1 b/	.....	-4.8	-5.7	.....	-.9
5S/11- 2E1	+4.4	-5.9	-6.7	-11.1	-.8
5S/11-16D2	+2.0	-8.0	d-19.8	-21.8	-11.8
5S/11-25P1	+3.5	-9.5	-14.3	-17.8	-4.8
5S/11-28A1	+.6	-21.1	-27.8	-28.4	-6.7
5S/12-12P1	+.9	-10.1	-13.4	-14.3	-3.3
6S/10- 1L2	+17.1	+9.3	e+13.8	-3.3	+4.5
6S/10- 5C1	+3.5	-8.7	-14.7	-18.2	-6.0
6S/11-13G2	+.8	-4.6	-7.0	-7.8	-2.4
I-9F1	-1.8	-11.8	-24.8	-23.0	-13.0
Averages	+6.1	-6.2	-12.4	-18.5	-6.2

Well	Water level at end of December, in feet above (+) or below (-) sea level f/			Net rise (+) or decline (-) in water level, in feet	
	1936	1952	1953	1936-53	1952-53
	Wells in the main coastal basin--Los Angeles County				
3S/12- 8L3	+62.6	+43.0	g+36.7	-25.9	-6.3
4S/11- 5D1	+14.5	+7.3	c-7.2	-21.7	-14.5
Averages	+38.6	+25.2	+14.8	-23.8	-10.4
	Wells in the West (coastal) Basin, tapping deposits of Pleistocene age (the Silverado water-bearing zone or its equivalent)				
3S/14- 3K1 b/	.....	-71.	c-60.	.....	+11.
3S/14-21B1	-11.	-53.	c-59.	-48.	-6.
4S/13-14L1 h/	+.3	-6.9	c-9.9	-10.2	-3.0
4S/13-23G2	-34.3	-87.2	c-93.2	-58.9	-6.0
Averages	-22.6	-70.1	-76.1	-53.5	-6.0

a/ Chiefly interpolated.
b/ Excluded from averages.
c/ Measurement on Dec. 28.
d/ Measurement on Dec. 30.
e/ Measurement on Dec. 10.
f/ Chiefly extrapolated.
g/ Measurement on Dec. 21.
h/ Taps Gaspur water-bearing zone of Recent age; excluded from averages.

San Gabriel River basin.--A recording gage was in operation throughout 1953 at well 1S/10-18, the index well at Baldwin Park for the upper San Gabriel Valley, for which records are available since 1903. During 1953 the water level ranged from a high of 274.64 feet above sea level on January 1 to a low of 254.03 feet above sea level on December 31. The high level on January 1 was 57.16 feet below the highest observed level, which was on May 19, 1916, and 2.59 feet below the highest 1952 level which was on April 27. The low of December 31 was 7.85 feet above the previous low, which was on November 20, 1951, and 6.46 feet above the lowest 1952 level which was on January 1. The below-normal precipitation and runoff during the first half of the 1952-53 water year presumably resulted in the nearly continuous downward trend of water level in the well during 1953.

San Bernardino area.--Of the 9 wells previously reported for the Santa Ana River valley in the San Bernardino area, 7 were measured in 1953 and measurements on 2 were discontinued. Of those measured, 3 were dry during all or part of 1953, and measurements on these were discontinued at year-end. The 5 wells discontinued in 1953 were 1N/4W-25M1, 1N/4W-36F1, 1S/3W-16L1, 1S/3W-28E1, and 1S/4W-4J1. Thus, the records for only 4 wells are continued. All the wells measured are in Bunker Hill Basin which is separated from the Rialto-Colton Basin by the San Jacinto fault. At depth this fault acts as a reasonably complete barrier to ground-water movement, resulting in pressure levels substantially above land surface in deeper wells upstream from or northeast of the fault in Bunker Hill Basin.

The rainfall in the San Bernardino area during the 1952-53 season was only about 80 percent of the Weather Bureau normal, and stream discharge and recharge to ground water were also low. The average net decline in water level in 3 of the wells measured from December 1952 to December 1953 was about 11 feet. Well 1S/3W-17C1 was measured weekly by the Gage Canal Co., well 1S/3W-20B1 was measured monthly by the Geological Survey, and the other 5 were measured less frequently by either the city of San Bernardino or the San Bernardino Valley Water Conservation District. The April 28 high level for 1953 at well 1S/3W-17C1, which closely reflects the recharge to the ground-water body from flow in the Santa Ana River, was 25.17 feet below the high level on May 17, 1952. The low level for 1953 occurred late in December and was 14.84 feet below the 1952 low level, 22.52 feet below the low water level of 1936, about 82 feet below the levels of 1892-93, and the lowest water level of record for the well.

San Jacinto Valley.--Measurements in the San Jacinto Valley by the Geological Survey, the Riverside County Flood Control and Conservation District, and the California Division of Water Resources are tabulated for 5 wells. During 1953, the water-level observation-well measuring program in San Jacinto Valley was changed from that of previous years. After July 1, 1953, no program of water-level measurements was undertaken by the Geological Survey. However, the program for periodic water-level measurements on a reduced number of observation wells is being continued by the 2 local agencies. Of the 8 wells reported for 1952, 4 were dry in November 1953, and measurements on them were discontinued. These wells are: 3/2W-35Q1, 4/2W-7J1, 4/4W-1L1, and 5/1W-2N1. The record for new well 4/1W-36N2, which was measured in 1950, 1952, and 1953, is included in this report.

In the Perris area, the water level at well 4/3W-32E1 declined about 1 foot during the year and, as suggested by measurements on nearby well number 72 (WSP 468, p. 75) prior to 1920, levels have declined about 40 feet since the seasonal low in 1905. However, the low water-level measurement in December 1953 at well 4/3W-32E1 was 4.7 feet above the previous low level recorded for that well in April 1942. In the Winchester area, well 5/2W-24A1 declined about 4 feet during the year, and the other 3 wells for which measurements are reported were not measured at year-end and could not be used to compute the net changes for the year.

Mojave River basin.--During 1953 the water-level observation-well program in the 3 subareas of the Mojave River basin was changed from that of previous years. A program of water-level observations in the Mojave River basin was inaugurated in 1930 by the California Department of Public Works, Division of Water Resources. From 1931 to July 1, 1953, the program was continued by the Geological Survey; after July 1, 1953, the water-level measurements in observation wells have been continued by the San Bernardino County Flood Control District. The wells are measured semiannually or more frequently. As in the preceding reports, the tabulations of water-level measurements in the Mojave River basin are here separated into 3 subareas which are designated as the upper, middle, and lower basins. Of the 83 wells reported for 1952, the records are continued for 67, as follows: 17 in the upper basin, 21 in the middle basin, and 29 in the lower basin. Measurements were discontinued in 16 wells, which had gone dry, and these are tabulated below.

Wells in Mojave River basin, San Bernardino County, Calif., for which measurements were discontinued in 1953

3/3W- 6E1	4/3W-20L1	8/4W- 2Q1	9/2E- 8J1
3/4W-12J1	4/3W-30E1	9/1E-18L1	9/2E-14N1
3/4W-13B1 a/	5/4W-36N1	9/1E-24D1	9/3E-10D1
4/3W-17M1	8/4E- 9C1	9/2E- 3A1	10/2W-30N1

a Replaced by well 3/4W-13B2.

In addition, measurements were discontinued on 4 wells in the lower basin because they were dry in November 1953. These wells are: 9/2E-3A2, 9/2E-8J1, 9/2E-12N1, and 10/3E-34E2. Well 9/1E-18E1 in lower Mojave River basin was not measured in 1953. The rainfall in the drainage area of the Mojave River during 1953 was far below average. Accordingly, stream discharge and hence recharge to ground water was also low. As a result, the water levels for November in most observation wells had a net decline from the November levels in 1952; and in 47 of the 67 wells reported, the 1953 measurements were the lowest of record. In 41 of the 54 wells measured in November 1953, the levels were the lowest for the period of record. The following table is a summary of water-level fluctuations in 47 observation wells in the Mojave River basin, for which November 1953 measurements are available. In this table the net decline of water levels from November 1952 to November 1953 are compared separately for the upper, middle, and lower basins. In the upper basin water levels in 10 wells during 1953, had an unweighted average net decline of more than 6 feet, in the middle basin water levels in 18 wells show an unweighted net decline of more than 4 feet, and in the lower basin water levels in 18 wells show an unweighted average net decline of more than 2 feet. Only 5 of the 47 wells show a net rise for the same period. Because the measurements are not necessarily made at the same time each year, because the pumping draft and period of pumping in the 3 basins change from year to year, and because the areal distribution of the observation wells is not equal, the average net declines are unweighted and may not be representative of the true area-wide average net declines in the 3 basins.

Summary of water-level fluctuations in observation wells in Mojave River basin, San Bernardino County, Calif.

Well	Net rise (+) or decline (-) in water level, in feet a/	Well	Net rise (+) or decline (-) in water level, in feet a/
Wells in the Upper Basin			
3/3W- 6E2	-16.62	5/3W- 3D1	-11.22
3/4W-13B2	-4.61	13D1	-1.35
4/3W- 6B1	-9.05	22A1	-6.53
6D1	-1.70	5/4W-10M1	+1.84
19R1	-11.31	11P1	-2.00
		Unweighted average net decline	-6.25
Wells in the Middle Basin			
7/4W-30C1	-1.41	9/3W-10P1	-9.49
8/3W- 4M1	-1.28	10R1	-6.64
8/4W-12Q1	-1.58	14D1	-8.33
20N1	-2.86	28A1	-9.43
31D1	-8.36	34R1	-5.48
31R1	+9.77	10/2W-19P1	-10.21
9/1W-10D2	-2.05	30R1	-1.67
13B1	-9.54	10/3W-32C1	-10.99
9/2W-19B1	-2.98	11/3W-34F1	-.64
		Unweighted average net decline	-4.62
Wells in the Lower Basin			
8/3E- 3E1	+0.54	9/2E-14N3	-1.36
3F1	-.33	9/3E- 3D1	+.62
4B1	-1.55	12E1	-2.82
8/4E- 7E1	-1.37	19E1	-1.01
9/1E-12D1	-2.01	19P1	-1.66
13E1	-8.91	32A1	+.24
13E2	-11.70	34D1	-3.50
20N1	b-22.00	9/4E-20L1	-2.33
9/2E- 4D1	-1.22	31K1	-.44
14N2	-1.81		
		Unweighted average net decline	-2.26

a/ For period of November 1952 to November 1953.
b/ Excluded from average.

Antelope Valley.--During 1953 the observation-well program in Antelope Valley was changed from that of previous years. After July 1, 1953, water-level measurements were discontinued by the Geological Survey, but periodic measurements at a reduced number of observation wells were continued by the California Division of Water Resources and by the Los Angeles County Flood Control District. The measurements made by the Geological Survey prior to July 1 and those by the other agencies are included in this report. Of the 108 wells reported for 1952, 41 were not

measured during 1953; measurements were discontinued in 10 wells that were either too close to other observation wells or were dry; and measurements were discontinued in 2 wells that went dry during the latter part of the year. Thus, the records for 56 wells are continued, and the record for new well 7/12-22J1a is included in this report.

Wells in Antelope Valley, Los Angeles County, Calif. not measured in 1953

	7/10- 5N3	7/12-34E1	8/13-22K1
6/ 8-10N2	-12H1	7/13- 3D1	-23M1
-32P1	-30G1	- 3D2	-32N1
6/10-10Q1	-31N1	- 9N1	-33Q2
6/11- 8E1	7/11- 8P1	8/ 9- 4P1	8/14-12A1
- 9F1	-16B1	8/11-10N1	-12D1
-18P1	-19N1	-22N3	-25C2
-19E1	-23L1	-30R1	-25D1
-20R2	-27F1	8/12-22M1	8/15-24B2
-26J1	-28L1	-22R1	
7/ 9-28M1	7/12-29P1	8/13-20M1	

Wells in Antelope Valley, Los Angeles County, Calif., for which measurements were discontinued in 1953

5/10-12B1	7/12-22J1	8/11- 8P1	8/15-10P1
6/11- 8R1	8/ 9- 6N1	-20L1	-17R1
7/10- 6R1	8/10- 9M1	8/12-22D1	

The following table shows water-level fluctuations in 43 selected observation wells in Antelope Valley available from November-December 1952 to November-December 1953. The data are tabulated separately for Lancaster, Buttes, Rock Creek, and Neenach Basins. The table shows that the unweighted average net declines for the period were 4.2 feet for 24 wells in Lancaster Basin, nearly 1 foot for 5 wells in Buttes Basin, 4.3 feet for 6 wells in Rock Creek Basin, and nearly 1 foot for 4 wells in Neenach Basin. For the entire Antelope Valley the unweighted average net decline in 43 wells was about 3.5 feet. Only 5 of the 43 levels compared showed net rises. Thus, the 1953 levels in Antelope Valley continued the downward trend that has been in progress since before 1920.

Summary of water-level fluctuations in observation wells in Antelope Valley, Los Angeles and Kern Counties, Calif.

Well	Net rise (+) or decline (-) in water level, in feet a/	Well	Net rise (+) or decline (-) in water level, in feet a/
Wells in Lancaster Basin--Los Angeles County			
6/10- 9E1	-6.11	7/13-21J2	-2.5
6/11- 4C1	-4.85	27N1 b/	-29.2
12M1	-6.40	35E1 b/	-38.75
12Q1	-3.40	7/14-10F1	-9.2
6/12-24C1	+8.1	8/ 9- 4N2	-3.53
6/13-12J1	-6.10	8/10- 2P1	-2.72
7/ 9-17N1	-11.42	19Q1	-6.37
7/10-21A1	-8.80	8/12- 4K1	-2.62
7/11-24C1 b/	-14.66	20B1	-1.98
-28E1	-8.40	22M2	+1.13
7/12-15F1	-3.32	8/12-24R1	-1.0
15F2	-11.25	8/13- 7H1 b/	-20.80
7/13-11D1	+.55	8/14- 2R1	-4.30
17D1	-5.1	14R1	-.8
		Unweighted average net decline	-4.2
Wells in Buttes Basin--Los Angeles County			
5/11- 4E1	-0.05	6/ 9-11N1	-0.82
6/ 8-18D1	- .31	6/10- 9Q1	-1.64
6/ 9- 4H2	-1.95		
		Unweighted average net decline	-0.95

Summary of water-level fluctuations in observation wells in Antelope Valley, Los Angeles and Kern Counties, Calif., Continued

Well	Net rise (+) or decline (-) in water level, in feet a/	Well	Net rise (+) or decline (-) in water level, in feet a/
Wells in Rock Creek Basin--Los Angeles County			
5/ 9- 6B1	-6.16	5/10-26B1	-9.51
20J1	-1.54	5/11- 9Q1	+.20
5/10- 6N1	-5.80	10R1	-3.15
		Unweighted average net decline	-4.3
Wells in Neenach Basin--Los Angeles and Kern Counties			
8/15-33G1	-7.10	8/16- 5N1	-3.70
36M1	+8.10	9/15-25D1	-.80
		Unweighted average net decline	-0.88

a/ For period from November-December 1952 to November-December 1953.
b/ Excluded from averages.

Santa Barbara County.--The investigation of the ground-water resources of Santa Barbara County was continued during 1953 in cooperation with the Santa Barbara County Water Agency. Monthly water-level measurements were made in 184 wells. Figures 26-32 show location of observation wells in Santa Barbara County. Recording gages were operated on 7 wells. Earlier measurements covering the period 1941 through 1950 have been published in U. S. Geological Survey water-supply papers and through 1952 have been released locally in duplicated form. Water-Supply Paper 1068 contains tabulated descriptions for 2,246 wells in existence in 1942 in the various ground-water basins of the county. The same publication contains many water-level measurements made prior to 1942 by the city of Santa Barbara, Santa Maria Valley Water Conservation District, San Joaquin Power Division of the Pacific Gas and Electric Company, Union Sugar Company, Union Oil Company, and other organizations and individuals. Comprehensive reports on the geology and ground-water resources of the Santa Ynez River basin (Upson and Thomasson, 1951, the south-coast basins (Upson and Thomasson, 1951), the Santa Maria Valley area (Worts and Thomasson, 1951), and the Cuyama Valley (Upson and Worts, 1951) have been published as Water-Supply Papers 1107, 1108, 1000, and 1110-B, respectively. In October 1952, "Reports on stream runoff and ground-water storage capacity, Santa Ynez River, Santa Barbara County, Calif.," prepared respectively by Messrs. H. C. Troxell of the Surface Water Branch and Harry D. Wilson, Jr., of the Ground Water Branch, U. S. Geological Survey, were released (Troxell and Wilson, 1952). Replenishment of the ground-water reservoirs is dependent almost entirely on a few months of winter precipitation. Between 1945 and 1951 precipitation was below normal and, as a result, replenishment of most of the basins of the county was insufficient to meet requirements. Ground-water levels during this period were drawn down substantially, but the above-average rainfall of winter 1951-52 caused a temporary cessation of the downward trend. Figures 33 and 34 show precipitation at 3 stations, water-level fluctuations in 10 wells, and a curve showing the accumulated departure of rainfall from average at Santa Maria. These graphs illustrate the relationship of ground-water level to precipitation. During "wet" years water levels rise, indicating ground-water replenishment. Declining water levels coincide with periods of below-normal rainfall and indicate a depletion of ground-water storage. Beginning about 1945 water levels throughout Santa Barbara County steadily declined as a result of increased usage and below-normal precipitation. Ground-water depletions during the years 1945-51 were more serious in some basins than in others, depending upon the magnitude of the unbalance between withdrawals and replenishment. In the winter of 1952 above-normal precipitation wholly replenished or nearly replenished those basins in which the overdraft was small, whereas, in the basins of large overdraft, only a small part of the depleted storage was restored. The downward trend of water levels was resumed in 1953 as a result of below-normal precipitation and streamflow. The ensuing discussion of water-level fluctuations is by ground-water basins, each a separate hydrologic unit.

Water levels in the Carpinteria Basin (fig. 26) declined during 1953, resuming the downward trend which began in 1945 but was halted temporarily by the above-average precipitation of 1952. The average decline between December 1952 and December 1953 in 18 observation wells was 11.1 feet, somewhat greater than is usually observed in a year-end comparison of water levels. The greatest year-end water-level declines were observed in wells along the base of the foothills (the recharge area) where the declines ranged from 4.12 feet to as much as 30.21; the average decline was about 14.8. South of the recharge area, in the area of confined water, the declines were not so great, averaging about 6.5 feet, with the maximum decline being 11.73 feet. Despite the temporary cessation in 1952 of the downward trend since 1945, water levels at the end of 1953 were considerably below the levels of 1945. The hydrograph of well 4/25-27Q2 (fig. 33) is representative of water-level fluctuations in the area of confined water and shows that, except for 1952, ground-water withdrawals have continually exceeded replenishment. Year-to-year depletion of ground-water storage has so lowered water levels that the present level is an average of about 30 feet below the level of 1945. During 1953 the water level was below sea level in many wells in

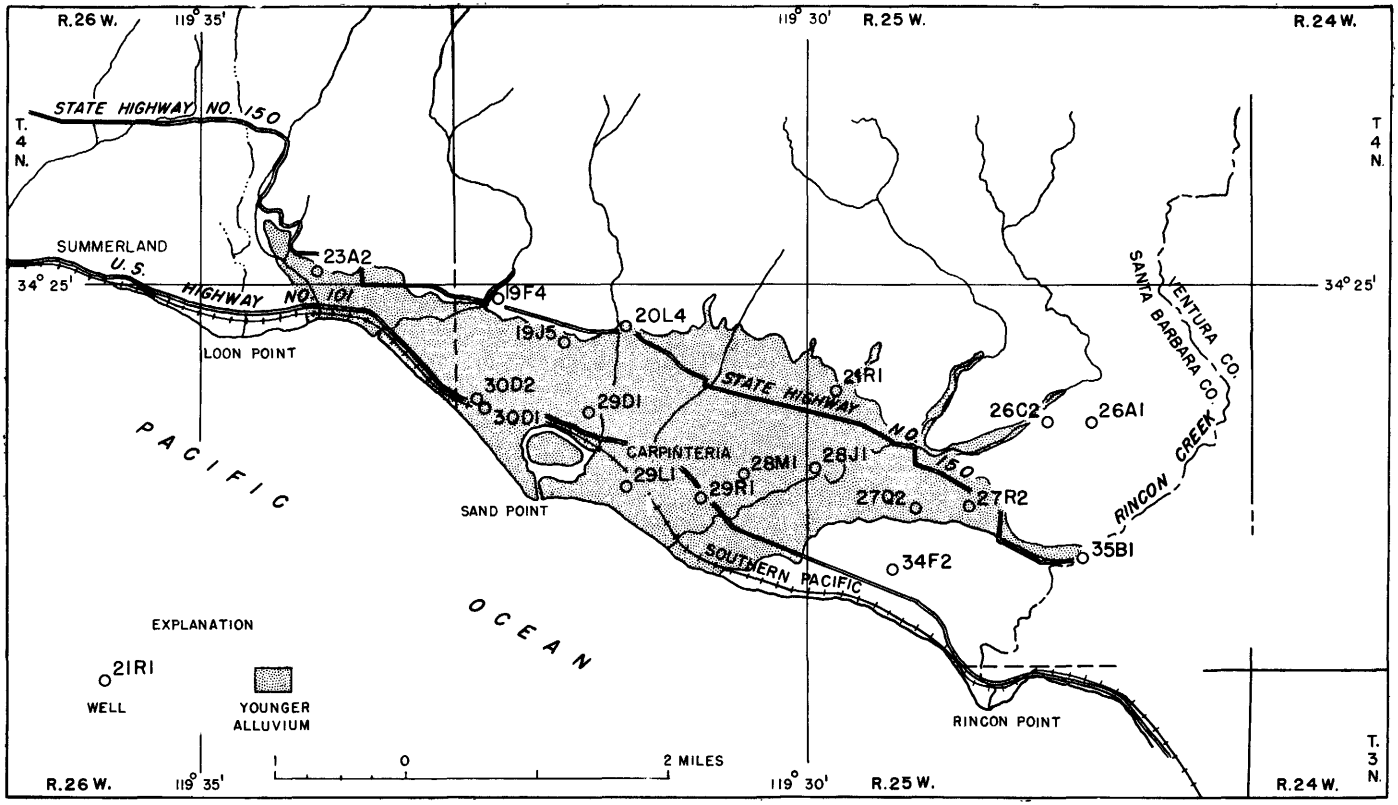


Figure 26. --Location of observation wells in Carpinteria Basin, Santa Barbara County, Calif., 1953.

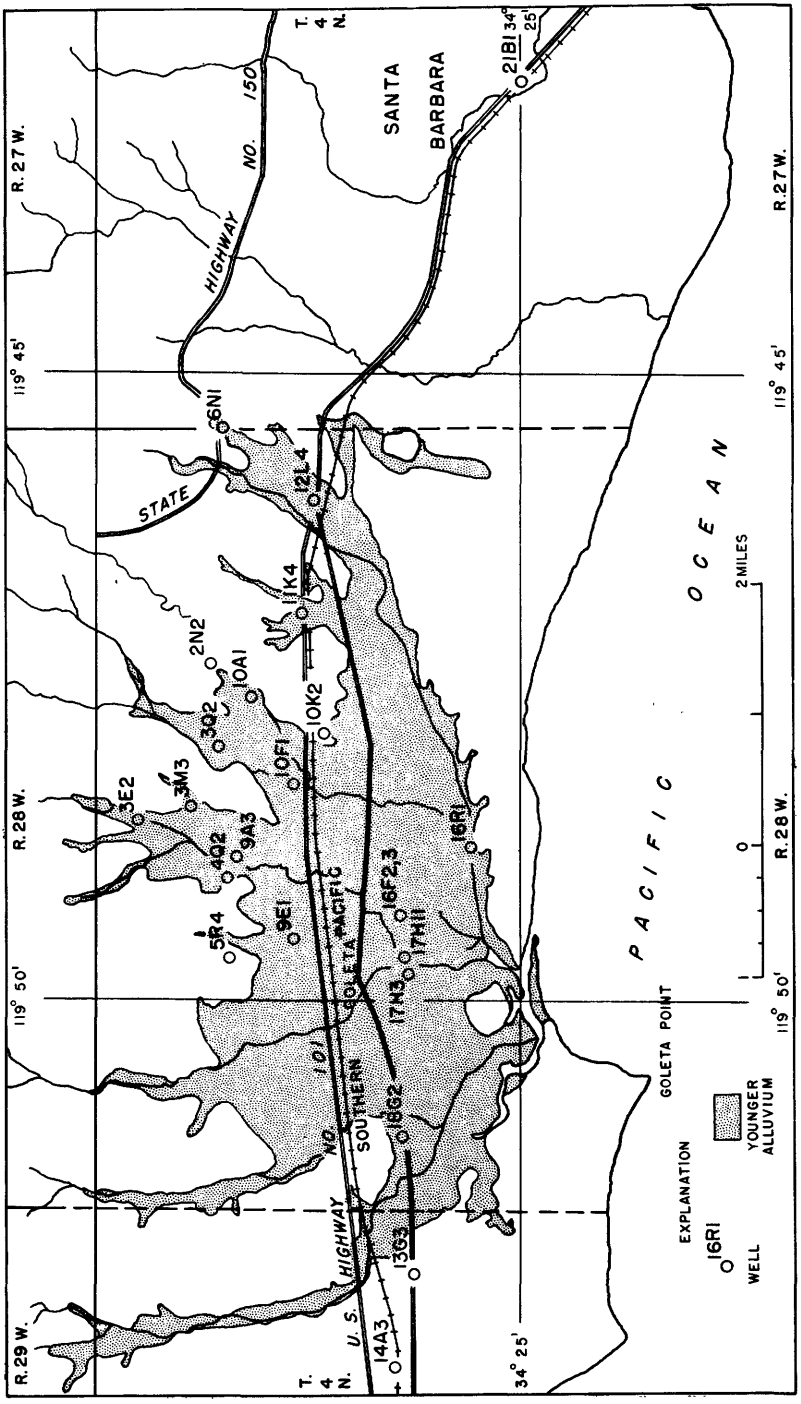


Figure 27.--Location of observation wells in Goleta Basin, Santa Barbara County, Calif., 1953.

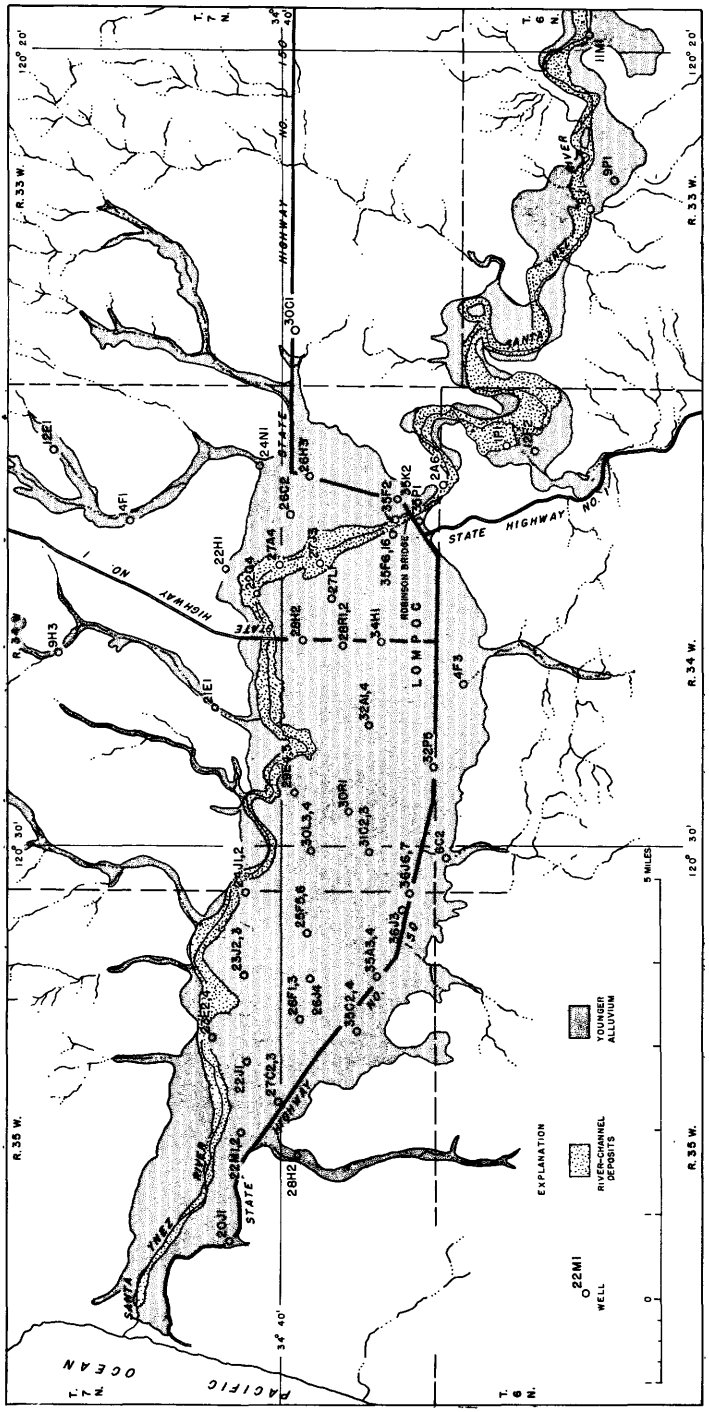


Figure 28.--Location of observation wells in Lompoc Plain, Santa Barbara County, Calif., 1953.

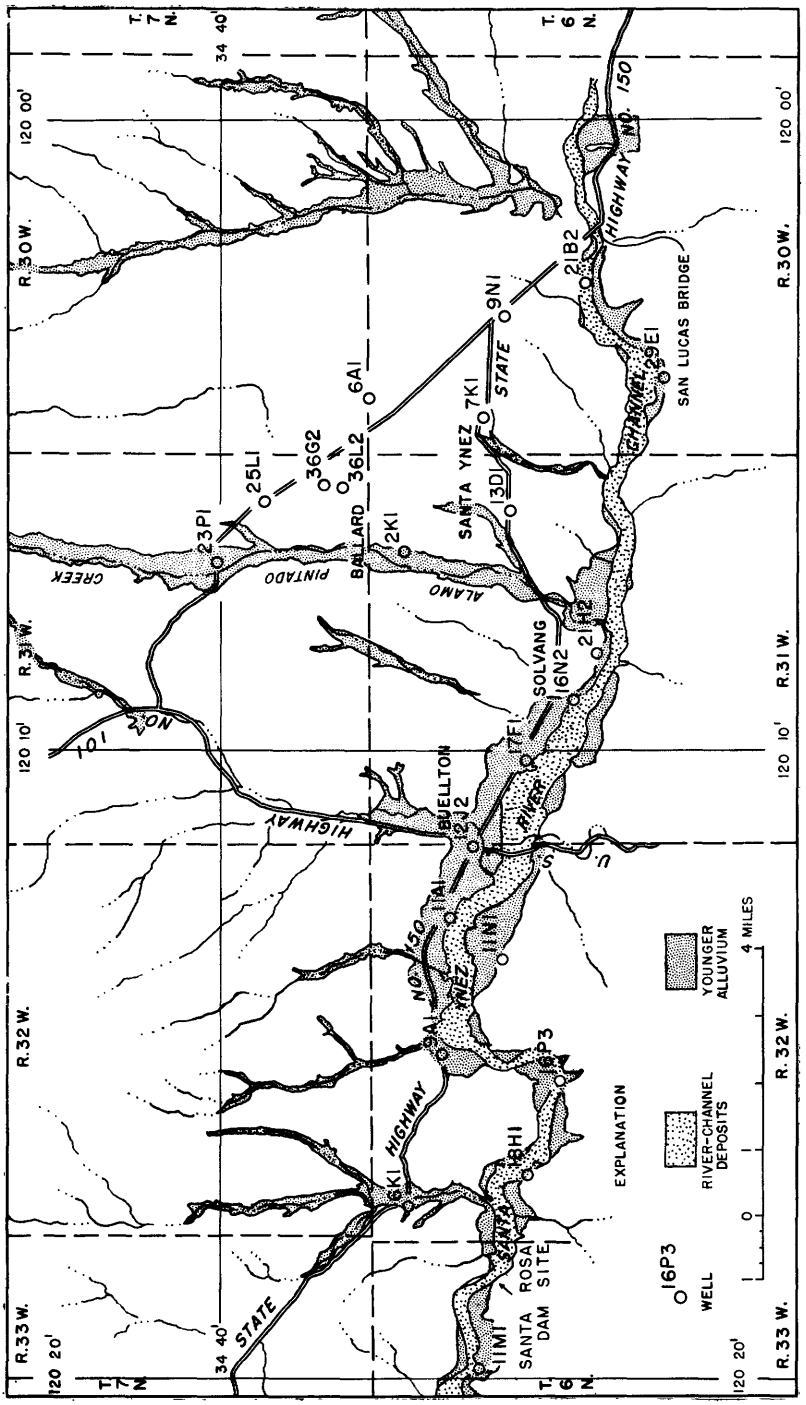


Figure 29.--Location of observation wells in Santa Ynez River Valley, Santa Barbara County, Calif., 1953.

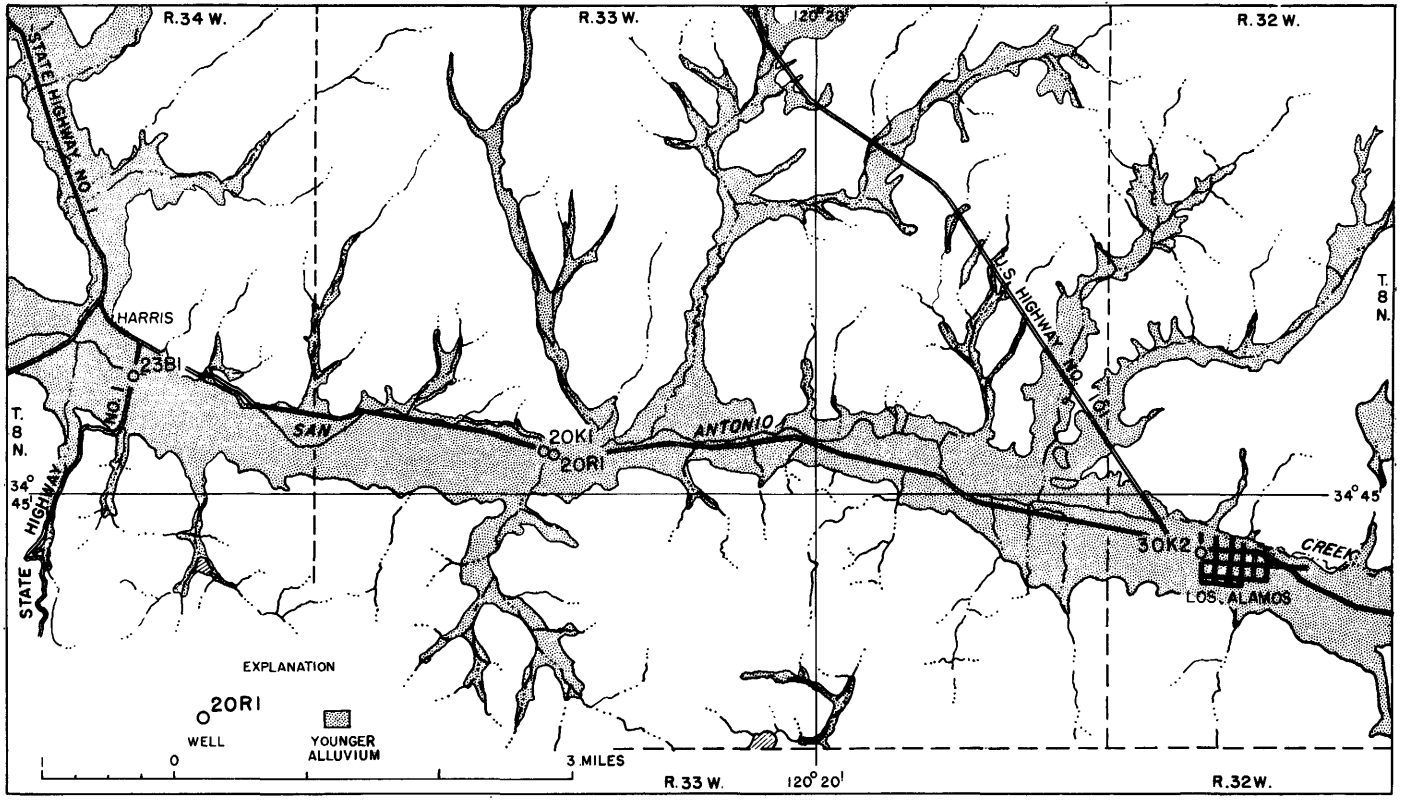


Figure 30. --Location of observation wells in San Antonio Valley, Santa Barbara County, Calif., 1953.

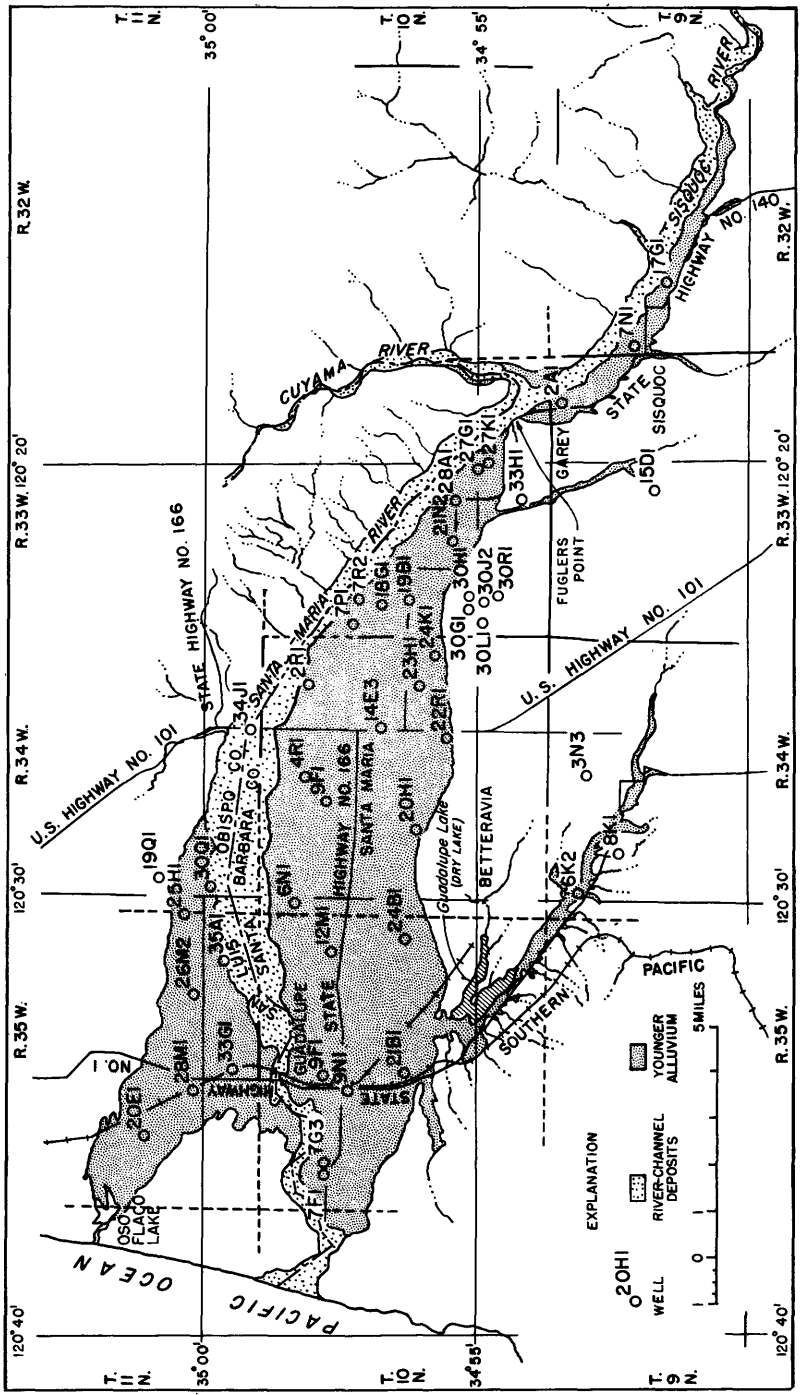


Figure 31.--Location of observation wells in Santa Maria Valley, Santa Barbara County, Calif., 1953.

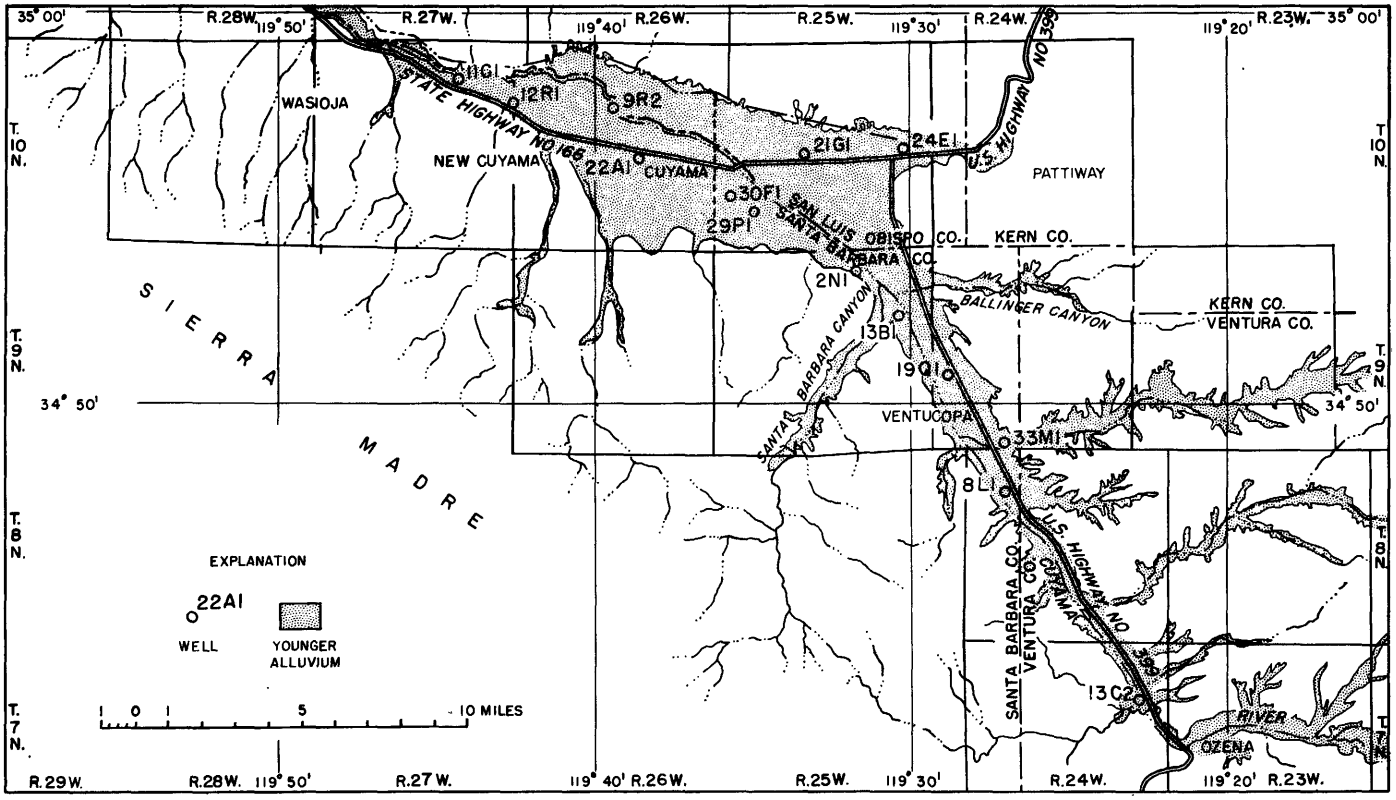


Figure 32. --Location of observation wells in Cuyama Valley, Santa Barbara County, Calif., 1953.

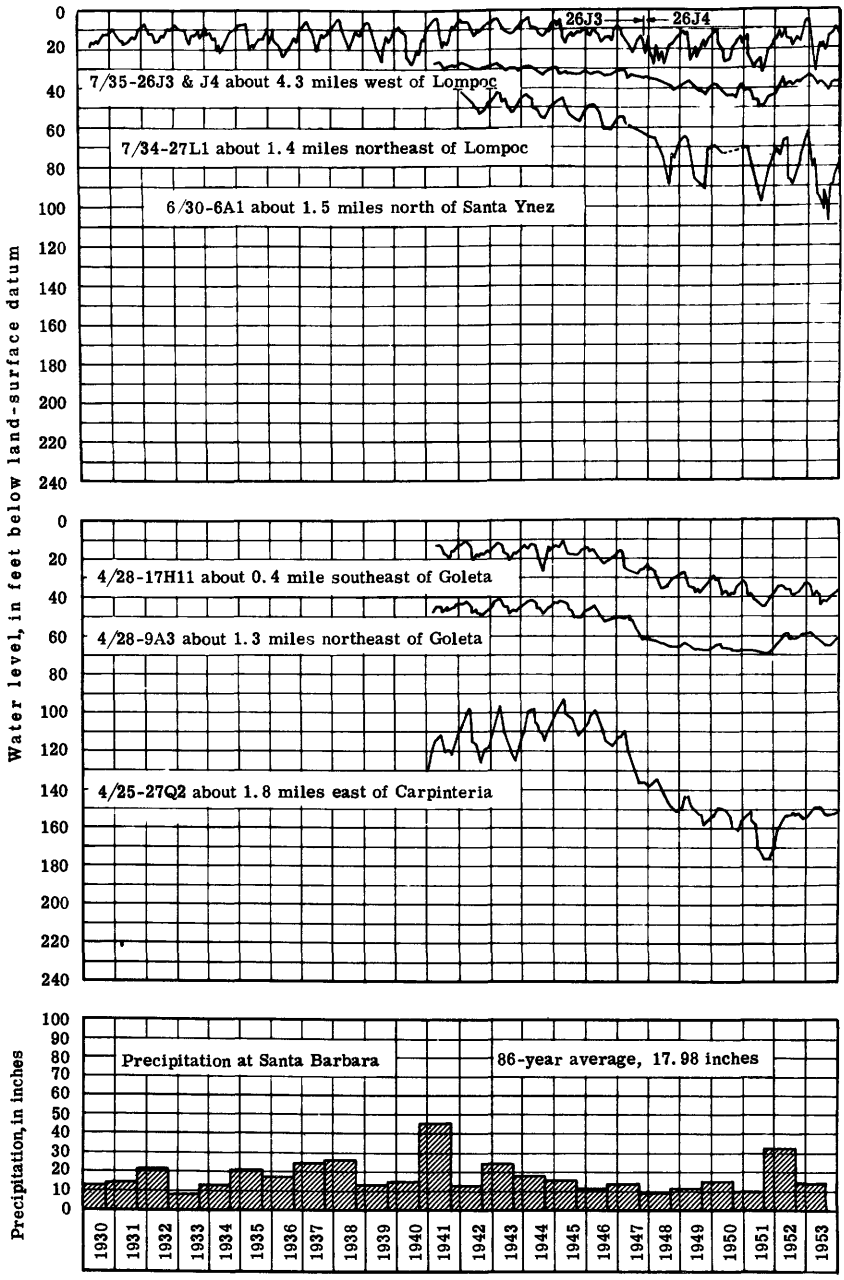


Figure 33.--Water-level fluctuations in 6 wells in Santa Barbara County and precipitation by water years at Santa Barbara, Calif.

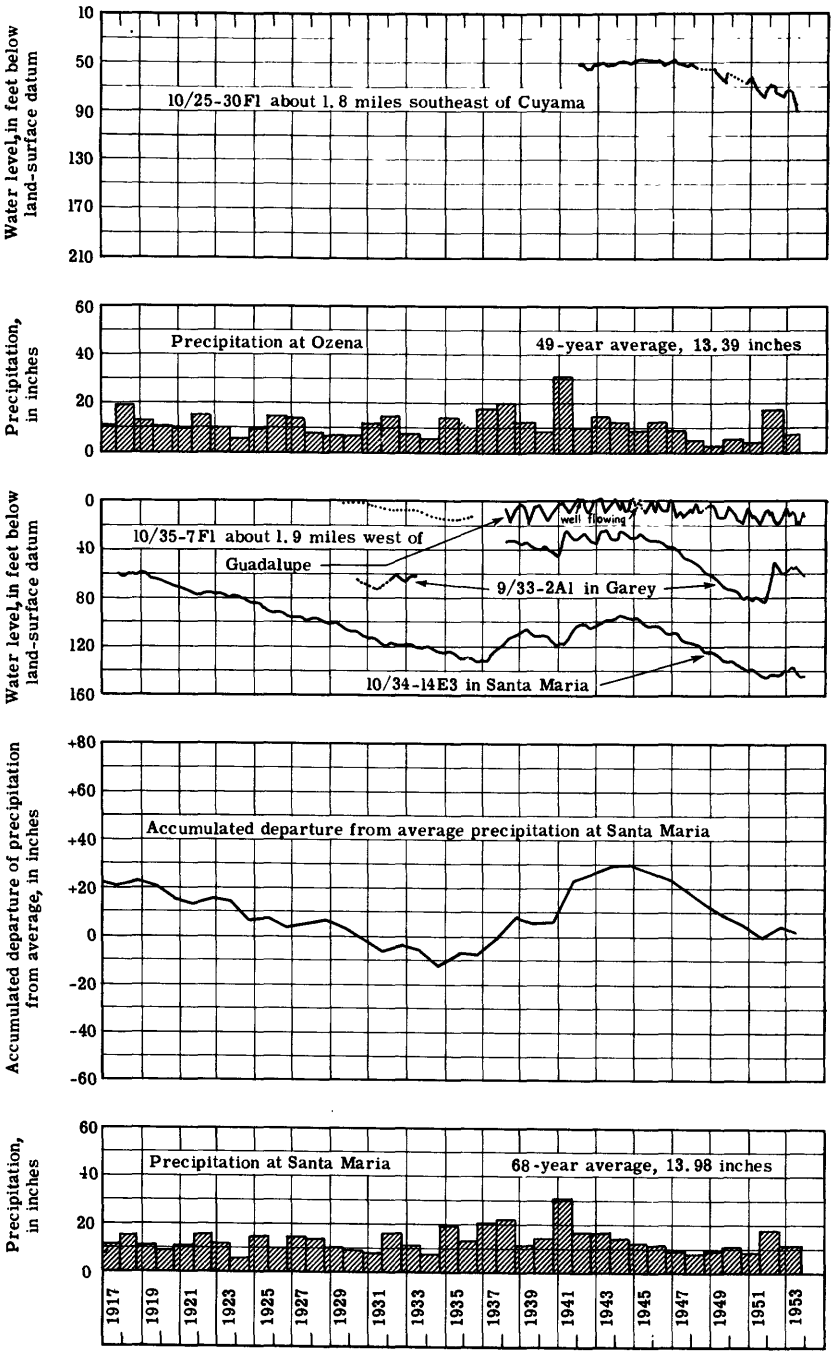


Figure 34.--Water-level fluctuations in 4 wells in Santa Barbara County and precipitation by water years at Santa Maria and Ozena, Calif.

the Carpinteria Basin, with consequent possibility of sea-water intrusion. In order to detect any significant increase in chloride content of well waters near the coast, samples were collected from 14 wells before and after the pumping season. Since the start of this program in 1949, the average chloride content has remained nearly constant. Of the 14 wells sampled, the average chloride content is about 156 parts per million, and the median is about 105 parts per million. The highest chloride content is at the western end of the basin.

As a result of below-normal precipitation during 1953, water levels in the Goleta Basin (fig. 27) declined appreciably, resuming the downward trend that persisted throughout the period 1945-51. In the confined-water area beneath nearly all the central alluvial plain, the year-end water levels ranged from 14.19 feet below to 5.01 feet above year-end levels of 1952. A few wells at the western end of the alluvial basin showed a recovery, but based on 12 wells the average decline was 2.6 feet. The average decline in this area since 1945 totals 19.7 feet. Within the recharge area along the base of the foothills, declines were somewhat greater than in the confined-water area. The 1953 year-end water levels ranged from 21.27 feet below to 1.43 feet above the year-end levels of 1952. Since 1945 water levels in the recharge area have declined an average of 26.5 feet. The hydrographs of wells 4/28-17H11 and 4/28-9A3 (fig. 33) show water-level fluctuations in the area of confined water and the recharge area, respectively. They show the temporary halting in 1952 of the downward trend that commenced in 1945. They also show the resumption of the downward trend during 1953. In the Goleta Basin, as in the Carpinteria Basin, periodic sampling in selected wells along the coast revealed no increase in chloride concentration. Since the start of the sampling program in 1949, chloride concentrations in the wells sampled have remained nearly constant. Chloride concentrations during 1953 ranged between 30 and 770 parts per million, the average concentration being about 237 parts per million.

The Santa Ynez River valley has several distinct hydrologic units, and well locations in the Santa Ynez River valley are presented on 2 illustrations: figure 28 comprises the Lompoc Plain and a short stretch of the alluvial deposits adjacent to the river upstream from Robinson Bridge; figure 29 shows the remainder of the alluvial deposits upstream to San Lucas Bridge and also the Santa Ynez upland. Water levels in most of the observation wells on the Santa Ynez upland declined in the period December 1952 to December 1953. The declines were smallest at the southern end of the upland and greatest in the central part where the withdrawals were the largest and the most concentrated. A comparison of year-end measurements shows that at the end of 1953 water levels were on the average 2.6 feet lower than at the end of 1952. The average decline since the beginning of the downward trend in 1945 was 18.3 feet. The hydrograph of well 6/30-6A1 (fig. 33) near the center of the upland is representative of wells throughout the upland and, in general, it shows that withdrawals are in excess of recharge. Water levels in wells in the alluvial deposits between San Lucas Bridge and Robinson Bridge were slightly lower at the end of 1953 than at the end of 1952. At the end of 1952 water levels were high because the Santa Ynez River flowed during most of the year. The decline during 1953, averaging only 2.6 feet represents the depletion of storage due to withdrawals for irrigation. In the recharge area at the east end and along the southern fringe of the Lompoc Plain, year-end measurements of water levels in 13 wells show declines ranging between 0.36 foot and 9.68 feet. The average decline of water levels in this recharge area was 4.3 feet, but declines of 8 to 9 feet occurred in the area immediately downstream from Robinson Bridge. In the area of confined water, deep wells tapping the main water-bearing zone declined an average of 3.3 feet in the period December 1952 to December 1953. Shallow wells in the same area and for the same period declined an average of a little less than 1 foot. In both the recharge and confined-water areas, the water levels in 1953 were not much lower than they were in 1945 at the start of the current drought. At the end of 1953, water levels in the recharge area were about 4.8 feet below the levels of December 1945, and in the confined-water area the levels were about 3.7 feet below those of December 1945. The decline is illustrated by the hydrographs of wells 7/35-26J3, 7/35-26J4, and 7/34-27L1 which are representative of water-level fluctuations in the confined-water and recharge areas, respectively.

Water levels in 3 of the 4 observation wells in the San Antonio Valley (fig. 30) declined between December 1952 and December 1953. During this period well 8/33-20K1, a deep well in the center of the valley, showed a recovery of 1.21 feet, while a shallow well 8/33-20R1, adjacent to the deep well, showed a decline of 0.10 foot. At the eastern end of the valley, in the town of Los Alamos, increased withdrawals during the pumping season in the summer of 1953 caused water levels to decline as much as 20 feet, in contrast to the usual summer decline of about 8 feet experienced in past years.

The Santa Maria Valley area (fig. 31) is the largest agricultural district in Santa Barbara County. It consists of the broad alluvial plain adjacent to the Santa Maria River, the elevated terrace areas to the north and south of this plain, and the smaller alluvial plain (Sisquoc area) adjacent to the Sisquoc River. Water levels throughout the Santa Maria Valley area declined between December 1952 and December 1953, the greatest declines being in wells adjacent to the stream course immediately downstream from Fugler Point. In this area the average decline in 10 wells was 9.7 feet, and the average decline since 1945 was 20.7 feet. East of Fugler Point in the Sisquoc area the average year-end decline was 5.8 feet, whereas the average decline since 1945 was 24.9 feet. Both these areas are adjacent to the Santa Maria and Sisquoc Rivers and received considerable replenishment during the winter of 1952; but, despite this recharge, the downward trend of water levels was reestablished during 1953. In the confined area at the western

end of the plain, the average year-end water-level decline was 7.6 feet, and the average decline since 1945 was 30.9 feet which was greater than that observed at the eastern end of the plain. In the Oso Flaco area near the coast the average year-end water-level decline of only 4.6 feet was the least in the valley area, because ground-water withdrawals were less here than elsewhere on the plain.

The Cuyama Valley (fig. 32) is a broad semiarid intermontane valley in the extreme northeastern part of Santa Barbara County. Prior to 1946 there were no electric power lines in the valley, and this tended to restrict intensive irrigation. Consequently, water levels in the principal agricultural area near the western end of the valley remained fairly static until heavy withdrawals began in 1946. A hydrograph for well 10/25-30F1 (fig. 34) indicates the start of the decline in water level and its continuation in subsequent years, due to increased irrigation demands and subnormal precipitation. In the vicinity of Ventucopa, near the upper end of the valley, water levels in 2 wells recovered about 2 feet during 1953 but elsewhere in the valley water levels declined from 1.65 feet to 18.97 feet. The largest declines were in the lower part of the valley where withdrawals for irrigation were the most extensive. Since 1945 water levels have dropped about 43 feet in the upper end of the valley and about 10 feet in the lower end of the valley.

Mokelumne River basin.--The East Bay Municipal Utility District continued the program of monthly measurements of water levels in selected observation wells in the Mokelumne area, in the central part of the Great Valley. Records for 24 of these wells have been used as an index to changes in ground-water storage, and they have been published by the Geological Survey since 1935. Of the original 24 wells, 9 have been destroyed or abandoned because of lowering water table, but 9 nearby wells have been added so that currently records for 24 wells are being published. The following table shows the average yearly water-level changes in the index wells and the fluctuations in yearly rainfall, beginning with 1949. The accumulated changes in this table begin with 1934, as tabulated in the report for 1945 and as shown in graphic form in the report for 1949. Rainfall at the 3 stations in 1953 was 78 percent of the 40-year average, a decrease from that of 1952 which was 118 percent of average.

Average yearly rise or decline of water levels in observation wells and yearly rainfall in the Mokelumne area, 1949-53

Year	Number of wells	Water level		Rainfall a/	
		Yearly rise (+) or decline (-) (feet)	Accumulated rise (+) or decline (-) (feet) b/	Excess (+) or deficiency (-) (inches)	Accumulated excess (+) or deficiency (-) (inches) b/
1949	20	-0.85	-6.16	-10.39	-2.72
1950	24	+1.71	-4.45	+9.52	+6.80
1951	24	-.88	-5.33	+2.72	+9.52
1952	20	+1.11	-4.22	+7.17	+16.69
1953	18	-1.89	-6.11	-8.48	+8.21

a/ Average of rainfall in the headwater area at Electra, West Point, and Twin Lakes, 1906-45. Average yearly rainfall at the 3 stations in this 40-year period was 38.74 inches.
b/ Accumulation dates from Jan. 1, 1934.

The following table shows the average change in water levels in 1953 during the periods of increasing and of diminishing withdrawals for irrigation, respectively. This table shows the recharge early in 1953 was not sufficient to offset the withdrawals for irrigation, as indicated by the average decline of about 1.7 feet. During the last half of the year this decline continued so that the average net change for the year was a decline of 1.9 feet.

Seasonal changes in water level, in feet, in 18 observation wells in the Mokelumne area, 1953

Period	Greatest rise	Greatest recession	Average change
Jan. 1 to May 31 (increasing withdrawal for irrigation)	+4.47	-8.42	-1.74
June 1 to Dec. 31 (diminishing withdrawal)	+6.78	-5.47	-.15
The year	+1.42	-3.17	-1.89

Other Investigations by the Geological Survey

The cooperative investigation with the California Division of Water Resources, which began in 1948, continued during 1953. It is concerned chiefly with the surface and subsurface geologic features of the ground-water basins of the State. Reports were prepared for several valleys north of San Francisco Bay. Revision of the draft of the report for Napa-Sonoma Valleys was started, and reports for Santa Rosa-Petaluma Valleys and for the Eureka area of Humboldt County were

completed in draft form. Field work was completed and a report was in preparation for the reconnaissance investigation in the Crescent City area of Del Norte County. Field work was started for a reconnaissance investigation of valleys along the Russian River and small valleys in the interior of Mendocino County. Collection of basic data in a reconnaissance investigation of the San Joaquin Valley was completed and analysis of the data was well advanced. Periodic water-level measurements were continued on the west side of the valley in Fresno and Kings Counties. Field work was started for a reconnaissance investigation of Scott, Shasta, and Butte Valleys in the Klamath River basin. For the Solano County investigation, financed with Federal funds, the analysis of basic data and preparation of a comprehensive report on the geology and ground-water resources with special reference to usable ground-water storage capacity was continued.

Well-Numbering System

The well-numbering system shows the location of wells according to the rectangular system of public-land surveys. Water-Supply Paper 991 contains a cross-reference table of previous numbers and location symbols. For well 9/13-20H1, in Antelope Valley in Kern County, the segment of the number preceding the hyphen indicates the township and range (T. 9 N., R. 13 W). Letters indicating cardinal directions appear in this part of the symbol if a basin or area spans 2 or more quadrants of a particular base and meridian. The digits between the hyphen and the letter indicate the section (sec. 20), and the letter indicates the 40-acre block within the section as shown by the accompanying diagram. Within the 40-acre tract, the wells are numbered serially as indicated by the final digit of the symbol. Thus, well 9/13-20H1 was the first well listed by the Geological Survey in the $SE\frac{1}{4}NE\frac{1}{4}$ sec. 20, township 9 north, range 13 west.

D	C	B	A
E	F	G	H
M	L	K	J
N	P	Q	R

For a well whose location is known only approximately, the symbol is shortened to the designation of township, range, and section only. Two or more such wells in a single section would be differentiated by the use of a lowercase letter following the section number--for example, wells 10/3W-1 and 10/3W-1a in the San Luis Rey River basin in San Diego County. For areas which have never been subdivided by public-land surveys, the rectangular system has been projected, commonly after private surveys or after projections made by local officials for purposes of land assessment. The description and records are given by counties in alphabetical sequence, and for each county by valleys or ground-water basins. Thus, each group of data pertains to a distinct ground-water area as indicated by subheadings in the report. Under each subhead, the records are presented in numerical order of the location symbols.

Well Descriptions and Water-Level Measurements

(Water levels are in feet below land-surface datum unless otherwise indicated.)

Kern County

Antelope Valley
Measurements furnished by Los Angeles County Flood Control District
are marked with an asterisk.

*9/13-20H1. Harry White. Near Willow Springs. Drilled irrigation well in alluvium, diameter 12 inches, depth 350 feet. Land-surface datum is about 2,430 feet above msl. Highest water level 36.0 below lsd, Apr. 29, 1922; lowest 125.8 below lsd, Mar. 11, 1953. Records available: 1921-53. Mar. 11, 125.8.

*9/15-25D1. H. W. Hunter. Near Fairmont. Drilled well in alluvium, diameter 8 inches, reported depth 334 feet. Land-surface datum is about 2,710 feet above msl. Highest water level 223.7 below lsd, Mar. 9, 1949; lowest 231.25 below lsd, Dec. 19, 1951. Records available: 1948-53. Mar. 10, 230.4; June 10, 230.6; Nov. 24, 230.9, by California State Division of Water Resources.

Los Angeles County

Antelope Valley
Measurements furnished by Los Angeles County Flood Control District
are marked with an asterisk.

*5/9-6B1. Owner unknown. Near Little Rock. Drilled well in alluvium, diameter 12 inches. Land-surface datum is about 2,846 feet above msl. Highest water level 25.1 below lsd, July 29, 1944; lowest 56.2 below lsd, Dec. 2, 1953. Records available: 1940-53. Dec. 2, 56.2.

*5/9-20J1. L. M. Nixon. Llano. Drilled domestic well in alluvium, diameter 10 inches, reported depth 280 feet. Land-surface datum is about 3,166 feet above msl. Highest water level 235.8 below lsd, Nov. 4, 1947; lowest 263.9 below lsd, Nov. 27, 1950. Records available: 1942, 1945, 1947-49, 1952-53. Nov. 27, 263.9.

5/10-6N1. Little Rock Irrigation District. Near Little Rock. Drilled unused well in alluvium. Land-surface datum is about 2,777 feet above msl. Highest water level 85.0 below lsd, Mar. 2, 1945; lowest 122.10 below lsd, Sept. 1, 1953. Records available: 1938, 1940-53.

Date	Water level	Date	Water level	Date	Water level	Date	Water level
Feb. 17	109.7	May 6	112.57	Aug. 4	*118.68	Nov. 10	*118.95
Mar. 17	109.6	June 11	115.25	Sept. 1	*122.10	27	*117.20
Apr. 7	112.7	July 7	*117.48	Oct. 6	*118.07		

5/10-7E1. Calavalley. Near Little Rock. Drilled unused irrigation well in alluvium, diameter 16 inches, reported depth 550 feet. Land-surface datum is about 2,815 feet above msl. Highest water level 116.2 below lsd, Mar. 28, 1945; lowest 175.2 below lsd, Aug. 4, 1953. Records available: 1938, 1940-53.

Feb. 17	151.1	May 6	154.1	July 7	*163.9	Sept. 1	*170.8
Apr. 7	153.7	June 11	162.4	Aug. 4	*175.2	Oct. 6	*156.3

*5/10-26B1. R. J. Darling. Near Little Rock. Drilled unused well in alluvium, diameter 10 inches, reported depth 87 feet. Land-surface datum is about 3,155 feet above msl. Highest water level 41.69 below lsd, Nov. 24, 1952; lowest 57.49 below lsd, Nov. 5, 1951. Records available: 1940-42, 1945-53. Nov. 27, 51.20.

*5/11-4E1. Sam Yellen. Near Palmdale. Drilled well in alluvium. Land-surface datum is about 2,695 feet above msl. Highest water level 149.4 below lsd, Dec. 14, 1948; lowest 172.85 below lsd, Nov. 27, 1953. Records available: 1948-53. Nov. 27, 172.85.

*5/11-9Q1. Owner unknown. Near Little Rock. Drilled unused well in alluvium, diameter 10 inches. Land-surface datum is about 2,857 feet above msl. Highest water level 29.4 below lsd, Mar. 7, 1945; lowest 54.8 below lsd, Nov. 17, 1952. Records available: 1940-46, 1948-53. Nov. 27, 54.6.

5/11-10R1. Owner unknown. Near bridge over Little Rock Creek. Drilled unused well in alluvium, diameter 16 inches. Land-surface datum is about 2,835 feet above msl. Highest water level 41.8 below lsd, July 18, 1941; lowest 144.5 below lsd, Aug. 13, 1938. Records available: 1927-28, 1930, 1932, 1937-53.

Feb. 17	109.25	May 6	109.98	Aug. 4	*110.75	Nov. 10	*111.70
Mar. 17	109.50	June 11	110.25	Sept. 1	*111.05	27	*111.60
Apr. 7	109.75	July 7	*110.65	Oct. 6	*111.20		

*5/11-12Q1. Wheelock. Near Little Rock. Drilled irrigation well in alluvium, diameter 16 inches, reported depth 392 feet. Land-surface datum is about 2,833 feet above msl. Highest water level 122.2 below lsd, Mar. 2, 1945; lowest 158.6 below lsd, Dec. 11, 1951. Records available: 1940-53. Nov. 27, 166.4, pumping.

*6/8-18D1. Hoff. Near Lovejoy Buttes. Drilled domestic and stock well in alluvium, diameter 9 inches, reported depth 210 feet. Land-surface datum is about 2,732 feet above msl. Highest water level 128.55 below lsd, Dec. 7, 1945; lowest 169.6 below lsd, July 5, 1945. Records available: 1939-41, 1944-53. Dec. 2, 162.30.

*6/9-4H2. Wilsona School. Near Lovejoy Buttes. Drilled well in alluvium, diameter 10 inches, reported depth 336 feet. Land-surface datum is about 2,595 feet above msl. Highest water level 120.56 below lsd, Nov. 23, 1949; lowest 128.45 below lsd, Dec. 3, 1953. Records available: 1949-53. Dec. 3, 128.45.

6/9-11N1. Owner unknown. Near Lovejoy Buttes. Drilled well in alluvium. Land-surface datum is about 2,665 feet above msl. Highest water level 137.28 below lsd, Dec. 27, 1951; lowest 140.85 below lsd, Mar. 28, 1952. Records available: 1951-53. July 30, 138.93; *Dec. 2, 139.75.

6/9-31R1. Barlow. Near Big Rock Creek. Drilled unused well in alluvium, diameter 16 inches. Land-surface datum is about 2,833 feet above msl. Highest water level 9.8 below lsd, May 15, 1944; lowest 45.81 below lsd, Nov. 5, 1951. Records available: 1940-53. Jan. 29, 40.59; Feb. 26, 41.71; Mar. 31, 43.05; Apr. 29, 45.81; May 29, 44.82; June 29, 43.72; July 30, 44.13.

*6/10-9E1. Owner unknown. Near Alpine Butte. Drilled irrigation and domestic well in alluvium. Land-surface datum is about 2,576 feet above msl. Highest water level 125.4 below lsd, Dec. 2, 1941; lowest 201.1 below lsd, Dec. 3, 1953. Records available: 1940-43, 1945-46, 1948-53. Dec. 3, 201.1.

*6/10-9Q1. Rhodes-Cogburn. Near Alpine Butte. Drilled irrigation and domestic well in alluvium. Land-surface datum is about 2,596 feet above msl. Highest water level 142.1 below lsd, Dec. 2, 1941; lowest 155.05 below lsd, Dec. 2, 1953. Records available: 1940-48, 1950-53. Dec. 2, 155.05.

*6/10-20P1. Mrs. Johnson. Near Little Rock. Drilled unused well in alluvium, diameter 10 inches. Land-surface datum is about 2,637 feet above msl. Highest water level 135.0 below lsd, Mar. 14, 1945; lowest 218.68 below lsd, Sept. 30, 1952. Records available: 1940-53. Dec. 3, 217.0.

*6/10-27B1. Owner unknown. Near Little Rock. Drilled irrigation well in alluvium. Land-surface datum is about 2,676 feet above msl. Highest water level 148.1 below lsd, Dec. 15, 1943; lowest 161.9 below lsd, Sept. 11, 1940. Records available: 1940-41, 1943-53. Dec. 2, 158.3.

*6/11-4C1. Lyons Bros. Near Palmdale. Drilled irrigation well in alluvium. Land-surface datum is about 2,480 feet above msl. Highest water level 147.0 below lsd, Dec. 5, 1942; lowest 221.1 below lsd, Dec. 3, 1953. Records available: 1942-43, 1945-46, 1948-49, 1951-53. Dec. 3, 221.1.

*6/11-12M1. E. J. Ball. Near Little Rock Wash. Drilled irrigation well in alluvium, diameter 18 inches, reported depth 650 feet. Land-surface datum is about 2,540 feet above msl. Highest water level 171.1 below lsd, Nov. 25, 1941; lowest 241.3 below lsd, Oct. 6, 1953. Records available: 1941-43, 1945-53. Mar. 17, 235.1; Oct. 6, 241.3; Oct. 19, 238.13; Nov. 10, 238.6; Dec. 3, 239.1.

*6/11-12Q1. E. J. Ball. Near Little Rock Wash. Drilled unused well in alluvium, diameter 18 inches. Land-surface datum is about 2,552 feet above msl. Highest water level 176.0 below lsd, Nov. 25, 1941; lowest 229.7 below lsd, Dec. 3, 1953. Records available: 1941-53. Dec. 3, 229.7.

6/12-24C1. Palmdale Irrigation District. Near Palmdale. Drilled well in alluvium. Land-surface datum is about 2,587 feet above msl. Highest water level 255.85 below lsd, June 4, 1952; lowest 287.77 below lsd, Nov. 10, 1953. Records available: 1950-53.

Date	Water level	Date	Water level	Date	Water level	Date	Water level
Feb. 17	278.1	Apr. 7	282.15	June 11	284.70	Nov. 10	*287.77
Mar. 11	278.5	May 6	283.20	Oct. 6	*287.5	Dec. 1	*275.10

*6/13-12J1. Glick. Near Quartz Hill. Drilled stock well in alluvium. Land-surface datum is about 2,608 feet above msl. Highest water level 233.7 below lsd, May 31, 1940; lowest 260.8 below lsd, Dec. 1, 1953. Records available: 1940-53. Dec. 1, 260.8.

*7/9-17N1. Ernest Koch. Near Piute Butte. Drilled irrigation well in alluvium, diameter 14 inches. Land-surface datum is about 2,489 feet above msl. Highest water level 127.83 below lsd, Feb. 5, 1946; lowest 186.6 below lsd, Dec. 2, 1953. Records available: 1945-48, 1950-53. Dec. 2, 186.6.

*7/10-21A1. Owner unknown. Near Alpine Butte. Drilled unused well in alluvium, diameter 12 inches. Land-surface datum is about 2,465 feet above msl. Highest water level 131.4 below lsd, Mar. 13, 1945; lowest 196.9 below lsd, Dec. 7, 1953. Records available: 1943-53. Dec. 7, 196.9.

7/11-24C1. Stevenson. Near Alpine Butte. Drilled domestic well in alluvium, diameter 6 inches, reported depth 210 feet. Land-surface datum is about 2,432 feet above msl. Highest water level 72.6 below lsd, Apr. 8, 1932; lowest 188.92 below lsd, June 29, 1953. Records available: 1932-53. Jan. 29, 172.73; Feb. 26, 173.94; Mar. 31, 179.77; Apr. 29, 181.56; May 29, 184.86; June 29, 188.92; *Dec. 3, 188.35.

*7/11-28E1. Alamo Ranch. Near Lancaster. Drilled irrigation well in alluvium. Land-surface datum is about 2,440 feet above msl. Highest water level 112.8 below lsd, Dec. 14, 1943; lowest 200.7 below lsd, Dec. 3, 1953. Records available: 1943, 1945-53. Dec. 3, 200.7.

7/12-4P2. Owner unknown. Near Lancaster. Drilled unused observation well in alluvium, diameter 3 inches, depth 19 feet. Land-surface datum is about 2,316 feet above msl. Highest water level flowing, Apr. 30, 1943; lowest 20.4 below lsd, Jan. 21, 1948. Records available: 1940-53. Mar. 11, 16.6; June 11, dry at 19.4; *Aug. 31, dry at 19.4. Measurement discontinued.

7/12-15F1. A. H. Powell. Ninth and Elm Sts., Lancaster. Drilled domestic well in alluvium. Land-surface datum is about 2,348 feet above msl. Highest water level 26.7 below lsd, Oct. 28, 1942; lowest 96.7 below lsd, Aug. 31, 1953. Records available: 1942-53. Mar. 11, 72.30; *Aug. 31, 96.7; *Dec. 1, 82.30.

7/12-15F2. Los Angeles County Water District well 4. 10th and Date Sts., Lancaster. Drilled unused well in alluvium, reported diameter 16 inches 0-244, 12 inches 244-372 feet, reported depth 372 feet. Land-surface datum is about 2,355 feet above msl. Highest water level 42.9 below lsd, Feb. 28, 1945; lowest 90.4 below lsd, Nov. 29, 1949. Records available: 1943-45, 1947-53. Dec. 16, 87.45.

*7/12-22J2. Schmitz Motel. Near Lancaster. Drilled well in alluvium. Land-surface datum is about 2,400 feet above msl. Highest water level 140.40 below lsd, Nov. 10, 1953; lowest 147.77 below lsd, Aug. 31, 1953. Records available: 1953. Aug. 4, 143.60; Aug. 31, 147.77; Oct. 6, 144.10; Nov. 10, 140.40; Dec. 1, 142.25, pumping.

7/13-11D1. Owner unknown. Near Lancaster. Dug unused well in alluvium. Land-surface datum is about 2,356 feet above msl. Highest water level 2.0 below lsd, May 1, 1944; lowest 7.05 below lsd, Nov. 13, 1952. Records available: 1942-53. June 10, 6.63; *Aug. 31, 6.98; *Dec. 1, 6.50.

*7/13/17D1. G. Faro. Near Lancaster. Drilled irrigation well in alluvium, diameter 12 inches, reported depth 450 feet. Land-surface datum is about 2,424 feet above msl. Highest water level 84.4 below lsd, May 8, 1939; lowest 152.4 below lsd, Dec. 1, 1953. Records available: 1937, 1939-45, 1947-48, 1950-53. Dec. 1, 152.4.

*7/13-21J2. L. H. Benson. Near Quartz Hill. Drilled unused well in alluvium, diameter 10 inches, reported depth 250 feet. Land-surface datum is about 2,373 feet. Highest water level 59.0 below lsd, Feb. 28, 1945; lowest 128.6 below lsd, Dec. 1, 1953. Records available: 1942-45, 1947-53. Dec. 1, 128.6.

*7/13-27N1. A. F. Godde. Near Quartz Hill. Drilled irrigation well in alluvium. Land-surface datum is about 2,421 feet above msl. Highest water level 116.8 below lsd, Nov. 24, 1941; lowest 209.8 below lsd, Dec. 1, 1953. Records available: 1941-43, 1945-53. Dec. 1, 209.8.

*7/13-35E1. George Lane. Near Quartz Hill. Drilled irrigation well in alluvium, diameter 12 inches. Land-surface datum is about 2,443 feet above msl. Highest water level 129.2 below lsd, Mar. 8, 1939; lowest 268.65 below lsd, Dec. 7, 1953. Records available: 1937-53. Dec. 7, 268.65.

7/14-10F1. F. A. Ullman. Near Antelope Buttes. Drilled domestic well in alluvium, diameter 10 inches, reported depth 250 feet. Land-surface datum is about 2,557 feet above msl. Highest water level 184.2 below lsd, Nov. 7, 1942; lowest 223.3 below lsd, Dec. 1, 1953. Records available: 1942-43, 1945-53. Mar. 10, 221.6; June 10, 219.37; *Aug. 31, 226.30, pumping; *Dec. 1, 223.3.

Measurements furnished by California State Division of Water Resources are marked with double asterisks.

**8/9-4N2. U. S. Air Force. Formerly U. S. Army Reservation. Near Rodgers Dry Lake. Drilled unused well in alluvium, diameter 6 inches, reported depth 245 feet. Land-surface datum is about 2,294 feet above msl. Highest water level 12.2 below lsd, Dec. 6, 1941; lowest 21.10 below lsd, Nov. 24, 1953. Records available: 1941-53. Nov. 24, 21.10.

*8/10-2P1. U. S. Air Force. Formerly U. S. Army Reservation. Near Rodgers Dry Lake. Dug pit and drilled unused well in alluvium, diameter 8 inches, depth 235 feet. Land-surface datum is about 2,310 feet above msl. Highest water level 4.8 below lsd, Apr. 24, 1941; lowest 32.20 below lsd, Nov. 23, 1953. Records available: 1941-53. Nov. 23, 32.20.

8/10-8R3. U. S. Air Force. Formerly J. G. Walsh. Near Rosamond Dry Lake. Drilled gravel-packed irrigation well in alluvium, diameter 14 inches, reported depth 238 feet. Land-surface datum is about 2,318 feet above msl. Highest water level 28.08 below lsd, Feb. 2, 1948; lowest 46.56 below lsd, June 29, 1953. Records available: 1947-53. Jan. 29, 38.82; Feb. 26, 39.38; Mar. 31, 41.52; June 29, 46.56.

8/10-9P1. Formerly 8/10-9N1. U. S. Air Force. Formerly Fred Flaugh. Near Rosamond Dry Lake. Drilled unused domestic well in alluvium, diameter 12 inches, reported depth 250 feet. Land-surface datum is about 2,321 feet above msl. Highest water level 34.90 below lsd, Mar. 28, 1952; lowest 39.12 below lsd, July 30, 1953. Records available: 1951-53. Jan. 23, 37.14; Feb. 26, 37.10; Mar. 31, 37.39; Apr. 29, 38.10; May 29, 38.46; June 29, 38.67; July 30, 39.12.

**8/10-19Q1. Union Trust & Savings Bank. Near Redman School. Drilled irrigation well in alluvium, diameter 12 inches, reported depth 750 feet. Land-surface datum is about 2,342 feet above msl. Highest water level 29.7 below lsd, Apr. 9, 1941; lowest 124.41 below lsd, Nov. 7, 1951. Records available: 1939-48, 1950-53. Nov. 23, 122.80.

8/10-32N1. John Demuth. Near Rosamond Dry Lake. Drilled domestic well in alluvium, diameter 8 inches, reported depth 97 feet. Land-surface datum is about 2,379 feet above msl. Highest water level 67.60 below lsd, Mar. 29, 1948; lowest 91.20 below lsd, Oct. 30, 1951. Records available: 1948-53. Jan. 29, 87.70; Feb. 26, 87.67; Mar. 31, 88.26; Apr. 29, 89.09; May 29, 89.90; June 29, 90.45; July 29, 91.12.

**8/12-4K1. Owner unknown. Near Rosamond. Drilled unused well in alluvium, diameter 6 inches, depth 265 feet. Land-surface datum is about 2,307 feet above msl. Highest water level 0.8 below lsd, Jan. 10, 1943; lowest 30.02 below lsd, Nov. 23, 1953. Records available: 1943-47, 1949-53. Nov. 23, 30.02.

**8/12-20B1. Owner unknown. Near Oban. Drilled unused well in alluvium, diameter 6 inches. Land-surface datum is about 2,317 feet above msl. Highest water level 3.2 below lsd, Jan. 31, 1942; lowest 38.00 below lsd, Nov. 24, 1953. Records available: 1941-53. Nov. 24, 38.00.

**8/12-22M2. Owner unknown. Near Oban. Drilled unused well in alluvium, diameter 6 inches. Land-surface datum is about 2,300 feet above msl. Highest water level flowing, Jan. 10, Dec. 4, 1943, May 2, 1944, Mar. 1, 1945; lowest 26.15 below lsd, Nov. 12, 1952. Records available: 1943-53. Nov. 23, 25.02.

**8/12-24R1. J. Ellis. Near Rosamond Dry Lake. Drilled unused well in alluvium, diameter 6 inches, reported depth 80 feet. Land-surface datum is about 2,310 feet above msl. Highest water level 1.1 below lsd, Dec. 8, 1943; lowest 21.8 below lsd, Nov. 24, 1953. Records available: 1941-53. Nov. 24, 21.8.

**8/13-7H1. Lone Butte Ranch. Near Willow Springs. Drilled irrigation well in alluvium. Land-surface datum is about 2,442 feet above msl. Highest water level 93.1 below lsd, Apr. 9, 1941; lowest 172.4 below lsd, Nov. 25, 1953. Records available: 1940-44, 1946-53. Nov. 25, 172.4.

**8/14-2R1. Owner unknown. Near Antelope Buttes. Drilled unused well in alluvium, diameter 14 inches. Land-surface datum is about 2,494 feet above msl. Highest water level 124.3 below lsd, Nov. 24, 1942; lowest 192.6 below lsd, Nov. 23, 1953. Records available: 1942-43, 1945-53. Nov. 23, 192.6.

**8/14-14R1. Owner unknown. Near Fairmont Butte. Drilled unused well in alluvium, diameter 16 inches. Land-surface datum is about 2,494 feet above msl. Highest water level 135.2 below lsd, Mar. 12, 1945; lowest 184.6 below lsd, Nov. 23, 1953. Records available: 1943-53. Nov. 23, 184.6.

**8/14-17Q1. Marl Craven-Tibola. Near Fairmont Butte. Drilled domestic well in alluvium, diameter 8 inches, reported depth 200 feet. Land-surface datum is about 2,589 feet above msl. Highest water level 158.9 below lsd, Apr. 9, 1947; lowest 165.8 below lsd, Nov. 20, 1952. Records available: 1946-53. Nov. 24, 176.5, pumped recently.

8/15-10P1. Scott. Near Fairmont Butte. Drilled domestic well in alluvium. Land-surface datum is about 2,712 feet above msl. Highest water level 138.5 below lsd, Dec. 1, 1948; lowest 142.0 below lsd, June 19, 1946. Records available: 1945-48, 1950-53. June 10, 144.8, pumping. Measurement discontinued.

8/15-27R1. I. T. Brandt. Near Fairmont. Drilled domestic well in alluvium. Land-surface datum is about 2,806 feet above msl. Highest water level 139.95 below lsd, Dec. 8, 1947; lowest 147.1 below lsd, June 10, 1953. Records available: 1945-53. Mar. 10, 146.9; June 10, 147.1.

8/15-33G1. Correll. Near Fairmont. Drilled domestic well in alluvium, diameter 12 inches, reported depth 400 feet. Land-surface datum is about 2,930 feet above msl. Highest water level 194.0 below lsd, Jan. 23, 1946; lowest 226.8 below lsd, Nov. 24, 1953. Records available: 1946-53. Mar. 10, 220.05; June 10, 222.0; **Nov. 24, 226.8.

**8/15-36M1. Fairmont School. Near Fairmont. Drilled well in alluvium, reported depth 266 feet. Land-surface datum is about 2,785 feet above msl. Highest water level 72.3 below lsd, Dec. 8, 1947; lowest 89.5 below lsd, Dec. 3, 1951. Records available: 1943-45, 1947, 1949-53. Nov. 24, 80.6.

8/16-5N1. Carpy. Near Neenach. Drilled unused well in alluvium, diameter 12 inches. Land-surface datum is about 2,900 feet above msl. Highest water level 190.65 below lsd, Dec. 8, 1947; lowest 218.2 below lsd, Nov. 14, 1942. Records available: 1942-53. Mar. 10, 199.0; June 10, 201.15; **Nov. 24, 201.8.

8/16-14L1. Snyder. Near Neenach. Drilled domestic well in alluvium, diameter 10 inches. Land-surface datum is about 2,859 feet above msl. Highest water level 105.5 below lsd, Nov. 13, 1945; lowest 129.10 below lsd, Dec. 9, 1949. Records available: 1945-47, 1949-50, 1952-53. June 10, 128.7.

9/12-16P2. Formerly 9/12-16N1. Chevron Service Station. Near Rosamond. Drilled industrial and domestic well in alluvium, diameter 8 inches, reported depth 150 feet. Land-surface datum is about 2,349 feet above msl. Highest water level 64.6 below lsd, Dec. 13, 1950; lowest 76.5 below lsd, Aug. 19, 1952. Records available: 1950-53. Mar. 11, 68.90; June 11, 73.25.

San Gabriel River Basin

1S/10-18. Baldwin Park. Drilled water-table well tapping fine sand to coarse gravel in alluvial deposits, diameter 16 inches, depth 200 feet, perforations 74-174. Land-surface datum is 387 feet above msl. Highest water level 56.0 below lsd, May 19, 1916; lowest 141.62 below lsd, Nov. 20, 1951. Records available: 1903-53.

Daily mean water level from recorder graph

Day	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	113.16	113.82	114.09	115.03	117.10	119.94	123.03	126.54	129.35	131.49	133.30	133.44
2	113.20	113.85	114.10	115.09	117.16	120.02	123.13	126.62	129.42	131.55	133.33	133.43
3	113.21	113.88	114.13	115.15	117.20	120.00	123.26	126.70	129.48	131.62	133.35	133.43
4	113.22	113.88	114.16	115.22	117.26	120.20	123.38	126.79	129.55	131.70	133.34	133.43
5	113.24	113.87	114.20	115.29	117.31	120.29	123.49	126.87	129.62	131.80	133.36	133.46
6	113.28	113.89	114.16	115.29	117.39	120.39	123.61	126.97	129.67	131.91	133.39	133.42
7	113.31	113.90	114.20	115.35	117.48	120.46	123.74	127.09	129.75	132.02	133.41	133.38
8	113.42	113.88	114.22	115.44	117.57	120.52	123.87	127.19	129.82	132.13	133.45	133.40
9	113.40	113.95	114.24	115.52	117.68	120.62	123.99	127.29	129.91	132.23	133.46	133.38
10	113.38	114.03	114.28	115.58	117.76	120.72	124.13	127.38	130.01	132.30	133.52	133.40
11	113.44	114.04	114.31	115.65	117.86	120.81	124.25	127.46	130.11	132.37	133.56	133.41
12	113.49	114.02	114.32	115.75	117.96	120.92	124.39	127.56	130.21	132.45	133.58	133.44
13	113.51	114.02	114.33	115.85	118.10	121.02	124.53	127.65	130.30	132.54	133.63	133.44
14	113.55	114.11	114.35	115.96	118.17	121.15	124.67	127.74	130.38	132.59	133.63	133.44
15	113.61	114.10	114.38	116.02	118.30	121.25	124.79	127.83	130.45	132.64	133.63	133.45
16	113.62	114.15	114.42	116.09	118.43	121.35	124.94	127.90	130.51	132.68	133.60	133.48
17	113.62	114.16	114.45	116.18	118.51	121.45	125.16	127.98	130.59	132.73	133.58	133.53
18	113.62	114.15	114.47	116.27	118.60	121.55	125.03	128.06	130.65	132.78	133.61	133.56
19	113.64	114.21	114.51	116.36	118.68	121.62	125.16	128.15	130.71	132.80	133.58	133.59
20	113.66	114.25	114.52	116.39	118.79	121.69	125.27	128.26	130.78	132.86	133.53	133.59
21	113.68	114.28	114.55	116.45	118.90	121.78	125.39	128.36	130.86	132.89	133.55	133.61
22	113.71	114.24	114.57	116.54	119.00	121.87	125.51	128.46	130.93	132.97	133.52	133.67
23	113.69	114.12	114.61	116.64	119.10	121.99	125.61	128.54	130.98	133.02	133.48	133.69
24	113.71	114.24	114.66	116.70	119.21	122.10	125.73	128.63	131.05	133.01	133.45	133.69
25	113.74	114.27	114.71	116.74	119.30	122.23	125.84	128.72	131.11	133.02	133.44	133.69
26	113.76	114.22	114.77	116.83	119.41	122.34	125.95	128.84	131.18	133.05	133.45	133.68
27	113.79	114.20	114.81	116.92	119.50	122.44	126.04	128.96	131.24	133.09	133.47	133.68
28	113.76	114.14	114.83	116.95	119.60	122.59	126.15	129.07	131.30	133.13	133.47	133.71
29	113.73		114.88	117.00	119.66	122.64	126.25	129.14	131.37	133.19	133.45	133.73
30	113.79		114.94	117.06	119.72	122.75	126.36	129.22	131.44	133.23	133.44	133.76
31	113.84		114.98		119.80		126.47	129.28		133.27		133.77

Coastal Plain

2S/12-13A1. Lycan Bros. Near Montebello. Drilled unused water-table well in Gaspur water-bearing zone of Recent age, diameter 8 inches, depth 85 feet. Land-surface datum is about 181 feet above msl. Records furnished by San Gabriel Valley Protective Association. Highest water level 17.51 below lsd, Aug. 4, 1941; lowest dry, Oct. 29, 1953. Records available: 1928-53. Measurement discontinued.

Date	Water level	Date	Water level	Date	Water level	Date	Water level
Jan. 7	56.02	Apr. 1	55.30	June 3	60.86	Aug. 26	76.54
Feb. 4	54.53	22	56.78	July 1	65.52	Sept. 9	80.06
Mar. 4	54.74	May 6	57.63	Aug. 5	72.90	Oct. 29	(f)

f Dry.

3S/12-8L3. Los Angeles County Farm. Near Downey. Drilled unused artesian well in Gaspur water-bearing zone of Recent age and underlying deposits of Pleistocene age, diameter 8 inches, depth 248 feet. Land-surface datum is about 92 feet above msl. Records furnished by San Gabriel Valley Protective Association. Highest water level 14.45 below lsd, Mar. 20, 1930; lowest 60.54 below lsd, July 13, 1953. Records available: 1930-53.

Jan. 5	49.28	Mar. 23	52.49	July 13	60.54	Oct. 5	60.21
Feb. 2	49.53	Apr. 14	54.36	Aug. 10	59.46	Nov. 9	57.72
16	51.01	May 11	55.65	31	59.21	Dec. 7	55.19
Mar. 2	49.43	June 1	56.02	Sept. 14	58.99	21	55.30

3S/14-3K1. Southern California Water Co. Yukon plant well 1. Near Inglewood. Drilled public-supply artesian well in sand and gravel deposits of Pleistocene age, diameter 16 inches, depth 652 feet, perforations 368-414, 538-552, 562-578. Land-surface datum is about 74 feet above msl. Records furnished by Southern California Water Co. Highest water level 97 below lsd, Feb. 1, 1942; lowest 168 below lsd, Sept. 14, 1950. Records available: 1941-53.

Jan. 7	149	Mar. 21	133	July 7	152	Nov. 7	147
21	143	Apr. 7	143	Aug. 7	154	21	144
Feb. 7	129	May 7	144	Sept. 7	152	Dec. 7	134
Mar. 7	134	June 7	145	Oct. 7	155	28	134

3S/14-21B1. Southern California Water Co. Rosecrans plant well 1. Near Hawthorne. Drilled public-supply artesian well in sand and gravel deposits of Pleistocene age, diameter 16 inches, depth 500 feet. Land-surface datum is about 63 feet above msl. Records furnished by Southern California Water Co. Highest water level 66 below lsd, May 1, 1931; lowest 128 below lsd, July 14, 1953. Records available: 1931-37, 1939-53.

Jan. 7	114	May 7	123	Aug. 7	126	Nov. 21	124
Feb. 7	115	June 7	126	Sept. 7	124	Dec. 7	123
Mar. 7	118	21	125	Oct. 7	125	28	122
Apr. 7	122	July 14	128	Nov. 7	126		

4S/11-5D1. V. Capovilla. Near Norwalk. Drilled domestic artesian well in deposits of Pleistocene age, diameter 10 inches, depth 270 feet. Land-surface datum is 44.7 feet above msl. Records furnished by Orange County Flood Control District. Highest water level 3.41 below lsd, Mar. 17, 1933; lowest 80.67 below lsd, July 23, 1953. Records available: 1930-53.

Jan. 23	36.08	Apr. 30	52.20	July 23	80.67	Oct. 29	69.09
Feb. 20	42.72	May 26	61.82	Aug. 24	74.49	Nov. 24	53.30
Mar. 20	55.61	June 23	72.48	Sept. 22	73.30	Dec. 29	51.94

4S/12-8P1. Montana Land Co. Near Signal Hill. Drilled unused artesian well in gravel in lowermost part of Silverado water-bearing zone of Pleistocene age, diameter 14 inches, depth 714 feet, perforations 698-714. Land-surface datum is 68.28 feet above msl. Highest water level 0.2 above lsd, July 30, 1903; lowest 145.40 below lsd, Aug. 13, 1951. Records available: 1903, 1914-19, 1923-52. Measurement discontinued.

4S/13-14L1. Southern California Edison Co. Ltd. Long Beach. Drilled unused artesian well in Gaspur water-bearing zone of Recent age, diameter 10 inches, depth 114 feet, perforations 90-114. Land-surface datum is 28.55 feet above msl. Records furnished by city of Long Beach. Highest water level 20.62 below lsd, Apr. 5, 1941; lowest 38.47 below lsd, Dec. 28, 1953. Records available: 1930-53.

Jan. 5	35.38	Mar. 30	36.16	June 1	36.70	Oct. 5	38.07
19	35.30	Apr. 6	36.11	July 6	37.29	Nov. 2	38.33
Feb. 2	35.33	May 4	36.25	Aug. 3	37.92	Dec. 7	38.12
Mar. 2	35.76	18	36.48	Sept. 7	38.12	28	38.47

4S/13-23G2. City of Long Beach. Near Long Beach. Drilled unused artesian well in gravel in uppermost part of Silverado water-bearing zone of Pleistocene age, diameter 26 to 16 inches, depth 1,074 feet, perforations 650-900. Land-surface datum is 24.50 feet above msl. Records furnished by city of Long Beach. Highest water level 52.93 below lsd, Feb. 6, 1939; lowest 131.75 below lsd, July 20, 1953. Records available: 1932-53.

Date	Water level	Date	Water level	Date	Water level	Date	Water level
Feb. 2	113.48	May 4	120.57	Aug. 2	130.10	Nov. 23	117.45
Mar. 2	115.99	June 1	125.07	Sept. 7	127.25	Dec. 7	117.82
16	118.78	July 6	127.92	Oct. 5	126.84	28	117.66
Apr. 6	119.00	20	131.75	Nov. 2	125.63		

Orange County

Coastal Plain

Measurements furnished by Orange County Flood Control District are marked with an asterisk.

*3S/11-36Q2. M. Del Giorgio. Near Buena Park. Drilled unused artesian well in deposits of Pleistocene age, diameter 12 inches, depth 666 feet, perforations 500-650. Land-surface datum is 91.58 feet above msl. Highest water level 48.02 below lsd, Mar. 28, 1945; lowest 122.74 below lsd, July 30, 1951. Records available: 1930-53.

Jan. 1	89.67	Mar. 2	93.05	June 1	111.74	Sept. 19	113.93
19	88.89	Apr. 6	105.65	July 13	122.37	Nov. 2	112.84
Feb. 2	89.46	May 4	106.50	Aug. 24	120.09	Dec. 21	104.58

*4S/10-22L2. Halderman & Callens. Near Anaheim. Drilled irrigation artesian and water-table well in sand and gravel of Pleistocene age, diameter 16 inches, depth 475 feet, perforations 140-158, 370-401, 410-457. Land-surface datum is 136 feet above msl. Highest water level 97.16 below lsd, May 3, 1945; lowest 153.70 below lsd, Sept. 14, 1951. Records available: 1928-53. Jan. 13, 135.89; Feb. 10, 136.14; Apr. 14, 142.86; May 8, 143.41; Oct. 13, 152.28; Nov. 12, 149.31; Dec. 8, 145.11.

4S/11-19K1. Los Alamitos Sugar Co. Near Los Alamitos. Drilled unused artesian well in deposits of Pleistocene age, diameter 12 inches, depth 448 feet, perforations 440-460. Land-surface datum is 28.50 feet above msl. Measurements by city of Long Beach. Highest water level flowing, 1901; lowest 63.36 below lsd, July 30, 1951. Records available: 1901, 1903, 1929-53.

Jan. 5	31.41	Mar. 16	48.81	July 6	62.48	Nov. 2	54.23
19	30.38	Apr. 6	51.60	Aug. 10	69.83	16	49.83
Feb. 2	31.72	May 4	48.18	Sept. 7	65.21	Dec. 7	44.54
Mar. 2	40.78	June 1	58.24	Oct. 5	58.18	28	45.11

*5S/10-9D1. Julio Martinez. Near Garden Grove. Drilled public-supply artesian well in Gaspur water-bearing zone of Recent age and in underlying deposits of Pleistocene age, diameter 12 inches, depth 250 feet. Land-surface datum is 74.7 feet above msl. Highest water level 17.9 below lsd, June 13, 1922; lowest 90.47 below lsd, Nov. 12, 1953. Records available: 1922, 1924-25, 1927-28, 1930-53.

Jan. 13	81.31	Mar. 10	85.04	June 9	86.57	Nov. 12	90.47
Feb. 10	81.20	May 8	87.06	Oct. 13	85.99	Dec. 8	88.61

*5S/10-28B1. John Sturtevant. Near Santa Ana. Drilled unused artesian well in deposits of Pleistocene age, diameter 10 inches, depth 122 feet. Land-surface datum is 45.1 feet above msl. Highest water level 23.90 below lsd, Jan. 12, 1945; lowest 72.59 below lsd, July 10, 1952. Records available: 1935-53.

Jan. 15	48.87	Apr. 14	70.58	Sept. 17	67.64	Nov. 12	60.68
Feb. 17	63.06	Aug. 17	70.32	Oct. 15	65.25	Dec. 10	59.35
Mar. 12	66.97						

*5S/11-2E1. Western Trust & Savings Bank. Near Westminster. Drilled irrigation artesian well in deposits of Pleistocene age, diameter 12 inches, depth 517 feet. Land-surface datum is 47.98 feet above msl. Highest water level 22.31 below lsd, May 19, 1930; lowest 85.16 below lsd, Aug. 7, 1952. Records available: 1929-53.

Jan. 9	53.12	Apr. 7	77.54	Sept. 11	84.98	Nov. 10	72.05
Feb. 9	58.87	May 7	75.70	Oct. 9	79.59	Dec. 4	65.42
Mar. 10	74.76	July 7	84.58				

*5S/11-16D2. Anaheim Sugar Co. Near Seal Beach. Drilled unused artesian well in deposits of Pleistocene age, diameter 10 inches, depth 400 feet. Land-surface datum is 16.62 feet above msl. Highest water level 0.70 above lsd, Feb. 6, 1930; lowest 49.81 below lsd, July 29, 1953. Records available: 1929-53.

Date	Water level	Date	Water level	Date	Water level	Date	Water level
Jan. 7	24.31	Mar. 18	45.21	July 1	45.22	Oct. 7	44.08
14	24.09	Apr. 1	42.08	29	49.81	Nov. 11	39.11
Feb. 4	27.76	May 6	38.30	Aug. 5	49.62	Dec. 30	36.46
Mar. 4	40.20	June 3	41.55	Sept. 2	47.23		

5S/11-18N1. U. S. Naval Depot. Near Seal Beach. Drilled observation well in water-bearing deposits of Pleistocene age, diameter 6 inches, depth 250 feet. Land-surface datum is 4.85 feet above msl. Highest water level 1.58 below lsd, Jan. 25, 1944; lowest 4.96 below lsd, Feb. 21, 1944, July 9, 1953. Records available: 1941-48, 1951-53. July 9, 4.96.

5S/11-18P1. U. S. Naval Depot. Near Seal Beach. Drilled observation well in water-bearing deposits of Pleistocene age, diameter 6 inches, depth 126 feet. Land-surface datum is 4.78 feet above msl. Highest water level 1.24 above lsd, Jan. 15, 1942; lowest 2.58 below lsd, July 9, 1953. Records available: 1941-48, 1951-53. July 9, 2.58.

*5S/11-25P1. E. J. Lecrivain. Near Huntington Beach. Drilled domestic artesian well in deposits of Pleistocene age, diameter 12 inches, depth 150 feet. Land-surface datum is 48 feet above msl. Highest water level 33.90 below lsd, Feb. 25, 1932; lowest 69.86 below lsd, Mar. 12, 1953. Records available: 1930-53.

Jan. 15	57.11	Apr. 14	67.60	July 14	69.44	Oct. 15	68.92
Feb. 17	65.06	May 12	66.04	Aug. 17	69.14	Nov. 12	66.10
Mar. 12	69.86	June 11	66.37	Sept. 17	69.24	Dec. 10	64.18

*5S/11-28A1. A. Ruoff. Near Huntington Beach. Drilled irrigation artesian well in deposits of Pleistocene age, diameter 10 inches, depth 453 feet. Land-surface datum is 7.13 feet above msl. Highest water level 15.18 above lsd, May 23, 1945; lowest 50.60 below lsd, Feb. 15, 1951. Records available: 1930-53.

Jan. 15	26.17	June 11	42.64	Sept. 17	49.50	Nov. 12	46.20
Apr. 14	40.94	Aug. 17	48.44	Oct. 15	50.41	Dec. 10	40.59
May 12	40.13						

*5S/11-29C4. Sunset Land & Water Co. Near Sunset Beach. Drilled unused artesian well in deposits of Pleistocene age, diameter 7 inches, reported depth 157 feet. Land-surface datum is 7.90 feet above msl. Highest water level 1.96 above lsd, Feb. 2, 1942; lowest dry, Feb. 17, 1953. Records available: 1941-53. Jan. 15, 19.58; Feb. 17, dry. Measurement discontinued.

5S/11-29E1. U. S. Government. Near Sunset Beach. Drilled observation well in water-bearing deposits of Pleistocene age, diameter 6 inches, depth 220 feet. Land-surface datum is 7.56 feet above msl. Highest water level 0.05 above lsd, June 2, 1942; lowest 8.18 below lsd, Oct. 9, 1943. Records available: 1941-48, 1951-53. July 9, 6.74.

5S/11-29E2. U. S. Government. Near Sunset Beach. Drilled observation well in water-bearing deposits of Pleistocene age, diameter 6 inches, depth 120 feet. Land-surface datum is 6.57 feet above msl. Highest water level 4.06 below lsd, Dec. 20, 1941; lowest 5.93 below lsd, May 16, 1952. Records available: 1941-48, 1951-53. July 9, 5.86.

5S/12-12P1. U. S. Naval Ammunition and Net Depot. Near Seal Beach. Drilled unused artesian well in deposits of Pleistocene age, diameter 12 inches, depth 185 feet. Land-surface datum is 15.97 feet above msl. Records furnished by city of Long Beach. Highest water level 6.26 below lsd, Mar. 13, 1933; lowest 38.03 below lsd, Sept. 4, 1953. Records available: 1930-53.

Jan. 2	25.98	Mar. 27	33.57	June 19	34.81	Sept. 4	38.03
23	25.30	Apr. 17	33.51	July 10	36.10	Oct. 2	37.00
Feb. 13	27.21	May 8	32.42	30	37.72	Nov. 13	34.88
Mar. 4	30.60	29	33.66	Aug. 14	38.00	Dec. 24	32.10

5S/12-13D1. U. S. Navy Depot. Near Seal Beach. Drilled observation well in water-bearing deposits of Pleistocene age, diameter 6 inches, depth 210 feet. Land-surface datum is 24.55 feet above msl. Highest water level 22.08 below lsd, Apr. 20, 1942; lowest 24.56 below lsd, Jan. 15, 1942. Records available: 1942-48, 1951-53. July 9, 23.53.

*6S/10-1E1. Frank Ey. Near Costa Mesa. Drilled irrigation artesian well in deposits of Pleistocene age, depth 300 feet. Land-surface datum is 34.17 feet above msl. Highest water level 14.54 below lsd, Jan. 17, 1942; lowest 84.00 below lsd, July 16, 1951. Records available: 1930-53. Measurement discontinued.

Date	Water level	Date	Water level	Date	Water level	Date	Water level
Jan. 1	47.67	Apr. 6	76.74	July 6	69.94	Sept. 14	68.18
Feb. 2	54.45	May 4	63.82	Aug. 3	74.95	Oct. 5	67.22
Mar. 2	67.26	June 1	62.34				

*6S/10-1L2. I. A. W. Henry. Near Santa Ana. Drilled unused artesian well in deposits of Pleistocene age, diameter 2½ inches, depth 143 feet. Land-surface datum is 39.65 feet above msl. Highest water level flowing, 1904; lowest 36.00 below lsd, July 15, 1952. Records available: 1904, 1921-53.

Jan. 16	30.45	Apr. 16	30.44	July 16	30.39	Oct. 20	25.58
Feb. 17	30.76	May 14	30.39	Aug. 18	27.93	Nov. 17	25.52
Mar. 12	32.46	June 16	30.42	Sept. 17	25.65	Dec. 10	25.88

*6S/10-5C1. Robert Gisler. Huntington Beach. Drilled irrigation artesian well in deposits of Pleistocene age, diameter 14 inches, depth 209 feet, perforations 85-92, 126-144, 165-184. Land-surface datum is 19.24 feet above msl. Highest water level 4.18 below lsd, Jan. 17, 1942; lowest 48.42 below lsd, Mar. 9, 1953. Records available: 1931-53.

Jan. 5	27.74	Mar. 9	48.42	July 6	39.64	Oct. 5	40.51
19	26.65	Apr. 13	41.67	Aug. 3	42.41	Nov. 16	36.56
Feb. 2	29.31	May 18	39.17	Sept. 14	41.41	Dec. 28	33.96
Mar. 2	46.22	June 1	38.50				

*6S/11-13G2. Surf Land & Water Co. Near Huntington Beach. Drilled unused artesian well, diameter 12 inches, depth 154 feet. Land-surface datum is 2.85 feet above msl. Highest water level 1.65 above lsd, Apr. 21, 1941; lowest 17.09 below lsd, Feb. 21, 1951. Records available: 1930-53.

Jan. 7	7.11	Mar. 25	16.65	July 1	10.63	Nov. 4	10.37
21	6.61	Apr. 1	14.06	Aug. 5	11.70	Dec. 2	9.11
Feb. 4	7.80	May 6	11.84	Sept. 2	11.78	30	9.86
Mar. 4	15.96	June 3	10.91	Oct. 7	11.07		

*I-9F1. The Irvine Co. Near Santa Ana. Drilled irrigation artesian well in deposits of Pleistocene age, diameter 20 to 10 inches, depth 1,208 feet. Land-surface datum is 51 feet above msl. Highest water level 23.62 below lsd, Apr. 18, 1945; lowest 102.83 below lsd, July 25, 1951. Records available: 1932-53.

Jan. 21	58.62	Apr. 1	94.69	June 24	89.13	Oct. 7	86.93
28	58.35	May 6	82.70	Aug. 12	95.52	Nov. 4	84.34
Feb. 11	62.31	June 3	81.90	Sept. 9	90.76	Dec. 30	75.81
Mar. 4	75.32						

Riverside County

San Jacinto Valley

Measurements furnished by Riverside County Flood Control and Conservation Districts are marked with an asterisk.

4/1W-36N2. Fruitvale Mutual Water Co. Near Hemet. Drilled well in alluvium, diameter 30 inches. Land-surface datum is about 1,690 feet above msl. Highest water level 123.32 below lsd, Dec. 23, 1950; lowest 145.30 below lsd, Feb. 26, 1953. Records available: 1950-53. Dec. 23, 1950, 123.32; May 19, 1951, 137.85; Nov. 3, 129.44; Jan. 8, 1952, 134.05; Feb. 26, 1953, 145.30.

4/3W-32E1. James Malcolm. Perris. Drilled well in alluvium, diameter 16 inches. Land-surface datum is about 1,433 feet above msl. Highest water level 26.45 below lsd, Apr. 26, 1948; lowest 73.49 below lsd, Apr. 26, 1942. Records available: 1929-53. Feb. 26, 67.49; *Dec. 22, 68.79.

Measurements furnished by California State Division of Water Resources are marked with double asterisks.

5/2W-24A1. L. Wilhelm. Near Winchester. Drilled unused domestic well, diameter 7 inches, reported depth 120 feet. Land-surface datum is about 1,499 feet above msl. Highest water level 6.33 below lsd, Nov. 25, 1917; lowest 51.65 below lsd, Aug. 19, 1952. Records available: 1914-53. **Jan. 29, 43.44; Feb. 26, 46.28; **Dec. 19, 47.81.

5/2W-27E2. Fred Harvey. Winchester. Drilled domestic well in alluvium, diameter 9 inches. Land-surface datum is about 1,477 feet above msl. Highest water level 25.20 below lsd, Mar. 4, 1931; lowest 45.25 below lsd, Dec. 20, 1951. Records available: 1930-53. Feb. 26, 43.71.

6/3W-4A2. Menifee School. Menifee Valley. Drilled domestic well in alluvium. Land-surface datum is about 1,438 feet above msl. Highest water level 45.79 below lsd, Mar. 7, 1945; lowest 72.60 below lsd, Jan. 23, 1953. Records available: 1925-34, 1936, 1938-53. *Jan. 23, 72.60; Feb. 26, 62.37.

San Bernardino County

Mojave River Basin
Upper Basin
Measurements furnished by San Bernardino County Flood Control District
are marked with an asterisk.
Measurements furnished by Geological Survey
are marked with double asterisks.

*3/3W-6E2. Mike Spranger. Drilled well in alluvium, diameter 12 inches, reported depth 61 feet. Land-surface datum is about 2,950 feet above msl. Highest water level 6.10 below lsd, May 11, 1949; lowest 57.27 below lsd, Nov. 26, 1951. Records available: 1948-53. Jan. 15, 26.48; Feb. 16, 29.82; Mar. 16, 30.80; Apr. 13, 25.99; **May 26, 30.80; Nov. 6, 48.67.

*3/4W-13B2. W. T. Boehringer. Formerly Olive. Drilled well in alluvium, diameter 10 inches. Land-surface datum is about 2,950 feet above msl. Highest water level 79.26 below lsd, May 26, 1953; lowest 96.54 below lsd, Nov. 26, 1951. Records available: 1951-53. **May 26, 79.26; Nov. 6, 84.00.

*4/3W-1M1. E. D. S. Pope. Apple Valley. Drilled unused irrigation well in alluvium, reported depth 730 feet. Land-surface datum is about 3,044 feet above msl. Highest water level 182.50 below lsd, Jan. 15, 1953; lowest 210.05 below lsd, Nov. 27, 1951. Records available: 1930-33, 1935-43, 1945-53. Jan. 15, 182.50; Feb. 16, 184.4; Mar. 16, 185.3; Apr. 13, 184.55; **May 26, 209.78; Nov. 9, 204.87.

*4/3W-6B1. Pettis. Formerly A. J. Lintner. Near Hesperia. Drilled irrigation well in alluvium, diameter 12 inches. Land-surface datum is about 2,871 feet above msl. Highest water level 50.78 below lsd, Nov. 21, 1945; lowest 67.52 below lsd, Nov. 9, 1953. Records available: 1931-32, 1934-53. May 26, 61.49; Nov. 9, 67.52.

*4/3W-6D1. A. W. Phillips. Near Hesperia. Drilled domestic well in alluvium, diameter 10 inches, reported depth 100 feet. Land-surface datum is about 2,872 feet above msl. Highest water level 51.5 below lsd, Feb. 24, 1917; lowest 61.38 below lsd, May 26, 1953. Records available: 1917, 1930-53. Jan. 15, 58.63; Feb. 16, 58.93; Mar. 16, 58.00; Apr. 13, 59.55; **May 26, 61.38; Nov. 9, 61.37.

*4/3W-18E1. Owner unknown. Formerly C. O. Evans. Drilled irrigation well in alluvium, diameter 12 inches, reported depth 100 feet. Land-surface datum is about 2,867 feet above msl. Highest water level 14.36 below lsd, May 2, 1945; lowest 38.80 below lsd, Nov. 6, 1953. Records available: 1930-32, 1935, 1938-53. Jan. 15, 32.11; Feb. 16, 33.32; Mar. 16, 33.50; Apr. 13, 37.20; **May 26, 36.55; Nov. 6, 38.80.

*4/3W-19R1. Arrowhead Reservoir & Power Co. Near Hesperia. Driven observation well in alluvium, diameter 2 inches, reported depth 45 feet. Land-surface datum is about 2,890 feet above msl. Highest water level 10.75 below lsd, June 12, 1907; lowest 43.70 below lsd, Nov. 6, 1953. Records available: 1905, 1907, 1930-53. Jan. 15, 35.78; Feb. 16, 37.60; Mar. 16, 39.90; Apr. 13, 40.22; **May 26, 42.03; Nov. 6, 43.70.

*5/3W-3D1. Dick Lewis. Apple Valley. Drilled domestic and irrigation well in alluvium, diameter 12 inches. Land-surface datum is about 2,914 feet above msl. Highest water level 71.80 below lsd, May 7, 1948; lowest 87.70 below lsd, Nov. 6, 1953. Records available: 1948-49, 1951-53. **May 26, 77.24; Nov. 6, 87.70.

*5/3W-13D1. Eva V. Case. Apple Valley. Drilled domestic well in alluvium, diameter 6 inches. Land-surface datum is about 2,990 feet above msl. Highest water level 89.21 below lsd, May 7, 1948; lowest 91.30 below lsd, Nov. 6, 1953. Records available: 1948-53. **May 27, 90.25; Nov. 6, 91.30.

*5/3W-18F1. Owner unknown. Formerly J. D. Humiston. Near Victorville. Drilled irrigation well in alluvium, diameter 14 inches, reported depth 464 feet. Land-surface datum is about 2,909 feet above msl. Highest water level 98.0 below lsd, Feb. 27, 1917; lowest 118.60 below lsd, May 27, 1953. Records available: 1917, 1923, 1930-33, 1935, 1937-53. Jan. 16, 113.31; Feb. 17, 114.09; Mar. 17, 113.93; Apr. 14, 115.86; **May 27, 118.60; Nov. 9, 117.07.

*5/3W-22A1. Curtis Marshall. Formerly Jack Rothwell. Apple Valley. Drilled domestic and irrigation well in alluvium, diameter 12 inches. Land-surface datum is about 2,924 feet above msl. Highest water level 88.87 below lsd, May 7, 1948; lowest 98.40 below lsd, Nov. 6, 1953. Records available: 1948-53. Nov. 6, 98.40.

5/3W-24N1. Douglas. Apple Valley. Drilled domestic well in alluvium, diameter 12 inches. Land-surface datum is about 2,928 feet above msl. Highest water level 89.04 below lsd, May 7, 1948; lowest 93.00 below lsd, May 27, 1953. Records available: 1948-53. May 27, 93.00.

*5/4W-10M1. Owner unknown. Victorville. Dug domestic well in alluvium. Land-surface datum is about 2,765 feet above msl. Highest water level 43.57 below lsd, Dec. 21, 1943; lowest 46.19 below lsd, Nov. 19, 1942. Records available: 1930-32, 1935, 1937-53. **May 27, 45.50; Nov. 9, 43.63.

*5/4W-11P1. Mr. Pratt. Near Victorville. Drilled domestic well in alluvium, diameter 8 inches, reported depth 65 feet. Land-surface datum is about 2,786 feet above msl. Highest water level 53.77 below lsd, Dec. 13, 1944; lowest 58.00 below lsd, Nov. 9, 1953. Records available: 1931-32, 1935, 1937-53. **May 27, 55.95; Nov. 9, 58.00.

*5/4W-11P2. Lee Saul. Near Victorville. Drilled irrigation well in alluvium, diameter 16 inches, reported depth 323 feet. Land-surface datum is about 2,791 feet above msl. Highest water level 27.65 below lsd, June 15, 1932; lowest 50.60 below lsd, May 10, 1949. Records available: 1931-32, 1935-53. **May 27, 46.57; Nov. 9, 48.47.

*5/4W-35A1. A. Sorensen. Near Hesperia. Drilled irrigation well in alluvium, diameter 10 inches. Land-surface datum is about 2,802 feet above msl. Highest water level flowing, Nov. 24, 1952; lowest 9.20 below lsd, May 26, 1953. Records available: 1917, 1930-31, 1945, 1948-53. **May 26, 9.20; Nov. 9, 2.80.

*6/3W-28R1. Irene McCarthy. Apple Valley. Drilled domestic and irrigation well in alluvium. Land-surface datum is about 2,968 feet above msl. Highest water level 125.70 below lsd, May 13, 1948; lowest 131.37 below lsd, May 23, 27, 1953. Records available: 1946-53. May 23, 131.37; **May 27, 131.37.

Middle Basin

*7/4W-30C1. Owner unknown. Near Bryman Crossing. Drilled irrigation well in alluvium. Land-surface datum is about 2,561 feet above msl. Highest water level 36.90 below lsd, Jan. 4, 1945; lowest 60.10 below lsd, Nov. 12, 1953. Records available: 1930-32, 1935-53. Jan. 16, 60.24; Feb. 17, 60.81; Mar. 17, 58.13; Apr. 14, 58.26; **May 26, 58.90; Nov. 12, 60.10.

*8/3W-4M1. Everett Swing. Near Hodge Crossing. Dug unused well in alluvium, diameter 6 feet. Land-surface datum is about 2,288 feet above msl. Highest water level 13.10 below lsd, May 13, 1943; lowest 16.14 below lsd, Nov. 27, 1951. Records available: 1930-33, 1939-53. Jan. 16, 14.90; Feb. 18, 14.39; Mar. 17, 14.33; Apr. 14, 14.28; **May 26, 14.06; Nov. 12, 15.89.

*8/4W-12Q1. Holcomb Bros. Near Wild Crossing. Drilled irrigation well in alluvium. Land-surface datum is about 2,329 feet above msl. Highest water level 10.26 below lsd, Nov. 13, 1941; lowest 13.42 below lsd, Nov. 12, 1953. Records available: 1931-32, 1935-37, 1939-41, 1943-53. Jan. 16, 11.21; Mar. 17, 10.30; Nov. 12, 13.42.

*8/4W-20N1. Pofapoff. Formerly Lord. Near Helendale. Dug irrigation and domestic well in alluvium. Land-surface datum is about 2,430 feet above msl. Highest water level 2.01 below lsd, Mar. 8, 1932; lowest 21.60 below lsd, Nov. 12, 1953. Records available: 1930-32, 1934-47, 1951-53. **May 26, 18.93; Nov. 12, 21.60.

*8/4W-31D1. F. H. Merrill. Near Helendale. Dug domestic and irrigation well in alluvium, diameter 8 feet, reported depth 68 feet. Land-surface datum is about 2,465 feet above msl. Highest water level 42.19 below lsd, Nov. 18, 1948; lowest 57.30 below lsd, Nov. 12, 1953. Records available: 1930-32, 1939-53. Jan. 16, 49.10; Feb. 18, 52.83; Mar. 17, 55.54; Nov. 12, 57.30.

*8/4W-31R1. Fred Orebaugh. Near Helendale. Dug and drilled unused well, diameter 14 inches. Land-surface datum is about 2,449 feet above msl. Highest water level 14.10 below lsd, Apr. 25, 1946; lowest 18.54 below lsd, May 26, 1953. Records available: 1930-32, 1934-48, 1950-53. Jan. 16, 5.14; Feb. 17, 5.88; May 26, 18.54; Nov. 12, 8.35.

*9/1W-10D2. R. E. Hettick. Near Barstow. Drilled irrigation well in alluvium, diameter 12 inches, reported depth 132 feet. Land-surface datum is about 2,030 feet above msl. Highest water level 5.41 below lsd, May 1, 1946; lowest 12.30 below lsd, Nov. 17, 1953. Records available: 1945-53. Jan. 23, 10.70; Feb. 19, 10.86; Mar. 18, 22.08, pumping; Apr. 17, 10.52; **May 26, 10.88; Nov. 17, 12.30.

9/1W-10M1. Greystone Auto Camp. Near Barstow. Drilled domestic well in alluvium. Land-surface datum is about 2,100 feet above msl. Highest water level 48.01 below lsd, Apr. 26, 1944; lowest 60.07 below lsd, Nov. 28, 1951. Records available: 1930, 1932, 1935, 1938-47, 1949-53. May 21, 54.89.

*9/1W-13B1. F. Ryerse. Near Daggett. Dug and drilled irrigation well in alluvium. Land-surface datum is about 2,011 feet above msl. Highest water level 6.24 below lsd, Apr. 26, 1944; lowest 47.35 below lsd, Nov. 28, 1951. Records available: 1925-28, 1930-32, 1935, 1938-53. **May 21, 24.38; Nov. 16, 28.80.

*9/2W-19B1. Sweeten. Near Lenwood Crossing. Domestic well in alluvium. Land-surface datum is about 2,255 feet above msl. Highest water level 62.29 below lsd, May 21, 1947; lowest 72.00 below lsd, Nov. 16, 1953. Records available: 1930-32, 1935, 1937-53. Jan. 23, 70.89; Feb. 18, 68.70; Mar. 18, 69.14; Apr. 17, 69.12; **May 26, 69.94; Nov. 16, 72.00.

*9/3W-10P1. Owner unknown. Near Lenwood Crossing. Drilled unused well in alluvium. Land-surface datum is about 2,292 feet above msl. Highest water level 83.3 below lsd, May 20, Nov. 13, 1947; lowest 101.20 below lsd, Nov. 12, 1953. Records available: 1930-32, 1934-53. Jan. 16, 91.95; Mar. 17, 92.15; Apr. 14, 93.86; **May 27, 91.79; Nov. 12, 101.20.

*9/3W-10R1. Owner unknown. Formerly Osborn. Near Lenwood Crossing. Dug and drilled irrigation well. Land-surface datum is about 2,209 feet above msl. Highest water level 8.73 below lsd, May 13, 1943; lowest 25.95 below lsd, Nov. 12, 1953. Records available: 1930-32, 1935-49, 1951-53. Jan. 16, 20.06; Feb. 18, 20.83; Mar. 17, 21.20; Apr. 14, 22.86; **May 27, 22.47; Nov. 12, 25.95.

*9/3W-14D1. Bullock. Near Lenwood Crossing. Dug and drilled irrigation well. Land-surface datum is about 2,230 feet above msl. Highest water level 7.33 below lsd, May 4, 1945; lowest 28.85 below lsd, Nov. 12, 1953. Records available: 1930-32, 1934-53. **May 27, 25.21; Nov. 12, 28.85.

*9/3W-28A1. J. Slagill. Near Hodge Crossing. Dug and drilled irrigation well in alluvium. Land-surface datum is about 2,210 above msl. Highest water level 3.37 below lsd, Mar. 4, 1932; lowest 26.80 below lsd, Nov. 12, 1953. Records available: 1930-36, 1938-53. Jan. 16, 18.79; Feb. 18, 19.60; Mar. 17, 21.04; **May 27, 20.50; Nov. 12, 26.80.

*9/3W-34R1. Nellie Storey. Near Hodge Crossing. Dug unused well in alluvium. Land-surface datum is about 2,381 feet above msl. Highest water level 125.3 below lsd, Dec. 12, 1944; lowest 132.60 below lsd, Nov. 12, 1953. Records available: 1930-33, 1935-36, 1938-42, 1944-45, 1947-51, 1953. Nov. 12, 132.60.

*10/1W-31C1. Terry. Formerly Nelson. Near Barstow. Drilled irrigation well in alluvium. Land-surface datum is about 2,130 feet above msl. Highest water level 45.30 below lsd, June 1, 1938; lowest 51.00 below lsd, Aug. 13, 1931. Records available: 1930-32, 1935, 1938-53. Nov. 13, 44.30.

*10/2W-19P1. Shipley. Formerly Loftus. Near Barstow. Drilled domestic well in alluvium. Land-surface datum is about 2,216 feet above msl. Highest water level 63.19 below lsd, Apr. 4, 1930; lowest 81.90 below lsd, Nov. 13, 1953. Records available: 1930-33, 1935, 1937-45, 1947-53. **May 27, 73.00; Nov. 13, 81.90.

*10/2W-30R1. Dixie Crossing School. Near Barstow. Drilled domestic well in alluvium, diameter 12 inches. Land-surface datum is about 2,175 feet above msl. Highest water level 23.78 below lsd, May 27, 1953; lowest 25.50 below lsd, Nov. 13, 1953. Records available: 1952-53. May 27, 23.78; Nov. 13, 25.50.

*10/3W-32C1. Owner unknown. Near Hinkley. Dug and drilled unused well in alluvium. Land-surface datum is about 2,219 feet above msl. Highest water level 54.70 below lsd, Feb. 25, 1931; lowest 70.15 below lsd, Nov. 12, 1953. Records available: 1931-32, 1934, 1936-53. **May 27, 59.63; Nov. 12, 70.15.

11/3W-28R1. S. F. Edwards. Dug irrigation well in alluvium. Land-surface datum is about 2,074 feet above msl. Highest water level 21.28 below lsd, May 31, 1930; lowest dry, Nov. 13, 1953. Records available: 1930-32, 1935-40, 1944-53. May 27, 28.90; Nov. 13, dry.

*11/3W-34F1. B Bar B Ranch. Hinkley Valley. Dug unused well in alluvium. Land-surface datum is about 2,085 feet above msl. Highest water level 29.40 below lsd, Jan. 3, 1936; lowest 36.40 below lsd, Nov. 13, 1953. Records available: 1930-32, 1934-53. **May 27, 35.98; Nov. 13, 36.40.

Lower Basin

*8/3E-3E1. C. W. Beaverstock. Near Newberry. Drilled well in alluvium, diameter 24 inches. Land-surface datum is about 1,820 feet above msl. Highest water level 3.80 below lsd, Apr. 28, 1932; lowest 9.72 below lsd, Nov. 21, 1952. Records available: 1930-32, 1935-53. Jan. 23, 7.80; Feb. 18, 6.73; Mar. 19, 6.12; Apr. 17, 6.13; **May 20, 6.39; Nov. 16, 9.18.

*8/3E-3F1. Owner unknown. Near Newberry. Drilled domestic well in alluvium, diameter 7 inches, reported depth 32 feet. Land-surface datum is about 1,826 feet above msl. Highest water level 21.08 below lsd, May 19, 1948; lowest 24.86 below lsd, Nov. 28, 1940. Records available: 1930-32, 1935-53. **May 20, 22.88; Nov. 16, 23.56.

*8/3E-4B1. H. B. Barrett. Formerly Lyle Graham. Near Newberry. Drilled irrigation well in alluvial fan deposits, diameter 10 inches, depth 16 feet. Land-surface datum is about 1,819 feet above msl. Highest water level 0.54 below lsd, Feb. 26, 1932; lowest 6.20 below lsd, Nov. 16, 1953. Records available: 1930-32, 1935-53. **May 20, 3.34; Nov. 16, 6.20.

*8/3E-4B2. H. B. Barrett. Formerly Lyle Graham. Near Newberry. Dug and drilled irrigation well in alluvial fan deposits, reported depth 50 feet. Land-surface datum is about 1,820 feet above msl. Highest water level 0.95 below lsd, Feb. 26, 1932; lowest 6.05 below lsd, Nov. 17, 1953. Records available: 1922, 1930-32, 1935-36, 1938-53. **May 20, 4.98; Nov. 17, 6.05.

*8/4E-7E1. L. Bodine. Near Troy Dry Lake. Dug and drilled irrigation well in alluvium. Land-surface datum is about 1,802 feet above msl. Highest water level 21.67 below lsd, Dec. 8, 1932; lowest 25.26 below lsd, Nov. 17, 1953. Records available: 1919, 1922, 1930-32, 1938-48, 1950-53. Nov. 17, 25.26.

*8/4E-12L1. Mojave Camp Service Station. Near Troy Dry Lake. Drilled well in alluvium, reported depth 205 feet. Land-surface datum is about 1,810 feet above msl. Highest water level 30.40 below lsd, Jan. 2, Nov. 18, 1947; lowest 33.58 below lsd, Nov. 24, 1942. Records available: 1930, 1932, 1935-45, 1947-53. Jan. 23, 31.15; Feb. 19, 30.90; Mar. 19, 30.79; Apr. 13, 30.79; **May 20, 30.79.

*9/1E-12D1. Aron Kimble. Near Daggett. Drilled well in alluvium. Land-surface datum is about 1,950 feet above msl. Highest water level 33.50 below lsd, Apr. 26, 1944; lowest 53.56 below lsd, Nov. 17, 1953. Records available: 1930, 1932, 1934-35, 1937-45, 1947-53. **May 19, 52.20; Nov. 17, 53.56.

*9/1E-13E1. Owner unknown. Near Daggett. Drilled well in alluvium, diameter 12 inches. Land-surface datum is about 1,949 feet above msl. Highest water level 49.93 below lsd, May 19, 1943; lowest 81.75 below lsd, Nov. 16, 1953. Records available: 1925-28, 1930-53. Jan. 23, 72.60; Feb. 19, 73.65; Mar. 19, 73.26; Apr. 17, 75.97; **May 21, 73.92; Nov. 16, 81.75.

*9/1E-13E2. Getz. Drilled well in alluvium, diameter 12 inches. Land-surface datum is about 1,950 feet above msl. Highest water level 54.46 below lsd, Apr. 26, 1944; lowest 85.40 below lsd, Nov. 16, 1953. Records available: 1925-27, 1930-33, 1935-53. Jan. 23, 74.10; Feb. 19, 73.98; Mar. 19, 71.12; **May 21, 74.78; Nov. 16, 85.40.

*9/1E-18E1. Borland. Near Daggett. Dug and drilled irrigation well in alluvium. Land-surface datum is about 1,996 feet above msl. Highest water level 6.90 below lsd, Apr. 26, 1944; lowest 43.51 below lsd, May 2, 1950. Records available: 1925-28, 1930-32, 1934-50, 1952. No measurement made in 1953.

*9/1E-20N1. B. Lamantain. Near Daggett. Dug well in alluvium. Land-surface datum is about 2,200 feet above msl. Highest water level 82.40 below lsd, Nov. 20, 1952; lowest 104.40 below lsd, Nov. 16, 1953. Records available: 1952-53. **May 21, 85.48; Nov. 16, 104.40.

9/2E-3A2. Bruce McCormick. Near Yermo. Drilled well in alluvium, diameter 12 inches. Land-surface datum is about 1,845 feet above msl. Highest water level 13.07 below lsd, May 1, 1946; lowest dry, Nov. 17, 1953. Records available: 1931-35, 1937-49, 1951-53. **May 19, 27.85; Nov. 17, dry. Measurement discontinued.

*9/2E-4D1. Owner unknown. Near Yermo. Drilled well in alluvium. Land-surface datum is about 1,895 feet above msl. Highest water level 15.18 below lsd, Apr. 24, 1944; lowest 27.30 below lsd, Nov. 17, 1953. Records available: 1930-32, 1934-35, 1937-53. Jan. 23, 26.12; Feb. 19, 26.07; Mar. 19, 26.16; Apr. 17, 26.37; **May 19, 26.57; Nov. 17, 27.30.

*9/2E-8J1. Annie Escholtz. Near Minneola crossing. Drilled domestic well in alluvium, diameter 12 inches, reported depth 171 feet. Land-surface datum is about 1,915 feet above msl. Highest water level 34.86 below lsd, May 10, 1945; lowest dry, May 20, Nov. 16, 1953. Records available: 1919, 1925, 1928, 1930-33, 1935-53. Jan. 23, 44.10; Mar. 19, 52.10; Apr. 17, 47.45; May 20, dry; Nov. 16, dry. Measurement discontinued.

9/2E-12N1. Hunter. Near Toomey Crossing. Drilled unused well in alluvium, diameter 12 inches, reported depth 195 feet. Land-surface datum is about 1,872 feet above msl. Highest water level 1.80 below lsd, May 10, 1945; lowest dry, Nov. 16, 1953. Records available: 1919, 1924-27, 1930-35, 1937-53. May 20, 10.91; Nov. 16, dry. Measurement discontinued.

*9/2E-14N2. Scobel & Haimut. Near Minneola Crossing. Drilled unused well in alluvium, diameter 12 inches, reported depth 300 feet. Land-surface datum is about 1,896 feet above msl. Highest water level 15.30 below lsd, Nov. 16, 1945; lowest 25.45 below lsd, May 20, 1953. Records available: 1925, 1927-28, 1930-35, 1937-53. **May 20, 25.45; Nov. 16, 25.20.

*9/2E-14N3. Scobel & Haimut. Near Minneola Crossing. Drilled stock well in alluvium, reported depth 173 feet. Land-surface datum is about 1,883 feet above msl. Highest water level 14.0 below lsd, June 13, 1924; lowest 23.85 below lsd, Nov. 16, 1953. Records available: 1924-28, 1930-33, 1935, 1937-53. Jan. 23, 19.75; Feb. 19, 22.67; Mar. 19, 22.89; Apr. 18, 22.98; **May 20, 23.08; Nov. 16, 23.85.

9/2E-18F1. Owner unknown. Near Daggett. Drilled unused well in alluvium, diameter 12 inches. Land-surface datum is about 1,934 feet above msl. Highest water level 47.95 below lsd, May 10, 1945; lowest 63.48 below lsd, May 20, 1953. Records available: 1924-28, 1930-40, 1942-43, 1945-53. May 20, 63.48.

*9/2E-20Q1. Daggett Airport. Minneola Crossing. Drilled domestic well in alluvium, diameter 12 inches, reported depth 142 feet. Land-surface datum is about 1,922 feet above msl. Highest water level 41.81 below lsd, Nov. 15, 1945; lowest 54.25 below lsd, Feb. 19, 1953. Records available: 1932, 1941-48, 1952-53. Feb. 19, 54.25; **May 21, 53.45.

*9/3E-3D1. Almond Ranch. Near Harvard. Drilled irrigation well in alluvium, diameter 12 inches. Land-surface datum is about 1,823 feet above msl. Highest water level 40.85 below lsd, Nov. 6, 1950; lowest 44.68 below lsd, June 3, 1952. Records available: 1919, 1926, 1930-35, 1937-53. **May 19, 43.27; Nov. 17, 41.00.

*9/3E-12E1. Tankersley. Formerly B. Nicholas. Near Troy Dry Lake. Drilled domestic and irrigation well in alluvium. Land-surface datum is about 1,801 feet above msl. Highest water level 23.84 below lsd, Mar. 23, 1922; lowest 32.67 below lsd, Nov. 17, 1953. Records available: 1922, 1930-33, 1935, 1937-44, 1946-53. Jan. 23, 29.40; Feb. 19, 31.50; Mar. 19, 30.49; Apr. 17, 28.98; Nov. 17, 32.67.

9/3E-19E1. Edwards. Near Newberry. Drilled unused well in alluvium, diameter 12 inches, reported depth 200 feet. Land-surface datum is about 1,860 feet above msl. Highest water level flowing, Oct. 31, 1919, May 22, 1922; lowest 9.84 below lsd, Nov. 16, 1953. Records available: 1919, 1922, 1930-32, 1935, 1938-48, 1950, 1952-53. **May 20, 9.27; Nov. 16, 9.84.

*9/3E-19P1. Frey. Near Newberry. Drilled unused well in alluvium, diameter 12 inches, reported depth 151 feet. Land-surface datum is about 1,859 feet above msl. Highest water level flowing, May 23, 1947; lowest 4.83 below lsd, Nov. 6, 1953. Records available: 1930-43, 1951-53. **May 20, 3.87; Nov. 6, 4.83.

*9/3E-32A1. Berden. Newberry. Drilled well in alluvium. Land-surface datum is about 1,837 feet above msl. Highest water level 5.25 below lsd, June 4, 1952; lowest 6.74 below lsd, Nov. 21, 1952. Records available: 1952-53. **May 20, 5.40; Nov. 16, 6.50.

*9/3E-34D1. Clickenbeard. Near Newberry. Drilled and dug domestic well in alluvium. Land-surface datum is about 1,828 feet above msl. Highest water level 28.22 below lsd, Feb. 20, 1930; lowest 35.30 below lsd, Nov. 16, 1953. Records available: 1919, 1922, 1930-32, 1934-43, 1945, 1947-53. **May 20, 32.27; Nov. 16, 35.30.

*9/4E-20L1. F. L. Shepherd. Near Troy Dry Lake. Drilled well in alluvium, diameter 6 inches, reported depth 72 feet. Land-surface datum is about 1,780 feet above msl. Highest water level 9.49 below lsd, June 3, 1952; lowest 12.00 below lsd, Nov. 17, 1953. Records available: 1952-53. **May 19, 9.84; Nov. 17, 12.00.

*9/4E-31K1. Owner unknown. Formerly A. M. Monroe. Near Troy Dry Lake. Drilled unused well, diameter 12 inches, reported depth 25 feet. Land-surface datum is about 1,788 feet above msl. Highest water level 12.86 below lsd, Apr. 25, 1944; lowest 16.46 below lsd, Nov. 24, 1942. Records available: 1930-32, 1935-53. Jan. 23, 15.04; Mar. 19, 14.17; Apr. 17, 14.29; **May 20, 14.22; Nov. 17, 14.43.

*10/2E-32P1. Yermo Mutual Water Co. Near Yermo. Drilled unused well in alluvium, diameter 16 inches, depth 413 feet. Land-surface datum is about 1,906 feet above msl. Highest water level 18.53 below lsd, Dec. 15, 1922; lowest 36.80 below lsd, Nov. 17, 1953. Records available: 1919-20, 1922, 1924, 1929-53. **May 19, 34.52; Nov. 17, 36.80.

*10/3E-34E2. G. M. Bond. Near Harvard. Drilled irrigation well in alluvium, diameter 16 inches, reported depth 30 feet. Land-surface datum is about 1,850 feet above msl. Highest water level 8.38 below lsd, May 3, 1950; lowest dry, Nov. 17, 1953. Records available: 1947-53. May 19, 9.17; Nov. 17, dry. Measurement discontinued.

Bunker Hill Basin
Measurements furnished by San Bernardino Valley Water Conservation District
are marked with an asterisk.
Measurements furnished by Geological Survey
are marked with double asterisks.

*1N/4W-36F1. George M. Cooley Estate. Near Perris Hill. Drilled unused well in alluvial deposits of Recent age, diameter 10 inches, depth 80 feet. Land-surface datum is 1,145.94 feet above msl. Highest water level 26.4 below lsd, May 18, 1917; lowest dry, June 2, 1953. Records available: 1900, 1904, 1906, 1914-53. Jan. 22, 74.13; **Mar. 4, 77.87; June 2, dry. Measurement discontinued.

1S/3W-20B1. Emmet Martin. Bunker Hill Basin. Drilled observation well in alluvial deposits of Recent age, diameter 7 inches, depth 93 feet. Land-surface datum is about 1,204 feet above msl. Highest water level 18.6 below lsd, Nov. 24, 1917; lowest 82.41 below lsd, Dec. 30, 1953. Records available: 1900, 1904, 1906-7, 1909, 1912, 1914-53.

Date	Water level	Date	Water level	Date	Water level	Date	Water level
Jan. 30	75.51	Apr. 30	76.87	July 30	79.39	Oct. 30	81.83
Feb. 26	75.73	June 1	77.75	Aug. 31	80.35	Dec. 1	82.26
Mar. 31	76.14	30	78.52	Oct. 1	81.13	30	82.41

1S/3W-17C1. E. N. Smith. Known as Williams Well. Drilled observation well in alluvium of Recent age, diameter 10 inches, depth 110 feet. Land-surface datum is 1,150 feet above msl. Records furnished by Gage Canal Co. Lowest water level 82.00 below lsd, Dec. 5, 26, 1953. Records available: 1892-94, 1896, 1898-53.

Jan. 3	64.66	Apr. 4	63.08	July 7	64.67	Oct. 6	71.33
10	63.92	11	63.58	14	65.25	10	79.75
17	63.16	18	64.25	21	66.25	17	80.15
24	82.42	28	59.25	28	66.92	24	80.75
31	61.75	May 5	59.50	Aug. 4	67.50	31	81.00
Feb. 7	61.75	12	60.00	11	68.00	Nov. 7	81.15
14	61.58	19	60.33	18	68.50	14	81.66
21	61.58	26	60.67	25	69.08	21	81.83
28	61.66	June 2	61.00	Sept. 1	69.58	28	81.83
Mar. 7	62.00	9	63.00	8	70.15	Dec. 5	82.00
14	62.08	16	63.25	15	70.50	12	81.92
21	62.33	23	63.92	22	70.58	19	81.92
28	62.67	30	64.33	29	71.00	26	82.00

*1S/3W-3N1. R. C. Gerber. Near East Highlands. Drilled unused well in alluvial deposits of Recent and Pleistocene age, diameter 14 inches, reported depth 182 feet. Land-surface datum is about 1,265 feet above msl. Highest water level 37.41 below lsd, May 24, 1922; lowest 156.6 below lsd, Nov. 27, 1951. Records available: 1920-53. Jan. 21, 146.00; **Mar. 4, 146.55; Apr. 7, 148.0; May 10, 148.1; **June 2, 149.38.

1S/3W-28E1. George Hinkley. Near Redlands. Drilled unused well in alluvium of Pleistocene and Recent age, diameter 7 inches, depth 122 feet. Land-surface datum is 1,244 feet above msl. Highest water level 23.42 below lsd, May 3, 1918; lowest dry, Oct. 26, 1953. Records available: 1900, 1904, 1906, 1909, 1912, 1914-48, 1950-53. Mar. 4, 75.10; June 2, 74.45; Oct. 26, dry. Measurement discontinued.

*1S/3W-32C1. William H. Martin. Drilled unused well in alluvium of Recent age, diameter 7 inches, depth 146 feet. Land-surface datum is 1,216 feet above msl. Highest water level 37.55 below lsd, Mar. 22, 1923; lowest 92.23 below lsd, Aug. 21, 1936. Records available: 1900, 1906, 1909, 1912, 1914-53. **Mar. 4, 83.65; **June 2, 84.95; Oct. 21, 91.46.

1S/4W-4J1. Miss Birdie Walsh. Formerly W. J. Walsh. San Bernardino. Drilled unused well in Bunker Hill Basin upper water-bearing zone of Recent age, diameter 2 inches, reported depth 158 feet. Land-surface datum is about 1,081 feet above msl. Records available: 1915-53. Mar. 4, dry; June 2, dry. Measurement discontinued.

San Diego County

San Luis Rey River Basin

10/2W-6F2. Formerly 10/3W-1a. San Luis Rey Ranch. Monserate Narrows. Drilled unused water-table well in alluvium of Recent age, diameter 12 inches, depth 109 feet. Land-surface datum is 282.36 feet above msl. Highest water level 5.18 below lsd, Mar. 15, 1943; lowest 14.10 below lsd, Nov. 19, 1953. Records available: 1937-53. Nov. 19, 14.10; Dec. 2, 13.96.

10/3W-11G1. Formerly 10/3W-1c. Fallbrook Public Utility District. Near Bonsall. Drilled unused water-table well in alluvium of Recent age, diameter 8 inches, depth 66 feet. Land-surface datum is 236.91 feet above msl. Highest water level 2.33 below lsd, Mar. 15, 1943; lowest 20.57 below lsd, Dec. 15, 1953. Records available: 1939-53. Nov. 19, 19.91; Dec. 15, 20.57.

10/3W-30K1. Formerly 10/3W-30. Fallbrook Public Utility District. Near Bonsall. Drilled unused water-table well in alluvium of Recent age, diameter 8 inches, reported depth 80 feet. Land-surface datum is 149.76 feet above msl. Highest water level 6.09 below lsd, Mar. 17, 1941; lowest 18.02 below lsd, Jan. 11, 1952. Records available: 1939-53. Nov. 19, 17.70.

11/4W-9F1. City of Oceanside. Near San Luis Rey. Drilled observation well in alluvium of Recent age, diameter 4 inches, reported depth 199 feet. Land-surface datum is about 63 feet above msl. Records furnished by city of Oceanside. Highest water level 3.47 below lsd, Mar. 14, 1943; lowest 52.10 below lsd, Dec. 7, 1953. Records available: 1940-53.

Date	Water level	Date	Water level	Date	Water level	Date	Water level
Jan. 5	45.23	Apr. 6	44.35	July 2	46.77	Oct. 6	51.77
Feb. 2	43.81	May 4	45.35	Aug. 4	49.10	Nov. 3	52.10
Mar. 4	43.77	June 30	47.18	Sept. 10	50.52	Dec. 7	52.10

11/4W-18C2. Robert Slaught. Near San Luis Rey. Drilled unused artesian well in alluvium of Recent age, diameter 12 inches, reported depth 134 feet. Land-surface datum is about 37 feet above msl. Highest water level 34.72 below lsd, Mar. 4, 1952; lowest 54.50 below lsd, Nov. 19, 1953. Records available: 1952-53. Mar. 4, 1952, 34.72; Nov. 17, 38.82, below sea level; Nov. 19, 1953, 54.50, below sea level; Dec. 1, 54.11, below sea level.

11/4W-18L3. Formerly 11/4W-18. Carlsbad Mutual Water Co. Near Oceanside. Drilled observation artesian well in alluvium of Recent age, diameter 6 inches, reported depth 115 feet. Land-surface datum is 35.34 feet above msl. Records furnished by Carlsbad Mutual Water Co. Highest water level 5.97 below lsd, Apr. 14, 1941; lowest 56.02 below lsd, Dec. 1, 1953. Records available: 1939-53. Dec. 1, 56.02, below sea level.

11/5W-13N1. Formerly 11/5W-15. City of Oceanside. Near airport. Drilled unused artesian well in alluvium of Recent age, diameter 14 inches, depth 160 feet. Land-surface datum is 16.26 feet above msl. Records furnished by city of Oceanside. All measurements are below sea level. Highest water level 1.61 below lsd, Mar. 15, 1943; lowest 25.37 below lsd, Aug. 4, 1953. Records available: 1939-53.

Jan. 6	18.29	Apr. 6	18.29	June 30	23.17	Oct. 6	25.08
Feb. 2	18.50	May 4	20.75	Aug. 4	25.37	Nov. 3	25.08
Mar. 4	18.08	June 2	21.33	Sept. 10	24.00	Dec. 7	23.67

San Dieguito River Basin

12/1W-31H2. City of San Diego. San Pasqual Valley. Drilled domestic water-table well in alluvial deposits, diameter 12 inches, depth 46 feet. Land-surface datum is 357.4 feet above msl. Highest water level 3.59 below lsd, Feb. 22, 1933; lowest 13.46 below lsd, Oct. 1, 1951. Records available: 1929-53. Feb. 24, 8.46; Aug. 12, 10.61; Nov. 24, 11.55; Dec. 7, 11.42.

12/1W-33J1. Formerly 12/1W-33a. F. B. Gierman. San Pasqual Valley. Dug concrete-lined unused water-table well in alluvium of Recent age, diameter 10 inches, depth 17 feet. Land-surface datum is 391.8 feet above msl. Highest water level 0.00 below lsd, Mar. 30, 1944; lowest 7.30 below lsd, Nov. 24, 1953. Records available: 1943-53. Feb. 24, 3.05; Aug. 12, 6.09; Nov. 24, 7.30; Dec. 8, 7.12.

12/1W-35F1. Formerly 12/1W-35K1. San Pasqual Academy. Near San Pasqual. Drilled unused water-table well in alluvium of Recent age, diameter 8 inches, depth 37 feet. Land-surface datum is about 430 feet above msl. Highest water level 6.17 below lsd, May 22, 1946; lowest 23.74 below lsd, Jan. 7, 1952. Records available: 1945-53. Nov. 24, 17.67; Dec. 8, 17.79.

San Diego River Basin

15/1E-10L1. Formerly 15/1E-10. Foster Dairy. Near El Monte Park. Drilled irrigation water-table well in alluvium of Recent age, diameter 12 inches, reported depth 110 feet. Land-surface datum is about 470 feet above msl. Highest water level 27.96 below lsd, Aug. 18, 1948; lowest 39.07 below lsd, Oct. 11, 1951. Records available: 1948-53. Dec. 10, 37.30.

15/1E-17H6. Spring Valley Irrigation District. Near Lakeside. Drilled unused water-table well in alluvium of Recent age, diameter 14 inches, depth 61 feet, perforations 39-61. Land-surface datum is 434.4 feet above msl. Highest water level 0.2 below lsd, May 18, 1930; lowest 58.47 below lsd, Oct. 12, 1948. Records available: 1929-32, 1934-53. Feb. 20, 37.57; Aug. 12, 38.06; Nov. 23, 36.79; Dec. 10, 36.46.

15/1W-24D7. City of San Diego. Near Lakeside. Drilled unused water-table well in alluvium of Recent age, diameter 14 inches, depth 45 feet. Land-surface datum is 371.4 feet above msl. Highest water level 0.04 above lsd, May 10, 1941; lowest 34.30 below lsd, Nov. 23, 1953. Records available: 1937-53. Feb. 20, 27.09; Aug. 11, 34.14; Nov. 23, 34.30; Dec. 10, 34.04.

15/1W-28B1. Formerly 15/1W-28. Dr. Good. Near Santee. Drilled unused water-table well in alluvium of Recent age, diameter 10 inches, depth 39 feet. Land-surface datum is 336.5 feet above msl. Highest water level 6.48 below lsd, Mar. 10, 1915; lowest 21.60 below lsd, July 20, 1951. Records available: 1915, 1919-53. Feb. 20, 18.55; Aug. 11, 21.16; Nov. 23, 20.94; Dec. 10, 20.74.

16/3W-23K3. Formerly 16/3W-23. S. H. McIntosh. Mission Valley. Driven observation water-table well in alluvium of Recent age, diameter 2 inches, depth 20 feet. Land-surface datum is 26.8 feet above msl. Highest water level 4.76 below lsd, Mar. 11, 1937; lowest 15.33 below lsd, Oct. 11, 1951. Records available: 1927-53. Feb. 20, 9.25; Aug. 11, 11.94; Nov. 23, 13.75.

Sweetwater River Basin

17/1W-19Q2. Formerly 17/1W-19a. California Water & Telephone Co. Near Sunnyside. Drilled unused water-table well in alluvium of Recent age, diameter 12 inches, depth 40 feet. Land-surface datum is about 85 feet above msl. Highest water level 1.51 below lsd, Dec. 23, 1943; lowest 38.29 below lsd, Dec. 28, 1949. Records available: 1943-53. Feb. 25, 9.06; Aug. 12, 8.81; Nov. 24, 9.83; Dec. 8, 9.88.

Otay River Basin

18/2W-22F1. Formerly 18/2W-22. Western Aire Motel. Formerly G. W. St. Clair. Near Otay. Drilled domestic well in alluvium of Recent age, diameter 10 inches, reported depth 150 feet. Land-surface datum is about 40 feet above msl. Highest water level 18.40 below lsd, Apr. 10, 1922; lowest 43.21 below lsd, Dec. 8, 1953. Records available: 1916-53. Feb. 25, 30.34; Aug. 13, 40.81, below sea level; Nov. 24, 42.20, below sea level; Dec. 8, 43.21, below sea level.

Tia Juana River Basin

18/2W-33L1. Formerly 18/2W-33. Robert Egger. Formerly Hewitt Bros. Near Nestor. Driven observation water-table well in alluvium of Recent age, diameter 2 inches, depth 29 feet. Land-surface datum is 19.04 feet above msl. Highest water level 5.16 below lsd, May 15, 1941; lowest 21.01 below lsd, July 18, 1951. Records available: 1927-53. Feb. 25, 16.90; Aug. 13, 20.39, below sea level; Nov. 24, 20.01, below sea level; Dec. 9, 19.83, below sea level.

18/2W-34J1. Formerly 18/2W-34a. C. Iguchi. Near Nestor. Driven observation water-table well in alluvium of Recent age, diameter 2 inches, depth 28 feet. Land-surface datum is 30.97 feet above msl. Highest water level 3.01 below lsd, Jan. 26, 1944; lowest 22.71 below lsd, Dec. 9, 1953. Records available: 1927-53. Feb. 25, 16.36; Aug. 13, 20.87; Nov. 24, 22.70; Dec. 9, 22.71.

San Joaquin County

Mokelumne River Basin
Measurements furnished by East Bay Municipal Utility District
are marked with an asterisk.

*3N/6-3K11. F. B. Mills Estate. Near Lodi. Drilled irrigation water-table well in Victor formation, diameter 12 inches, depth 120 feet. Land-surface datum is 41.03 feet above msl. Highest water level 11.62 below lsd, Jan. 2, 1951; lowest 21.55 below lsd, Apr. 1, 1948. Records available: 1947-53.

3N/6-3K11--Continued.

Date	Water level	Date	Water level	Date	Water level	Date	Water level
Jan. 2	16.03	Apr. 1	15.80	July 1	16.26	Oct. 2	17.03
Feb. 2	16.22	May 1	16.10	Aug. 3	17.45	Nov. 2	16.81
Mar. 1	16.73	June 1	15.14	Sept. 1	17.08	Dec. 1	17.02

*3N/6-17D11. A. Delu. Near Lodi. Drilled irrigation water-table well in Victor formation, diameter 12 inches, depth 93 feet. Land-surface datum is 23.80 feet above msl. Highest water level 7.46 below lsd, May 1, 1952; lowest 21.79 below lsd, Sept. 1, 1950. Records available: 1949-53.

Jan. 2	14.16	Apr. 1	11.80	July 1	16.35	Oct. 2	20.37
Feb. 2	12.60	May 1	13.53	Aug. 3	20.01	Nov. 2	18.74
Mar. 2	11.93	June 1	13.27	Sept. 1	20.83	Dec. 1	17.75

*3N/6-25R11. E. E. Morse Estate. Near Lodi. Drilled domestic water-table well in Victor formation, diameter 10 inches, depth 93 feet. Land-surface datum is 40.55 feet above msl. Highest water level 26.15 below lsd, Jan. 5, 1953; lowest 36.14 below lsd, Oct. 4, 1950. Records available: 1948-53. Jan. 5, 26.15; Oct. 6, 30.93.

3N/6-36R2. Leland W. Bunch. Near Lodi. Drilled domestic water-table well in Victor formation, diameter 8 inches, depth 85 feet. Land-surface datum is 37.97 feet above msl. Highest water level 11.72 below lsd, Apr. 8, 1938; lowest 33.32 below lsd, Oct. 5, 1949. Records available: 1926-29, 1935-53.

Jan. 5	23.25	Apr. 1	23.09	Sept. 1	28.75	Nov. 2	28.41
Feb. 2	22.20	May 1	23.12	Oct. 6	29.50	Dec. 1	27.26
Mar. 2	22.53	July 1	25.96				

3N/7-3C1. Jacob Knoll. Near Lodi. Drilled observation water-table well in Victor formation, diameter 8 inches, depth 48 feet, cased to 48, perforations 38-48. Land-surface datum is 80.45 feet above msl. Highest water level 25.31 below lsd, June 2, 1943; lowest 39.80 below lsd, Feb. 1, 1950. Records available: 1935-53.

Jan. 6	37.44	Apr. 1	36.27	July 1	34.89	Oct. 7	38.71
Feb. 2	37.37	May 1	35.93	Aug. 3	36.61	Nov. 2	36.46
Mar. 2	37.60	June 1	33.17	Sept. 1	37.77	Dec. 1	39.35

3N/7-6M8. R. E. and Ruth F. Coker. Near Lodi. Drilled observation water-table well in Victor formation, diameter 4 inches, depth 40 feet, cased to 40, perforations 30-40. Land-surface datum is 53.35 feet above msl. Highest water level 17.82 below lsd, Apr. 30, 1943; lowest 30.78 below lsd, Apr. 1, 1948. Records available: 1935-53.

Jan. 5	27.66	Apr. 1	26.72	July 1	25.31	Oct. 5	26.20
Feb. 2	24.19	May 1	26.35	Aug. 3	26.67	Nov. 2	26.30
Mar. 2	24.17	June 1	25.45	Sept. 1	26.57	Dec. 1	26.20

3N/7-7M1. J. and Rachel K. Goetken. Lodi. Drilled irrigation water-table well in Victor formation, diameter 10 inches, depth 49 feet. Land-surface datum is 52.63 feet above msl. Highest water level 24.51 below lsd, Apr. 6, 1938; lowest 42.52 below lsd, May 1, 1950. Records available: 1935-53.

Jan. 5	31.59	Apr. 1	35.66	July 1	36.01	Oct. 5	35.16
Feb. 2	30.78	May 1	38.63	Aug. 3	35.66	Nov. 2	34.25
Mar. 2	30.98	June 1	34.60	Sept. 1	35.96	Dec. 1	33.33

3N/7-10L3. Edward Preszler. Near Lodi. Drilled observation water-table well in Victor formation, diameter 10 inches, depth 57 feet, cased to 57, perforations 47-57. Land-surface datum is 72.59 feet above msl. Highest water level 35.33 below lsd, Jan. 12, 1939; lowest 52.39 below lsd, Sept. 2, 1947. Records available: 1935-53.

Jan. 6	47.78	Apr. 1	c47.08	July 1	43.45	Oct. 6	45.57
Feb. 2	47.42	May 1	43.45	Aug. 3	43.85	Nov. 2	47.14
Mar. 2	46.91	June 1	43.31	Sept. 1	c44.27	Dec. 1	48.27

c Nearby well being pumped.

3N/7-10L4. Edward Preszler. Near Lodi. Drilled observation water-table well in Victor, Arroyo Seco, and Laguna formations, diameter 12 to 10 inches, depth 190 feet, cased to 190. Land-surface datum is 72.37 feet above msl. Highest water level 35.13 below lsd, Jan. 12, 1939; lowest 60.49 below lsd, May 1, 1950. Records available: 1935-53.

Jan. 6	46.26	Apr. 1	c70.68	July 1	56.11	Oct. 6	54.73
Feb. 2	45.93	May 1	58.23	Aug. 3	58.01	Nov. 2	52.46
Mar. 2	48.14	June 1	54.31	Sept. 1	c69.78	Dec. 1	50.69

c Nearby well being pumped.

*3N/7-18N12. Joe Garnero. Near Lodi. Drilled domestic water-table well in Victor formation, diameter 6 inches, depth 78 feet. Land-surface datum is 47.44 feet above msl. Highest water level 29.86 below lsd, Feb. 2, 1953; lowest 44.40 below lsd, Aug. 1, 1950. Records available: 1946-53.

Date	Water level	Date	Water level	Date	Water level	Date	Water level
Jan. 5	30.21	Apr. 1	35.71	July 1	38.09	Oct. 6	34.36
Feb. 2	29.86	May 1	36.60	Aug. 3	39.43	Nov. 2	33.37
Mar. 2	30.26	June 1	38.63	Sept. 1	37.61	Dec. 1	32.50

*3N/7-22C11. John Nietschke. Near Lodi. Drilled domestic water-table well, largely in Victor formation, but probably penetrating into underlying Arroyo Seco and Laguna formations, diameter 8 inches, depth 137 feet. Land-surface datum is 66.43 feet above msl. Highest water level 50.21 below lsd, Mar. 2, 1953; lowest 63.95 below lsd, Sept. 1, 1953. Records available: 1952-53.

Jan. 6	52.10	Apr. 1	56.07	Sept. 1	63.95	Nov. 2	58.57
Feb. 2	50.90	May 1	57.09	Oct. 6	61.50	Dec. 1	57.02
Mar. 2	50.21	June 1	57.97				

3N/7-27F3. John F. Heitzmann. Near Lodi. Drilled observation water-table well in Victor formation, diameter 8 inches, depth 91 feet, cased to 62. Land-surface datum is 59.42 feet above msl. Highest water level 26.12 below lsd, Mar. 31, 1943; lowest 61.34 below lsd, Sept. 1, 1953. Records available: 1935-53.

Jan. 6	50.12	Apr. 1	49.21	July 1	56.75	Oct. 6	59.73
Feb. 2	48.60	May 1	51.67	Aug. 3	59.90	Nov. 2	57.16
Mar. 2	47.48	June 1	53.05	Sept. 1	61.34	Dec. 1	55.10

*4N/6-12R11. A. T. Carlson. Near Lodi. Drilled domestic and irrigation water-table well in Victor, Arroyo Seco, and Laguna formations, diameter 8 inches, reported depth 150 feet. Land-surface datum is 57.95 feet above msl. Highest water level 38.84 below lsd, May 1, 1952; lowest 54.53 below lsd, Sept. 1, 1953. Records available: 1948-53.

Jan. 5	41.46	Apr. 1	42.89	July 1	49.95	Oct. 14	49.54
Feb. 2	40.68	May 1	42.12	Aug. 3	53.05	Nov. 2	48.41
Mar. 2	43.36	June 1	46.09	Sept. 1	54.53	Dec. 1	45.58

*4N/6-13J11. Dorothy Woodworth. Near Lodi. Drilled domestic water-table well in Victor formation, diameter 6 inches, depth 74 feet. Land-surface datum is 59.43 feet above msl. Highest water level 38.53 below lsd, May 1, 1952; lowest 52.83 below lsd, Sept. 1, 1950. Records available: 1948-53.

Jan. 1	40.52	Apr. 1	39.48	July 1	48.43	Oct. 5	47.54
Feb. 2	39.79	May 1	41.58	Aug. 3	50.10	Nov. 2	46.49
Mar. 2	39.22	June 1	41.77	Sept. 1	52.11	Dec. 1	45.05

4N/6-34R1. E. M. Smith. Near Lodi. Drilled unused water-table well in Victor formation, diameter 10 inches, reported depth 120 feet, 1926-29, 34 feet, 1935, and 19 feet, 1950. Land-surface datum is 43.28 feet above msl. Highest water level 2.60 below lsd, June 14, 1935; lowest dry at 18.5, Apr. 3, 1950. Records available: 1926-29, 1935-53.

Jan. 2	14.79	May 1	12.49	Aug. 3	16.21	Oct. 1	16.43
Feb. 2	14.95	June 1	11.74	25	k16.94	Nov. 2	13.56
Mar. 2	14.40	July 1	12.60	Sept. 1	16.98	Dec. 1	13.96
Apr. 1	12.25						

k New measuring point, $\frac{3}{4}$-inch hole in well cap, 0.21 foot below lsd and 43.07 feet above msl.

4N/6-36D1. D. D. Smith and S. H. and I. Zimmerman. Near Lodi. Drilled unused water-table well in Victor formation, diameter 6 inches, depth 35 feet. Land-surface datum is 49.90 feet above msl. Highest water level 15.02 below lsd, Mar. 31, 1943; lowest dry at 35, May 1, 1946. Records available: 1926-29, 1935-53.

Jan. 5	21.55	Apr. 1	24.71	July 1	23.54	Oct. 2	22.52
Feb. 2	21.41	May 1	25.23	Aug. 3	24.46	Nov. 2	22.58
Mar. 2	21.33	June 1	22.70	Sept. 1	23.79	Dec. 1	22.89

4N/7-15B3. Robert L. Carter. Near Lodi. Drilled observation water-table well in Victor formation, diameter 8 inches, depth 85 feet, cased to 69. Land-surface datum is 92.05 feet above msl. Highest water level 32.11 below lsd, Sept. 1, 1939; lowest 68.73 below lsd, Sept. 1, 1953. Records available: 1935-53.

4N/7-15B3--Continued.

Date	Water level	Date	Water level	Date	Water level	Date	Water level
Jan. 6	62.34	Apr. 1	60.12	July 1	63.50	Oct. 7	68.50
Feb. 2	61.35	May 1	61.50	Aug. 3	67.24	Nov. 2	67.28
Mar. 2	60.59	June 1	61.98	Sept. 1	68.73	Dec. 1	65.85

4N/7-22Q4. Adolphus Eddlemon. Near Lodi. Drilled observation water-table well in Victor formation and underlying unclassified sand and gravel, diameter 10 inches, depth 50 feet, cased to 51, perforations 39-49. Land-surface datum is 83.61 feet above msl. Highest water level 35.95 below lsd, Apr. 30, 1943; lowest dry many times. Records available: 1935-53.

Jan. 6	46.47	Apr. 1	46.02	July 1	(f)	Oct. 7	(f)
Feb. 2	45.98	May 1	49.08	Aug. 3	(f)	Nov. 2	(f)
Mar. 2	45.59	June 1	(f)	Sept. 1	(f)	Dec. 1	(f)

f Dry.

4N/7-22Q5. Adolphus Eddlemon. Near Lodi. Drilled observation artesian well in Victor, Arroyo Seco, and Laguna formations, diameter 10 inches, depth 266 feet, cased 0-79, 129-149. Land-surface datum is 83.83 feet above msl. Highest water level 36.34 below lsd, Mar. 31, 1943; lowest 60.06 below lsd, July 3, 1950. Records available: 1935-53.

Jan. 6	47.08	Apr. 1	49.91	July 1	58.44	Oct. 7	53.90
Feb. 2	46.59	May 1	54.87	Aug. 3	59.03	Nov. 2	52.50
Mar. 2	46.74	June 1	53.38	Sept. 1	56.78	Dec. 1	51.01

4N/7-27P1. Frank H. and Leonard W. Buck. Near Lodi. Drilled observation water-table well in Victor formation, diameter 10 inches, depth 49 feet, cased to 49, perforations 39-49. Land-surface datum is 81.20 feet above msl. Highest water level 24.60 below lsd, June 3, 1938; lowest 37.43 below lsd, Sept. 7, 1949. Records available: 1935-53.

Jan. 6	35.02	Apr. 1	35.16	July 1	32.82	Oct. 7	36.40
Feb. 2	34.14	May 1	35.88	Aug. 3	35.45	Nov. 2	36.43
Mar. 2	34.72	June 1	35.09	Sept. 1	36.23	Dec. 1	36.25

*4N/7-30E4. Charles Weber. Near Lodi. Drilled unused water-table well in Victor formation, diameter 6 inches, depth 76 feet. Land-surface datum is 57.18 feet above msl. Highest water level 26.35 below lsd, Jan. 4, 1944; lowest 43.95 below lsd, Sept. 1, 1950. Records available: 1941-53.

Jan. 5	31.79	Apr. 1	32.57	July 1	39.74	Oct. 5	36.67
Feb. 2	31.39	May 1	35.89	Aug. 3	42.99	Nov. 2	35.91
Mar. 2	31.14	June 1	36.65	Sept. 1	39.03	Dec. 1	35.17

4N/7-31M3. Charles H. Woest. Near Lodi. Drilled domestic water-table well in Victor formation, diameter 6 inches, depth 50 feet. Land-surface datum is 57.78 feet above msl. Highest water level 15.94 below lsd, June 3, 1938; lowest 32.73 below lsd, Apr. 1, 1948. Records available: 1935-53.

Jan. 5	24.86	Apr. 1	27.50	July 1	24.04	Oct. 5	26.12
Feb. 2	24.59	May 1	27.48	Aug. 3	26.88	Nov. 2	26.51
Mar. 2	24.68	June 1	25.67	Sept. 1	26.06	Dec. 1	26.35

4N/7-31N5. Jacob Goehring. Near Lodi. Drilled observation water-table well in alluvium, diameter 4 inches, depth 25 feet, cased to 25, perforations 15-25. Land-surface datum is 44.12 feet above msl. Highest water level 1.73 below lsd, Apr. 30, 1943; lowest 14.63 below lsd, Mar. 1, 1948. Records available: 1935-53.

Jan. 5	10.73	Apr. 1	9.00	July 1	7.04	Oct. 5	9.33
Feb. 2	10.13	May 1	8.88	Aug. 3	8.73	Nov. 2	9.66
Mar. 2	10.01	June 1	7.98	Sept. 1	8.98	Dec. 1	10.88

*4N/7-34F11. John J. Schmiedt. Near Lodi. Drilled observation water-table well in alluvium, diameter 4 inches, depth 24 feet. Land-surface datum is 61.76 feet above msl. Highest water level 11.69 below lsd, July 1, 1953; lowest 15.26 below lsd, May 1, 1953. Records available: 1952-53.

Jan. 6	14.00	Apr. 1	14.82	July 1	11.69	Oct. 7	15.03
Feb. 2	13.08	May 1	15.26	Aug. 3	14.28	Nov. 2	15.20
Mar. 2	14.15	June 1	13.85	Sept. 1	15.00	Dec. 1	15.00

Santa Barbara County

Carpinteria Basin

4/25-19F4. M. F. Lewis. Near Carpinteria. Drilled domestic and irrigation artesian well in older alluvium and Casitas formation, diameter 8 inches, depth 250 feet. Land-surface datum is about 106 feet above msl. Highest water level 77.10 below lsd, May 27, 1943; lowest 123.40 below lsd, Mar. 22, 1950. Records available: 1941-53. Jan. 28, 88.82; Feb. 25, 90.64; May 28, 89.03; June 25, 91.80; July 29, 96.05; Aug. 31, 98.96; Nov. 23, 108.89.

4/25-19J5. Lyman & Young. Drilled unused artesian well in alluvium, diameter 8 inches, depth 100 feet. Land-surface datum is about 55 feet above msl. Highest water level 39.41 below lsd, Apr. 23, 1942; lowest 92.95 below lsd, Sept. 25, 1951. Records available: 1941-53.

Date	Water level	Date	Water level	Date	Water level	Date	Water level
Jan. 28	59.27	Apr. 28	57.26	July 29	c69.18	Oct. 30	c72.37
Feb. 25	56.67	May 28	57.67	Aug. 31	c73.72	Nov. 23	74.07
Mar. 31	57.46	June 25	63.52	Sept. 28	74.33	Dec. 28	70.02

c Nearby well being pumped.

4/25-20L4. Carpinteria County Water District. Drilled recharge water-table well in alluvium and Casitas formation, diameter 10 inches, depth 264 feet, cased to 254, perforations 62-254. Land-surface datum is about 111 feet above msl. Highest water level 106.73 below lsd, May 29, 1952; lowest 153.17 below lsd, Sept. 25, 1951. Records available: 1949-53. May 28, 107.39; June 25, 114.53; July 29, 129.39; Aug. 31, 128.45; Sept. 28, 133.44.

4/25-21R1. Ben Moore. Drilled unused water-table well in Casitas formation, diameter 12 inches, depth 468 feet, cased to 434, perforations 82-90, 120-150, 170-176, 240, 289-304, 314-318, 341, 356-386, 412-416. Land-surface datum is about 127 feet above msl. Highest water level 64.47 below lsd, June 5, 1945; lowest 126.08 below lsd, Nov. 26, 1951. Records available: 1941-53.

Jan. 28	115.59	Apr. 28	114.83	July 29	117.23	Oct. 30	120.02
Feb. 25	115.33	May 28	115.04	Aug. 31	118.23	Nov. 23	120.28
Mar. 31	115.38	June 25	115.70	Sept. 28	119.26	Dec. 28	120.05

4/25-26A1. Moses Mesa Associates Co. Drilled unused water-table well in Casitas formation, diameter 10 inches, depth 480 feet, cased to 480, perforations 228-480. Land-surface datum is about 412 feet above msl. Highest water level 230.09 below lsd, Feb. 8, 1946; lowest 369.70 below lsd, Oct. 31, 1951. Records available: 1946-53.

Jan. 28	317.39	Apr. 28	313.05	July 29	338.47	Oct. 30	362.39
Feb. 25	316.70	May 28	319.05	Aug. 31	349.33	Nov. 23	354.98
Mar. 31	317.47	June 25	327.45	Sept. 28	353.29	Dec. 28	351.39

4/25-26C2. Shepard Mesa Mutual Water Co. Drilled unused water-table well in Casitas formation, diameter 10 inches, depth 450 feet. Land-surface datum is about 432 feet above msl. Highest water level 226.10 below lsd, May 6, 1946; lowest 353.99 below lsd, Nov. 26, 1951. Records available: 1946-53.

Jan. 28	305.29	Apr. 28	306.19	July 29	c329.63	Oct. 30	c340.32
Feb. 25	308.78	May 28	c317.40	Aug. 31	c333.47	Nov. 23	340.23
Mar. 31	c311.15	June 25	c323.90	Sept. 28	c336.80	Dec. 28	339.90

c Nearby well being pumped.

4/25-27Q2. A. F. Heimlich. Drilled unused artesian well in Casitas formation, diameter 10 inches, depth 198 feet. Land-surface datum is about 127 feet above msl. Highest water level 92.86 below lsd, Apr. 30, 1945; lowest 175.42 below lsd, Sept. 25, 1951. Records available: 1941-53.

Jan. 28	152.77	Apr. 28	149.88	July 29	150.91	Oct. 30	152.93
Feb. 25	151.57	May 28	149.41	Aug. 31	151.60	Nov. 23	152.54
Mar. 31	150.58	June 25	149.96	Sept. 28	152.86	Dec. 28	152.73

4/25-27R2. W. H. Yule. Drilled irrigation artesian well in Casitas formation, diameter 12 to 10 inches, depth 421 feet, cased to 421, perforations 295-310, 350-378, 392-420. Land-surface datum is about 132 feet above msl. Highest water level 94.96 below lsd, Apr. 30, 1945; lowest 182.23 below lsd, Sept. 25, 1951. Records available: 1941-53.

Jan. 28	158.69	Mar. 31	161.84	May 28	163.04	Sept. 28	180.48
Feb. 25	156.76	Apr. 28	159.89	Aug. 31	177.90	Nov. 23	176.20

4/25-28J1. W. C. and C. A. Catlin. Drilled domestic and irrigation water-table well in alluvium, diameter 12 inches, depth 175 feet, cased to 175, perforations 59-175. Land-surface datum is about 89 feet above msl. Highest water level 23.0 below lsd, June 1919; lowest 124.64 below lsd, Nov. 23, 1953. Records available: 1919, 1930, 1937-38, 1940-50, 1952-53. Jan. 28, 109.82; Feb. 25, 107.67; Apr. 28, 111.36; Nov. 23, 124.64; Dec. 28, 119.58.

4/25-28M1. Mrs. A. Baylor. Drilled unused artesian well in alluvium, diameter 2 inches, depth 96 feet. Land-surface datum is about 57 feet above msl. Highest water level 19.84 below lsd, Apr. 30, 1945; lowest dry, Aug. 30-Sept. 25, 1951. Records available: 1941-53.

Date	Water level	Date	Water level	Date	Water level	Date	Water level
Jan. 28	71.17	Apr. 28	74.23	July 29	91.30	Oct. 30	89.97
Feb. 25	69.23	May 28	74.48	Aug. 31	91.68	Nov. 23	85.32
Mar. 31	73.90	June 25	89.41	Sept. 28	89.82	Dec. 28	80.93

4/25-29D1. H. Sturmer. Drilled domestic and irrigation artesian well in alluvium, diameter 12 inches, depth 147 feet. Land-surface datum is about 17 feet above msl. Highest water level 1.48 below lsd, Apr. 23, 1942; lowest 57.28 below lsd, Sept. 25, 1951. Records available: 1928-29, 1938, 1941-53.

Jan. 28	23.08	Apr. 28	21.15	July 29	34.84	Oct. 30	39.74
Feb. 25	19.05	May 28	22.08	Aug. 31	38.25	Nov. 23	37.02
Mar. 31	20.35	June 25	29.36	Sept. 28	39.20	Dec. 28	33.36

4/25-29L1. A. P. Salzgeber. Drilled unused artesian well in alluvium, diameter 2 inches, depth 110 feet. Land-surface datum is about 18 feet above msl. Highest water level 12.65 below lsd, Feb. 25, 1953; lowest 51.24 below lsd, Sept. 25, 1951. Records available: 1950-53.

Jan. 28	14.56	Apr. 28	16.25	July 29	31.93	Oct. 30	31.86
Feb. 25	12.65	May 28	17.10	Aug. 31	33.09	Nov. 23	28.07
Mar. 31	15.02	June 25	25.72	Sept. 28	34.40	Dec. 28	24.18

4/25-29R1. Carpinteria Union High School. Drilled unused artesian well in alluvium, diameter 10 inches, depth 176 feet. Land-surface datum is about 32 feet above msl. Highest water level 8.67 below lsd, Apr. 23, 1942; lowest 66.33 below lsd, Sept. 25, 1951. Records available: 1941-53.

Jan. 28	41.81	Apr. 28	45.83	July 29	63.47	Oct. 30	59.34
Feb. 25	42.03	May 28	55.09	Aug. 31	63.86	Nov. 23	53.21
Mar. 31	56.68	June 25	61.84	Sept. 28	55.85	Dec. 28	55.54

4/25-30D1. Sandyland Beach Club. Drilled domestic artesian well in alluvium, diameter 10 inches, depth 210 feet. Land-surface datum is about 7 feet above msl. Highest water level flowing, May 6, 1938; lowest 48.73 below lsd, Nov. 26, 1951. Records available: 1938, 1947-53.

Jan. 28	10.72	Apr. 28	7.89	Aug. 31	21.84	Oct. 30	23.57
Feb. 25	6.43	June 25	15.40	Sept. 28	20.62	Nov. 23	19.14
Mar. 31	7.17	July 29	18.02				

4/25-30D2. California State Highway Department. Drilled unused water-table well in alluvium, diameter 8 inches, depth 93 feet. Land-surface datum is about 18 feet above msl. Highest water level 13.26 below lsd, Feb. 25, 1953; lowest 41.39 below lsd, Sept. 25, 1951. Records available: 1949-53.

Jan. 28	14.95	Apr. 28	16.37	July 29	28.51	Oct. 30	29.06
Feb. 25	13.26	May 28	16.69	Aug. 31	26.05	Nov. 23	26.88
Mar. 31	14.95	June 25	21.56	Sept. 28	28.63	Dec. 28	23.82

4/25-34F2. T. H. Canfield. Drilled gravel-packed unused water-table well in Santa Barbara formation, diameter 12 inches, depth 563 feet, cased to 563, perforations 83-563. Land-surface datum is 154.1 feet above msl. Highest water level 125.50 below lsd, June 2, 1949; lowest 139.09 below lsd, Dec. 28, 1953. Records available: 1949-53.

Jan. 28	136.99	Apr. 28	135.85	July 29	137.88	Oct. 30	138.69
Feb. 25	135.25	May 28	137.48	Aug. 31	138.07	Nov. 23	137.89
Mar. 31	137.29	June 25	137.73	Sept. 28	138.92	Dec. 28	139.09

4/25-35B1. E. R. Dickover. Drilled domestic water-table well in Casitas formation, diameter 12 inches, depth 140 feet. Land-surface datum is about 193 feet above msl. Highest water level 19.18 below lsd, Mar. 8, 1945; lowest 134.18 below lsd, Sept. 25, 1951. Records available: 1941-53.

Jan. 28	69.53	Apr. 28	68.89	July 29	83.99	Oct. 30	111.07
Feb. 25	b60.57	May 28	65.89	Aug. 31	105.34	Nov. 23	109.02
Mar. 31	65.23	June 25	88.98	Sept. 28	113.35	Dec. 28	104.85

b Pumped recently.

4/26-23A2. Frank Wymond. Drilled domestic and irrigation artesian well in Casitas formation, diameter 10 inches, depth 330 feet. Land-surface datum is about 63 feet above msl. Highest water level 45.44 below lsd, Apr. 25, 1950; lowest 85.00 below lsd, Apr. 23, 1951. Records available: 1941, 1947-53.

Date	Water level	Date	Water level	Date	Water level	Date	Water level
Jan. 28	49.21	Apr. 28	59.55	July 29	68.09	Oct. 30	54.32
Feb. 25	50.09	May 28	54.68	Aug. 31	75.91	Nov. 23	51.97
Mar. 31	52.57	June 25	75.95	Sept. 28	60.29	Dec. 28	61.92

Goleta Basin

4/27-6N1. John McCaughy. Drilled domestic and irrigation water-table well in Santa Barbara formation, diameter 10 inches, depth 180 feet, perforations 47-100. Land-surface datum is about 231 feet above msl. Highest water level 83.76 below lsd, May 22, 1942; lowest 113.36 below lsd, Aug. 31, 1953. Records available: 1941-49, 1952-53.

Mar. 31	107.10	July 29	107.66	Sept. 28	107.91	Nov. 23	108.41
Apr. 28	112.64	Aug. 31	113.36	Oct. 30	108.33	Dec. 28	108.50
May 28	107.35						

4/27-21B1. City of Santa Barbara. Victoria and Rancheria Sts. Drilled unused artesian well in older alluvium and Santa Barbara formation, diameter 16 inches, depth 454 feet, perforations 145-350. Land-surface datum is about 68 feet above msl. Highest water level 37.04 below lsd, Feb. 2, 1948; lowest 99.58 below lsd, Oct. 18-19, 1951. Records available: 1948-53.

Daily highest water level from recorder graph

Day	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	.....	61.04	.....	64.29	63.80	.....	73.96	78.45	.....	80.83	78.67	70.66
2	.....	61.02	.....	64.30	63.62	.....	74.08	78.59	.....	80.70	78.61	70.42
3	63.18	61.00	63.68	64.43	63.38	.....	74.16	78.70	.....	80.49	78.55	70.23
4	63.03	60.97	63.72	64.55	63.28	.....	74.28	78.83	81.72	80.40	78.39	70.15
5	62.90	60.91	63.80	64.37	63.27	.....	74.45	78.96	81.76	80.37	78.25	70.00
6	62.83	60.83	64.00	64.17	63.34	71.61	74.52	79.06	81.77	80.37	77.98	69.70
7	62.83	60.76	64.27	64.05	63.64	71.79	74.62	79.18	81.78	80.45	77.60	69.50
8	62.85	60.62	64.47	64.00	63.97	71.90	74.71	79.36	81.75	80.51	77.24	69.40
9	62.66	60.64	64.65	63.83	64.40	72.05	74.82	79.50	81.73	80.56	76.64	69.13
10	62.55	60.74	64.86	63.67	64.77	72.24	74.87	79.58	81.72	80.50	76.52	68.95
11	62.50	60.73	64.90	63.68	65.06	72.41	74.92	79.70	81.73	80.47	76.18	68.92
12	62.48	60.62	64.73	63.79	65.44	72.50	75.00	79.82	81.79	80.42	75.80	68.70
13	62.31	60.62	64.55	63.93	65.81	72.66	75.14	79.95	81.80	80.36	75.41	68.54
14	62.28	60.58	64.31	64.17	66.16	72.73	75.31	80.07	81.82	.....	75.10	68.32
15	62.25	60.50	64.11	64.43	66.45	72.80	75.56	80.18	81.86	.....	74.74	68.21
16	62.13	60.49	63.99	64.59	66.91	72.90	75.72	80.22	81.84	.....	74.37	68.12
17	62.02	60.47	64.03	64.79	67.29	73.03	75.90	80.28	81.86	79.80	74.17	68.01
18	61.92	60.46	64.16	65.05	67.54	73.18	76.14	80.39	81.92	79.68	73.93	67.87
19	61.82	60.53	64.32	65.30	67.82	73.36	76.30	80.46	81.72	79.56	73.57	67.78
20	61.73	61.03	64.34	65.41	68.09	73.26	76.43	80.57	81.48	79.46	73.32	67.60
21	61.69	.....	64.18	65.53	68.42	73.14	76.63	80.66	81.39	79.25	73.13	67.49
22	61.65	.....	63.99	65.63	68.69	73.04	76.84	80.75	81.25	79.19	72.83	67.49
23	61.52	.....	63.85	65.42	68.91	73.05	76.97	80.81	81.12	79.15	72.55	67.36
24	61.46	.....	63.84	65.22	69.18	73.12	77.13	80.84	81.04	78.97	72.30	67.20
25	61.44	.....	63.96	65.00	69.39	73.24	77.31	80.92	81.00	78.85	72.03	67.01
26	61.42	.....	64.24	64.77	69.70	73.40	77.51	.....	81.01	78.79	71.82	66.76
27	61.39	.....	64.48	64.44	69.91	73.54	77.67	.....	81.00	78.75	71.64	66.68
28	61.29	.....	64.68	64.27	70.06	73.62	77.82	.....	80.97	78.65	71.40	66.54
29	61.18		64.72	64.08	70.33	73.72	77.92	.....	80.92	78.62	71.13	66.51
30	61.12		64.59	63.96	.....	73.86	78.07	.....	80.90	78.64	70.86	66.44
31	61.13		64.43		.....		78.28	.....		78.65		66.26

4/28-2N2. County of Santa Barbara. Tuckers Grove. Drilled unused water-table well in Santa Barbara formation, diameter 6 inches, depth 100 feet. Land-surface datum is 177.65 feet above msl. Highest water level 14.71 below lsd, May 6, 1945; lowest 61.34 below lsd, Nov. 26, 1951. Records available: 1943-53.

Date	Water level	Date	Water level	Date	Water level	Date	Water level
Jan. 28	16.70	Apr. 28	24.50	July 29	34.19	Oct. 30	39.28
Feb. 25	15.87	May 28	27.95	Aug. 31	36.01	Nov. 23	40.53
Mar. 31	19.27	June 25	35.38	Sept. 28	37.53	Dec. 28	42.20

4/28-3E2. Peter Cavaletto. Near Goleta. Drilled unused water-table well in alluvium, diameter 8 inches, depth 75 feet. Land-surface datum is 116.73 feet above msl. Highest water level 8.57 below lsd, Apr. 12, 1941; lowest 45.17 below lsd, Oct. 22, 1948. Records available: 1941-53.

Date	Water level	Date	Water level	Date	Water level	Date	Water level
Jan. 28	11.99	Apr. 28	12.31	July 29	17.44	Oct. 30	17.99
Feb. 25	c12.25	May 28	14.41	Aug. 31	c24.90	Nov. 23	13.70
Mar. 31	14.40	June 25	17.10	Sept. 28	c19.89	Dec. 28	c13.18

c Nearby well being pumped.

4/28-3M3. L. W. Fowler. Cathedral Oaks Road and Patterson Ave. Drilled unused water-table well in alluvium, diameter 8 inches, depth 171 feet. Land-surface datum is 118.40 feet above msl. Highest water level 113.01 below lsd, Dec. 26, 1947; lowest 145.24 below lsd, Sept. 30, 1949. Records available: 1947-53.

Jan. 28	121.16	Apr. 28	118.48	July 29	121.27	Oct. 30	119.72
Feb. 25	120.05	May 28	119.10	Aug. 31	122.01	Nov. 23	118.95
Mar. 31	119.86	June 25	118.45	Sept. 28	120.64	Dec. 28	122.37

4/28-3Q2. A. J. Haverland. Old San Marcos Pass Road and Cathedral Oaks Road. Drilled unused artesian well in Santa Barbara formation, diameter 12 inches, depth 360 feet, cased to 360, perforations 126-360. Land-surface datum is 120.57 feet above msl. Highest water level 84.69 below lsd, Jan. 27, 1948; lowest 154.64 below lsd, Sept. 25, 1951. Records available: 1941, 1943-53.

Jan. 28	139.17	Apr. 28	138.65	July 29	c145.19	Oct. 30	147.22
Feb. 25	c141.78	May 28	c142.63	Aug. 31	c143.44	Nov. 23	143.35
Mar. 31	143.01	June 25	140.04	Sept. 28	144.88	Dec. 28	143.99

c Nearby well being pumped.

4/28-4Q2. R. S. Rowe. Drilled unused artesian well in Santa Barbara formation, diameter 12 inches, depth 325 feet, perforations 243-258, 290-310. Land-surface datum is 88.45 feet above msl. Highest water level 61.24 below lsd, Apr. 30, 1945; lowest 117.92 below lsd, June 6, 1950. Records available: 1941-53.

Jan. 28	104.73	Apr. 28	105.66	July 29	c119.41	Oct. 30	116.08
Feb. 25	103.28	May 28	106.73	Aug. 31	c116.88	Nov. 23	114.85
Mar. 31	105.48	June 25	107.80	Sept. 28	c119.55	Dec. 28	112.38

c Nearby well being pumped.

4/28-5R4. F. J. Ewing. Fairview Road and Stow Canyon Road. Drilled irrigation artesian well in Santa Barbara formation, diameter 12 inches, depth 154 feet. Land-surface datum is 53.95 feet above msl. Highest water level 40.00 below lsd, June 1937; lowest 77.23 below lsd, Oct. 30, 1953. Records available: 1937-38, 1941, 1943-53.

Jan. 28	72.75	Apr. 28	75.15	Aug. 31	75.69	Oct. 30	77.23
Feb. 25	72.80	May 28	74.25	Sept. 28	76.19	Nov. 23	76.20
Mar. 31	74.18	June 25	75.22				

4/28-9A3. L. M. Cavaletto. Southern Pacific Railroad and Patterson Ave. Drilled unused water-table well in Santa Barbara formation, diameter 12 inches, depth 125 feet. Land-surface datum is 84.10 feet above msl. Highest water level 38.60 below lsd, Mar. 1943; lowest 69.95 below lsd, Nov. 26, 1951. Records available: 1941-53.

Jan. 28	60.28	Apr. 28	59.23	July 29	61.46	Oct. 30	64.02
Feb. 25	59.24	May 28	59.01	Aug. 31	62.48	Nov. 23	64.48
Mar. 31	58.85	June 25	60.25	Sept. 28	63.33	Dec. 28	63.20

4/28-9E1. A. T. Spaulding. Fairview Road and Encina Road. Drilled domestic artesian well in Santa Barbara formation, diameter 12 inches, depth 310 feet. Land-surface datum is 43.58 feet above msl. Highest water level 27.64 below lsd, June 7, 1941; lowest 76.62 below lsd, July 31, 1952. Records available: 1941, 1943-53.

Jan. 28	69.95	Mar. 31	71.35	May 28	72.08	Sept. 28	76.39
Feb. 25	69.40	Apr. 28	71.37	Aug. 31	75.37	Dec. 28	75.31

4/28-10A1. John S. Greene. Turnpike Road and Loma Abaja Creek. Drilled unused water-table well in Santa Barbara formation, diameter 8 inches, depth 154 feet. Land-surface datum is 121.59 feet above msl. Highest water level 93.30 below lsd, May 2, 1944; lowest 142.55 below lsd, June 25, 1953. Records available: 1941-53.

Jan. 28	126.14	Apr. 28	129.69	July 29	132.90	Oct. 30	135.19
Feb. 25	125.33	May 28	131.04	Aug. 31	139.47	Nov. 23	135.30
Mar. 31	c128.77	June 25	142.55	Sept. 28	139.46	Dec. 28	140.60

c Nearby well being pumped.

4/28-10F1. J. S. Edwards. Patterson Ave. and Maria Ygnacio Creek. Drilled domestic and irrigation artesian well in Santa Barbara formation, diameter 12 inches, depth 459 feet, cased to 459, perforations 72-198, 312-459. Land-surface datum is 79.90 feet above msl. Highest water level 56.44 below lsd, Apr. 28, 1943; lowest 98.55 below lsd, Oct. 31, 1951. Records available: 1932-33, 1937-38, 1941-53.

Date	Water level	Date	Water level	Date	Water level	Date	Water level
Jan. 28	86.89	May 28	85.46	Aug. 31	88.44	Nov. 23	86.90
Feb. 25	86.16	June 25	88.75	Oct. 30	88.58	Dec. 28	85.68
Apr. 28	86.35	July 29	86.45				

4/28-10K2. W. G. Troup. Southern Pacific Railroad and San Marcos Pass Road. Drilled domestic and irrigation artesian well in alluvium, diameter 10 inches, depth 215 feet. Land-surface datum is 85.47 feet above msl. Highest water level 82.90 below lsd, Apr. 24, 1942; lowest 141.57 below lsd, Aug. 30, 1951. Records available: 1941-53.

Jan. 28	126.60	Apr. 28	128.54	June 25	135.33	Nov. 23	132.18
Feb. 25	125.97	May 28	134.73	Aug. 31	135.30	Dec. 28	132.67
Mar. 31	138.56						

4/28-11K4. Giovanni Cavalli. Drilled irrigation artesian well in Santa Barbara formation, diameter 12 inches, depth 297 feet. Land-surface datum is about 67 feet above msl. Highest water level 67.72 below lsd, Mar. 7, 1947; lowest 114.33 below lsd, Aug. 31, 1953. Records available: 1947-53.

Jan. 28	105.39	Apr. 28	106.29	July 29	113.71	Oct. 30	112.16
Feb. 25	106.96	May 28	109.04	Aug. 31	114.33	Nov. 23	110.50
Mar. 31	106.50	June 25	110.58	Sept. 28	112.35	Dec. 28	111.35

4/28-12L4. Frank Bottine. Drilled unused artesian well in Santa Barbara formation, diameter 12 inches, depth 410 feet, cased to 410, perforations 67-410. Land-surface datum is about 122 feet above msl. Highest water level 34.17 below lsd, Apr. 24, 1942; lowest 105.72 below lsd, Sept. 7, 1949. Records available: 1941-50, 1952. Measurement discontinued.

4/28-16F2. John Begg. U. S. Highway 101 and Goleta Beach Road. Drilled unused artesian well in Santa Barbara formation, diameter 6 inches, depth 148 feet. Land-surface datum is about 22 feet above msl. Highest water level 26.26 below lsd, June 3, 1944; lowest 98.85 below lsd, Apr. 23, 1951. Records available: 1941, 1943-53.

Mar. 31	c66.97	July 29	80.09	Sept. 28	70.12	Nov. 23	64.69
May 28	69.98	Aug. 31	70.20	Oct. 30	68.75	Dec. 28	69.44

c Nearby well being pumped.

4/28-16F3. John Begg. U. S. Highway 101 and Goleta Beach Road. Dug unused water-table well in alluvium, diameter 6 feet, depth 22 feet. Land-surface datum is about 22 feet above msl. Highest water level 6.90 below lsd, May 14, 1941; lowest 19.58 below lsd, Dec. 24, 1951. Records available: 1941, 1943-53. Feb. 25, 10.68; May 28, 10.62. Measurement discontinued.

4/28-16R1. Pacific Lighting Corp. Drilled domestic and industrial water-table well in alluvium and Santa Barbara formation, diameter 10 inches, depth 140 feet, perforations 37-47, 67-97, 107-138. Land-surface datum is about 24 feet above msl. Highest water level 7.77 below lsd, Apr. 30, 1945; lowest dry, June 25, 1953. Records available: 1941, 1945-53.

Jan. 28	31.24	Apr. 28	33.03	July 29	39.39	Oct. 30	39.08
Feb. 25	32.36	May 28	c39.30	Aug. 31	39.17	Nov. 23	38.94
Mar. 31	c32.82	June 25	(f)	Sept. 28	38.98	Dec. 28	39.05

c Nearby well being pumped.
f Dry.

4/28-17H3. Elmo Little. Mathews Ave. and Fairview Road. Drilled domestic water-table well in alluvium, diameter 12 inches, depth 12 feet. Land-surface datum is about 11 feet above msl. Highest water level 1.49 below lsd, Mar. 1, 1944; lowest dry, Sept. 25-Dec. 24, 1951. Records available: 1941-53.

Jan. 28	4.80	Apr. 28	6.23	July 29	7.66	Oct. 30	8.58
Feb. 25	5.57	May 28	6.58	Aug. 31	8.03	Nov. 23	8.49
Mar. 31	5.70	June 25	7.14	Sept. 28	8.28	Dec. 28	8.68

4/28-17H11. Mrs. L. Oakley and Mrs. M. Bonetti. Nectarine Ave. and San Jose Creek. Drilled domestic and irrigation artesian well in Santa Barbara formation, diameter 6 inches, depth 119 feet. Land-surface datum is about 10 feet above msl. Highest water level 9.97 below lsd, Apr. 24, 1942; lowest 44.67 below lsd, Sept. 24, 1951. Records available: 1941-53.

4/28-17H11--Continued.

Date	Water level	Date	Water level	Date	Water level	Date	Water level
Jan. 28	33.15	Apr. 28	39.94	July 29	43.92	Oct. 30	41.50
Feb. 25	33.41	May 28	38.17	Aug. 31	41.88	Nov. 23	40.06
Mar. 31	34.55	June 25	39.54	Sept. 28	42.12	Dec. 28	39.66

4/28-18G2. T. B. Bishop Co. Drilled unused artesian well in Santa Barbara formation, diameter 16 inches, depth 395 feet, cased to 395, perforations 123-139, 159-179, 199-255, 275-395. Land-surface datum is about 7 feet above msl. Highest water level 19.80 below lsd, Mar. 27, 1945; lowest 45.99 below lsd, Aug. 2, 1949. Records available: 1941-53.

Feb. 25	25.68	May 28	25.22	Aug. 31	25.06	Nov. 23	23.75
Mar. 31	25.19	June 25	25.33	Sept. 28	25.07	Dec. 28	24.60
Apr. 28	25.19	July 29	34.21	Oct. 30	24.84		

4/29-13G3. T. B. Bishop Co. Hollister Ave. and Storke Road. Drilled irrigation water-table well in Santa Barbara formation, diameter 12 inches, depth 189 feet, cased to 189, perforations 164-189. Land-surface datum is about 41 feet above msl. Highest water level 65.98 below lsd, May 28, 1953; lowest 72.59 below lsd, Nov. 26, 1951. Records available: 1951-53.

Jan. 28	67.20	Mar. 31	66.20	May 28	65.98	Nov. 23	66.92
Feb. 25	67.02	Apr. 28	66.13	June 25	67.63	Dec. 28	66.13

4/29-14A3. Frank Baker. Glen Annie Road and Southern Pacific Railroad. Drilled domestic and irrigation water-table well in Santa Barbara formation, diameter 12 inches, depth 126 feet. Land-surface datum is about 51 feet above msl. Highest water level 71.40 below lsd, Apr. 30, 1945; lowest 87.46 below lsd, July 30, 1951. Records available: 1941-53.

Jan. 28	c80.96	Apr. 28	81.00	July 29	81.15	Oct. 30	81.02
Feb. 25	80.53	May 28	80.35	Aug. 31	81.30	Nov. 23	79.87
Mar. 31	81.14	June 25	81.38	Sept. 28	80.90	Dec. 28	79.47

c Nearby well being pumped.

Santa Ynez Valley

6/30-6A1. Sam Torrence. Near Santa Ynez, Telephone Road and Baseline Ave. Drilled irrigation water-table well in terrace deposits, diameter 16 inches, depth 262 feet, perforations 42-260. Land-surface datum is about 669 feet above msl. Highest water level 42.02 below lsd, Apr. 8, 1943; lowest 100.92 below lsd, June 30, 1953. Records available: 1942-53.

Jan. 28	71.46	Apr. 28	80.94	July 31	91.02	Oct. 29	87.70
Feb. 25	79.66	May 27	96.06	Aug. 28	b107.28	Nov. 25	79.91
Mar. 31	83.84	June 30	100.92	Sept. 29	89.68	Dec. 29	79.23

b Pumped recently.

6/30-7K1. Mrs. W. Anderson. Santa Ynez. Drilled public-supply water-table well in terrace deposits, diameter 10 inches, depth 70 feet. Land-surface datum is about 614 feet above msl. Highest water level 38.22 below lsd, Mar. 3, 1944; lowest dry, Dec. 29, 1953. Records available: 1941-53. Jan. 28, 48.19, nearby well being pumped; Mar. 31, 49.10, nearby well being pumped; Dec. 29, dry.

6/30-9N1. San Lucas Ranch. Near Santa Ynez. Drilled stock water-table well in Paso Robles(?) formation, diameter 8 inches, depth 160 feet. Land-surface datum is about 653 feet above msl. Highest water level 30.71 below lsd, Sept. 1, 1944; lowest 38.85 below lsd, Jan. 28, Feb. 25, 1953. Records available: 1941-53. Jan. 28, 38.85; Feb. 25, 38.85; June 30, 38.64; Sept. 29, 38.55; Oct. 29, 38.66; Nov. 25, 38.49; Dec. 28, 38.57.

6/30-21B2. Rancho Juan y Lolita. Near Santa Ynez. Drilled irrigation water-table well in river-channel deposits, diameter 14 inches, reported depth 70 feet. Land-surface datum is about 495 feet above msl. Highest water level 12.85 below lsd, Oct. 29, Dec. 30, 1952; lowest 19.98 below lsd, Sept. 29, 1953. Records available: 1952-53. Jan. 28, 14.30; Feb. 25, 14.67; Apr. 28, 12.95; Sept. 29, 19.98; Oct. 29, 18.18; Nov. 25, 17.49; Dec. 29, 17.49.

6/30-29E1. Rancho Juan y Lolita. Near Santa Ynez. Drilled unused water-table well in alluvium, diameter 10 inches, depth 52 feet. Land-surface datum is about 461 feet above msl. Highest water level 7.90 below lsd, Mar. 10, 1941. Records available: 1933-53.

6/30-29E1--Continued.

Daily highest water level from recorder graph

Day	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	12.01	13.34	14.78	16.23	12.80	13.43	15.08	17.31	19.74	21.18	21.61	22.06
2	12.01	13.40	14.83	16.29	12.77	13.48	15.15	17.45	19.77	21.20	21.62	22.07
3	11.98	13.45	14.90	16.36	12.72	13.49	15.19	17.58	19.82	21.23	21.64	22.07
4	11.98	13.50	14.99	16.37	12.67	13.51	15.02	17.71	19.88	21.24	21.65	22.08
5	11.99	13.56	15.04	16.23	12.64	13.53	15.00	17.88	19.93	21.26	21.66	22.10
6	12.01	13.58	15.09	16.00	12.63	13.55	15.01	18.04	20.02	21.27	21.68	22.12
7	12.04	13.63	15.16	15.75	12.63	13.59	14.87	18.21	20.12	21.30	21.70	22.13
8	12.09	13.66	15.20	15.45	12.64	13.63	14.88	18.22	20.22	21.31	21.72	22.14
9	12.15	13.69	15.27	15.15	12.67	13.71	14.94	18.16	19.92	21.32	21.74	22.15
10	12.17	13.73	15.33	14.86	12.69	13.75	15.07	18.29	19.91	21.33	21.75	22.16
11	12.21	13.80	15.42	14.59	12.70	13.76	15.19	18.44	19.93	21.32	21.76	22.17
12	12.29	13.85	15.45	14.34	12.73	13.78	15.30	18.46	20.02	21.33	21.77	22.18
13	12.36	13.90	15.48	14.11	12.76	13.85	15.42	18.52	20.12	21.34	21.79	22.19
14	12.42	13.93	15.50	13.91	12.78	13.95	15.53	18.58	20.23	21.36	21.80	22.20
15	12.48	13.96	15.51	13.72	12.79	14.01	15.64	18.65	20.31	21.36	21.84	22.20
16	12.56	14.02	15.55	13.57	12.84	14.07	15.75	18.71	20.38	21.36	21.85	22.21
17	12.60	14.07	15.56	13.45	12.89	14.17	15.87	18.80	20.46	21.36	21.86	22.22
18	12.62	14.10	15.58	13.35	12.92	14.24	15.98	18.90	20.56	21.38	21.88	22.23
19	12.65	14.16	15.67	13.26	12.94	14.30	16.08	19.01	20.61	21.40	21.89	22.24
20	12.69	14.21	15.70	13.19	12.98	14.35	16.18	19.12	20.67	21.42	21.90	22.24
21	12.74	14.27	15.72	13.12	13.02	14.39	16.31	19.23	20.75	21.43	21.92	22.25
22	12.79	14.33	15.74	13.08	13.07	14.43	16.52	19.34	20.83	21.44	21.95	22.27
23	12.84	14.36	15.77	13.03	13.09	14.47	16.68	19.46	20.90	21.47	21.96	22.29
24	12.88	14.42	15.81	12.98	13.12	14.52	16.56	19.57	20.98	21.48	21.96	22.29
25	12.94	14.51	15.87	12.95	13.14	14.58	16.60	19.63	21.04	21.49	21.97	22.30
26	13.00	14.58	15.93	12.92	13.18	14.64	16.75	19.64	21.09	21.50	21.98	22.30
27	13.08	14.64	16.00	12.89	13.23	14.70	16.76	19.64	21.12	21.51	22.00	22.31
28	13.14	14.71	16.04	12.87	13.27	14.76	16.77	19.59	21.13	21.52	22.02	22.34
29	13.18		16.08	12.84	13.32	14.85	16.89	19.59	21.15	21.54	22.04	22.34
30	13.24		16.12	12.83	13.35	14.98	17.01	19.63	21.17	21.56	22.04	22.35
31	13.29		16.17		13.39		17.12	19.68		21.60		22.38

6/31-2K1. Sam de la Cuesta. Near Ballard. Drilled domestic and irrigation water-table well in alluvium, diameter 10 inches, depth 75 feet. Land-surface datum is about 627 feet above msl. Highest water level 23.02 below lsd, Jan. 9, 1942; lowest 49.60 below lsd, Sept. 21, 1951. Records available: 1942, 1947-53. Jan. 28, 34.34; Apr. 28, 37.57; May 27, 45.90, pumping; July 31, 41.18; Nov. 25, 40.56; Dec. 29, 38.70.

6/31-13D1. Mrs. W. E. Parker. Near Santa Ynez. Refugio Pass Road and State Highway 150. Drilled domestic water-table well in Paso Robles formation, diameter 10 inches, depth 170 feet. Land-surface datum is about 608 feet above msl. Highest water level 102.58 below lsd, Mar. 9, 1942; lowest 120.64 below lsd, Dec. 30, 1949. Records available: 1941-53.

Date	Water level	Date	Water level	Date	Water level	Date	Water level
Jan. 28	111.23	Apr. 28	b127.21	July 31	112.69	Nov. 25	112.87
Feb. 25	111.15	May 27	112.22	Aug. 28	112.83	Dec. 29	112.84
Mar. 31	b127.29	June 30	112.50	Oct. 29	113.09		

b Pumped recently.

6/31-16N2. H. G. Peterson. Near Solvang. Drilled irrigation water-table well in river-channel deposits, diameter 16 inches, depth 47 feet. Land-surface datum is about 368 feet above msl. Highest water level 5.93 below lsd, May 1, 1941; lowest 23.01 below lsd, Oct. 30, 1951. Records available: 1941-42, 1949-53. Jan. 28, 9.81; Mar. 31, 12.25; May 27, 13.05; Sept. 29, 20.25; Oct. 29, 20.43; Nov. 25, 15.40; Dec. 29, 12.82.

6/31-17F1. John R. Orton. Near Buellton. Dug domestic water-table well in alluvium, diameter 12 inches, depth 43 feet. Land-surface datum is 362.90 feet above msl. Highest water level 14.80 below lsd, Apr. 9, 1941; lowest 29.68 below lsd, July 27, 1951. Records available: 1931-53.

Jan. 28	20.82	Apr. 28	b22.31	July 31	25.97	Oct. 29	26.19
Feb. 25	21.27	May 27	a22.64	Aug. 28	25.50	Nov. 25	25.94
Mar. 31	b22.18	June 30	b24.40	Sept. 29	25.85	Dec. 29	24.65

a Pumping.
b Pumped recently.

6/31-21H2. Petan Dairy Ranch. Near Solvang. Santa Ynez River and Alisal Road. Drilled unused water-table well in alluvium, diameter 8 inches, depth 13 feet. Land-surface datum is about 407 feet above msl. Highest water level 0.70 below lsd, Mar. 7, 1941; lowest 12.59 below lsd, Nov. 29, 1951. Records available: 1931-53.

Date	Water level	Date	Water level	Date	Water level	Date	Water level
Jan. 28	c10.32	Apr. 28	c10.27	July 31	11.40	Oct. 29	12.54
Feb. 25	c10.38	May 27	10.41	Aug. 28	12.08	Nov. 25	12.50
Mar. 31	10.19	June 30	11.05	Sept. 29	12.14	Dec. 29	12.45

c Nearby well being pumped.

6/32-6K1. Mrs. Minnie Barker. Near Buellton. Drilled domestic and stock water-table well in alluvium, diameter 12 inches, depth 74 feet. Land-surface datum is about 390 feet above msl. Highest water level 10.50 below lsd, July 9, 1932; lowest 22.90 below lsd, Oct. 29, 1953. Records available: 1932-34, 1941-53.

Jan. 28	b18.84	June 30	19.10	Aug. 28	b26.28	Oct. 29	22.90
Feb. 25	b18.78	July 31	22.47	Sept. 29	b24.87	Dec. 29	19.62
Apr. 28	18.84						

b Pumped recently.

6/32-9A1. Owen E. Hollister. Near Buellton. Drilled domestic water-table well in alluvium, diameter 8 inches, depth 58 feet. Land-surface datum is 309.33 feet above msl. Highest water level 26.20 below lsd, Jan. 21, 1942; lowest 37.69 below lsd, Aug. 6, 1942. Records available: 1932-53.

Jan. 28	32.94	Apr. 28	35.86	July 31	35.60	Sept. 29	35.44
Feb. 25	35.01	May 27	35.11	Aug. 28	35.78	Oct. 29	34.36
Mar. 31	35.08	June 30	35.20				

6/32-11A1. William Hunt. Near Buellton. Drilled unused water-table well in Paso Robles(?) formation, diameter 8 inches, depth 125 feet. Land-surface datum is 341.88 feet above msl. Highest water level 39.24 below lsd, Apr. 25, 1952; lowest 50.86 below lsd, Sept. 29, 1953. Records available: 1950-53.

Jan. 28	43.66	Apr. 28	44.29	July 31	48.05	Oct. 29	49.80
Feb. 25	44.05	May 27	44.35	Aug. 28	48.55	Nov. 25	46.72
Mar. 31	44.38	June 30	44.76	Sept. 29	50.86	Dec. 29	46.92

6/32-11N1. Doty & Mercer. Near Buellton. Drilled domestic water-table well in alluvium, diameter 8 inches, depth 50 feet. Land-surface datum is 332.74 feet above msl. Highest water level 24.77 below lsd, Apr. 9, 1952; lowest 35.72 below lsd, Oct. 27, 1949, Nov. 17, 1950. Records available: 1932, 1941, 1949-53.

Jan. 27	32.30	Apr. 29	32.03	July 30	30.94	Oct. 28	34.79
Feb. 24	32.75	May 26	31.51	Aug. 27	31.13	Nov. 24	35.14
Mar. 30	31.89	June 29	32.76	Sept. 30	b33.32	Dec. 30	35.20

b Pumped recently.

6/32-12J2. A. Bodine. Buellton. Drilled unused water-table well in Paso Robles formation, diameter 6 inches, depth 126 feet. Land-surface datum is 356.96 feet above msl. Highest water level 22.98 below lsd, Sept. 11, 1941; lowest 38.47 below lsd, Sept. 28, 1949. Records available: 1941-53.

Jan. 28	30.35	Mar. 31	31.21	Aug. 28	28.82	Oct. 29	30.20
Feb. 25	32.20	July 31	33.95	Sept. 29	32.22	Dec. 29	32.96

6/32-16P3. Channing Peake. Near Buellton. Drilled irrigation water-table well in alluvium, diameter 16 inches, depth 70 feet. Land-surface datum is about 293 feet above msl. Highest water level 41.82 below lsd, Feb. 24, 1943; lowest 50.18 below lsd, Oct. 29, 1951. Records available: 1941-53. Jan. 27, 43.05; Apr. 29, 43.32; May 26, 44.20; June 29, 44.13; Oct. 28, 46.70; Nov. 24, 46.06; Dec. 30, 43.88.

6/32-18H1. T. J. Donovan. Near Buellton. Drilled domestic and stock water-table well in alluvium, diameter 8 inches, depth 50 feet. Land-surface datum is about 266 feet above msl. Highest water level 25.80 below lsd, Oct. 18, 1941; lowest 40.16 below lsd, Nov. 28, 1951. Records available: 1932-42, 1949-53.

Jan. 27	32.57	Apr. 29	32.93	July 30	34.68	Oct. 28	35.63
Feb. 24	32.79	May 26	33.18	Aug. 27	35.10	Nov. 25	35.65
Mar. 30	33.16	June 29	b35.07				

b Pumped recently.

6/33-8J1. Hollister Estate. Near Lompoc. Drilled domestic water-table well in alluvium, diameter 10 inches, depth 62 feet. Land-surface datum is about 202 feet above msl. Highest water level 40.76 below lsd, Mar. 27, 1952; lowest 52.14 below lsd, Sept. 24, 1951. Records available: 1941-42, 1949-53.

Date	Water level	Date	Water level	Date	Water level	Date	Water level
Jan. 27	41.87	Apr. 29	42.40	July 30	44.33	Oct. 28	44.32
Feb. 24	43.74	May 26	42.64	Aug. 27	44.75	Nov. 24	43.81
Mar. 31	42.37	June 29	43.42	Sept. 30	44.61	Dec. 30	43.77

6/33-9P1. Hollister Estate. Near Lompoc. Drilled unused water-table well in alluvium, diameter 16 inches, depth 83 feet. Land-surface datum is about 200 feet above msl. Highest water level 21.80 below lsd, Apr. 3, 1941; lowest 54.61 below lsd, Nov. 30, 1950. Records available: 1932-53.

Jan. 27	37.50	Apr. 29	39.85	July 30	c46.13	Oct. 28	41.31
Feb. 24	c40.83	May 26	c42.86	Aug. 27	44.54	Nov. 24	40.47
Mar. 30	c40.94	June 29	c46.17	Sept. 30	42.10	Dec. 30	41.35

c Nearby well being pumped.

6/33-11M1. William Rennie. Drilled irrigation water-table well in river-channel deposits and alluvium, diameter 16 inches, depth 65 feet, cased to 63, perforations 4-30, 56-63. Land-surface datum is about 207 feet above msl. Highest water level 4.29 below lsd, Feb. 27, 1950; lowest 16.39 below lsd, Nov. 7, 1951. Records available: 1947, 1949-53.

Jan. 27	7.92	Apr. 29	8.29	Sept. 30	15.66	Nov. 24	11.28
Feb. 24	8.10	Aug. 27	11.17	Oct. 28	12.10	Dec. 30	10.73

6/34-1P1. Hollister Estate. Near Lompoc. Santa Rosa Road and Salsipuedes Creek. Drilled irrigation water-table well in alluvium, diameter 16 inches, depth 164 feet, cased to 164, perforations 54-72, 127-162. Land-surface datum is about 154 feet above msl. Highest water level 36.46 below lsd, Mar. 27, 1952; lowest 45.41 below lsd, July 26, 1951. Records available: 1949-53.

Jan. 27	39.05	May 26	40.48	Aug. 27	41.03	Nov. 24	41.41
Feb. 24	39.40	June 29	39.79	Sept. 30	41.53	Dec. 30	41.65
Mar. 30	39.83	July 30	40.75	Oct. 28	41.63		

6/34-2A6. Hattie Madsen. Near Lompoc. Drilled irrigation water-table well in alluvium, diameter 16 inches, depth 185 feet, cased to 185, perforations 56-66, 107-178. Land-surface datum is 129.96 feet above msl. Highest water level 36.40 below lsd, Dec. 30, 1952; lowest 44.72 below lsd, July 6, 1949. Records available: 1948-53.

Jan. 28	37.28	Apr. 28	37.69	Aug. 28	38.17	Nov. 25	38.54
Feb. 25	37.47	May 27	37.79	Sept. 29	38.38	Dec. 29	38.55
Mar. 31	37.61	July 31	38.07	Oct. 29	38.75		

6/34-4F3. City of Lompoc. West Olive and O Sts. Drilled unused water-table well in alluvium, diameter 16 inches, depth 81 feet, perforations 60-77. Land-surface datum is about 95 feet above msl. Highest water level 44.43 below lsd, Jan. 27, 1953; lowest 58.17 below lsd, Apr. 24, 1951. Records available: 1950-53.

Jan. 27	44.43	Apr. 29	48.65	July 30	49.72	Oct. 28	47.08
Feb. 24	50.11	May 26	51.97	Aug. 27	48.62	Nov. 24	46.33
Mar. 30	52.24	June 29	52.67	Sept. 30	47.71	Dec. 30	45.67

6/34-6C2. Bank of America. Near Lompoc. Ocean and Legge Aves. Drilled domestic and stock artesian well in Careaga sand, diameter 12 inches, depth 185 feet, perforations 115-155. Land-surface datum is 99.80 feet above msl. Highest water level 47.88 below lsd, Feb. 24, 1943; lowest 76.78 below lsd, Apr. 24, 1951. Records available: 1930-39, 1943-53.

Jan. 27	55.32	Apr. 29	b66.58	July 30	66.75	Oct. 28	60.08
Feb. 24	b60.60	May 26	65.06	Aug. 27	64.38	Nov. 24	b58.44
Mar. 30	b60.05	June 29	64.49	Sept. 30	60.81		

b Pumped recently.

6/34-12F2. Hollister Estate. Near Lompoc. Santa Rosa Road and Salsipuedes Creek. Drilled unused water-table well in alluvium, diameter 6 inches, depth 50 feet. Land-surface datum is about 151 feet above msl. Highest water level 34.21 below lsd, June 29, 1953; lowest 40.18 below lsd, Dec. 26, 1951. Records available: 1942, 1949-53.

Jan. 27	36.98	Apr. 29	36.40	July 30	36.22	Oct. 28	38.45
Feb. 24	37.08	May 26	j29.24	Aug. 27	37.37	Nov. 24	38.69
Mar. 30	37.19	June 29	34.21	Sept. 30	38.01	Dec. 30	39.00

j Recharging.

7/31-23P1. F. L. Mattei. Los Olivos. Drilled domestic and irrigation water-table well in Paso Robles formation, diameter 8 inches, depth 141 feet. Land-surface datum is about 827 feet above msl. Highest water level 8.09 below lsd, Aug. 7, 1942; lowest 65.46 below lsd, Oct. 30, 1951. Records available: 1942-53.

Date	Water level	Date	Water level	Date	Water level	Date	Water level
Jan. 28	30.70	May 27	27.43	Sept. 29	27.87	Nov. 25	25.99
Mar. 31	29.70	June 30	27.49	Oct. 29	27.08	Dec. 29	25.48
Apr. 28	27.94	July 31	28.98				

7/31-25L1. Dr. Ina M. Richter and Mrs. Virginia Lee. Near Los Olivos. Drilled domestic water-table well in Paso Robles formation, diameter 12 inches, depth 200 fset. Land-surface datum is about 806 fset above msl. Highest water level 55.83 below lsd, Apr. 27, 1944; lowest 89.60 below lsd, Sept. 29, 1953. Records available: 1942-53.

Jan. 28	83.28	July 31	87.49	Sept. 29	89.60	Nov. 25	88.49
Feb. 25	83.79	Aug. 28	87.60	Oct. 29	88.60	Dec. 29	88.90
Mar. 31	84.30						

7/31-36G2. Laura Grossi. Near Ballard. Roblar and Grand (Refugio) Aves. Drilled unused water-table well in Paso Robles formation, diameter 8 inches, depth 127 feet. Land-surface datum is about 731 feet above msl. Highest water level 30.65 below lsd, Jan. 31, 1947; lowest 56.08 below lsd, Sept. 29, 1953. Records available: 1947-53.

Jan. 28	48.17	Apr. 28	51.72	July 31	55.54	Oct. 29	55.68
Feb. 25	49.55	May 27	52.42	Aug. 28	55.63	Nov. 25	54.43
Mar. 31	52.09	June 30	54.59	Sept. 29	56.08	Dec. 28	54.20

7/31-36L2. D. B. Kilbourne. Near Ballard. Baseline and Grand (Refugio) Aves. Drilled domestic and irrigation water-table well in Paso Robles formation, diameter 12 inches, depth 230 feet. Land-surface datum is about 715 feet above msl. Highest water level 16.54 below lsd, Apr. 7, 1943; lowest 56.74 below lsd, June 30, 1953. Records available: 1942-53. Jan. 28, 44.00; Apr. 28, 49.96; May 27, 52.74; June 30, 56.74; Sept. 29, 56.56; Oct. 29, 54.74; Nov. 25, 50.71.

7/33-30C1. John Valla. Near Lompoc. Orcutt Road and State Highway 150. Drilled unused water-table well in Paso Robles formation, diameter 8 inches, depth 183 feet. Land-surface datum is about 233 feet above msl. Highest water level 150.41 below lsd, Feb. 1, 1946; lowest 156.70 below lsd, Dec. 29, 1953. Records available: 1941-53.

Jan. 28	c156.14	Apr. 28	c156.29	July 31	c156.57	Oct. 29	c156.72
Feb. 25	c156.35	May 27	c156.36	Aug. 28	c156.60	Nov. 25	c156.69
Mar. 31	c156.25	June 30	c156.50	Sept. 29	c156.54	Dec. 29	156.70

c Nearby well being pumped.

7/34-9H3. U. S. Geol. Survey, Union Oil Co., Purisima Lease. Near Lompoc. Drilled observation water-table well in Orcutt formation, diameter 8 inches, depth 103 feet, cased to 103. Land-surface datum is about 275 feet above msl. Highest water level 9.32 below lsd, Oct. 10, 1948, Sept. 3, 1949; lowest 11.38 below lsd, Sept. 7, 1952. Records available: 1948-53.

Daily highest water level from recorder graph

Day	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	11.02	10.95	10.91	11.05	11.03	11.01	11.06	11.08	11.12	11.12	11.23	11.10
2	11.08	10.95	10.86	11.05	11.10	11.03	11.04	11.09	11.12	11.12	11.22	11.09
3	11.14	10.95	10.85	11.05	11.15	11.06	11.02	11.10	11.12	11.12	11.21	11.08
4	11.11	10.95	10.88	11.04	11.18	11.07	11.01	11.11	11.10	11.10	11.19	11.07
5	11.04	10.95	10.98	11.04	11.15	11.06	11.01	11.12	11.10	11.09	11.16	11.07
6	10.97	10.96	11.00	11.02	11.09	11.05	11.01	11.13	11.11	11.09	11.15	11.10
7	10.94	10.98	11.00	11.01	11.06	11.04	11.02	11.14	11.12	11.09	11.15	11.14
8	10.94	10.96	10.99	11.01	11.06	11.02	11.02	11.15	11.13	11.11	11.16	11.17
9	10.97	10.95	10.98	11.05	11.06	11.02	11.02	11.15	11.14	11.14	11.17	11.17
10	11.01	10.95	10.98	11.10	11.08	11.02	11.04	11.15	11.14	11.18	11.18	11.17
11	11.00	10.98	10.98	11.14	11.08	11.03	11.05	11.15	11.12	11.19	11.18	11.16
12	10.99	11.03	10.99	11.11	11.06	11.05	11.04	11.14	11.12	11.19	11.18	11.16
13	10.99	11.04	11.02	11.08	11.05	11.08	11.04	11.14	11.11	11.19	11.17	11.17
14	10.99	11.05	11.02	11.08	11.01	11.10	11.04	11.14	11.10	11.20	11.12	11.18
15	11.01	11.05	11.01	11.08	10.99	11.07	11.04	11.15	11.10	11.23	11.10	11.15
16	11.06	11.04	11.00	11.05	10.98	11.03	11.05	11.14	11.10	11.25	11.10	11.12
17	11.10	11.05	11.00	11.04	10.99	11.00	11.07	11.13	11.09	11.24	11.10	11.12
18	11.10	11.06	11.02	11.03	11.01	11.00	11.08	11.13	11.09	11.24	11.10	11.13
19	11.08	11.07	11.03	11.01	11.03	11.00	11.11	11.12	11.11	11.24	11.12	11.14
20	11.05	11.07	11.04	10.98	11.03	11.02	11.10	11.12	11.15	11.24	11.15	11.15

7/34-9H3--Continued.

Day	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
21	11.02	11.08	11.04	10.96	11.03	11.04	11.10	11.11	11.16	11.23	11.15	11.16
22	11.02	11.09	11.05	10.95	11.04	11.05	11.10	11.11	11.17	11.19	11.17	11.16
23	11.02	11.00	11.06	10.95	11.04	11.05	11.10	11.10	11.20	11.19	11.18	11.16
24	10.99	10.94	11.05	10.98	11.04	11.04	11.08	11.08	11.21	11.19	11.19	11.18
25	10.98	10.94	11.04	11.01	11.04	11.04	11.08	11.07	11.19	11.19	11.16	11.20
26	10.99	10.95	11.04	11.03	11.04	11.04	11.08	11.07	11.16	11.19	11.12	11.19
27	11.02	10.97	11.04	11.01	11.06	11.05	11.08	11.08	11.15	11.19	11.11	11.13
28	11.03	10.96	11.05	10.99	11.07	11.06	11.09	11.09	11.15	11.20	11.11	11.11
29	10.98		11.04	10.99	11.07	11.06	11.08	11.10	11.14	11.20	11.11	11.10
30	10.95		11.04	11.00	11.04	11.06	11.08	11.11	11.12	11.22	11.11	11.09
31	10.95		11.04		11.02		11.08	11.11		11.23		11.10

7/34-12E1. U. S. Geol. Survey, Union Oil Co., Purisima Lease. Near Lompoc. Drilled observation water-table well in Careaga sand, diameter 8 to 6 inches, depth 385 feet, cased to 385, perforations 345-385. Land-surface datum is 385.83 feet above msl. Highest water level 301.70 below lsd, June 25, 1949; lowest 304.26 below lsd, Dec. 23, 1953. Records available: 1949-53.

Daily highest water level from recorder graph

Day	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	303.84	303.54	303.27	303.66	303.89	303.81	303.81	303.92	303.84	303.90	.....	304.01
2	303.84	303.56	303.28	303.67	304.00	303.93	303.78	303.93	303.84	303.86	.....	304.01
3	303.67	303.58	303.57	303.65	303.96	303.82	303.75	303.93	303.84	303.84	.....	304.00
4	303.54	303.62	303.77	303.65	303.87	303.78	303.75	303.93	303.85	303.83	.....	304.00
5	303.42	303.65	303.64	303.67	303.72	303.74	303.82	303.89	303.96	303.84	.....	304.16
6	303.46	303.62	303.62	303.60	303.69	303.72	303.85	303.86	303.97	303.88	.....	304.13
7	303.57	303.57	303.63	303.60	303.76	303.72	303.82	303.85	304.00	303.90	.....	304.06
8	303.80	303.43	303.62	303.68	303.81	303.76	303.82	303.84	303.98	304.02	.....	304.14
9	303.65	303.46	303.63	303.86	303.89	303.77	303.84	303.80	303.91	.....	.....	304.08
10	303.59	303.61	303.63	303.85	303.82	303.85	303.87	303.80	303.89	.....	.....	303.95
11	303.60	303.76	303.73	303.82	303.72	303.92	303.79	303.80	303.87	.....	.....	304.02
12	303.69	303.61	303.76	303.76	303.71	303.95	303.78	303.80	303.87	.....	.....	304.16
13	303.67	303.63	303.71	303.72	303.74	303.90	303.78	303.84	303.87	.....	.....	304.11
14	303.79	303.66	303.64	303.78	303.64	303.80	303.78	303.86	303.87	.....	.....	303.96
15	303.88	303.65	303.60	303.75	303.60	303.70	303.83	303.82	303.87	.....	.....	303.91
16	303.84	303.71	303.63	303.68	303.67	303.67	303.85	303.78	303.84	.....	.....	303.91
17	303.75	303.73	303.74	303.69	303.84	303.66	303.85	303.78	303.83	.....	.....	304.03
18	303.69	303.65	303.73	303.73	303.83	303.71	303.91	303.79	303.87	.....	.....	304.07
19	303.64	303.68	303.58	303.65	303.78	303.81	303.84	303.79	304.03	.....	.....	304.15
20	303.64	303.72	303.60	303.63	303.76	303.82	303.82	303.77	303.95	.....	.....	304.09
21	303.72	303.70	303.71	303.59	303.80	303.81	303.82	303.77	303.94	.....	304.16	304.03
22	303.70	303.50	303.69	303.63	303.83	303.80	303.85	303.77	304.00	.....	304.18	304.14
23	303.58	303.24	303.61	303.78	303.78	303.77	303.80	303.72	304.02	.....	304.11	304.26
24	303.54	303.31	303.60	303.77	303.80	303.75	303.80	303.70	303.96	.....	304.02	304.19
25	303.55	303.60	303.61	303.77	303.80	303.75	303.82	303.72	303.92	.....	303.91	304.06
26	303.67	303.59	303.65	303.77	303.87	303.82	303.85	303.80	303.92	.....	303.66	303.84
27	303.75	303.55	303.68	303.63	303.80	303.85	303.88	303.80	303.92	.....	303.93	303.70
28	303.63	303.43	303.66	303.66	303.78	303.82	303.83	303.84	303.92	.....	304.06	303.87
29	303.55		303.59	303.73	303.82	303.82	303.82	303.86	303.88	.....	304.03	303.86
30	303.52		303.67	303.77	303.73	303.84	303.83	303.86	303.88	.....	304.02	304.02
31	303.56		303.70		303.74		303.90	303.84		.....		304.01

7/34-14F1. Walter F. Ziesche. Near Lompoc. Drilled unused water-table well in Paso Robles formation, diameter 12 inches, depth 250 feet. Land-surface datum is 268.32 feet above msl. Highest water level 194.94 below lsd, Oct. 23, 1947; lowest 199.50 below lsd, Oct. 29, 1953. Records available: 1947-53.

Date	Water level	Date	Water level	Date	Water level	Date	Water level
Jan. 28	198.91	Apr. 28	199.13	July 31	199.36	Oct. 29	199.50
Feb. 25	198.86	May 27	199.21	Aug. 28	199.45	Nov. 25	199.45
Mar. 31	198.82	June 30	199.30	Sept. 29	199.45	Dec. 29	199.42

7/34-21E1. U. S. Geol. Survey, Department of the Army, Camp Cooke Military Reservation. Near Lompoc. Drilled observation artesian well in Orcutt formation, diameter 8 inches, depth 145 feet, cased to 145, perforations 73-93. Land-surface datum is about 82 feet above msl. Highest water level 17.97 below lsd, Apr. 1, 1949; lowest 25.02 below lsd, Aug. 10, 1951. Records available: 1948-53.

7/34-21E1--Continued.

Daily highest water level from recorder graph

Day	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	19.34	18.57	19.00	.....	21.27	21.16	21.59	21.92	21.58	21.32	20.90	20.30
2	19.26	18.57	19.04	.....	21.23	21.26	21.56	21.89	21.58	21.29	20.86	20.29
3	19.16	18.60	19.18	.....	21.13	21.28	21.52	21.88	21.60	21.25	20.90	20.28
4	19.11	18.65	19.03	.....	21.07	21.32	21.53	21.89	21.62	21.21	20.86	20.28
5	19.02	18.67	19.00	.....	21.01	21.39	21.48	21.88	21.63	21.19	20.88	20.35
6	19.06	18.62	19.00	.....	21.01	21.45	21.45	21.88	21.61	21.20	20.97	20.22
7	19.10	18.60	19.02	.....	21.04	21.46	21.42	21.90	21.57	21.22	20.90	20.20
8	19.18	18.51	19.03	.....	21.05	21.48	21.45	21.88	21.51	21.20	20.86	20.26
9	19.04	18.56	19.01	.....	21.07	21.53	21.47	21.84	21.49	21.20	20.80	20.22
10	18.98	18.67	19.01	.....	21.01	21.49	21.47	21.83	21.50	21.10	20.80	20.18
11	18.99	18.73	19.09	.....	20.99	21.62	21.45	21.81	21.49	21.06	20.79	20.25
12	18.99	18.65	19.11	.....	21.01	21.65	21.45	21.82	21.49	21.08	20.74	20.22
13	18.93	18.75	19.11	.....	21.04	21.64	21.46	21.84	21.45	21.12	20.68	20.16
14	18.98	18.77	19.13	.....	20.99	21.52	21.46	21.81	21.41	21.13	20.63	20.11
15	18.99	18.77	19.17	.....	20.95	21.46	21.53	21.79	21.41	21.09	20.63	20.10
16	18.94	18.81	19.26	.....	21.04	21.46	21.58	21.75	21.40	21.07	20.60	20.13
17	18.90	18.85	19.37	20.95	21.02	21.49	21.62	21.73	21.40	21.05	20.58	20.19
18	18.85	18.87	19.43	20.98	20.98	21.49	21.67	21.77	21.50	21.05	20.62	20.13
19	18.82	18.97	19.45	20.96	20.93	21.55	21.65	21.80	21.45	21.01	20.56	20.11
20	18.83	19.03	19.55	20.98	20.94	21.53	21.66	21.81	21.43	21.05	20.52	20.08
21	18.91	19.09	19.56	20.97	20.98	21.51	21.69	21.79	21.44	20.99	20.56	20.07
22	18.87	18.93	19.59	21.10	20.96	21.50	21.71	21.78	21.46	21.03	20.51	20.18
23	18.74	18.83	19.61	21.21	20.96	21.49	21.69	21.70	21.40	21.11	20.46	20.19
24	18.75	19.00	19.69	21.21	21.00	21.49	21.69	21.67	21.40	21.04	20.43	20.16
25	18.74	19.11	19.75	21.25	21.02	21.52	21.73	21.69	21.41	20.99	20.42	20.14
26	18.70	19.06	19.86	21.19	21.13	21.59	21.76	21.67	21.36	20.97	20.40	20.08
27	18.75	19.07	19.90	21.13	21.11	21.56	21.78	21.68	21.34	20.97	20.42	20.03
28	18.69	19.04	.....	21.15	21.09	21.55	21.78	21.68	21.31	20.98	20.41	20.17
29	18.65		.....	21.13	21.11	21.55	21.78	21.65	21.29	20.98	20.35	20.18
30	18.63		.....	21.17	21.09	21.61	21.88	21.64	21.31	20.95	20.30	20.30
31	18.66		.....		21.13		21.92	21.58		20.91		20.30

7/34-22H1. H. E. Harris. Near Lompoc. Rucker Crossing of Santa Ynez River. Drilled domestic artesian well in alluvium and Orcutt formation, diameter 12 inches, depth 208 feet, cased to 193, perforations 87-100, 167-190. Land-surface datum is about 97 feet above msl. Highest water level 20.80 below lsd, Mar. 7, 1941; lowest 31.75 below lsd, May 28, 1951. Records available: 1941-42, 1946-53.

Date	Water level	Date	Water level	Date	Water level	Date	Water level
Jan. 27	27.69	Apr. 29	29.36	July 30	30.73	Oct. 27	28.46
Feb. 24	27.63	May 26	c30.32	Aug. 27	29.19	Nov. 24	28.43
Mar. 30	c30.24	June 29	29.69	Sept. 30	28.91	Dec. 29	27.77

c Nearby well being pumped.

7/34-22Q4. U. S. Geol. Survey, A. Scolari property. Near Lompoc. Rucker Crossing Road and North A St. Drilled observation water-table well in alluvium, diameter 2 inches, depth 24 feet, cased to 24, screen 21-24. Land-surface datum is 82.72 feet above msl. Highest water level 12.82 below lsd, Jan. 6, 1953; lowest dry, Aug. 28, 1950-Dec. 26, 1951. Records available: 1947-53.

Jan. 6	12.82	Apr. 29	15.12	July 30	17.58	Oct. 27	19.15
27	13.04	May 26	15.88	Aug. 27	18.18	Nov. 24	18.50
Feb. 24	13.19	June 29	16.83	Sept. 30	18.72	Dec. 30	19.22
Mar. 30	14.18						

7/34-24N1. La Purisima Mission State Park. Near Lompoc. Drilled irrigation water-table well in Paso Robles formation, diameter 16 inches, depth 183 feet, perforations 130-143. Land-surface datum is 130.4 feet above msl. Highest water level 51.2 below lsd, May 26, 1930; lowest 61.36 below lsd, July 3, 1953. Records available: 1930-35, 1949, 1953. Oct. 6, 1949, 60.78; July 3, 1953, 61.36; Oct. 29, 60.89; Nov. 25, 59.63.

7/34-26C2. J. Maxwell Wilson. Near Lompoc. State Highway 150 and Orcutt Road. Drilled unused water-table well in alluvium and Paso Robles formation, diameter 16 inches, reported depth 150 feet. Land-surface datum is about 110 feet above msl. Highest water level 32.53 below lsd, Apr. 29, 1953; lowest 37.00 below lsd, Jan. 18, 1952. Records available: 1951-53.

7/34-26C2--Continued.

Date	Water level	Date	Water level	Date	Water level	Date	Water level
Jan. 27	32.92	Apr. 29	32.53	July 30	34.42	Oct. 27	33.68
Feb. 24	c35.25	May 26	c35.00	Aug. 27	36.00	Nov. 24	33.72
Mar. 30	32.65	June 29	34.33	Sept. 30	33.40	Dec. 29	34.22

c Nearby well being pumped.

7/34-26H3. R. C. Lilly. Near Lompoc. Drilled unused water-table well in alluvium, diameter 16 inches, depth 123 feet. Land-surface datum is about 115 feet above msl. Highest water level 40.13 below lsd, Mar. 9, 1950; lowest 45.10 below lsd, Aug. 1, 11, 1952. Records available: 1950-53.

Daily highest water level from recorder graph

Day	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	41.36	40.76	40.94	42.68	42.96	43.67	43.34	44.33	43.92	43.48	43.05	42.15
2	41.37	40.89	40.94	43.22	42.87	43.59	43.29	44.27	44.13	43.51	43.04	42.11
3	41.16	40.99	40.94	42.76	42.83	43.56	43.25	44.17	44.15	43.49	43.09	42.11
4	41.14	40.99	40.87	43.22	42.81	43.41	43.18	44.24	44.05	43.52	43.04	42.07
5	41.07	40.79	40.80	43.18	42.74	43.41	43.12	44.31	44.08	43.56	42.98	42.16
6	41.13	40.78	40.88	43.12	42.86	43.42	43.13	44.24	43.91	43.50	42.93	42.08
7	41.17	40.85	.....	43.34	43.09	43.39	43.30	44.25	43.82	43.64	42.83	42.06
8	41.22	40.84	.....	43.34	43.22	43.31	43.35	44.22	43.74	43.66	42.82	42.11
9	41.09	40.83	.....	43.09	43.04	43.55	43.46	44.05	43.73	43.75	42.73	42.03
10	41.00	40.83	.....	43.37	42.91	43.47	43.73	44.03	43.67	43.76	42.74	41.96
11	41.07	40.70	.....	43.08	43.06	43.52	43.85	44.05	43.66	43.59	42.75	42.04
12	41.07	40.58	.....	43.32	43.11	43.53	43.89	44.03	43.71	43.57	42.72	41.94
13	41.02	40.63	41.30	43.19	43.14	43.53	43.88	44.03	43.65	43.67	42.64	41.94
14	41.07	40.67	.....	43.09	43.09	43.49	43.95	44.12	43.63	43.69	42.59	41.89
15	41.08	40.66	.....	43.42	43.04	43.40	43.98	44.11	43.78	43.62	42.58	41.89
16	41.02	40.65	.....	43.40	43.10	43.50	43.86	43.91	43.86	43.62	42.54	41.93
17	40.94	40.79	.....	43.57	43.06	43.53	44.20	43.79	43.95	43.60	42.50	41.97
18	40.91	40.88	.....	43.63	43.06	43.47	44.19	43.72	44.09	43.48	42.54	41.88
19	40.90	40.99	.....	43.32	43.07	43.47	44.08	43.70	43.83	43.43	42.46	41.92
20	40.90	41.03	41.39	43.24	43.35	43.56	43.98	43.74	43.68	43.56	42.42	41.85
21	40.91	41.08	.....	43.22	43.30	43.52	43.95	43.80	43.72	43.47	42.47	41.94
22	40.84	41.18	.....	43.35	43.19	43.62	43.92	43.93	43.86	43.41	42.41	41.99
23	40.81	41.18	.....	43.41	43.30	43.57	43.91	43.91	43.70	43.36	42.36	41.90
24	40.82	41.14	.....	43.46	43.10	43.66	43.99	43.84	43.62	43.26	42.31	41.83
25	40.85	41.15	.....	43.46	43.12	43.54	44.07	44.06	43.58	43.22	42.27	41.80
26	40.84	41.14	.....	43.40	43.46	43.51	44.02	44.02	43.56	43.18	42.27	41.75
27	40.83	40.94	42.65	43.32	43.48	43.38	44.08	44.05	43.62	43.17	42.31	41.72
28	40.75	40.94	42.79	43.22	43.39	43.28	44.26	44.06	43.50	43.22	42.24	41.79
29	40.75		42.61	43.11	43.64	43.36	44.31	44.03	43.43	43.20	42.19	41.76
30	40.77		42.80	43.06	43.81	43.39	44.24	43.86	43.49	43.13	42.15	41.82
31	40.77		42.85		43.74		44.30	43.81		43.07		41.71

7/34-27A4. U. S. Geol. Survey, L. H. Schuyler property. Near Lompoc. North A St. and Santa Ynez River. Drilled observation water-table well in alluvium, diameter 2 inches, depth 30 feet. Land-surface datum is 79.19 feet above msl. Highest water level 8.19 below lsd, Feb. 24, 1953; lowest dry, Aug. 28, 1950-Dec. 26, 1951. Records available: 1947-53.

Date	Water level	Date	Water level	Date	Water level	Date	Water level
Jan. 27	8.57	Apr. 29	8.56	July 30	9.59	Oct. 27	12.09
Feb. 24	8.19	May 26	9.20	Aug. 27	11.10	Nov. 24	12.41
Mar. 30	8.22	June 29	9.95	Sept. 30	11.69	Dec. 30	12.71

7/34-27J3. U. S. Geol. Survey, L. H. Schuyler property. Near Lompoc. Drilled observation water-table well in alluvium, diameter 2 inches, depth 26 feet. Land-surface datum is 86.18 feet above msl. Highest water level 13.05 below lsd, Mar. 15, 1944; lowest dry, Aug. 31, 1949-Feb. 8, 1950, June 5, 1950-Apr. 28, 1952. Records available: 1943-45, 1947-52. Measurement discontinued.

7/34-27L1. Mrs. Susan Van Clief. Near Lompoc. North Ave. and A St. Drilled irrigation water-table well in alluvium, diameter 12 inches, depth 66 feet. Land-surface datum is about 97 feet above msl. Highest water level 25.68 below lsd, Apr. 25, 1941; lowest 48.75 below lsd, May 29, 1951. Records available: 1941-53.

Jan. 27	33.55	May 26	37.30	Aug. 27	38.09	Nov. 24	37.27
Feb. 24	34.02	June 29	40.65	Sept. 30	37.93	Dec. 30	38.18
Apr. 29	38.25	July 30	39.41	Oct. 28	37.94		

7/34-28H2. T. M. Parks. Near Lompoc. Central Ave. and H St. Drilled unused artesian well in alluvium, diameter 6 inches, depth 78 feet. Land-surface datum is 89.55 feet above msl. Highest water level 21.74 below lsd, Mar. 10, 1943; lowest 43.14 below lsd, May 28, 1951. Records available: 1930-39, 1942-53.

Date	Water level	Date	Water level	Date	Water level	Date	Water level
Jan. 27	28.01	Apr. 29	34.59	July 30	35.16	Oct. 27	32.56
Feb. 24	29.24	May 26	34.17	Aug. 27	33.66	Nov. 24	31.35
Mar. 30	37.79	June 29	34.35	Sept. 30	32.50	Dec. 30	32.35

7/34-28R1. W. A. Burpee. Formerly A. C. Zvolanek. Near Lompoc. North Ave. and H St. Drilled unused artesian well in alluvium, diameter 12 inches, depth 146 feet, cased to 146, perforations 106-146. Land-surface datum is 69.68 feet above msl. Highest water level 2.09 below lsd, Apr. 23, 1941; lowest 24.31 below lsd, Mar. 27, 1951. Records available: 1930-53.

Jan. 27	8.70	Mar. 30	16.09	May 26	14.83	Aug. 27	13.53
Feb. 24	10.41	Apr. 29	16.42	June 29	14.77	Sept. 30	12.86

7/34-28R2. U. S. Geol. Survey, W. A. Burpee property. Near Lompoc. Drilled observation water-table well in alluvium, diameter 2 inches, original depth 16 feet, deepened to 19. Land-surface datum is 69.50 feet above msl. Highest water level 2.70 below lsd, Mar. 2, 1944; lowest dry, June 28-Dec. 26, 1951. Records available: 1943-53.

Jan. 27	11.12	Apr. 29	12.14	July 30	12.41	Oct. 28	12.60
Feb. 24	10.76	May 26	12.05	Aug. 27	12.64	Nov. 24	12.32
Mar. 30	11.04	June 29	12.35	Sept. 30	12.61	Dec. 30	12.09

7/34-29E4. W. H. Sanor. Near Lompoc. Central and Floradale Aves. Drilled irrigation artesian well in alluvium, diameter 16 inches, depth 176 feet. Land-surface datum is 67.71 feet above msl. Highest water level 18.48 below lsd, Dec. 29, 1946; lowest 42.26 below lsd, Mar. 27, 1951. Records available: 1945-53.

Jan. 27	20.02	Apr. 29	31.71	Aug. 27	27.55	Nov. 24	22.53
Feb. 24	27.50	May 26	30.93	Sept. 30	25.73	Dec. 30	26.79
Mar. 30	35.37						

7/34-29E5. U. S. Geol. Survey, W. H. Sanor property. Near Lompoc. Drilled observation water-table well in alluvium, diameter 2 inches, depth 27 feet, cased to 27. Land-surface datum is 67.74 feet above msl. Highest water level 18.21 below lsd, Oct. 12, 1945; lowest dry, June 28, 1951-Feb. 28, 1952. Records available: 1945-53.

Jan. 27	21.21	Apr. 29	22.09	July 30	c22.22	Oct. 28	c20.71
Feb. 24	21.47	May 26	21.52	Aug. 27	22.17	Nov. 24	20.58
Mar. 30	22.33	June 29	c22.00	Sept. 30	20.69	Dec. 30	19.12

c Nearby well being pumped.

7/34-30L3. U. S. Geol. Survey, Union Sugar Co. property. Near Lompoc. Drilled observation water-table well in alluvium, diameter 2 inches, depth 27 feet, cased to 27. Land-surface datum is 58.79 feet above msl. Highest water level 15.83 below lsd, Dec. 29, 1946; lowest dry, May 28-Sept. 24, 1951. Records available: 1945-53.

Jan. 27	17.18	Apr. 29	22.14	July 30	21.00	Oct. 28	18.79
Feb. 24	19.20	May 26	21.36	Aug. 27	19.82	Nov. 24	17.97
Mar. 30	21.81	June 29	j17.04	Sept. 30	19.39	Dec. 30	18.15

j Recharging.

7/34-30L4. Union Sugar Co. Near Lompoc. Legge and Central Aves. Drilled irrigation artesian well in alluvium, diameter 14 inches. Land-surface datum is about 59 feet above msl. Highest water level 16.56 below lsd, Jan. 27, 1953; lowest 36.10 below lsd, Mar. 30, 1953. Records available: 1951-53.

Jan. 27	16.56	Apr. 29	30.87	July 30	31.69	Oct. 28	20.24
Feb. 24	25.48	May 26	30.17	Aug. 27	25.76	Nov. 24	18.44
Mar. 30	36.10	June 29	j27.13	Sept. 30	21.52	Dec. 30	21.82

j Recharging.

7/34-30R1. Mrs. Elizabeth Manfrina. Near Lompoc. Ocean and Floradale Aves. Dug water-table well in alluvium, diameter 10 inches, depth 30 feet. Land-surface datum is 66.81 feet above msl. Highest water level 9.65 below lsd, May 5, 1941; lowest 28.87 below lsd, Oct. 29, 1951. Records available: 1930-53. Measurement discontinued.

7/34-30R1--Continued.

Date	Water level	Date	Water level	Date	Water level	Date	Water level
Jan. 27	20.86	Apr. 29	20.91	July 30	20.45	Sept. 30	20.39
Feb. 24	19.68	May 26	21.95	Aug. 27	20.41	Oct. 28	20.50
Mar. 30	19.85	June 29	20.32				

7/34-31C2. Union Sugar Co. Near Lompoc. Ocean and Legge Aves. Drilled irrigation artesian well in alluvium, diameter 14 inches. Land-surface datum is 64.72 feet above msl. Highest water level 8.56 below lsd, Apr. 16, 1941; lowest 46.38 below lsd, Sept. 24, 1948. Records available: 1941, 1947-53.

Jan. 27	19.57	Apr. 29	36.45	July 30	37.24	Nov. 24	21.47
Feb. 24	30.62	May 26	31.93	Sept. 30	24.51	Dec. 30	25.00
Mar. 30	37.83	June 29	29.81	Oct. 28	25.46		

7/34-31C3. U. S. Geol. Survey, Union Sugar Co. property. Near Lompoc. Drilled observation water-table well in alluvium, diameter 2 inches, depth 28 feet. Land-surface datum is 64.68 feet above msl. Highest water level 12.24 below lsd, Apr. 29, 1953; lowest 21.97 below lsd, Dec. 26, 1951. Records available: 1947-53.

Jan. 27	19.04	May 26	13.80	Aug. 27	c15.24	Nov. 24	16.89
Feb. 24	18.61	June 29	15.17	Sept. 30	16.27	Dec. 30	17.35
Apr. 29	12.24	July 30	15.54	Oct. 28	16.73		

c Nearby well being pumped.

7/34-32A1. Mrs. May Clemmens. Near Lompoc. Pine Ave. and 13th Road. Drilled irrigation artesian well in alluvium, diameter 12 inches, depth 180 feet, cased to 175, perforations 147-174. Land-surface datum is about 79 feet above msl. Highest water level 17.6 below lsd, Apr. 11, May 2, 1941; lowest 43.57 below lsd, July 27, 1949. Records available: 1939-42, 1947-53.

Jan. 27	28.00	May 26	38.55	Sept. 30	32.89	Nov. 24	30.00
Feb. 24	35.30	June 29	36.48	Oct. 28	31.35	Dec. 30	37.34
Apr. 29	42.23	Aug. 27	34.89				

7/34-32A4. U. S. Geol. Survey, O. F. Benn property. Near Lompoc. Drilled observation water-table well in alluvium, diameter 2 inches, depth 31 feet. Land-surface datum is 79.28 feet above msl. Highest water level 24.21 below lsd, Dec. 31, 1947; lowest dry, July 27, 1950-Jan. 30, 1951, Mar. 27, 1951-Dec. 29, 1952. Records available: 1947-53.

Jan. 27	30.74	Apr. 29	30.13	July 30	c29.87	Oct. 28	29.73
Feb. 24	30.18	May 26	29.70	Aug. 27	29.88	Nov. 24	29.60
Mar. 30	c28.37	June 29	30.08	Sept. 30	29.80	Dec. 30	29.51

c Nearby well being pumped.

7/34-32P5. U. S. Geol. Survey, J. Bodger & Sons property. Near Lompoc. Ocean and Bailey Aves. Drilled observation water-table well in alluvium, diameter 2 inches, depth 37 feet. Land-surface datum is 77.60 feet above msl. Highest water level 24.47 below lsd, Feb. 1, 1949; lowest 35.50 below lsd, May 28, 1951. Records available: 1947-53.

Jan. 27	29.20	Apr. 28	31.42	July 30	31.10	Oct. 28	30.48
Feb. 24	29.95	May 26	31.31	Aug. 27	30.88	Nov. 24	30.10
Mar. 30	30.69	June 29	31.03	Sept. 30	30.52	Dec. 30	30.05

7/34-34H1. Mrs. Margaret Balaam. Lompoc. Pine Ave. and First St. Drilled irrigation water-table well in alluvium, diameter 12 inches, depth 160 feet, perforations 118-156. Land-surface datum is 112.10 feet above msl. Highest water level 33.46 below lsd, May 8, 1941; lowest 56.71 below lsd, July 26, 1951. Records available: 1941-53.

Jan. 27	38.80	Apr. 29	41.94	July 30	45.64	Oct. 28	45.52
Feb. 24	40.96	May 26	42.22	Aug. 27	45.07	Nov. 24	45.14
Mar. 30	41.27	June 29	c45.48	Sept. 30	45.39	Dec. 30	47.57

c Nearby well being pumped.

7/34-35F2. Valla Bros. Near Lompoc. Drilled unused water-table well in alluvium, diameter 15 inches, depth 140 feet, perforations 30-54, 96-136. Land-surface datum is 100.33 feet above msl. Highest water level 9.53 below lsd, Mar. 6, 1941; lowest 32.92 below lsd, Nov. 29, 1951. Records available: 1930-53.

Jan. 27	16.51	Apr. 29	18.03	July 30	23.29	Oct. 27	25.46
Feb. 24	16.65	May 26	c19.37	Aug. 27	c24.28	Nov. 24	25.19
Mar. 30	17.19	June 29	c21.01	Sept. 30	24.85	Dec. 29	25.59

c Nearby well being pumped.

7/34-35F6. U. S. Geol. Survey, M. Schuyler property. Near Lompoc. Drilled observation water-table well in alluvium, diameter 2 inches, depth 55 feet, cased to 55. Land-surface datum is 119.46 feet above msl. Highest water level 35.91 below lsd, Feb. 23, 1944; lowest dry many times. Records available: 1943-53.

Date	Water level	Date	Water level	Date	Water level	Date	Water level
Jan. 27	37.72	Apr. 29	40.56	July 30	44.82	Oct. 28	46.72
Feb. 24	37.88	May 26	41.36	Aug. 27	45.59	Nov. 24	46.42
Mar. 30	39.34	June 29	42.78	Sept. 30	46.07	Dec. 30	46.75

7/34-35F16. M. Schuyler. Near Lompoc. North First St. and College Ave. Drilled irrigation water-table well in alluvium, diameter 16 inches, depth 173 feet, cased to 170, perforations 119-170. Land-surface datum is 119.5 feet above msl. Highest water level 39.42 below lsd, Dec. 30, 1952; lowest 61.16 below lsd, July 26, 1951. Records available: 1947-53.

Jan. 27	39.65	Apr. 29	44.12	July 30	47.13	Oct. 28	47.65
Feb. 24	40.11	May 26	43.04	Aug. 27	46.97	Nov. 24	47.30
Mar. 30	42.29	June 29	45.22	Sept. 30	47.43	Dec. 30	48.06

7/34-35K2. Mrs. M. McDonald. Near Lompoc. Drilled unused water-table well in alluvium, diameter 10 inches, depth 28 feet. Land-surface datum is 96.01 feet above msl. Highest water level 4.67 below lsd, Mar. 13, Apr. 10, 1941; lowest 19.98 below lsd, May 4, 1950. Records available: 1930-53.

Jan. 27	9.49	Apr. 29	10.43	July 30	11.64	Oct. 27	13.70
Feb. 24	9.60	May 26	10.62	Aug. 27	12.07	Nov. 24	12.75
Mar. 30	10.27	June 29	10.77	Sept. 30	12.43	Dec. 29	13.05

7/34-35P1. W. P. and N. L. Robinson. Near Lompoc. Drilled unused water-table well in alluvium, diameter 8 inches, depth 63 feet. Land-surface datum is 121.3 feet above msl. Highest water level 29.32 below lsd, Mar. 6, 1941; lowest 51.70 below lsd, Mar. 5, 1948. Records available: 1931-50, 1953.

Mar. 12	38.43	May 27	37.70	Aug. 28	42.53	Nov. 24	43.56
31	38.16	June 30	39.39	Sept. 29	43.15	Dec. 29	44.09
Apr. 29	38.68	July 31	41.96	Oct. 29	44.12		

7/35-20J1. Department of the Army, Camp Cooke Military Reservation. Surf. Drilled unused artesian well in alluvium, diameter 6 inches, depth 108 feet. Land-surface datum is 19.07 feet above msl. Highest water level 4.91 below lsd, Mar. 27, 1952; lowest 31.27 below lsd, July 15, 1930. Records available: 1930-53.

Jan. 27	6.22	Apr. 29	7.38	July 30	8.39	Oct. 28	8.31
Feb. 24	6.56	May 26	8.02	Aug. 27	8.35	Nov. 24	7.77
Mar. 30	7.05	June 29	8.24	Sept. 30	8.28	Dec. 30	7.63

7/35-22J1. Union Sugar Co. Near Lompoc. Ocean and Renwick Aves. Drilled irrigation artesian well in alluvium, diameter 16 inches, depth 185 feet, perforations 133-180. Land-surface datum is 32.04 feet above msl. Highest water level 6.80 below lsd, Apr. 10, 1941; lowest 24.03 below lsd, Apr. 24, 1951. Records available: 1930-35, 1941-42, 1945-53.

Jan. 27	8.04	Apr. 29	14.15	Aug. 27	14.84	Nov. 24	10.50
Feb. 24	9.66	June 29	14.30	Sept. 30	12.81	Dec. 30	10.97
Mar. 30	14.52	July 30	15.20	Oct. 28	11.55		

7/35-22M1. Department of the Army, Camp Cooke Military Reservation. Near Lompoc. Drilled irrigation artesian well in alluvium, diameter 12 inches, depth 180 feet. Land-surface datum is 28.84 feet above msl. Highest water level 2.87 below lsd, Mar. 27, 1952; lowest 18.51 below lsd, July 27, 1950. Records available: 1947-53.

Jan. 27	5.99	Apr. 29	9.35	Aug. 27	8.88	Oct. 28	8.72
Feb. 24	6.85	May 26	10.91	Sept. 30	b9.55	Nov. 24	7.02
Mar. 30	9.04	June 29	b12.56				

b Pumped recently.

7/35-22M2. U. S. Geol. Survey, Department of the Army, Camp Cooke Military Reservation. Near Lompoc. Drilled observation water-table well in alluvium, diameter 2 inches, depth 22 feet. Land-surface datum is 28.20 feet above msl. Highest water level 5.14 below lsd, Mar. 27, 1952; lowest 14.95 below lsd, Dec. 31, 1947, Oct. 21, 1948. Records available: 1947-53.

Jan. 27	6.59	Apr. 29	5.61	July 30	c6.68	Oct. 28	7.55
Feb. 24	7.16	May 26	7.57	Aug. 27	6.31	Nov. 24	7.64
Mar. 30	8.05	June 29	j3.71	Sept. 30	7.08	Dec. 30	c8.95

c Nearby well being pumped.

j Recharging.

7/35-23E2. Union Sugar Co. Near Lompoc. Ocean and Union Sugar Aves. Drilled irrigation artesian well in alluvium, diameter 16 inches, depth 212 feet, perforations 170-190. Land-surface datum is 36.59 feet above msl. Highest water level 11.86 below lsd, Mar. 27, 1952; lowest 33.06 below lsd, July 27, 1949. Records available: 1930-35, 1941-43, 1945-53.

Date	Water level	Date	Water level	Date	Water level	Date	Water level
Jan. 27	12.55	Apr. 29	17.32	Sept. 30	16.41	Nov. 24	17.67
Feb. 24	13.57	June 29	17.13	Oct. 28	16.12	Dec. 30	16.53
Mar. 30	16.11	July 30	18.02				

7/35-23E4. U. S. Geol. Survey, Union Sugar Co. property. Near Lompoc. Ocean and Union Sugar Aves. Drilled observation water-table well in alluvium, diameter 2 inches, depth 28 feet. Land-surface datum is 36.90 feet above msl. Highest water level 12.22 below lsd, Mar. 27, 1952; lowest 22.67 below lsd, July 22, 1948. Records available: 1947-53.

Jan. 27	13.55	Apr. 29	16.70	July 30	16.70	Oct. 28	16.83
Feb. 24	14.07	May 26	c15.95	Aug. 27	c16.79	Nov. 24	16.15
Mar. 30	15.31	June 29	15.80	Sept. 30	16.84	Dec. 30	17.69

c Nearby well being pumped.

7/35-23J2. Union Sugar Co. Near Lompoc. Central and Artesia Aves. Drilled irrigation artesian well in alluvium, diameter 12 inches, depth 158 feet. Land-surface datum is 43.93 feet above msl. Highest water level 11.94 below lsd, Jan. 27, 1953; lowest 29.92 below lsd, Aug. 26, 1948. Records available: 1947-53. Jan. 27, 11.94; Apr. 29, 26.97; May 26, 21.00; Aug. 27, 19.99; Sept. 30, 17.40; Nov. 24, 14.98; Dec. 30, 15.35.

7/35-23J3. U. S. Geol. Survey, Union Sugar Co. property. Near Lompoc. Drilled observation water-table well in alluvium, diameter 2 inches, depth 32 feet, cased to 32. Land-surface datum is 43.43 feet above msl. Highest water level 14.28 below lsd, Jan. 27, 1953; lowest 26.56 below lsd, Oct. 29, 1951. Records available: 1947-53.

Jan. 27	14.28	Apr. 29	19.69	July 30	c20.36	Oct. 28	c18.35
Feb. 24	c14.80	May 26	19.24	Aug. 27	20.19	Nov. 24	17.41
Mar. 30	c17.50	June 29	c19.20	Sept. 30	19.33	Dec. 30	16.26

c Nearby well being pumped.

7/35-24J1. T. M. Parks. Near Lompoc. Drilled unused artesian well in alluvium, diameter 12 inches, depth 171 feet. Land-surface datum is 59.40 feet above msl. Highest water level 18.26 below lsd, May 6, 1941; lowest 35.83 below lsd, Apr. 27, 1948. Records available: 1941-43, 1947-50, 1952-53.

Jan. 27	23.89	Apr. 29	24.45	July 30	c25.00	Oct. 28	25.22
Feb. 24	23.89	May 26	c24.56	Aug. 27	25.05	Nov. 24	25.06
Mar. 30	24.05	June 29	24.78	Sept. 30	c25.14	Dec. 30	25.35

c Nearby well being pumped.

7/35-24J2. U. S. Geol. Survey, T. M. Parks property. Near Lompoc. Central and Douglass Aves. Drilled observation water-table well in alluvium, diameter 2 inches, depth 33 feet. Land-surface datum is 58.98 feet above msl. Highest water level 19.53 below lsd, Nov. 24, 1953; lowest dry many times. Records available: 1947-53.

Jan. 27	23.43	May 26	c25.72	Aug. 27	j19.07	Nov. 24	19.53
Feb. 24	23.55	June 29	26.25	Sept. 30	c20.82	Dec. 30	20.69
Mar. 30	24.29	July 30	c26.34	Oct. 28	20.33		

c Nearby well being pumped.
j Recharging.

7/35-25F5. Union Sugar Co. Near Lompoc. Central and De Wolfe Aves. Drilled irrigation artesian well in alluvium, diameter 12 inches, depth 180 feet, perforations 145-175. Land-surface datum is 47.44 feet above msl. Highest water level 10.13 below lsd, Jan. 27, 1953; lowest 26.86 below lsd, June 5, 1950. Records available: 1945-48, 1952-53.

Jan. 27	10.13	May 26	23.21	Aug. 27	23.13	Nov. 24	12.45
Feb. 24	18.39	June 29	19.77	Sept. 30	16.07	Dec. 30	14.28
Apr. 29	21.67	July 30	24.85	Oct. 28	14.31		

7/35-25F6. U. S. Geol. Survey, Union Sugar Co. property. Near Lompoc. Central and De Wolf Aves. Drilled observation water-table well in alluvium, diameter 2 inches, depth 19 feet. Land-surface datum is 47.70 feet above msl. Highest water level 6.09 below lsd, May 2, 1946; lowest 15.90 below lsd, Nov. 28, 1951. Records available: 1945-53.

Jan. 27	10.80	May 26	9.55	Aug. 27	12.14	Nov. 24	12.98
Feb. 24	10.98	June 29	10.15	Sept. 30	12.65	Dec. 30	12.86
Apr. 29	8.94	July 30	11.46	Oct. 28	12.95		

7/35-26F1. Union Sugar Co. Near Lompoc. Central and Union Sugar Aves. Drilled irrigation artesian well in alluvium, diameter 16 inches, depth 186 feet, perforations 117-176. Land-surface datum is 36.84 feet above msl. Highest water level 0.32 below lsd, Apr. 7, 1941; lowest 27.09 below lsd, July 6, 1949. Records available: 1941, 1947-53.

Date	Water level	Date	Water level	Date	Water level	Date	Water level
Jan. 27	7.25	Apr. 29	12.52	July 30	c17.09	Oct. 28	10.91
Feb. 24	c9.94	May 26	c16.01	Aug. 27	c17.78	Nov. 24	9.17
Mar. 30	c19.65	June 29	c16.92	Sept. 30	11.02	Dec. 30	9.60

c Nearby well being pumped.

7/35-26F3. U. S. Geol. Survey, Union Sugar Co. property. Near Lompoc. Union Sugar and Central Aves. Drilled observation water-table well in alluvium, diameter 2 inches, depth 18 feet. Land-surface datum is 34.70 feet above msl. Highest water level 6.17 below lsd, Mar. 30, 1953; lowest 13.29 below lsd, July 27, 1949. Records available: 1947-53.

Jan. 27	6.19	Apr. 29	6.23	July 30	c8.46	Oct. 28	8.87
Feb. 24	c6.30	May 26	c6.52	Aug. 27	c9.02	Nov. 24	8.16
Mar. 30	6.17	June 29	c8.65	Sept. 30	8.30	Dec. 30	8.60

c Nearby well being pumped.

7/35-26J4. County of Santa Barbara, Artesia School District. Near Lompoc. Artesia and Central Aves. Drilled public-supply artesian well in alluvium, diameter 8 inches, depth 141 feet, perforations 132-140. Land-surface datum is 40.86 feet above msl. Highest water level 7.50 below lsd, Jan. 27, 1953; lowest 33.63 below lsd, July 26, 1951. Records available: 1947-53.

Jan. 27	7.50	Apr. 29	17.45	July 30	20.20	Oct. 28	11.62
Feb. 24	13.70	May 26	18.28	Aug. 27	19.19	Nov. 24	9.63
Mar. 30	30.85	June 29	17.10	Sept. 30	12.74	Dec. 30	11.15

7/35-27C2. Southern Pacific Railroad. Near Lompoc. Southern Pacific Railroad and Renwick Ave. Drilled unused artesian well in alluvium, diameter 15 inches, depth 118 feet. Land-surface datum is 32.42 feet above msl. Highest water level 3.2 below lsd, Aug. 5, 1930, June 8, 1931; lowest 22.03 below lsd, Sept. 24, 1948. Records available: 1930-32, 1941-49. Measurement discontinued.

7/35-27C3. County National Bank and Trust Co. Near Lompoc. Drilled unused water-table well in Orcutt(?) formation, diameter 12 inches, depth 158 feet, perforations 74-95, 106-158. Land-surface datum is 28.42 feet above msl. Highest water level 0.64 below lsd, Apr. 2, 1941; lowest 24.14 below lsd, June 30, 1939. Records available: 1932-34, 1939-42, 1953. Mar. 30, 10.25; July 30, 16.86, nearby well being pumped; Aug. 27, 8.86; Sept. 30, 11.96, nearby well being pumped; Oct. 28, 8.79; Nov. 24, 7.04; Dec. 30, 13.05, nearby well being pumped.

7/35-28H2. Department of the Army, Camp Cooke Military Reservation. Near Lompoc. Drilled stock artesian well in Paso Robles formation, diameter 12 inches, depth 67 feet. Land-surface datum is 38.55 feet above msl. Highest water level flowing, Jan. 29, 1953; lowest 22.45 below lsd, Apr. 15, 1931. Records available: 1930-34, 1941, 1953.

Jan. 29	(j)	July 30	0.45	Sept. 30	0.68	Nov. 24	0.10
July 3	0.24	Aug. 27	.57	Oct. 28	.71	Dec. 30	.02

j Flowing.

7/35-35A3. Gus Aquistapace. Near Lompoc. Ocean and Artesia Aves. Drilled irrigation artesian well in Orcutt(?) formation, diameter 14 inches, depth 100 feet, cased to 98, perforations 78-92. Land-surface datum is 45.58 feet above msl. Highest water level 8.60 below lsd, Mar. 27, 1952; lowest 25.81 below lsd, July 27, 1950. Records available: 1947-53.

Jan. 27	8.71	May 26	17.34	Aug. 27	15.74	Nov. 24	11.25
Feb. 24	10.38	June 29	14.52	Sept. 30	13.35	Dec. 30	b15.51
Apr. 29	13.56	July 30	17.74	Oct. 28	13.31		

b Pumped recently.

7/35-35A4. U. S. Geol. Survey, Gus Aquistapace property. Near Lompoc. Ocean and Artesia Aves. Drilled observation water-table well in alluvium, diameter 2 inches, depth 23 feet. Land-surface datum is 45.88 feet above msl. Highest water level 2.51 below lsd, Mar. 27, 1952; lowest 16.95 below lsd, Oct. 29, 1951. Records available: 1947-53.

Jan. 27	5.59	Apr. 29	8.36	July 30	12.26	Oct. 28	12.48
Feb. 24	6.06	May 26	9.88	Aug. 27	13.27	Nov. 24	11.33
Mar. 30	c6.96	June 29	11.50	Sept. 30	13.17	Dec. 30	8.33

c Nearby well being pumped.

7/35-35C2. Department of the Army, Camp Cooke Military Reservation. Near Lompoc. Drilled irrigation artesian well in Orcutt formation, diameter 16 inches, depth 122 feet, perforations 77-112. Land-surface datum is 36.37 feet above msl. Highest water level 0.35 below lsd, Jan. 27, 1953; lowest 10.42 below lsd, May 28, 1951. Records available: 1947-53.

Date	Water level	Date	Water level	Date	Water level	Date	Water level
Jan. 27	0.35	Apr. 29	3.04	July 30	5.14	Oct. 28	2.90
Feb. 24	.45	May 26	3.94	Aug. 27	5.23	Nov. 24	1.52
Mar. 30	5.05	June 29	4.27	Sept. 30	3.20	Dec. 30	2.95

7/35-35C4. U. S. Geol. Survey, Department of the Army, Camp Cooke Military Reservation. Near Lompoc. Ocean and Union Sugar Aves. Drilled observation water-table well in alluvium, diameter 2 inches, depth 9 feet, cased to 9. Land-surface datum is 36.68 feet above msl. Highest water level 1.67 below lsd, Dec. 29, 1952; lowest 4.79 below lsd, Feb. 26, 1951. Records available: 1947-53.

Jan. 27	2.14	Apr. 29	2.48	July 30	2.13	Oct. 28	4.35
Feb. 24	2.51	May 26	2.27	Aug. 27	2.11	Nov. 24	2.96
Mar. 30	2.55	June 29	2.33	Sept. 30	2.73	Dec. 30	3.75

7/35-36J3. Ted Holden. Near Lompoc. Drilled irrigation artesian well in older alluvium, diameter 16 inches, depth 102 feet, perforations 71-95. Land-surface datum is 58.76 feet above msl. Highest water level 4.56 below lsd, Apr. 16, 1941; lowest 31.71 below lsd, Apr. 10, 1953. Records available: 1930-42, 1953.

Daily highest water level from recorder graph

Day	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	.....	.....	23.12	29.83	27.72	27.32	26.47	31.00	25.65	23.22	24.28	21.48
2	.....	.....	22.48	30.41	27.59	29.27	26.43	31.42	25.45	23.18	24.25	21.43
3	.....	.....	22.31	30.60	27.20	29.01	26.40	30.50	25.50	23.37	23.90	21.40
4	.....	.....	22.17	31.00	26.86	27.30	26.13	29.63	25.56	23.60	23.72	21.37
5	.....	.....	22.21	30.08	26.59	26.87	25.10	30.84	25.50	24.02	23.66	21.43
6	.....	19.52	22.66	29.70	26.12	26.78	25.27	31.10	25.32	24.39	23.20	21.36
7	.....	19.52	22.71	30.30	25.73	26.55	25.40	29.04	25.00	24.47	22.90	21.29
8	.....	19.60	23.14	30.58	25.72	26.50	25.70	28.17	24.78	24.57	22.82	21.32
9	.....	19.69	23.43	31.30	26.15	26.97	26.42	27.93	25.20	24.55	22.68	21.33
10	.....	20.20	23.92	31.71	26.12	29.85	26.00	27.35	25.47	24.41	22.60	21.29
11	.....	20.57	23.96	31.10	26.37	30.10	25.97	26.95	25.44	24.36	22.47	21.32
12	.....	20.73	24.33	30.67	26.50	28.80	26.37	26.47	25.40	23.80	22.35	21.25
13	.....	20.91	24.46	31.01	26.55	28.70	26.38	26.63	24.66	23.75	22.18	21.21
14	.....	21.12	24.67	31.33	26.27	29.96	27.12	26.88	24.45	23.83	22.06	21.15
15	.....	21.07	23.13	31.25	26.04	30.05	28.02	27.00	24.33	23.82	22.03	21.15
16	.....	21.07	24.80	30.94	25.70	28.65	27.66	26.91	24.23	23.75	21.98	21.18
17	.....	21.62	23.91	30.96	25.34	27.70	27.98	26.85	24.17	23.75	21.95	21.22
18	.....	22.24	24.20	31.27	25.35	26.92	27.90	26.65	24.25	23.65	21.93	21.18
19	.....	22.73	24.90	30.82	26.45	26.62	27.67	26.78	24.10	23.55	21.89	21.18
20	.....	22.95	23.94	30.04	28.00	25.85	27.70	26.85	23.83	23.78	21.84	21.22
21	.....	23.31	27.61	30.06	28.88	25.78	28.17	26.52	23.70	23.75	21.83	21.28
22	.....	23.08	27.75	29.84	28.79	25.92	28.12	25.92	23.74	23.78	21.78	21.60
23	.....	23.35	29.92	29.57	28.05	26.35	27.95	25.45	23.66	23.56	21.74	21.58
24	.....	23.37	30.60	29.60	28.35	26.25	27.95	25.40	23.62	23.42	21.69	21.53
25	.....	23.36	31.00	29.64	27.34	26.10	27.30	25.55	23.55	23.15	21.65	21.49
26	.....	23.44	29.44	29.58	29.05	26.63	27.44	26.21	23.52	23.03	21.63	21.42
27	.....	23.43	29.17	29.30	29.85	26.97	27.32	26.40	23.44	23.02	21.62	21.42
28	.....	26.38	29.49	28.33	28.44	26.67	28.30	26.42	23.38	23.14	21.58	21.52
29	.....		29.68	28.02	28.65	26.17	28.57	26.19	23.28	23.27	21.54	21.64
30	.....		29.52	27.50	28.27	26.15	29.25	26.04	23.26	23.85	21.51	21.88
31	.....		29.58		28.70		29.42	25.94		24.12		22.40

7/35-36J6. Denholm Seed Co. Near Lompoc. Ocean and Douglass Aves. Drilled irrigation artesian well in alluvium, diameter 16 inches, depth 102 feet. Land-surface datum is 58.50 feet above msl. Highest water level 20.05 below lsd, Mar. 27, 1952; lowest 38.15 below lsd, July 27, 1950. Records available: 1947-53. Aug. 27, 28.33; Sept. 30, 23.76; Oct. 28, 23.68; Nov. 24, 21.88; Dec. 30, 22.33.

7/35-36J7. U. S. Geol. Survey, Denholm Seed Co. property. Near Lompoc. Ocean and Douglass Aves. Drilled observation water-table well in alluvium, diameter 2 inches, depth 32 feet. Land-surface datum is 58.50 feet above msl. Highest water level 19.17 below lsd, Jan. 27, 1953; lowest 31.32 below lsd, July 27, 1950. Records available: 1947-53.

7/35-36J7--Continued.

Date	Water level	Date	Water level	Date	Water level	Date	Water level
Jan. 27	19.17	Apr. 29	25.79	July 30	24.66	Oct. 28	22.60
Feb. 24	19.52	May 26	c26.01	Aug. 27	24.40	Nov. 24	21.94
Mar. 30	20.88	June 29	c25.72	Sept. 30	22.96	Dec. 30	21.45

c Nearby well being pumped.

San Antonio Valley

8/32-30K2. John Parma. Los Alamos. U. S. Highway 101 and Den St. Drilled unused artesian well in alluvium, diameter 16 inches, depth 100 feet. Land-surface datum is about 555 feet above msl. Highest water level 1.16 above lsd, Feb. 29, 1944; lowest 24.68 below lsd, Aug. 25, 1953. Records available: 1943-53.

Jan. 28	3.54	May 27	18.22	Aug. 25	24.68	Nov. 25	12.78
Feb. 25	7.63	June 25	15.30	Sept. 29	22.48	Dec. 15	10.72
Mar. 27	5.77	July 29	20.25	Oct. 29	16.84	30	9.84
Apr. 29	10.55						

8/33-20K1. Virginia Barca Estate. Near Los Alamos. Drilled unused artesian well in alluvium and Paso Robles formation, diameter 16 inches, depth 351 feet, perforations 10-97, 215-235. Land-surface datum is about 410 feet above msl. Highest water level 4.27 below lsd, Feb. 29, 1944; lowest 38.15 below lsd, Apr. 29, 1947. Records available: 1943-53.

Jan. 28	25.40	Apr. 29	25.68	July 29	26.58	Oct. 29	25.72
Feb. 25	25.19	May 27	26.29	Aug. 25	26.15	Nov. 25	24.63
Mar. 27	25.48	June 25	26.55	Sept. 29	25.78	Dec. 30	24.39

8/33-20R1. Virginia Barca Estate. Near Los Alamos. Drilled domestic water-table well in alluvium, diameter 10 inches, depth 75 feet. Land-surface datum is about 410 feet above msl. Highest water level 21.20 below lsd, Jan. 30, 1947; lowest 36.32 below lsd, Sept. 27, 1950. Records available: 1943-53.

Jan. 28	22.95	Apr. 29	23.09	July 29	26.16	Oct. 29	b29.79
Feb. 25	b28.32	May 27	24.42	Aug. 25	b25.47	Nov. 25	23.45
Mar. 27	23.66	June 25	b28.01	Sept. 29	24.66	Dec. 30	23.40

b Pumped recently.

8/34-23B1. Josephine Harris Estate. Near Los Alamos. Harris-Los Alamos Road and State Highway 1. Drilled unused artesian well in alluvium, diameter 12 inches, depth 150 feet. Land-surface datum is about 310 feet above msl. Highest water level 12.19 below lsd, Feb. 29, 1944; lowest 20.30 below lsd, Mar. 27, 1953. Records available: 1943-53.

Jan. 28	c15.29	Apr. 29	18.29	July 29	c20.90	Oct. 29	c18.05
Feb. 25	c15.29	May 27	16.68	Aug. 25	c18.76	Nov. 25	c16.80
Mar. 27	20.30	June 25	c16.42	Sept. 29	c17.55	Dec. 30	c16.69

c Nearby well being pumped.

Santa Maria Valley
Measurements furnished by Santa Maria Valley Water Conservation District are marked with an asterisk.

9/32-7N1. Valerio Tognazzini. Near Sisquoc. State Highway 140 and Pacific Coast Railway. Drilled irrigation water-table well in Paso Robles formation, diameter 16 inches, depth 204 feet, perforations 82-97, 105-145, 162-185. Land-surface datum is about 422 feet above msl. Highest water level 34.62 below lsd, Apr. 27, 1944; lowest 113.95 below lsd, Oct. 30, 1951. Records available: 1924, 1930, 1932-33, 1938-53.

Jan. 1	*68.80	Apr. 1	*67.92	July 1	*71.31	Oct. 29	74.42
28	67.49	29	69.04	Aug. 25	74.01	Nov. 25	74.12
Feb. 25	67.24	May 27	70.13	Sept. 29	74.23	Dec. 30	74.98
Mar. 27	67.67	June 25	71.04	Oct. 1	*74.46		

9/32-17G1. Caldrone Estate. Near Sisquoc. Tepusquet Creek Road and State Highway 140. Drilled domestic water-table well in alluvium and Paso Robles formation, diameter 6 inches, depth 107 feet. Land-surface datum is about 447 feet above msl. Highest water level 11.22 below lsd, Apr. 5, 1943; lowest 66.33 below lsd, June 1, 1950. Records available: 1941-53.

Jan. 28	32.46	Apr. 29	34.08	July 29	39.18	Oct. 29	41.62
Feb. 25	31.29	May 27	b37.98	Aug. 25	b42.15	Nov. 25	41.96
Mar. 27	32.85	June 25	b40.74	Sept. 29	b42.05	Dec. 30	42.48

b Pumped recently.

9/33-2A1. Santa Maria Realty Co. Garey. Wicks and Andrews Aves. Drilled irrigation water-table well in alluvium and Paso Robles formation, diameter 12 inches, depth 168 feet. Land-surface datum is 378.72 feet above msl. Highest water level 23.82 below lsd, June 4, 1941; lowest 83.50 below lsd, Jan. 1, 1952. Records available: 1930-33, 1936, 1938-53.

Date	Water level	Date	Water level	Date	Water level	Date	Water level
Jan. 1	*59.62	Apr. 28	55.16	July 1	*58.50	Oct. 29	61.66
28	56.16	May 27	55.29	Sept. 29	60.67	Nov. 25	62.36
Feb. 25	55.43	June 25	56.06	Oct. 1	*60.80	Dec. 30	63.25
Apr. 1	*56.50						

9/33-15D1. South Basin Oil Co. Near Garey. Drilled domestic and stock water-table well in Paso Robles formation, diameter 8 inches, depth 374 feet, perforations 348-350. Land-surface datum is about 582 feet above msl. Highest water level 318.09 below lsd, Jan. 29, 1947; lowest 352.04 below lsd, Nov. 29, 1950. Records available: 1947-50. Measurement discontinued.

9/34-3N3. City of Santa Maria, well 3. Drilled public-supply water-table well in Orcutt formation, diameter 16 inches, depth 226 feet, cased to 222, perforations 162-188. Land-surface datum is about 253 feet above msl. Highest water level 143.40 below lsd, Mar. 31, Apr. 30, 1933; lowest 175.40 below lsd, Oct. 1950. Records available: 1933-51. Measurement discontinued.

9/34-6K2. Associated Oil Co. Near Orcutt. Highway 1 and Casmalia Road. Drilled unused water-table well in Orcutt formation, diameter 12 inches, depth 139 feet. Land-surface datum is about 161 feet above msl. Highest water level 59.22 below lsd, Mar. 26, 1942; lowest 79.65 below lsd, Sept. 29, 1953. Records available: 1942, 1951-53.

Jan. 28	76.08	Apr. 29	76.82	July 29	c80.11	Oct. 29	79.45
Feb. 25	76.12	May 27	78.60	Aug. 25	79.40	Nov. 25	79.64
Mar. 27	76.16	June 25	78.46	Sept. 29	79.65	Dec. 30	78.78

c Nearby well being pumped.

9/34-8K1. C. Muscio. Near Orcutt. Casmalia Road and Orcutt-Casmalia Road. Drilled domestic and irrigation water-table well in Orcutt and Paso Robles formations, diameter 14 inches, depth 231 feet. Land-surface datum is about 257 feet above msl. Highest water level 144.54 below lsd, Jan. 30, 1947; lowest 198.87 below lsd, Apr. 29, 1953. Records available: 1942, 1947-53. Jan. 28, 187.49; Mar. 27, 195.40; Apr. 29, 198.87; Sept. 29, 186.08; Oct. 29, 181.50; Nov. 25, 182.68.

10/33-7P1. P. T. Bonetti. Suey Road and Main St. Drilled irrigation water-table well in alluvium and Paso Robles formation, diameter 18 inches, depth 365 feet, cased to 330. Land-surface datum is about 260 feet above msl. Highest water level 112.76 below lsd, Oct. 28, 1952; lowest 132.72 below lsd, Oct. 30, 1951. Records available: 1951-53. Jan. 27, 116.80; Feb. 25, 117.26; Apr. 29, 118.67; June 25, 121.50; Oct. 29, 121.14.

10/33-7R2. Mrs. Lucy Howard. Near Santa Maria. Drilled domestic water-table well in alluvium, diameter 8 inches, reported depth 140 feet. Land-surface datum is about 272 feet above msl. Highest water level 63.91 below lsd, June 29, 1944; lowest 124.90 below lsd, Mar. 1, 1950. Records available: 1944-50, 1952-53.

Jan. 27	99.63	Apr. 29	101.16	July 28	103.88	Oct. 29	104.65
Feb. 25	100.48	May 27	101.50	Aug. 25	103.84	Nov. 25	104.74
Mar. 26	100.74	June 25	102.31	Sept. 28	104.34	Dec. 29	106.54

*10/33-18G1. La Brea Securities Co. well 8. Near Santa Maria. Suey Road and Santa Maria Valley Railroad. Drilled irrigation water-table well in alluvium and Paso Robles formation, diameter 16 inches, depth 436 feet, cased to 424, perforations 132-142, 288-320, 336-340, 408-422. Land-surface datum is about 273 feet above msl. Highest water level 66.75 below lsd, July 1, 1943; lowest 132.10 below lsd, Apr. 1, 1951. Records available: 1939-53. Jan. 1, 103.83; Apr. 1, 108.83, pumped recently; July 1, 112.33; Oct. 1, 115.67, pumped recently.

10/33-19B1. Owen T. Rice. Near Santa Maria. Battles Road and East Stowell Road. Drilled irrigation water-table well in alluvium and Paso Robles formation, diameter 16 inches, depth 307 feet, perforations 92-97, 116-125, 190-215, 238-248. Land-surface datum is about 275 feet above msl. Highest water level 73.31 below lsd, Sept. 2, 1943; lowest 157.46 below lsd, June 27, 1951. Records available: 1927, 1929-53.

Jan. 1	*100.90	Apr. 1	*128.92	July 1	*119.10	Oct. 29	115.00
27	100.47	29	105.23	Aug. 25	115.31	Nov. 25	113.55
Feb. 25	101.15	May 27	107.34	Sept. 29	115.76	Dec. 29	114.73
Mar. 27	104.82	June 25	108.03	Oct. 1	*115.80		

10/33-21N2. Frank Costa, Jr. Near Santa Maria. Santa Maria Valley Railroad and State Highway 140. Drilled domestic water-table well in Paso Robles formation, diameter 16 inches, depth 215 feet. Land-surface datum is about 307 feet above msl. Highest water level 67.14 below lsd, June 29, 1944; lowest 140.92 below lsd, Sept. 25, 1951. Records available: 1930, 1944-53.

Date	Water level	Date	Water level	Date	Water level	Date	Water level
Jan. 27	101.29	May 27	101.42	Sept. 29	106.50	Nov. 25	106.57
Mar. 27	100.50	June 25	c102.89	Oct. 29	c108.28	Dec. 29	107.47
Apr. 29	99.47	July 28	103.85				

c Nearby well being pumped.

*10/33-27G1. W. C. Adam. Near Santa Maria. State Highway 140 and Pacific Coast Railway. Drilled stock and irrigation water-table well in Paso Robles formation, diameter 16 inches, depth 272 feet, perforations 140-180, 240-260. Land-surface datum is about 338 feet above msl. Highest water level 26.00 below lsd, July 1, 1938; lowest 119.50 below lsd, July 1, 1951. Records available: 1929-33, 1936, 1938-53. Jan. 1, 48.40; Apr. 1, 44.03, pumped recently; July 1, 42.70, pumped recently; Oct. 1, 57.70.

10/33-27K1. L. H. Adam. Near Santa Maria. State Highway 140 and Pacific Coast Railway. Drilled unused water-table well in alluvium and Paso Robles formation, diameter 12 inches, depth 300 feet. Land-surface datum is about 345 feet above msl. Highest water level 25.08 below lsd, May 19, 1941; lowest 109.56 below lsd, Sept. 27, 1950. Records available: 1941-53.

Jan. 28	42.50	Apr. 29	46.90	July 29	c55.93	Oct. 29	61.24
Feb. 25	41.30	May 27	c48.18	Aug. 25	c57.70	Nov. 25	62.66
Mar. 27	42.83	June 25	c51.88	Sept. 29	59.63	Dec. 29	63.60

c Nearby well being pumped.

10/33-28A1. Joe Soares. Near Santa Maria. Drilled irrigation water-table well in Paso Robles formation, diameter 18 inches, depth 374 feet, perforations 100-215, 242-335. Land-surface datum is about 325 feet above msl. Highest water level 31.99 below lsd, July 1, 1938; lowest 114.52 below lsd, Sept. 25, 1951. Records available: 1929-53.

Jan. 1	*58.63	Mar. 27	53.33	July 1	*b58.80	Oct. 1	*63.90
27	57.02	Apr. 1	*53.30	28	61.13	Nov. 25	65.40
Feb. 25	55.34	28	53.90	Sept. 29	64.09	Dec. 29	67.55

b Pumped recently.

*10/33-30G1. Lillian Cook. Near Santa Maria. Drilled public-supply water-table well in Paso Robles formation, diameter 16 inches, depth 676 feet, perforations 325-370, 397-432 454-486, 505-512, 529-561, 575-585, 612-662. Land-surface datum is about 320 feet above msl. Highest water level 170.42 below lsd, Jan. 1, 1953; lowest 189.35 below lsd, July 1, 1952. Records available: 1951-53. Jan. 1, 170.42; Apr. 1, 184.33, pumped recently; July 1, 182.17, pumped recently; Oct. 1, 182.00.

*10/33-30H1. John Prell. Near Santa Maria. Drilled irrigation water-table well in Paso Robles formation, diameter 22 inches, depth 758 feet, perforations 158-716. Land-surface datum is about 310 feet above msl. Highest water level 151.51 below lsd, Apr. 1, 1952; lowest 178.50 below lsd, Oct. 1, 1952. Records available: 1951-53. Jan. 1, 171.00; Apr. 1, 170.00, pumped recently; July 1, 173.50, pumped recently; Oct. 1, 172.50.

*10/33-30J2. Ross J. Martinez. Near Santa Maria. Drilled domestic water-table well in Paso Robles formation, diameter 8 inches, depth 234 feet. Land-surface datum is about 315 feet above msl. Highest water level 156.17 below lsd, Apr. 1, 1952; lowest 167.25 below lsd, Oct. 1, 1952. Records available: 1951-53. Jan. 1, 157.00; Apr. 1, 158.10, pumped recently; July 1, 158.45; Oct. 1, 160.00.

*10/33-30L1. R. R. Bush Oil Co. Near Santa Maria. Drilled industrial water-table well in Paso Robles formation, diameter 16 inches, depth 500 feet, perforations 190-210, 218-244, 268-286, 310-315, 327-342, 385-418, 450-485. Land-surface datum is about 310 feet above msl. Highest water level 174.00 below lsd, Jan. 1, 1953; lowest 194.25 below lsd, Aug. 1, 1951. Records available: 1951-53. Jan. 1, 174.00; Apr. 1, 180.33; July 1, 182.80, pumped recently; Oct. 1, 185.00.

*10/33-30R1. Santa Maria Berry Farms. Near Santa Maria. Rice School Road and Section 8 Road. Drilled irrigation water-table well in Orcutt and Paso Robles formations, diameter 16 to 14 inches, depth 544 feet, cased to 538, perforations 82-538. Land-surface datum is about 335 feet above msl. Highest water level 165.38 below lsd, Jan. 1, 1953; lowest 184.00 below lsd, Oct. 1, 1951. Records available: 1951-53. Jan. 1, 165.38; Apr. 1, 167.45, pumped recently; July 1, 168.92, pumped recently; Oct. 1, 170.75, pumped recently.

10/33-33H1. E. L. Sargent. Near Santa Maria. Sisquoc Road and Bradley Canyon Road. Drilled domestic and stock water-table well in Paso Robles formation, diameter 16 inches, depth 290 feet, perforations 204-232, 245-250, 270-280. Land-surface datum is about 402 feet above msl. Highest water level 179.50 below lsd, Jan. 29, 1947; lowest 221.98 below lsd, May 27, 1953. Records available: 1947-53.

Date	Water level	Date	Water level	Date	Water level	Date	Water level
Jan. 28	217.55	May 27	221.98	Aug. 25	c221.59	Nov. 25	216.98
Feb. 25	220.55	June 25	217.42	Sept. 29	217.94	Dec. 30	217.14
Apr. 29	217.08	July 29	216.93				

c Nearby well being pumped.

10/34-2R1. Gracio Apalatequi. Near Santa Maria. U. S. Highway 101 and Donovan Road. Drilled irrigation water-table well in alluvium and Paso Robles formation, diameter 14 inches, depth 294 feet, cased to 284, perforations 106-130, 180-190, 221-226. Land-surface datum is about 230 feet above msl. Highest water level 69.16 below lsd, June 1, 1943; lowest 136.16 below lsd, July 27, 1951. Records available: 1929-30, 1933, 1938-53.

Jan. 1	*113.40	Apr. 1	*115.80	July 1	*b142.60	Oct. 29	120.54
27	114.44	29	117.10	Sept. 28	120.71	Nov. 25	119.76
Feb. 25	116.10	May 27	118.30	Oct. 1	*120.60	Dec. 29	120.14

b Pumped recently.

10/34-4R1. Gerald Donovan. Near Santa Maria. Donovan Road and North Blosser Road. Drilled irrigation water-table well in alluvium and Paso Robles formation, diameter 16 inches, depth 192 feet, cased to 182, perforations 90-108, 133-174, 182-184. Land-surface datum is about 192 feet above msl. Highest water level 72.89 below lsd, Mar. 1, 1945; lowest 122.50 below lsd, Oct. 30, 1951. Records available: 1930, 1942, 1945-53. Jan. 28, 107.99; Feb. 25, 108.87; Mar. 27, 109.84; Apr. 29, 110.19; May 27, 111.70; Aug. 25, 116.75.

10/34-6N1. Grisingher & Signorelli. Near Santa Maria. State Highway 166 and Bonita Road. Drilled irrigation artesian well in alluvium, diameter 16 inches, depth 190 feet. Land-surface datum is about 152 feet above msl. Highest water level 48.40 below lsd, Apr. 1, 1943; lowest 96.01 below lsd, Sept. 25, 1951. Records available: 1930, 1934, 1936-53.

Jan. 1	*82.20	Apr. 29	83.64	Oct. 1	*b90.99	Nov. 25	87.75
28	80.74	May 27	85.49	29	90.22	Dec. 30	88.32
Apr. 1	*b84.89	July 1	*b88.10				

b Pumped recently.

*10/34-9F1. Mrs. A. E. Preisker. Near Santa Maria. State Highway 166 and North Blosser Road. Drilled irrigation water-table well in alluvium and Paso Robles formation, diameter 16 inches, depth 224 feet, perforations 130-147, 160-210, 217-221. Land-surface datum is about 189 feet above msl. Highest water level 70.62 below lsd, Apr. 1, 1944; lowest 116.60 below lsd, Oct. 1, 1953. Records available: 1942-53. Jan. 1, 108.60; Apr. 1, 108.70; July 1, 112.04; Oct. 1, 116.60.

10/34-14E3. City of Santa Maria. Near Santa Maria. Santa Maria Valley Railroad and U. S. Highway 101. Drilled unused water-table well in alluvium and Paso Robles formation, diameter 16 inches, depth 160 feet, cased to 182, perforations 87-109, 164-181. Land-surface datum is about 225 feet above msl. Records available: 1917-53.

Jan. 4	*138.90	Apr. 5	*137.96	July 5	*140.93	Oct. 4	*146.02
11	*137.95	12	*137.69	12	*139.93	11	*146.02
18	*138.18	19	*138.63	19	*142.08	18	*146.17
25	*137.84	26	*138.52	26	*142.42	25	*146.41
28	137.63	29	138.06	29	142.80	29	146.38
Feb. 1	*137.63	May 3	*137.40	Aug. 2	*142.10	Nov. 1	*146.77
8	*137.58	10	*138.13	9	*144.33	8	*146.84
15	*137.79	17	*138.88	16	*143.76	15	*146.78
22	*137.25	24	*141.38	23	*144.18	22	*144.58
25	137.24	27	139.64	25	c145.27	25	145.59
Mar. 1	*137.26	31	*139.63	30	*144.58	30	*144.47
8	*137.54	June 7	*139.51	Sept. 6	*144.68	Dec. 6	*145.39
15	*137.09	14	*140.04	13	*147.10	13	*145.25
22	*137.25	21	*140.42	20	*145.14	20	*145.50
27	137.59	25	c141.84	27	*145.52	27	*145.18
29	*137.58	28	*140.76	29	145.79	30	145.37

c Nearby well being pumped.

10/34-20H1. Ulisse Tognazzini. Near Santa Maria. Casmalia Road and Santa Maria Valley Railroad. Drilled irrigation water-table well in alluvium and Paso Robles formation, diameter 16 inches, depth 246 feet, cased to 242, perforations 90-130, 140-176, 196-238. Land-surface datum is about 182 feet above msl. Highest water level 66.57 below lsd, Mar. 1, 1945; lowest 109.04 below lsd, Oct. 29, 1953. Records available: 1930, 1942, 1944-53.

Date	Water level	Date	Water level	Date	Water level	Date	Water level
Jan. 28	101.44	Apr. 29	103.91	Sept. 29	108.86	Nov. 25	107.21
Mar. 27	103.11	May 27	104.45	Oct. 29	109.04	Dec. 30	106.44

10/34-22R1. George J. Wheat. Near Santa Maria. Stowell Road and U. S. Highway 101. Drilled industrial water-table well in alluvium and Paso Robles formation, diameter 16 inches, depth 252 feet, cased to 245, perforations 118-242. Land-surface datum is about 217 feet above msl. Highest water level 93.19 below lsd, Mar. 1, 1945; lowest 139.05 below lsd, Sept. 28, 1953. Records available: 1931, 1934, 1938-53.

Jan. 1	*b132.10	Apr. 29	133.24	Aug. 25	b138.01	Oct. 29	138.37
Feb. 25	132.39	May 27	133.99	Sept. 28	139.05	Nov. 25	138.55
Mar. 27	133.06	July 1	*b133.98	Oct. 1	*137.67	Dec. 30	136.68
Apr. 1	*131.83	29	b137.10				

b Pumped recently.

10/34-23H1. Marion B. Rice. Near Santa Maria. Stowell Road and South Nance Road. Drilled irrigation water-table well in alluvium and Paso Robles formation, diameter 18 inches, depth 218 feet, cased to 208. Land-surface datum is about 242 feet above msl. Highest water level 100.65 below lsd, Apr. 1, 1943; lowest 155.25 below lsd, July 1, 1952. Records available: 1929-30, 1933, 1938-53.

Jan. 1	*149.20	Apr. 1	*148.10	July 28	154.65	Oct. 29	152.95
27	148.61	29	149.85	Sept. 28	152.85	Nov. 25	152.21
Feb. 25	148.64	July 1	*b155.83	Oct. 1	*152.75	Dec. 29	151.13
Mar. 27	149.52						

b Pumped recently.

*10/34-24K1. Union Oil Co. of Calif. Near Santa Maria. Drilled unused water-table well in Paso Robles formation, diameter 12 inches, depth 714 feet, perforations 650-657, 692-710. Land-surface datum is about 245 feet above msl. Highest water level 75.32 below lsd, Dec. 30, 1941; lowest 124.55 below lsd, Aug. 1, 1951. Records available: 1941, 1951-53. Jan. 1, 112.42; Apr. 1, 114.50; July 1, 119.72; Oct. 1, 123.55.

10/35-7F1. M. J. Ellis. Near Guadalupe. Drilled domestic and irrigation artesian well in alluvium and Paso Robles formation, diameter 12 inches, depth 249 feet, perforations 140-145, 200-225. Land-surface datum is about 48 feet above msl. Highest water level flowing, Dec. 30, 1943, Feb. 29, 1944; lowest 20.09 below lsd, June 25, 1953. Records available: 1929-36, 1938-53.

Jan. 1	*4.60	May 27	19.03	July 29	19.09	Oct. 1	*17.40
28	6.86	June 25	20.09	Aug. 25	19.24	Nov. 25	9.62
Apr. 1	*15.60	July 1	*18.70	Sept. 29	17.71	Dec. 30	14.00
29	10.25						

10/35-7G3. John Jenkins. Near Guadalupe. Drilled unused artesian well in alluvium and Paso Robles formation, diameter 16 inches, depth 286 feet. Land-surface datum is about 53 feet above msl. Highest water level 3.24 below lsd, Feb. 29, 1944; lowest 30.20 below lsd, Aug. 25, 1953. Records available: 1942-53.

Jan. 28	c17.45	Apr. 29	19.76	July 29	c31.40	Oct. 29	26.97
Feb. 25	23.06	May 27	28.13	Aug. 25	30.20	Nov. 25	19.23
Mar. 27	26.50	June 25	28.92	Sept. 29	29.10	Dec. 30	25.11

c Nearby well being pumped.

10/35-9F1. Waller-Franklin Seed Co. Near Guadalupe. State Highway 166 and Southern Pacific Railroad. Drilled irrigation artesian well in alluvium, diameter 12 inches, depth 198 feet. Land-surface datum is about 88 feet above msl. Highest water level 13.61 below lsd, May 19, 1942; lowest 52.33 below lsd, June 27, 1951. Records available: 1930, 1933, 1935-36, 1938-53.

Jan. 1	*30.22	Apr. 29	35.00	July 29	48.18	Oct. 29	43.11
28	31.16	May 27	45.01	Aug. 25	45.46	Nov. 25	35.56
Mar. 27	43.69	June 25	48.87	Sept. 29	46.68	Dec. 30	41.13
Apr. 1	*43.30	July 1	*45.08	Oct. 1	*46.85		

*10/35-9N1. Agnes King. Guadalupe. Drilled irrigation artesian well in Paso Robles formation, diameter 16 inches, depth 285 feet. Land-surface datum is about 87 feet above msl. Highest water level 13.30 below lsd, Apr. 1, 1945; lowest 51.35 below lsd, Oct. 1, 1951. Records available: 1930, 1938-53. Jan. 1, 28.80; Apr. 1, 51.30, pumped recently; July 1, 53.50, pumped recently; Oct. 1, 51.80, pumped recently.

*10/35-12M1. E. and G. Le Roy. Near Santa Maria. State Highway 166 and Bonita Road. Drilled irrigation artesian well in alluvium, diameter 16 inches, depth 210 feet, perforations 133-148, 173-185. Land-surface datum is about 138 feet above msl. Highest water level 23.43 below lsd, Jan. 23, 1924; lowest 79.29 below lsd, Aug. 29, 1951. Records available: 1924, 1927, 1930-32, 1938-53. Jan. 1, 68.21; Jan. 28, 66.39; Apr. 1, 74.60; July 1, 79.10; Oct. 1, 81.27, pumped recently.

10/35-21B1. Mathison & Shaw. Near Guadalupe. Corralillos Canyon Road and Southern Pacific Railroad. Drilled irrigation artesian well in alluvium, diameter 16 inches, depth 310 feet, perforations 102-118, 134-136, 145-175, 246-248, 251-300. Land-surface datum is about 94 feet above msl. Highest water level 7.85 below lsd, Feb. 29, 1944; lowest 44.07 below lsd, Oct. 1, 1951. Records available: 1938-53.

Date	Water level	Date	Water level	Date	Water level	Date	Water level
Jan. 1	*25.55	Apr. 1	*39.40	July 1	*b51.00	Nov. 25	31.56
28	25.24	29	29.28	Oct. 1	*b47.27	Dec. 30	38.27
Feb. 25	36.13	May 27	41.63				

b Pumped recently.

10/35-24B1. Union Sugar Co. Near Santa Maria. Corralillos Canyon Road and Ray Road. Drilled irrigation artesian well in alluvium and Paso Robles formation, diameter 16 inches, depth 290 feet, perforations 122-153, 169-175, 178-288. Land-surface datum is about 144 feet above msl. Highest water level 42.55 below lsd, Feb. 29, 1944; lowest 85.75 below lsd, July 1, 1953. Records available: 1934, 1938-53.

Jan. 1	*53.63	Apr. 29	76.62	Aug. 25	c85.69	Oct. 29	82.92
28	72.83	May 27	82.82	Sept. 29	84.05	Nov. 25	78.86
Mar. 27	c80.67	July 1	*85.75	Oct. 1	*84.28	Dec. 30	80.65
Apr. 1	*78.68						

c Nearby well being pumped.

11/34-19Q1. Frank Silva. Near Santa Maria. Drilled domestic water-table well in Orcutt and Paso Robles formations, diameter 6 inches, depth 315 feet. Land-surface datum is about 305 feet above msl. Highest water level 223.77 below lsd, Jan. 30, 1947; lowest 254.12 below lsd, Aug. 29, 1951. Records available: 1947-53.

Jan. 28	241.70	Apr. 29	243.98	July 29	b252.75	Oct. 29	249.89
Feb. 25	b242.85	May 27	b246.26	Aug. 25	252.90	Nov. 25	b245.12
Mar. 27	b243.15	June 25	b247.64	Sept. 29	250.27	Dec. 30	247.75

b Pumped recently.

11/34-30Q1. Mary Bolton. Near Santa Maria. Bonita Road and Guadalupe-Nipomo Road. Drilled irrigation water-table well in alluvium, diameter 16 inches, depth 180 feet. Land-surface datum is about 148 feet above msl. Highest water level 34.59 below lsd, May 16, 1941; lowest 84.42 below lsd, Nov. 27, 1951. Records available: 1930, 1933, 1936, 1938-53.

Jan. 1	*77.00	Apr. 29	77.53	June 25	78.72	Oct. 1	*b87.50
28	76.13	May 27	78.38	July 1	*79.10	Nov. 25	83.17
Apr. 1	*77.00						

b Pumped recently.

11/34-34J1. L. O. Fox. Near Santa Maria. Drilled domestic and stock water-table well in alluvium, diameter 8 inches, depth 103 feet. Land-surface datum is about 209 feet above msl. Highest water level 62.37 below lsd, Apr. 30, 1942; lowest 105.00 below lsd, Oct. 20, 1948. Records available: 1930, 1942, 1947-53.

Jan. 27	85.13	May 26	92.24	Sept. 29	99.30	Nov. 24	101.87
Mar. 26	88.64	July 28	97.81	Oct. 28	100.70	Dec. 29	103.64
Apr. 28	90.67	Aug. 25	97.49				

11/35-20E1. Union Sugar Co. Near Guadalupe. Southern Pacific Railroad and Oso Flaco Lake Road. Drilled irrigation artesian well in Paso Robles formation, diameter 18 inches, depth 525 feet, cased to 444, perforations 150-444. Land-surface datum is about 49 feet above msl. Highest water level flowing, Feb. 29, 1944; lowest 29.50 below lsd, Apr. 1, 1941. Records available: 1938-53.

11/35-20E1--Continued.

Date	Water level	Date	Water level	Date	Water level	Date	Water level
Jan. 1	*8.33	Apr. 1	*b47.30	July 1	*25.00	Oct. 29	15.70
28	8.17	29	20.74	Aug. 25	19.62	Nov. 25	11.37
Mar. 27	19.40	May 27	19.58	Oct. 1	*b43.00	Dec. 30	12.99

b Pumped recently.

11/35-25H1. M. J. Mendoza. Near Santa Maria. Bonita Road and Guadalupe-Nipomo Road. Drilled unused water-table well in alluvium, diameter 16 inches, depth 129 feet. Land-surface datum is about 135 feet above msl. Highest water level 33.42 below lsd, June 29, 1944; lowest 61.91 below lsd, Dec. 30, 1953. Records available: 1942, 1944-53.

Jan. 28	58.92	Apr. 29	58.60	July 29	59.50	Oct. 29	61.37
Feb. 25	58.76	May 27	58.52	Aug. 25	60.28	Nov. 25	61.64
Mar. 27	58.70	June 25	58.86	Sept. 29	61.19	Dec. 30	61.91

11/35-26M2. Sam Tognazzini. Near Guadalupe. Oso Flaco Lake Road and Guadalupe-Nipomo Road. Drilled unused artesian well in alluvium and Paso Robles formation, diameter 14 inches, depth 324 feet, perforations 112-125, 254-280, 300-320. Land-surface datum is about 106 feet above msl. Highest water level 28.92 below lsd, Nov. 29, 1944; lowest 65.99 below lsd, July 26, 1950. Records available: 1930, 1944-53.

Jan. 28	47.95	Apr. 29	53.46	July 29	c70.70	Oct. 29	c68.41
Feb. 25	c65.49	May 27	c66.69	Aug. 25	c72.72	Nov. 25	54.76
Mar. 27	c64.77	June 25	c68.78	Sept. 29	c70.59	Dec. 30	57.43

c Nearby well being pumped.

*11/35-28M1. Union Sugar Co. Near Guadalupe. Oso Flaco Lake Road and Southern Pacific Railroad. Drilled irrigation artesian well in Paso Robles formation, diameter 16 inches, depth 376 feet, perforations 235-239, 272-276, 300-372. Land-surface datum is about 77 feet above msl. Highest water level 11.09 below lsd, Dec. 30, 1943; lowest 46.67 below lsd, July 1, 1952. Records available: 1934, 1938-53. Jan. 1, 26.85; Apr. 1, 45.82, pumped recently; July 1, 44.50; Oct. 1, 45.83.

11/35-33G1. H. E. Pezzoni. Near Guadalupe. Southern Pacific Railroad and Guadalupe-Nipomo Road. Drilled irrigation artesian well in alluvium, diameter 10 inches, depth 141 feet. Land-surface datum is about 91 feet above msl. Highest water level 16.49 below lsd, Feb. 29, 1944; lowest 50.24 below lsd, July 1, 1952. Records available: 1930, 1933-34, 1938-53.

Jan. 1	*36.50	Apr. 29	40.06	Aug. 25	49.42	Oct. 29	46.70
28	35.15	May 27	46.65	Sept. 29	48.87	Nov. 25	40.11
Mar. 27	46.06	June 25	48.31	Oct. 1	*49.90	Dec. 30	44.03
Apr. 1	*46.42	July 1	*48.07				

*11/35-35A1. Elmer A. Runels. Near Guadalupe. Bonita Road and Nipomo-Guadalupe Road. Drilled irrigation artesian well in alluvium, diameter 16 inches, depth 195 feet, perforations 125-189. Land-surface datum is about 123 feet above msl. Highest water level 24.50 below lsd, Feb. 24, 1925; lowest 67.70 below lsd, Oct. 1, 1953. Records available: 1925, 1930, 1938-53. Jan. 1, 59.30; Apr. 1, 61.90; July 1, 65.90; Oct. 1, 67.70.

Cuyama Valley

7/24-13C2. Ventura County, Apache School District. Near Camp Ozena at Apache School. Drilled domestic water-table well in alluvium, diameter 8 inches, depth 165 feet. Land-surface datum is about 3,418 feet above msl. Highest water level 18.92 below lsd, May 27, 1952; lowest 47.23 below lsd, May 28, 1951. Records available: 1950-53.

Jan. 27	20.37	Apr. 28	21.02	July 28	23.33	Oct. 28	26.93
Feb. 24	20.29	May 26	21.59	Aug. 26	24.52	Nov. 24	27.57
Mar. 26	20.56	June 26	22.12	Sept. 28	25.86	Dec. 29	27.03

8/24-8L1. Hickey Bros. Land Co. Drilled unused water-table well in alluvium and older continental deposits, diameter 12 inches, depth 290 feet. Land-surface datum is about 3,050 feet above msl. Highest water level 122.19 below lsd, Sept. 28, 1953; lowest 151.51 below lsd, Jan. 28, 1952. Records available: 1950-53.

Jan. 27	127.14	Apr. 28	c124.77	July 28	c123.09	Oct. 28	122.82
Feb. 24	126.04	May 26	123.04	Aug. 26	122.23	Nov. 24	124.22
Mar. 26	c125.54	June 26	122.55	Sept. 28	122.19	Dec. 29	125.54

c Nearby well being pumped.

9/24-19Q1. Sam Knittle. Drilled unused water-table well in alluvium, diameter 6 inches, depth 90 feet. Land-surface datum is 2,784.19 feet above msl. Highest water level 16.13 below lsd, May 30, 1944; lowest 75.73 below lsd, Sept. 28, 1953. Records available: 1941-53.

Date	Water level	Date	Water level	Date	Water level	Date	Water level
Jan. 27	73.63	Apr. 28	74.04	July 28	c74.81	Oct. 28	75.66
Fsb. 24	73.57	May 26	74.47	Aug. 26	75.13	Nov. 24	75.51
Mar. 26	73.63	June 26	c74.61	Sept. 28	75.73	Dec. 29	75.27

c Nearby well being pumped.

9/24-33M1. Walter C. Barnes. Drilled unused water-table well in older continental deposits, diameter 12 inches, depth 233 feet. Land-surface datum is about 3,049 feet above msl. Highest water level 170.81 below lsd, May 1, 1950; lowest 187.31 below lsd, Mar. 27, 1952. Records available: 1950-53.

Jan. 27	183.72	Apr. 28	182.65	July 28	182.65	Oct. 28	182.43
Feb. 24	183.45	May 26	182.70	Aug. 26	182.70	Nov. 24	182.36
Mar. 26	183.16	June 26	183.63	Sept. 28	182.55	Dec. 29	182.19

9/25-2N1. Julius Broden. Near Cuyama. Drilled unused water-table well, diameter 8 inches, depth 254 feet. Land-surface datum is about 2,550 feet above msl. Highest water level 139.14 below lsd, Mar. 26, 1953; lowest 140.44 below lsd, Dec. 29, 1953. Records available: 1953.

Mar. 26	139.14	June 26	139.57	Sept. 28	140.03	Nov. 24	140.32
Apr. 28	139.26	July 28	139.72	Oct. 28	140.17	Dec. 29	140.44
May 26	139.43	Aug. 26	139.85				

9/25-13B1. William B. Farry. Near Cuyama. Drilled domestic water-table well, diameter 10 inches, depth 120 feet. Land-surface datum is about 2,700 feet above msl. Highest water level 101.82 below lsd, July 8, 1952; lowest 103.43 below lsd, Dec. 29, 1953. Records available: 1952-53. July 8, 1952, 101.82; Mar. 26, 1953, 102.87; May 26, 102.97; Aug. 26, 103.11; Oct. 28, 103.27; Nov. 24, 103.32; Dec. 29, 103.43.

10/25-21G1. E. H. Mettler. Near Cuyama. Cuyama River and State Highway 166. Drilled irrigation water-table well in alluvium and older continental deposits, diameter 16 to 10 inches, depth 657 feet, cased to 657, perforations 108-348, 354-655. Land-surface datum is about 2,357 feet above msl. Highest water level 77.41 below lsd, Jan. 29, 1947; lowest 118.06 below lsd, Oct. 28, 1953. Records available: 1947-53. Jan. 27, 108.98; Feb. 24, 110.01; Mar. 26, 110.92; Apr. 28, 113.94; Oct. 28, 118.06; Nov. 24, 115.49.

10/25-24E1. E. H. Mettler & Sons. Near Cuyama. Drilled domestic water-table well in older continental deposits, diameter 16 inches, reported depth 600 feet. Land-surface datum is about 2,470 feet above msl. Highest water level 198.00 below lsd, May 31, 1950; lowest 217.34 below lsd, Nov. 24, 1952. Records available: 1950, 1952-53.

Jan. 27	210.65	Apr. 28	210.50	July 28	211.63	Oct. 28	213.43
Feb. 24	209.80	May 26	210.94	Aug. 26	212.90	Dec. 29	213.48
Mar. 26	210.06	June 26	211.34	Sept. 28	213.25		

10/25-29P1. Oscar Schaeffer. Near Cuyama. Drilled irrigation water-table well, diameter 16 inches, depth 403 feet. Land-surface datum is about 2,370 feet above msl. Highest water level 122.36 below lsd, Feb. 24, 1953; lowest 138.85 below lsd, Sept. 28, 1953. Recorde available: 1952-53.

Date	Water level	Date	Water level	Date	Water level	Date	Water level
May 7, 1952	g124.30	Apr. 28, 1953	134.23	Sept. 28, 1953	138.85	Nov. 24, 1953	130.34
Feb. 24, 1953	122.36	May 26	136.50	Oct. 28	136.88	Dec. 29	128.87

g By Pacific Gas and Electric Company.

10/25-30F1. Adolph Kirschenmann. Drilled irrigation water-table well in alluvium and older continental deposits, diameter 16 inches, depth 376 feet, cased to 374, perforations 124-160, 170-187, 196-202, 229-232, 241-250, 265-268, 274-313, 332-370. Land-surface datum is about 2,311 feet above msl. Highest water level 47.36 below lsd, Apr. 24, 1945; lowest 78.92 below lsd, Sept. 24, 1951. Records available: 1941-53. Jan. 27, 71.69; Feb. 24, 72.98; June 26, 90.79, pumped recently.

10/26-9R2. H. S. Russell. Near Cuyama. Drilled unused water-table well in alluvium and older continental deposits, diameter 14 inches, depth 380 feet, cased to 338, perforations 33-54, 97-111, 118-131, 155-168, 175-212. Land-surface datum is about 2,135 feet above msl. Highest water level 21.36 below lsd, Feb. 26, 1947; lowest 44.84 below lsd, May 31, 1950. Records available: 1942, 1947-53. Jan. 27, 29.77; Feb. 24, 28.38; May 26, 42.97. Measurement discontinued.

10/26-22A1. W. C. Ramelli. Drilled unused artesian well in alluvium and older continental deposits, diameter 12 inches, depth 423 feet, cased to 423, perforations 103-115, 124-145, 176-187, 208-237, 250-305, 327-343, 355-391, 402-423. Land-surface datum is about 2,200 feet above msl. Highest water level 0.51 above lsd, Mar. 1, 1944; lowest 32.60 below lsd, July 25, 1950. Records available: 1941-53.

Date	Water level	Date	Water level	Date	Water level	Date	Water level
Jan. 27	8.56	Apr. 28	31.25	July 28	29.07	Oct. 28	19.82
Feb. 24	10.07	May 26	23.27	Aug. 26	31.28	Nov. 24	11.80
Mar. 26	17.46	June 26	24.48	Sept. 28	21.32	Dec. 29	11.75

10/27-11C1. A. P. Anderson. Near Cuyama. Drilled domestic and irrigation water-table well in alluvium and older continental deposits, diameter 14 inches, depth 378 feet, plugged back to 127, perforations 36-117. Land-surface datum is about 1,963 feet above msl. Highest water level 23.94 below lsd, June 17, 1942; lowest 37.19 below lsd, July 28, 1953. Records available: 1942, 1947-53.

Jan. 27	26.72	Apr. 28	c33.48	July 28	37.19	Oct. 28	34.82
Feb. 24	26.41	May 26	30.95	Aug. 26	35.88	Nov. 24	29.71
Mar. 26	27.46	June 26	32.88	Sept. 28	36.08		

c Nearby well being pumped.

10/27-12R1. William Kirschenmann Estate. Drilled domestic and irrigation water-table well in alluvium, diameter 12 inches, depth 131 feet, cased to 131, perforations 53-128. Land-surface datum is about 2,036 feet above msl. Highest water level 38.58 below lsd, Apr. 28, 1942; lowest 54.05 below lsd, Sept. 28, 1953. Records available: 1941-53.

Jan. 27	46.57	May 26	47.63	Aug. 26	53.62	Oct. 28	52.78
Feb. 24	46.42	June 26	48.81	Sept. 28	54.05	Nov. 24	51.56
Apr. 28	46.56	July 28	51.58				

HAWAII

By K. J. Takasaki

Scope of Water-Level Program

Investigation of ground-water resources in Hawaii in 1953 was continued in cooperation with the Hawaii Division of Hydrography. During 1953 water-level measurements were made in 134 wells, 62 of which were measured periodically. In addition, chloride determinations were made on water from 248 wells. Two recording gages and 3 nonrecording gages were maintained. The Honolulu Board of Water Supply made water-level measurements on 84 wells on the island of Oahu. The Board maintained recording gages on 16 wells. Figures 35-39 show the location of observation wells on the various islands.

Precipitation

Severe drought conditions prevailed throughout the Territory in 1953. The average rainfall for the Territory as a whole was 47.51 inches or 61 percent of normal, with only the months of February, March, and May having near-normal rainfall. This average of 47.51 inches for the Territory was the lowest recorded since 1905. Other years of comparable low rainfall were 1919 and 1926 when averages of 48.01 and 50.43 inches were recorded. In the Honolulu intake area, distribution of rainfall during the year was in general similar to that of the Territory as a whole.

The following table shows percentage of normal monthly rainfall in the ground-water recharge area near Honolulu during 1953. The figures were compiled by the Honolulu Board of Water Supply and are based on records of 10 stations in the recharge area. Rainfall records for the area for the 10-year period ending in 1953 are shown in figure 41.

Percentage of normal rainfall in Honolulu area, 1953

Month	Percentage of normal rainfall	Month	Percentage of normal rainfall	Month	Percentage of normal rainfall
January	50	May	73	September	22
February	108	June	44	October	31
March	104	July	52	November	52
April	45	August	54	December	90
Percentage of normal					60

Pumpage

The total pumpage of ground water during 1953 in the Territory of Hawaii was approximately 252,000 million gallons or an average of 690 million gallons a day. This figure represents an increase of 55,150 million gallons (151 mgd) over the pumpage in 1952 and is also the greatest quantity of water ever pumped from ground-water sources in the Territory. All of the islands reported some increase in pumpage over the previous year with the greatest increases on Maui and Oahu. Maui reported an increase of 35,452 million gallons (97 mgd) and Oahu an increase of 16,192 million gallons (44 mgd). The pumping rate of Maui was approximately 270 mgd, 80 percent of which was drawn from aquifers in the Maui Isthmus. In addition to the ground water pumped in Maui, 46,502 million gallons (127 mgd) were delivered to the Maui Isthmus in East Maui Irrigation Company ditches. On Oahu, the rate was 377 mgd. Sixty percent of the ground water pumped in Oahu was from the Pearl Harbor area. For the Territory as a whole the islands of Oahu and Maui accounted for about 94 percent of the total ground-water draft.

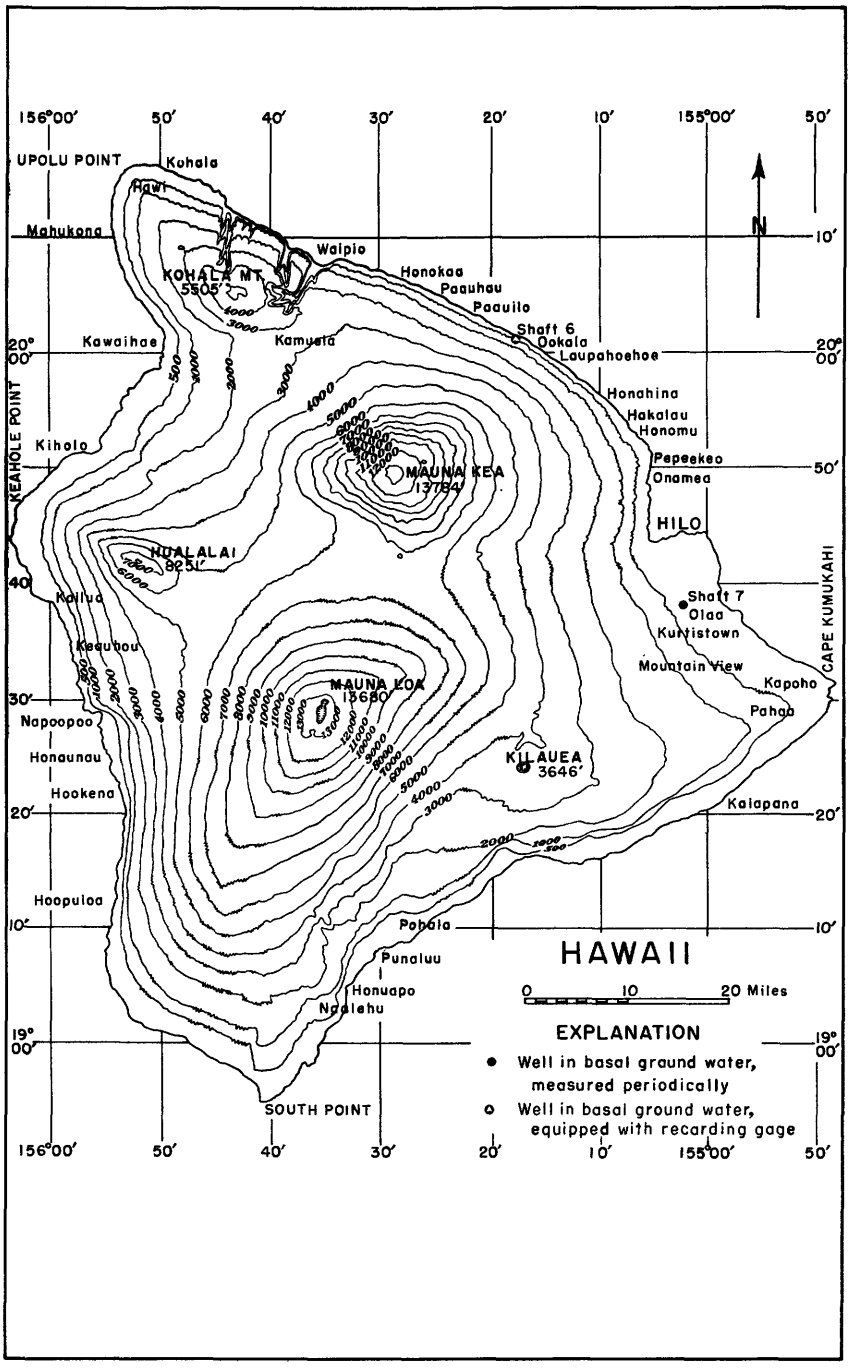


Figure 35. --Location of observation wells on Island of Hawaii, 1953.

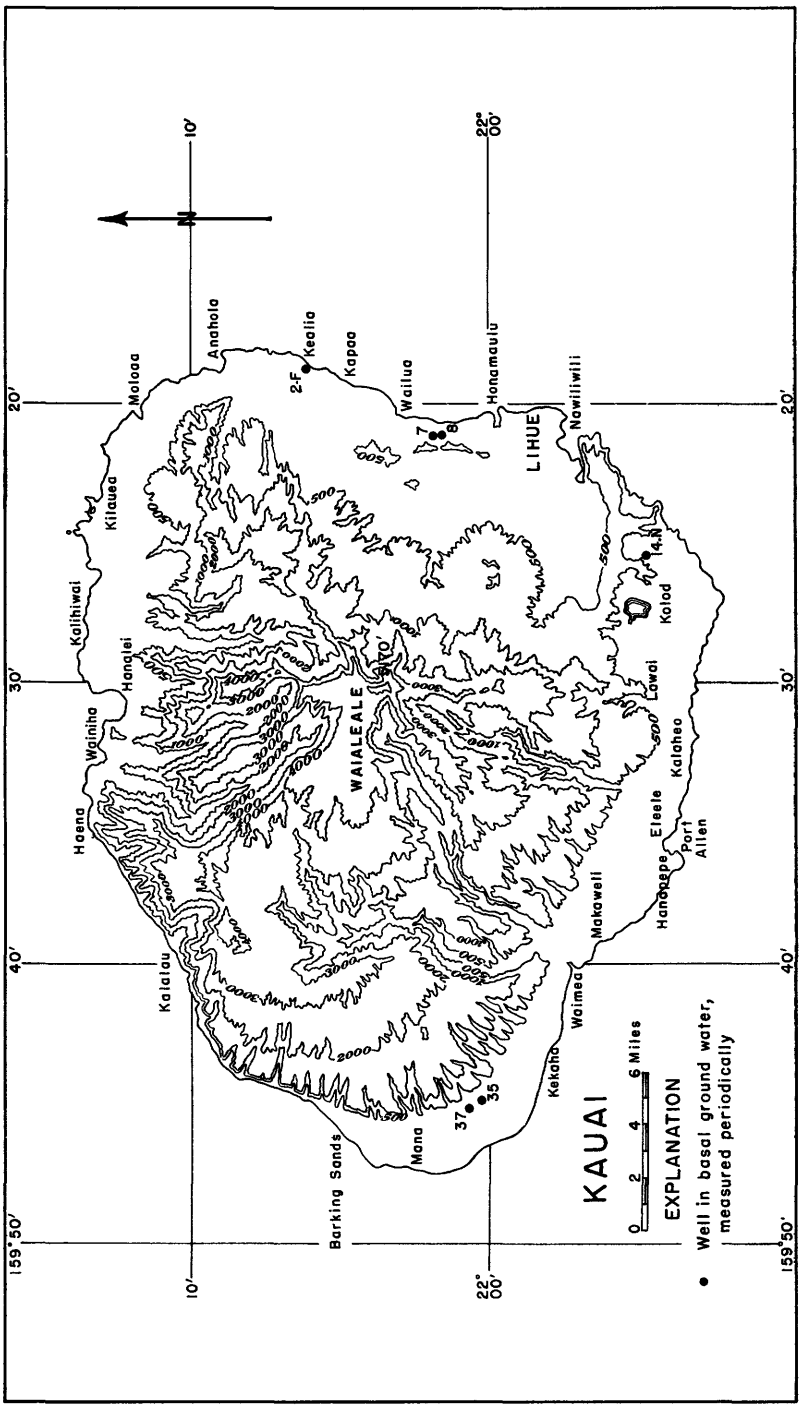


Figure 36.--Location of observation wells on Island of Kauai, 1953.

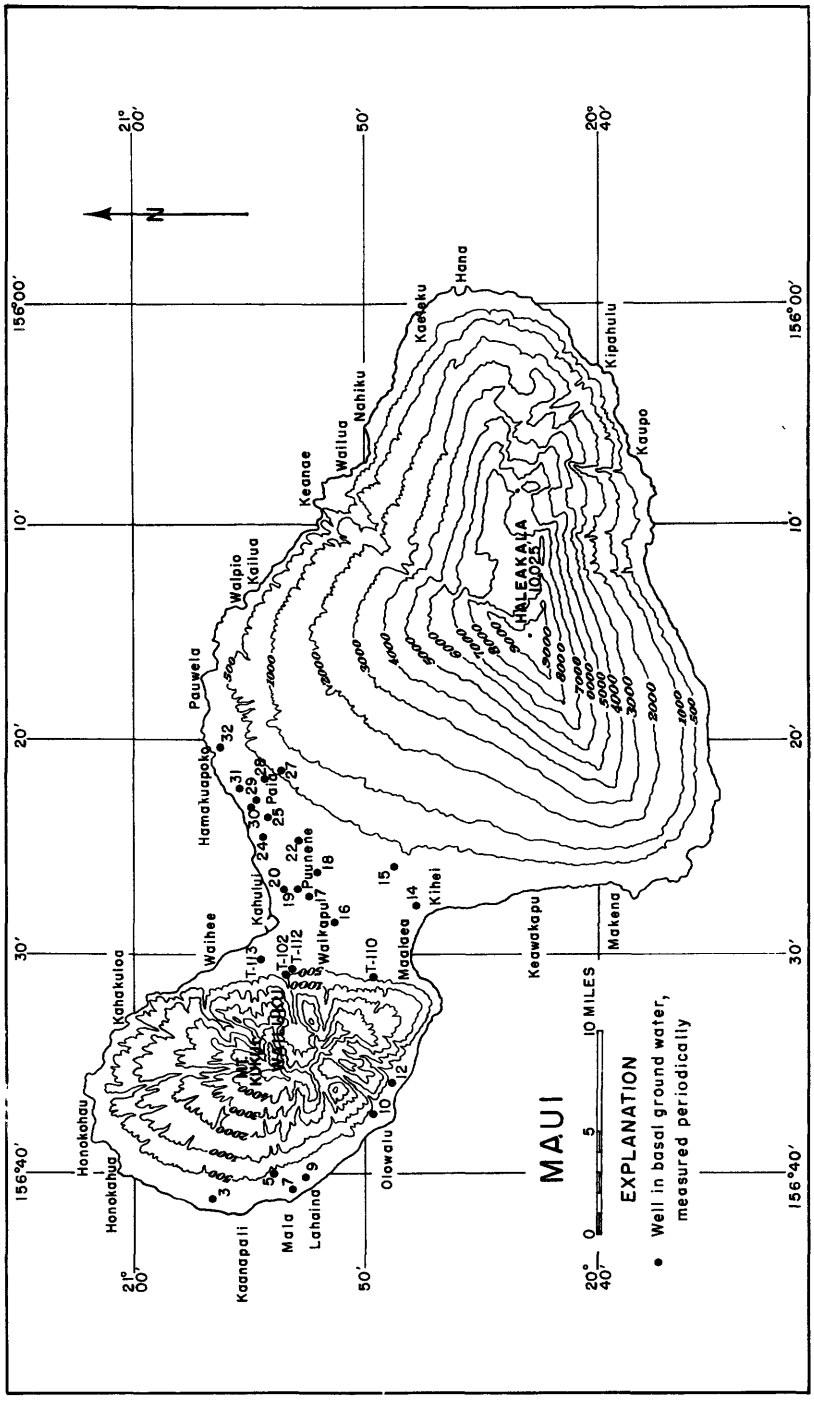


Figure 37. --Location of observation wells on Island of Maui, 1953.

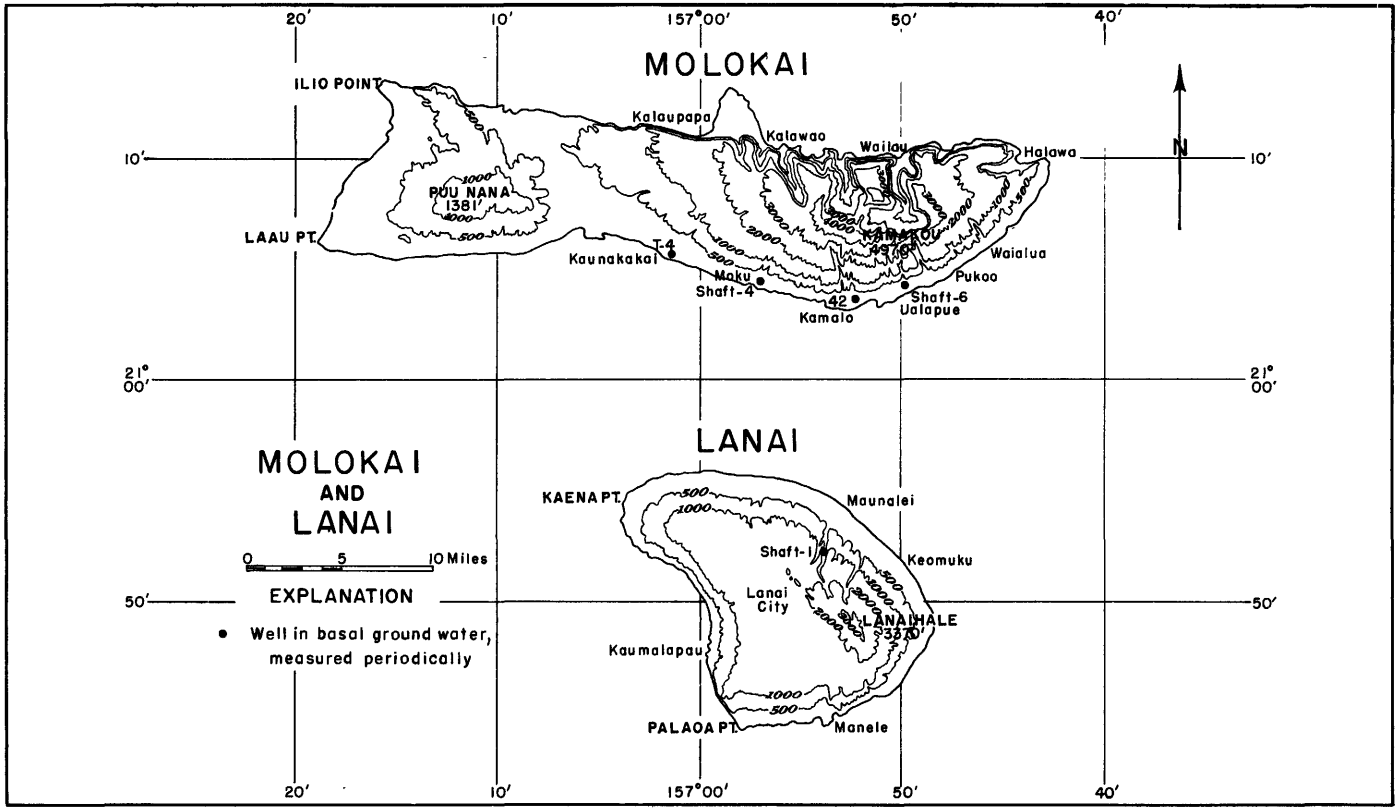


Figure 38. --Location of observation wells on Islands of Molokai and Lanai, 1953.

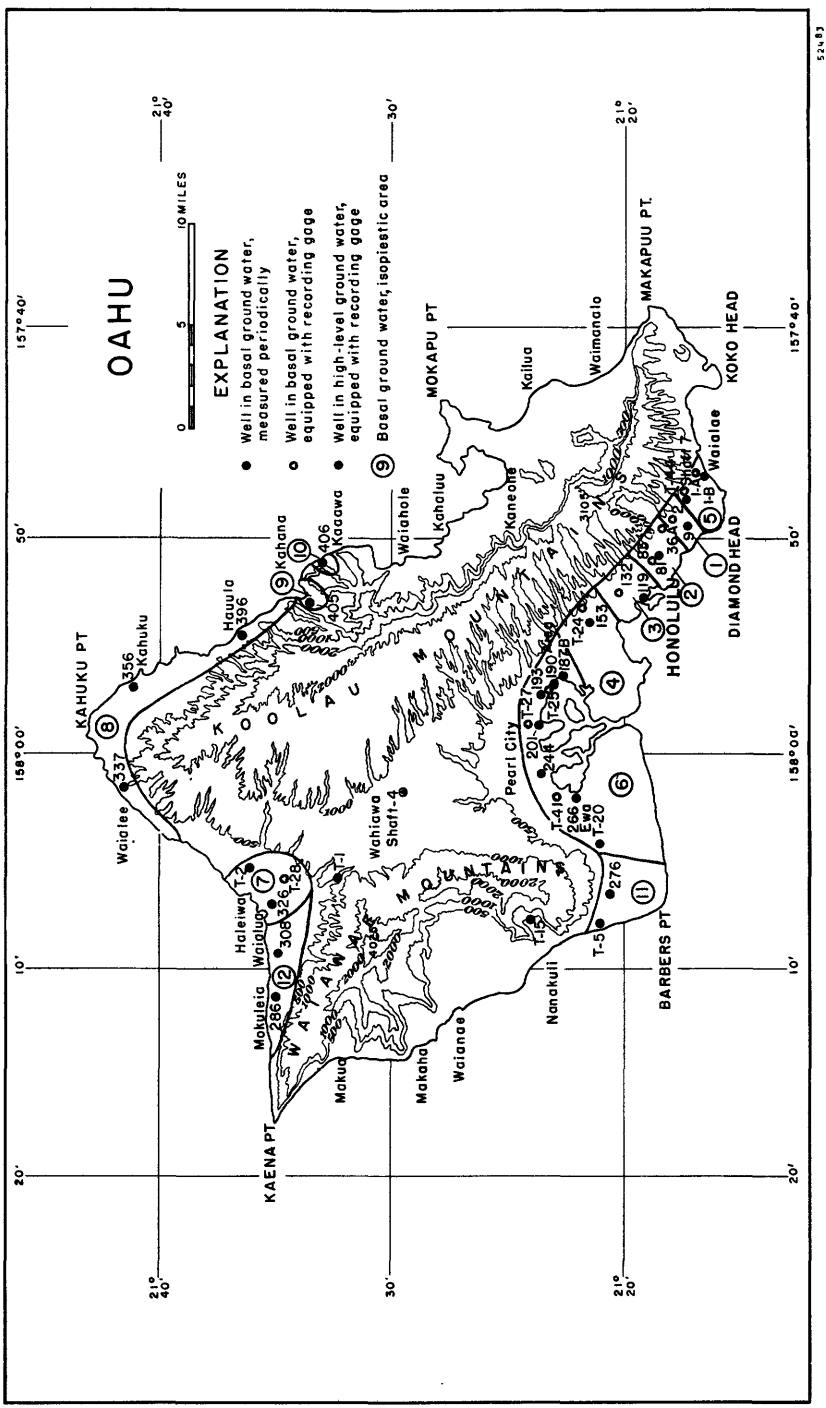


Figure 39. --Location of observation wells on Island of Oahu, 1953.

Pumpage, in millions of gallons, from wells and tunnels in the Territory of Hawaii, 1953

Island of Hawaii			**Island of Maui**		
Hamakua Mill Co.			Hawaiian Commercial & Sugar Co.		
Paauilo well (shaft 5)		860	Pump 1 (14)	909	
Hawaiian Agricultural Co.			2A-B (25)	8,145	
Pahala shaft (shaft 8)		596	3A-B (15)	7,573	
Hutchinson Sugar Plantation Co.			4 (24)	3,990	
Honuapo well (10)		805	5 (19)	3,540	
Kaiwiki Sugar Co.			6A-B (18)	8,199	
Domestic tunnel (shaft 6)	e84		7A-B (16)	10,590	
Cane cleaning plant tunnel (shaft 6)	437	521	8(17)	4,661	
Kohala Sugar Co.			9(22)	4,965	
Hoea pump (shaft 2)	1,141		Central Power Plant (20)	761	
Kohala pump (shaft 4)	2,157		Pump 11A-B (32)	634	
Waikane pump (shaft 1)	397		12 (12)	2,062	
Honokane tunnel	e794		13A-B (29)	4,651	
Halaula domestic well	177	4,666	16A, B, D (30)	5,165	
Olaa Sugar Co.			17 (28)	3,757	
Olaa shaft (shaft 7)		835	18A-B (27)	6,955	74,557
Pepeekeo Sugar Co.		1	Pioneer Mill Co.		
Total		8,084	Pump A (9) Lahaina	2,673	
Island of Kauai			B (8) Lahaina	1,930	
County of Kauai			C (7) Mill	2,767	
Hanapepe shaft	71		D (3) Kaanapali	1,796	
Waimea shaft	113		F (2) Honokawai	1,298	
Kekaha shaft	47	231	G (4) Hahakea	1,098	
Kekaha Sugar Co.			H (3) Kaanapali	2,707	
Well 9 (27)	1		L (6) Wahikuli	343	
Wells K-1 to K-5 (32)	1,147		M (5) Kahoma	2,817	
Wells M-1 to M-12 (45)	1,999		N (10) Olowalu	861	
Kekaha pump	558		O (11) Olowalu	47	
Mana pump	120		P (12) Ukumehame	149	
Waiawa pump	1,362	5,187	R Honokawai shaft	1,768	20,256
Lihue Plantation			Maui Pineapple Co.		
Domestic shaft	e500		Kahului Cannery (13)		e250
Kealia wells (2)	e150		Wailuku Sugar Co.		
Hanamaulu shaft	e3	653	Wailuku shaft		3,566
Olokele Sugar Co.			Total		98,629
Domestic shaft		e450	**Island of Molokai**		
Total		p6,521	County of Maui		
Island of Lanai			Conant-Kawela (shaft 4)	71	
Hawaiian Pineapple Co.			Kalae tunnel (tunnel 5)	3	
Tunnel 1	81		Kamalo well (dug well 42)	2	
Shaft 2	66		Ualapue well (shaft 6)	27	103
Well 1 (Palawai)	13		California Packing Corp.		
2 (Hii Bench)	177		Kualapuu (15)	34	
3 (Kapano)	130		Kalualohe well (17)	173	207
4 (Soules Bench)	0		Hawaiian Homes Commission		
5 (Waiakeakua)	132	599	Kauluwai (16)		89
Total		599	Total		399
			Island of Oahu		
			Ewa Plantation Co.		
			Pump 2 (257)	1,190	
			3 (264)	3,562	
			4 (264)	3,263	
			5 (259)	2,482	
			6 (259)	2,965	

Pumpage, in millions of gallons, from wells and tunnels in the Territory of Hawaii, 1953--Continued

Island of Oahu--Continued		
Ewa Plantation Co. --Contd.		
Pump 7 (263)	2,798	
8 (270)	598	
10 (276)	3,028	
11 (276)	1,727	
12 (276)	1,367	
13 (276)	12	
15 (shaft 3)	3,021	
16 (shaft 3)	4,674	
20 (dug well 20)	642	
21 (dug well 21)	426	
22 (dug well 22)	369	
23 (dug well 23)	1,963	
24 (dug well 24)	516	
25 (254)	396	35,001
California Packing Corp.		
Kunia well (330-5)		32
Hawaiian Electric Co.		
Tunnel (shaft 8)	2,597	
Wells (199-1)	2,174	
Kaluaoopu Spring	2,226	6,997
Honolulu Board of Water Supply		
Kalihi station (shaft 6)	3,566	
Waialae station (shaft 7)	151	
Halawa station (shaft 12)	4,105	
Kaimuki station (7)	1,375	
Beretania station (88)	2,325	
Kalihi station (128)	1,688	13,210
Honolulu Suburban Water System		
Aiea (190-1-B)	38	
Pearl City (shaft 9)	140	
Waipahu (241)	265	
Nanakuli (dug well 16)	1	
Lualualei (shaft 2)	70	
Makaha (shaft 1)	e58	
Wahiawa (330-3, 330-6)	513	
Waialua (333)	116	
Hauula (394)	37	
Kaaawa (shaft 10)	40	
Haiku tunnel	734	
Kahaluu tunnel	840	
Luluku tunnels and springs	76	
Kahanaiki (422)	7	
Waimanalo		
City and County tunnel	122	
Plantation tunnel	e48	
Waialee Training School (337-1 & 2)	40	
Waianae		
City and County tunnel	s	
Other tunnels	s	3,145
Kahuku Plantation Co.		
Pump 1 (353)	1,424	
2 (341)	3,790	
3 (362)	2,145	
5 (352)	2,353	
6 (362-1)	348	
7 (363)	245	
8 (357)	324	
12 (361)	156	
14 (338)	e562	
15 (348)	203	
17 (362)	145	
20 (377)	1,336	

Island of Oahu--Continued		
Kahuku Plantation Co. --Contd.		
Pump 23 (387)	197	
25 (373)	186	
26 (392)	256	
27 (396)	431	
Mill pump (355)	e767	14,868
Oahu Sugar Co.		
Waipahu section		
Pump 1 (247)	1,006	
2 (249)	2,682	
3 (249)	1,930	
4 (248)	1,958	
5 (274)	3,145	
6 (239)	2,374	
7 (246)	3,267	
8 (Waikele Spring)	2,032	
9 (Waiawa Spring)	206	
Aiea section		
Pump 1 (185)	547	
2 (196)	0	
3 (186)	1,934	
4 (197)	3,615	
5 & 5B (189)	1,155	
6 (Kalauao Spring)	1,329	
16 (199-1)	q	
21 & 21B (shaft 13)	1,803	30,167
Private wells in Honolulu		r4,331
Territorial Hospital, Kaneohe (416)		73
U. S. Army		
Schofield (shaft 4)		859
U. S. Navy		
Aiea (shaft 5)	125	
Red Hill (shaft 11)	213	
Barber's Point (shaft 14)	806	
Aiea wells (187)	0	
Wahiawa Radio Station(330-2)	e1	
Pearl City wells	1	
Lualualei tunnel	140	
Waiawa shaft	5,868	7,154
Waialua Agricultural Co.		
Pump 1 (321)	1,016	
2 (322 A to I)	2,704	
2A (322 J to N)	1,958	
3 (331)	3,667	
4 (334)	2,000	
5 (285)	1,188	
6 (298, 299, & 301)	219	
7 (324)	998	
8 (329)	438	
9 (327)	251	
10 (323)	2,870	
11 (296)	42	
12 (332)	222	
13 (328)	230	
15 (317)	71	
16 (316)	105	
Mill pump (319)	2,519	20,499
Waimano Home		
(196-1)	27	
(196-1B)	102	129

Pumpage, in millions of gallons, from wells and tunnels in the Territory of Hawaii, 1953--Continued

Island of Oahu--Continued		
Waianae Development Co.		
City and County tunnel	e784	
Other tunnels	e377	1,161
Total		137,626
Grand Total		251,858

e Estimated.

p Pumpage for McBryde Sugar Co. not included. Three pumps in Hanapepe and one in Lawai Valley pump both surface and ground water. It is not possible to separate ground-water draft from surface water.

q Pumpage from Pump 16 (199-1) included with that of Hawaiian Electric Co.

r Reported by Honolulu Board of Water Supply. Includes pumpage from wells belonging to military establishments in Honolulu.

s Flow from City and County tunnel and other Waianae tunnels included with that of Waianae Development Co.

Interpretation of Water-Level Fluctuations

During 1953 water levels in observation wells on Oahu showed a steady decline from the high stages of late 1951 and early 1952. This decline reverses the upward trend which began in 1947 after the low stages of 1945 and 1946. The declining water levels show the effect of heavy pumping and deficient rainfall during 1953 and in part of 1952. This combination of heavy pumping and deficient rainfall has, especially during the late months of 1953, modified somewhat the usual pattern of high winter and early spring stages and low summer and early fall stages recorded in most observation wells. Except in area 11 (Gilbert) the ground-water levels in all of the areas in Oahu showed a net loss in 1953. The greatest losses occurred in the Honolulu-Pearl Harbor area (areas 1-6). (See figs. 40 and 41.) In area 8 (Kahuku) water levels reached the lowest levels on record in 2 observation wells. The chloride content of the water in most of the observation wells showed no marked change. In the Pearl Harbor area, water from 1 well showed a net increase of about 50 ppm, while another well showed a net decrease of about the same amount. There were slight increases in chloride content of the water from 2 observation wells in area 8 (Kahuku). Water levels in observation wells on Maui reached their lowest levels on record during 1953. Chloride content of water in wells in the Maui Isthmus showed slight increases over the previous year, while in the wells along the west coast there were marked increases. On Molokai water levels were generally lower than in 1952. During 1953 the water level in shaft 7 on Hawaii was very low (fig. 42). The chloride content of the water in shaft 6 on Hawaii showed a slight increase. In general, water levels on Kauai remained about the same. The chloride content of the water in observation wells of Kauai showed some increase in the heavily pumped Kekaha area; elsewhere there was little change over the previous year.

Month of high and low heads in artesian wells and net gain or loss in static head, in feet, in typical wells on the Island of Oahu, 1953

Area	Name	Well	High	Low	Net gain or loss
1	St. Louis Heights	2	March	September	-1.74
2	Makiki-Pacific Heights	36A	January	September	-2.96
3	Kapalama	132	January	September	-2.98
4	Moanalua	T-24	January	October	-2.30
5	Wilhelmina Rise	Shaft-7	January	December	-.24
6	Pearl Harbor	201	January	September	-2.25
		244	January	September	-2.40
		266	February	September	-2.04
7	Waialua	326	January	June	-1.09
8	Kahuku	356	December	July	-1.18
		396	January	September	-1.52
9	Kahana	405	February	December	-1.90
10	Kaaawa	406	April	December	-1.31
11	Gilbert	T-5	March	June	+.06
12	Mokuleia	286	February	July	-.25
		308	December	June	-.13

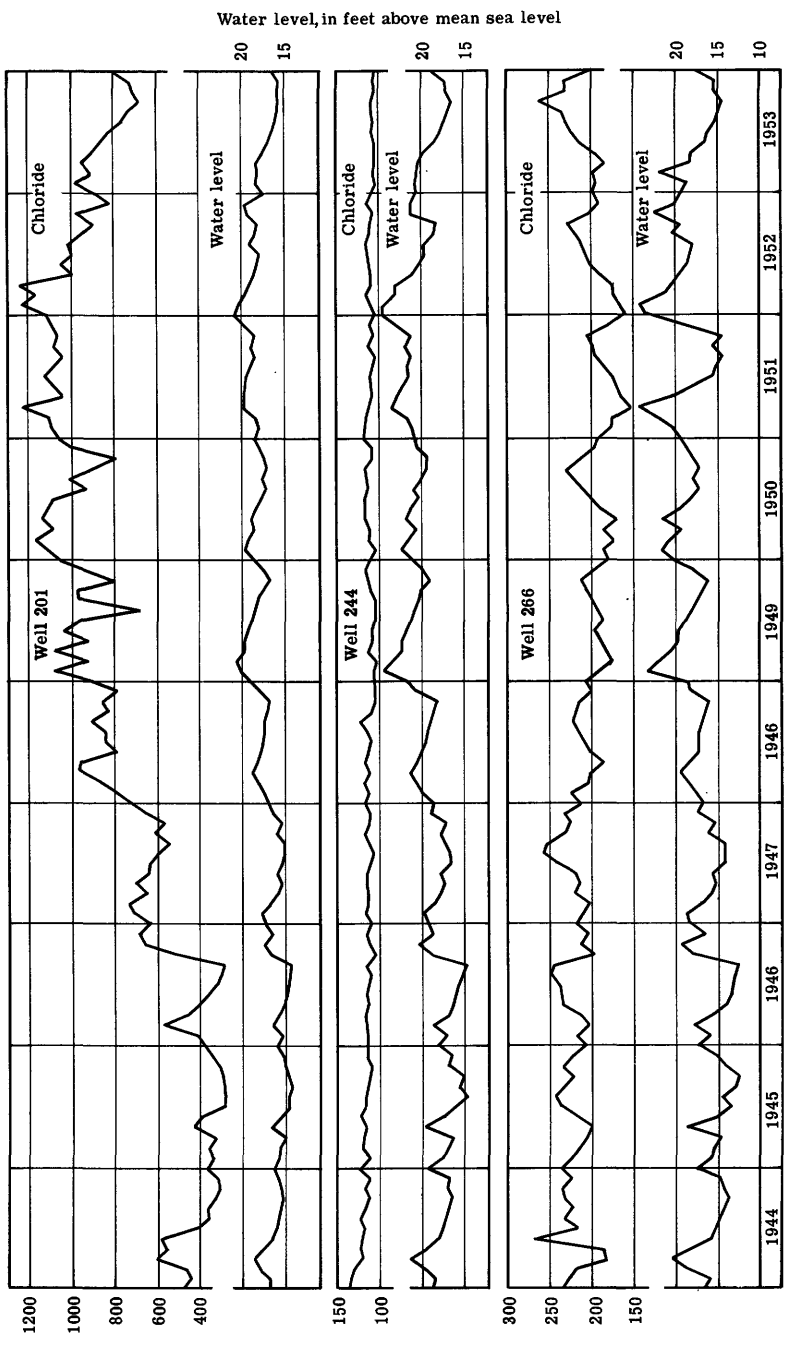


Figure 40.--Water levels and chlorides in wells 201, 244, and 266 in the Pearl Harbor area, Oahu, 1944-53.

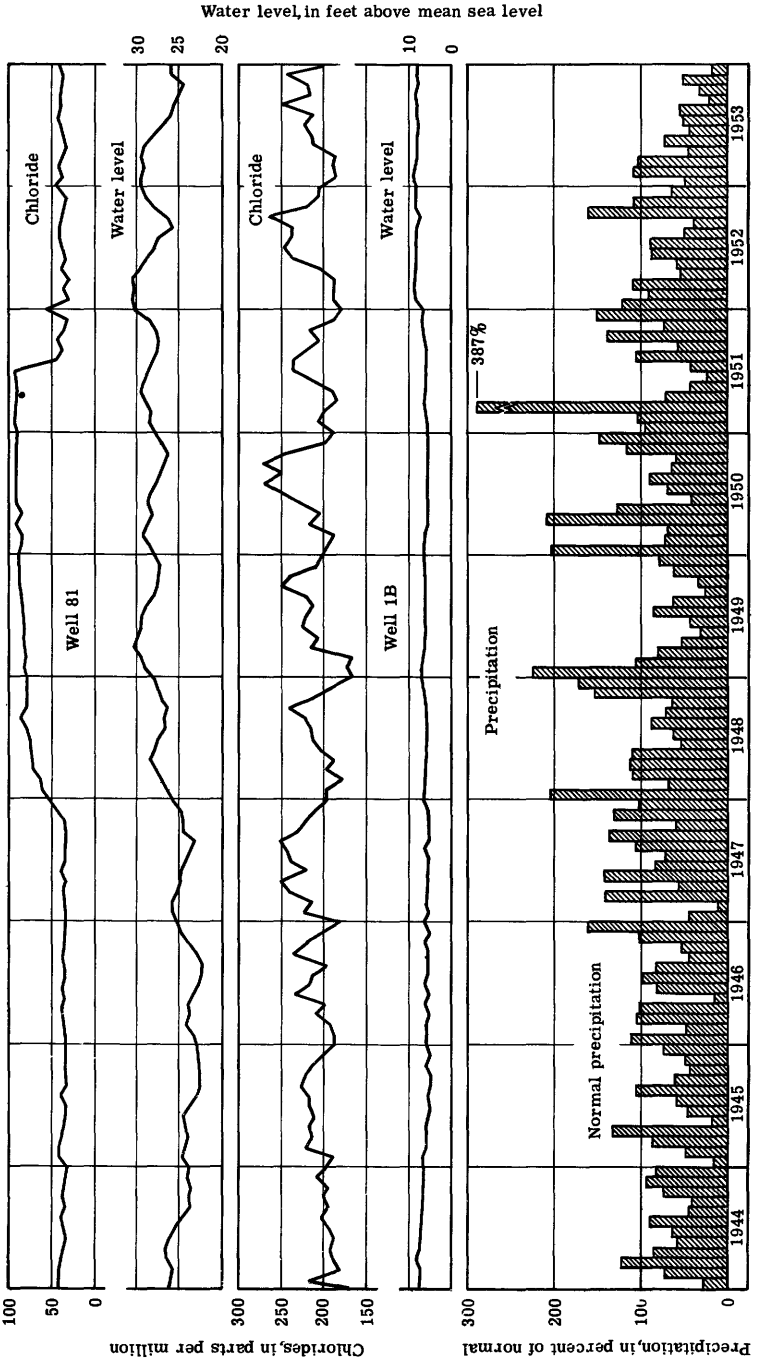


Figure 41.--Water levels and chlorides in wells 81 and 1B in Honolulu and precipitation on the Honolulu watershed, 1944-53.

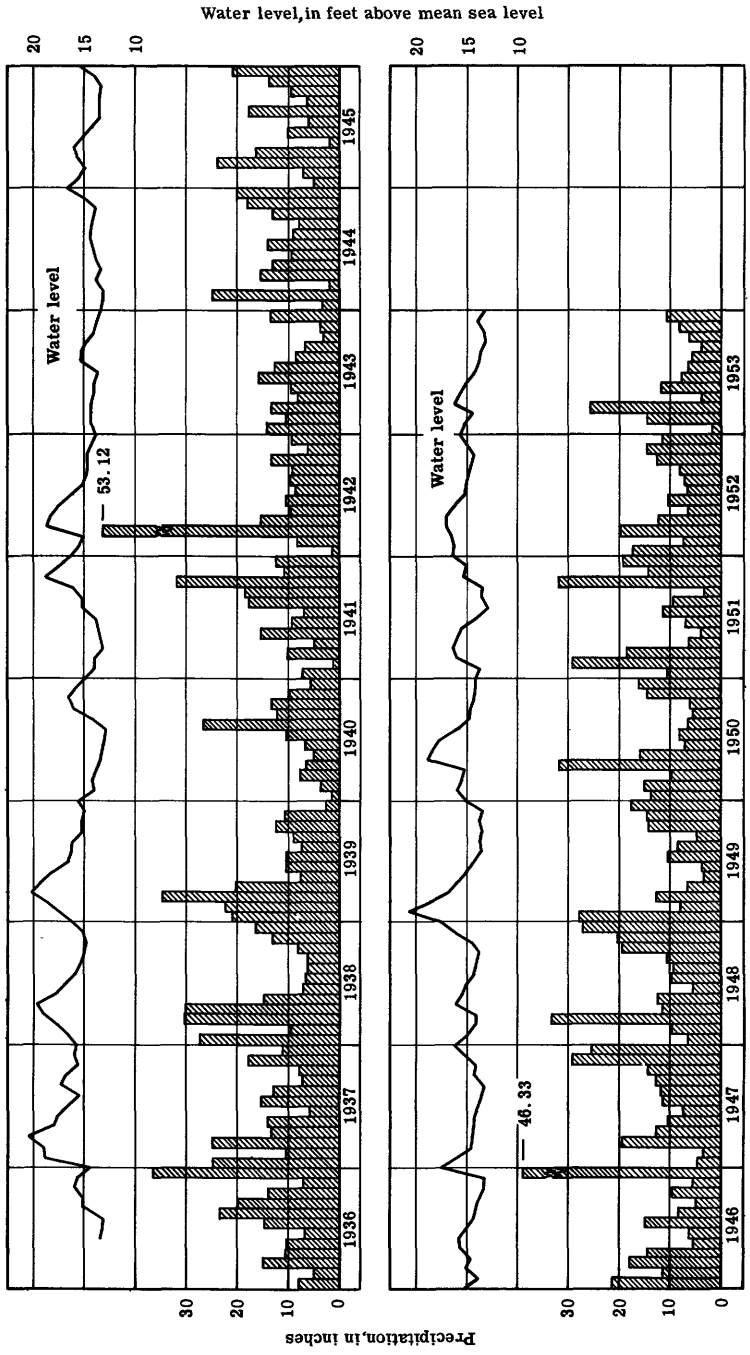


Figure 42.--Water-level fluctuations in Shaft 7 and monthly precipitation at Olaa, Hawaii, 1936-53.

Lowest head in 1926, 1952, and 1953 and net change in head, 1926-53, in observation wells on Oahu

Area	Name	Well	Water level (feet above sea level)			Net change 1926-53 (feet)
			1926	1952	1953	
1	St. Louis Heights	2	20.88	25.04	24.67	+3.79
2	Makiki-Pacific Heights	36A	j23.52	27.03	25.29	+1.77
3	Kapalama	132	24.84	25.65	23.80	-1.04
4	Moanalua	T-24	k24.00	23.50	21.51	-2.49
6	Pearl Harbor	201	17.09	18.15	15.32	-1.77
		244	17.27	18.37	16.43	-.84
		266	15.75	18.25	14.46	-1.29
7	Waialua	326	10.34	10.95	10.24	-.10
8	Kahuku	356	13.05	9.41	9.09	-3.96
		396	18.78	18.05	16.68	-2.10
12	Mokuleia	308	17.55	18.22	17.83	+.28

j Estimated from well 83.
k Estimated from well 144.

Acknowledgments

On Kauai the records for wells 35 and 37 were furnished by the Kekaha Sugar Company. For the Island of Hawaii, records for shaft 6 were furnished by the Kaiwiki Sugar Company and shaft 7 by the Olaa Sugar Company. The Wailuku Sugar Company supplied the water levels and chloride data for Maui test holes 102, 110, 112, and 113. Records for shafts 3, 5, 7, 9, 10, and 12 on Maui were supplied by the Pioneer Mill Company. For Oahu, data for wells 1A, 2, 36A, 83, and 132, shaft 7, and test holes 24, 25, 27, 28, 41, and 44 were obtained from the records of the Honolulu Board of Water Supply. Measurements on Oahu test holes 1 and 2 were made by the Waialua Agricultural Company.

Well-Numbering System

Beginning with number 1 at some point on each island drilled wells are numbered consecutively as they occur in geographic sequence around the island. Single wells separated from others and pumped separately are numbered individually. A group of closely spaced wells used to supply a central pumping plant is included under a single number with each individual of the group distinguished by a letter. In some areas certain numbers are left unassigned for the purpose of designating new drilled wells. Holes drilled especially for test or observation purposes are called test borings. Test borings on each island are numbered beginning with "1" and are distinguished by a "T" before each number. Shaft-type wells are high-capacity installations designed especially for the development of ground water. This type of well consists of a vertical or inclined shaft at the bottom of which drilled holes, tunnels, or a sump supply water to the pumps.

Well Descriptions and Water-Level Measurements

(Water levels are in feet above msl; chloride in parts per million.)

Island of Hawaii

Shaft 6. Kaiwiki Sugar Co. Ookala. Lat. 20°01'05", long. 155°17'15". Dug domestic and irrigation water-table well in basalt of Hamakua volcanic series, size 6½ by 6 feet, vertical depth of 30-degree inclined shaft 300 feet; two infiltration tunnels, size 4 by 6 feet, total length 650 feet. Land-surface datum is 300 feet above msl. Highest water level 7.04 above msl, June 20, 1938; lowest 2.92 above msl, Apr. 27, 1946. Records available: 1937-53.

Daily mean water level, above msl, from recorder graph

Day	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	5.5	5.6	5.6	5.4	5.2	5.2	5.3	5.3	5.3	5.3	5.3	5.3
2	5.6	5.5	5.5	5.1	5.4	5.2	5.3	5.4	5.3	5.3	5.3	5.3
3	5.7	5.5	5.4	5.3	5.5	5.1	5.4	5.4	5.3	5.4	5.2	5.3
4	5.7	5.5	5.4	5.4	5.5	5.1	5.5	5.4	5.3	5.5	5.3	5.3
5	5.7	5.5	5.3	5.4	5.4	5.1	5.4	5.4	5.4	5.4	5.3	5.3
6	5.7	5.6	5.3	5.3	5.3	5.1	5.3	5.4	5.5	5.4	5.3	5.3
7	5.7	5.8	5.5	5.2	5.3	5.2	5.3	5.3	5.5	5.4	5.4	5.4
8	5.8	5.8	5.5	5.2	5.4	5.0	5.3	5.3	5.4	5.4	5.4	5.4
9	5.8	5.8	5.4	5.3	5.5	5.0	5.2	5.4	5.3	5.5	5.3	5.4
10	5.8	5.6	5.5	5.3	5.5	5.0	5.2	5.3	5.3	5.6	5.2	5.4
11	5.8	5.6	5.4	5.5	5.4	5.0	5.2	5.3	5.2	5.6	5.2	5.4
12	5.7	5.5	5.4	5.5	5.3	5.0	5.3	5.3	5.4	5.4	5.2	5.5
13	5.7	5.5	5.4	5.4	5.3	5.1	5.2	5.4	5.4	5.3	5.2	5.5
14	5.7	5.6	5.5	5.3	5.2	5.1	5.2	5.4	5.3	5.3	5.3	5.4
15	5.6	5.7	5.5	5.2	5.2	5.1	5.2	5.4	5.2	5.3	5.3	5.3

Shaft 6--Continued.

Day	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
16	5.6	5.6	5.3	5.2	5.2	5.1	5.3	5.5	5.2	5.3	5.3	5.3
17	5.6	5.6	5.3	5.2	5.4	5.2	5.3	5.4	5.2	5.5	5.3	5.3
18	5.6	5.6	5.3	5.3	5.2	5.2	5.4	5.4	5.1	5.5	5.3	5.3
19	5.5	5.6	5.2	5.3	5.1	5.2	5.5	5.3	5.3	5.4	5.4	5.3
20	5.5	5.6	5.3	5.3	5.1	5.3	5.4	5.4	5.4	5.4	5.4	5.3
21	5.5	5.6	5.5	5.3	5.1	5.3	5.3	5.4	5.3	5.4	5.4	5.4
22	5.6	5.6	5.5	5.3	5.1	5.3	5.3	5.5	5.3	5.3	5.4	5.4
23	5.5	5.5	5.4	5.3	5.2	5.2	5.3	5.6	5.3	5.4	5.4	5.4
24	5.7	5.4	5.4	5.3	5.2	5.1	5.3	5.4	5.4	5.5	5.4	5.4
25	5.8	5.4	5.4	5.4	5.2	5.1	5.3	5.3	5.3	5.5	5.3	5.5
26	5.7	5.3	5.4	5.4	5.2	5.1	5.4	5.3	5.4	5.4	5.3	5.5
27	5.5	5.3	5.4	5.3	5.2	5.1	5.3	5.4	5.5	5.3	5.4	5.5
28	5.4	5.5	5.5	5.2	5.2	5.2	5.3	5.4	5.4	5.3	5.4	5.5
29	5.4		5.6	5.2	5.2	5.2	5.3	5.5	5.3	5.2	5.4	5.4
30	5.3		5.4	5.3	5.2	5.2	5.2	5.6	5.3	5.2	5.3	5.4
31	5.6		5.5		5.3		5.3	5.4		5.3		5.3

Date	Chloride ppm	Date	Chloride ppm	Date	Chloride ppm	Date	Chloride ppm
Jan. 5	27	Apr. 6	33	July 13	49	Oct. 12	49
12	30	13	41	20	47	19	44
19	31	20	39	27	52	26	49
26	31	27	38	Aug. 3	46	Nov. 2	45
Feb. 2	35	May 4	37	10	49	9	45
9	21	11	33	17	45	16	39
16	18	18	44	24	47	23	31
23	18	25	49	31	47	30	35
Mar. 2	22	June 1	49	Sept. 8	26	Dec. 8	21
9	21	8	47	14	52	14	19
16	18	15	49	21	21	21	18
23	22	29	46	28	25	28	18
30	39	July 6	37	Oct. 5	49		

Shaft 7. Olaa Sugar Co. Olaa. Lat. 19°37'50", long. 155°02'00". Dug domestic and irrigation water-table well in basalt of Kahuku volcanic series, size 10 by 10 feet, depth 203 feet; three infiltration tunnels, total length 48 feet. Land-surface datum is 220 feet above msl. Highest water level 25.86 above msl, Mar. 6, 1939; lowest 12.53 above msl, Dec. 5, 1953. Records available: 1936-53.

Date	Water level	Date	Water level	Date	Water level	Date	Water level
Jan. 3	15.36	Apr. 11	16.11	July 11	13.94	Oct. 10	13.36
10	15.36	18	15.94	18	13.78	17	13.43
17	15.36	25	15.55	25	13.69	24	13.33
24	14.94	May 2	15.36	Aug. 1	13.78	31	13.28
31	15.13	9	15.19	8	13.69	Nov. 7	13.02
Feb. 7	14.69	16	15.19	15	13.61	14	12.94
14	14.77	23	15.11	22	13.53	21	12.86
21	14.32	30	15.03	29	13.53	28	13.94
28	14.26	June 6	14.44	Sept. 5	13.53	Dec. 5	12.53
Mar. 7	14.27	13	14.28	12	13.53	12	12.76
14	16.82	20	14.19	19	13.44	19	12.86
21	16.44	27	14.11	26	13.19	26	12.94
28	16.15	July 4	14.08	Oct. 3	13.53	31	13.02
Apr. 4	16.19						

Island of Kauai

2F. Lihue Plantation Co., Ltd. Kealia. Lat. 22°06'05", long. 159°18'40". Drilled domestic and irrigation artesian well in basalt, diameter 12 inches, depth 213 feet, cased to 95. Land-surface datum is 8.05 feet above msl. Highest water level 11.17 above msl, Nov. 20, 1940; lowest 9.15 above msl, July 26, 1946. Records available: 1937-53. Chloride in ppm: Feb. 4, 41; May 11, 39; July 23, 39; Oct. 5, 39; Nov. 12, 43.

7. Lihue Plantation Co., Ltd. Wailua. Lat. 22°01'30", long. 159°20'55". Drilled unused artesian well in basalt, diameter 8 inches, depth 240 feet, cased to 60. Land-surface datum is 12 feet above msl. Records available: 1937-53. Chloride in ppm: May 11, 155; Aug. 27, 159; Oct. 5, 158; Nov. 12, 161.

8. Lihue Plantation Co., Ltd. Wailua. Lat. 22°01'25", long. 159°20'50". Drilled unused well in basalt, diameter 10 inches, depth 250 feet, cased to 60. Land-surface datum is 11.95 feet above msl. Highest water level 12.99 above msl, Oct. 16, 1941; lowest 7.54 above msl, Apr. 26, 1951. Records available: 1937-53. May 20, 8.58, chloride in ppm 114; Aug. 27, 9.36, chloride in ppm 115; Oct. 5, 9.01, chloride in ppm 124; Nov. 24, 9.10, chloride in ppm 109.

14N. Grove Farm Co., Ltd. Formerly Koloa Sugar Co. Mahaulepu. Lat. 20°54'45", long. 159°25'20". Drilled unused well in basalt, diameter 12 inches, depth 532 feet, cased to 315. Land-surface datum is 86.02 feet above msl. Highest water level 31.52 above msl, July 28, 1939; lowest 28.0 above msl, Oct. 25, 1934. Records available: 1937-50, 1953. Aug. 3, chloride in ppm 37; Oct. 27, 8.02, pumping, chloride in ppm 66.

35. Kekaha Sugar Co. Near Kekaha. Lat. 22°00'10", long. 159°44'50". Drilled irrigation artesian well in basalt, diameter 12 inches, depth 245 feet, cased to 168. Land-surface datum is 7.82 feet above msl. Highest water level 11.32 above msl, Dec. 20, 1937; lowest 7.63 above msl, Apr. 17, 1944. Records available: 1937-53.

Date	Water level	Chloride ppm	Date	Water level	Chloride ppm
Jan.	10.40	213	July	10.18	277
Feb.	10.35	230	Aug.	10.15	310
Mar.	10.30	218	Sept.	10.20	327
Apr.	10.28	255	Oct.	10.18	340
May	10.26	240	Nov.	10.12	328
June	10.20	252	Dec.	10.65	291

37. Kekaha Sugar Co. Near Kekaha. Lat. 22°00'45", long. 159°45'20". Drilled irrigation artesian well in basalt, diameter 12 inches, depth 262 feet, cased to 188. Land-surface datum is 9.98 feet above msl. Highest water level 11.08 above msl, Feb. 15, 1943; lowest 7.93 above msl, June 14, 1947. Records available: 1937-50, 1952-53.

Jan.	10.36	320	July	10.12	414
Feb.	10.37	308	Aug.	10.10	419
Mar.	10.29	346	Sept.	10.10	403
Apr.	10.24	391	Oct.	10.12	370
May	10.19	399	Nov.	10.17	361
June	10.14	391	Dec.	10.38	339

Island of Lanai

Shaft 1. Hawaiian Pineapple Co. Maunalei Canyon. Lat. 20°52'45", long. 156°53'45". Dug domestic and irrigation water-table well in basalt, size 7 by 6 feet, vertical depth of 30-degree inclined shaft 293 feet; infiltration tunnel 1.4 feet above msl, length 536 feet. Land-surface datum is 294 feet above msl. Highest water level 2.83 above msl, Oct. 1943; lowest 2.30 above msl, Aug. 1, 1937. Records available: 1936-49. No measurement made in 1953.

Island of Maui

T-102. Wailuku Sugar Co. Iao Valley near Wailuku. Lat. 20°53'09", long. 156°31'27". Drilled observation water-table well in basalt of Wailuku volcanic series, diameter 6 inches, depth 475 feet, cased to 20, $\frac{3}{4}$-inch pipe inserted to 465. Land-surface datum is 453.90 feet above msl. Highest water level 36.6 above msl, Oct. 20, 1942; lowest 16.75 above msl, Sept. 15, 1953. Records available: 1940-53.

Jan. 15	24.98	27	July 17	17.00	25
Feb. 16	23.25	28	Aug. 17	18.40	21
Mar. 16	23.75	25	Sept. 15	16.75	29
Apr. 20	30.20	23	Oct. 15	16.75	23
May 18	30.50	29	Nov. 17	16.75	23
June 16	17.60	29	Dec. 15	17.10	21

T-110. Wailuku Sugar Co. Near Puu Hele. Lat. 20°49'20", long. 156°31'01". Drilled observation water-table well in basalt of Wailuku volcanic series, diameter $\frac{3}{4}$ inch, depth 325 feet, cased to 313, perforations 309-313. Land-surface datum is 312.67 feet above msl. Highest water level 8.9 above msl, Sept. 15, 1950; lowest 4.8 above msl, Oct. 16, 1953. Records available: 1939-53.

T-110--Continued.

Date	Water level	Chloride ppm	Date	Water level	Chloride ppm
Jan. 15	5.6	223	July 16	5.5	218
Feb. 16	5.3	234	Aug. 17	5.2	228
Mar. 16	5.3	226	Sept. 17	5.1	253
Apr. 15	5.2	214	Oct. 16	4.8	249
May 14	5.1	232	Nov. 16	5.7	251
June 17	5.0	205	Dec. 15	4.9	239

T-112. Wailuku Sugar Co. Wailuku. Lat. 20°53'07", long. 156°30'47". Drilled observation water-table well in basalt of Wailuku volcanic series, diameter 1½ inches, depth 477 feet. Land-surface datum is 457.07 feet above msl. Highest water level 31.55 above msl, Oct. 16, 1947; lowest 16.50 above msl, Dec. 15, 1953. Records available: 1946-53.

Jan. 15	a23.80	30	July 14	a15.00	31
Feb. 16	22.40	..	Aug. 18	a15.40	31
Mar. 19	a19.90	30	Sept. 15	a13.60	31
Apr. 17	a17.70	29	Oct. 15	a12.30	31
May 19	a19.30	35	Nov. 13	a11.65	31
June 15	a15.45	36	Dec. 15	16.50	31

a Pumping.

T-113. Wailuku Sugar Co. Wailuku Mill. Lat. 20°53'55", long. 156°30'05". Drilled observation artesian well in basalt, diameter 1½ inches, depth 705 feet, cased to 705, perforations 663-705. Land-surface datum is 181.09 feet above msl. Highest water level 18.6 above msl, Nov. 14, 1947; lowest 15.3 above msl, Nov. 13, 1953. Records available: 1946-53.

Jan. 15	18.5	108	July 14	16.0	118
Feb. 18	16.9	113	Aug. 18	16.2	116
Mar. 19	17.2	105	Sept. 15	16.1	109
Apr. 17	16.7	110	Oct. 15	15.6	114
May 20	17.1	135	Nov. 13	15.3	114
June 15	16.2	115	Dec. 17	15.7	109

Shaft 3. Pioneer Mill Co., Ltd. Kaanapali. Lat. 20°56'30", long. 156°41'30". Dug irrigation water-table well in basalt of Wailuku volcanic series, depth 25 feet; two infiltration tunnels total length of tunnels 1,561 feet, 11 supplemental drilled wells at bottom of shaft. Land-surface datum is 27 feet above msl. Highest water level 2.98 above msl, Dec. 31, 1948; lowest 1.43 above msl, Dec. 31, 1949. Records available: 1937-53. Dec. 31, 1.5, chloride in ppm 768.

Shaft 5. Pioneer Mill Co., Ltd. Kahoma. Lat. 20°53'50", long. 156°40'00". Dug irrigation water-table well in basalt of Wailuku volcanic series, depth 323 feet; two infiltration tunnels, total length of tunnels 3,801 feet. Land-surface datum is 322 feet above msl. Highest water level 3.78 above msl, Dec. 31, 1948; lowest 1.93 above msl, Dec. 31, 1945. Records available: 1937-53. Dec. 31, 2.0, chloride in ppm 586.

Shaft 7. Pioneer Mill Co., Ltd. Plantation mill in Lahaina. Lat. 20°53'00", long. 156°40'40". Dug irrigation water-table well in basalt of Wailuku volcanic series, depth 39 feet; one infiltration tunnel, length 768 feet, 3 supplemental drilled wells at bottom of shaft. Land-surface datum is 34 feet above msl. Highest water level 3.63 above msl, Dec. 31, 1940; lowest 2.6 above msl, Dec. 31, 1953. Records available: 1937-53. Dec. 31, 2.6, chloride in ppm 1296.

Shaft 9. Pioneer Mill Co., Ltd. Lahaina. Lat. 20°52'25", long. 156°40'15". Dug irrigation water-table well in basalt of Wailuku volcanic series, depth 31 feet; one infiltration tunnel, length 1,094 feet, 10 supplemental drilled wells at bottom of shaft. Land-surface datum is 30 feet above msl. Highest water level 2.83 above msl, Dec. 31, 1948; lowest 1.5 above msl, Dec. 31, 1953. Records available: 1937-53. Dec. 31, 1.5, chloride in ppm 591.

Shaft 10. Pioneer Mill Co., Ltd. Olowalu. Lat. 20°49'30", long. 158°37'15". Dug irrigation water-table well in basalt of Wailuku volcanic series, vertical depth of 30-degree inclined shaft 300 feet; one infiltration tunnel, length 239 feet. Land-surface datum is 165 feet above msl. Highest water level 4.3 above msl, Dec. 31, 1950; lowest 3.1 above msl, Dec. 31, 1953. Records available: 1937-53. Dec. 31, 3.1, chloride in ppm 409.

Shaft 12. Pioneer Mill Co., Ltd. Ukumehame. Lat. 20°48'45", long. 156°35'50". Dug irrigation water-table well in basalt of Wailuku volcanic series, vertical depth of 30-degree inclined shaft 143 feet; one infiltration tunnel, length 428 feet. Land-surface datum is 79 feet above msl. Highest water level 6.7 above msl, Dec. 31, 1950; lowest 4.27 above msl, Dec. 31, 1943. Records available: 1937-53. Dec. 31, 5.2, chloride in ppm 399.

Island of Molokai

T-4. County of Maui. Kaunakakai. Lat. 21°05'42", long. 157°05'20". Drilled observation water-table well in basalt of East Molokai volcanic series, diameter 6 inches, depth 21 feet, cased to 5. Land-surface datum is 15.38 feet above msl. Highest water level 3.27 above msl, Dec. 1, 1950; lowest 2.03 above msl, Aug. 3, 1947. Records available: 1947-53.

Date	Water level	Date	Water level	Date	Water level	Date	Water level
Feb. 6	2.40	May 23	2.26	July 29	2.48	Oct. 1	2.48
Mar. 30	2.32	June 2	2.26	Sept. 30	2.48	Nov. 22	2.49

Shaft 4. Molokai Ranch Co. Mouth of Kawela Gulch. Lat. 21°04'20", long. 157°57'00". Dug public-supply water-table well in basalt of East Molokai volcanic series, size 4 by 4 feet, depth 38 feet, lined with concrete; two infiltration tunnels, total length 229 feet. Land-surface datum is 37.64 feet above msl. Highest water level 2.57 above msl, Dec. 19, 1947; lowest 1.77 above msl, Aug. 26, 1948. Records available: 1947-53.

Jan. 29	1.95	July 29	a1.91	Oct. 19	a1.87	Dec. 2	a2.06
Mar. 30	1.84	Aug. 4	a2.12	Nov. 17	a1.89	15	a2.03
May 23	1.79	4	2.20	22	2.04	30	a2.01
June 2	1.84	Sept. 29	1.97				

a Pumping.

Shaft 6. County of Maui. Ualapue. Lat. 21°04'00", long. 156°50'00". Dug public-supply water-table well in basalt of East Molokai volcanic series, size 4 by 6 feet, depth 42 feet, lined with concrete; two infiltration tunnels, total length 214 feet. Land-surface datum is 43.71 feet above msl. Highest water level 6.05 above msl, Jan. 19, 1950; lowest 4.73 above msl, Aug. 26, 1948. Records available: 1938-53.

Jan. 2	5.27	June 2	4.82	Oct. 20	4.93	Nov. 22	4.92
12	5.1	July 29	a4.91	26	5.01	Dec. 4	a4.95
28	5.04	Aug. 4	5.08	Nov. 1	a4.87	15	a4.93
Mar. 30	4.74	4	5.05	17	a4.85	19	a4.98
May 23	4.81	Oct. 10	a4.86	21	a4.91	30	4.98
June 2	4.81						

a Pumping.

42. County of Maui. Kamalo. Lat. 21°03'30", long. 156°52'25". Dug public-supply water-table well in basalt of East Molokai volcanic series, size 4 by 4 feet, depth 40 feet, lined with boulders. Land-surface datum is 43.23 feet above msl. Highest water level 5.40 above msl, Dec. 5, 1950; lowest 4.10 above msl, May 19, 1951. Records available: 1938-53.

Jan. 1	a4.49	Jan. 6	4.72	May 23	4.31	Aug. 4	4.69
2	a4.47	6	a4.5	June 2	a4.01	Sept. 29	4.56
3	a4.42	Feb. 8	a4.26	July 29	4.57	Nov. 22	4.43
4	4.80	Mar. 30	4.38				

a Pumping.

Island of Oahu

1A. B. P. Bishop Estate. Waialae Golf Links, Honolulu. Lat. 21°16'45", long. 157°46'45". Drilled unused artesian well in basalt of Koolau volcanic series, diameter 4 inches, depth 131 feet, cased to 100. Land-surface datum is 18 feet above msl. Highest water level 9.10 above msl, Feb. 4, 1940; lowest 7.55 above msl, June 14, 1946. Records available: 1933-44, 1947-53.

Daily mean water level, above msl, from recorder graph

Day	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	e8.29	8.20	8.22	8.13	8.05	8.05	....	....	....	8.05	8.06	8.02
2	e8.29	8.18	8.20	8.12	8.05	8.06	....	....	....	8.04	8.07	8.01
3	e8.29	8.20	8.20	8.13	8.05	8.05	....	....	....	8.05	8.06	8.00
4	e8.29	8.19	8.20	8.13	8.05	8.05	....	....	....	8.04	8.06	8.00
5	e8.29	8.17	8.21	8.14	8.05	8.04	....	....	....	8.03	8.07	8.02
6	e8.29	8.17	8.21	8.12	8.04	8.05	....	....	....	8.02	8.08	8.03
7	e8.29	8.20	8.19	8.10	8.04	8.08	....	....	....	8.02	8.07	8.02
8	e8.28	8.21	8.18	8.10	8.04	8.05	....	....	....	8.02	8.07	8.02
9	e8.28	8.19	8.20	8.08	8.03	8.05	....	....	....	8.03	8.04	8.02
10	e8.28	8.18	8.20	8.12	8.06	....	....	....	....	8.04	8.05	8.02
11	e8.28	8.18	e8.20	8.12	8.05	....	....	....	8.16	8.04	8.05	8.02
12	e8.28	8.15	e8.19	8.12	8.06	....	....	....	....	8.04	8.03	8.04
13	e8.28	8.13	8.19	8.12	8.05	....	....	....	....	8.03	8.03	8.03
14	8.28	8.17	8.19	8.12	8.05	....	8.02	....	....	8.00	8.03	8.02
15	8.24	8.17	8.19	8.10	8.07	....	8.03	....	....	8.01	8.02	8.02

1A--Continued.

Day	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
16	8.26	8.20	8.18	8.06	8.09	....	8.03	....	....	8.00	8.02	8.03
17	8.25	8.21	8.19	8.05	8.08	....	8.03	....	....	8.03	8.04	8.06
18	8.25	8.22	8.19	8.07	8.07	....	....	....	8.08	8.05	8.03	8.06
19	8.24	8.22	8.15	8.06	8.08	....	....	....	8.09	8.04	8.03	8.07
20	8.23	8.22	8.16	8.05	8.08	....	....	....	8.09	8.04	8.02	8.09
21	8.24	8.19	8.17	8.05	8.04	....	....	....	8.09	8.05	8.03	8.09
22	8.25	8.19	8.19	8.07	8.03	....	....	....	8.09	8.04	8.04	8.08
23	8.26	8.20	8.15	8.04	8.04	....	....	....	8.09	8.04	8.03	8.09
24	8.28	8.19	8.15	8.05	8.06	....	8.06	....	8.07	8.08	8.02	8.11
25	8.28	8.19	8.14	8.04	8.06	....	8.09	....	8.09	8.11	8.01	8.12
26	8.24	8.19	8.15	8.03	8.05	....	8.09	....	8.10	8.08	8.03	8.11
27	8.20	8.20	8.15	8.02	8.04	....	....	....	8.10	8.07	8.02	8.11
28	8.20	8.22	8.14	8.02	8.02	....	....	....	8.09	8.06	8.01	8.11
29	8.19		8.15	8.05	8.04	....	....	....	8.08	8.04	8.03	8.10
30	8.19		8.14	8.05	8.07	....	....	....	8.06	8.04	8.02	8.10
31	8.19		8.13		8.07		....	....		8.06		8.10

e Estimated.

1B. B. P. Bishop Estate. Waialae Golf Links, Honolulu. Lat. 21°16'45", long. 157°46'50". Drilled domestic and irrigation artesian well in basalt of Koolau volcanic series, diameter 8 inches, depth 120 feet, cased to 43. Land-surface datum is 18.22 feet above msl. Highest water level 8.94 above msl, Jan. 27, 1943; lowest 6.45 above msl, Oct. 20, 1933. Records available: 1919, 1929-34, 1936-53.

Date	Water level	Chloride ppm	Date	Water level	Chloride ppm
Jan. 21	8.27	184	July 24	7.97	213
Feb. 25	8.16	188	Aug. 17	a8.00	249
Mar. 30	8.02	186	Sept. 22	a8.02	216
Apr. 27	8.01	212	Oct. 21	a7.97	218
May 29	8.04	215	Nov. 24	8.02	244
June 26	7.95	221	Dec. 21	8.00	203

a Pumping.

2. B. P. Bishop Estate. Kalei Road, Honolulu. Lat. 21°17'50", long. 157°48'55". Drilled unused artesian well in basalt of Koolau volcanic series, diameter 8 inches. Land-surface datum is 37 feet above msl. Highest water level 31.55 above msl, Jan. 28, 1940; lowest 19.66 above msl, Sept. 14, 1944. Records available: 1916, 1919, 1923, 1926, 1929-53.

Daily mean water level, above msl, from recorder graph

Day	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	27.98	28.03	28.24	28.18	27.96	26.91	25.80	25.44	25.00	24.96	25.26	25.60
2	28.05	28.04	28.24	28.19	27.98	26.84	.....	25.53	24.93	24.96	25.26	25.66
3	28.07	28.01	28.28	28.18	27.98	26.85	25.75	25.63	24.95	24.98	25.25	25.70
4	28.09	27.96	28.29	28.16	28.03	26.75	25.84	25.60	24.93	24.98	25.26	25.69
5	28.12	27.93	28.30	28.17	28.03	26.65	25.89	25.53	24.90	24.99	25.22	25.67
6	28.13	27.94	28.32	28.20	28.05	26.57	.....	25.51	24.95	24.98	25.28	25.72
7	28.18	27.93	28.32	28.22	28.04	26.51	.....	25.55	24.95	24.98	25.31	25.75
8	28.21	27.92	28.31	28.23	28.00	26.47	.....	25.59	24.88	25.00	25.35	25.73
9	28.23	27.95	28.33	28.24	27.99	.....	.....	25.62	24.87	25.03	25.39	25.74
10	28.26	27.94	28.38	28.25	27.96	.....	.....	25.61	24.86	25.00	25.43	25.76
11	28.26	27.89	28.40	28.26	27.96	.....	.....	25.54	24.81	25.03	25.45	25.73
12	28.20	27.88	28.42	28.27	27.94	.....	.....	25.46	24.80	25.08	25.47	.....
13	28.21	27.85	28.40	28.21	27.85	.....	.....	25.38	24.80	25.06	25.42	.....
14	28.22	27.85	28.40	28.15	27.76	.....	.....	25.30	24.67	25.05	25.41	.....
15	28.23	27.89	28.40	28.19	27.70	.....	.....	25.28	24.68	25.08	25.47	.....
16	28.22	27.91	28.41	28.25	27.66	.....	.....	25.31	24.72	25.22	25.53	.....
17	28.21	27.95	28.41	28.23	27.62	.....	.....	25.30	24.71	25.22	25.53	25.90
18	28.21	27.96	28.41	28.24	27.55	26.09	25.74	25.23	24.68	25.21	25.57	25.96
19	28.20	27.97	28.45	28.25	27.51	26.08	25.69	25.25	24.67	25.25	25.61	25.95
20	28.21	27.98	28.45	28.21	.....	26.06	25.65	26.30	24.68	25.23	25.57	26.01
21	28.24	28.00	28.44	28.14	.....	26.11	25.58	25.30	24.70	25.22	25.54	26.07
22	28.22	28.02	28.45	28.09	.....	26.04	25.65	25.28	24.73	25.25	25.53	26.10
23	28.23	28.07	28.46	28.15	.....	26.00	25.57	25.30	24.76	25.20	25.54	26.14
24	28.22	28.07	28.42	28.15	.....	25.97	25.56	25.32	24.79	25.20	25.50	26.14
25	28.22	28.13	28.33	28.07	.....	25.93	25.56	25.30	24.80	25.21	25.52	26.20

2--Continued.

Day	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
26	28.20	28.18	28.29	28.06	.....	25.89	25.59	25.22	24.81	25.22	25.59	26.15
27	28.12	28.20	28.30	28.08	27.04	25.92	25.54	25.14	24.83	25.22	25.55	26.16
28	28.11	28.22	28.29	28.03	27.01	25.98	25.50	25.11	24.84	25.19	25.52	26.24
29	28.10		28.30	27.95	26.97	25.94	25.55	25.11	24.84	25.15	25.57	26.28
30	28.08		28.28	27.95	26.94	25.87	25.55	25.13	24.90	25.13	25.61	26.28
31	28.05		28.23		26.96		25.46	25.05		25.19		26.24

9. J. J. Gouveia. Kapahulu Ave. and Olu St., Honolulu. Lat. 21°17'10", long. 157°49'00". Drilled industrial artesian well in basalt of Koolau volcanic series, diameter 6 inches, depth 270 feet, cased to 256. Land-surface datum is 16.08 feet above msl. Highest water level 30.92 above msl, Feb. 16, 1940; lowest 18.40 above msl, Aug. 17, 1926. Records available: 1921, 1923-53.

Date	Water level	Chloride ppm	Date	Water level	Chloride ppm
Jan. 21	28.25	61	July 23	25.57	59
Feb. 25	28.17	60	Aug. 17	25.37	59
Mar. 30	28.37	60	Sept. 21	24.77	58
Apr. 27	28.15	60	Oct. 21	25.18	58
May 29	26.97	59	Nov. 24	25.67	58
June 26	25.88	60	Dec. 21	26.17	58

36A. Honolulu Board of Water Supply. Wilder Ave. and Clement St., Honolulu. Lat. 21°18'10", long. 157°49'45". Drilled unused artesian well in basalt of Koolau volcanic series, diameter 12 inches, depth 395 feet. Land-surface datum is 43 feet above msl. Highest water level 33.35 above msl, Mar. 11, 1938; lowest 22.41 above msl, Oct. 13, 1945. Records available: 1924, 1929-32, 1934, 1949-53.

Daily mean water level, above msl, from recorder graph

Day	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	29.63	29.60	29.54	29.58	e29.08	.....	27.02	25.92	.....	25.40	25.76	26.11
2	29.68	29.60	29.53	29.55	e29.06	.....	26.97	25.92	.....	25.40	25.70	26.14
3	29.70	29.58	29.54	29.56	e29.04	.....	26.91	25.93	25.46	25.41	25.71	26.17
4	29.71	29.52	29.59	29.54	e29.02	28.07	26.88	25.89	25.45	25.42	25.69	26.18
5	29.70	29.47	29.61	29.55	e29.00	28.02	26.89	25.86	25.45	25.42	25.72	26.17
6	29.72	29.44	29.62	29.52	e28.98	27.99	26.87	25.84	25.47	25.43	25.74	26.18
7	29.76	29.46	29.65	29.48	28.96	28.00	26.82	25.82	25.49	25.44	25.76	26.19
8	29.76	29.49	29.67	29.44	28.93	27.97	26.77	25.82	25.50	25.42	25.78	26.18
9	29.76	29.52	29.68	29.42	28.91	27.91	26.71	25.86	25.47	25.44	25.81	26.18
10	29.77	29.46	29.70	29.43	28.93	.....	26.64	25.84	25.48	25.45	25.86	26.22
11	29.79	29.39	29.67	29.43	28.91	.....	26.58	25.82	25.47	25.45	25.89	26.22
12	29.72	29.33	29.65	29.45	28.86	.....	26.55	25.75	25.44	25.49	.....	26.22
13	29.71	29.33	29.63	29.41	28.78	.....	26.51	25.69	25.41	25.52	.....	26.25
14	29.73	29.31	29.64	29.33	28.72	.....	26.47	25.66	25.38	25.54	.....	26.27
15	29.74	29.38	29.67	29.33	28.72	.....	26.38	25.64	25.37	25.60	.....	26.29
16	29.73	29.40	29.66	29.32	28.70	.....	26.33	25.67	25.38	25.66	.....	26.30
17	29.74	29.43	29.66	29.32	28.68	.....	26.31	25.68	25.35	25.65	.....	26.29
18	29.78	29.46	29.69	29.32	28.65	27.63	26.25	25.65	25.32	25.65	.....	26.29
19	29.79	29.49	29.70	29.33	28.61	27.60	26.22	25.58	25.31	25.68	25.96	26.34
20	29.78	29.47	29.71	29.33	28.60	27.56	26.18	25.55	25.32	25.71	26.00	26.38
21	29.72	29.46	29.74	29.28	28.54	27.54	26.13	25.57	25.36	25.70	25.98	26.40
22	29.70	29.47	29.74	29.28	28.48	27.51	26.07	25.55	25.35	25.70	25.98	26.43
23	29.68	29.48	29.73	29.26	28.44	27.46	26.04	25.58	25.32	25.70	25.97	.....
24	29.74	29.49	29.67	29.24	28.43	27.41	25.99	25.59	25.29	25.68	25.99	26.50
25	29.78	29.49	29.66	29.23	28.41	27.35	.....	25.57	25.29	25.70	26.03	.....
26	29.70	29.48	29.65	29.19	28.38	27.28	.....	.....	25.29	25.72	26.07	.....
27	29.65	29.48	29.65	29.15	28.31	27.23	.....	.....	25.31	25.74	26.07	.....
28	29.62	29.55	29.65	29.14	.....	27.23	.....	.....	25.34	25.74	26.05	.....
29	29.60		29.65	e29.12	.....	27.19	.....	.....	25.35	25.72	26.08	.....
30	29.58		29.62	e29.10	.....	27.11	25.98	.....	25.35	25.72	26.10	.....
31	29.57		29.58		.....		25.95	.....		25.76		26.67

e Estimated.

81. A. Young. Young and Victoria Sts., Honolulu. Lat. 21°18'20", long. 157°50'55". Drilled domestic artesian well in basalt of Koolau volcanic series, diameter 8 inches, depth 505 feet, cased to 475. Land-surface datum is 18.04 feet above msl. Highest water level 33.04 above msl, Feb. 28, 1938; lowest 21.99 above msl, Aug. 28, 1946. Records available: 1916, 1923-24, 1926, 1929-53.

81--Continued.

Date	Water level	Chloride ppm	Date	Water level	Chloride ppm
Jan. 21	29.51	36	July 23	25.73	41
Feb. 25	29.13	42	Aug. 17	25.43	39
Mar. 30	29.43	36	Sept. 21	24.93	40
Apr. 27	29.11	35	Oct. 21	24.73	39
May 29	27.93	36	Nov. 24	26.03	37
June 26	26.94	40	Dec. 21	26.03	42

83. City and County of Honolulu. Beretania and Kapiolani Sts., Honolulu. Lat. 21°18'20", long. 157°51'05". Drilled unused artesian well in basalt of Koolau volcanic series, diameter 8 to 6 inches, depth 509 feet, cased to 460. Land-surface datum is 27 feet above msl. Highest water level 33.29 above msl, Mar. 10, 1938; lowest 22.07 above msl, Aug. 10, 1946. Records available: 1923, 1925-48, 1952-53.

Daily mean water level, above msl, from recorder graph

Day	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	29.50	29.41	29.35	29.40	.....	27.95	26.78	25.55	25.27	25.18	.....	25.92
2	29.54	29.39	29.33	29.35	.....	27.90	26.74	25.57	25.25	25.18	.....	25.93
3	29.56	29.35	29.36	29.38	.....	27.86	26.68	25.56	25.25	25.20	.....	25.96
4	29.58	29.30	29.38	29.35	.....	27.83	26.67	25.53	25.24	25.22	.....	25.96
5	29.57	29.22	29.38	29.38	.....	27.79	26.69	25.50	25.24	25.20	.....	25.96
6	e29.57	29.22	29.40	29.33	.....	27.75	26.64	25.50	25.26	25.20	.....	25.98
7	e29.58	29.24	29.43	29.28	.....	27.79	26.58	25.48	25.29	25.20	.....	25.97
8	29.59	29.32	29.45	e29.26	.....	27.72	26.54	25.49	25.28	25.20	.....	25.97
9	29.59	20.30	e29.45	29.23	.....	27.67	26.45	25.53	25.25	25.24	.....	25.98
10	29.61	29.24	e29.45	29.25	.....	27.63	26.38	25.49	25.26	25.23	.....	25.98
11	29.62	29.16	e29.46	e29.22	.....	27.64	26.34	25.46	25.26	25.25	.....	25.99
12	29.58	29.15	e29.46	e29.20	.....	27.60	26.31	25.45	25.24	25.29	.....	25.99
13	29.55	29.15	29.46	e29.18	28.57	27.55	26.26	25.40	25.18	25.32	.....	26.03
14	29.55	29.14	29.46	e29.16	28.53	27.54	26.21	25.40	25.15	25.33	25.66	26.03
15	e29.55	29.21	29.46	e29.14	28.52	27.53	26.16	25.38	25.15	25.41	25.76	26.06
16	e29.54	29.24	e29.47	29.12	28.50	27.48	26.12	25.45	25.14	25.45	.....	26.05
17	e29.53	29.25	e29.48	e29.12	28.48	27.45	26.10	25.42	25.12	25.44	.....	26.05
18	e29.52	29.28	e29.49	e29.11	28.45	27.41	26.06	25.38	25.10	25.45	25.74	.....
19	e29.51	29.31	e29.51	e29.10	28.41	27.39	26.04	25.32	25.10	25.48	25.78	.....
20	e29.50	29.29	29.53	e29.09	28.38	27.35	25.98	25.35	25.10	25.51	25.81	.....
21	e29.49	29.26	29.56	e29.08	28.33	27.33	25.91	25.36	25.13	25.45	25.77	.....
22	29.49	29.29	e29.54	e29.07	28.26	27.30	25.87	25.33	25.10	25.45	25.78	.....
23	29.49	29.29	e29.52	29.06	28.22	27.23	25.80	25.40	25.08	25.46	25.78	.....
24	29.56	29.30	e29.50	29.05	28.20	27.17	25.76	25.38	25.07	25.46	25.85	26.29
25	29.58	29.29	e29.48	29.05	28.19	27.11	25.74	25.35	25.08	25.47	25.86	.....
26	29.50	29.29	29.46	28.99	28.17	27.04	25.76	25.32	25.08	25.48	25.88	.....
27	29.41	29.30	29.47	e28.9	28.08	27.01	25.76	25.31	25.11	.....	25.88	.....
28	29.42	29.35	e29.46	e28.9	28.04	27.02	25.71	25.29	25.12	.....	25.88	26.41
29	29.36		e29.45	e28.9	28.01	26.95	25.64	25.29	25.13	.....	25.92	26.41
30	29.37		e29.44	e28.9	28.00	26.87	25.60	25.32	25.17	.....	25.91	26.43
31	29.37		e29.42		28.00		25.58	25.30		.....		26.45

e Estimated.

119. Honolulu Gas Co. Honolulu Gas Works, Honolulu. Lat. 21°19'05", long. 157°52'25". Drilled industrial artesian well in basalt of Koolau volcanic series, diameter 8 inches, depth 682 feet, cased to 613. Land-surface datum is 4.22 feet above msl. Highest water level 32.55 above msl, Mar. 16, 1933; lowest 19.96 above msl, July 28, 1945. Records available: 1923-53.

Date	Water level	Chloride ppm	Date	Water level	Chloride ppm
Jan. 21	26.72	415	July 23	22.74	396
Feb. 25	26.44	412	Aug. 17	22.54	396
Mar. 30	.....	388	Sept. 21	22.84	417
Apr. 27	26.32	403	Oct. 21	23.34	411
May 29	24.92	398	Nov. 24	23.14	423
June 26	24.55	396	Dec. 21	23.14	427

132. B. P. Bishop Estate. Old Kamehameha School, Honolulu. Lat. 21°20'05", long. 157°52'25". Drilled unused artesian well in basalt of Koolau volcanic series, diameter 12 to 10 inches, depth 346 feet, cased to 265. Land-surface datum is 43 feet above msl. Highest water level 32.60 above msl, Mar. 7, 1938; lowest 21.57 above msl, July 2, 1946. Records available: 1924, 1926, 1928-53.

132--Continued.

Daily mean water level, above msl, from recorder graph

Day	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	28.02	27.86	27.80	27.76	27.30	26.60	25.42	24.30	24.00	23.85	24.29	24.60
2	28.03	27.90	27.81	27.76	27.33	26.52	25.36	24.42	24.02	23.88	24.31	24.55
3	28.09	27.87	27.85	27.70	27.35	26.48	25.30	24.41	23.98	23.89	24.24	24.56
4	28.10	27.77	27.85	27.75	27.36	26.43	25.32	24.30	23.95	24.00	24.20	24.56
5	28.05	27.74	27.87	27.81	27.35	26.38	25.48	24.25	23.95	23.98	24.19	24.56
6	28.05	27.69	27.83	27.82	27.33	26.37	25.36	24.21	24.07	23.94	24.22	24.67
7	28.06	27.75	27.88	27.77	27.25	26.45	25.21	24.15	24.18	23.92	24.32	24.65
8	28.06	27.80	27.93	27.70	27.22	26.40	25.10	24.22	24.13	23.90	24.41	24.62
9	28.04	27.80	27.97	27.70	27.25	26.30	25.02	24.37	24.04	23.96	24.36	24.60
10	28.05	27.77	27.99	27.68	27.27	26.25	24.96	24.35	23.98	24.02	24.33	24.59
11	28.08	27.68	27.97	27.72	27.21	26.35	24.90	24.25	23.95	24.14	24.33	24.59
12	28.02	27.63	27.96	27.75	27.15	26.33	25.03	24.15	23.93	24.08	24.31	24.60
13	28.00	27.56	27.92	27.75	27.08	26.27	24.99	24.08	23.95	24.11	24.30	24.68
14	27.99	27.60	27.97	27.68	27.02	26.33	24.85	24.07	23.95	24.08	24.37	24.69
15	28.00	27.69	28.01	27.59	27.02	26.23	.....	24.03	23.93	24.15	24.49	24.69
16	27.95	27.72	27.99	27.59	27.03	26.16	24.89	24.15	23.90	.....	24.45	24.70
17	27.98	27.70	28.02	27.52	27.04	26.09	24.66	24.20	23.89	.....	24.40	24.65
18	28.03	27.67	28.00	27.54	26.98	28.06	24.66	24.09	23.89	.....	24.38	24.65
19	28.04	27.67	27.99	27.60	26.97	26.06	24.80	24.02	23.89	.....	24.39	24.75
20	28.04	27.68	28.00	27.63	28.98	26.04	24.77	24.02	24.00	.....	24.37	24.80
21	27.98	27.70	28.04	27.59	26.90	26.09	24.82	24.02	24.00	.....	24.41	24.81
22	27.96	27.72	28.06	27.46	26.77	26.03	24.57	23.98	23.93	24.18	24.53	.....
23	27.91	27.75	28.06	27.47	26.76	25.96	24.52	24.14	23.85	24.18	24.48	24.84
24	27.98	27.76	28.03	27.44	26.79	25.88	24.46	24.12	23.80	24.25	24.47	24.85
25	28.05	27.77	27.98	27.47	26.79	25.79	24.42	24.05	23.82	24.35	24.46	24.92
26	27.96	27.71	27.92	27.45	26.74	25.72	24.55	24.00	23.84	24.32	24.58	25.00
27	27.89	27.68	27.89	27.40	26.68	25.66	24.54	23.96	23.95	24.28	24.80	25.03
28	27.84	27.77	27.94	27.35	26.64	25.76	24.44	23.95	23.92	24.22	24.60	.....
29	27.82		27.95	27.33	26.61	25.68	24.39	24.01	23.89	24.18	24.88	.....
30	27.76		27.96	27.33	26.64	25.54	24.35	24.15	23.88	24.22	24.62	.....
31	27.80		27.88		26.69		24.31	24.09		24.28		24.97

153. Sam Damon Estate. Moanalua Gardens, Honolulu. Lat. 21°21'05", long. 157°53'40". Drilled domestic and irrigation artesian well in basalt of Koolau volcanic series, diameter 10 inches. Land-surface datum is 20.38 feet above msl. Highest water level 31.88 above msl, Apr. 1917; lowest 19.39 above msl, Sept. 26, 1945. Records available: 1910-53.

Date	Water level	Chloride ppm	Date	Water level	Chloride ppm
Jan. 21	24.69	59	July 23	22.04	59
Feb. 26	24.72	60	Aug. 17	22.03	58
Mar. 30	24.54	58	Sept. 21	21.74	59
Apr. 27	24.09	58	Oct. 21	21.86	57
May 28	23.44	57	Nov. 24	21.91	57
June 25	22.98	60	Dec. 21	22.06	58

187B. U. S. Navy. Aiea. Lat. 21°22'40", long. 157°56'05". Drilled industrial artesian well in basalt of Koolau volcanic series, diameter 12 inches, depth 173 feet, cased to 143. Land-surface datum is 9.93 feet above msl. Highest water level 25.06 above msl, Feb. 23, 1937; lowest 15.06 above msl, Aug. 19, 1945. Records available: 1923, 1928-53.

Jan. 21	21.11	119	July 22	18.59	115
Feb. 25	20.91	125	Aug. 19	18.10	119
Mar. 27	20.89	127	Sept. 22	17.92	119
Apr. 27	20.39	124	Oct. 20	18.20	119
May 28	19.52	136	Nov. 24	18.44	121
June 25	19.20	117	Dec. 22	19.18	125

190. U. S. Navy. Formerly C. B. Cooper. McGraw Peninsula. Lat. 21°22'47", long. 157°56'38". Drilled unused artesian well in basalt of Koolau volcanic series, diameter 6 inches, depth 300 feet, cased to 200. Land-surface datum is 22.73 feet above msl. Highest water level 25.41 above msl, Feb. 23, 1937; lowest 15.38 above msl, Aug. 24, 1945. Records available: 1910, 1918-19, 1929-53.

Jan. 21	21.05	237	July 22	18.57	234
Feb. 25	20.99	240	Aug. 19	18.25	249
Mar. 27	20.85	232	Sept. 22	17.90	...
Apr. 27	20.43	225	Oct. 20	18.26	...
May 28	19.57	...	Nov. 24	18.45	...
June 25	19.01	244	Dec. 22	19.09	244

193. L. L. McCandless Estate. Waimalu Valley. Lat. 21°23'37", long. 157°56'52". Drilled domestic artesian well in basalt of Koolau volcanic series, diameter 10 inches, depth 363 feet, cased to 61. Land-surface datum is 13.05 feet above msl. Highest water level 28.88 above msl, Mar. 1916; lowest 14.65 above msl, Sept. 25, 1945. Records available: 1902, 1910-53.

Date	Water level	Chloride ppm	Date	Water level	Chloride ppm
Jan. 21	19.99	251	July 22	17.64	241
Feb. 25	19.81	245	Aug. 19	17.31	239
Mar. 27	19.81	258	Sept. 22	16.98	244
Apr. 27	19.38	240	Oct. 20	17.27	246
May 28	18.54	238	Nov. 24	17.31	232
June 25	18.19	244	Dec. 22	18.11	239

201. U. S. Navy. Formerly B. P. Bishop Estate. Pearl City. Lat. 21°23'35", long. 157°58'20". Drilled irrigation artesian well in basalt of Koolau volcanic series, diameter 12 inches, depth 336 feet, cased to 58. Land-surface datum is 9.17 feet above msl. Highest water level 31.21 above msl, Feb. 1916; lowest 14.18 above msl, Aug. 28, 1946. Records available: 1910-53.

Jan. 21	18.32	974	July 22	15.89	762
Feb. 26	18.11	922	Aug. 19	15.62	736
Mar. 27	18.15	956	Sept. 22	15.32	677
Apr. 27	17.72	913	Oct. 20	15.67	711
May 28	16.89	862	Nov. 24	15.67	722
June 25	16.37	838	Dec. 22	16.25	796

244. B. P. Bishop Estate. Waipahu. Lat. 21°23'18", long. 158°00'32". Drilled domestic artesian well in basalt of Koolau volcanic series, diameter 12 inches, depth 225 feet, cased to 58. Land-surface datum is 10.47 feet above msl. Highest water level 30.02 above msl, Feb. 1916; lowest 14.80 above msl, July 26, 1945. Records available: 1910-21, 1923-53.

Jan. 21	20.47	105	July 22	17.13	106
Feb. 25	20.27	106	Aug. 19	16.78	108
Mar. 27	20.14	103	Sept. 22	16.43	108
Apr. 27	19.73	105	Oct. 20	17.03	106
May 28	18.17	105	Nov. 24	17.38	107
June 25	17.77	108	Dec. 22	18.47	106

266. Hawaii Meat Co. Formerly Honouliuli Ranch. Honouliuli. Lat. 21°21'55", long. 158°01'52". Drilled irrigation artesian well in basalt of Koolau volcanic series, diameter 12 inches. Land-surface datum is 12.66 feet above msl. Highest water level 29.16 above msl, Apr. 1918; lowest 12.54 above msl, Sept. 24, 1945. Records available: 1910-53.

Jan. 21	18.92	196	July 22	15.29	229
Feb. 25	21.95	198	Aug. 19	14.95	234
Mar. 27	18.53	184	Sept. 22	14.46	261
Apr. 27	18.32	196	Oct. 22	15.35	230
May 28	16.54	212	Nov. 24	15.39	232
June 25	16.12	224	Dec. 22	17.41	202

276. Ewa Plantation Co. Gilbert. Lat. 21°20'16", long. 158°06'35". Drilled battery of four irrigation artesian wells in basalt of Koolau volcanic series, diameter 12 inches, average depth 160 feet. Land-surface datum is 40.58 feet above msl. Highest water level 16.7 above msl, Feb. 1909; lowest 11.51 above msl, Oct. 1945. Records available: 1905, 1908-53.

Jan.	12.34	548	July	11.84	566
Feb.	12.30	548	Aug.	11.79	566
Mar.	12.68	523	Sept.	11.89	564
Apr.	12.45	545	Oct.	11.70	567
May	12.27	561	Nov.	11.94	565
June	11.97	562	Dec.	12.29	557

286. Waialua Agricultural Co. Kawaihapai. Lat. 21°34'46", long. 158°10'49". Drilled unused artesian well in basalt of Waianae volcanic series, diameter 1 inch, depth 447 feet, cased to 447, perforations 410-447. Land-surface datum is 11.54 feet above msl. Highest water level 19.23 above msl, Oct. 30, 1952; lowest 16.34 above msl, June 26, 1936. Records available: 1929-53.

Jan. 20	17.68	132	July 27	16.87	127
Feb. 27	17.85	132	Aug. 18	17.17	125
Mar. 24	17.85	128	Sept. 23	17.29	125
Apr. 23	17.12	129	Oct. 22	17.25	132
May 27	17.26	122	Nov. 27	17.37	134
June 24	16.92	125	Dec. 23	17.67	134

308. J. F. Mendonca. Mokuleia. Lat. 21°34'35", long. 158°09'11". Drilled irrigation artesian well in basalt of Waianae volcanic series, diameter 10 to 8 inches, depth 548 feet, cased to 440. Land-surface datum is 8.46 feet above msl. Highest water level 20.64 above msl, Oct. 26, 1939; lowest 16.81 above msl, July 25, 1927. Records available: 1924-53.

Date	Water level	Chloride ppm	Date	Water level	Chloride ppm
Jan. 20	(a)	110	July 27	18.22	125
Feb. 27	(a)	111	Aug. 18	18.02	124
Mar. 30	18.82	108	Sept. 23	18.52	130
Apr. 23	18.52	120	Oct. 22	18.63	128
May 27	18.72	120	Nov. 27	18.82	129
June 24	17.83	126	Dec. 23	19.32	124

a Pumping.

326. Waialua Agricultural Co. Waialua. Lat. 21°34'56", long. 158°06'52". Drilled irrigation artesian well in basalt of Koolau volcanic series, diameter 8 inches, depth 201 feet, cased to 114. Land-surface datum is 6.19 feet above msl. Highest water level 13.35 above msl, Dec. 1914; lowest 9.19 above msl, Apr. 24, 1946. Records available: 1911-21, 1924-53.

Jan. 20	11.54	105	July 27	10.24	105
Feb. 27	11.53	100	Aug. 18	10.45	104
Mar. 24	11.51	101	Sept. 23	10.31	104
Apr. 23	10.91	101	Oct. 22	10.38	102
May 27	10.87	108	Nov. 27	10.44	101
June 24	10.24	106	Dec. 23	10.95	102

337. Territory of Hawaii. Formerly Waialee Training School for Boys. Waialee. Lat. 21°41'30", long. 158°01'25". Drilled unused artesian well in basalt of Koolau volcanic series, diameter 8 inches, depth 63 feet, cased to 36. Land-surface datum is 21.45 feet above msl. Highest water level 15.60 above msl, Nov. 14, 1932; lowest 11.70 above msl, May 27, 1947. Records available: 1929-53.

Jan. 20	13.47	36	July 27	13.26	122
Feb. 27	13.45	29	Aug. 18	13.52	118
Mar. 24	13.39	87	Sept. 23	13.24	114
Apr. 23	13.28	83	Oct. 22	13.33	112
May 27	13.25	110	Nov. 27	13.15	116
June 24	13.21	128	Dec. 23	13.14	109

356. Kahuku Plantation Co. Kahuku. Lat. 21°40'54", long. 157°57'04". Drilled industrial artesian well in basalt of Koolau volcanic series, diameter 12 inches, depth 420 feet, cased to 156. Land-surface datum is 8.83 feet above msl. Highest water level 17.12 above msl, Jan. 1916; lowest 9.09 above msl, July 27, 1953. Records available: 1908, 1911-18, 1921, 1924-53.

Jan. 20	10.11	319	July 27	9.09	325
Feb. 27	10.80	324	Aug. 18	9.14	320
Mar. 24	11.61	310	Sept. 23	9.70	335
Apr. 23	9.58	300	Oct. 22	9.98	335
May 27	9.48	300	Nov. 27	10.62	343
June 24	9.23	295	Dec. 23	11.65	325

396. Kahuku Plantation Co. Hauula. Lat. 21°36'22", long. 157°54'36". Drilled domestic and irrigation artesian well in basalt of Koolau volcanic series, diameter 8 inches. Land-surface datum is 10.36 feet above msl. Highest water level 24.98 above msl, June 1918; lowest 16.68 above msl, Sept. 23, 1953. Records available: 1911-19, 1921, 1924-53.

Jan. 20	19.90	72	July 27	17.43	83
Feb. 27	19.36	76	Aug. 18	17.72	85
Mar. 24	19.52	75	Sept. 23	16.68	83
Apr. 23	18.18	74	Oct. 22	17.82	89
May 27	18.18	79	Nov. 27	17.75	87
June 24	17.83	83	Dec. 23	17.92	86

405. M. E. Foster Estate. Kahana. Lat. 21°33'27", long. 157°52'44". Drilled domestic artesian well in basalt of Koolau volcanic series, diameter 10 inches, depth 441 feet, cased to 177. Land-surface datum is 5.76 feet above msl. Highest water level 21.07 above msl, July 25, 1938; lowest 14.90 above msl, Oct. 28, 1946. Records available: 1936-53.

Jan. 20	17.05	40	July 27	16.26	39
Feb. 27	17.26	41	Aug. 18	16.26	39
Mar. 24	17.06	41	Sept. 23	15.86	40
Apr. 23	17.04	41	Oct. 22	15.87	39
May 27	17.06	38	Nov. 27	15.66	39
June 24	16.57	40	Dec. 23	15.36	40

406. Mrs. F. M. Swanzy. Kaaawa. Lat. 21°32'41", long. 157°51'00". Drilled irrigation artesian well in basalt of Koolau volcanic series, diameter 9 inches. Land-surface datum is 10.27 feet above msl. Highest water level 18.37 above msl, July 25, 1938; lowest 12.35 above msl, Aug. 27, 1946. Records available: 1929-53.

Date	Water level	Chloride ppm	Date	Water level	Chloride ppm
Jan. 20	14.66	256	July 27	13.97	249
Feb. 27	14.54	240	Aug. 18	13.56	251
Mar. 24	14.71	233	Sept. 23	13.68	259
Apr. 23	14.68	233	Oct. 22	13.66	262
May 27	14.53	235	Nov. 27	13.48	252
June 24	14.28	241	Dec. 23	13.32	244

T-1. Waialua Agricultural Co. Kaukonahua Gulch. Lat. 21°32'15", long. 158°05'40". Drilled observation water-table well in basalt of Waianae volcanic series, diameter 1 inch, depth 292 feet, cased to 291, lower end perforated. Land-surface datum is 273.61 feet above msl. Highest water level 19.85 above msl, July 1, 1941; lowest 13.08 above msl, Feb. 28, 1949. Records available: 1938-53.

Jan. 30	17.68	21	July 3	17.48	41
Apr. 9	17.88	21	Aug. 3	16.58	31
30	17.33	21	Oct. 5	16.38	31
June 3	17.03	31	Dec. 2	16.08	31

T-2. Waialua Agricultural Co. Near Anahulu Canyon. Lat. 21°35'52", long. 158°05'16". Drilled observation water-table well in basalt of Koolau volcanic series, diameter ¾ inch, depth 344 feet, cased to 344, perforations 340-344. Land-surface datum is 341.88 feet above msl. Highest water level 14.08 above msl, Apr. 1, 1943; lowest 4.36 above msl, May 2, 1950. Records available: 1938-53. Apr. 9, chloride in ppm 31; Apr. 30, chloride in ppm 31; June 3, chloride in ppm 31; July 3, 7.41, chloride in ppm 31; Aug. 3, 5.61, chloride in ppm 52; Oct. 5, 4.71, chloride in ppm 62; Dec. 2, 7.01, chloride in ppm 83.

T-5. Honolulu Suburban Water System. Near Makaiwa Gulch. Lat. 21°20'55", long. 158°07'05". Drilled observation water-table well in basalt of Waianae volcanic series, diameter 6 inches, depth 100 feet, cased to 85. Land-surface datum is 79.13 feet above msl. Highest water level 5.48 above msl, Mar. 27, 1951; lowest 2.53 above msl, June 27, 1939. Records available: 1939-53.

Jan. 23	4.32	522	July 28	4.23	528
Feb. 24	4.38	522	Aug. 20	4.13	508
Mar. 25	4.42	517	Sept. 24	4.23	508
Apr. 24	4.11	517	Oct. 23	4.37	513
May 22	4.25	522	Nov. 20	4.16	514
June 29	3.93	518	Dec. 21	4.38	528

T-15. Honolulu Suburban Water System. Nanakuli Valley. Lat. 21°23'50", long. 158°07'20". Drilled observation water-table well in basalt of Waianae volcanic series, diameter ¾ inch, depth 489 feet, cased to 488, perforations 468-488. Land-surface datum is 478.64 feet above msl. Highest water level 3.14 above msl, Feb. 25, 1943; lowest 1.60 above msl, July 3, 1946. Records available: 1940-53.

Jan. 23	2.39	95	Aug. 20	2.14	94
Mar. 25	2.53	91	Sept. 24	2.05	94
Apr. 24	2.45	93	Oct. 23	2.08	92
May 22	2.33	94	Nov. 20	2.01	95
June 29	2.31	93	Dec. 21	2.11	94
July 28	2.30	93			

T-20. U. S. Navy. Near Ewa. Lat. 21°21'36", long. 158°03'45". Drilled observation artesian well in basalt of Koolau volcanic series, diameter 6 inches, depth 137 feet, cased to 9. Land-surface datum is 139.50 feet above msl. Highest water level 19.28 above msl, Jan. 28, 1943; lowest 15.87 above msl, Aug. 28, 1952. Records available: 1942-53.

Jan. 26	17.11	205	July 28	16.27	168
Feb. 24	17.50	204	Aug. 20	16.25	163
Mar. 25	17.77	207	Sept. 24	15.92	173
Apr. 24	17.64	196	Oct. 23	16.08	173
May 22	17.14	202	Nov. 20	16.18	176
June 29	16.49	201	Dec. 21	16.62	178

T-24. Honolulu Board of Water Supply. Manaiki Gulch. Lat. 21°21'27", long. 157°53'10". Drilled observation artesian well in basalt of Koolau volcanic series, diameter 12 inches, depth 115 feet, cased to 66. Land-surface datum is 58.40 feet above msl. Highest water level 25.91 above msl, Jan. 27, 1952; lowest 21.51 above msl, Oct. 1, 1953. Records available: 1945-53.

Daily mean water level, above msl, from recorder graph

Day	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	24.60	24.45	24.41	24.35	23.91	23.38	22.78	22.11	21.79	21.51	21.82	.....
2	24.63	24.46	24.45	24.32	23.88	23.36	22.74	22.12	21.77	21.51	21.86	.....
3	24.70	24.43	24.47	24.30	23.90	23.30	22.71	22.15	21.76	21.53	21.86	21.94
4	24.74	24.40	24.48	24.30	23.90	23.26	22.69	22.14	21.75	21.60	21.85	21.91
5	24.73	24.37	24.50	24.36	23.89	23.20	22.74	22.12	21.74	21.62	21.86	21.92
6	24.70	24.35	24.53	24.37	23.84	23.18	22.74	22.09	21.77	21.61	21.85	21.98
7	24.68	24.38	24.55	24.33	23.81	23.20	22.73	22.04	21.80	21.60	21.84	22.00
8	24.65	24.43	24.58	24.29	23.77	23.20	22.68	22.03	21.84	21.60	21.89	21.97
9	24.66	24.44	24.59	24.27	23.75	23.15	22.65	22.08	21.81	21.61	21.92	21.94
10	24.64	24.37	24.60	24.24	23.78	23.13	22.59	22.10	21.79	21.65	21.90	21.92
11	24.64	24.31	24.56	24.25	23.79	23.10	22.55	22.08	21.78	21.70	21.90	21.90
12	24.61	24.29	24.57	24.30	23.75	23.10	22.55	22.02	21.74	21.72	21.87	21.92
13	24.59	24.25	24.57	24.31	23.70	23.09	22.54	21.96	21.75	21.71	21.83	21.96
14	24.58	24.22	24.59	24.26	23.68	23.10	22.48	21.94	21.75	21.71	21.83	.....
15	24.55	24.28	24.62	24.21	23.65	23.11	22.47	21.94	21.70	21.70	21.90	.....
16	24.53	24.31	24.64	24.18	23.63	23.08	22.45	21.96	21.64	21.71	21.92	e21.9
17	24.54	24.32	24.64	24.13	23.63	23.04	22.43	21.97	21.61	21.74	21.90	22.01
18	24.58	24.31	e24.63	24.11	23.62	23.02	22.40	21.93	21.57	21.79	21.83	21.99
19	24.59	24.32	24.61	24.15	23.58	23.00	22.40	21.89	21.58	21.83	21.78	22.03
20	24.60	24.32	24.58	24.16	23.57	23.00	22.38	21.89	21.59	21.81	21.77	.....
21	24.61	24.30	24.60	24.13	23.53	23.01	22.35	21.86	21.62	21.77	21.80	.....
22	24.58	24.33	24.62	24.09	23.47	23.01	22.32	21.86	21.59	21.70	21.87	.....
23	24.55	24.34	24.63	24.03	23.44	23.02	22.29	21.90	21.56	21.70	21.88	.....
24	24.57	24.34	24.57	23.99	23.45	.....	22.26	21.91	21.54	21.75	21.86	.....
25	24.61	24.36	24.53	23.97	23.48	22.95	22.25	21.89	21.52	21.84	21.87	22.33
26	24.58	24.35	24.48	23.99	23.44	22.92	22.26	21.84	21.52	81.86	21.91	22.37
27	24.51	24.33	24.45	23.98	23.38	22.88	22.25	21.81	21.55	21.82	21.93	22.35
28	24.47	24.38	24.42	23.95	23.35	22.89	22.21	21.80	21.56	21.79	21.94	22.36
29	24.44		24.40	23.93	23.33	22.88	22.16	21.80	21.54	21.74	21.98	22.33
30	24.41		24.40	23.94	23.34	22.83	22.15	21.83	21.53	21.72	e21.9	22.30
31	24.41		24.39		23.36		22.14	21.83		21.75		22.30

e Estimated.

T-25. Honolulu Board of Water Supply. Waimalu Valley, near Pearl Harbor. Lat. 21°23'35", long. 157°56'48". Drilled observation artesian well in basalt of Koolau volcanic series, diameter 12 inches, depth 177 feet, cased to 42. Land-surface datum is 24.40 feet above msl. Highest water level 20.60 above msl, Jan. 20, 1952; lowest 16.10 above msl, Sept. 25, 1953. Records available: 1945-53.

Daily mean water level, above msl, from recorder graph

Day	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	19.05	18.72	18.73	18.46	18.12	17.75	17.10	16.72	16.42	16.10	16.63	16.55
2	19.14	18.65	18.73	18.45	18.15	17.65	17.10	16.85	16.36	16.17	16.60	16.50
3	19.20	18.62	18.77	18.63	18.22	17.62	17.11	16.85	16.35	16.26	16.50	16.46
4	19.16	18.60	16.80	18.72	18.15	17.62	17.19	16.75	16.35	16.42	16.43	16.48
5	19.00	18.57	18.80	18.73	18.10	17.50	17.28	16.70	16.36	16.42	16.42	16.69
6	18.92	18.55	18.90	18.65	18.05	17.45	17.21	16.67	16.44	16.36	16.46	16.68
7	18.85	18.70	19.05	18.55	18.00	17.52	17.13	16.65	16.65	16.35	16.68	16.58
8	18.82	18.71	19.06	18.52	17.98	17.50	17.08	16.75	16.60	16.35	16.77	16.47
9	18.76	18.65	18.95	18.55	18.05	17.44	17.06	16.90	16.45	16.36	16.66	16.40
10	19.00	18.55	19.00	18.50	18.25	17.42	17.03	16.80	16.37	16.50	16.51	16.34
11	19.10	18.48	19.08	18.68	18.10	17.40	17.02	16.72	16.32	16.70	16.45	16.42
12	18.95	18.45	19.09	18.72	18.00	17.37	17.08	16.70	16.32	16.50	16.40	16.66
13	18.86	18.42	19.05	18.60	17.93	17.35	17.02	16.65	16.40	16.42	16.41	16.78
14	18.87	18.45	19.17	18.45	17.87	17.45	16.96	16.62	16.37	16.35	16.62	16.75
15	18.83	18.57	19.15	18.36	17.85	17.37	16.92	16.66	16.32	16.30	16.67	16.70
16	18.82	18.57	19.02	18.32	17.94	17.32	16.86	16.72	16.27	16.35	16.57	16.66
17	18.90	18.67	19.00	18.35	18.01	17.25	16.84	16.66	16.25	16.35	16.44	16.62
18	19.04	18.67	18.92	18.55	17.93	17.22	16.87	16.57	16.23	16.65	16.39	16.76
19	18.90	18.57	18.82	18.60	17.90	17.23	16.95	16.53	16.25	16.60	16.40	16.92
20	18.87	18.60	18.83	18.42	17.85	17.30	16.90	16.50	16.32	16.50	16.60	17.02
21	18.75	18.67	19.02	18.32	17.78	17.42	16.84	16.52	16.27	16.45	16.70	17.07
22	18.70	18.68	19.06	18.26	17.75	17.50	16.81	16.55	16.25	16.42	16.68	17.12
23	18.67	18.63	18.90	18.22	17.80	17.50	16.82	16.65	16.20	16.55	16.57	17.17
24	18.73	18.60	18.77	18.17	17.90	17.35	16.80	16.57	16.15	16.75	16.53	17.21
25	18.73	18.55	18.70	18.25	17.76	17.27	16.83	16.52	16.10	16.75	16.55	17.27

T-25--Continued.

Day	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
26	18.70	18.50	18.64	18.42	17.75	17.28	16.92	16.45	16.12	16.65	16.73	17.32
27	18.67	18.50	18.60	18.30	17.70	17.30	16.85	16.90	16.23	16.50	16.69	17.33
28	18.62	18.50	18.65	18.22	17.63	17.30	16.75	16.40	16.15	16.42	16.79	17.36
29	18.62		18.72	18.17	17.62	17.20	16.73	16.45	16.11	16.35	16.76	17.40
30	18.66		18.60	18.15	17.75	17.15	16.72	16.55	16.10	16.37	16.65	17.42
31	18.72		18.52		17.82		16.71	16.50		16.60		17.45

T-27. Honolulu Board of Water Supply. Pearl City. Lat. 21°23'55", long. 157°58'30". Drilled observation water-table well in basalt of Koolau volcanic series, diameter 12 inches, depth 71 feet, cased to 60. Land-surface datum is 47 feet above msl. Highest water level 22.20 above msl, Feb. 15, 1949; lowest 16.11 above msl, Sept. 30, 1953. Records available: 1946-53.

Daily mean water level, above msl, from recorder graph

Day	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	e19.74	19.65	19.55	19.14	18.52	17.92	17.27	16.72	16.50	16.15	16.72	16.68
2	19.75	19.55	19.62	19.05	18.56	17.84	17.25	16.85	16.45	16.20	16.74	16.62
3	19.85	19.42	19.61	19.12	18.66	17.80	17.23	16.87	16.42	16.35	16.62	16.57
4	19.95	19.30	19.63	19.30	18.60	17.76	17.32	18.85	16.40	16.50	16.52	16.51
5	19.90	19.22	19.67	19.48	18.52	17.73	17.46	16.82	16.42	16.50	16.50	16.64
6	19.72	e19.28	19.72	19.40	18.45	17.70	17.41	16.77	16.46	16.45	16.50	16.77
7	19.62	19.34	19.80	19.25	18.37	17.75	17.32	16.72	16.65	16.40	16.67	16.73
8	19.50	19.50	19.87	19.17	18.32	17.75	17.25	16.80	16.70	16.40	16.88	16.62
9	19.46	19.45	19.87	19.17	18.40	17.70	17.15	16.91	16.55	16.42	16.85	16.53
10	19.60	19.26	19.80	19.10	18.55	17.65	17.12	16.92	16.46	16.52	16.67	16.47
11	19.77	19.17	19.80	19.15	18.52	17.62	17.12	16.82	16.40	16.65	.....	16.44
12	19.70	19.10	19.87	19.35	18.42	17.57	17.15	16.76	16.37	16.60	.....	16.57
13	19.52	19.05	19.92	19.30	18.32	17.57	17.10	16.72	16.42	16.47	.....	16.77
14	19.47	19.08	19.98	19.10	18.25	17.65	17.04	16.70	16.40	16.42	16.63	16.79
15	19.47	19.25	20.04	18.97	18.20	17.60	16.99	16.72	16.38	16.38	16.81	16.70
16	19.50	19.27	20.03	18.90	18.20	17.52	17.01	16.75	16.30	16.42	16.77	16.66
17	19.60	19.22	19.95	18.87	18.28	17.50	16.99	16.72	16.26	16.60	16.63	16.63
18	19.75	19.21	19.85	18.95	18.26	17.46	16.98	16.65	16.26	16.70	16.55	16.65
19	19.70	19.17	19.72	19.10	18.20	17.43	17.01	16.57	16.26	16.40	16.47	16.85
20	19.60	19.12	19.62	19.08	18.15	17.42	17.00	16.57	16.30	16.57	16.50	17.03
21	19.50	19.50	19.68	18.92	18.10	17.51	16.93	16.57	16.30	.....	16.66	17.12
22	19.45	19.30	19.82	18.82	18.05	17.60	.....	16.60	16.25	.....	16.77	17.20
23	19.45	19.32	19.75	18.75	18.03	17.65	.....	16.68	16.22	16.60	16.72	17.26
24	e19.48	19.30	19.55	18.67	18.08	17.55	16.86	16.67	16.17	16.75	16.62	17.32
25	e19.51	19.25	19.43	18.68	18.07	17.45	16.87	16.62	16.12	16.87	16.57	17.43
26	e19.54	19.25	19.35	18.82	18.02	17.43	16.94	16.55	16.12	16.80	16.67	17.53
27	19.57	19.26	19.25	18.80	17.95	17.40	16.89	16.50	16.17	16.65	16.71	17.62
28	19.49	19.40	19.25	18.67	17.87	17.45	16.81	16.48	16.16	16.56	16.80	17.68
29	19.42		19.41	18.60	17.82	17.43	16.77	16.50	16.12	16.49	16.87	17.72
30	19.43		19.40	18.56	17.85	17.33	16.77	16.60	16.11	16.43	16.80	17.76
31	19.50		19.25		17.95		16.71	16.57		16.56		17.82

e Estimated.

T-28. Honolulu Board of Water Supply. Halemano Gulch, near Waialua. Lat. 21°34'40", long. 158°06'07". Drilled observation water-table well in basalt of Koolau volcanic series, diameter 12 inches, depth 60 feet, cased to 39. Land-surface datum is 35 feet above msl. Highest water level 12.33 above msl, Jan. 23, 1952; lowest 9.53 above msl, June 12, 1947. Records available: 1947-53.

Daily mean water level, above msl, from recorder graph

Day	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	12.00	11.48	11.75	11.13	10.93	10.91	10.30	10.30	10.57	10.18	10.45	10.25
2	12.02	11.34	11.73	11.13	11.02	10.70	10.29	10.43	10.53	10.20	10.36	10.20
3	12.06	11.12	11.71	11.33	11.10	10.62	10.29	10.40	10.48	10.22	10.22	10.17
4	12.12	11.07	11.69	11.41	11.05	10.56	10.48	10.36	10.47	10.37	10.16	10.16
5	12.07	11.03	11.68	11.46	11.01	10.52	10.56	10.34	10.45	10.31	10.16	10.38
6	11.89	11.07	11.66	11.35	10.97	10.51	10.39	10.35	10.60	10.24	10.17	10.52
7	11.77	11.23	11.66	11.25	10.95	10.57	10.28	10.35	10.84	10.23	10.35	10.38
8	11.72	11.43	11.67	11.24	10.90	10.49	10.24	10.37	10.76	10.21	10.47	10.20
9	11.69	11.41	11.65	11.15	11.06	10.47	10.23	10.48	10.58	10.21	10.36	10.13
10	11.87	11.46	11.66	11.16	11.13	10.42	10.21	10.43	10.46	10.25	10.20	10.14
11	11.96	11.28	11.67	11.35	11.03	10.39	10.27	10.37	10.40	10.37	10.10	10.13
12	11.83	11.16	11.68	11.45	10.89	10.39	10.43	10.38	10.38	10.33	10.07	10.42
13	11.57	11.07	11.68	11.35	10.88	10.41	10.37	10.38	10.50	10.22	10.08	10.57
14	11.47	11.21	11.67	11.30	10.86	10.49	10.32	10.41	10.40	10.16	10.24	10.43
15	11.43	11.37	11.64	11.22	10.86	10.45	10.31	10.41	10.34	10.14	10.35	10.28

T-28--Continued.

Day	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
16	11.49	11.44	11.63	11.21	11.09	10.41	10.31	10.52	10.29	10.18	10.25	10.29
17	11.60	11.54	11.62	11.17	11.24	10.39	10.32	10.49	10.27	10.37	10.11	10.27
18	11.68	11.59	11.62	11.26	11.12	10.37	10.35	10.40	10.28	10.54	10.07	10.26
19	11.66	11.62	11.60	11.34	10.97	10.35	10.42	10.37	10.28	10.47	10.06	10.50
20	11.56	11.69	11.62	11.23	10.95	10.33	10.36	10.41	10.38	10.35	10.07	10.68
21	11.59	11.71	11.63	11.07	10.91	10.37	10.31	10.43	10.32	10.38	10.31	10.71
22	11.53	11.72	11.63	11.03	10.86	10.45	10.32	10.46	10.28	10.37	10.43	.....
23	11.47	11.72	11.61	10.99	10.87	10.43	10.32	10.63	10.33	10.32	10.35	.....
24	11.63	11.71	11.60	10.95	11.08	10.39	10.31	10.57	10.33	10.47	10.18	.....
25	11.74	11.71	11.47	11.04	11.05	10.32	10.31	10.49	10.36	10.63	10.15	11.04
26	11.63	11.72	11.25	11.24	10.98	10.27	10.38	10.49	10.32	10.57	10.38	11.08
27	11.38	11.71	11.16	11.13	10.99	10.25	10.35	10.52	10.42	10.37	10.43	11.11
28	11.32	11.73	11.36	10.95	10.91	10.30	10.31	10.54	10.30	10.28	10.56	11.13
29	11.24		11.46	10.90	10.94	10.28	10.29	10.55	10.22	10.19	10.62	11.14
30	11.21		11.35	10.92	11.03	10.29	10.29	10.73	10.19	10.15	10.44	11.14
31	11.35		11.20		11.08		10.26	10.69		10.29		11.10

T-41. Honolulu Board of Water Supply. Near Waipahu. Lat. 21°22'45", long. 158°01'50" Drilled observation artesian well in basalt of Koolau volcanic series, diameter 12 inches, depth 113 feet, cased to 92. Land-surface datum is 84 feet above msl. Highest water level 25.25 above msl, Jan. 26, 1952; lowest 15.06 above msl, Sept. 24, 1953. Records available: 1949-53.

Daily mean water level, above msl, from recorder graph

Day	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	20.75	21.00	21.20	e19.85	17.95	.....	16.54	15.76	15.60	15.20	17.55	16.20
2	20.50	20.45	21.10	e19.65	18.60	.....	16.44	15.92	15.52	15.35	17.10	15.95
3	20.80	19.85	20.95	19.45	19.15	.....	16.41	16.00	15.45	15.80	16.60	15.82
4	21.40	19.45	21.15	e19.68	18.60	.....	17.15	15.92	15.40	16.25	16.30	15.83
5	20.90	19.20	21.20	e19.91	18.15	.....	17.48	15.85	15.40	16.20	15.98	16.48
6	20.20	19.15	21.32	20.15	17.95	16.80	17.05	15.75	15.65	16.10	15.95	17.23
7	19.85	19.95	21.60	19.50	17.75	.....	16.65	15.67	16.60	16.00	16.80	16.85
8	19.60	20.75	21.87	19.23	17.70	.....	16.44	15.85	16.40	16.00	17.57	16.22
9	19.45	20.15	21.55	19.03	18.50	.....	16.33	16.35	15.90	15.90	17.22	15.92
10	20.25	19.50	20.90	18.95	19.10	.....	16.25	16.15	15.65	16.15	16.10	15.77
11	21.10	19.10	20.85	19.75	18.55	.....	16.24	15.92	15.53	16.55	16.25	15.62
12	20.50	18.92	21.45	20.35	18.05	.....	16.33	15.80	15.55	16.35	16.11	16.35
13	19.85	18.80	21.80	19.80	17.75	16.65	16.36	15.75	15.70	15.90	16.10	17.15
14	19.65	19.40	22.08	19.25	17.55	16.95	16.20	15.75	15.60	15.75	16.85	16.75
15	19.65	20.20	22.21	18.85	17.45	17.00	.....	15.75	15.40	15.70	17.51	16.37
16	19.65	19.75	22.10	18.62	17.45	16.75	.....	15.90	15.30	15.90	16.95	16.20
17	20.50	19.15	21.40	18.50	18.00	16.62	16.08	15.85	15.25	16.50	16.35	16.13
18	21.10	18.85	20.80	19.30	.....	16.52	16.06	15.75	15.20	16.82	16.07	16.35
19	20.60	18.65	20.30	20.00	.....	16.50	16.10	15.65	15.24	16.45	15.87	17.35
20	20.00	18.52	20.10	19.50	.....	16.53	16.12	15.55	15.35	16.10	15.82	17.96
21	19.70	19.15	20.75	18.90	.....	17.00	15.99	15.57	15.27	15.95	16.40	18.13
22	19.55	20.15	21.35	18.55	.....	17.55	15.92	15.65	15.15	16.25	16.95	18.21
23	19.60	20.30	20.75	18.35	17.20	17.50	15.87	16.00	15.10	16.40	16.68	18.30
24	20.60	20.25	20.15	18.20	17.60	17.05	15.85	15.95	15.06	17.00	16.13	18.55
25	21.30	19.95	19.80	18.75	17.60	16.80	15.85	15.72	15.08	17.65	15.92	18.89
26	20.75	20.10	19.50	19.55	17.35	16.65	15.95	15.62	15.10	17.15	16.40	19.17
27	20.20	20.25	19.22	19.10	.....	16.60	15.95	15.57	15.25	16.50	16.46	19.35
28	20.00	20.75	19.65	16.50	.....	17.05	15.83	15.55	15.17	16.20	16.70	19.46
29	19.75		20.45	18.22	.....	17.10	15.77	15.60	15.10	16.10	17.22	19.47
30	19.75		e20.25	18.05	17.02	16.70	15.76	15.85	15.08	16.10	16.80	19.57
31	20.35		20.05		17.40		15.76	15.76		16.80		19.55

e Estimated.

Shaft 4. U. S. Army. Near Wahiawa. Lat. 21°29'30", long. 158°01'45". Dug domestic high-level water-table well in basalt of Koolau volcanic series, size 8 by 8 feet, vertical depth of 30-degree inclined shaft 563 feet, lined with concrete in upper part, pump chamber at bottom of shaft. Highest water level 284.13 above msl, Sept. 4, 1937; lowest 273.17 above msl, Mar. 11, 1946. Records available: 1936-53.

Date	Water level	Date	Water level	Date	Water level	Date	Water level
Jan. 4	280.22	Feb. 8	279.74	Mar. 15	279.17	Apr. 19	278.70
11	280.15	15	279.61	22	279.14	26	278.63
18	279.98	22	279.50	29	279.00	May 3	278.55
25	280.08	Mar. 1	279.46	Apr. 5	278.90	10	278.43
Feb. 1	279.80	8	279.35	12	278.86	17	278.34

Shaft 4--Continued.

Date	Water level	Date	Water level	Date	Water level	Date	Water level
May 24	278.15	July 22	277.34	Sept. 21	276.60	Nov. 15	276.07
30	278.08	Aug. 2	277.26	26	276.56	22	275.98
June 7	277.95	9	277.15	Oct. 4	276.57	29	275.90
14	277.89	14	277.05	11	276.47	Dec. 6	275.81
19	277.83	22	276.98	18	276.40	13	275.78
28	277.71	26	276.92	25	276.34	20	275.72
July 5	277.59	Sept. 3	276.79	Nov. 1	276.27	27	275.66
10	277.50	11	276.73	8	276.17	31	275.64
15	277.45						

Shaft 7. Honolulu Board of Water Supply. 16th Ave. and Claudine St., Honolulu. Lat. 21°17'18", long. 151°47'36". Dug public-supply water-table well in basalt of Koolau volcanic series, size 8 by 8 feet, vertical depth of 30-degree inclined shaft 150 feet, pump chamber and sump at bottom of shaft, shaft and chamber lined with concrete; infiltration tunnel, size 5 by 7 feet, length 67 feet. Land-surface datum is 160 feet above msl. Highest water level 10.43 above msl, Oct. 29, 1937; lowest 8.79 above msl, June 6, 1947. Records available: 1945-53.

Midnight water level, above msl, from recorder graph

Jan. 5	9.35	Apr. 13	9.21	Aug. 3	9.18	Oct. 19	9.10
13	9.32	28	9.11	10	9.20	26	9.12
27	9.28	May 4	9.16	17	9.23	Nov. 2	9.11
Feb. 2	9.26	13	9.14	24	9.25	9	9.10
9	9.27	26	9.15	31	9.28	16	9.09
16	9.27	June 15	9.16	Sept. 8	9.24	23	9.10
24	9.25	23	9.12	14	9.24	30	9.09
Mar. 3	9.28	29	9.12	21	9.24	Dec. 7	9.02
16	9.22	July 13	9.10	28	9.24	14	9.04
17	9.23	20	9.13	Oct. 6	9.10	21	9.01
23	9.25	27	9.16	12	9.07	28	9.08
Apr. 1	9.22						

T-44. Replaces Shaft 7. Honolulu Board of Water Supply. 16th Ave. and Claudine St., Honolulu. Lat. 21°17'17", long. 157°47'39". Drilled observation water-table well in basalt of Koolau volcanic series, diameter 1 inch, depth 171 feet, cased to 168, perforations 158, 163, 167. Land-surface datum is 152.04 feet above msl. Highest water level 11.07 above msl, Aug. 12, 1937; lowest 8.12 above msl, July 8, 1947. Records available: 1936-53.

Jan. 5	9.99	Apr. 13	9.47	Aug. 3	9.78	Oct. 19	9.84
13	9.96	23	9.42	10	9.78	26	9.87
27	9.95	28	9.50	17	9.86	Nov. 2	9.92
Feb. 2	9.86	May 4	9.50	24	9.90	9	10.54
9	9.74	13	9.54	31	9.90	16	9.80
16	9.67	26	9.50	Sept. 8	9.73	23	9.90
24	9.74	June 15	9.66	14	9.90	30	9.86
Mar. 3	9.90	23	9.59	21	9.80	Dec. 7	9.90
16	9.80	29	9.64	28	9.86	14	9.90
17	9.73	July 13	9.65	Oct. 6	9.78	21	9.90
23	9.84	20	9.73	12	9.84	28	9.96
Apr. 1	9.55	27	9.75				

NEVADA

By C. P. Zones

Scope of Water-Level Program

The observation-well program was continued in Nevada in 1953 in cooperation with the State Engineer's Office. Measurements were made in 257 wells, 16 of which were equipped with recording gages. Three of the recording gages were put into service during the year by the State Engineer's Office. Most of the wells were measured in March and September. Others, in heavily pumped areas or in valleys where ground-water investigations are in progress, were measured quarterly or monthly. As part of the program for the study of the ground-water resources of Nevada the collection of additional basic hydrologic data was continued during the year and investigations were carried on in several undeveloped valleys in the State. U. S. Geological Survey Water-Supply Paper 1228, which reports the results of an investigation of the geology and water resources of Smith Valley, Lyon and Douglas Counties, Nevada, was published. See figures 43 - 48 for location of observation wells in Nevada.

Precipitation

The average total precipitation for Nevada in 1953 was 5.34 inches, or 62 percent of normal. This was the second driest year during the 65 years for which records are available. Drought conditions in the southern and eastern parts of the State were severe, an alltime low of 0.56 inch of precipitation being received at the Las Vegas airport. As of April 1, 1953, snow-stored precipitation was 10 percent of normal in the Spring Mountains, the major recharge area for Las Vegas and Pahrump Valleys. A few U. S. Weather Bureau stations, mostly in the northern part of the State, recorded above-normal amounts of precipitation.

Runoff

Runoff in Nevada during the water year beginning October 1, 1952, and ending September 30, 1953, was below normal. A total of 174,730 acre-feet of runoff was recorded for the Humboldt River at Palisade, Eureka County. This was 85 percent of the median for the station. The runoff at Palisade is considered to be representative for the northern part of the State. At Coleville, California, runoff on the West Walker River totaled 178,580 acre-feet, or 102 percent of the median. Runoff at this station is indicative of the runoff along the east side of the Sierra Nevada.

Pumpage

In 1953, as in recent years, the withdrawal of ground water from heavily pumped Las Vegas Valley exceeded the withdrawal of the previous year. A total of 45,600 acre-feet was discharged from wells and springs in the valley. This represents an increase of 5,200 acre-feet over the preceding year. An inventory of ground-water withdrawals from Pahrump Valley indicates that about 34,000 acre-feet was withdrawn from wells and springs. This is almost twice the withdrawal for 1951, the year the last inventory was made. Most of the increase in the use of ground water was for the irrigation of new land during the past two years. The last inventory of ground-water withdrawals for the entire State was made in 1951, when it was estimated that 85,000 acre-feet of ground water was discharged from wells and springs, exclusive of stock and domestic wells. On the basis of the increased pumpage from Las Vegas and Pahrump Valleys and on the general increased use of ground water throughout the State as indicated by records in the State Engineer's Office, it is estimated that the withdrawal of ground water in 1953 was approximately 130,000 acre-feet.

Interpretation of Water-Level Fluctuations

Ground-water levels in September 1953 as a rule were appreciably below the levels noted in September 1952, when above-normal water levels prevailed. The September levels generally were also somewhat below the average levels for the month. Part of the decline of water levels was due to the fact that the levels of the previous year were considerably above average, and part to below-normal precipitation and increased pumpage. In Paradise Valley, Humboldt County, and Grass Valley, Pershing and Humboldt Counties, water levels in September were about half a foot to a foot above the average stage for the month. The above-average ground-water levels are

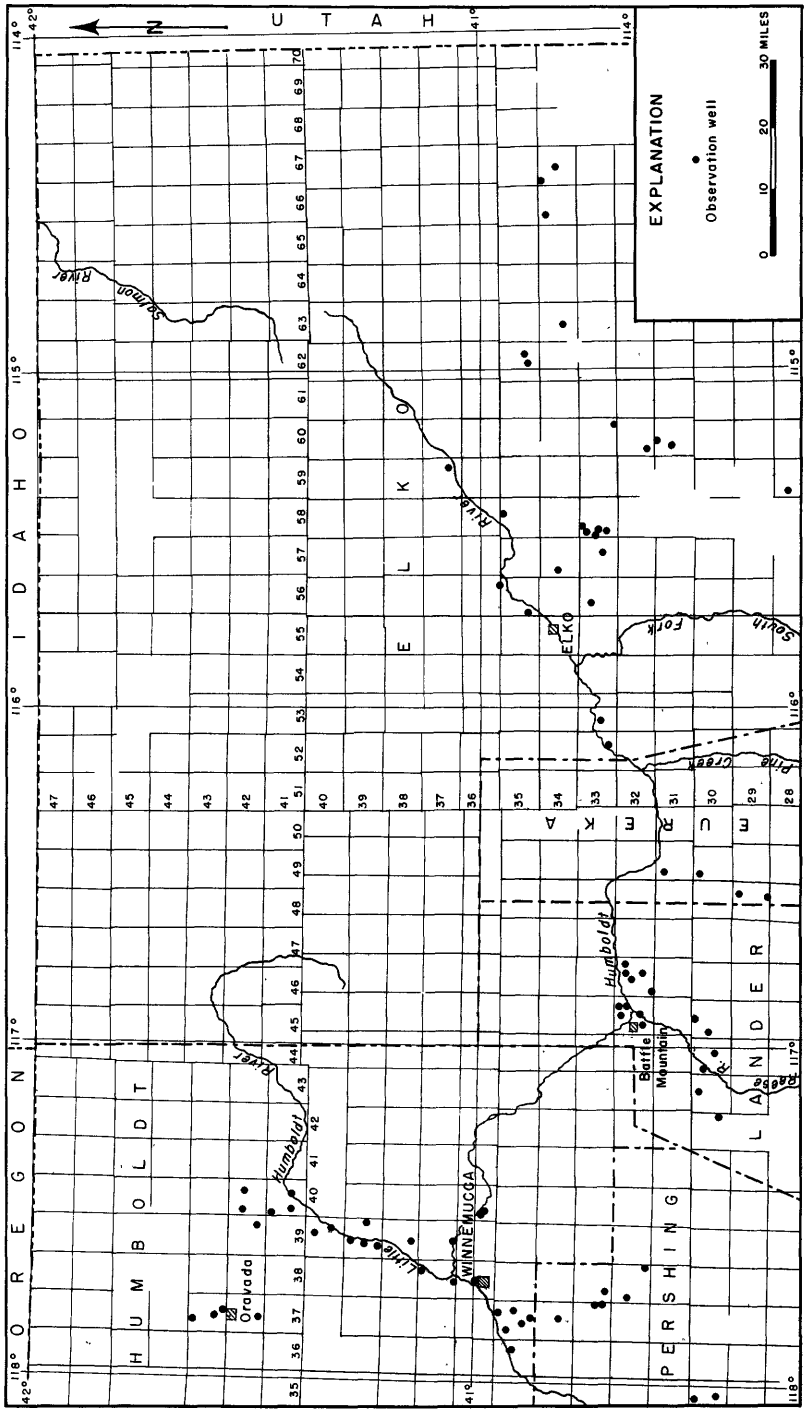


Figure 43.--Location of observation wells in Elko, Eureka, Humboldt, Lander, and Pershing Counties, Nev., 1953.

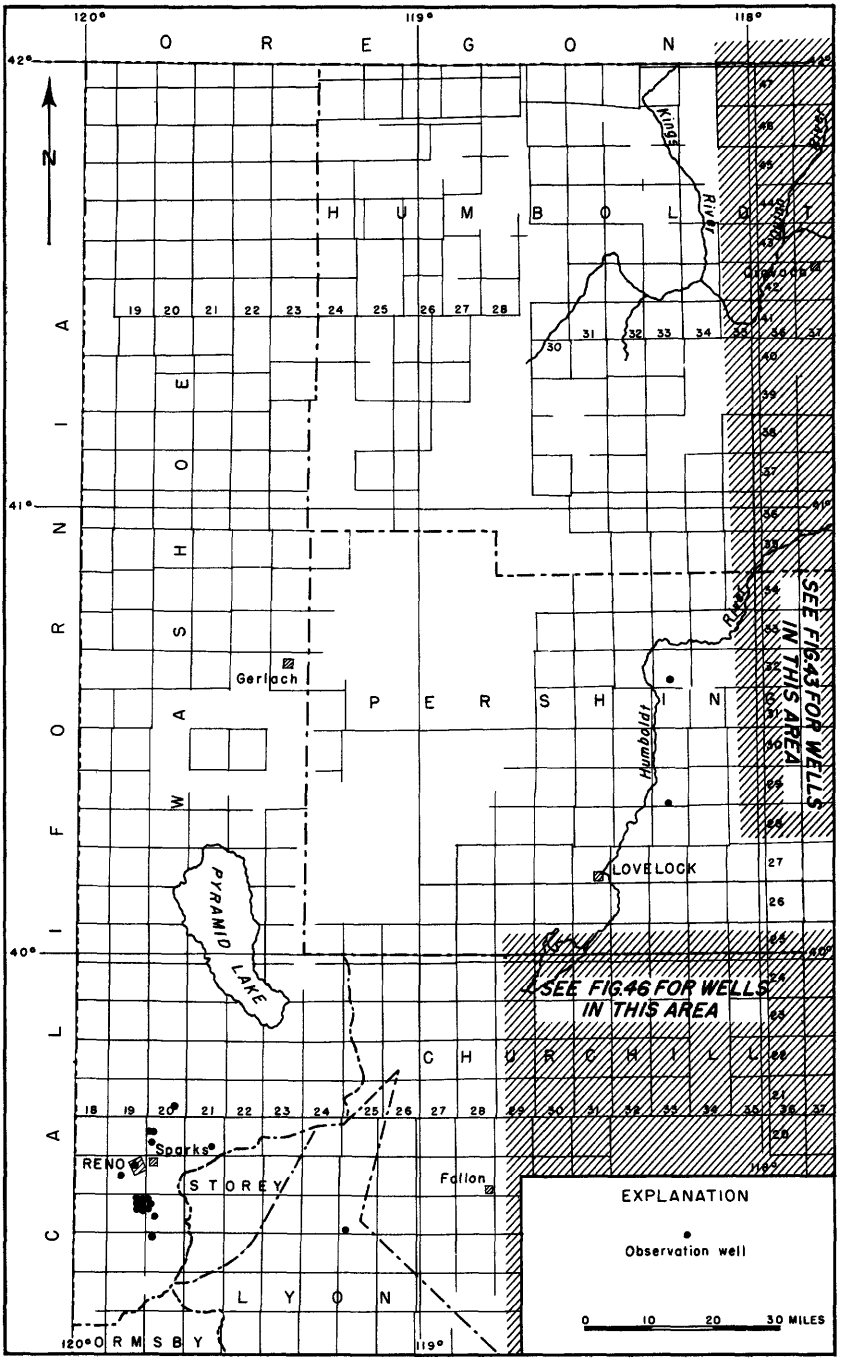


Figure 44. --Location of observation wells in Lyon, Pershing, and Washoe Counties, Nev., 1953.

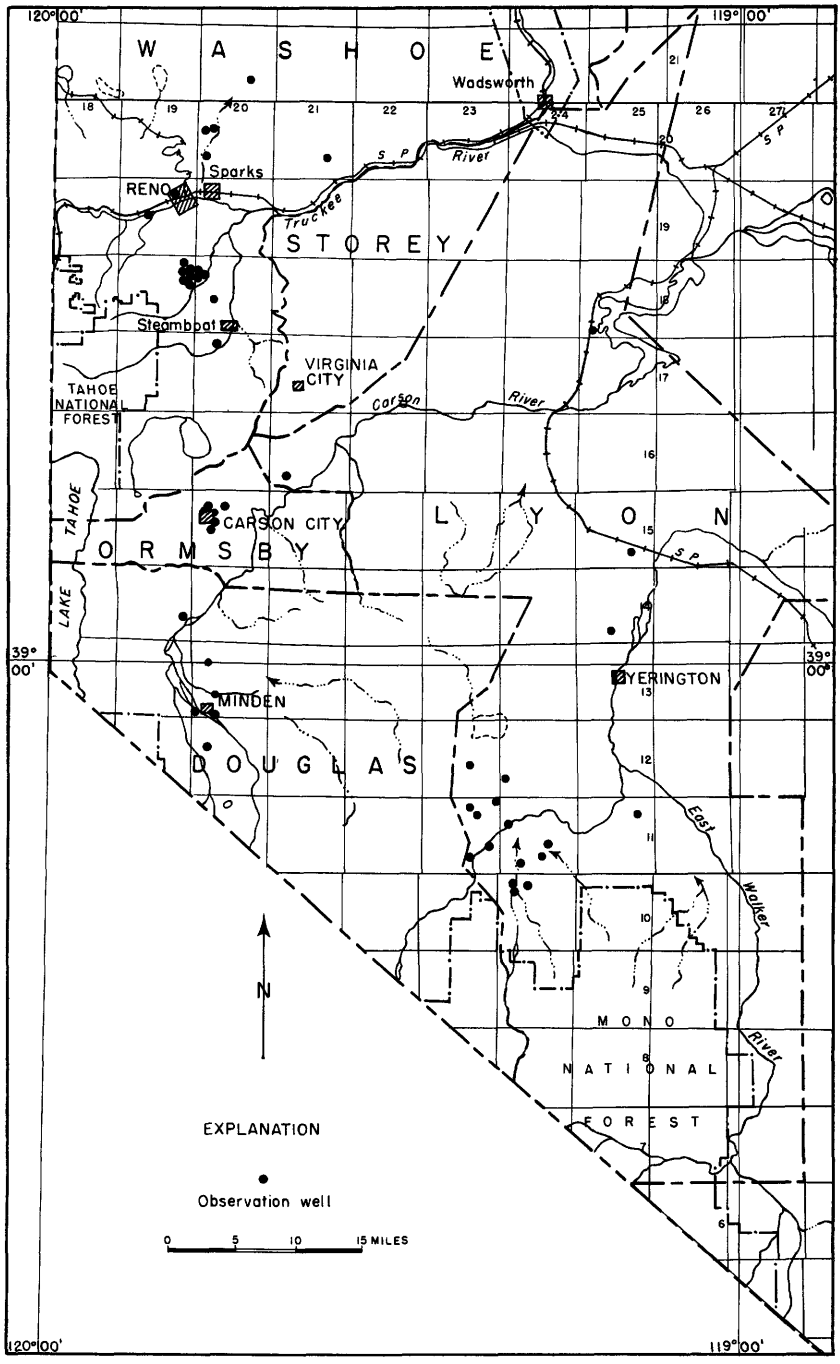


Figure 45. --Location of observation wells in Douglas, Lyon, Ormsby, and Washoe Counties, Nev., 1953.

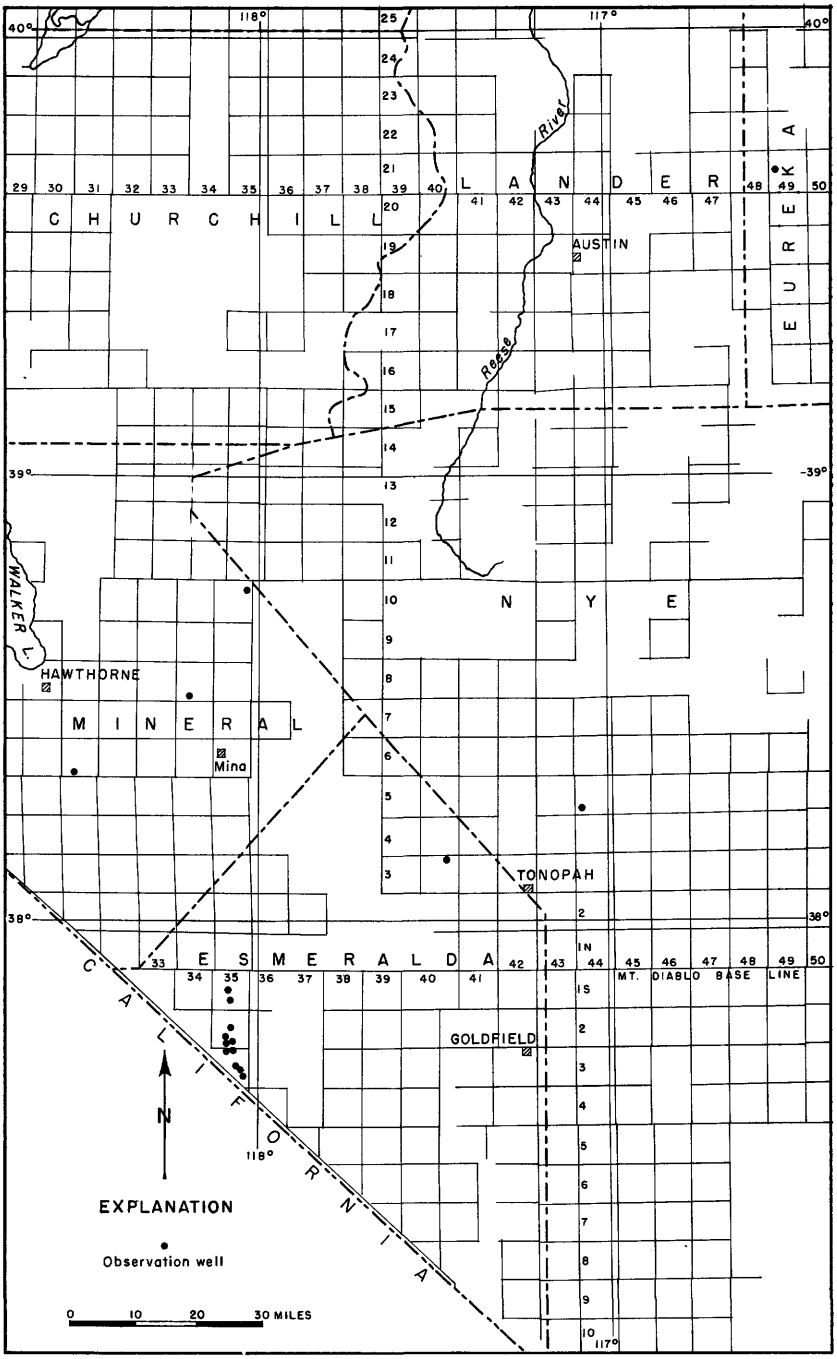


Figure 46.--Location of observation wells in Esmeralda, Eureka, Mineral, and Nye Counties, Nev., 1953.

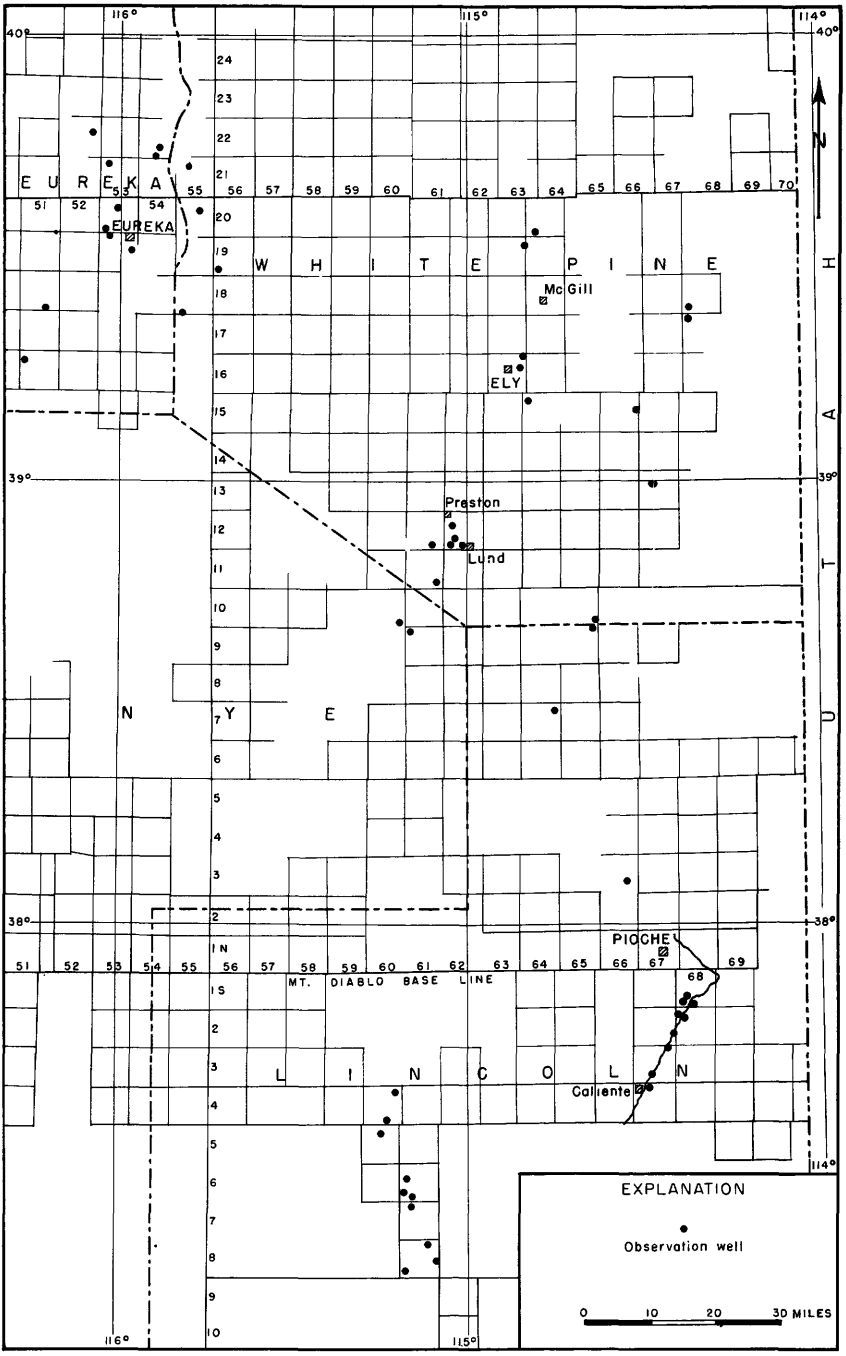


Figure 47.--Location of observation wells in Eureka, Lincoln, Nye, and White Pine Counties, Nev., 1953.

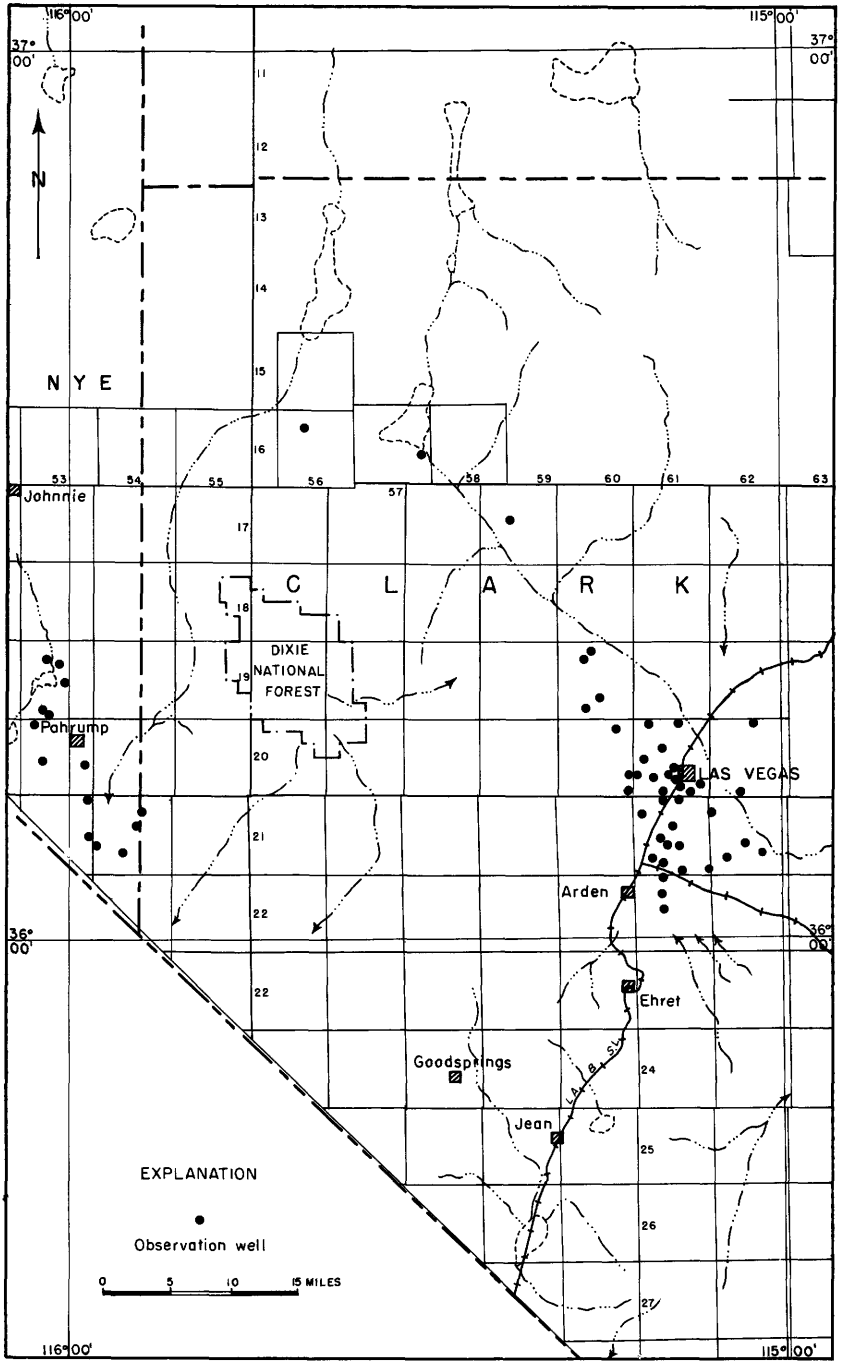


Figure 48. --Location of observation wells in Clark and Nye Counties, Nev., 1953.

thought to be a carryover of the record-high stages noted in 1952. In the highly developed Las Vegas area, Clark County, artesian pressures in 15 selected wells averaged about 4 feet lower in August 1953 than in August 1952. This is a continuation of the increasing rate of decline which has prevailed in recent years. However, the average decline of artesian pressures in the valley as a whole probably is only about half the decline in the highly developed area. In Pahrump Valley, Clark and Nye Counties, the artesian head dropped markedly in 1952 and 1953 as the result of increased pumping following the development of new land. The decline in 1953 was not as large as in 1952 although a decline of about 5 feet was noted in the more intensely developed areas.

Well-Numbering System

The number assigned to a well in this report is both an identification and location number. It is based on the Mount Diablo base and meridian network of surveys established by the General Land Office (now Bureau of Land Management). The first numeral of a well indicates the township. If the township is south of Mount Diablo base the letter "S" appears before the township number. The second numeral, separated from the township number by a slant, is the range number east of Mount Diablo meridian. The third numeral, separated from the range number by a dash, is the section number. One of the first four letters of the alphabet following the section number denotes the quarter section; a second letter, the quarter-quarter section; and a third letter, the quarter-quarter-quarter section, or 10-acre tract, if known. The letters are assigned in a counterclockwise order, "a" designating the northeast quadrant. Where more than one well is in the same subdivision consecutive numbers beginning with "1" are assigned in the order in which the well data was first recorded. Thus, well number S10/60-4dab1 is used to designate the first well selected in the NW¼NE¼SE¼ sec. 4, T. 10 S., R. 60 E. Similarly, well number 12/23-22ac3 is used to designate the third well recorded in the SW¼NE¼ sec. 22, T. 12 N., R. 23 E.

Well Descriptions and Water-Level Measurements

Water levels are in feet below land-surface datum unless otherwise indicated. When some measurements in a table are above and others below the plane of reference, a plus (+) or minus (-) sign is placed immediately preceding the first entry in each column of each mixed table. Readings between minus (-) signs are below the plane of reference, and those between plus (+) signs are above the plane of reference.

Clark County

Indian Spring Valley

S16/56-9bc1. Tim Harnedy. Drilled domestic and irrigation well in alluvium of Quaternary age. Highest water level 12.45 below lsd, Feb. 15, 1950; lowest 14.22 below lsd, Aug. 24, 1953. Records available: 1947-53.

Date	Water level	Date	Water level	Date	Water level	Date	Water level
Feb. 28, 1947	12.50	Feb. 15, 1949	12.59	Aug. 15, 1950	14.05	Feb. 5, 1952	12.84
June 4	13.48	May 24	12.51	Nov. 21	12.58	May 21	13.26
Aug. 5	14.11	Aug. 5	14.20	Feb. 3, 1951	13.16	Aug. 29	13.92
Nov. 21	14.03	Nov. 10	13.80	May 7	13.31	Nov. 15	13.33
May 19, 1948	12.97	Feb. 15, 1950	12.45	Aug. 7	13.72	May 28, 1953	13.58
Aug. 26	13.78	May 23	12.95	Nov. 19	13.80	Aug. 24	14.22
Nov. 18	13.53						

S16/56-9bc2. Tim Harnedy. Drilled domestic and irrigation well in alluvium of Quaternary age, diameter 8 inches, depth 582 feet. Highest water level 2.75 below lsd, Feb. 15, 1950; lowest 6.70 below lsd, Aug. 5, 1949. Records available: 1946-51. No measurement made in 1953.

Las Vegas Valley

S16/57-24c1. U. S. Bureau of Land Management. Drilled unused well in alluvium of Quaternary age, diameter 4 inches, depth 151 feet. Highest water level 122.57 below lsd, Feb. 24, 1953; lowest 124.09 below lsd, Mar. 18, 1946. Records available: 1946-53. Feb. 24, 122.57.

S17/59-16bc1. U. S. Bureau of Land Management. Drilled stock well in alluvium of Quaternary age, diameter 6 inches, depth 300 feet. Highest water level 27.25 below lsd, May 14, 1952; lowest 31.01 below lsd, Sept. 12, 1944. Records available: 1944-53. Feb. 16, 29.61; May 28, 29.38; Aug. 24, 29.55; Nov. 24, 27.68.

S19/60-4dab1. P. J. Goumond (State Engineer No. 450). Drilled irrigation artesian well, diameter 16 inches, depth 780 feet. Highest water level 30.40 above lsd, Apr. 5, 1946; lowest 0.73 above lsd, Aug. 27, 1951. Records available: 1946, 1948-53. May 28, +5.85; Aug. 24, +11.50; Nov. 17, +13.40.

S19/60-9bcc1. P. J. Goumond (State Engineer No. 427). Drilled unused artesian well, diameter 10 inches, depth 830 feet, cased to 140. Highest water level 43.65 below lsd, June 3, 1944; lowest 86.37 below lsd, Oct. 3, 1953. Records available: 1944-53.

Daily noon water level from recorder graph

Day	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	80.49	80.80	81.10	83.02	83.25	83.48	84.36	84.26	85.05	85.46	83.28	82.58
2	79.67	80.27	81.30	82.41	83.32	83.70	84.89	83.95	84.98	85.49	83.49	83.48
3	80.35	80.25	81.85	82.36	83.87	84.35	84.82	84.18	84.94	86.37	83.75	83.10
4	80.34	80.15	81.32	82.53	84.04	84.23	84.87	84.32	85.00	86.00	83.20	82.48
5	79.50	80.09	81.32	83.03	83.89	84.23	84.00	84.42	84.71	85.70	83.48	82.43
6	80.10	80.14	81.64	82.21	83.20	83.61	84.08	84.46	84.96	86.18	84.89	83.29
7	79.60	81.23	81.52	82.42	83.19	83.67	84.23	85.26	85.75	85.61	84.50	82.29
8	79.75	80.39	81.70	82.73	83.26	83.52	84.07	84.66	85.70	86.17	85.20	83.68
9	.....	80.41	81.71	81.89	83.36	84.47	.....	85.40	84.19	85.60	84.66	83.12
10	.....	80.43	81.54	81.58	84.18	84.36	.....	85.36	85.04	85.96	85.12	83.88
11	.....	80.33	81.85	81.74	84.12	84.45	.....	85.38	85.60	84.92	84.82	83.24
12	.....	80.30	81.84	81.69	83.43	84.55	.....	84.74	85.12	.....	84.45	84.23
13	79.56	80.25	81.06	81.31	83.46	84.48	.....	84.73	85.38	.....	85.09	83.60
14	80.23	80.27	82.63	82.37	83.40	83.82	.....	85.50	85.37	.....	85.02	.....
15	79.86	80.17	82.50	84.10	84.20	82.69	.....	85.33	85.78	84.60	85.11	82.44
16	80.60	80.26	81.08	82.93	84.24	82.44	84.39	84.70	85.80	83.86	84.31	81.55
17	79.87	80.19	82.78	83.52	83.44	82.36	.....	84.73	85.84	83.88	83.10	81.50
18	80.56	79.35	82.86	83.04	84.08	83.06	.....	84.76	86.00	83.74	83.62	81.90
19	79.43	80.07	82.92	83.42	84.10	83.35	.....	84.80	85.57	84.22	83.66	82.02
20	.....	80.36	82.06	83.64	84.04	83.53	.....	84.72	85.70	84.32	83.12	83.02
21	.....	80.80	82.56	82.98	.....	82.68	84.08	84.32	85.82	84.27	83.22	82.54
22	.....	80.79	82.26	83.10	84.15	82.82	84.24	85.56	86.01	83.49	83.30	82.54
23	.....	81.40	82.34	83.79	82.94	84.38	84.22	85.43	86.04	83.20	82.96	82.64
24	.....	80.99	82.28	83.43	82.70	83.89	84.28	85.62	85.90	83.53	83.11	83.30
25	.....	80.97	83.04	83.08	82.64	83.86	84.34	85.09	85.90	84.07	82.88	82.70
26	.....	80.97	83.11	83.86	83.41	84.76	84.31	85.09	85.90	84.04	82.20	81.38
27	80.61	81.11	82.49	82.84	82.46	84.73	85.17	85.49	85.89	84.02	82.85	81.93
28	80.59	81.04	82.43	83.72	83.25	84.00	84.41	84.93	86.05	84.04	82.76	.....
29	81.03		82.84	83.93	83.32	84.10	83.46	85.43	86.02	83.30	82.04	81.85
30	80.77		83.14	83.58	82.65	84.66	82.80	84.99	86.04	83.30	82.40	81.82
31	80.86		82.57		83.24		83.81	84.99		83.34		80.90

S19/60-27bdc1. U. S. Geol. Survey (State Engineer No. 554). Drilled observation artesian well, diameter 5 inches, depth 905 feet, cased to 84. Land-surface datum is 2,360.8 feet above msl. Highest water level 46.9 above lsd, June 3, 1946; lowest 9.8 above lsd, July 16, Aug. 20, 1953. Records available: 1946-53. Mercury manometer reading.

Noon water level, above lsd, from recorder graph

Date	Water level	Date	Water level	Date	Water level	Date	Water level
Jan. 5	+14.7	Mar. 2	+13.6	Apr. 24	+11.6	July 20	+10.5
12	14.4	9	13.6	May 15	11.9	21	10.7
19	14.4	16	13.3	22	10.7	22	10.7
26	14.3	23	13.0	June 18	10.6	Aug. 20	9.8
Feb. 2	14.3	Apr. 4	13.0	July 16	9.8	Sept. 24	10.0
9	13.9	11	12.1	17	10.1	Oct. 24	11.2
16	14.1	17	12.3	18	10.4	Nov. 24	11.2
23	14.3	23	11.8	19	10.8	Dec. 21	11.2

S19/60-33baa1. U. S. Geol. Survey (State Engineer No. 555). Drilled observation artesian well, diameter 8 inches, depth 1,008 feet, cased to 93. Land-surface datum is 2,406.6 feet above msl. Highest water level 28.80 above lsd, Oct. 17, 1946; lowest 12.98 below lsd, Sept. 26, 1953. Records available: 1946-53.

Daily noon water level from recorder graph

Day	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	7.04	7.63	7.79	9.08	9.79	10.20	11.56	11.20	12.18	12.62	11.09	10.42
2	7.14	7.62	7.96	9.06	9.97	10.36	11.71	11.51	12.18	12.67	10.98	10.65
3	7.09	7.63	8.20	9.09	9.89	10.33	11.63	11.75	12.54	12.79	11.02	10.94
4	7.07	7.65	8.20	9.08	10.01	10.65	11.71	11.81	12.70	12.73	10.97	10.86
5	6.98	7.51	8.10	9.04	9.98	10.75	11.64	.....	12.63	12.60	11.06	10.98

S19/60-33baa1--Continued.

Day	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
6	6.98	7.54	8.20	8.96	9.96	10.90	11.68	12.15	12.70	12.48	.....	10.85
7	6.98	7.65	8.22	9.08	9.92	11.15	11.76	12.17	12.42	12.54	.....	10.58
8	7.21	7.57	8.25	9.14	9.99	11.20	11.82	11.86	12.26	12.47	.....	10.68
9	7.19	7.85	8.26	9.14	10.16	11.22	11.79	11.72	12.11	12.51	.....	10.76
10	7.11	7.76	8.24	9.32	10.21	10.92	11.79	11.73	12.06	12.36	.....	.....
11	7.09	7.74	8.38	9.51	10.15	10.74	11.76	11.72	12.07	12.20	12.01	.....
12	7.08	7.67	8.41	9.31	10.23	11.16	11.75	11.73	12.13	11.97	12.02	.....
13	7.06	7.62	8.53	9.02	10.25	11.40	11.56	11.74	12.14	11.85	11.99	.....
14	7.08	7.62	8.53	9.07	10.14	10.92	11.47	11.74	12.18	11.75	11.96	.....
15	7.26	7.57	8.57	9.35	10.11	10.76	11.46	11.70	12.16	11.69	12.03	10.64
16	7.27	7.64	8.63	9.51	10.20	10.67	11.59	11.71	12.16	11.68	.....	10.48
17	7.24	7.61	8.71	9.52	10.21	10.67	11.34	11.76	12.18	11.62	11.49	10.40
18	7.20	7.41	8.77	9.78	10.17	10.64	11.13	11.82	12.27	11.58	11.45	10.22
19	7.05	7.46	8.74	9.68	.....	10.45	11.04	11.80	12.35	11.48	11.45	10.21
20	6.71	7.55	8.71	....	.....	10.92	11.06	11.76	12.29	11.52	11.07	10.35
21	6.56	7.69	8.84	....	.....	11.14	11.10	11.78	12.28	11.42	11.09	10.51
22	6.80	7.75	8.87	....	10.98	10.94	11.18	11.82	12.34	11.31	11.08	10.66
23	6.92	7.53	8.90	....	10.80	10.84	11.16	12.07	12.35	11.27	10.91	10.80
24	7.02	7.75	9.02	10.10	10.81	10.84	11.20	12.25	12.85	.....	10.93	10.72
25	7.18	7.89	8.92	10.22	10.80	10.86	11.24	12.28	12.89	.....	10.76	10.77
26	7.28	7.88	8.98	10.24	10.42	10.84	11.29	12.00	12.98	.....	10.71	10.38
27	7.50	7.86	....	9.84	10.22	11.32	11.39	11.99	12.97	.....	10.68	10.09
28	7.52	7.80	....	9.78	10.09	11.46	11.23	11.96	12.76	11.28	.....	.....
29	7.47		....	9.79	10.12	11.58	11.17	11.96	12.68	11.23	.....	9.94
30	7.58		9.08	9.73	10.00	11.52	11.29	12.03	12.79	11.20	.....	10.00
31	7.67		9.18		10.05		11.27	12.14		11.22		9.89

S20/60-2ddd1. Arthur E. Gray (State Engineer No. 553). Drilled unused artesian well, diameter 10 inches, depth 707 feet, 10-inch casing 0-92, 8-inch casing 0-700. Highest water level 59.58 below lsd, Apr. 21, 1947; lowest 79.52 below lsd, Nov. 17, 1953. Records available: 1947-53. Feb. 16, 75.14; May 22, 76.88; Aug. 24, 79.12; Nov. 17, 79.52.

S20/60-25adb1. Replaces S20/61-19bcc1. Jones (State Engineer No. 602). Drilled irrigation and domestic artesian well, diameter 10 inches, depth 438 feet, 8-inch casing 0-318, 6-inch casing 318-430. Highest water level 25 below lsd, July 7, 1948; lowest 46.76 below lsd, Sept. 12, 1953. Records available: 1953.

Daily noon water level from recorder graph

Day	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	.....	.....	36.02	38.49	39.61	41.06	43.78	44.07	45.86	45.48	42.79	41.34
2	.....	.....	36.85	38.80	39.46	41.10	44.06	44.46	45.80	45.44	42.80	41.38
3	.....	.....	36.42	38.83	39.42	41.62	44.14	45.20	45.60	45.58	42.86	41.42
4	.....	.....	36.70	38.47	39.68	41.50	44.76	44.50	45.62	45.30	42.85	40.88
5	.....	.....	37.20	38.40	39.66	41.85	43.84	44.82	45.57	45.42	42.53	40.90
6	.....	.....	37.10	38.80	39.84	41.37	44.25	45.28	46.18	45.54	42.27	41.31
7	.....	.....	37.21	38.89	39.91	41.40	44.49	45.52	45.80	45.36	42.46	40.84
8	.....	.....	37.60	38.48	39.92	41.66	44.30	45.14	45.91	45.27	42.31	.....
9	.....	.....	37.91	38.55	39.74	42.03	44.80	45.04	46.20	45.12	42.11	.....
10	.....	.....	37.66	38.54	39.60	42.26	44.74	45.42	45.74	45.28	42.22	.....
11	.....	36.03	37.24	38.30	39.83	42.80	44.82	45.72	46.26	44.74	42.03	.....
12	.....	36.06	37.68	38.64	39.97	42.44	44.32	45.40	46.76	44.86	42.04	.....
13	.....	36.04	37.89	38.34	40.40	42.60	44.34	45.70	46.07	45.10	42.06	.....
14	.....	35.90	37.53	38.76	39.94	42.60	44.04	45.62	45.66	44.80	42.45	.....
15	.....	36.06	37.33	39.19	40.18	42.60	43.58	44.40	45.71	44.80	42.38	.....
16	.....	36.30	37.85	39.17	39.39	.....	44.38	44.58	46.18	44.62	41.91	.....
17	.....	36.55	37.88	39.02	39.90	.....	44.00	45.20	46.20	44.22	42.32	.....
18	.....	36.14	37.98	39.25	40.42	42.98	43.84	45.08	46.04	44.30	42.36	.....
19	.....	35.89	37.35	38.97	40.44	42.94	43.55	45.90	45.98	43.71	42.98	.....
20	.....	35.82	37.54	39.23	40.62	42.50	44.14	45.50	45.93	43.42	.....	.....
21	.....	36.00	38.04	39.20	40.23	42.59	44.08	45.86	46.30	.....	.....	.....
22	.....	35.82	37.99	39.37	41.04	42.86	45.00	48.33	45.76	.....	.....	.....
23	.....	35.52	38.01	39.29	40.61	43.50	44.92	45.50	46.18	.....	.....	.....
24	.....	35.84	38.50	39.71	40.74	43.62	44.86	46.14	46.00	.....	.....	.....
25	.....	36.14	37.94	39.73	40.86	43.69	44.88	45.80	45.88	.....	42.26	.....
26	.....	36.10	38.38	39.32	40.88	43.66	45.24	45.87	45.90	.....	42.38	.....
27	.....	36.14	38.36	39.19	41.33	43.62	45.44	46.06	46.20	.....	42.07	.....
28	.....	36.11	38.28	38.93	40.95	43.37	45.50	45.63	45.58	42.54	42.43	.....
29	.....		38.06	39.46	.....	43.82	45.54	45.56	45.52	42.96	42.57	.....
30	.....		38.18	39.40	.....	43.88	45.20	45.48	45.92	42.77	42.02	.....
31	.....		38.33		41.10		45.54	46.71		43.48		.....

S20/60-36dbb1. M. D. Kidder (State Engineer No. 18). Drilled artesian well, diameter 8 inches, depth 385 feet, 8-inch casing 9-262, 6-inch casing 262-345, 4-inch casing 345-381. Land-surface datum is 2,228.8 feet above msl. Highest water level 3.00 below lsd, summer 1925; lowest 67.20 below lsd, Aug. 24, 1953. Records available: 1925, 1927, 1931-32, 1935-36, 1938-41, 1945-53.

Daily noon water level from recorder graph

Day	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	.....	56.20	56.98	.....	61.42	.....	65.50	65.64	66.64	66.64	63.26	61.38
2	.....	56.49	57.76	.....	60.64	62.40	65.90	65.52	66.68	66.68	62.97	61.46
3	56.18	56.34	.....	.....	60.76	.....	65.92	66.56	66.80	.....	62.96	61.39
4	56.03	56.28	.....	55.80	60.88	.....	65.62	.....	66.84	.....	63.00	61.21
5	56.13	56.59	.....	57.51	61.12	.....	65.52	.....	66.88	.....	62.76	61.35
6	56.03	56.76	.....	57.98	61.05	.....	65.64	.....	66.67	.....	62.82	61.41
7	55.99	56.38	.....	57.71	61.03	.....	65.98	.....	66.82	.....	62.84	61.32
8	56.44	56.48	.....	57.49	61.40	.....	66.04	.....	67.04	66.36	62.80	61.46
9	56.11	56.87	.....	.....	60.88	63.60	66.58	.....	67.10	66.30	62.69	61.28
10	56.18	56.69	58.30	.....	60.70	64.50	66.50	.....	.....	66.16	62.67	61.04
11	56.08	57.16	58.14	59.48	61.23	64.12	66.52	.....	.....	66.02	62.59	61.22
12	56.13	57.09	58.08	59.63	61.90	64.38	66.32	.....	.....	.....	62.58	61.21
13	55.95	56.38	58.25	59.79	62.38	64.04	66.42	.....	.....	.....	62.50	61.30
14	56.04	.....	58.26	59.72	61.52	63.76	66.42	66.30	.....	.....	62.47	61.17
15	56.04	.....	57.98	60.42	61.52	64.22	66.84	65.34	.....	65.20	62.46	61.07
16	56.01	57.34	58.44	60.60	.....	64.56	66.17	65.40	.....	65.06	62.40	61.01
17	55.98	57.40	58.55	60.60	.....	64.62	66.84	66.10	66.97	64.70	62.34	60.93
18	55.76	57.11	58.45	60.50	.....	63.70	64.90	66.41	67.08	64.66	62.33	60.87
19	56.30	56.90	58.25	60.16	.....	.....	65.50	66.84	66.94	64.32	62.22	61.01
20	56.03	56.91	57.85	60.54	.....	.....	65.74	66.86	66.74	64.01	62.00	60.82
21	56.01	57.15	58.34	60.56	61.49	.....	65.70	67.17	67.04	63.96	61.96	60.96
22	55.93	56.76	58.62	60.70	62.50	.....	66.16	67.10	.....	63.55	61.78	60.97
23	56.15	56.66	59.12	60.54	61.88	.....	66.68	66.70	.....	63.44	61.64	61.03
24	56.04	56.88	59.14	61.06	.....	.....	66.66	67.20	66.90	63.26	61.75	60.79
25	56.03	57.22	58.93	61.06	.....	.....	66.54	.....	.....	63.17	61.79	60.70
26	56.78	57.42	59.51	60.44	.....	.....	66.44	67.14	.....	63.19	61.64	60.47
27	56.67	57.50	59.40	60.31	.....	.....	66.60	66.84	.....	63.27	61.57	60.49
28	56.75	57.05	59.48	60.36	.....	.....	66.62	66.76	.....	63.28	61.60	60.43
29	56.62		.....	61.30	.....	.....	66.80	66.70	.....	63.32	61.68	60.41
30	56.70		59.36	60.88	.....	.....	67.14	66.50	.....	63.18	61.38	60.69
31	56.50		.....		62.26		66.96	66.62		63.25		60.57

S20/61-3acc1. Frank Allen (State Engineer No. 316). Drilled unused artesian well, diameter 8 inches, depth 300 feet. Highest water level 15.30 below lsd, Apr. 25, 1946; lowest 63.66 below lsd, Aug. 26, 1953. Records available: 1944-53. Feb. 9, 45.16; May 27, 54.27; Aug. 26, 63.66; Nov. 18, 59.06.

S20/61-5b1. M. Armstrong. Drilled irrigation and domestic well, diameter 10 inches, depth 267 feet. Highest water level 38.96 below lsd, Feb. 28, 1945; lowest 45.60 below lsd, Aug. 26, 1953. Records available: 1944-53. Feb. 16, 44.66; May 27, 44.82; Aug. 26, 45.60; Nov. 8, 45.43.

S20/61-16bdb1. J. R. Atwater (State Engineer No. 208). Drilled irrigation and domestic artesian well, diameter 8 inches, depth 386 feet. Highest water level 1.18 above lsd, Mar. 29, 1945; lowest 23.85 below lsd, Nov. 18, 1953. Records available: 1944-53. Feb. 20, 18.22; May 27, 18.35; Aug. 26, 23.64; Nov. 18, 23.85.

S20/61-18bcc1. Sky Haven Airport (State Engineer No. 505). Drilled irrigation and domestic artesian well, diameter 6 inches, depth 412 feet. Highest water level 1.84 below lsd, Jan. 23, 1945; lowest 24.68 below lsd, Nov. 12, 1952. Records available: 1944-52. Measurement discontinued.

S20/61-19abd1. Splane Estate (State Engineer No. 5). Drilled domestic and irrigation well, diameter 10 inches, depth 260 feet. Land-surface datum is 2,175.5 feet above msl. Highest water level 24.8 above lsd, Jan. 18, 1942; lowest 11.80 below lsd, Aug. 24, 1953. Records available: 1939-53. Feb. 16, 3.50; May 22, 6.88; Aug. 24, 11.80; Nov. 17, 8.67.

S20/61-19bcc1. Jones (State Engineer No. 4). Drilled unused artesian well, diameter 12 inches, depth 244 feet. Land-surface datum is 2,200 feet above msl. Highest water level 0.19 above lsd, Mar. 17, 1944; lowest 28.20 below lsd, Aug. 21, 1952. Records available: 1944-47, 1952-53. Measurement discontinued.

S20/61-19bcc1--Continued.

Noon water level from recorder graph

Date	Water level	Date	Water level	Date	Water level	Date	Water level
Jan. 1	23.15	Jan. 11	22.92	Jan. 21	22.97	Jan. 31	23.30
2	23.05	12	23.07	22	22.93	Feb. 1	23.17
3	22.91	13	22.90	23	23.02	2	23.17
4	22.82	14	22.89	24	23.39	3	23.09
5	22.99	15	22.85	25	23.19	4	23.16
6	22.82	16	22.78	26	23.02	5	23.06
7	22.87	17	22.82	27	23.19	6	23.95
8	23.06	18	22.69	28	23.05	7	23.29
9	23.01	19	22.84	29	23.19	8	23.07
10	22.94	20	22.77	30	23.26	10	23.23

S20/61-22cbc1. Jack Moore and C. E. Bell (State Engineer No. 461). Drilled unused artesian well, diameter 8 inches, depth 385 feet, cased to 75. Highest water level 3.92 below lsd, Apr. 28, 1945; lowest 20.07 below lsd, Aug. 26, 1953. Records available: 1944-53. Feb. 20, 9.38; May 27, 14.34; Aug. 26, 20.07; Nov. 16, 14.42.

S20/61-27cbc1. Clyde Caskey (State Engineer No. 336). Drilled unused well, diameter 6 inches, depth 283 feet. Highest water level 5.60 below lsd, Feb. 26, 1946; lowest 20.78 below lsd, Aug. 26, 1953. Records available: 1944-53. Feb. 20, 8.39; May 27, 14.02; Aug. 26, 20.78; Nov. 16, 15.23.

S20/61-28dac1. J. A. Haggard (State Engineer No. 199). Drilled domestic and irrigation well, diameter 6 inches, depth 805 feet. Land-surface datum is 2,044 feet above msl. Highest water level 57.3 above lsd, Jan. 18, 1942; lowest 6.73 above lsd, Sept. 28, 1953. Records available: 1940-53. Feb. 20, +17.2; May 27, +10.3; Sept. 28, +6.73; Nov. 18, +13.3.

S20/61-28dac4. J. A. Haggard. Drilled unused artesian well, diameter 8 inches, reported depth 368 feet. Land-surface datum is 2,044 feet above msl. Highest water level 21.8 above lsd, Jan. 24, 1943, Jan. 17, 1944; lowest 2.6 above lsd, Sept. 28, 1953. Records available: 1940-53. Sept. 28, +2.6; Nov. 18, +10.8.

S20/61-29dbb1. John Papus (State Engineer No. 380). Drilled unused artesian well, diameter 8 to 6 inches, depth 475 feet, 8-inch casing to 400, 6-inch casing to 475. Land-surface datum is 2,094 feet above msl. Highest water level 36.8 above lsd, Jan. 28, 1946; lowest 14.1 above lsd, Aug. 26, 1953. Records available: 1943-53. Feb. 20, +28.3; May 22, +21.1; Aug. 26, +14.1; Nov. 16, +22.5.

S20/61-33ccd1. Clark County Hospital (State Engineer No. 202). Drilled unused artesian well, diameter 8 inches, depth 386 feet. Highest water level 30.3 above lsd, Feb. 20, 1950; lowest 6.0 above lsd, Aug. 27, 1953. Records available: 1950-53. Feb. 19, +26.8; May 14, +16.5; May 27, +13.4; Aug. 27, +6.0; Nov. 16, +20.0.

S20/61-34adc1. S. W. Craner (State Engineer No. 47). Drilled domestic and irrigation artesian well, diameter 8 inches, depth 354 feet, cased to 178. Highest water level 41.4 above lsd, Dec. 21, 1940; lowest 16.2 above lsd, Aug. 21, 1944. Records available: 1939-53. Feb. 19, +28.3; May 27, +26.1; Aug. 26, +18.7; Nov. 16, +20.2.

S20/61-35ddc2. Estella Beam (State Engineer No. 368). Drilled unused artesian well, diameter 8 to 6 inches, depth 418 feet, 8-inch casing to 81, 6-inch casing to 310. Highest water level 38.4 above lsd, Feb. 16, 1951; lowest 11.7 above lsd, Sept. 18, 21, 1953. Records available: 1945-53.

Daily noon water level, above lsd, from recorder graph

Day	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	....	....	....	32.7	30.5	28.6	24.5	....	19.9	20.8	26.5	30.3
2	....	j32.6	....	32.7	30.7	28.7	24.2	....	20.2	20.8	26.6	30.4
3	....	....	....	32.7	30.2	28.2	24.1	....	14.7	20.9	26.7	30.5
4	....	....	....	32.6	30.2	28.4	24.0	19.1	19.3	21.2	26.7	30.6
5	j31.2	....	....	32.6	30.2	28.5	24.4	....	16.7	21.2	26.7	30.7
6	....	....	....	32.3	30.7	27.9	24.0	....	14.4	21.2	27.0	30.7
7	....	....	....	32.4	29.6	27.7	23.9	....	13.5	20.3	27.2	30.9
8	....	....	....	32.4	30.7	....	23.3	....	13.4	20.3	27.4	31.0
9	....	j33.1	....	32.4	30.8	27.9	23.5	....	13.3	21.6	27.7	31.8
10	....	....	....	32.2	30.7	27.7	22.8	....	12.9	21.9	28.1	31.7
11	....	....	....	31.8	30.2	27.6	....	20.9	15.0	22.5	28.3	31.7
12	j31.8	....	....	32.2	30.2	27.2	....	....	13.2	22.7	28.4	31.7
13	....	....	....	32.0	30.0	27.2	....	20.6	13.1	22.7	28.5	31.8
14	....	....	....	32.3	29.9	27.1	22.9	20.0	12.8	22.7	28.5	31.7
15	....	....	....	32.5	29.7	....	23.5	20.7	13.5	22.9	28.7	31.7

S20/61-35ddc2--Continued.

Day	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
16	....	j32.9	....	32.2	30.2	28.3	23.1	20.5	12.5	22.9	28.7	31.9
17	....	....	....	31.9	30.2	28.2	22.9	20.0	12.2	23.0	28.7	32.0
18	....	....	32.5	31.7	29.9	27.9	23.4	19.9	11.7	23.3	28.9	32.0
19	j32.0	....	32.4	31.7	30.0	27.5	23.5	19.7	11.9	23.7	29.0	32.0
20	....	....	32.5	31.6	29.7	27.7	23.1	19.8	11.9	24.2	29.0	32.2
21	....	....	32.5	31.5	29.6	27.6	22.5	19.7	11.7	24.5	29.2	32.6
22	....	....	32.5	31.2	29.2	27.4	22.2	19.7	12.2	24.7	29.3	32.6
23	....	j33.4	32.7	31.5	29.2	25.7	21.7	20.2	17.1	24.9	29.4	32.7
24	....	....	32.9	31.1	28.8	25.2	21.1	19.9	18.7	25.2	29.7	....
25	....	....	32.7	31.2	28.9	25.3	21.7	20.2	14.9	25.7	29.9	32.9
26	j32.6	....	32.4	30.9	28.9	24.7	21.4	16.2	18.7	25.8	29.9	33.1
27	....	....	32.6	30.8	28.7	24.7	21.2	18.5	19.9	25.9	29.7	33.3
28	....	....	32.7	....	28.9	24.7	21.9	19.1	20.1	26.2	30.0	....
29	....		32.7	....	28.7	24.7	....	18.7	20.7	26.3	30.1	....
30	....		33.0	....	28.9	24.7	....	18.9	20.7	26.3	30.1	....
31	....		32.7		28.8		....	19.9		26.5		....

j Mercury manometer reading.

S20/61-36bbb1. A. C. Delkin (State Engineer No. 393). Drilled domestic and irrigation well, diameter 8 inches, depth 325 feet, cased to 300. Highest water level 37.3 above lsd, Jan. 26, 1945; lowest 6.4 above lsd, Aug. 27, 1952. Records available: 1944-53. Feb. 13, +22.7; Feb. 19, +21.6; May 27, +12.7; Aug. 26, +7.6; Nov. 10, +15.3.

S20/62-3bbd1. Las Vegas Army Air Field. Drilled unused well, diameter 8 inches, depth 242 feet, cased to 200, perforations 120-200. Highest water level 50.17 below lsd, May 27, 1948; lowest 69.27 below lsd, May 9, 1952. Records available: 1945, 1947-52. Measurement discontinued.

S20/62-19bcc1. Byron Thornton (State Engineer No. 443). Drilled domestic and irrigation well, diameter 8 inches, depth 150 feet. Highest water level 29.58 below lsd, May 5, 1945; lowest 34.83 below lsd, Nov. 16, 1951. Records available: 1945-52. Measurement discontinued.

S20/62-33ccc1. U. S. Geol. Survey. Drilled test and observation water-table well, diameter 1 inch, depth 42 feet, cased to 42. Highest water level 15.80 below lsd, Nov. 18, 1953; lowest 25.32 below lsd, Dec. 28, 1945. Records available: 1945-53. Feb. 19, 16.72; May 27, 16.12; Aug. 26, 16.86; Nov. 18, 15.80.

S21/61-3abb2. W. S. Park (State Engineer No. 238). Drilled domestic and irrigation artesian well, diameter 4 inches, depth 807 feet. Highest water level 40.4 above lsd, Mar. 6, 1944; lowest 4.8 above lsd, Aug. 21, 1953. Records available: 1944-53. Feb. 19, +27.4; May 27, +19.1; Aug. 21, +4.8; Aug. 26, +10.1; Nov. 16, +16.3.

S21/61-4aad1. Opaco Lumber Co. (State Engineer No. 386). Drilled unused artesian well, diameter 10 inches, depth 793 feet, cased to 770, perforations 338-438, 642-770. Highest water level 46.5 above lsd, Feb. 19, 1948, Feb. 21, 1952; lowest 17.0 above lsd, Aug. 21, 1944. Records available: 1944-53. Feb. 19, +40.8; May 27, +28.1; Aug. 27, +17.2; Nov. 16, +30.7.

S21/61-7acc2. Kimball & Williams (State Engineer No. 155). Drilled domestic and irrigation artesian well, diameter 6 inches, depth 355 feet. Land-surface datum is 2,179.4 feet above msl. Highest water level 20.6 above lsd, Jan. 24, 1943; lowest 17.17 below lsd, Aug. 27, 1953. Records available: 1940-53. Feb. 10, 9.36; Feb. 19, 9.37; May 27, 13.39; Aug. 27, 17.17; Nov. 16, 14.46.

S21/61-15bbb1. T. T. Schofield. Dug domestic and irrigation water-table well, diameter 5 feet, depth 9 feet. Highest water level 3.00 below lsd, Feb. 12, 1953; lowest 7.94 below lsd, Sept. 16, 1945. Records available: 1945-53. Feb. 12, 3.00; May 24, 3.51; Aug. 26, 3.75; Nov. 17, 3.47.

S21/61-21bbb1. Moe Sedway (State Engineer No. 123). Drilled domestic and irrigation artesian well, diameter 6 inches, depth 850 feet, cased to 600. Highest water level 61.1 above lsd, Dec. 20, 1942; lowest 0.8 below lsd, Nov. 17, 1953. Records available: 1940-53. Jan. 15, +16.2; Feb. 16, +10.3; Mar. 16, +14.1; Apr. 15, +13.7; May 15, +8.9; Aug. 25, +0.2; Nov. 17, -0.8.

S21/61-21dcd1. W. N. Connell. Dug unused water-table well, diameter 5 feet, depth 24 feet. Highest water level 19.00 below lsd, Mar. 9, 1945; lowest dry at 21.75, June 19, 1953. Records available: 1944-53. Jan. 19, 21.68; Feb. 17, 21.63; Mar. 16, 21.58; Apr. 17, 21.60; May 12, 21.78; June 19, dry at 21.75.

S21/61-22ccc1. A. P. Baker (State Engineer No. 117). Drilled unused artesian well, diameter 6 inches, depth 500 feet. Land-surface datum is 2,070.8 feet above msl. Highest water level 35.7 above lsd, Dec. 20, 1942; lowest 3.0 above lsd, Aug. 26, 1953. Records available: 1940-53. Feb. 12, +17.6; May 12, +11.2; Aug. 26, +3.0; Nov. 20, +11.5.

S21/61-29dda1. F. M. Ferguson (State Engineer No. 93). Drilled unused artesian well, diameter 6 inches, depth 260 feet. Highest water level 2.75 above lsd, Feb. 24, 1945; lowest 9.47 below lsd, Aug. 26, 1953. Records available: 1944-46, 1950-53. Feb. 18, 7.12; May 18, 8.08; Aug. 26, 9.47; Nov. 16, 9.14.

S21/61-33bac1. Clark County Airport (State Engineer No. 39). Drilled unused artesian well, diameter 6 inches, depth 222 feet. Land-surface datum is 2,189.8 feet above msl. Highest water level 2.80 above lsd, Feb. 18, 1939; lowest 10.58 below lsd, Aug. 26, 1953. Records available: 1938-53. Feb. 18, 7.76; May 23, 8.74; Aug. 26, 10.58; Nov. 16, 9.75.

S21/61-34dcc1. Fred Nagamatsu (State Engineer No. 74). Drilled unused well, diameter 6 inches. Highest water level 3.69 below lsd, Feb. 28, 1945; lowest 14.63 below lsd, Aug. 26, 1953. Records available: 1944-53. Feb. 17, 9.89; May 12, 12.71; June 9, 13.24; Aug. 26, 14.63; Nov. 5, 13.34.

S21/61-36adc2. U. S. Geol. Survey. Drilled test and observation water-table well, diameter $1\frac{1}{2}$ inches, depth 20 feet. Highest water level 9.79 below lsd, May 6, 1949; lowest 12.72 below lsd, Nov. 17, 1953. Records available: 1946-53. Feb. 13, 11.74; May 23, 11.64; Aug. 26, 12.68; Nov. 17, 12.72.

S21/62-7bac2. S. Barbee (State Engineer No. 286). Drilled domestic and irrigation artesian well, diameter 8 inches, depth 225 feet. Highest water level 4.20 above lsd, Feb. 26, 1949; lowest 6.17 below lsd, Sept. 4, 1953. Records available: 1945-53. Sept. 4, 6.17; Nov. 23, 3.73.

S21/62-21cbc2. L. E. Billman (State Engineer No. 430). Drilled unused artesian well, diameter 8 inches, depth 500 feet. Highest water level 61.2 above lsd, Dec. 22, 1944; lowest 24.9 above lsd, Aug. 26, 1953. Records available: 1944-53. Feb. 13, +34.4; Feb. 19, +34.5; May 27, +32.7; Aug. 26, +24.9; Nov. 23, +28.8.

S21/62-27aad1. U. S. Geol. Survey. Drilled test and observation water-table well, diameter 3 inches, depth 12 feet. Highest water level 4.14 below lsd, May 13, 1952; lowest 5.05 below lsd, Aug. 19, 1947. Records available: 1945-53. Feb. 26, 4.17; May 16, 4.30; Aug. 8, 4.43; Nov. 11, 4.38.

S21/62-29ccc1. J. R. Bond (State Engineer No. 134). Drilled domestic and irrigation artesian well, diameter 6 inches, depth 404 feet. Highest water level 18.4 above lsd, Aug. 25, 1944; lowest 2.70 above lsd, Aug. 15, 1947. Records available: 1944-53. Feb. 13, +8.7.

S22/61-4bcc1. Fitzpatrick (State Engineer No. 41). Drilled unused well, diameter 8 inches, depth 355 feet. Highest water level 74.4 below lsd, Jan. 25, 1939; lowest 89.83 below lsd, Sept. 23, 1953. Records available: 1938-53.

Daily noon water level from recorder graph

Day	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	84.23	85.36	.....	.....	85.95	.....	88.30	88.10	87.65	88.13	86.72	86.52
2	84.23	84.77	84.67	.....	86.06	86.82	87.94	87.98	87.66	87.99	86.52	86.14
3	84.12	84.46	.....	.....	86.02	87.07	87.73	88.01	87.62	87.97	86.57	86.04
4	84.06	84.48	.....	.....	86.73	86.89	87.68	88.02	87.88	87.91	86.49	85.94
5	83.99	84.77	.....	.....	86.95	86.86	87.67	88.04	88.02	87.81	86.32	86.12
6	83.91	84.58	.....	.....	86.48	86.79	87.65	87.98	88.02	87.73	86.40	86.02
7	83.98	84.42	.....	.....	86.32	86.85	87.66	87.85	88.22	87.65	86.49	85.84
8	84.08	84.47	.....	.....	86.21	86.85	87.75	87.76	88.32	87.59	86.49	85.94
9	84.01	84.68	85.33	.....	86.41	86.89	87.69	87.77	88.36	87.51	86.41	85.88
10	83.97	84.84	85.03	.....	86.51	87.35	87.59	87.71	88.51	87.40	86.30	85.63
11	83.96	84.89	85.07	86.05	86.51	87.31	87.51	87.87	88.34	87.34	86.30	85.72
12	83.94	84.99	85.11	.....	86.43	87.25	87.55	87.89	88.60	87.36	86.24	85.67
13	83.96	85.03	85.25	.....	86.54	87.27	87.53	87.88	88.52	87.35	86.27	85.63
14	83.97	85.08	.....	.....	86.31	87.22	87.58	87.72	88.44	87.36	86.32	85.56
15	84.14	85.06	.....	85.62	86.22	87.24	87.83	87.53	88.71	87.37	86.60	85.49
16	84.17	84.83	85.27	85.48	86.23	87.20	87.39	87.42	88.85	87.38	86.59	85.47
17	84.07	85.53	85.29	85.55	86.29	87.31	87.21	87.38	88.90	87.45	86.42	85.84
18	84.09	85.83	86.08	85.65	86.26	87.57	87.04	87.32	89.05	87.32	86.51	85.66
19	84.07	85.23	86.33	85.62	86.19	87.66	86.97	87.32	89.11	87.22	86.46	85.67
20	84.02	85.00	86.97	85.57	86.52	87.79	86.91	87.29	89.24	87.27	86.22	85.62

S22/61-4bcc1--Continued.

Day	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
21	84.12	84.93	86.90	85.60	86.40	87.82	87.05	87.28	89.30	87.18	86.30	85.60
22	84.17	85.39	.....	85.62	86.34	88.16	87.04	87.32	89.42	87.10	86.35	85.64
23	84.05	84.92	85.80	85.61	86.28	88.28	87.02	87.42	89.83	87.07	86.29	85.80
24	84.03	84.92	85.59	85.30	86.28	88.30	87.12	87.41	89.57	87.01	86.32	85.61
25	84.90	85.00	85.60	85.33	86.23	88.30	87.70	87.59	89.38	86.96	86.31	85.61
26	85.00	84.97	85.61	85.36	86.24	88.26	87.88	87.63	89.30	86.92	86.40	85.47
27	84.57	84.92	85.64	85.32	86.42	88.26	87.98	87.61	89.22	86.77	86.37	85.37
28	84.35	84.83	85.56	85.33	86.44	88.29	88.01	87.59	89.23	86.83	86.30	85.43
29	84.21		.....	85.36	.....	88.33	87.99	87.57	89.23	86.90	86.27	85.40
30	85.07		85.78	85.35	.....	88.33	87.92	87.59	89.21	86.84	86.08	85.51
31	85.40		.....		.....		87.91	87.56		86.83		85.46

S22/61-9cbb1. Daisy Bell (State Engineer No. 42). Drilled unused water-table well, diameter 10 inches, depth 127 feet. Highest water level 92.62 below lsd, Jan. 24, 1945; lowest 99.63 below lsd, Nov. 16, 1953. Records available: 1944-53. Feb. 18, 98.97; May 23, 99.18; Aug. 26, 99.49; Nov. 16, 99.63.

S22/61-16ccc1. Dalton Buck. Drilled unused well, diameter 10 inches. Highest water level 83.63 below lsd, Sept. 22, 1944; lowest 89.13 below lsd, Nov. 16, 1953. Records available: 1944-53. Feb. 18, 88.34; May 23, 88.55; Aug. 26, 88.96; Nov. 16, 89.13.

Pahrump Valley
(See also Nye County)

S21/54-10aac1. Bowman (State Engineer No. 22). Drilled unused well, diameter 14 inches, depth 800 feet, cased to 472, perforations 100-450. Highest water level 25.99 below lsd, Jan. 5, 1945; lowest 39.58 below lsd, Sept. 18, 1953. Records available: 1944-53.

Daily noon water level from recorder graph

Day	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	33.05	33.11	32.27	36.18	37.03	36.35	38.57	.....	39.42	39.24	.....	36.50
2	33.01	33.19	.....	36.23	37.56	36.42	38.56	38.71	39.46	39.31	37.70	36.31
3	32.82	33.19	.....	36.45	37.64	36.29	38.54	38.84	39.49	39.39	37.86	36.13
4	32.67	33.16	.....	36.58	37.13	36.35	38.66	38.79	39.42	39.06	37.79	36.57
5	32.54	33.13	.....	36.63	36.97	36.59	38.66	38.80	39.45	39.12	37.73	.....
6	32.49	33.04	.....	36.48	36.85	36.39	38.59	38.99	39.46	39.10	37.96	.....
7	32.69	32.59	.....	36.86	37.39	36.38	38.64	39.07	39.56	.....	38.01	.....
8	33.32	32.17	33.07	36.90	37.36	36.48	38.69	39.07	39.53	.....	37.59	.....
9	32.90	.....	33.08	.....	37.58	36.60	38.76	38.96	39.42	.....	.....	.....
10	32.83	.....	33.07	.....	37.09	37.35	38.84	39.15	39.51	.....	37.50	.....
11	32.76	.....	32.98	.....	36.57	37.38	38.80	39.22	39.26	.....	37.74	.....
12	32.77	.....	33.21	.....	36.43	37.41	38.55	39.22	39.42	38.94	37.65	.....
13	32.75	.....	33.31	.....	37.04	37.10	38.75	39.11	.....	38.75	37.67	.....
14	32.79	.....	33.36	37.44	36.82	37.13	38.81	39.21	39.55	38.64	37.72	35.99
15	32.98	.....	33.07	37.51	36.62	37.35	.....	39.18	39.55	38.57	37.78	35.90
16	32.92	32.25	32.71	37.37	36.70	37.62	38.95	39.10	39.31	38.49	.....	35.90
17	32.74	32.12	32.87	37.31	36.33	37.74	38.91	39.25	39.54	38.47	.....	35.94
18	32.73	31.88	33.17	37.55	36.19	37.77	38.87	39.26	39.58	.....	.....	35.89
19	32.74	32.03	33.12	37.43	35.73	37.69	38.68	39.00	39.30	.....	.....	35.91
20	32.63	32.07	33.49	37.33	35.64	37.79	38.92	39.23	39.18	.....	.....	35.81
21	32.78	32.14	34.02	37.19	35.78	37.43	38.71	39.26	39.05	.....	.....	.....
22	32.83	32.29	34.09	37.26	35.57	.....	.....	39.29	39.00	.....	.....	.....
23	32.70	32.23	34.08	37.26	35.25	.....	.....	39.16	39.16	.....	36.85	.....
24	32.60	32.58	34.54	37.22	35.39	.....	.....	39.23	38.40	.....	38.83	.....
25	32.53	32.66	34.90	37.16	35.66	37.74	.....	39.39	38.20	.....	36.74	.....
26	32.60	32.57	35.26	37.21	36.17	38.30	.....	39.37	38.15	37.37	36.61	.....
27	32.74	32.49	35.54	37.03	36.07	38.43	.....	39.33	38.15	37.36	36.66	.....
28	33.09	32.48	35.64	35.76	35.88	38.41	.....	39.32	38.13	37.92	36.68	35.71
29	33.00		35.76	.....	36.00	38.23	.....	39.35	.....	37.86	36.34	35.68
30	33.04		.....	36.16	36.14	38.30	.....	39.42	.....	37.86	36.38	35.84
31	33.18		36.16		36.37		.....	.....		37.65		35.66

Douglas County

Carson Valley

12/20-17ba1. John Helwinkel, Jr. Drilled irrigation water-table well in alluvium of Quaternary age, diameter 18 inches, depth 365 feet. Highest water level 8.82 below lsd, July 9, 1949; lowest 19.47 below lsd, Mar. 30, 1950. Records available: 1948-53. Apr. 3, 17.88.

13/20-8ca1. C. W. Godecke. Drilled irrigation well, diameter 18 to 12 inches, depth 300 feet. Highest water level 0.35 below lsd, Mar. 30, 1950; lowest 3.96 below lsd, Sept. 26, 1950. Records available: 1942, 1948-52. No measurement made in 1953.

13/20-29aab1. H. F. Dangberg Co. Drilled irrigation artesian well, diameter 12 inches, reported depth 320 feet, reported plugged at 125. Highest water level 0.10 above lsd, May 11, 1948; lowest 4.04 below lsd, Aug. 15, 1950. Records available: 1948-53. Apr. 3, 1.26.

13/20-31bd1. H. Dangberg. Drilled irrigation water-table well in alluvium of Quaternary age, diameter 16 inches, depth 413 feet, cased to 400, perforations 60-400. Highest water level 2.12 below lsd, Dec. 19, 1950, Sept. 18, 1952; lowest 7.52 below lsd, Aug. 15, 1950. Records available: 1950-53. Apr. 3, 3.04.

13/20-32dc1. Mack Land & Cattle Co. Drilled irrigation water-table well in alluvium of Quaternary age, diameter 18 inches, reported depth 420 feet. Highest water level 7.83 below lsd, May 24, 1950; lowest 10.09 below lsd, Nov. 4, 1949. Records available: 1948-53. Apr. 3, 9.95.

14/19-25ba1. Carson Indian Agency. Drilled irrigation water-table well in alluvium of Quaternary age, diameter 12 inches, depth 239 feet. Highest water level 10.82 below lsd, Apr. 2, 1951; lowest 20.09 below lsd, Aug. 3, 1948. Records available: 1946, 1948-53. Apr. 3, 10.92.

Elko County

Clover Valley

34/63-21a1. Leslie Davis. Dug unused water-table well, diameter 9 feet, cribbed with concrete. Highest water level 12.22 below lsd, Aug. 3, 1953; lowest 12.58 below lsd, Aug. 25, 1948, Mar. 27, 1951. Records available: 1948-53. Aug. 3, 12.22.

35/62-26b1. Lloyd Higley. Dug irrigation water-table well, size 6 by 7 feet, reported depth 10 feet, cribbed with wood. Highest water level 4.98 below lsd, Mar. 27, 1951; lowest 7.89 below lsd, Sept. 14, 1949. Records available: 1948-53. Aug. 3, 6.90.

35/62-27b1. U. S. Geol. Survey. Drilled test and observation well, diameter 6 inches, depth 286 feet, cased to 197. Highest water level 6.65 below lsd, Mar. 27, 1951; lowest 9.78 below lsd, Dec. 21, 1949. Records available: 1949-53.

Date	Water level	Date	Water level	Date	Water level	Date	Water level
Jan. 3	8.35	Mar. 9	8.19	June 30	7.50	Nov. 9	8.83
Feb. 1	8.26	May 3	9.11	Aug. 3	7.50	Dec. 2	8.88
Mar. 5	8.19	June 1	8.12	Oct. 3	8.14		

35/62-27b2. U. S. Geol. Survey. Adjacent to well 35/62-27b1. Drilled observation water-table well, diameter 1 inch, depth 15 feet. Highest water level 7.10 below lsd, Sept. 29, 1952; lowest 10.38 below lsd, June 30, 1953. Records available: 1949-53.

Jan. 3	7.53	Mar. 9	7.41	June 30	10.38	Nov. 9	8.31
Feb. 1	7.23	May 3	7.34	Aug. 3	7.61	Dec. 2	8.36
Mar. 5	7.32	June 1	7.31	Oct. 3	7.88		

Goshute-Antelope Valley

34/67-6a2. Western Pacific Railroad Co. Shafter. Drilled industrial water-table well, diameter 16 inches, reported depth 250 feet. Highest water level 26.85 below lsd, Mar. 27, 1951; lowest 30.51 below lsd, Mar. 28, 1949. Records available: 1948-53. Mar. 5, 26.87; Aug. 3, 28.20.

34/67-16d1. Utah Construction Land and Cattle Co. Dug stock water-table well, depth 58 feet. Highest water level 42.75 below lsd, Sept. 30, 1952; lowest 44.07 below lsd, June 25, 1948. Records available: 1948-50, 1952. No measurement made in 1953.

Humboldt River Valley
(See also Humboldt, Lander, and Pershing Counties)

33/52-27d1. Carlin Town Government. Drilled unused water-table well, diameter 20 inches, depth 500 feet, cased to 125. Highest water level 2.77 below lsd, Feb. 20, 1951; lowest 8.75 below lsd, Oct. 28, 1947. Records available: 1938-53.

Jan. 19	5.89	May 20	4.49	Aug. 6	6.88	Oct. 19	7.45
Feb. 20	5.79	June 20	3.31	20	7.79	Nov. 18	8.62
Mar. 19	5.47	Aug. 1	5.15	Sept. 20	7.55	Dec. 18	7.89
Apr. 20	5.37						

33/53-20d2. C. E. Lee. Dug domestic water-table well, diameter 24 inches, depth 18 feet. Replaces 33/53-20d1, which was destroyed January 1951. Highest water level 10.60 below lsd, June 28, 1951; lowest 14.10 below lsd, Sept. 28, 1953. Records available: 1951-53.

Date	Water level	Date	Water level	Date	Water level	Date	Water level
Jan. 28	12.30	Apr. 28	12.90	July 28	13.40	Oct. 28	e12.30
Feb. 26	12.30	May 28	12.80	Aug. 28	13.70	Nov. 26	12.40
Mar. 28	13.00	June 26	12.90	Sept. 28	14.10	Dec. 28	11.90

e Estimated.

35/56-1b1. Moffat. Dug stock water-table well in alluvium of Quaternary age, diameter 36 inches, depth 10 feet. Highest water level 1.20 below lsd, July 1, 1944; lowest 7.80 below lsd, Jan. 28, 1948. Records available: 1944-53.

Jan. 28	4.60	Apr. 28	4.60	July 28	4.50	Oct. 28	5.90
Feb. 26	4.90	May 28	4.60	Aug. 28	5.40	Nov. 26	5.40
Mar. 28	4.60	June 26	4.50	Sept. 28	5.40	Dec. 28	5.10

35/56-30c1. Fernald. Dug unused water-table well, depth 20 feet. Highest water level 5.20 below lsd, May 28, 1950; lowest 16.20 below lsd, Jan. 26, 1950. Records available: 1938-53.

Jan. 28	10.10	Apr. 28	8.10	July 28	8.30	Oct. 28	14.00
Feb. 26	13.80	May 28	6.50	Aug. 28	12.20	Nov. 26	13.20
Mar. 28	12.60	June 26	7.20	Sept. 28	13.30		

37/59-26a1. Deeth. Dug unused water-table well, diameter 4 feet, depth 14 feet. Highest water level 3.30 below lsd, Mar. 21, 1942; lowest 10.30 below lsd, Dec. 28, 1953. Records available: 1938-53.

Jan. 28	8.30	Apr. 28	5.80	July 28	6.80	Oct. 28	9.50
Feb. 26	8.40	May 28	4.70	Aug. 28	9.00	Nov. 26	9.30
Mar. 28	7.10	June 26	4.90	Sept. 28	9.10	Dec. 28	10.30

Lamoille Valley

33/56-8d1. Moffat. Known as Ten Mile Well. Dug domestic water-table well, diameter 42 inches, reported depth 12 feet, cribbed with concrete. Highest water level 4.40 below lsd, May 28, 1945; lowest 10.60 below lsd, Sept. 28, 1953. Records available: 1944-53.

Jan. 28	7.40	May 28	7.40	Aug. 5	9.97	Oct. 28	9.90
Feb. 26	8.30	June 26	9.00	28	10.40	Nov. 26	9.30
Mar. 28	9.40	July 28	10.10	Sept. 28	10.60	Dec. 28	10.20
Apr. 28	8.00						

33/57-22d1. Sutacha. Drilled unused water-table well, diameter 18 inches, depth 60 feet. Highest water level 33.50 below lsd, May 28, 1949; lowest 44.00 below lsd, May 28, 1951. Records available: 1948-53.

Jan. 28	38.20	Apr. 28	38.00	July 28	38.70	Oct. 28	38.70
Feb. 26	38.10	May 28	38.50	Aug. 28	38.70	Nov. 26	39.80
Mar. 28	38.50	June 26	38.80	Sept. 28	38.60	Dec. 28	38.40

33/58-5a1. George Ogilvie. Dug domestic water-table well, diameter 24 inches, depth 10 feet. Highest water level 1.00 below lsd, July 1, 1942; lowest 9.70 below lsd, Jan. 15, 1942. Records available: 1934-53.

Jan. 28	5.10	Apr. 28	6.00	July 28	4.90	Oct. 28	6.20
Feb. 26	5.80	May 28	5.20	Aug. 28	5.10	Nov. 26	5.90
Mar. 28	5.70	June 26	4.40	Sept. 28	6.40	Dec. 28	5.60

33/58-7a1. No. 2 Lytton Lane. Drilled unused water-table well, diameter 3 inches, depth 8 feet. Highest water level flowing, June 1, 1935; lowest dry, Aug. 28, 1952, Sept. 28, 1953. Records available: 1934-53.

Jan. 28	4.70	Apr. 28	4.00	July 28	4.00	Oct. 28	6.20
Feb. 26	3.90	May 28	2.50	Aug. 5	3.10	Nov. 26	4.20
Mar. 28	4.00	June 26	2.20	Sept. 28	(f)	Dec. 28	4.40

f Dry.

33/58-18c1. John Patterson. Dug unused water-table well, diameter 5 feet, depth 13 feet. Highest water level 0.90 below lsd, Aug. 28, 1953; lowest 12.5 below lsd, Mar. 1, 1935. Records available: 1934-53.

33/58-18c1--Continued.

Date	Water level	Date	Water level	Date	Water level	Date	Water level
Jan. 28	3.90	May 28	4.00	Aug. 4	2.62	Oct. 28	5.90
Feb. 26	5.00	June 26	2.90	28	.90	Nov. 26	5.70
Mar. 28	6.50	July 28	3.00	Sept. 28	4.10	Dec. 28	6.20
Apr. 28	6.60						

33/58-19ad1. H. Conrad. Known as Lamoille Church. Dug domestic water-table well, diameter 4 feet, depth 16 feet. Highest water level 0.60 below lsd, July 1, 1936; lowest 15.10 below lsd, Dec. 15, 1940. Records available: 1934-53.

Jan. 28	13.22	May 28	1.30	Aug. 4	3.37	Oct. 28	9.80
Feb. 26	14.80	June 26	2.70	28	1.00	Nov. 26	11.40
Mar. 28	12.40	July 28	3.10	Sept. 28	10.20	Dec. 28	12.10
Apr. 28	12.70						

33/58-30a1. Joe Sutacha. Known as Charles well. Dug unused water-table well, diameter 42 inches, depth 24 feet. Highest water level 1.50 below lsd, Apr. 28, 1947; lowest 26.0 below lsd, Feb. 1, 1941. Records available: 1934-53.

Jan. 28	21.00	May 28	4.20	Aug. 4	2.69	Oct. 28	16.90
Feb. 26	22.50	June 26	4.60	28	11.40	Nov. 26	15.00
Mar. 28	11.60	July 28	5.20	Sept. 28	12.60	Dec. 28	16.90
Apr. 28	8.30						

34/57-18a1. U. S. Bureau of Land Management. Known as Dry Lake well. Drilled stock water-table well, reported depth 148 feet. Highest water level 38.15 below lsd, Mar. 29, 1945; lowest 64.40 below lsd, July 28, 1952. Records available: 1944-53.

Jan. 28	56.00	Apr. 28	42.00	July 28	55.40	Oct. 28	55.00
Feb. 26	43.00	May 28	45.90	Aug. 28	47.40	Nov. 26	46.50
Mar. 28	42.10	June 26	53.40	Sept. 28	54.80	Dec. 28	46.40

35/58-3cb1. Randolph. Dug unused water-table well, diameter 5 feet, depth 8 feet. Highest water level flowing, June 1, 1943; lowest 8.75 below lsd, Sept. 4, 1934. Records available: 1934-53. Measurement discontinued.

Jan. 28	7.10	Apr. 28	e1.00	July 28	5.00	Sept. 28	6.50
Feb. 26	(j)	May 28	e1.00	Aug. 28	6.10	Oct. 28	7.00
Mar. 28	6.80	June 26	e1.00				

e Estimated.
j Frozen.

Ruby Valley

28/59-9c1. Owner unknown. Dug stock water-table well, size 4 by 4 feet, depth 44 feet. Highest water level 37.18 below lsd, Sept. 29, 1952; lowest 38.63 below lsd, June 10, 1949. Records available: 1948-49, 1952. No measurement made in 1953.

31/60-4a1. Owner unknown. Drilled stock water-table well, diameter 8 inches, depth 20 feet. Highest water level 2.96 below lsd, June 14, 1950; lowest 7.44 below lsd, Sept. 15, 1949. Records available: 1948-53. Mar. 5, 7.30; Sept. 19, 7.29.

31/60-16c1. Owner unknown. Drilled stock water-table well, diameter 8 inches, depth 35 feet. Highest water level 4.98 below lsd, June 14, 1950; lowest 10.90 below lsd, Sept. 15, 1949. Records available: 1948-53. Sept. 19, 10.67.

32/60-29c1. U. S. Geol. Survey. Drilled test and observation well, diameter 6 inches, depth 202 feet, cased to 137. Highest water level 1.38 below lsd, Mar. 28, 1951; lowest 4.38 below lsd, Sept. 15, 1949. Records available: 1949-53. Mar. 5, 3.41; Sept. 19, 4.36.

32/60-29c2. U. S. Geol. Survey. Driven observation water-table well, diameter 1½ inches, depth 15 feet, cased to 15. Highest water level 3.65 below lsd, Mar. 28, 1951; lowest 6.95 below lsd, Sept. 15, 1949. Records available: 1949-53. Mar. 5, 6.18; Sept. 19, 6.90.

33/60-35d1. Owner unknown. Dug stock water-table well, diameter 14 inches, cased with oil drums. Highest water level 4.80 below lsd, June 10, 1949; lowest 7.77 below lsd, Sept. 14, 1949. Records available: 1948-53. Mar. 5, 7.20; Sept. 19, 7.02.

Esmeralda County

Fish Lake Valley

1S/35-21a1. Rex B. Clark. Drilled stock water-table well, diameter 13 inches. Highest water level 13.12 below lsd, Mar. 21, 1950; lowest 14.32 below lsd, Sept. 8, 1952. Records available: 1949-53. Mar. 19, 14.20; Sept. 14, 13.74.

1S/35-28a1. Rex B. Clark. Drilled stock water-table well, diameter 16 inches, depth 624 feet, cased to 600, perforations 150-600. Highest water level 25.45 below lsd, Jan. 21, 1948; lowest 32.51 below lsd, Mar. 27, 1952. Records available: 1945-53. Sept. 14, 28.43.

2S/35-15c1. O. Z. D. Davis. Drilled domestic water-table well, diameter 6 inches, depth 50 feet. Highest water level 44.57 below lsd, Nov. 11, 1949; lowest 46.26 below lsd, Mar. 19, 1953. Records available: 1949-53. Mar. 19, 46.26; Sept. 14, 45.64.

2S/35-28d1. E. L. Cord. Cord No. 3. Drilled irrigation water-table well, diameter 12 inches, reported depth 110 feet. Highest water level 46.2 below lsd, July 20, 1945; lowest 56.64 below lsd, Sept. 20, 1950. Records available: 1945, 1949-50, 1952-53. Mar. 27, 53.29.

2S/35-33a1. E. L. Cord. Cord No. 1. Drilled irrigation water-table well, diameter 12 inches, depth 120 feet. Highest water level 51.91 below lsd, Dec. 13, 1946; lowest 62.47 below lsd, Nov. 30, 1949. Records available: 1946-47, 1949-50. No measurement made in 1953.

2S/35-33a9. E. L. Cord. Cord No. 13. Drilled irrigation water-table well, diameter 14 to 8 inches, depth 1,010 feet, cased to 800, perforations 150-800, casing reported collapsed at 355. Highest water level 50.07 below lsd, Mar. 27, 1952; lowest 63.65 below lsd, Mar. 22, 1950. Records available: 1950, 1952. No measurement made in 1953.

2S/35-34b2. E. L. Cord. Cord No. 5. Drilled irrigation water-table well, diameter 12 inches, reported depth 100 feet. Highest water level 11.33 below lsd, Dec. 15, 1945; lowest 19.15 below lsd, Nov. 9, 1949. Records available: 1942, 1944-47, 1949-50. No measurement made in 1953.

3S/35-3b2. F. J. Willeman. Drilled domestic and irrigation water-table well, reported depth 720 feet. Highest water level 22.05 below lsd, Oct. 11, 1949; lowest 23.54 below lsd, Sept. 10, 1951. Records available: 1949-53. Mar. 20, 22.90.

3S/35-4a2. Sigurd Folwick. Drilled unused water-table well, diameter 14 to 8 inches, reported depth 124 feet, cased to 124, perforations 70-124. Highest water level 46.51 below lsd, Nov. 10, 1949; lowest 48.88 below lsd, Sept. 10, 1951. Records available: 1949-53. Mar. 20, 47.19; Sept. 14, 48.26.

3S/35-4a3. Sigurd Folwick. Drilled unused water-table well, diameter 13 inches, depth 76 feet. Highest water level 45.46 below lsd, Mar. 16, 1951; lowest 48.12 below lsd, Sept. 8, 1952. Records available: 1949-53. Sept. 14, 46.18.

3S/35-4d3. Sigurd Folwick. Drilled irrigation water-table well, diameter 14 inches, reported depth 132 feet, perforations 70-132. Highest water level 44.95 below lsd, Mar. 22, 1950; lowest 46.95 below lsd, Sept. 8, 1952. Records available: 1950-53. Sept. 14, 46.62.

3S/35-14c1. C. Parkinson. Drilled irrigation water-table well, diameter 12 inches, reported depth 79 feet. Highest water level 22.24 below lsd, Nov. 29, 1949; lowest 23.60 below lsd, Mar. 27, 1952. Records available: 1949-52. No measurement made in 1953.

3S/35-14c2. C. Parkinson. Drilled irrigation water-table well, diameter 12 inches. Highest water level 23.26 below lsd, Sept. 14, 1953; lowest 30.45 below lsd, Sept. 10, 1951. Records available: 1950-53. Sept. 14, 23.26.

3S/35-14c4. U. S. Bureau of Land Management. Drilled unused water-table well, diameter 12 inches. Highest water level 38.60 below lsd, Jan. 21, 1948; lowest 41.60 below lsd, Sept. 10. 1951. Records available: 1945, 1947-53. Sept. 14, 41.51.

3S/35-25b1. Bar 99 Ranch. Drilled irrigation water-table well, diameter 14 inches, reported depth 123 feet. Highest water level 3.30 below lsd, Mar. 21, 1950; lowest 11.46 below lsd, Sept. 10, 1951. Records available: 1949-53. Mar. 2, 9.35; Sept. 14, 6.14.

3S/35-26a3. Bar 99 Ranch. Drilled unused water-table well, diameter 12 inches, reported depth 125 feet. Highest water level 11.15 below lsd, Jan. 21, 1948; lowest 17.20 below lsd, Aug. 21, 1948. Records available: 1946-53. Sept. 14, 12.96.

Tonopah and Vicinity

3/40-2c1. Miller's Mill. Dug unused water-table well, size 8 by 5 feet, depth 61 feet, cribbed with wood. Highest water level 39.11 below lsd, Sept. 8, 1952; lowest 39.33 below lsd, Sept. 19, 1950. Records available: 1948-53. Sept. 14, 39.31.

Eureka County

Antelope Valley

16/51-7d1. Bartholemae Corp. Dug stock water-table well, diameter 6 feet, depth 29 feet Highest water level 24.86 below lsd, Oct. 1, 1952; lowest 25.54 below lsd, Sept. 19, 1950. Records available: 1949-52. No measurement made in 1953.

18/51-34d1. Bartholemae Corp. Drilled stock water-table well, diameter 6 inches, depth 134 feet. Highest water level 93.96 below lsd, Oct. 1, 1952; lowest 94.09 below lsd, June 19, 1950. Records available: 1949-53. Sept. 14, 94.03.

Crescent Valley

29/48-3d1. U. S. Geol. Survey. Drilled observation water-table well, diameter 4 inches, depth 8 feet, cased to 8. Land-surface datum is 4,721.1 feet above msl. Highest water level 3.64 below lsd, Mar. 15, 1949; lowest 5.65 below lsd, Aug. 8, 1948. Records available: 1948-51. No measurement made in 1953.

29/48-34c1. Dan Filippini. Drilled stock water-table well, diameter 6 inches. Land-surface datum is 4,731.3 feet above msl. Highest water level 6.08 below lsd, Mar. 15, 1949; lowest 7.70 below lsd, Sept. 13, 1950. Records available: 1948-52. No measurement made in 1953.

30/49-6a1. U. S. Geol. Survey. Drilled observation water-table well, diameter 4 inches, depth 9 feet, cased to 9. Land-surface datum is 4,712.1 feet above msl. Highest water level 2.61 below lsd, Mar. 15, 1949; lowest 4.95 below lsd, Sept. 15, 1948. Records available: 1948-53. Mar. 6, 3.90.

31/49-5c1. Wm. Connelly. Beowawe. Dug domestic water-table well, diameter 4 feet, depth 10 feet. Land-surface datum is 4,698.3 feet above msl. Highest water level 6.58 below lsd, Mar. 29, 1951; lowest 7.69 below lsd, Sept. 9, 1949. Records available: 1948-53. Mar. 6, 7.33.

Diamond Valley

19/53-5a1. A. C. Florio. Drilled stock water-table well, diameter 6 inches. Highest water level 175.71 below lsd, Nov. 16, 1953; lowest 180.04 below lsd, Sept. 13, 1949. Records available: 1947-53.

Date	Water level	Date	Water level	Date	Water level	Date	Water level
Jan. 3	176.24	Jan. 25	176.02	Feb. 10	176.29	Feb. 24	176.10
6	176.14	31	176.11	17	176.34	Nov. 16	175.71
18	176.03						

19/53-13b1. Owner unknown. Eureka. Dug unused water-table well, size 4 by 6 feet, depth 19 feet. Highest water level 14.74 below lsd, July 14, 1948; lowest dry, Sept. 11, 1951. Records available: 1948-53. Nov. 19, 15.81.

20/53-15b1. U. S. Bureau of Land Management. Dug stock water-table well, diameter 4 feet, reported depth 99 feet, cribbed with concrete. Highest water level 71.75 below lsd, Apr. 30, 1948; lowest 76.49 below lsd, Mar. 24, 1949. Records available: 1947-53.

Jan. 3	74.64	Jan. 25	74.86	Feb. 17	75.05	Sept. 15	74.39
6	74.44	31	74.99	24	75.09	Nov. 18	74.30
18	74.80	Feb. 10	75.04				

20/53-31d1. A. C. Florio. Drilled stock well, diameter 6 inches. Highest water level 157.11 below lsd, Oct. 1, 1952; lowest 165.90 below lsd, Sept. 13, 1949. Records available: 1947-53.

Jan. 3	157.81	Jan. 18	157.84	Jan. 31	157.97	Feb. 17	158.04
6	157.87	25	157.78	Feb. 10	157.99	Nov. 16	157.54

21/53-5c1. A. C. Florio. Drilled stock water-table well, diameter 4 feet, depth 42 feet. Highest water level 28.69 below lsd, Sept. 15, 1953; lowest 28.98 below lsd, Sept. 13, 1949. Records available: 1947-53. Mar. 3, 28.76; Sept. 15, 28.69.

22/54-27a1. Robert Stucki. Drilled domestic and irrigation well, diameter 12 inches, depth 94 feet, cased to 93, perforations 46-93. Highest water level 5.49 below lsd, Aug. 11, 1949; lowest 10.04 below lsd, Sept. 15, 1953. Records available: 1949-53. Mar. 3, 8.55; Sept. 15, 10.04.

22/54-33d1. A. L. Jones. Drilled irrigation well, diameter 12 inches, depth 191 feet, cased to 190, perforations 15-25, 144-190. Highest water level 5.93 below lsd, Dec. 16, 1949; lowest 8.42 below lsd, Sept. 15, 1953. Records available: 1949-53. Mar. 3, 6.33; Sept. 15, 8.42.

Kobeh Valley

21/49-17b1. Pete Etchegaray. Drilled stock water-table well, diameter 6 inches, depth 60 feet. Highest water level 39.15 below lsd, Mar. 2, 1953; lowest 42.85 below lsd, Sept. 11, 1951. Records available: 1948-51, 1953. Mar. 2, 39.15; Sept. 14, 40.10.

Humboldt County

Grass Valley
(See also Pershing County)

35/37-14d3. Kenneth Eddie. Ranch headquarters. Drilled irrigation water-table well, diameter 12 inches, depth 107 feet. Land-surface datum is 4,318 feet above msl. Highest water level 31.01 below lsd, Apr. 27, 1950; lowest 47.12 below lsd, Sept. 13, 1949. Records available: 1946-53. Mar. 20, 43.20; Sept. 17, 41.79.

35/37-28b1. U. S. Bureau of Land Management. Button sage well. Drilled unused water-table well, diameter 12 inches, depth 73 feet. Land-surface datum is 4,300 feet above msl. Highest water level 33.30 below lsd, Sept. 11, 1952; lowest 38.83 below lsd, Sept. 24, 1951. Records available: 1946-53. Mar. 26, 37.71; Sept. 11, 34.30.

35/37-34a2. Owner unknown. Drilled unused water-table well, diameter 10 inches, depth 83 feet. Land-surface datum is 4,301.5 feet above msl. Highest water level 17.68 below lsd, May 16, 1946; lowest 23.71 below lsd, Sept. 20, 1951. Records available: 1946-53. Mar. 17, 19.74; Sept. 17, 21.74.

Humboldt River Valley
(See also Elko, Lander, and Pershing Counties)

35/36-14c1. Charles Hilyer. Ranch headquarters. Drilled domestic and stock water-table well, diameter 12 inches, depth 18 feet. Land-surface datum is 4,236.3 feet above msl. Highest water level 7.38 below lsd, Mar. 29, 1951; lowest 12.69 below lsd, Dec. 15, 1949. Records available: 1947, 1949-53. Mar. 17, 9.45; Sept. 17, 11.98.

35/37-2b1. Henry Harrar. Drilled stock water-table well, diameter 8 inches, depth 21 feet. Land-surface datum is 4,257.8 feet above msl. Highest water level 2.05 below lsd, Mar. 29, 1951; lowest 7.60 below lsd, Dec. 16, 1949. Records available: 1947-53. Sept. 17, 6.71.

35/37-8d2. D. H. McNinch. Drilled unused water-table well, diameter 16 inches, depth 77 feet. Land-surface datum is 4,301 feet above msl. Highest water level 54.92 below lsd, May 14, 1951; lowest 58.75 below lsd, Dec. 21, 1948. Records available: 1947-53. Mar. 17, 50.74; Sept. 17, 57.80.

36/38-16c1. George Hay Co. Drilled irrigation water-table well, diameter 12 inches, depth 55 feet. Land-surface datum is 4,291.6 feet above msl. Highest water level 15.08 below lsd, May 14, 1951; lowest 19.54 below lsd, Nov. 22, 1950. Records available: 1947-53. Mar. 19, 16.49; Sept. 17, 18.28.

36/40-19d1. Diamond S Ranch. Drilled irrigation water-table well, diameter 14 inches, depth 51 feet. Highest water level 12.27 below lsd, Sept. 11, 1952; lowest 23.90 below lsd, Apr. 8, 1949. Records available: 1949-53. Mar. 19, 18.80; Sept. 18, 14.80.

36/40-30aa1. Diamond S Ranch. Drilled unused water-table well, diameter 6 inches, depth 101 feet. Highest water level 23.63 below lsd, Sept. 11, 1952; lowest 35.82 below lsd, Feb. 23, 1950. Records available: 1949-53. Mar. 19, 31.44; Sept. 18, 24.00.

37/38-33d1. George Hay Co. Dug unused water-table well, diameter 36 inches, depth 16 feet. Land-surface datum is 4,294.6 feet above msl. Highest water level 9.86 below lsd, June 28, 1951; lowest 14.17 below lsd, Oct. 28, 1948. Records available: 1947-53. Mar. 19, 11.64; Sept. 17, 13.02.

37/39-33d1. Bullhead Ranch. Drilled stock water-table well, diameter 12 inches, depth 24 feet. Land-surface datum is 4,309.5 feet above msl. Highest water level 1.87 below lsd, Mar. 7, 1951; lowest 9.40 below lsd, Oct. 1, 1947. Records available: 1947, 1949-53. Mar. 19, 7.28; Sept. 18, 9.02.

Paradise Valley

37/38-2a1. U. S. Bureau of Land Management. Drilled stock well, diameter 6 inches, depth 79 feet. Land-surface datum is 4,335 feet above msl. Highest water level 26.88 below lsd, Mar. 18, 1953; lowest 36.67 below lsd, Nov. 24, 1950. Records available: 1945-53. Mar. 18, 26.88; Sept. 16, 28.87.

38/39-28d1. Cordoza. Drilled stock water-table well, diameter 8 inches, depth 30 feet. Land-surface datum is 4,312 feet above msl. Highest water level 10.13 below lsd, May 27, 1949; lowest 14.22 below lsd, Sept. 13, 1949. Records available: 1947-51. No measurement made in 1953.

39/39-3c1. Gerhard Miller, Sr. Ranch headquarters. Dug stock and domestic water-table well, diameter 8 feet, depth 22 feet. Land-surface datum is 4,342 feet above msl. Highest water level 6.20 below lsd, Mar. 18, 1953; lowest 15.81 below lsd, Sept. 14, 1948. Records available: 1948-53. Mar. 18, 6.20; Sept. 16, 11.43.

39/39-16d1. Dwight C. Vedder. Drilled stock water-table well, diameter 12 inches, depth 46 feet. Land-surface datum is 4,331.7 feet above msl. Highest water level 3.82 below lsd, May 28, 1951; lowest 10.69 below lsd, Sept. 14, 1948. Records available: 1947-53. Mar. 18, 6.05; Sept. 16, 8.90.

39/39-24b1. Dwight C. Vedder. Drilled domestic water-table well, diameter 6 inches, depth 24 feet. Land-surface datum is 4,333.9 feet above msl. Highest water level 3.30 below lsd, Apr. 5, 1946; lowest 9.50 below lsd, Sept. 19, 1950. Records available: 1945-53. Mar. 18, 5.33; Sept. 16, 8.31.

39/39-33c1. Owner unknown. Drilled stock water-table well, diameter 12 inches, depth 37 feet. Land-surface datum is 4,318.2 feet above msl. Highest water level 4.15 below lsd, Apr. 25, 1946; lowest 9.60 below lsd, Sept. 13, 1949, Sept. 19, 1950. Records available: 1945-51, 1953. Sept. 16, 7.40.

40/39-10d1. Owner unknown. Drilled unused water-table well, diameter 12 inches, depth 55 feet. Land-surface datum is 4,422 feet above msl. Highest water level 39.60 below lsd, Sept. 10, 1952; lowest 55.02 below lsd, July 23, 1947. Records available: 1945-53. Mar. 18, 42.25; Sept. 16, 41.51.

40/39-26b1. Henry McCleary Timber Co. Drilled domestic well, diameter 16 inches, reported depth 300 feet. Land-surface datum is 4,360 feet above msl. Highest water level 3.43 below lsd, Apr. 25, 1946; lowest 12.12 below lsd, Jan. 30, 1951. Records available: 1945-53. Mar. 18, 5.20; Sept. 16, 7.87.

41/40-6c1. Joe Boggio. Drilled unused water-table well, diameter 16 inches, depth 55 feet. Land-surface datum is 4,458 feet above msl. Highest water level 2.20 below lsd, Feb. 12, 1951; lowest 11.5 below lsd, Aug. 25, 1947. Records available: 1945-53. Mar. 18, 5.42; Sept. 16, 8.46.

41/40-22d1. Ernest Gondra. Drilled domestic water-table well, diameter 7 inches, depth 41 feet. Highest water level 5.63 below lsd, June 16, 1950; lowest 11.82 below lsd, June 31, 1949. Records available: 1947-53. Mar. 18, 9.00; Sept. 16, 10.10.

41/40-30a1. Shelton School. Drilled domestic water-table well, diameter 8 inches, depth 27 feet. Land-surface datum is 4,414 feet above msl. Highest water level 1.17 below lsd, Apr. 30, 1951; lowest 10.95 below lsd, Oct. 25, 1948. Records available: 1945-53. Mar. 18, 4.77; Sept. 16, 8.60.

42/39-25c1. U. S. Bureau of Land Management. Dug unused water-table well, diameter 5½ feet, depth 18 feet. Land-surface datum is 4,523 feet above msl. Highest water level 2.50 below lsd, Apr. 30, 1951; lowest 9.90 below lsd, Oct. 20, 1949. Records available: 1945-53.

Date	Water level	Date	Water level	Date	Water level	Date	Water level
Jan. 29	7.22	Apr. 28	6.35	Aug. 28	7.12	Oct. 20	8.27
Feb. 28	6.95	May 21	3.01	Sept. 16	7.72	Nov. 18	8.29
Mar. 18	6.50	June 16	3.55	25	7.99	Dec. 17	8.18

42/40-14c1. J. M. Freeman. Drilled domestic and stock water-table well, diameter 12 inches, depth 13 feet. Land-surface datum is 4,606 feet above msl. Highest water level 3.90 below lsd, Apr. 29, 1949; lowest 9.76 below lsd, Sept. 23, 1947. Records available: 1946-53. Mar. 18, 7.95; Sept. 16, 8.94.

42/40-18a1. E. C. Lye. Drilled irrigation water-table well, diameter 12 inches, depth 53 feet, reported cased to 64. Land-surface datum is 4,614 feet above msl. Highest water level 4.82 below lsd, Apr. 30, 1951; lowest 14.60 below lsd, Mar. 18, 1947. Records available: 1945-53. Mar. 18, 8.22; Sept. 16, 8.20.

Quinn River Valley

42/37-33b2. Hassenyager. Drilled irrigation water-table well, diameter 18 inches, depth 95 feet. Highest water level 35.42 below lsd, Sept. 16, 1953; lowest 40.42 below lsd, July 18, 1948. Records available: 1948-53. Mar. 18, 35.70; Sept. 16, 35.42.

43/37-4c2. Owner unknown. Drilled unused water-table well, diameter 6 inches, depth 42 feet. Land-surface datum is 4,230 feet above msl. Highest water level 30.41 below lsd, Sept. 10, 1952; lowest 34.11 below lsd, Mar. 29, 1951. Records available: 1947-53. Mar. 18, 31.68; Apr. 23, 31.90; Sept. 16, 30.84.

43/37-28a1. Elmo Bowly. Dug and drilled irrigation water-table well, size 5 by 6 feet to 12 feet, 12 inches to 57 feet. Land-surface datum is 4,234 feet above msl. Highest water level 8.13 below lsd, Nov. 5, 1947; lowest 12.18 below lsd, Sept. 18, 1951. Records available: 1946-53. Mar. 18, 10.20; Apr. 23, 10.21; Sept. 16, 10.67.

43/37-34d1. A. E. Hosack. Dug and drilled unused water-table well, size 4 by 4 feet to 17 feet, 12 inches to 52 feet. Land-surface datum is 4,270 feet above msl. Highest water level 40.08 below lsd, Sept. 16, 1947; lowest 47.75 below lsd, Sept. 18, 1951. Records available: 1947-53. Mar. 18, 42.63.

Lander County

Reese River Valley

27/43-33cd1. Owner unknown. Watts. Drilled unused well, diameter 6 inches, depth 114 feet. Land-surface datum is 4,810 feet above msl. Highest water level 12.36 below lsd, Apr. 22, 1948; lowest 14.44 below lsd, Mar. 16, 1951. Records available: 1947-53. Sept. 18, 13.96.

30/42-24cc1. U. S. Bureau of Land Management. Drilled stock water-table well, diameter 6 inches, depth 54 feet. Land-surface datum is 4,634 feet above msl. Highest water level 10.30 below lsd, Mar. 16, 1949; lowest 12.78 below lsd, Sept. 18, 1953. Records available: 1947-53. Sept. 18, 12.78.

30/43-9aa1. Copper Canyon Mining Co. Drilled unused well, diameter 12 inches, depth 201 feet, cased to 192. Land-surface datum is 4,767 feet above msl. Highest water level 134.56 below lsd, May 22, 1947; lowest 138.27 below lsd, Mar. 16, 1951. Records available: 1947-53. Sept. 18, 136.66.

30/44-18ad1. Copper Canyon Mining Co. Drilled unused well, diameter 12 inches, depth 329 feet, cased to 300. Land-surface datum is 4,609 feet above msl. Highest water level 5.25 below lsd, Mar. 16, 1951; lowest 6.44 below lsd, Sept. 19, 1951. Records available: 1947-53. Sept. 18, 6.43.

30/44-22cb1. Owner unknown. Dillon. Drilled unused water-table well, diameter 6 inches, depth 80 feet. Land-surface datum is 4,676 feet above msl. Highest water level 26.64 below lsd, Nov. 8, 1947; lowest 27.68 below lsd, Sept. 19, 1951. Records available: 1947-53. Sept. 18, 27.02.

30/45-4bd1. Martin Jenkins Ranch. Drilled domestic and stock well, diameter 6 inches, depth 40 feet. Land-surface datum is 4,613 feet above msl. Highest water level 18.17 below lsd, June 23, 1949; lowest 20.58 below lsd, Sept. 18, 1953. Records available: 1947-53. Sept. 18, 20.58.

30/45-18aa1. U. S. Bureau of Land Management. Dug stock water-table well, size 4 by 4 feet, reported depth 60 feet. Land-surface datum is 4,635 feet above msl. Highest water level 23.69 below lsd, Jan. 8, 1948; lowest 26.04 below lsd, Sept. 18, 1953. Records available: 1947-53. Sept. 18, 26.04.

Humboldt River Valley
(See also Elko, Humboldt, and Pershing Counties)

32/45-2a1. E. Marvel. Drilled unused water-table well, diameter 6 inches, depth 65 feet. Land-surface datum is 4,515 feet above msl. Highest water level 4.16 below lsd, May 22, 1947; lowest 6.36 below lsd, Aug. 25, 1948. Records available: 1946-53. Mar. 19, 4.75; Sept. 17, 4.76.

32/45-9ab1. Owner unknown. Drilled unused water-table well, diameter 4 inches, uncased. Land-surface datum is 4,509 feet above msl. Highest water level 6.47 below lsd, Apr. 9, 1946; lowest 10.29 below lsd, Oct. 24, 1947. Records available: 1946-53. Mar. 19, 8.53.

32/45-11d1. U. S. Geol. Survey. Drilled test and observation well, diameter 6 inches, depth 197 feet, cased to 171. Highest water level 4.08 below lsd, July 10, 1952; lowest 9.48 below lsd, Sept. 9, 1949. Records available: 1949-53. Mar. 19, 7.78; Sept. 17, 9.27.

32/45-11d2. U. S. Geol. Survey. Drilled test and observation water-table well, diameter 2 inches, depth 24 feet, cased to 24, perforations 20-24. Highest water level 1.11 below lsd, July 10, 1952; lowest 9.12 below lsd, Dec. 1, 1949. Records available: 1949-53. Mar. 19, 4.54.

32/45-20b1. R. M. Clark. Drilled domestic water-table well, diameter 6 inches, depth 14 feet. Land-surface datum is 4,509 feet above msl. Highest water level 5.93 below lsd, Mar. 20, 1947; lowest 8.64 below lsd, Sept. 19, 1951. Records available: 1946-53. Mar. 19, 6.82.

32/45-22c1. Owner unknown. Drilled observation water-table well, diameter 2 inches, depth 6 feet, uncased. Highest water level 3.07 below lsd, Mar. 16, 1951; lowest 5.45 below lsd, Oct. 24, 1947. Records available: 1946-53. Mar. 19, 4.05; Sept. 17, 5.10.

32/46-10d1. U. S. Bureau of Reclamation. Dug stock water-table well, size 8 by 10 feet, depth 10 feet, cribbed with wood. Highest water level 2.38 below lsd, Apr. 11, 1946; lowest 6.98 below lsd, Sept. 17, 1953. Records available: 1945-53. Mar. 19, 4.62; Sept. 17, 6.98.

32/46-11d1. U. S. Bureau of Reclamation. Dug stock water-table well, size 4 by 5 feet, depth 13 feet. Land-surface datum is 4,543 feet above msl. Highest water level 3.77 below lsd, Apr. 11, 1946; lowest 9.50 below lsd, Oct. 24, 1947. Records available: 1945-53. Mar. 19, 6.37; Sept. 17, 6.94.

32/46-16d1. U. S. Bureau of Reclamation. Drilled observation water-table well, diameter 2 inches, depth 11 feet. Land-surface datum is 4,538 feet above msl. Highest water level 5.07 below lsd, Apr. 11, 1946; lowest 7.61 below lsd, Sept. 14, 1950. Records available: 1946-51, 1953. Mar. 19, 5.71.

32/46-27ba1. Southern Pacific Co. Drilled unused well, diameter 12 inches, depth 431 feet. Land-surface datum is 4,560 feet above msl. Highest water level 18.95 below lsd, Mar. 19, 1953; lowest 19.89 below lsd, Aug. 15, 1950. Records available: 1947-53. Mar. 19, 18.95.

32/46-31bb1. Humboldt Petroleum Co. Drilled oil test well, diameter 6 inches, reported depth 126 feet. Land-surface datum is 4,529 feet above msl. Highest water level 10.75 below lsd, Apr. 3, 1952; lowest 12.19 below lsd, Sept. 19, 1949. Records available: 1947-53. Mar. 19, 10.88.

Lincoln County

Lake Valley
(See also White Pine County)

3/66-23d1. U. S. Bureau of Land Management. Drilled stock well, diameter 6 inches. Highest water level 41.10 below lsd, Sept. 13, 1951; lowest 43.21 below lsd, Sept. 6, 1949. Records available: 1946-51, 1953. Sept. 17, 41.98.

9/65-1b1. Fred Twisselman. Drilled irrigation well, diameter 12 inches, depth 165 feet. Highest water level 23.64 below lsd, Apr. 16, 1947; lowest 37.93 below lsd, Mar. 14, 1951. Records available: 1947-53. Sept. 17, 37.88.

Meadow Valley

1S/66-28c1. C. Ronnow. Drilled irrigation well, diameter 12 inches, reported depth 75 feet. Highest water level 44.03 below lsd, Apr. 25, 1946; lowest 49.29 below lsd, Sept. 27, 1948. Records available: 1945-52. No measurement made in 1953.

1S/68-32a2. Paul Edwards Estate. Ranch headquarters. Drilled unused water-table well in alluvium of Quaternary age, diameter 12 inches, reported depth 50 feet. Land-surface datum is 4,785.2 feet above msl. Highest water level 32.13 below lsd, Apr. 14, 1946; lowest 39.57 below lsd, Sept. 27, 1948. Records available: 1946-52. No measurement made in 1953.

1S/68-33b1. Lafe Matthews Estate. Drilled irrigation well in alluvium of Quaternary age, diameter 10 inches, reported depth 120 feet, cased to 80, perforations 60-80. Land-surface datum is 4,784.7 feet above msl. Highest water level 30.32 below lsd, Apr. 25, 1946; lowest 37.23 below lsd, Sept. 12, 1950. Records available: 1946-53. Sept. 17, 35.46.

2S/67-24d1. Duffin. Dug unused water-table well in alluvium of Quaternary age, size 4 by 4 feet, depth 10 feet, cribbed with wood. Land-surface datum is 4,677.6 feet above msl. Highest water level 3.45 below lsd, Mar. 21, 1949; lowest 6.17 below lsd, Sept. 13, 1951. Records available: 1946-53. Sept. 16, 6.08.

2S/68-5c1. Stock yard well. Dug stock water-table well in alluvium of Quaternary age, size 8 by 8 feet, depth 12 feet. Land-surface datum is 4,733.8 feet above msl. Highest water level 10.55 below lsd, Apr. 5, 1946; lowest 15.25 below lsd, Sept. 16, 1953. Records available: 1946-47, 1949-53. Sept. 16, 15.25.

2S/68-7a2. P. Findlay. Drilled domestic water-table well in alluvium of Quaternary age, diameter 4 inches, reported depth 40 feet, cased to 40. Land-surface datum is 4,726.5 feet above msl. Highest water level 17.16 below lsd, Apr. 14, 1946; lowest 21.73 below lsd, Sept. 16, 1953. Records available: 1946-53. Sept. 16, 21.73.

2S/68-8b1. Lory Free. Drilled irrigation well in alluvium of Quaternary age, diameter 10 inches, reported depth 88 feet. Land-surface datum is 4,721.7 feet above msl. Highest water level 12.09 below lsd, Apr. 14, 1946; lowest 18.57 below lsd, Sept. 12, 1950. Records available: 1946-53. Sept. 16, 17.02.

2S/68-8b5. U. S. Geol. Survey. Drilled test and observation well in alluvium of Quaternary age, diameter 8 inches, depth 110 feet, cased to 110. Highest water level 10.72 below lsd, Mar. 20, 1950; lowest 16.76 below lsd, Sept. 4, 1953. Records available: 1949-53.

Daily noon water level from recorder graph

Day	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	.....	.....	.....	.....	.....	14.90	15.50	16.15	16.61	15.75	.....	.....
2	.....	.....	.....	.....	.....	14.89	15.47	15.93	16.62	15.68	.....	.....
3	.....	12.17	.....	.....	.....	14.85	15.46	15.76	16.70	15.62	.....	.....
4	.....	12.16	.....	.....	.....	15.02	15.40	15.69	16.76	.....	.....	.....
5	.....	12.16	11.77	.....	.....	15.10	15.41	15.59	.....	.....	.....	.....
6	.....	12.15	11.75	.....	.....	15.15	15.45	15.63	.....	.....	14.72	.....
7	.....	12.12	11.74	.....	.....	15.14	15.60	15.78	.....	.....	.....	13.90
8	.....	11.90	11.73	.....	14.30	15.19	15.69	15.89	.....	.....	.....	.....
9	.....	.....	11.72	.....	14.31	15.25	15.76	16.20	.....	.....	.....	.....
10	.....	.....	11.71	12.90	14.35	15.30	15.76	16.28	.....	.....	14.93	.....
11	.....	.....	11.73	12.96	14.37	15.36	.....	.....	.....	.....	14.95	.....
12	.....	.....	.....	13.01	14.40	15.38	.....	16.35	.....	15.39	14.95	.....
13	.....	.....	.....	13.04	14.40	.....	.....	16.36	.....	15.37	14.95	.....
14	.....	.....	.....	13.12	14.43	.....	.....	16.41	.....	15.36	14.96	.....
15	.....	.....	.....	13.12	14.38	15.64	.....	16.28	.....	15.32	14.96	.....
16	.....	.....	.....	13.20	.....	15.70	15.32	16.08	.....	15.28	14.93	.....
17	.....	.....	.....	13.22	.....	15.75	15.31	15.99	16.01	15.25	14.79	.....
18	.....	.....	.....	13.32	.....	15.80	15.42	15.96	16.07	15.24	14.70	.....
19	.....	.....	.....	13.37	.....	15.84	15.59	15.97	16.14	15.19	14.62	.....
20	.....	11.90	.....	13.42	14.72	15.90	15.81	16.01	.....	15.11	14.57	.....
21	.....	11.90	.....	13.48	14.73	15.89	15.90	16.07	.....	15.08	14.52	.....
22	.....	11.88	.....	13.54	14.74	15.81	15.94	.....	.....	15:05	14.45	.....
23	12.20	11.86	.....	13.60	14.77	15.87	15.94	.....	.....	15.02	.....	.....
24	.....	11.86	.....	13.60	14.81	15.91	.....	.....	16.12	.....	.....	.....
25	.....	11.86	.....	13.65	14.92	15.90	.....	.....	16.10	.....	.....	.....
26	.....	11.85	.....	13.71	14.99	15.88	.....	.....	15.97	.....	.....	.....
27	.....	11.83	.....	13.80	15.04	.....	16.11	16.11	15.96	.....	.....	.....
28	.....	.....	.....	13.68	.....	.....	16.13	16.22	15.96	.....	.....	.....
29	.....		.....	13.50	.....	.....	16.14	16.21	15.96	.....	.....	.....
30	.....		.....	13.60	.....	.....	16.15	16.36	15.89	.....	.....	.....
31	.....		.....		.....		16.16	16.46		.....		.....

3S/67-2a1. Grant Lee. Drilled irrigation well in alluvium of Quaternary age, diameter 10 inches, depth 220 feet, cased to 180. Land-surface datum is 4,605.1 feet above msl. Highest water level 16.03 below lsd, Mar. 16, 1946; lowest 21.57 below lsd, Apr. 27, 1948. Records available: 1946, 1948-52. No measurement made in 1953.

3S/67-28c2. U. S. Geol. Survey. Drilled observation artesian well in alluvium of Quaternary age, diameter 6 inches, depth 172 feet, cased to 161. Highest water level 2.71 above lsd, Sept. 19, 1949; lowest 1.45 above lsd, Sept. 12, 1951. Records available: 1946-53. Sept. 16, +1.76.

Pahranagat Valley

4S/60-2d1. Wells-Stewart Land and Livestock Co. Drilled unused well, diameter 10 inches, reported depth 150 feet. Highest water level 40.77 below lsd, Dec. 17, 1946; lowest 56.33 below lsd, Sept. 11, 1952. Records available: 1946, 1948-53. Feb. 22, 45.78.

4S/60-2d2. Wells-Stewart Land and Livestock Co. Drilled irrigation well, diameter 12 to 11 inches, reported depth 471 feet, cased to 471, perforations 50-199. Highest water level 42.28 below lsd, Sept. 20, 1949; lowest 52.56 below lsd, Mar. 25, 1952. Records available: 1949-52. No measurement made in 1953.

4S/60-34a2. W. U. Schofield, Jr. Drilled unused well, diameter 10 inches, reported depth 96 feet, cased to 96, perforations 60-96. Highest water level 58.12 below lsd, Aug. 8, 1946; lowest 64.31 below lsd, Feb. 19, 1948. Records available: 1946, 1948-53. Sept. 15, 61.72.

5S/60-10b1. Owner unknown. Drilled unused well, diameter 5 inches, depth 81 feet. Highest water level 63.82 below lsd, Mar. 22, 1949; lowest 74.19 below lsd, Dec. 17, 1946. Records available: 1945-46, 1948-53. Sept. 15, 64.01.

6S/61-18d2. Gardner Chism. Drilled unused well, diameter 6 inches, depth 41 feet. Highest water level 5.55 below lsd, Mar. 14, 1951; lowest 8.41 below lsd, Sept. 20, 1949. Records available: 1946-53. Sept. 15, 6.57.

6S/61-30d1. L. and E. Wadsworth. Drilled unused well, diameter 6 inches, depth 39 feet. Highest water level 12.90 below lsd, Mar. 25, 1952; lowest 16.82 below lsd, Mar. 22, 1949. Records available: 1946-53. Sept. 15, 14.44.

6S/61-32d4. Kirk Buffum. Drilled domestic well, diameter 6 inches, reported depth 57 feet. Highest water level 14.72 below lsd, Mar. 21, 1950; lowest 21.68 below lsd, Mar. 14, 1951. Records available: 1946, 1948-53. Sept. 15, 20.33.

7S/61-5d1. Harvey Frehner. Drilled unused well, diameter 6 inches. Highest water level 12.17 below lsd, Mar. 21, 1950; lowest 15.33 below lsd, Sept. 11, 1952. Records available: 1946-53. Sept. 15, 15.24.

8S/61-2c1. J. H. Hail. Drilled irrigation well, diameter 10 inches, depth 92 feet, sand-filled to 30 feet. Highest water level 19.37 below lsd, Mar. 21, 1950; lowest 26.30 below lsd, Sept. 15, 1953. Records available: 1946-53. Sept. 15, 26.30.

8S/61-24d1. Bill Grieves. Dug unused water-table well, size 4 by 4 feet. Highest water level 2.96 below lsd, Mar. 25, 1952; lowest 7.85 below lsd, Sept. 30, 1948. Records available: 1946-53. Sept. 15, 6.96.

8S/62-31b1. John Richards. Drilled unused well, diameter 10 inches, depth 66 feet. Highest water level 18.60 below lsd, Apr. 18, 1947; lowest 20.66 below lsd, Sept. 15, 1953. Records available: 1945-48, 1950-53. Sept. 15, 20.66.

Lyon County

Carson River Valley

17/22-35b1. R. H. Conklin. Drilled irrigation well, diameter 16 inches. Highest water level 17.49 below lsd, Apr. 1, 1952; lowest 27.80 below lsd, Aug. 15, 1949. Records available: 1949-50, 1952-53. Feb. 27, 21.67.

18/25-31a1. Southern Pacific Co. Appian. Drilled unused well, diameter 6 inches. Highest water level 30.59 below lsd, Dec. 21, 1950; lowest 36.05 below lsd, Mar. 30, 1950. Records available: 1949-53. Feb. 27, 31.39; Sept. 11, 31.24.

Mason Valley

11/25-11a1. McDonald. Drilled irrigation well, diameter 12 inches, reported depth 247 feet. Highest water level 62.33 below lsd, Aug. 19, 1948; lowest 67.75 below lsd, Mar. 30, 1950. Records available: 1948-51. No measurement made in 1953.

11/25-11b1. Judd. Drilled domestic and stock well, diameter 6 inches, reported depth 75 feet. Highest water level 26.65 below lsd, Sept. 6, 1951; lowest 39.27 below lsd, Mar. 30, 1950. Records available: 1948-53. Feb. 27, 33.54; July 13, 30.00; Sept. 11, 25.22.

14/25-28d1. School District. Drilled unused well, diameter 6 inches, depth 38 feet. Highest water level 1.75 below lsd, July 13, 1953; lowest 6.00 below lsd, Mar. 26, 1951. Records available: 1947-53. Feb. 27, 5.50; July 13, 1.75; Sept. 11, 2.76.

15/25-26c1. Mason Valley Ranch. Drilled unused well, diameter 8 inches, depth 49 feet. Highest water level 4.10 below lsd, Apr. 1, 1952; lowest 7.35 below lsd, Aug. 20, 1948. Records available: 1945, 1947-53. Sept. 11, 5.60.

Unnamed Valley

16/21-29c1. Owner unknown. Drilled unused water-table well, diameter 4 inches, depth 59 feet. Highest water level 51.31 below lsd, Nov. 13, 1947; lowest 52.30 below lsd, Sept. 6, 1951. Records available: 1947-53. Feb. 27, 51.57; Sept. 11, 51.85.

Smith Valley

10/24-4cd1. Herb Rountree. Drilled irrigation well, diameter 14 to 12 inches, depth 250 feet. Land-surface datum is 4,910 feet above msl. Highest water level 59.61 below lsd, Nov. 2, 1948; lowest 73.64 below lsd, May 26, 1950. Records available: 1948-53. Feb. 27, 65.72.

10/24-5cb1. Fred Fulstone. Ranch headquarters. Dug and drilled stock and domestic well, size 4 by 5 feet to 60 feet, 8 inches to 480 feet. Land-surface datum is 4,898 feet above msl. Highest water level 49.54 below lsd, Dec. 23, 1952; lowest 55.44 below lsd, May 26, 1950. Records available: 1949-52. No measurement made in 1953.

10/24-7bd1. Rex B. Clark. Ranch headquarters. Drilled domestic well, diameter 4 inches, reported depth 128 feet. Land-surface datum is 4,910 feet above msl. Highest water level 62.13 below lsd, Dec. 21, 1951; lowest 64.53 below lsd, May 26, 1950. Records available: 1949-53. Apr. 17, 63.00; Sept. 11, 62.20.

11/23-1ab1. C. G. Smith. Dug stock water-table well, diameter 4 feet, depth 30 feet. Highest water level 20.41 below lsd, Sept. 11, 1953; lowest 22.35 below lsd, May 26, 1950. Records available: 1949-53. Feb. 27, 21.00; Sept. 11, 20.41.

11/23-3dc1. R. B. Day. Drilled irrigation well, diameter 12 inches, depth 242 feet, cased to 164, perforations 0-164. Land-surface datum is 4,830 feet above msl. Highest water level 45.34 below lsd, Sept. 11, 1953; lowest 50.55 below lsd, Mar. 26, 1951. Records available: 1948-53. Feb. 27, 48.47; Sept. 11, 45.34.

11/23-11ba1. A. Bunkowski. Drilled domestic well, diameter 3 inches, reported depth 70 feet. Highest water level 8.37 below lsd, Aug. 9, 1950; lowest 12.18 below lsd, Mar. 30, 1950. Records available: 1949-53. Feb. 27, 10.39.

11/23-24cd1. Mrs. Kate Gallaner. Drilled domestic artesian well, diameter 3 inches. Highest water level 37.8 above lsd, Sept. 17, 1952; lowest 32.9 above lsd, Dec. 21, 1951. Records available: 1949-53. Feb. 27, +34.5.

11/23-27dc1. C. and M. Groso. Drilled unused well, diameter 4 inches, depth 88 feet. Highest water level 56.24 below lsd, Aug. 9, 1950; lowest 71.90 below lsd, Mar. 29, 1950. Records available: 1948-53. Feb. 27, 69.31.

11/24-18ad1. Mrs. W. E. Allen. Jetted unused artesian well, diameter 2 inches, reported depth 80 feet. Land-surface datum is 4,727.7 feet above msl. Highest water level 29.3 above lsd, Sept. 28, 1953; lowest 21.6 above lsd, Oct. 15, 1949. Records available: 1948-53.

Daily noon water level, above lsd, from recorder graph

Day	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	26.3	26.7	26.6	26.5	....	....	25.1	....	26.4	28.9	26.6	26.4
2	26.2	26.7	26.7	26.3	....	....	25.3	....	26.5	28.7	26.7	26.3
3	26.2	26.8	28.8	26.4	....	....	25.1	....	26.5	28.7	26.7	26.2
4	26.2	26.8	28.9	26.4	....	....	25.3	....	26.3	28.6	26.8	26.2
5	26.3	26.8	28.9	26.3	26.1	....	25.3	....	....	28.6	26.8	26.2
6	26.3	26.7	26.8	26.1	26.2	....	....	24.6	....	27.1	26.7	26.6
7	26.4	26.6	26.8	26.4	26.1	....	....	26.0	....	26.6	26.7	26.6
8	26.4	28.3	26.6	26.3	26.0	....	....	25.9	....	....	26.6	26.7
9	26.4	28.4	26.7	26.3	26.0	....	....	26.1	....	....	26.7	26.8
10	26.4	28.9	26.5	26.1	26.1	....	....	26.1	....	....	26.7	26.7

11/24-18ad1--Continued.

Day	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
11	26.4	28.9	26.6	26.3	26.1	....	....	26.1	26.5	....	....	26.6
12	26.3	28.9	26.5	26.3	26.1	....	....	26.2	26.6	....	....	26.7
13	26.3	28.9	26.4	26.1	26.2	....	....	26.2	....	....	....	....
14	26.4	27.5	26.5	26.4	26.1	....	....	26.3	....	....	....	....
15	26.4	26.6	26.6	26.4	26.2	24.2	....	26.3	....	26.4	....	....
16	26.4	27.9	26.7	26.3	....	24.3	....	26.1	....	26.5	26.7	26.8
17	26.4	28.5	26.4	26.1	....	24.5	....	26.2	....	26.6	26.4	26.6
18	26.4	26.9	26.6	26.3	....	24.6	....	....	....	26.6	26.3	26.6
19	26.3	26.6	26.5	26.1	....	24.5	....	....	....	26.5	26.4	26.6
20	26.5	26.7	26.4	26.3	26.3	24.5	....	....	....	26.6	26.2	26.7
21	26.6	26.7	26.5	26.3	26.3	24.1	24.7	25.9	....	26.5	26.2	26.6
22	26.6	....	26.6	26.4	25.0	24.1	24.8	25.9	....	....	26.4	26.6
23	26.4	....	26.5	26.3	24.6	24.8	24.7	26.1	....	....	....	26.6
24	26.3	....	26.6	26.1	24.4	25.1	24.7	26.1	....	....	....	26.6
25	26.5	26.8	26.5	26.1	24.5	25.0	24.7	26.1	....	....	....	26.6
26	26.5	26.8	26.5	....	24.5	25.1	24.7	26.2	....	....	....	....
27	26.5	26.8	26.5	....	24.8	25.3	24.6	26.3	....	....	....	....
28	26.4	26.8	26.4	....	24.7	25.3	24.5	26.3	29.3	....	....	....
29	26.4		26.3	....	24.4	25.3	24.5	26.2	28.7	....	....	....
30	26.4		26.5	....	23.9	25.2	24.6	26.1	28.8	26.7	....	26.6
31	26.6		26.4		24.0		24.5	26.1		26.7		26.6

11/24-18da1. Mrs. Mary Harrison. Drilled domestic and irrigation artesian well, diameter 3 inches, reported depth 81 feet. Land-surface datum is 4,740.26 feet above msl. Highest water level 28.00 above lsd, Nov. 29, 1950; lowest 24.90 above lsd, May 11, 1949. Records available: 1948-53. Apr. 17, 28.4.

11/24-22dc1. Fred Fulstone. Dug unused water-table well, size 18 by 30 inches, reported depth 130 feet, reported cased to 130, cribbed with concrete. Land-surface datum is 4,888.46 feet above msl. Highest water level 53.46 below lsd, Feb. 3, 1953; lowest 62.19 below lsd, Nov. 15, 1949. Records available: 1948-53.

Daily noon water level from recorder graph

Day	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	55.12	53.77	54.66	.....	55.64	55.58	55.56	54.94	55.88	56.18	56.19	56.37
2	55.17	53.66	54.81	.....	55.63	55.60	55.39	54.97	55.88	56.28	56.17	56.36
3	55.16	53.55	54.96	.....	55.60	55.58	55.33	55.09	55.89	56.23	56.19	56.27
4	55.09	53.46	54.96	.....	55.50	55.62	55.28	55.10	55.91	56.21	56.05	56.48
5	55.02	53.48	54.95	.....	55.40	55.63	55.23	55.10	55.93	56.22	56.07	56.47
6	55.14	53.50	55.03	.....	55.31	55.69	55.16	55.16	55.93	56.23	56.25	56.40
7	55.29	53.55	55.04	.....	55.33	55.71	55.13	55.22	55.96	56.25	56.25	56.49
8	55.37	53.60	55.03	.....	55.36	55.69	55.05	55.25	55.98	56.25	56.23	56.52
9	55.41	53.71	55.02	.....	55.38	55.80	54.99	55.26	56.01	56.24	56.20	56.47
10	55.38	53.75	55.12	.....	55.40	55.85	54.91	55.31	56.03	56.19	56.20	56.55
11	55.40	53.86	55.16	.....	55.42	55.85	54.85	55.34	56.05	56.27	56.22	56.54
12	55.42	53.90	55.18	.....	55.40	55.90	54.86	55.36	56.07	56.28	56.21	56.56
13	55.48	53.91	55.29	.....	55.41	55.85	54.73	55.44	56.05	56.26	56.20	56.56
14	55.65	54.00	55.27	.....	55.34	55.92	54.74	55.41	56.05	56.30	56.24	56.52
15	55.58	54.07	55.32	.....	55.40	55.80	54.71	55.43	56.06	56.31	56.31	56.52
16	55.49	54.14	55.31	.....	55.46	55.90	54.66	55.46	58.02	56.28	56.17	56.54
17	55.42	54.15	55.43	55.65	55.48	59.88	54.63	55.50	56.10	56.29	56.24	56.56
18	55.31	54.29	55.40	55.64	55.47	55.82	54.57	55.52	56.12	56.26	56.31	56.58
19	55.10	54.32	55.32	55.51	55.42	55.93	54.53	55.53	56.07	56.44	56.15	56.57
20	55.13	54.38	55.47	55.58	55.41	55.93	54.54	55.56	56.03	56.35	56.28	56.64
21	55.01	54.41	55.58	55.55	55.48	55.93	54.56	55.60	56.07	56.34	56.32	56.65
22	54.86	54.48	55.60	55.55	55.36	55.93	54.59	55.60	56.18	56.29	56.32	56.69
23	54.66	54.51	55.58	55.63	55.29	55.93	54.58	55.60	56.16	56.33	56.36	56.66
24	54.48	54.60	55.58	55.62	55.28	55.96	54.61	55.64	56.12	56.35	56.38	56.69
25	.....	54.65	55.66	55.57	55.31	55.89	54.68	55.70	56.10	56.38	56.32	56.70
26	.....	54.66	55.68	55.56	55.40	55.97	54.74	55.71	56.07	56.36	56.30	56.61
27	54.29	54.66	55.67	55.53	55.29	55.88	54.77	55.71	56.13	56.34	56.41	56.72
28	54.18	54.56	55.66	55.58	55.37	55.76	54.79	55.73	56.18	56.29	56.41	56.63
29	54.10		55.80	55.54	55.45	55.77	54.82	55.81	56.15	56.27	56.34	56.73
30	54.03		55.80	55.56	55.39	55.70	54.89	55.87	56.15	56.29	56.37	56.77
31	53.88		55.83		55.47		54.92	55.86		56.23		56.67

11/24-27cc1. A. A. Chisholm. Drilled domestic well, diameter 4 inches, reported depth 123 feet. Land-surface datum is 4,879.7 feet above msl. Highest water level 40.67 below lsd, Sept. 11, 1953; lowest 47.80 below lsd, May 11, 1949. Records available: 1948-53. Feb. 27, 41.90; Sept. 11, 40.67.

11/24-32ab1. Nellie Albright. Drilled domestic well, diameter 3 inches, reported depth 130 feet. Land-surface datum is 4,824 feet above msl. Highest water level 0.94 below lsd, Mar. 29, 1948; lowest 7.45 below lsd, May 26, 1950. Records available: 1948-53. Feb. 27, 1.98; Sept. 11, 3.87.

11/24-32dc1. A. Nuti. Drilled irrigation well, diameter 16 inches, reported depth 390 feet. Land-surface datum is 4,865 feet above msl. Highest water level 23.62 below lsd, Mar. 3, 1948; lowest 33.08 below lsd, Sept. 17, 1952. Records available: 1948-53. Sept. 11, 28.69.

12/23-22ac3. S. H. Hunnewill. Drilled stock artesian well, diameter 6 inches, reported depth 50 feet. Land-surface datum is 4,680 feet above msl. Highest water level 10.2 above lsd, Nov. 29, 1950, Mar. 6, 1951; lowest 8.9 above lsd, Sept. 6, 1951. Records available: 1948-53. Feb. 27, +9.7.

12/24-30cd1. Owner unknown. Drilled unused well, diameter 8 inches, depth 70 feet. Land-surface datum is 4,797.66 feet above msl. Highest water level 46.45 below lsd, May 28, 1948; lowest 48.58 below lsd, June 26, 1950. Records available: 1948-53. Feb. 27, 47.17; Sept. 11, 47.41.

Mineral County

Gabbs Valley

10/35-11a1. U. S. Bureau of Land Management. Drilled stock well, diameter 6 inches, depth 265 feet. Highest water level 185.10 below lsd, Mar. 24, 1952; lowest 186.38 below lsd, Mar. 20, 1950. Records available: 1948-53. Sept. 14, 185.27.

Soda Spring Valley

8/34-28c1. Basic Magnesium Plant. Drilled unused well, diameter 8 inches. Highest water level 136.83 below lsd, Sept. 10, 1951; lowest 137.72 below lsd, Mar. 20, 1950. Records available: 1949-53. Sept. 14, 136.94.

Whisky Flat

6/31-33b2. W. F. Merchant. Drilled unused well, diameter 8 inches, depth 69 feet. Highest water level 42.23 below lsd, Sept. 19, 1950; lowest 42.37 below lsd, Mar. 12, 1951. Records available: 1949-51. No measurement made in 1953.

Nye County

Pahrump Valley
(See also Clark County)

S19/53-9bbc1. Van Horn & Stringfellow. Drilled irrigation well, diameter 14 inches, depth 746 feet, cased to 526. Highest water level 83.50 below lsd, July 2, 1947; lowest 91.77 below lsd, Sept. 21, 1953. Records available: 1947-53. Jan. 21, 87.27; Feb. 24, 86.36; Sept. 21, 91.77.

S19/53-10cbb1. Dickey & Harris. Drilled unused well, diameter 18 inches, depth 250 feet, casing removed. Highest water level 90.32 below lsd, Apr. 1, 1947; lowest 95.26 below lsd, Aug. 27, 1953. Records available: 1946-53.

Date	Water level	Date	Water level	Date	Water level	Date	Water level
Jan. 21	94.36	Apr. 16	94.45	July 26	95.00	Oct. 26	95.60
Feb. 24	94.31	May 28	94.77	Aug. 27	95.26	Nov. 25	95.50
Mar. 24	94.40	July 2	94.46	Sept. 29	95.32	Dec. 12	95.50

S19/53-15bd1. Larson Bros. (State Engineer No. 29). Formerly Van Horn. Drilled domestic well, diameter 16 inches, depth 64 feet, uncased. Highest water level 58.01 below lsd, Apr. 1, 1947; lowest 65.58 below lsd, Aug. 29, 1952. Records available: 1947-53.

Date	Water level	Date	Water level	Date	Water level	Date	Water level
Apr. 1, 1947	58.47	Feb. 15, 1949	59.15	May 7, 1951	61.14	May 28, 1953	63.12
June 3	58.01	May 24	59.30	Aug. 7	63.21	July 2	62.70
Aug. 5	58.42	Aug. 23	60.38	Nov. 5	61.52	26	63.10
Nov. 20	58.12	Nov. 29	60.01	Feb. 12, 1952	62.13	Aug. 27	63.78
Feb. 28, 1948	58.18	Dec. 22	60.06	May 21	62.02	Sept. 29	62.30
May 19	58.37	Feb. 15, 1950	60.59	Aug. 29	65.58	Oct. 26	63.20
Aug. 26	58.70	Aug. 15	60.59	Oct. 16	62.82	Nov. 25	63.90
Nov. 18	59.52	Feb. 13, 1951	61.63	Apr. 16, 1953	62.19	Dec. 22	63.80

S19/53-22acd1. Stavers (State Engineer No. 31). Drilled domestic and irrigation well, diameter 16 inches, reported depth 540 feet, cased to 280, perforations 112-124, cemented at 280. Highest water level 41.27 below lsd, Apr. 1, 1947; lowest 56.67 below lsd, May 28, 1953. Records available: 1947-53.

Date	Water level	Date	Water level	Date	Water level	Date	Water level
Jan. 21	49.99	May 31	54.09	Sept. 29	56.20	Nov. 25	54.80
Feb. 24	51.66	July 2	56.20	Oct. 26	55.10	Dec. 22	54.70
May 28	56.67	26	55.00				

S19/53-27aaa1. Emma L. Oeder (State Engineer No. 55). Drilled unused well, diameter 10 inches, reported depth 425 feet, cased to 101. Highest water level 41.95 below lsd, May 19, 1948; lowest 62.01 below lsd, July 20, 1953. Records available: 1948-53.

Date	Water level	Date	Water level	Date	Water level	Date	Water level
May 19, 1948	41.95	Nov. 29, 1949	44.65	Nov. 21, 1950	45.87	Nov. 5, 1951	46.42
Aug. 26	43.33	Dec. 22	44.31	Dec. 20	45.97	Dec. 19	43.59
Nov. 18	43.83	Feb. 15, 1950	43.74	Feb. 13, 1951	42.92	Feb. 5, 1952	43.73
Jan. 28, 1949	42.31	Mar. 20	44.20	May 17	44.65	Mar. 25	44.50
Feb. 22	42.01	Apr. 24	45.27	June 20	46.88	Apr. 15	c49.68
May 24	44.26	May 23	45.43	July 10	48.32	May 21	c50.13
July 28	45.36	June 21	46.08	Aug. 7	47.47	Aug. 29	c54.90
Aug. 23	45.71	Aug. 15	46.51	Sept. 19	47.17	Oct. 16	c49.72
Nov. 15	44.92	Oct. 19	46.62	Oct. 19	46.11	Nov. 26	50.06

c Nearby well being pumped.

Daily noon water level from recorder graph, 1953

Day	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	.....	.....	.....	.....	.....	.....	56.65	.....	58.50	58.50	.....	57.41
2	.....	.....	.....	.....	.....	.....	57.13	.....	58.97	58.35	.....	54.43
3	.....	.....	.....	.....	.....	.....	57.69	.....	58.98	.....	.....	57.05
4	.....	.....	.....	.....	.....	.....	57.93	.....	58.96	.....	.....	57.10
5	.....	.....	.....	.....	.....	.....	58.10	.....	58.96	.....	.....	54.10
6	.....	.....	.....	.....	.....	.....	.....	.....	58.96	.....	.....	56.82
7	.....	.....	.....	.....	.....	.....	.....	.....	58.95	.....	.....	57.03
8	.....	.....	.....	.....	.....	54.42	.....	.....	58.93	.....	.....	57.21
9	.....	.....	.....	.....	.....	54.55	.....	.....	58.88	.....	.....	57.27
10	.....	.....	.....	.....	.....	54.67	.....	.....	58.86	.....	57.75	57.03
11	.....	.....	.....	.....	.....	54.71	.....	.....	58.86	.....	55.50	.....
12	.....	.....	.....	.....	.....	54.85	.....	.....	58.90	.....	56.30	.....
13	.....	.....	.....	.....	.....	54.86	.....	.....	58.94	.....	58.75	.....
14	.....	.....	.....	.....	.....	54.81	.....	.....	58.84	.....	57.38	.....
15	.....	.....	.....	.....	.....	54.68	.....	.....	58.33	.....	57.33	.....
16	.....	.....	.....	h56.93	.....	54.77	.....	.....	58.62	.....	57.22	.....
17	.....	.....	.....	.....	.....	.....	.....	.....	58.88	.....	57.95	.....
18	.....	.....	.....	.....	.....	.....	.....	.....	58.99	.....	57.41	.....
19	.....	.....	.....	.....	.....	.....	61.99	.....	59.03	.....	54.13	.....
20	.....	.....	.....	.....	.....	.....	62.01	.....	59.05	.....	53.59	.....
21	h49.20	.....	.....	.....	.....	.....	.....	.....	59.06	.....	55.67	.....
22	.....	.....	.....	.....	.....	.....	.....	.....	59.06	.....	56.47	55.05
23	.....	.....	.....	.....	.....	.....	.....	59.01	59.06	.....	56.85	54.85
24	.....	h54.78	h51.40	.....	.....	.....	.....	59.45	59.04	.....	57.18	53.15
25	.....	.....	.....	.....	.....	.....	.....	59.67	59.04	.....	57.25	52.88
26	.....	.....	.....	.....	.....	.....	.....	59.32	59.06	.....	57.29	52.68
27	.....	.....	.....	.....	.....	.....	.....	59.57	59.04	.....	57.38	52.85
28	.....	.....	.....	.....	h52.77	.....	.....	59.72	58.83	.....	57.25	52.50
29	.....		.....	.....	.....	.....	.....	59.54	58.48	.....	57.40	52.34
30	.....		.....	.....	.....	.....	.....	59.70	58.67	.....	57.35	52.38
31	.....		.....		.....		.....	59.80		.....		52.27

h Tape measurement.

S19/53-32aaa1. Shurtliff (State Engineer No. 57). Drilled unused well, diameter 16 inches, depth 300 feet. Highest water level 25.70 below lsd, Dec. 22, 1953; lowest 26.89 below lsd, Feb. 17, 1949. Records available: 1949-53.

Date	Water level	Date	Water level	Date	Water level	Date	Water level
Feb. 17, 1949	26.89	Nov. 29, 1949	26.36	Nov. 21, 1950	26.33	Nov. 19, 1951	26.41
May 24	26.65	Feb. 15, 1950	26.53	Feb. 13, 1951	26.22	Feb. 12, 1952	26.22
July 28	26.79	May 23	26.35	May 22	26.16	Aug. 29	26.52
Aug. 23	26.84	Aug. 15	26.38	Aug. 7	26.40	Nov. 26	26.34

S19/53-32aaa1--Continued.

Daily noon water level from recorder graph, 1953

Day	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	.....	.....	.....	.....	.....	26.26	26.23	26.45	26.28	26.19	26.02	25.75
2	.....	.....	.....	.....	.....	26.25	26.23	26.45	26.27	26.18	26.01	25.75
3	.....	.....	.....	.....	.....	26.24	26.24	26.46	26.26	26.18	26.00	25.74
4	.....	.....	.....	.....	.....	26.24	26.25	26.47	26.26	26.18	26.00	25.73
5	.....	.....	.....	.....	.....	26.23	26.25	26.47	26.25	26.17	26.00	25.74
6	.....	.....	.....	.....	.....	26.22	26.26	26.48	26.24	26.16	25.98	25.73
7	.....	.....	.....	.....	.....	26.21	26.28	26.49	26.23	26.15	25.98	25.72
8	.....	.....	.....	.....	.....	26.21	26.29	26.50	26.22	26.15	25.98	25.72
9	.....	.....	.....	.....	.....	26.21	26.29	26.50	26.22	26.14	25.98	25.71
10	.....	.....	.....	.....	.....	26.21	26.29	26.51	26.21	26.13	25.97	25.69
11	.....	.....	.....	.....	.....	26.20	26.29	26.51	26.20	26.12	25.96	25.70
12	.....	.....	.....	.....	.....	26.20	26.30	26.50	26.20	26.12	25.95	25.70
13	.....	.....	.....	.....	.....	26.20	26.32	26.49	26.19	26.11	25.94	25.69
14	.....	.....	.....	.....	.....	26.19	26.34	26.49	26.18	26.10	25.93	25.69
15	.....	.....	.....	.....	.....	26.18	26.35	26.48	26.17	26.10	25.93	25.68
16	.....	.....	.....	h25.92	.....	26.18	26.36	26.48	26.16	26.09	25.93	25.67
17	.....	.....	.....	.....	.....	26.18	26.36	26.47	26.16	26.08	25.93	25.67
18	.....	.....	.....	.....	.....	26.18	26.37	26.46	26.17	26.07	25.92	25.66
19	.....	.....	.....	.....	.....	26.18	26.38	26.45	26.18	26.07	25.90	25.66
20	.....	.....	.....	.....	.....	26.17	26.39	26.44	26.19	26.07	25.90	25.65
21	.....	.....	.....	.....	.....	26.17	26.39	26.44	26.18	26.07	25.90	25.64
22	.....	.....	.....	.....	.....	26.17	26.39	26.43	26.18	26.06	25.89	25.70
23	.....	.....	.....	.....	.....	26.18	26.40	26.42	26.17	26.06	25.89	25.71
24	.....	h26.13	h26.20	.....	.....	26.18	26.42	26.41	26.16	26.06	25.89	25.70
25	.....	.....	.....	.....	.....	26.19	26.43	26.40	26.15	26.05	25.80	25.70
26	.....	.....	.....	.....	.....	26.20	26.45	26.40	26.15	26.05	25.79	25.69
27	.....	.....	.....	.....	.....	26.21	26.46	26.41	26.14	26.04	25.78	25.68
28	.....	.....	.....	.....	h26.29	26.21	26.41	.....	26.14	26.04	25.78	25.67
29	.....		.....	.....	.....	26.21	26.42	26.30	26.20	26.03	25.77	25.67
30	.....		.....	.....	26.26	26.22	26.43	26.29	26.19	26.03	25.75	25.67
31	.....		.....		26.26		26.44	26.28		26.02		25.67

h Tape measurement.

S19/53-33daa1. Hughes & Harmer (State Engineer No. 56). Drilled unused artesian well, diameter 12 inches. Highest water level 56.65 above lsd, June 17, 1948; lowest 29.15 above lsd, Jan. 21, 1953. Records available: 1948-53. Jan. 21, +29.15; Feb. 24, +31.85.

S20/53-5bc1. Owner unknown (State Engineer No. 34). Drilled unused well, diameter 6 inches, depth 471 feet. Highest water level 4.82 below lsd, Apr. 1, 1947; lowest 8.63 below lsd, Feb. 15, 1950. Records available: 1947-53.

Date	Water level	Date	Water level	Date	Water level	Date	Water level
Apr. 1, 1947	4.82	Nov. 18, 1948	6.62	Aug. 15, 1950	5.85	Feb. 12, 1952	5.82
Aug. 5	5.15	Feb. 17, 1949	5.27	Nov. 21	5.65	May 21	6.03
Nov. 20	5.18	May 24	5.30	Feb. 13, 1951	5.52	Aug. 29	7.05
Feb. 28, 1948	5.01	Aug. 23	5.30	May 22	5.65	Feb. 24, 1953	6.92
May 19	5.00	Feb. 15, 1950	8.63	Aug. 7	5.79	May 29	7.19
Aug. 26	7.87	May 23	6.90	Nov. 19	5.84	Aug. 27	7.40

S20/53-20aaa1. Horgan. Dug domestic well, size 3 by 5 feet, depth 18 feet. Highest water level 14.30 below lsd, May 28, 1953; lowest 17.00 below lsd, Nov. 21, 1950. Records available: 1949-53.

Feb. 23, 1949	16.33	Nov. 21, 1950	17.00	May 21, 1952	14.22	July 26, 1953	14.50
May 24	15.83	Feb. 13, 1951	16.21	Aug. 29	15.10	Aug. 27	15.10
Aug. 23	16.03	May 22	15.55	Dec. 12	15.60	Sept. 28	15.20
Nov. 24	16.69	Aug. 17	15.49	Feb. 24, 1953	14.62	Oct. 26	15.00
Feb. 16, 1950	16.75	Nov. 5	15.69	May 28	14.30	Nov. 25	16.30
May 23	15.79	Feb. 12, 1952	14.72	July 2	14.70	Dec. 22	16.30
Aug. 15	16.23						

S20/53-24caa1. Ray Thomas (State Engineer No. 40). Drilled unused artesian well, diameter 10 inches, depth 570 feet. Highest water level 25.10 below lsd, Mar. 17, 1945; lowest 42.38 below lsd, Sept. 4, 1953. Records available: 1945, 1948-53.

S20/53-24caa1--Continued.

Daily noon water level from recorder graph

Day	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	36.73	36.51	36.69	.....	.....	39.47	39.00	38.22	41.47	40.51	.....	38.57
2	36.73	36.73	36.71	.....	.....	40.70	38.44	38.25	41.59	40.47	.....	38.57
3	36.71	36.89	36.75	.....	.....	.....	38.38	38.26	41.66	40.46	.....	38.54
4	36.64	36.99	36.74	.....	.....	39.68	38.57	.....	42.38	40.46	.....	38.46
5	36.52	36.88	36.72	.....	.....	39.45	38.37	.....	42.08	40.44	.....	38.35
6	36.42	36.75	36.72	.....	.....	39.07	38.48	.....	41.90	40.43	.....	38.46
7	36.35	36.70	36.98	.....	.....	39.05	38.30	.....	41.84	40.43	.....	38.56
8	36.33	36.64	36.92	.....	.....	38.92	38.26	.....	41.79	40.24	.....	38.40
9	36.31	36.80	36.84	.....	.....	39.04	38.30	.....	41.76	40.14	.....	38.38
10	36.41	36.85	36.74	.....	.....	39.05	38.25	.....	41.74	39.98	.....	38.31
11	36.48	36.92	36.80	.....	.....	39.11	38.12	.....	41.74	39.88	.....	38.25
12	36.38	36.94	36.63	.....	.....	39.88	38.07	.....	41.68	.....	.....	38.23
13	36.48	36.88	36.34	.....	.....	40.47	38.12	.....	41.47	.....	.....	38.29
14	36.53	36.97	36.44	.....	.....	40.15	38.21	.....	41.36	.....	.....	38.22
15	36.61	36.97	36.41	.....	.....	39.23	38.09	.....	.....	.....	.....	38.19
16	36.42	36.96	36.36	41.66	.....	39.10	38.04	.....	.....	.....	.....	38.18
17	36.29	37.00	37.00	.....	.....	38.98	37.91	.....	.....	.....	.....	38.15
18	36.49	.....	37.51	.....	.....	39.05	37.96	.....	.....	.....	.....	38.14
19	36.57	.....	37.70	.....	.....	39.00	37.94	.....	.....	.....	.....	38.13
20	36.58	.....	.....	.....	.....	38.98	38.35	.....	.....	.....	38.65	38.11
21	36.45	.....	.....	.....	.....	38.74	38.50	.....	.....	.....	38.66	38.07
22	36.52	36.92	.....	.....	.....	38.68	38.60	.....	.....	.....	38.64	38.08
23	36.63	36.82	.....	.....	.....	38.65	38.84	.....	40.27	.....	38.63	38.04
24	36.65	36.82	37.64	.....	.....	39.00	38.06	.....	40.21	.....	38.62	38.03
25	36.66	36.83	.....	.....	.....	38.55	37.96	.....	41.06	.....	38.61	38.03
26	36.63	36.80	.....	.....	.....	38.52	38.12	.....	41.55	.....	38.59	38.02
27	36.67	36.77	.....	.....	.....	38.59	38.16	42.86	41.91	.....	38.61	38.05
28	36.44	36.69	.....	.....	38.98	38.71	38.14	42.18	40.82	.....	38.62	38.08
29	36.33		.....	.....	40.80	38.95	38.18	41.75	40.66	.....	38.61	37.96
30	36.28		.....	.....	40.08	38.59	38.13	41.78	40.58	.....	38.55	37.86
31	36.30		.....		39.88		38.20	41.59		.....		37.73

S21/53-1adc1. U. S. Bureau of Land Management (State Engineer No. 41). Drilled unused water-table well, diameter 10 inches, depth 74 feet. Highest water level 25.67 below lsd, May 21, 1952; lowest 27.00 below lsd, Nov. 18, 1948. Records available: 1945, 1947-53. Feb. 24, 26.25.

S21/53-24aa1. Townsend (State Engineer No. 42). Drilled unused well, diameter 10 inches, depth 120 feet. Highest water level 21.27 below lsd, May 21, 1952; lowest 22.72 below lsd, Nov. 29, 1949. Records available: 1947-53. Feb. 24, 21.83.

S21/54-15aca1. Rooker (State Engineer No. 23). Drilled unused artesian well, diameter 20 to 14 inches, depth 506 feet, 14-inch casing to 130. Highest water level 27.42 below lsd, Apr. 1, 1947; lowest 36.64 below lsd, Aug. 29, 1952. Records available: 1946-53. Feb. 24, 32.56; May 28, 33.38; Aug. 27, 37.57.

S21/54-19dd2. Turner (State Engineer No. 46). Drilled unused well, diameter 10 inches, depth 76 feet. Highest water level 35.82 below lsd, May 24, 1949; lowest 37.86 below lsd, Dec. 13, 1952. Records available: 1947-53.

Date	Water level	Date	Water level	Date	Water level	Date	Water level
Apr. 1, 1947	36.22	Feb. 18, 1949	36.89	Aug. 15, 1950	37.07	Feb. 14, 1952	36.58
Aug. 5	36.81	May 24	35.82	Nov. 21	36.93	May 21	36.48
Nov. 20	36.77	Aug. 23	37.42	Feb. 13, 1951	36.62	Aug. 29	37.18
Feb. 28, 1948	36.47	Nov. 29	37.29	May 22	36.57	Dec. 13	37.86
May 19	36.50	Feb. 15, 1950	36.98	Aug. 7	36.96	Feb. 24, 1953	37.84
Aug. 26	37.25	May 23	36.78	Nov. 19	36.91	May 28	37.20
Nov. 18	37.25						

S21/54-28bd1. Bowman (State Engineer No. 50). Drilled unused well, diameter 10 inches, depth 140 feet. Highest water level 18.65 below lsd, Nov. 18, 1948; lowest 20.72 below lsd, July 26-Aug. 1, 1953. Records available: 1946-53.

S21/54-28bd1--Continued.

Daily noon water level from recorder graph

Day	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	.....	.....	.....	.....	.....	20.51	20.59	20.72	20.71	20.63	20.59	20.67
2	.....	.....	.....	.....	.....	20.52	20.60	20.71	20.71	20.63	20.59	20.68
3	.....	.....	.....	.....	.....	20.54	20.60	20.71	20.71	20.62	20.59	20.68
4	.....	.....	.....	.....	.....	20.55	20.61	20.71	20.71	20.62	20.59	20.69
5	.....	.....	.....	.....	.....	.....	20.61	20.70	20.70	20.62	20.59	20.69
6	.....	.....	.....	.....	.....	.....	20.62	20.70	20.70	20.61	20.59	20.70
7	.....	.....	.....	.....	.....	.....	20.62	20.70	20.70	20.61	20.59	20.71
8	.....	.....	.....	.....	.....	.....	20.63	20.70	20.70	20.61	20.59	20.71
9	.....	.....	.....	.....	.....	.....	20.63	20.69	20.70	20.60	20.59	20.72
10	.....	.....	.....	.....	.....	.....	20.63	20.69	20.69	20.60	20.59	20.72
11	.....	.....	.....	.....	.....	.....	20.64	20.69	20.69	20.60	20.59	20.73
12	.....	.....	.....	.....	.....	.....	20.64	20.69	20.69	20.59	20.59	20.73
13	.....	.....	.....	.....	.....	.....	20.65	20.68	20.68	20.59	20.59	20.72
14	.....	.....	.....	.....	.....	.....	20.65	20.68	20.68	20.59	20.59	20.72
15	.....	.....	.....	.....	.....	.....	20.66	20.68	20.68	20.58	20.59	20.71
16	.....	.....	.....	.....	.....	.....	20.66	20.68	20.68	20.58	20.59	20.71
17	.....	.....	.....	.....	.....	20.47	20.67	20.68	20.67	20.58	20.59	20.71
18	.....	.....	.....	.....	.....	20.48	20.68	20.68	20.67	20.58	20.59	20.71
19	.....	.....	.....	.....	.....	20.49	20.68	20.68	20.67	20.58	20.59	20.70
20	.....	.....	.....	.....	.....	20.49	20.68	20.68	20.67	20.58	20.60	20.69
21	.....	.....	.....	.....	.....	20.50	20.69	20.68	20.66	20.58	20.60	20.69
22	.....	.....	.....	.....	.....	20.50	20.69	20.68	20.66	20.58	20.60	20.69
23	.....	.....	.....	.....	.....	20.51	20.70	20.68	20.65	20.58	20.61	20.69
24	.....	h20.53	h20.50	.....	.....	20.51	20.70	20.68	20.65	20.58	20.62	20.69
25	.....	.....	.....	.....	.....	20.52	20.71	20.69	20.65	20.58	20.62	20.68
26	.....	.....	.....	.....	.....	20.53	20.72	20.69	20.65	20.59	20.63	20.68
27	.....	.....	.....	.....	.....	20.53	20.72	20.70	20.64	20.59	20.64	20.67
28	.....	.....	.....	.....	h20.37	20.54	20.72	20.71	20.64	20.59	20.65	20.66
29	.....	.....	.....	.....	.....	20.55	20.72	20.71	20.64	20.59	20.66	20.66
30	.....		.....	.....	.....	20.56	20.72	20.71	20.63	20.59	20.66	20.65
31	.....		.....		.....		20.72	20.71		20.59		20.64

h Tape measurement.

Ralston Valley

5/44-32bb1. Owner unknown. Dug unused water-table well, depth 18 feet, cribbed with wood. Highest water level 12.17 below lsd, May 12, 1948; lowest 12.85 below lsd, Sept. 11, 1951. Records available: 1948-53. Sept. 18, 12.75.

White River Valley
(See also White Pine County)

9/61-7b1. Lloyd Sorenson. Dug stock water-table well, diameter 4 feet, depth 43 feet. Highest water level 30.24 below lsd, May 22, 1952; lowest 31.1 below lsd, Sept. 15, 1945. Records available: 1945, 1947-53. Sept. 18, 30.85.

10/60-36b1. U. S. Bureau of Land Management. Drilled stock well, diameter 8 inches, reported depth 80 feet. Highest water level 41.22 below lsd, Sept. 9, 1952; lowest 41.62 below lsd, Sept. 18, 1953. Records available: 1947-53. Sept. 18, 41.62.

Ormsby County

Eagle Valley

15/20-8b10. M. W. Johnstone. Dug unused water-table well, diameter 5 feet, depth 18 feet, cased with brick. Highest water level 0.98 below lsd, Mar. 13, 1952; lowest 10.95 below lsd, Sept. 10, 1953. Records available: 1946, 1948-53. Sept. 10, 10.95.

15/20-8c1. J. Harrison. Dug domestic water-table well, diameter 36 inches, depth 10 feet, cased to 10. Highest water level 2.14 below lsd, Mar. 13, 1952; lowest 7.36 below lsd, Sept. 10, 1953. Records available: 1946, 1948-53. Sept. 10, 7.36.

15/20-8d1. Catholic Cemetery. Dug unused water-table well, diameter 8 feet, depth 17 feet, cribbed with stone. Highest water level 9.27 below lsd, Mar. 13, 1952; lowest 12.05 below lsd, Sept. 26, 1950. Records available: 1946, 1948-52. Measurement discontinued.

15/20-9a7. Jesse James. Drilled unused well, diameter 6 inches, depth 63 feet. Highest water level 9.62 below lsd, Mar. 13, 1952; lowest 13.74 below lsd, Sept. 26, 1950. Records available: 1948-53. Sept. 10, 11.75.

15/20-17a1. Simone Lompa & Rinaldo Cremetti. Drilled unused well, diameter 10 inches, reported depth 590 feet, reported cased to 590. Highest water level 4.03 below lsd, Mar. 13, 1952; lowest 12.04 below lsd, Sept. 26, 1950. Records available: 1946, 1948-53. Sept. 10, 10.85.

15/20-17c1. State Childrens' Home. Drilled irrigation well diameter 18 to 12 to 10 inches, depth 595 feet, cased to 595. Highest water level 1.84 below lsd, Mar. 13, 1952; lowest 12.77 below lsd, Sept. 18, 1952. Records available: 1946, 1948-52. No measurement made in 1953.

Pershing County

Grass Valley
(See also Humboldt County)

32/38-18b1. U. S. Bureau of Land Management. Drilled stock well, diameter 6 inches, depth 125 feet, reported cased to 130. Land-surface datum is 4,529 feet above msl. Highest water level 76.14 below lsd, Sept. 17, 1953; lowest 76.48 below lsd, Sept. 20, 1951. Records available: 1946-53. Sept. 17, 76.14.

32/38-36b1. Fred Kerlee. Drilled unused well, diameter 12 inches, reported depth 110 feet, cased to 100, perforations 65-100. Land-surface datum is 4,604 feet above msl. Highest water level 78.10 below lsd, Oct. 25, 1947; lowest 80.14 below lsd, Sept. 17, 1953. Records available: 1947-53. Sept. 17, 80.14.

33/37-24a1. Lloyd Sweeney. Dug and drilled unused well, size 6 by $7\frac{1}{2}$ feet to 11 feet, 10 inches to 63 feet, depth 63 feet. Land-surface datum is approximately 4,400 feet above msl. Highest water level 1.80 below lsd, Apr. 24, 1946; lowest 13.56 below lsd, Oct. 19, 1950. Records available: 1945-53. May 14, 7.70; Sept. 17, 9.94.

33/37-24d1. Lloyd Sweeney. Drilled irrigation well, diameter 14 inches, depth 73 feet. Land-surface datum is 4,414 feet above msl. Highest water level 9.99 below lsd, Apr. 24, 1946; lowest 16.57 below lsd, Oct. 19, 1950. Records available: 1945-53. Sept. 17, 13.40.

33/38-32b1. U. S. Bureau of Land Management. Drilled stock well, diameter 6 inches, depth 54 feet. Land-surface datum is 4,431 feet above msl. Highest water level 28.17 below lsd, Aug. 18, 1945; lowest 31.08 below lsd, Sept. 20, 1951. Records available: 1945-53. May 14, 28.59; Sept. 17, 28.82.

34/37-22a1. J. Ballard. Drilled unused well, diameter 6 inches, depth 50 feet. Land-surface datum is 4,329 feet above msl. Highest water level 9.85 below lsd, Mar. 19, 1947; lowest 12.97 below lsd, Sept. 20, 1951. Records available: 1946-53. Sept. 17, 11.54.

Humboldt River Valley
(See also Elko, Humboldt, and Lander Counties)

29/33-33c1. Southern Pacific Co. Drilled industrial and municipal well, diameter 12 inches, reported depth 432 feet. Land-surface datum is 4,264 feet above msl. Highest water level 65.16 below lsd, May 19, 1947; lowest 73.30 below lsd, Oct. 21, 1953. Records available: 1945-53. Oct. 21, 73.30.

32/33-28d1. Cliff and Cecil Campbell. Humboldt. Drilled irrigation well, diameter 14 inches, reported depth 288 feet, reported cased to 236. Highest water level 34.37 below lsd, Apr. 26, 1950; lowest 35.72 below lsd, May 15, 1952. Records available: 1950-53. Mar. 20, 35.23; Sept. 28, 35.12; Oct. 28, 35.12.

Buena Vista Valley

30/35-4c1. Gallio. Dug stock water-table well, size 4 by 4 feet, depth 46 feet, cribbed with wood. Highest water level 24.26 below lsd, Sept. 9, 1952; lowest 39.55 below lsd, Mar. 14, 1949. Records available: 1947-53. Mar. 17, 33.70; Sept. 18, 32.45.

30/35-27b1. Neill Talcott. Drilled well, diameter 8 inches, reported depth 100 feet, cased to 100, perforations 25-100. Highest water level 21.91 below lsd, Jan. 7, 1948; lowest 28.18 below lsd, Mar. 29, 1952. Records available: 1948-50, 1952-53. Mar. 17, 27.33; Sept. 18, 26.90.

Washoe County

Spanish Springs Valley

21/20-26b1. Owner unknown. Drilled unused well, diameter 6 inches, depth 96 feet. Highest water level 66.14 below lsd, Jan. 9, 1951; lowest 71.61 below lsd, Jan. 26, 1949. Records available: 1948-49, 1951. Measurement discontinued.

Steamboat Valley

17/20-5d1. Feretto Estate. Dug domestic water-table well in weathered andesite, depth 17 feet. Highest water level 13.40 below lsd, Mar. 20, 1943; lowest 16.98 below lsd, Dec. 23, 1946. Records available: 1942-53.

Date	Water level	Date	Water level	Date	Water level	Date	Water level
Jan. 26	14.88	Apr. 28	14.48	July 24	14.40	Oct. 26	15.78
Feb. 25	14.15	May 22	14.26	Aug. 31	15.14	Nov. 25	16.06
Mar. 30	15.14	June 26	14.35	Sept. 24	14.97	Dec. 30	16.19

Sun Valley

20/20-17ba1. H. L. Gepford. Drilled unused well, diameter 6 inches, depth 187 feet. Highest water level 88.12 below lsd, Feb. 2, 1948; lowest 93.22 below lsd, Apr. 25, 1950. Records available: 1948-53. Feb. 25, 88.40; Sept. 23, 88.69.

20/20-18aa1. H. L. Gepford. Drilled unused well, diameter 6 inches, reported depth 164 feet. Highest water level 29.09 below lsd, Sept. 18, 1948; lowest 30.58 below lsd, Jan. 2, 1952. Records available: 1948-53. Feb. 25, 30.15; Sept. 23, 30.49.

20/20-30ab2. Frank Nelson. Drilled domestic well, diameter 6 inches, depth 50 feet. Highest water level 13.53 below lsd, June 24, 1952; lowest 20.20 below lsd, Oct. 23, 1950. Records available: 1948-53. Feb. 25, 15.61; Sept. 23, 16.91.

Truckee Meadows

18/19-1cd1. L. H. Pickens. Drilled domestic well, diameter 6 inches, reported depth 110 feet. Land-surface datum is 4,585.73 feet above msl. Highest water level 11.84 below lsd, Oct. 18, 1949; lowest 20.64 below lsd, May 27, 1949. Records available: 1948-53.

Feb. 25	18.88	June 26	15.88	Sept. 24	13.41	Nov. 25	15.58
May 22	17.56	July 24	14.99	Oct. 26	13.69	Dec. 30	18.19

18/19-12ad1. F. P. Quinn. Drilled unused well, diameter 6 inches, depth 26 feet. Land-surface datum is 4,580.1 feet above msl. Highest water level 14.18 below lsd, May 25, 1949; lowest dry, every spring. Records available: 1949-50, 1952-53. Oct. 26, 24.69.

18/19-12ad2. F. P. Quinn. Drilled domestic and irrigation well, diameter 6 inches, reported depth 135 feet. Land-surface datum is 4,580.1 feet above msl. Highest water level 15.35 below lsd, May 12, 1949; lowest 37.49 below lsd, Apr. 23, 1952. Records available: 1949-53. Apr. 28, 36.71; May 22, 35.53; July 24, 31.38; Aug. 31, 28.68; Sept. 24, 28.38; Nov. 25, 29.58; Dec. 30, 33.13.

18/19-12ba2. L. H. Pickens. Drilled domestic well, diameter 6 inches, reported depth 87 feet. Land-surface datum is 4,586.8 feet above msl. Highest water level 15.23 below lsd, Sept. 19, 1949; lowest 25.79 below lsd, Apr. 18, 1950. Records available: 1948-52. Measurement discontinued.

18/19-12bd1. Mrs. B. Menzi. Drilled domestic and stock well, diameter 6 inches, depth 152 feet. Land-surface datum is 4,594.7 feet above msl. Highest water level 33.09 below lsd, Sept. 19, 1949; lowest 40.30 below lsd, May 16, 1950. Records available: 1949-51. Measurement discontinued.

18/19-12bd2. Mrs. B. Menzi. Drilled domestic well, diameter 6 inches, depth 86 feet. Land-surface datum is 4,600 feet above msl. Highest water level 26.28 below lsd, Oct. 18, 1949; lowest 34.04 below lsd, Apr. 28, 1953. Records available: 1949-53.

Feb. 25	32.40	June 26	32.77	Aug. 31	30.21	Oct. 26	30.01
Apr. 28	34.04	July 24	31.67	Sept. 24	30.04	Dec. 30	31.67
May 22	33.62						

18/19-12cb1. Godschalk. Drilled domestic well, diameter 8 inches, reported depth 239 feet. Land-surface datum is 4,721 feet above msl. Highest water level 127.67 below lsd, Nov. 15, 1949; lowest 135.05 below lsd, Apr. 28, 1953. Records available: 1949-53.

Date	Water level	Date	Water level	Date	Water level	Date	Water level
Feb. 25	131.49	May 22	132.10	July 24	132.65	Oct. 26	123.01
Apr. 28	135.05	June 26	132.42	Sept. 24	131.36	Nov. 25	130.12

18/19-12cb5. Vuksan. Drilled domestic well, diameter 6 inches, reported depth 160 feet, cased to 160. Land-surface datum is 4,741.7 feet above msl. Highest water level 111.70 below lsd, May 19, 1949; lowest 137.08 below lsd, July 21, 1952. Records available: 1949-52. Measurement discontinued.

18/19-12da1. W. W. Caffrey. Drilled domestic and stock well, diameter 8 inches, reported depth 100 feet. Land-surface datum is 4,604.5 feet above msl. Highest water level 13.10 below lsd, Sept. 12, 1950; lowest 28.35 below lsd, Mar. 14, 1950. Records available: 1949-50, 1953. Oct. 26, 16.89.

18/19-13aa1. W. W. Caffrey. Dug domestic water-table well, diameter 4 feet, depth 39 feet. Land-surface datum is 4,651.2 feet above msl. Highest water level 3.94 below lsd, Sept. 12, 1949; lowest 31.05 below lsd, Apr. 18, 1950. Records available: 1949-53. Oct. 26, 7.54.

18/19-13ab1. Kendrick Johnson. Dug irrigation water-table well, depth 11 feet. Highest water level 1.90 below lsd, Jan. 18, 1950; lowest 4.62 below lsd, Apr. 18, 1950. Records available: 1949-51, 1953. Oct. 26, 3.41.

18/20-7bc1. Paul Faulstick. Drilled domestic well, diameter 6 inches, reported depth 118 feet. Land-surface datum is 4,558.41 feet above msl. Highest water level 6.09 below lsd, Sept. 25, 1951; lowest 14.34 below lsd, Apr. 28, 1953. Records available: 1949-53.

Feb. 25	12.74	June 26	8.80	Aug. 31	6.83	Oct. 26	7.73
Apr. 28	14.34	July 24	7.57	Sept. 24	6.81	Nov. 25	9.75
May 22	10.77						

18/20-7bc2. Joe Maffi. Drilled domestic well, diameter 6 inches. Land-surface datum is 4,566.34 feet above msl. Highest water level 9.82 below lsd, May 28, 1949; lowest 19.92 below lsd, Apr. 18, 1950. Records available: 1949-51. Measurement discontinued.

18/20-7cb1. Emery Kery. Drilled domestic well, diameter 6 inches, reported depth 109 feet. Land-surface datum is 4,589.95 feet above msl. Highest water level 19.69 below lsd, Dec. 7, 1948; lowest 30.75 below lsd, Mar. 14, 1950. Records available: 1948-53.

Feb. 25	29.41	June 26	23.65	Sept. 24	21.72	Nov. 25	25.89
Apr. 28	30.03	July 24	23.14	Oct. 26	22.91	Dec. 30	28.30
May 22	25.83	Aug. 31	21.71				

18/20-7dc1. Mrs. Martin Estate. Sierra Manor subdivision. Drilled unused well, diameter 12 inches, reported depth 203 feet. Land-surface datum is 4,568 feet above msl. Highest water level 8.12 below lsd, Sept. 25, 1951; lowest 15.88 below lsd, Apr. 18, 1950. Records available: 1949-53.

Feb. 25	12.26	May 22	12.84	Aug. 31	10.99	Nov. 25	10.72
Mar. 30	13.40	June 26	12.19	Sept. 24	10.09	Dec. 30	11.88
Apr. 28	13.66	July 24	11.41	Oct. 26	9.84		

18/20-20a1. Louis Damonte. Dug unused water-table well, diameter 36 inches, depth 23 feet. Highest water level 1.83 below lsd, Sept. 19, 1952; lowest 11.90 below lsd, Mar. 29, 1949. Records available: 1942-53.

Jan. 26	6.07	Apr. 28	e5.50	July 24	4.93	Oct. 26	e2.20
Feb. 25	7.67	May 22	4.31	Aug. 31	3.71	Nov. 25	4.65
Mar. 30	8.55	June 26	3.31	Sept. 24	2.83	Dec. 23	6.16

e Estimated.

19/19-11b1. Reno High School. Drilled unused water-table well, diameter 4 inches, depth 49 feet. Highest water level 28.48 below lsd, Aug. 3, 1949; lowest 33.10 below lsd, Feb. 28, 1950. Records available: 1949-53.

Jan. 26	32.20	Apr. 28	32.67	July 24	29.38	Oct. 26	30.23
Feb. 25	32.62	May 22	31.61	Aug. 31	29.42	Nov. 25	31.14
Mar. 30	32.87	June 26	30.33	Sept. 24	29.79	Dec. 23	31.69

19/19-16c1. Chrissie Caughlin. Dug unused well, diameter 4 feet, depth 45 feet. Highest water level 35.74 below lsd, June 24, 1952; lowest 42.30 below lsd, Jan. 23, 1947. Records available: 1942-53.

Date	Water level	Date	Water level	Date	Water level	Date	Water level
Jan. 26	41.58	Apr. 28	39.68	July 24	36.80	Oct. 26	39.55
Feb. 25	41.90	May 22	39.44	Aug. 31	37.30	Nov. 25	41.26
Mar. 30	41.34	June 26	38.40	Sept. 24	37.83	Dec. 24	41.34

White Pine County

Lake Valley
(See also Lincoln County)

10/65-36d2. McCulloch. Drilled unused well, diameter 10 inches, depth 58 feet. Highest water level 22.53 below lsd, Mar. 21, 1949; lowest 28.74 below lsd, Sept. 19, 1949. Records available: 1947-53. Sept. 17, 24.62.

Newark Valley

18/55-31d1. Owner unknown. Dug stock water-table well, diameter 36 inches, depth 43 feet. Highest water level 33.25 below lsd, Sept. 15, 1953; lowest 34.65 below lsd, Dec. 21, 1946. Records available: 1946-53. Mar. 3, 33.67; Sept. 15, 33.25.

19/56-30d2. Don Eldridge. Dug stock water-table well, diameter 42 inches, depth 37 feet, cribbed with concrete. Highest water level 31.63 below lsd, Oct. 1, 1952; lowest 33.38 below lsd, June 19, 1950. Records available: 1948-53. Mar. 3, 31.98; Sept. 15, 31.71.

20/55-10d1. U. S. Bureau of Land Management. Dug stock water-table well, diameter 36 inches, depth 22 feet. Highest water level 8.08 below lsd, Mar. 24, 1949; lowest 8.73 below lsd, June 19, 1950. Records available: 1948-53. Mar. 3, 8.38.

21/55-9b1. R. W. Hooper. Dug domestic water-table well, diameter 5 feet, depth 34 feet. Highest water level 11.75 below lsd, Mar. 24, 1949; lowest 19.15 below lsd, Sept. 19, 1950, Sept. 15, 1953. Records available: 1948-53. Mar. 3, 13.29; Sept. 15, 19.15.

Spring Valley

13/67-8d1. A. Schaurman. Dug stock water-table well, diameter 36 inches, reported depth 45 feet. Highest water level 11.70 below lsd, Mar. 29, 1949; lowest 15.11 below lsd, Sept. 10, 1952. Records available: 1947-53. Sept. 17, 13.75.

15/66-13d1. J. P. Johanson. Drilled domestic well, diameter 6 inches, depth 82 feet. Highest water level 13.68 below lsd, Sept. 10, 1952; lowest 22.15 below lsd, Sept. 12, 1951. Records available: 1947-53. Mar. 4, 17.82; Sept. 17, 20.50.

17/68-6d1. U. S. Bureau of Land Management. Dug stock water-table well, diameter 4 feet, depth 28 feet. Highest water level 21.69 below lsd, Mar. 18, 1950; lowest 24.13 below lsd, Sept. 10, 1952. Records available: 1948-53. Mar. 4, 22.94; Sept. 17, 23.63.

18/68-31a1. Delbert Eldridge. Drilled irrigation well, diameter 10 to 6 inches, reported depth 220 feet. Highest water level 41.46 below lsd, Aug. 6, 1948; lowest 43.97 below lsd, Mar. 14, 1951. Records available: 1948-53. Mar. 4, 42.60.

Steptoe Valley

15/64-7a1. Lloyd Sorenson. Drilled irrigation well, diameter 16 inches, reported depth 200 feet. Highest water level 32.70 below lsd, Mar. 4, 1953; lowest 39.06 below lsd, Mar. 14, 1951. Records available: 1948-53. Mar. 4, 32.70; Sept. 17, 34.05.

16/63-1b1. Owner unknown. Drilled unused well, diameter 6 inches. Highest water level 61.67 below lsd, Sept. 30, 1952; lowest 68.58 below lsd, Sept. 12, 1951. Records available: 1949-53. Mar. 4, 61.80; Sept. 18, 63.77.

16/63-14a1. Bill Goodman. Drilled unused well, diameter 10 inches, reported depth 130 feet. Highest water level 21.56 below lsd, Mar. 4, 1953; lowest 28.54 below lsd, Oct. 3, 1949. Records available: 1947, 1949-53. Mar. 4, 21.56; Sept. 18, 23.23.

19/63-12a1. U. S. Geol. Survey. Drilled test well, diameter 12 to 8 inches, reported depth 915 feet, reported cased to 540. Highest water level 13.81 below lsd, Mar. 4, 1953; lowest 21.20 below lsd, July 5, 1949. Records available: 1949-53. Mar. 4, 13.81; Sept. 18, 14.69.

20/64-32c2. U. S. Geol. Survey. Drilled test well, diameter 10 inches, depth 110 feet, reported cased to bottom. Highest water level 13.56 below lsd, June 20, 1950; lowest 14.56 below lsd, Sept. 30, 1952. Records available: 1918, 1949-53. Mar. 4, 13.68; Sept. 18, 14.31.

White River Valley
(See also Nye County)

11/61-35a1. Public domain. Drilled stock well, diameter 6 inches. Highest water level 10.49 below lsd, Sept. 18, 1953; lowest 13.08 below lsd, Sept. 11, 1951. Records available: 1947-53. Sept. 18, 10.49.

12/61-34a1. U. S. Bureau of Land Management. Drilled stock well, diameter 7 inches, depth 72 feet. Highest water level 57.65 below lsd, Dec. 15, 1949; lowest 60.52 below lsd, May 22, 1952. Records available: 1947-53. Sept. 18, 59.65.

12/62-18d1. U. S. Geol. Survey. Drilled test and observation well, diameter 6 inches, depth 108 feet, cased to 105. Highest water level 43.56 below lsd, Sept. 9, 1952; lowest 50.73 below lsd, Dec. 18, 1947. Records available: 1947-53. Sept. 18, 45.54.

12/62-29a1. Jim Oxborrow. Drilled stock well, diameter 6 inches. Land-surface datum is 5,546.29 feet above msl. Highest water level 20.16 below lsd, July 17, 1947; lowest 29.08 below lsd, Sept. 13, 1950. Records available: 1947-53. Sept. 18, 25.82.

12/62-31d2. Carter Bros. Dug stock water-table well, size 4 by 4 feet, depth 16 feet. Land-surface datum is 5,516.25 feet above msl. Highest water level 11.78 below lsd, Dec. 2, 1947; lowest 16.30 below lsd, Sept. 11, 1951. Records available: 1947-53. Sept. 18, 15.47.

12/62-33a5. Wayne Gardner. Lund. Dug domestic water-table well, size 4 by 4 feet, depth 31 feet. Land-surface datum is 5,578.45 feet above msl. Highest water level 19.39 below lsd, Nov. 6, 1947; lowest 25.44 below lsd, Mar. 15, 1950. Records available: 1947-53. Sept. 18, 22.25.

NEW MEXICO

By H. O. Reeder, J. R. Willett, W. E. Hale, J. T. Hollander,
U. N. Benge, and L. J. Bjorklund

Scope of Water-Level Program

The measurement of water levels in observation wells was continued in 1953 as part of the program of studies of ground-water conditions in New Mexico made in cooperation with the State Engineer of New Mexico, mainly in areas where ground water is used for irrigation. These studies have been in progress in certain of the irrigated areas since about 1925.

Most of the important areas in which ground water is used for irrigation have been declared as ground-water basins by the State Engineer and placed under regulation in order to avoid ruinous overdevelopment. As of 1953, these declared basins included the Roswell, Carlsbad, Lea County, Portales, Penasco, and Hondo Basins in southeastern New Mexico, the Estancia Basin in central New Mexico, and the Hot Springs, Mimbres, Virden Valley, and Animas Basins in southwestern New Mexico. In addition to the presently declared areas, important developments of ground water for irrigation have occurred in the vicinity of House in Quay County, southeastern Curry County, the Tularosa Valley in the vicinity of Tularosa and Alamogordo in Otero County, the Grants-Bluewater area in north-central Valencia County, and along the middle and lower Rio Grande valley. In some of the declared basins, the ground-water supply is considered by the State Engineer to be fully appropriated and the irrigated acreage in these areas is becoming stabilized, whereas in some of the newer areas such as Curry County the acreage being brought under irrigation is expanding rapidly.

An estimated 350,000 acres of land were irrigated entirely with water derived from wells in 1953, and additional lands amounting to more than 100,000 acres normally or partly furnished surface water received supplemental water from wells for irrigation in the declared ground-water basins, with the exception of the Virden Valley basin, and including the Grants-Bluewater area, the House area, Playas Valley, Curry County, Tularosa Valley, and the middle and lower Rio Grande valley in New Mexico. The increase in estimated acreage irrigated entirely from wells, about 10,000 acres more than in 1952, is due largely to inclusion of the acreage in Curry County and the Tularosa Valley, much of which was brought under irrigation in 1953. The acreage receiving supplemental water from wells increased in 1953 mostly by development of supplies in the Rio Grande valley, but the estimated 30,000 acres receiving supplemental water in 1952 did not include existing developments in the Rio Grande valley, which may have amounted to 60,000 acres.

The measurement of water levels constitutes an important part of the ground-water program in the irrigated areas. Water levels are measured in observation wells in January or February, when the major part of the recovery from pumping effects of the previous pumping season has taken place and comparison can best be made with water levels of previous years. These winter measurements indicate the amount of ground water in storage, and by comparison with those of prior years show the net changes of ground-water storage that occurred during the intervening period. The net changes in storage are the result of changes in recharge mainly from precipitation and runoff, and discharge which is mainly pumpage for irrigation.

In addition to measurements made in January or February, a number of observation wells have been selected in which additional measurements are made at 2-month intervals, in general. These measurements, published herein, are made in order to note seasonal changes in water levels caused by precipitation and changes in pumping schedules and to aid in interpreting the net yearly changes in water levels.

The amount of artificial discharge from the ground-water body, or water pumped for irrigation and other uses, is estimated or computed to determine the effects upon the seasonal and yearly changes in water levels. In connection with this the amount and distribution of precipitation are analyzed to determine the possibility of recharge to the ground-water body and aid in estimating the requirements of ground water for irrigation.

Measurements of water levels were made in 1953 in about 1,300 observation wells, exclusive of those in the Virden Valley in Hidalgo County where measurements were made by the Arizona office of the Geological Survey. Water-level measurements were made seasonally, generally at 2-month intervals, in about 380 of the observation wells. Recording gages were maintained on 35 wells listed in this report.

Precipitation and Pumpage

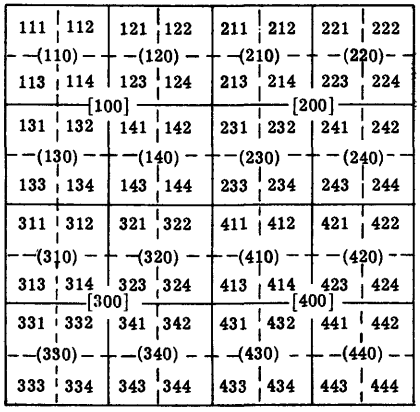
The year 1953 was the fifth driest year of record in New Mexico, where comparative figures go back to 1892, and the fourth year in succession in which the precipitation has been below normal. In the southern part of the State, where much of the ground-water development occurs, precipitation was about 65 percent of normal, resulting in below-average surface-water supplies, below-average opportunity for recharge of the ground-water reservoirs, and probably above-normal water requirements for the irrigation of crops.

It is estimated that more than 1,000,000 acre-feet of ground water were pumped in 1953 to irrigate approximately 350,000 acres entirely from wells and over 100,000 acres needing supplemental water from wells. These large withdrawals of ground water together with continuing drought conditions resulted in large net annual declines of ground-water levels in the heavily pumped areas. Water levels in most of the observation wells reached their lowest winter-time levels on record by the end of 1953.

Well-Numbering System

The system of numbering wells in New Mexico, used in all counties except for the thermal wells in the Truth or Consequences area, Sierra County, is based on the common system of subdivision of public lands into sections. By means of it the well number, in addition to designating the well, locates its position to the nearest 10-acre tract in the land net. The well number is divided by periods into 4 segments. The first segment denotes the township north or south of the New Mexico base line; the second denotes the range east or west of the New Mexico principal meridian; and the third denotes the section. In a county such as Roosevelt County, where wells are situated both north and south of the base line, an N is added to the first segment of the well number if the well is north of the base line. Similarly, in a county where wells are both east and west of the meridian, an E is added to the second segment of the well number of those east of the meridian. In counties lying entirely within one quadrant of the principal meridian and base line, the direction north or south of the base line or east or west of the meridian is not given.

The fourth segment of the number, which consists of 3 digits, denotes the particular 10-acre tract in which the well is situated. For this purpose, the section is divided into 4 quarters, numbered 1, 2, 3, and 4, in the normal reading order, for the northwest, northeast, southwest, and southeast quarters, respectively. The first digit of the fourth segment gives the quarter section. Similarly, the quarter section is divided into four 40-acre tracts numbered in the same manner, and the second digit denotes the 40-acre tract. Finally, the 40-acre tract is divided into four 10-acre tracts, and the third digit denotes the 10-acre tract. Thus, well 12.36.24.123 in Lea County is in the $SW\frac{1}{4}NE\frac{1}{4}NW\frac{1}{4}$ sec. 24, T. 12 S., R. 36 E. If a well cannot be located within a 10-acre tract, a zero is used as the third digit, and if it cannot be located within a 40-acre tract, zeros are used for both the second and third digits. If the well cannot be located more closely than the section, the fourth segment of the well number is omitted. When it becomes possible to locate more accurately a well in whose number zeros have been used, the proper digit or digits are substituted for the zeros. In Water-Supply Paper 911 and earlier reports the digits corresponding to unknown 10-acre and 40-acre tracts were simply omitted, but this practice caused some confusion in cataloging the wells. In Water-Supply Paper 941 and subsequent reports, wells the last segment of whose numbers end in one or two zeros correspond to wells whose numbers in earlier reports are the same except for the omission of the last one or two zeros. Letters a, b, c, ... are added to the last segment to designate the second, third, fourth, and succeeding wells in the same 10-acre tract. The following diagram shows the method of numbering the tracts within a section.



Well Descriptions and Water-Level Measurements

Water levels in January or February for observation wells measured only once during the year are not included in this report, but have been used in preparing the maps which show the areal changes in water level from January 1953 to January 1954. In water-supply papers of this series preceding 1951, the winter measurements were given for all observation wells.

All measurements, except the mean monthly and mean annual artesian heads in 7 wells in the Roswell basin, are given in feet above or below land-surface datum which approximates closely the land surface at the well. The mean artesian heads are given in feet above mean sea level.

Chaves County

Roswell basin.--The Roswell basin extends mostly along the west side of the Pecos River from north of Roswell in Chaves County to Lakewood in Eddy County. Most of the basin is in Chaves County but a considerable part lies in northern Eddy County. Ground water for irrigation is obtained from both shallow water-table wells and deep artesian wells. The Chaves-Eddy County Ground-Water Basin (Roswell Artesian Basin) was declared by the State Engineer August 1931. Applications for further development have not been approved for artesian waters since that date and for shallow waters since August 1937. The boundaries of the artesian and shallow water basins are conterminous though the two classifications of waters are considered by the State Engineer as separate sources for administrative purposes. The boundaries of the basin have been extended from time to time. The Hondo and the Penasco basins which extend westward from the Roswell basin along the Hondo and Penasco Valleys were declared September 1, 1953. The area of the three basins is approximately 4,460 square miles.

Discharge from the shallow and artesian aquifers is by means of wells, through springs, and by seepage to the Pecos River. The artesian aquifer also discharges by leakage into the shallow water aquifer. The discharge causes declines in storage which is reflected by lowering of water levels. Conversely, recharge by means of direct precipitation and flood runoff in the plains and mountains to the west of the irrigated area causes an increase in storage with a rise in the water levels. In the shallow water aquifer recharge occurs by return of irrigation water.

Precipitation at stations in the Roswell basin in 1953 was about 50 to 70 percent of normal. During 1953 precipitation amounted to 8.2 inches at Roswell, 3.8 inches below normal; 6.7 inches at Hagerman, 6.9 inches below normal; and 6.4 inches at Artesia, 5.9 inches below normal. In the plains and mountains to the west, the rainfall was considerably less than the preceding year, and also below normal in 1953. The precipitation at Mayhill was 10.0 inches, 10.2 inches below normal; Felix 4.3 inches, 10.9 inches below normal; and 6.9 inches at Elk, 8.5 inches below normal. As usual, most of the precipitation occurred during the spring and summer months, but even under normal conditions the rainfall is not generally sufficient to substantially affect the amount of water required from wells to irrigate the lands in the basin. However, the amount and the intensity of precipitation directly affect the recharge to the basin, and hence, during 1953, the amount of recharge was below normal.

Records of power used in 1953 to pump 1,080 wells, for which there were comparable records in 1952, indicate that possibly as much as 460,000 acre-feet of water was pumped for irrigation in 1953 as compared with 440,000 acre-feet in 1952. Of this amount an estimated 170,000 acre-feet of shallow water and 290,000 acre-feet of artesian water was used to irrigate the lands in the basin from Roswell south. An estimated 30,000 acre-feet of ground water was used to irrigate lands in the Salt Creek-Macho Draw area of the northern extension of the Roswell basin.

To observe changes in artesian head in the artesian aquifer, recording gages were maintained on the same 7 observation wells as in the preceding year. Recording gages were also maintained on 2 other wells finished in the artesian aquifer, about 3 miles west and 8 miles north of Roswell. Bimonthly measurements were made on 4 wells in the intake area of the artesian aquifer in 1953. Changes in storage in the water-table aquifer were observed by measuring water levels in about 420 shallow wells in January 1953. The winter measurements were used in preparing the accompanying maps showing the change in the shallow water level in the northern and southern part of the Roswell basin from January 1953 to January 1954, but not all of the January records are included herein. Measurements were made at bimonthly intervals in about 60 wells in the Roswell shallow ground-water basin, of which 5 were equipped with recording gages. Records of measurements of water levels in the shallow wells have been published since 1938 and those for the artesian aquifer in the Roswell basin since 1935 in this series of water-supply papers. Record low mean annual and mean monthly artesian heads occurred in the Roswell basin in 1953 in the 6 artesian wells equipped with recording gages having long periods of records. The declines in the mean annual head from 1952 to 1953 ranged from 3.1 feet in the Berrendo well to 11.8 feet in the Artesia well, an overall average decline of about 1.3 feet greater than the preceding year and 1.2 feet greater than 1951. The departure from the average in 1953 for the 6 artesian wells ranged from 12.7 feet below average in the Berrendo well to 52.8 feet below average in the Artesia well. The difference in annual artesian heads between the highest on record, which was 1941 for the Greenfield well and 1942 in the others, and that in 1953,

Mean monthly and mean annual artesian heads in artesian wells in Roswell basin in 1953 and highest and lowest mean annual and mean monthly artesian heads, in feet above msl

Name of well	Berrendo		Berrendo-Smith		Mountain View		Orchard Park		Greenfield		Cottonwood		Artesia	
Location number	10.24.9.330		10.24.21.212		11.24.29.242		12.25.23.110		13.25.27.211		16.25.11.113		18.26.5.330	
1953	Days of record	Head	Days of record	Head	Days of record	Head	Days of record	Head	Days of record	Head	Days of record	Head	Days of record	Head
Jan.	31	3559.57	31	3558.09	31	3555.28	31	3524.89	31	3516.41	31	3407.38	31	3343.22
Feb.	28	3559.36	28	3557.95	28	3554.54	28	3518.33	28	3503.58	28	3402.91	28	3339.50
Mar.	31	3557.35	31	3554.79	31	3550.45	31	3488.43	31	3467.91	31	3401.45	31	3324.30
Apr.	30	3554.00	30	3551.38	19	e3546.10	30	3475.98	30	3453.88	30	3395.70	30	3319.22
May	25	e3554.06	31	3552.07	31	3547.04	31	3494.91	31	3477.49	31	3398.44	31	3328.14
June	26	e3551.78	30	3549.01	30	3543.09	30	3482.53	30	3463.32	20	e3395.42	30	3316.90
July	31	3550.25	31	3547.28	17	e3540.07	24	e3460.20	31	3436.19	30	3387.89	31	3290.70
Aug.	27	e3549.88	31	3546.20	10	e3538.21	23	e3453.00	25	e3427.98	31	3383.13	31	3283.13
Sept.	28	e3549.26	30	3546.18	19	e3538.28	26	e3462.29	30	3439.68	30	3382.12	28	e3292.91
Oct.	31	3552.02	31	3550.53	31	3544.17	31	3497.58	31	3484.66	26	e3388.44	31	3322.03
Nov.	30	3555.59	30	3553.97	30	3549.58	30	3522.60	30	3514.53	30	3396.15	30	3338.87
Dec.	31	3557.09	31	3555.84	31	3552.40	31	3528.21	28	e3520.86	14	e3401.74	31	3344.85
Mean annual		3554.18		3551.94		3546.60		3492.41		3475.54		3395.06		3320.31
Mean annual	Year	Head	Year	Head	Year	Head	Year	Head	Year	Head	Year	Head	Year	Head
Highest	1942	3571.8	1942	3571.0	1942	3569.6	1942	3528.1	1941	3517.5	1952	3399.97	1942	3391.9
Lowest	1953	3554.18	1953	3551.94	1953	3546.60	1953	3492.41	1953	3475.54	1953	3395.06	1953	3320.31
First year of record	1927	3571.2	1941	3566.2	1941	3564.2	1926	3525.7	1941	3517.5	1952	3399.97	1932	3384.6
Mean monthly	Month	Head	Month	Head	Month	Head	Month	Head	Month	Head	Month	Head	Month	Head
Highest	Dec. '26	3574.2	Jan. '43	3574.4	Jan. '43	3573.7	Jan. '42	3544.0	Jan. '42	3535.4	Jan. '52	3413.06	Jan. '43	3402.1
Lowest	Sept. '53	3549.26	Sept. '53	3546.18	Aug. '53	3538.21	Aug. '53	3453.00	Aug. '53	3427.98	Sept. '53	3382.12	Aug. '53	3283.13
First month of record	June '26	3571.7	June '40	3559.7	July '40	3556.2	Aug. '25	3525.9	June '40	3496.0	Apr. '51	3404.63	Apr. '31	3377.2

e Estimated.

Departure in 1953 from average and change from 1952 to 1953 of mean monthly and mean annual heads in artesian wells in Roswell basin

Name of well	Berrendo		Berrendo-Smith		Mountain View		Orchard Park		Greenfield		Cottonwood		Artesia	
Location number	10.24.9.330		10.24.21.212		11.24.29.242		12.25.23.110		13.25.27.211		16.25.11.113		18.26.5.330	
	Departure from average	1952 to 1953	Departure from average	1952 to 1953	Depature from average	1952 to 1953	Departure from average	1952 to 1953	Departure from average	1952 to 1953	Departure from average	1952 to 1953	Departure from average	1952 to 1953
Jan.	-10.1	-3.24	-11.0	-3.88	-11.2	-4.24	-8.5	-4.40	-10.5	-2.07	....	-5.68	-41.6	-16.68
Feb.	-10.0	-2.05	-10.7	-3.04	-11.6	-3.84	-10.7	-2.76	-15.2	-5.64	....	-4.92	-42.1	-7.96
Mar.	-11.0	-3.44	-11.8	-3.78	-13.0	-4.91	-29.7	-12.01	-28.8	-15.69	....	-4.50	-50.1	-13.67
Apr.	-12.2	-3.79	-11.6	-3.93	-12.9	-4.93	-32.8	-10.65	-28.2	-12.04	-6.5	-4.07	-48.4	-9.28
May	-12.1	-2.99	-11.9	-2.59	-12.7	-3.57	-18.2	-2.41	-14.5	-3.97	-5.6	-2.97	-43.1	-10.62
June	-14.1	-2.75	-13.4	-2.79	-15.4	-4.03	-28.6	-3.56	-24.5	-4.94	-6.5	-3.97	-51.4	-7.40
July	-14.5	-3.55	-13.9	-3.67	-17.6	-5.09	-47.7	-13.06	-46.9	-15.96	-8.7	-7.00	-73.7	-26.27
Aug.	-14.0	-2.91	-13.5	-3.46	-17.2	-4.51	-51.5	-10.47	-47.7	-11.62	-8.8	-6.46	-75.4	-13.18
Sept.	-15.9	-2.85	-15.6	-3.30	-18.9	-4.35	-49.9	-5.81	-48.8	-7.30	-7.6	-5.19	-72.0	-10.55
Oct.	-15.3	-4.28	-14.8	-4.22	-17.7	-5.62	-28.8	-8.32	-28.2	-6.86	-7.2	-5.00	-55.6	-13.45
Nov.	-12.7	-2.38	-13.1	-3.50	-15.0	-3.79	-10.0	-1.21	-9.5	-.81	-6.6	-4.53	-44.2	-8.04
Dec.	-12.0	-2.68	-12.3	-3.17	-13.6	-3.48	-6.0	-1.86	-5.8	-.20	-6.8	-4.60	-40.3	-4.95
Annual	-12.7	-3.08	-13.0	-3.44	-14.9	-4.36	-26.8	-6.38	-25.8	-7.16	-5.6	-4.91	-52.8	-11.84
Record began	June 1926		June 1940		July 1940		August 1925		June 1940		March 1951		April 1931	

ranged from 17.6 feet in the Berrendo well to 71.6 feet in the Artesia well. The mean monthly and the mean annual heads, the departures from average in 1953, and the change in the mean monthly heads in 7 artesian wells are given in the preceding tables. The fluctuations in mean monthly artesian heads since 1940 in the 6 recorder equipped artesian wells having long records are given in figures 49, 50, 51, and 52.

The water levels in 4 wells approximately 20 miles west of the Pecos River in the intake area of the artesian aquifer in which bimonthly measurements were made in 1953, showed general decline from that in 1952, and reached the lowest observed levels of record. In well 14.23.8.340, the lowest water level of record was in September near the end of the irrigation season and was 4.1 feet lower than in November 1952, the lowest level observed in the previous year, and about 23.7 feet below the highest observed water level of record in 1943. Similarly, in wells 16.23.15.323, 18.23.5.333, and 19.23.27.111, the lowest water levels of record were in September and were 3.5, 1.2, and 2.9 feet, respectively, below that of the previous year's low. For well 16.23.15.323, the water level was about 23.8 feet below the highest water level on record, March 1945; for 18.23.5.333, 40.4 feet below the highest water level on record, July 1945; and for 19.23.27.111, about 12.8 feet lower than the highest observed water level on record, January 1945.

In the Salt Creek-Macho Draw area, north of Roswell, the lowest observed water levels in 1953 in 5 wells measured at bimonthly intervals ranged between 0.3 foot above to 4.8 feet below the lowest water levels observed in 1952, an average decline of 2.9 feet. The net annual decline in 21 observation wells averaged 2.1 feet in this area in 1953, as compared with a net decline of 2.2 feet in these same wells the previous year.

From about Roswell south to the Eddy County line, net annual declines in water levels occurred in 1953 in the shallow ground-water aquifer under most of the area and amounted to more than 2 feet under more than 153 square miles as compared with 185 square miles in 1952. Water levels declined more than 4 feet under 26 square miles, more than 6 feet under 8 square miles, and more than 8 feet under 1 square mile. In most of the area water levels reached record lows in 1953. In an area about 3 miles northwest of Dexter water levels have declined between 14 and 36 feet since the record high levels were observed in 1942. In township 14 south, ranges 25 and 26 east, west of Hagerman, the water levels have declined in many wells between 35 and 55 feet since the highest water level recorded in 1938 and 1942. There were only slight isolated areas of rises in water levels which occurred along the Pecos River, probably due to return irrigation, and changes in the duration of the pumping season in 1952 and 1953. (See figs. 53 and 54.)

In Eddy County, net annual declines in shallow water levels of more than 2 feet occurred under about 69 square miles, more than 4 feet under 32 square miles, and more than 6 feet under 4 square miles in 1953. The largest declines observed occurred south and west of Artesia, and southwest of Lakewood. The greatest observed decline was 10 feet in one well at Artesia. Southwest of Lakewood the observed water levels in 2 wells were 8 to 9 feet lower than in the previous year. In the vicinity of Artesia, water levels at the end of 1953, based on an average of 10 wells, were about 42 feet lower than the high level of 1942.

Roswell Basin

7.23.23.242. Jess Corn. Drilled irrigation artesian well in limestone member of San Andres formation, diameter 14 inches, depth 426 feet. Land-surface datum is 3,814 feet above msl. Highest water level 239.83 below lsd, May 26, 1951; lowest 248.63 below lsd, Nov. 6, 1953. Records available: 1951-53. Jan. 23, 244.27; Mar. 9, 244.08; Nov. 9, 248.63.

8.24.5.233. Jess Corn. Drilled irrigation artesian well in Chalk Bluff formation and limestone member of San Andres formation, diameter 12 inches, depth 446 feet. Land-surface datum is 3,645 feet above msl. Highest water level 65.34 below lsd, Jan. 25, 1950; lowest 78.82 below lsd, Sept. 9, 1953. Records available: 1949-53. Jan. 24, 72.96; July 7, 77.44; Sept. 9, 78.82; Nov. 9, 77.83.

8.24.18.144. Jess Corn. Drilled irrigation artesian well in Chalk Bluff formation and limestone member of San Andres formation, diameter 12 to 8 inches, depth 444 feet, cased to 417. Land-surface datum is 3,698 feet above msl. Highest water level 121.71 below lsd, Mar.11, 1949; lowest 135.26 below lsd, July 7, 1953. Records available: 1949-53. Jan. 23, 129.90; Mar. 9, 130.43; May 11, 133.60; July 7, 135.26; Nov. 9, 134.99.

8.24.22.143. Jess Corn. Drilled irrigation artesian well in limestone member of the San Andres(?) formation, diameter 16 inches, depth 275 feet. Highest water level 26.33 below lsd, Mar. 11, 1949; lowest 40.19 below lsd, Sept. 9, 1953. Records available: 1949-53. Jan. 16, 1951, 27.70; Jan. 12, 1952, 31.02; Jan. 26, 1953, 34.07; Mar. 10, 34.27; May 11, 37.37; Sept. 9, 40.19; Nov. 9, 38.89.

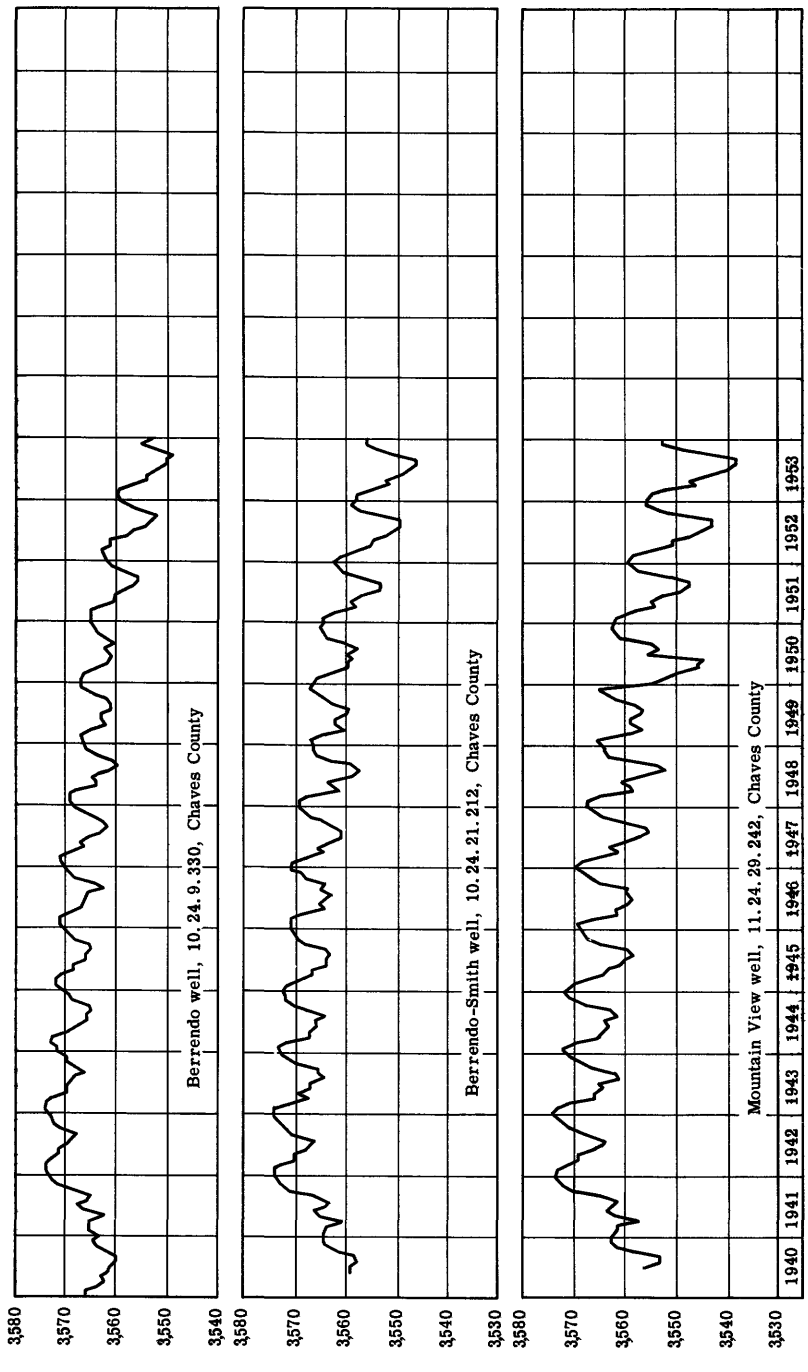


Figure 49. --Artesian water levels in wells 10. 24. 9. 330, 10. 24. 21. 212, and 11. 24. 29. 242 in Roswell basin, Chaves County, N. Mex.

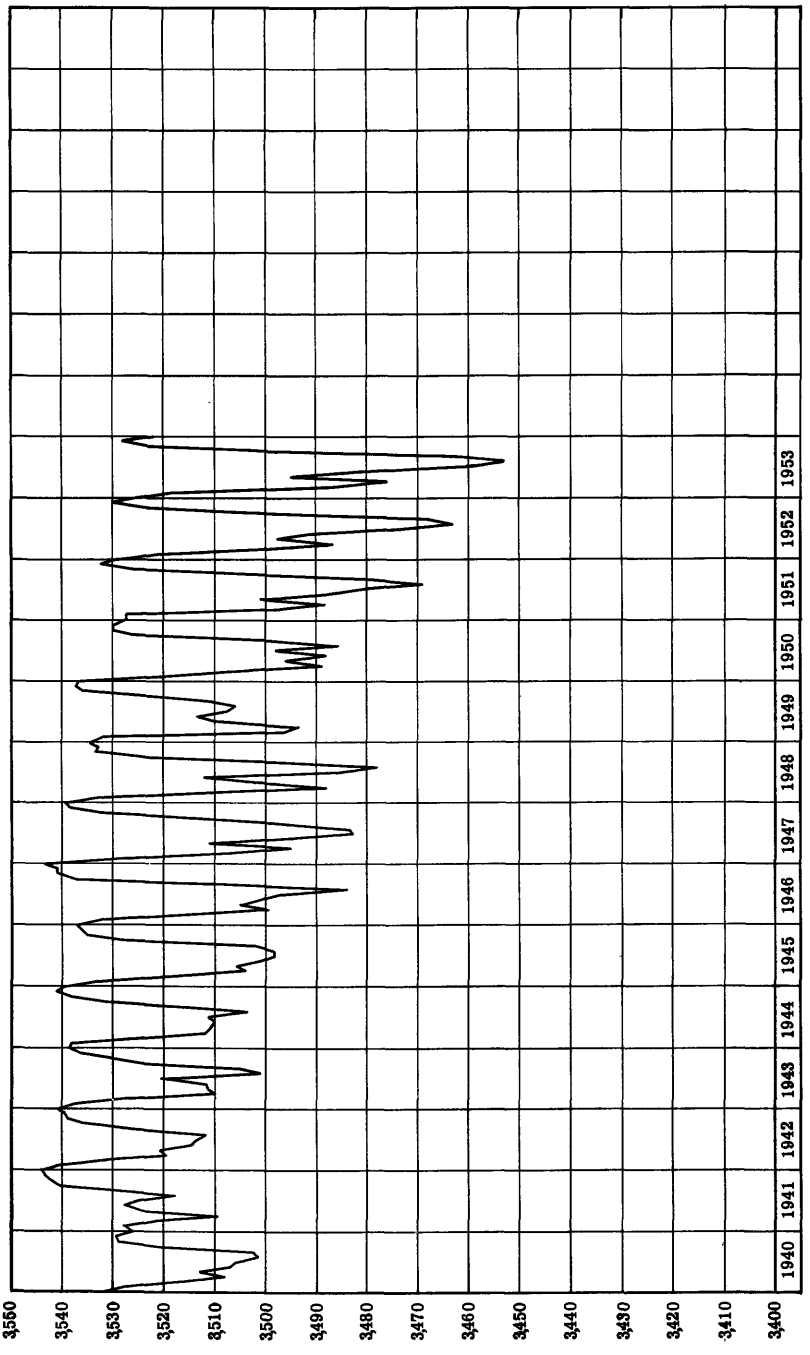


Figure 50. --Artesian water level in well 12. 25. 23. 110 in Roswell basin, Chaves County, N. Mex.

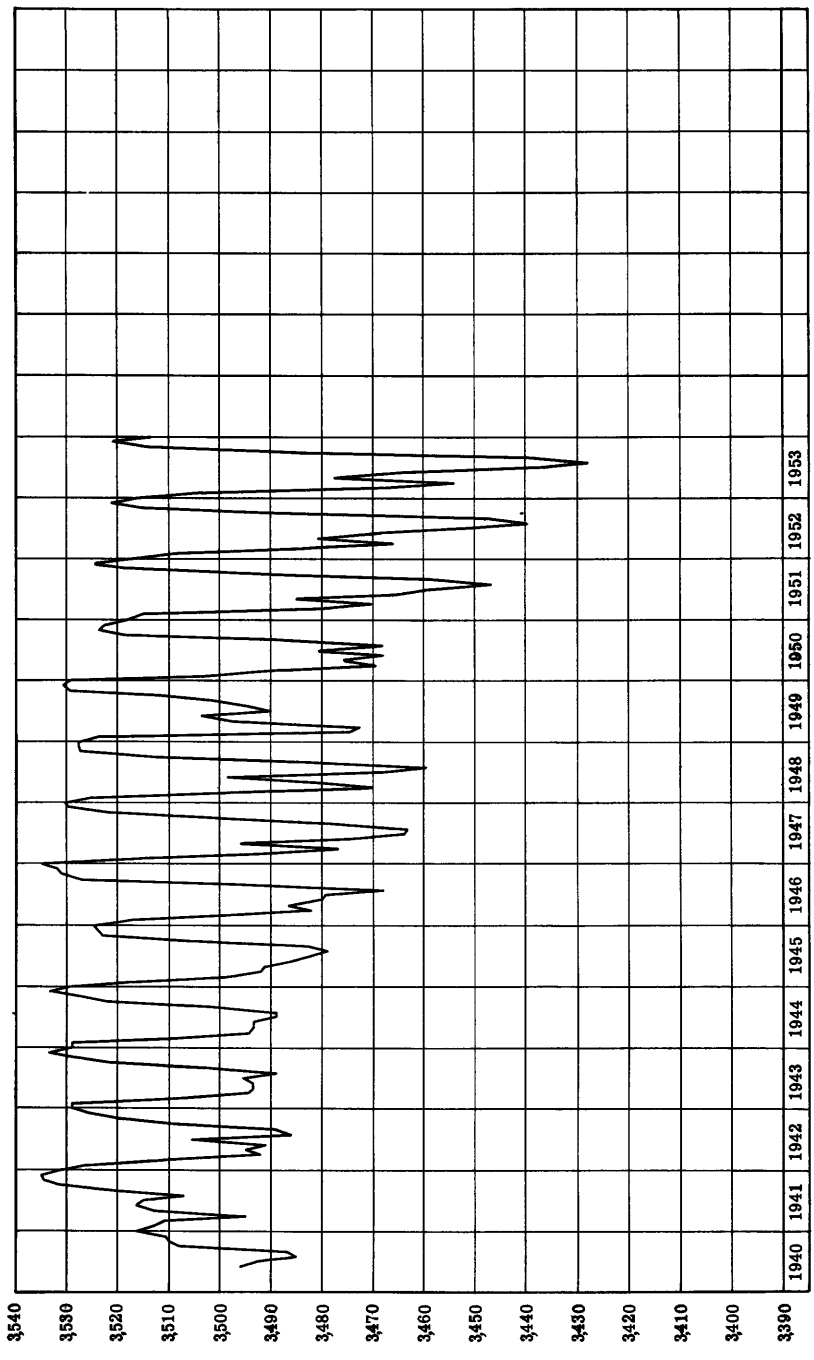


Figure 51.--Artesian water level in well 13.25.27.211 in Roswell basin, Chaves County, N. Mex.

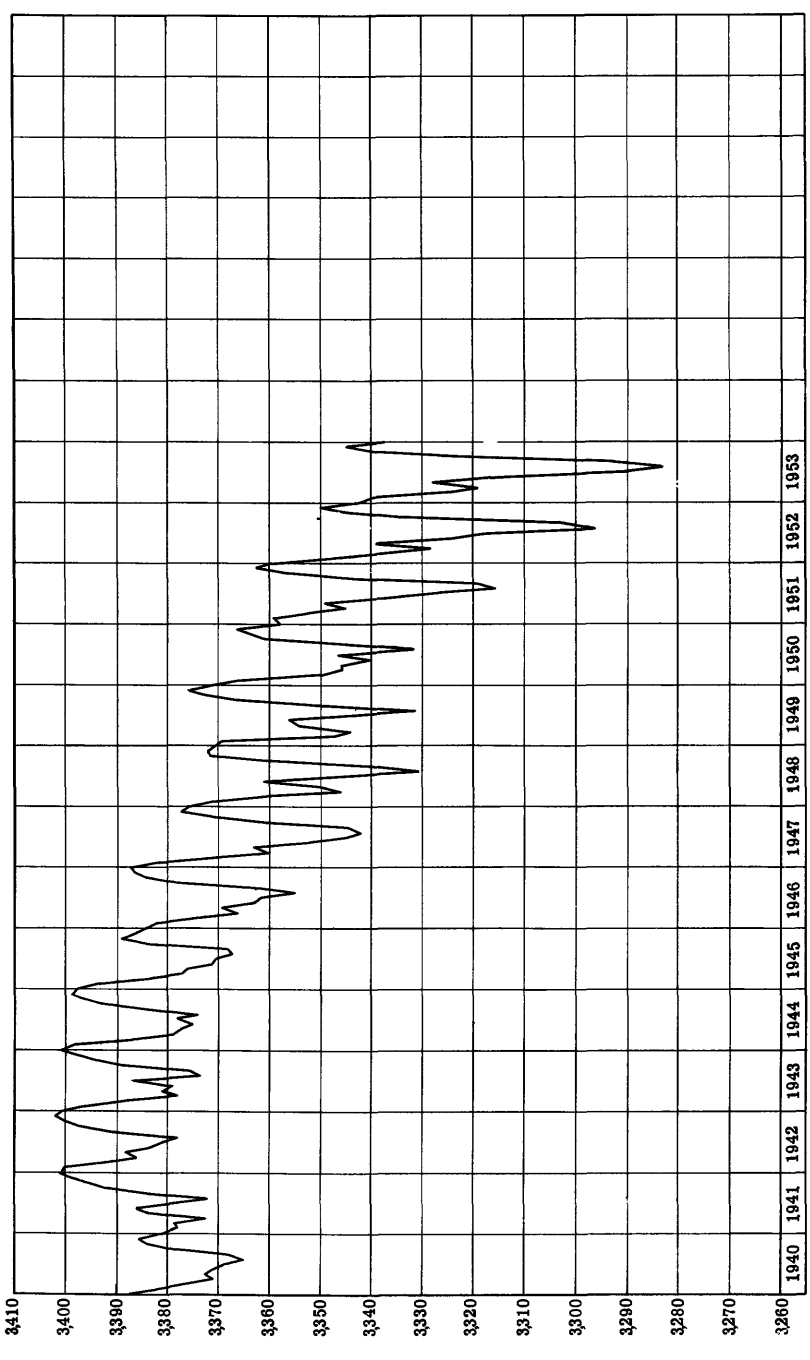


Figure 52.--Artesian water level in well 18.26.5.330 in Roswell basin, Eddy County, N. Mex.

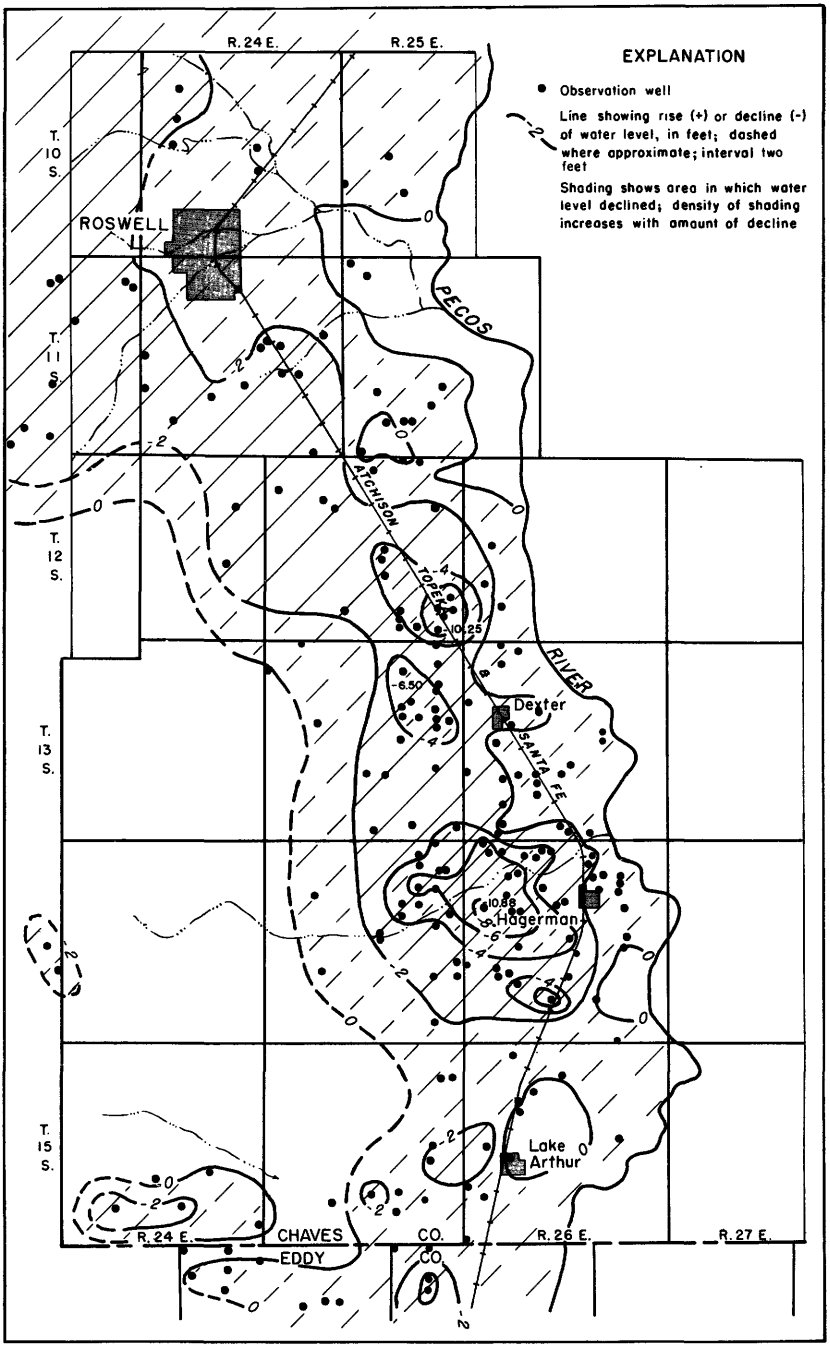


Figure 53. --Change in shallow ground-water level from January 1953 to January 1954 in northern part of Roswell basin, Chaves County, N. Mex.

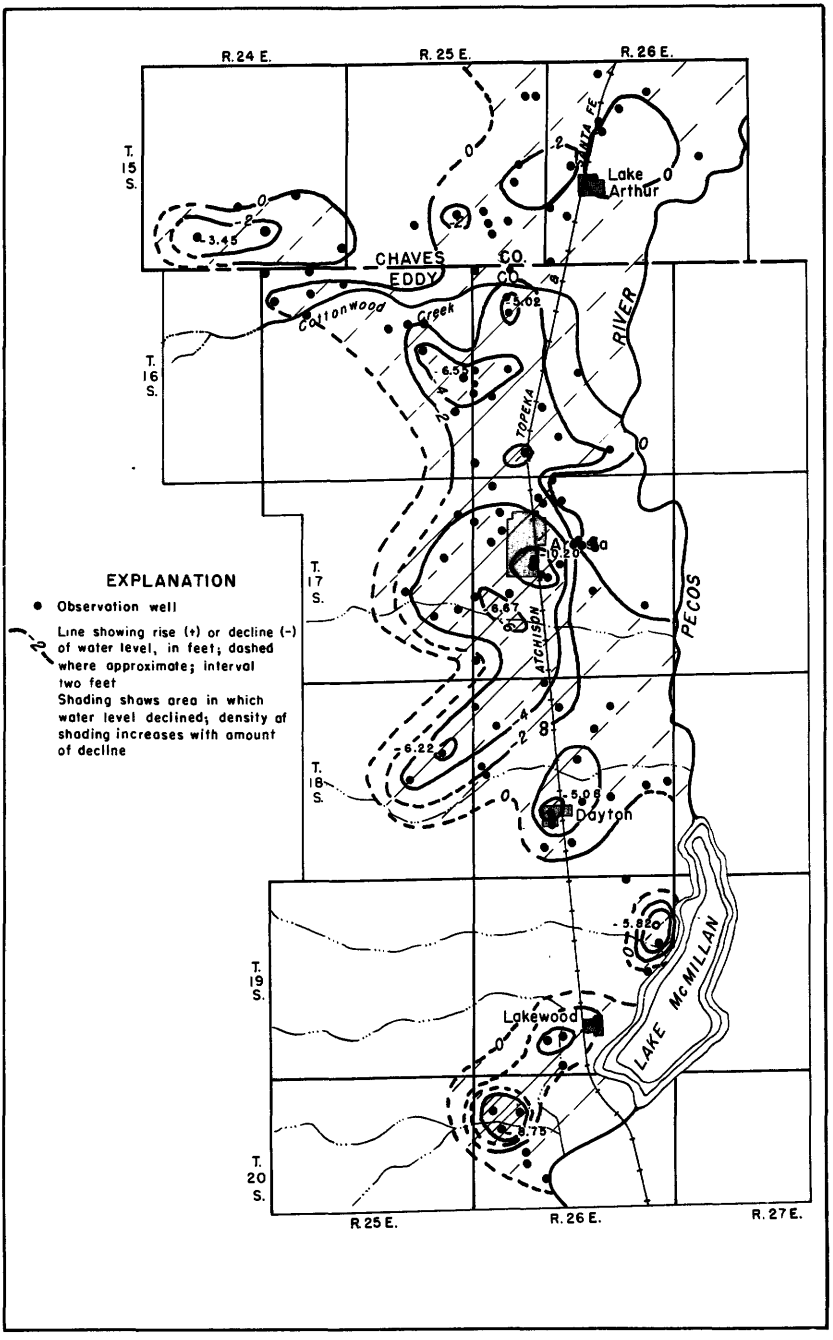


Figure 54. --Change in shallow ground-water level from January 1953 to January 1954 in southern part of Roswell basin, Eddy County, N. Mex.

8.24.35.432. W. G. Wiggins. Drilled unused water-table well in limestone member of San Andres(?) formation, diameter 6 inches, depth 75 feet. Land-surface datum is 3,616 feet above msl. Highest water level 50.66 below lsd, Mar. 7, 1950; lowest 63.65 below lsd, Sept. 9, 1953. Records available: 1949-53. Jan. 26, 58.21; Mar. 10, 58.39; May 11, 61.43; July 7, 62.56; Sept. 9, 63.65; Nov. 9, 61.95.

9.24.5.130. Lacy Shortridge. Drilled irrigation artesian well in limestone member of San Andres(?) formation, diameter 10 to 8 inches, depth 364 feet. Land-surface datum is 3,661 feet above msl. Highest water level 87.25 below lsd, Sept. 12, 1950; lowest 104.62 below lsd, Nov. 6, 1952. Records available: 1948-53. Jan. 23, 97.28; Sept. 9, 104.29; Nov. 9, 102.51.

9.24.17.331. Oscar White. Drilled unused artesian well in limestone member of San Andres(?) formation, diameter 6 inches. Land-surface datum is 3,699 feet above msl. Highest water level 94.79 below lsd, Aug. 17, 1950; lowest 132.34 below lsd, July 17, 1953. Records available: 1948-53.

Daily highest water level from recorder graph

Day	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	.....	125.56	126.35	127.68	.....	.....	131.45	107.92	.....	.....	125.70	.....
2	h124.57	125.60	126.38	127.77	130.06	.....	131.50	107.81	.....	.....	125.79	.....
3	124.58	125.63	126.40	127.84	130.13	.....	131.55	107.81	.....	.....	125.86	.....
4	124.60	h125.70	126.43	127.94	130.19	.....	131.59	107.82	115.79	.....	125.97	.....
5	124.62	125.71	126.47	128.02	130.25	.....	131.65	.....	115.93	.....	126.06	.....
6	124.65	125.73	126.49	128.10	130.30	.....	131.69	.....	116.20	.....	126.14	.....
7	124.68	125.77	126.51	128.18	130.34	.....	131.75	.....	116.46	.....	126.21	.....
8	.....	125.80	126.54	128.26	130.38	130.80	131.80	.....	116.71	.....	126.28	.....
9	h124.81	125.82	126.58	128.36	130.43	130.81	131.85	.....	116.97	.....	126.34	.....
10	124.82	125.85	126.60	128.44	130.48	130.83	131.91	.....	117.24	.....	126.41	.....
11	124.85	125.88	126.63	128.52	130.52	130.86	131.97	.....	117.47	.....	126.48	.....
12	124.89	125.92	126.65	128.61	130.57	130.87	132.04	.....	117.71	.....	126.55	.....
13	124.92	125.94	126.69	128.70	130.59	130.90	132.10	.....	117.95	.....	126.62	.....
14	124.94	125.96	126.72	128.78	130.65	130.92	132.16	.....	118.21	.....	126.68	.....
15	124.98	125.97	126.76	.....	130.69	130.95	132.22	.....	118.46	.....	126.73	.....
16	125.02	126.00	126.80	.....	130.74	130.96	132.28	.....	118.73	.....	126.78	.....
17	.....	126.03	126.83	.....	130.79	130.98	132.34	.....	118.96	.....	126.83	.....
18	.....	126.06	126.88	129.02	130.83	131.01	127.59	.....	119.17	.....	126.88	.....
19	.....	126.10	126.91	129.11	130.87	131.04	124.67	.....	119.39	.....	126.93	.....
20	.....	126.12	126.96	129.18	130.91	131.07	122.08	.....	119.60	.....	126.98	.....
21	.....	e126.14	127.01	129.25	130.95	131.10	119.77	.....	.....	.....	127.02	.....
22	.....	126.18	127.06	129.32	130.99	131.13	117.68	.....	.....	.....	127.07	.....
23	h125.28	126.21	127.11	129.37	131.01	131.17	115.72	.....	.....	.....	127.11	h128.15
24	125.29	126.23	127.17	129.45	.....	131.20	114.04	.....	.....	.....	127.16	128.17
25	125.33	126.26	127.23	129.52	.....	131.23	112.66	.....	.....	.....	127.20	128.18
26	125.36	126.28	127.28	129.58	.....	131.26	111.43	.....	.....	.....	127.25	128.19
27	125.40	126.30	127.34	129.65	.....	131.29	110.46	.....	.....	.....	127.29	128.21
28	125.42	126.34	127.41	129.70	.....	131.33	109.76	.....	.....	.....	.....	128.22
29	125.47		127.47	.....	.....	131.36	109.20	.....	.....	.....	.....	128.24
30	125.49		127.53	.....	.....	131.41	108.68	.....	.....	.....	.....	128.26
31	125.54		127.61		.....		108.24	.....		125.60		128.27

e Estimated.
h Tape measurement.

10.24.8.333. Ira Lee. Drilled irrigation water-table well in valley fill, diameter 13 to 10 inches, depth 181 feet. Highest water level 40.67 below lsd, Feb. 5, 1947; lowest 62.79 below lsd, Sept. 10, 1953. Records available: 1946-53. Jan. 30, 53.70; Mar. 10, 53.72; May 12, 57.97; July 7, 61.55; Sept. 10, 62.79; Nov. 4, 58.89.

10.24.9.330. Berrendo. Drilled observation artesian well in limestone member of San Andres formation, diameter 10 inches, depth 258 feet, depth to artesian aquifers 170 and 241. Land-surface datum is 3,586.16 feet above msl. Highest water level 11.29 below lsd, Dec. 19,20, 1926; lowest 38.28 below lsd, Sept. 11, 1953. Records available: 1926-53.

Daily highest water level from recorder graph

Day	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	25.80	26.51	26.11	30.84	30.34	31.83	36.64	33.45	35.79	34.74	31.62	29.55
2	25.81	26.38	26.05	31.09	30.44	31.85	36.51	33.29	35.51	34.40	31.45	29.47
3	25.84	26.48	26.12	31.33	30.47	32.00	37.07	33.27	36.14	34.23	31.33	29.53
4	25.82	28.50	26.30	31.37	30.35	32.28	36.92	33.66	36.23	34.02	31.24	29.50
5	25.74	26.48	26.35	31.03	30.75	32.40	36.52	34.08	36.14	33.92	31.07	29.44

10. 24. 9. 330--Continued.

Day	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
6	25.77	26.50	26.44	30.86	30.85	32.57	36.37	34.33	35.77	33.85	30.98	29.38
7	25.84	26.51	26.62	31.03	30.98	32.47	36.58	34.88	35.54	33.72	30.93	29.31
8	25.85	26.36	26.71	31.39	31.07	32.25	36.51	35.45	36.35	33.72	30.81	29.32
9	25.94	26.29	26.63	31.39	31.13	32.40	36.16	35.68	.....	35.00	30.74	29.30
10	26.00	26.47	26.73	31.48	30.99	32.49	36.79	35.89	.....	33.99	30.67	29.20
11	25.93	26.34	26.82	31.59	30.84	32.63	36.37	36.16	38.28	33.82	30.61	29.19
12	25.85	26.38	27.01	31.32	31.08	32.65	35.90	35.99	37.54	33.87	30.52	29.06
13	26.02	26.41	27.07	31.13	31.14	32.75	37.21	36.38	37.35	33.75	30.48	29.05
14	26.12	26.36	27.24	31.38	31.13	32.73	36.56	36.50	37.17	33.62	30.41	28.95
15	26.22	26.25	27.31	31.46	31.13	32.53	35.92	36.21	37.82	33.65	30.27	28.92
16	26.32	26.22	27.22	31.43	30.92	32.87	35.98	.....	36.26	33.45	30.25	28.91
17	26.32	26.34	27.48	31.40	30.86	33.04	35.74	36.23	35.97	33.37	30.20	28.88
18	26.21	26.33	27.66	31.41	30.69	33.12	34.51	.....	35.87	33.19	30.19	28.82
19	26.10	26.31	28.00	31.33	30.77	.....	33.80	.....	35.64	33.10	30.17	28.74
20	26.41	26.43	28.29	31.16	30.86	33.02	33.60	.....	35.28	33.07	30.09	28.65
21	26.38	26.55	28.53	31.26	30.81	.....	33.48	35.07	35.13	33.10	30.04	28.63
22	26.38	26.43	28.65	31.33	30.93	.....	33.38	34.82	35.67	34.30	29.98	28.70
23	26.31	26.36	28.58	31.13	31.01	.....	33.22	34.56	35.43	34.07	29.88	28.60
24	26.36	26.19	28.95	31.03	31.15	33.53	33.22	34.45	35.55	33.87	29.90	28.53
25	26.16	26.14	29.30	30.97	31.20	33.85	33.17	34.75	35.42	33.63	29.86	28.45
26	26.10	26.14	29.77	30.63	31.52	34.02	33.07	34.92	35.33	33.55	29.77	28.36
27	26.22	26.22	29.98	30.52	31.79	34.20	32.89	35.00	34.98	33.47	29.78	28.32
28	26.35	26.24	30.18	30.53	31.88	34.35	33.00	36.47	34.85	33.35	29.73	28.32
29	26.38		30.33	30.37	.....	34.93	33.09	35.65	34.94	33.18	29.68	28.31
30	26.52		30.28	30.28	.....	35.55	33.11	35.38	34.80	33.07	29.63	28.39
31	26.63		30.55		.....		33.32	36.44		33.00		28.35

10. 24. 21. 212. Berrendo-Smith. Drilled observation artesian well in limestone member of San Andres formation, diameter 10 inches, depth 324 feet, depth to artesian aquifers 269 and 310. Land-surface datum is 3, 580. 65 feet above msl. Highest water level 6. 06 below lsd, Jan. 19, 1943; lowest 34. 78 below lsd, Aug. 15, 1953. Records available: 1940-53.

Daily highest water level from recorder graph

Day	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	21.35	22.28	21.93	28.72	26.66	**28.39**	33.04	30.93	33.59	31.74	27.73	25.31
2	21.29	22.06	21.82	28.88	26.83	**28.60**	33.38	30.50	33.40	31.44	27.58	25.20
3	21.39	22.21	22.08	29.08	26.68	29.02	33.27	30.35	33.58	31.14	27.47	25.38
4	21.29	22.27	22.35	29.03	26.51	29.42	33.24	31.18	33.71	30.88	27.34	25.33
5	21.17	22.25	22.45	28.17	27.18	29.42	32.40	31.79	33.34	30.67	27.08	25.25
6	21.34	22.33	22.59	27.95	27.38	29.69	32.16	32.10	33.22	30.48	26.93	25.10
7	21.52	22.33	22.89	28.44	27.71	29.49	33.57	33.13	32.84	30.37	26.89	24.96
8	21.59	22.14	22.81	28.85	27.74	29.38	33.21	33.27	33.58	30.34	26.75	25.10
9	21.81	22.05	22.68	28.57	27.88	29.83	33.71	33.42	33.72	30.31	26.65	25.00
10	21.91	22.23	22.88	28.55	27.40	30.12	33.53	33.05	33.67	30.30	26.63	24.85
11	21.75	22.05	23.08	28.59	29.61	30.12	34.50	33.84	33.92	30.09	26.52	24.80
12	21.62	22.16	23.53	28.18	27.62	30.00	33.14	33.83	33.56	29.97	26.47	24.65
13	22.02	22.25	23.52	27.84	27.65	30.25	32.82	33.76	33.76	29.94	26.39	24.64
14	21.98	22.18	23.72	28.51	27.75	29.97	33.44	34.41	32.90	29.87	26.30	24.52
15	22.10	22.13	23.69	28.67	27.45	29.44	33.44	34.78	33.42	29.73	26.11	24.45
16	22.25	22.05	23.65	28.67	27.16	30.20	33.89	34.42	33.46	29.78	26.07	24.49
17	22.26	22.25	24.22	28.58	26.86	30.19	33.26	33.28	33.38	29.60	26.03	24.42
18	21.86	22.21	24.47	28.49	26.72	30.08	32.40	33.67	33.20	29.23	26.04	24.39
19	21.73	22.27	25.03	28.05	26.91	30.21	31.60	33.61	33.12	29.06	25.98	24.32
20	22.50	22.39	25.43	27.84	27.18	30.47	31.37	33.56	32.42	29.01	25.91	24.20
21	22.34	22.50	25.55	27.96	27.28	30.00	31.55	32.97	32.19	29.16	25.81	24.17
22	22.25	22.25	25.64	27.85	27.51	29.85	31.24	32.69	32.93	28.98	25.78	24.27
23	22.17	22.14	25.45	27.53	27.63	30.24	30.94	32.40	32.80	28.67	25.65	24.15
24	22.17	21.89	26.12	27.37	27.51	30.44	30.80	32.27	32.95	28.48	25.72	24.05
25	21.85	21.82	26.76	27.23	27.39	31.33	30.57	32.93	32.76	28.35	25.68	23.95
26	21.74	21.94	27.60	26.89	27.82	31.44	30.18	33.09	32.72	28.30	25.59	23.85
27	21.98	22.12	27.51	26.73	28.14	31.82	29.96	33.35	32.03	28.33	25.62	23.79
28	22.18	22.09	27.67	26.80	28.13	31.80	30.40	33.90	31.80	28.28	25.53	23.84
29	22.17		28.05	26.64	28.37	31.92	30.59	34.00	31.89	28.11	25.42	23.82
30	22.39		27.92	26.45	28.63	32.24	30.46	33.43	31.88	27.98	25.36	23.93
31	22.50		28.39		28.65		30.93	32.86		27.93		23.92

10.24.32.111. F. W. Lewis. Dug unused water-table well in valley fill, diameter 40 inches, depth 52 feet. Highest water level 27.48 below lsd, Jan. 28, 1946; lowest dry at 36.59, Nov. 4, 1953. Records available: 1946-53. Jan. 30, 36.58; Mar. 11, 36.43; May 12, 36.56; July 7, 36.56; Sept. 10, 33.86; Nov. 4, dry at 36.59.

10.25.19.331. E. H. Pugh. Drilled stock water-table well in valley fill, diameter 4 inches. Highest water level 30.76 below lsd, Feb. 12, 1942; lowest 37.86 below lsd, Nov. 4, 1953. Records available: 1942-53. Jan. 29, 36.51; Mar. 10, 36.62; May 12, 37.26; July 7, 37.70; Sept. 11, 40.56, pumping; Nov. 4, 37.86.

11.23.1.433. S. M. Wiggins. Drilled irrigation water-table well in valley fill, diameter 14 inches. Highest water level 56.07 below lsd, Feb. 4, 1947; lowest 82.40 below lsd, Sept. 11, 1953. Records available: 1947-53. Jan. 28, 69.84; Mar. 11, 70.93; May 13, 75.74; July 8, 80.25; Sept. 11, 82.40; Nov. 6, 76.15.

11.23.3.342. J. L. Mask. Drilled unused irrigation artesian well in limestone member of San Andres formation, diameter 15 inches, depth 595 feet+, black lime 170-175, gray lime 505-508, brown lime 540-595. Highest water level 159.59 below lsd, Jan. 6, 1953; lowest 168.16 below lsd, Sept. 19, 1953. Records available: 1952-53.

Daily highest water level from recorder graph

Day	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	159.65	159.87	159.74	162.58	163.52	163.98	166.13	166.53	167.68	167.83	165.92	164.24
2	159.71	159.85	159.75	162.71	163.67	164.05	166.20	166.57	167.84	167.64	165.81	164.17
3	159.67	159.87	159.78	162.89	163.66	164.15	166.32	166.50	167.91	167.62	165.74	164.19
4	159.61	159.91	159.93	162.97	163.51	164.21	166.58	166.55	167.96	167.54	165.71	164.15
5	159.60	159.90	159.92	162.97	163.70	164.31	166.30	166.71	167.93e	167.50	165.59	164.12
6	159.59	159.90	159.97	162.98	163.61	164.40	166.29	166.77	167.80	.....	165.64	164.14
7	159.64	160.00	160.03	163.13	163.79	164.39	166.45	166.90	167.89	.....	165.55	164.10
8	159.66	159.84	160.03	163.23	163.86	164.42	166.74	167.06	167.94	167.30	165.54	164.00
9	159.68	159.84	160.02	163.34	163.86	164.55	166.61	167.13	167.87	167.34	165.42	164.00
10	159.67	159.94	160.06	163.42	163.83	164.89	166.92	167.15	168.07	167.26	165.35	163.88
11	159.68	159.87	160.13	163.45	163.80	164.70	166.75	167.29	167.95	167.23	165.29	163.92
12	159.62	159.89	160.19	163.51	163.83	164.69	166.75	167.43	168.11	167.19	165.25	163.84
13	159.65	159.90	160.23	163.46	163.83	164.72	166.73	167.46	168.09	167.06	165.19	163.82
14	159.62	159.87	160.32	163.54	163.86	164.70	166.85	167.50	167.91	167.12	165.13	163.78
15	159.71	159.86	160.41	163.68	163.67	164.69	166.90	167.58	167.97	166.95	165.02	163.69
16	159.75	159.89	160.39	163.67	163.77	164.83	166.99	167.56	168.12	167.02	164.97	163.76
17	159.73	159.91	160.50	163.69	163.63	165.00	167.06	167.48	168.12	166.87	164.92	163.65
18	159.71	159.83	160.63	163.96	163.60	164.92	166.90	167.54	168.15	166.80	164.85	163.62
19	159.67	159.83	160.77	163.87	163.60	164.92	166.78	167.52	168.16	166.71	164.84	163.56
20	159.74	160.00	160.87	163.78	163.59	164.98	166.76	167.46	168.10	166.64	164.79	163.46
21	159.71	160.02	161.04	163.77	163.63	164.98	166.72	167.44	168.10	166.62	164.75	163.43
22	159.77	159.89	161.16	163.77	163.66	164.98	166.66	167.41	167.92	166.57	164.69	163.53
23	159.76	159.87	161.17	163.73	163.74	.....	166.62e	167.38	168.02	166.51	164.58	163.46
24	159.82	159.80	161.37	163.71	163.67e	165.50	166.57	167.41	167.92	166.46	164.63	163.35
25	159.73	159.81	161.52	163.73	163.67	165.60	166.52	167.50	168.06	166.27	164.59	163.33
26	159.73	159.82	161.69	163.67	163.77	165.67	166.51	167.53	168.06	166.28	164.52	163.24
27	159.83	159.83	161.94	163.61	163.99	165.78	166.45	167.60	167.86	166.19	164.52	163.15
28	159.83	159.70	162.08	163.55	163.94	165.63	166.48	167.67	167.90	166.16	164.46	163.21
29	159.75		162.11	163.50	163.95	165.61	166.52	167.71	167.80	166.08	164.50	163.08
30	159.82		162.19	163.48	163.97	166.02	166.51	167.73	167.79	165.96	164.36	163.19
31	159.90		162.40		164.00		166.56	167.72		165.93		163.19

e Estimated.

11.23.15.222. C. E. Smith. Drilled irrigation artesian well in Chalk Bluff formation and limestone member of San Andres formation, diameter 16 inches, depth 649 feet. Highest water level 101.29 below lsd, Jan. 28, 1950; lowest 117.98 below lsd, Nov. 6, 1953. Records available: 1950-53. Jan. 28, 110.28; Mar. 11, 111.48; May 13, 116.35; July 8, 132.17, pumping; Sept. 11, 133.23, pumping; Nov. 6, 117.98.

11.23.22.343a. Byrum Brown. Drilled irrigation artesian well in Chalk Bluff formation and limestone member of San Andres formation, diameter 14 inches, depth 231 feet. Highest water level 164.36 below lsd, Jan. 28, 1953; lowest 176.30 below lsd, Sept. 11, 1953. Records available: 1952-53. Jan. 28, 164.36; Mar. 11, 164.85; May 13, 170.17; July 8, 173.68; Sept. 11, 176.30; Nov. 6, 172.53.

11.24.10.224. C. E. Smith. Drilled stock water-table well in valley fill, diameter 8 inches, depth 129 feet. Land-surface datum is 3,563 feet above msl. Highest water level 11.14 below lsd, Dec. 10, 1941; lowest 47.01 below lsd, Sept. 11, 1953. Records available: 1937-53. Pressure pump operates intermittently. May 13, 36.22; July 7, 49.43, pumped recently; Sept. 11, 47.01; Nov. 4, 26.65.

11.24.14.331. H. M. Flourney. Drilled irrigation water-table well in valley fill, diameter 8 inches. Highest water level 27.58 below lsd, Feb. 3, 1948; lowest 67.78 below lsd, July 7, 1953. Records available: 1947-53. Jan. 29, 41.93; Mar. 11, 48.57; May 13, 53.40; July 7, 67.78; Sept. 11, 65.22; Nov. 4, 46.76.

11.24.28.113. S. W. Skinner. Drilled domestic water-table well in valley fill, diameter 6 inches, depth 143 feet. Highest water level 50.78 below lsd, Noy. 14, 1941; lowest 93.11 below lsd, Sept. 11, 1953. Records available: 1938-53. Jan. 29, 75.39; Mar. 11, 77.97; May 13, 83.13; July 8, 91.07; Sept. 11, 93.11.

11.24.29.242. Mountain View. Drilled observation artesian well in limestone member of San Andres formation, diameter 10 inches, depth 553 feet, depth to artesian aquifers 290, 410, 460, 505, 545. Land-surface datum is 3,627.18 feet above msl. Highest water level 53.18 below lsd, Jan. 18, 1943, lowest 89.4 below lsd, Sept. 11, 1953. Records available: 1940-53.

Daily highest water level from recorder graph

Day	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	71.10	71.88	71.92	81.38	79.33	80.50	86.44	85.77	.....	86.74	79.63	75.68
2	71.17	71.68	71.79	81.62	79.72	81.17	86.74	85.23	.....	86.34	79.44	75.56
3	71.23	72.09	72.33	81.92	79.08	81.56	87.04	84.94	.....	85.93	79.32	75.60
4	70.88	72.25	72.72	81.80	78.85	81.93	87.09	86.19	.....	85.13	79.24	75.64
5	70.73	72.27	72.73	80.67	79.58	82.34	86.61	86.66	.....	84.87	78.85	75.53
6	70.92	72.41	73.05	80.33	80.00	82.76	86.35	87.35	.....	84.80	78.63	75.40
7	71.20	72.50	73.48	81.05	80.34	82.63	87.18	88.07	.....	84.60	78.57	75.15
8	71.42	72.07	73.13	81.47	80.45	82.34	87.63	88.61	.....	84.28	78.37	75.25
9	71.44	71.95	73.02	81.62	80.50	83.25	88.03	88.78	.....	84.16	78.15	75.24
10	71.45	72.30	73.74	81.80	79.77	83.76	87.76	88.28	.....	83.86	78.07	74.89
11	71.42	72.02	74.28	81.65	79.47	83.70	.....	88.95	e89.4	83.55	77.93	74.95
12	71.22	72.22	74.91	81.08	80.30	83.93	.....	.....	e89.3	83.22	77.82	74.74
13	71.60	72.35	75.20	80.69	80.34	84.06	.....	.....	88.32	83.29	77.72	74.70
14	71.69	72.38	75.40	.....	80.08	83.33	.....	.....	87.93	83.20	77.47	74.60
15	71.76	72.23	75.25	.....	79.44	82.90	.....	.....	88.34	83.10	77.20	74.44
16	71.95	72.09	75.00	.....	79.20	83.85	.....	.....	88.63	82.93	77.07	74.62
17	71.87	72.66	75.88	.....	78.80	83.77	.....	e88.65	88.69	82.73	77.06	74.45
18	71.58	72.64	76.87	.....	78.59	83.42	.....	.....	88.89	82.28	76.98	74.50
19	71.43	72.74	77.38	.....	78.95	83.24	.....	.....	88.84	82.07	76.93	74.34
20	71.85	72.95	77.84	.....	79.06	83.54	.....	.....	87.82	81.97	76.73	74.10
21	71.88	73.10	77.99	.....	79.20	83.42	.....	.....	87.49	81.85	76.63	74.01
22	72.10	72.55	77.95	.....	79.15	82.94	.....	.....	87.95	81.71	76.53	74.31
23	71.93	72.40	77.53	.....	79.32	83.70	.....	.....	88.09	81.20	76.34	74.18
24	72.12	72.03	78.52	80.14	79.14	84.09	.....	.....	88.11	80.78	76.40	73.98
25	71.70	71.90	79.30	79.93	78.87	84.79	85.75	.....	88.01	80.60	76.49	73.88
26	71.60	72.14	79.85	79.17	79.74	85.04	85.00	.....	87.72	80.57	76.29	73.77
27	71.98	72.13	80.57	78.96	80.18	85.60	84.60	.....	86.58	80.47	76.19	73.59
28	72.31	72.22	80.84	79.09	80.15	85.46	85.49	.....	86.26	80.40	76.11	73.76
29	72.18		80.50	79.05	80.50	84.97	85.84	.....	86.73	80.23	75.89	73.72
30	72.49		79.93	79.01	80.73	86.08	85.62	.....	86.77	80.12	75.80	73.97
31	72.65		80.79		81.43		85.83	.....		80.14		74.03

e Estimated.

11.25.6.421a. T. H. Eicher. Formerly Leo Williamson. Drilled unused water-table well in valley fill, diameter 8 inches, depth 85 feet. Highest water level 1.05 below lsd, July 7, 1953; lowest 11.14 below lsd, Sept. 15, 1948. Records available: 1941-53. Jan. 29, 10.07; Mar. 10, 6.25; May 12, 4.83; July 7, 1.05; Sept. 10, 7.27; Nov. 4, 8.85.

11.25.29.444. Glenn C. Wheeler. Drilled unused water-table well in valley fill, diameter 6 inches, depth 30 feet. Highest water level 3.14 below lsd, Mar. 15, 1942; lowest 15.49 below lsd, Nov. 3, 1948. Records available: 1937-53.

Date	Water level	Date	Water level	Date	Water level	Date	Water level
Jan. 5, 1951	11.45	July 10, 1952	12.86	Jan. 29, 1953	12.26	July 8, 1953	15.48
Jan. 4, 1952	10.40	Sept. 3	11.78	Mar. 11	13.95	Sept. 12	13.16
Mar. 11	10.27	Nov. 7	11.40	May 13	13.42	Nov. 4	14.37
May 14	11.57						

12.24.13.111. W. T. Weldy. Drilled stock water-table well in valley fill, diameter 8 inches. Highest water level 62.36 below lsd, Jan. 7, 1943; lowest dry at 90.54, Sept. 12, 1953. Records available: 1942-53. Jan. 28, 79.09; Mar. 13, 79.77; May 15, 85.42; July 15, 89.17; Sept. 12, dry at 90.54.

12.25.9.422. Cumberland townsite. Drilled unused water-table well in valley fill, diameter 10 inches, reported depth 90 feet. Highest water level 38.64 below lsd, Oct. 16, 1941; lowest 67.64 below lsd, Sept. 14, 1953. Records available: 1937-53: Jan. 27, 60.34; Mar. 12, 60.48; May 13, 62.92; July 8, 65.34; Sept. 14, 67.64; Nov. 5, 65.30.

12.25.22.411. W. T. Clardy. Drilled unused water-table well in valley fill, diameter 18 inches, depth 147 feet. Highest water level 86.86 below lsd, Mar. 11, 1948; lowest 106.50 below lsd, Nov. 5, 1953. Records available: 1947-53. Jan. 27, 99.20; Mar. 12, 110.90, nearby well being pumped; May 14, 101.19; July 8, 113.10, nearby well being pumped; Sept. 14, 116.46, nearby well being pumped; Nov. 5, 106.50.

12.25.23.110. Orchard Park. Drilled unused artesian well in limestone member of San Andres formation, diameter 8 inches, depth 810 feet, depth to artesian aquifers 600-790. Land-surface datum is 3,546.19 feet above msl. Highest water level 1.74 below lsd, Jan. 15, 1942; lowest 96.52 below lsd, Aug. 15, 1953. Records available: 1925-53.

Daily highest water level from recorder graph

Day	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	19.12	22.60	29.83	78.95	54.89	50.51	79.09	87.74	.....	70.62	28.83	19.29
2	17.80	21.97	29.34	80.62	56.21	52.88	80.95	.....	.....	68.67	27.24	18.18
3	18.40	23.89	30.90	79.22	48.98	56.48	e83.05	.....	.....	65.74	26.56	16.13
4	17.44	23.98	33.13	77.88	46.70	58.68	83.60	e87.60	.....	62.38	25.75	18.23
5	16.28	25.02	34.23	73.13	52.60	59.85	80.95	89.67	91.86	61.69	24.90	18.22
6	18.40	27.44	36.04	72.51	54.14	61.39	80.25	91.19	88.78	60.40	24.40	17.73
7	19.03	27.81	37.12	75.58	55.39	59.69	84.11	92.56	87.23	58.55	24.13	17.20
8	19.56	25.89	36.64	76.76	55.32	58.82	e82.25	95.03	87.98	57.22	23.79	17.72
9	21.04	25.22	35.92	78.63	54.10	63.13	88.12	93.64	88.52	56.89	23.41	17.99
10	22.25	26.52	41.22	79.37	49.02	63.49	86.91	92.40	69.21	53.71	24.18	17.50
11	20.15	25.03	47.24	77.32	47.42	61.68	87.17	93.41	88.07	51.10	23.57	17.06
12	16.23	27.19	51.98	73.20	50.30	65.74	.....	94.85	84.29	49.89	23.39	16.57
13	21.43	27.78	55.42	73.45	50.41	67.77	.....	94.55	81.50	50.79	23.40	17.08
14	19.55	28.26	57.29	74.23	49.78	65.30	.....	96.43	81.16	50.43	23.77	16.75
15	20.00	26.87	56.90	72.40	46.60	64.43	.....	96.52	83.29	50.73	24.84	16.92
16	20.57	26.12	57.71	72.25	44.72	63.49	.....	94.84	84.63	49.68	24.32	17.29
17	20.13	28.77	61.62	71.83	41.33	59.47	.....	93.00	84.42	46.10	23.37	17.49
18	18.72	30.23	64.65	69.88	41.18	56.63	.....	90.84	83.87	43.86	22.38	17.57
19	18.05	29.79	67.73	61.67	46.74	54.99	85.47	91.91	83.90	41.65	21.75	18.05
20	20.20	30.68	68.59	60.25	46.33	55.03	85.25	91.08	82.53	43.84	21.25	17.25
21	22.52	30.48	68.72	63.65	48.00	55.29	87.33	89.91	80.28	41.68	20.78	17.26
22	21.67	28.40	69.56	63.57	48.68	56.45	83.66	89.09	78.32	41.12	21.37	18.63
23	20.41	27.22	67.98	60.47	47.88	59.77	67.46	.....	79.93	38.04	21.15	17.49
24	22.52	25.49	72.35	61.26	45.23	63.53	85.38	.....	78.64	35.32	22.02	16.37
25	20.14	24.86	74.67	60.30	44.34	66.87	82.05	91.33	75.17	34.26	21.70	15.50
26	19.67	27.09	76.19	54.13	48.69	67.14	77.95	94.96	72.63	35.05	21.10	15.30
27	21.01	27.87	77.58	52.67	52.43	68.83	77.61	96.18	69.47	33.61	21.52	16.20
28	21.24	28.22	79.17	57.38	51.49	71.07	82.95	94.54	68.94	32.33	20.80	16.61
29	21.27		74.08	53.29	49.09	71.45	84.78	.....	70.43	31.47	19.85	17.42
30	22.76		73.85	51.70	52.01	76.57	84.15	.....	70.94	30.36	18.60	18.95
31	24.31		77.67		50.80		87.32	.....		29.44		20.82

e Estimated.

12.25.35.411a. A. C. Stone. Drilled irrigation water-table well in valley fill, diameter 16 inches. Highest water level 40.23 below lsd, Jan. 20, 1945; lowest 86.24 below lsd, May 14, 1953. Records available: 1945-53. Jan. 27, 71.15; Mar. 12, 78.60; May 14, 86.24; Nov. 5, 79.75.

12.26.7.421. Cecil Johnson. Drilled irrigation artesian well in valley fill, depth 150-160 feet. Highest water level 0.72 above lsd, Jan. 25, 1951; lowest 6.87 below lsd, Sept. 14, 1953. Records available: 1938-53. Jan. 26, +0.02; May 14, -2.42; July 13, -4.20; Sept. 14, -6.87; Nov. 5, -3.86.

12.26.18.221a. Cecil Johnson. Drilled irrigation water-table well in valley fill, diameter 6 inches, depth 68 feet. Highest water level 14.22 below lsd, Mar. 23, 1945; lowest 17.50 below lsd, Nov. 5, 1953. Records available: 1944-53. Jan. 26, 15.75; Mar. 12, 15.86; May 14, 16.17; Sept. 14, 17.40; Nov. 5, 17.50.

12.26.29.333. T. S. Lawing. Drilled unused water-table well in valley fill, diameter 13 inches, reported depth 250 feet. Highest water level 14.20 below lsd, Jan. 25, 1940; lowest 20.02 below lsd, Sept. 14, 1953. Records available: 1939-53. Jan. 26, 17.60; Mar. 12, 17.75; May 14, 19.14; July 13, 19.50; Sept. 14, 20.02; Nov. 5, 19.86.

13.25.14.231. F. W. Pfeiffer. Drilled domestic water-table well in valley fill, diameter 12 inches, depth 152 feet. Highest water level 40.12 below lsd, Jan. 28, 1942; lowest 89.99 below lsd, Nov. 5, 1953. Records available: 1940-53. Jan. 26, 75.36; Mar. 12, 88.19, nearby well being pumped; July 13, 96.16, nearby well being pumped; Nov. 5, 89.99.

13.25.17.411. R. Thaman. Drilled stock water-table well in valley fill, diameter 6 inches, depth 148 feet. Highest water level 55.08 below lsd, Feb. 3, 1942; lowest 133.67 below lsd, Nov. 5, 1953. Records available: 1939, 1941-53. Jan. 26, 73.07; Mar. 12, 76.25; May 14, 92.60; July 13, 112.71, pumped recently; Sept. 15, 133.88, pumping; Nov. 5, 133.67.

13.25.27.211. Greenfield. Drilled observation artesian well in limestone member of San Andres formation, diameter 10 inches, depth 880 feet, depth to artesian aquifers 740, 795. Land-surface datum is 3,523.76 feet above msl. Highest water level 12.94 above lsd, Jan. 13, 1942; lowest 98.83 below lsd, Aug. 14, 1953. Records available: 1940-53.

Daily highest water level above and below lsd from recorder graph

Day	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	-2.31	-11.72	-21.69	-79.59	-46.08	-43.75	-81.39	-92.89	-96.02	-67.27	-12.99	-3.98
2	1.44	11.34	21.73	80.98	49.60	46.68	82.73	91.45	95.16	62.73	11.78	3.62
3	2.22	14.49	27.56	81.53	42.85	49.07	84.28	90.65	94.09	57.27	11.36	3.87
4	1.28	15.30	26.02	79.38	42.18	54.11	84.31	.....	92.65	53.65	11.00	3.01
5	.57	17.25	28.72	75.00	48.38	56.91	83.04	.....	87.46	52.18	10.68	2.66
6	2.51	18.64	29.44	73.38	48.09	56.03	83.69	90.85	84.13	50.35	10.23	1.73
7	3.06	19.00	30.92	77.45	49.20	54.23	86.44	94.91	82.68	48.35	9.99	1.40
8	3.48	16.88	30.73	76.73	49.88	53.67	81.95	97.46	85.00	48.78	9.19	4.31
9	5.20	16.12	30.62	78.47	46.67	59.80	88.11	95.22	87.92	46.32	8.48	3.82
10	5.07	14.47	36.83	79.67	40.70	55.54	87.40	94.22	87.56	38.85	9.47	2.97
11	3.73	13.13	39.63	76.30	42.12	50.97	87.44	98.13	85.85	36.59	9.33	2.03
12	2.75	16.50	42.02	72.23	48.07	57.96	86.34	98.35	84.67	36.93	10.14	1.09
13	5.40	18.04	49.23	73.02	45.77	61.93	85.98	97.38	78.93	40.42	10.31	.97
14	5.71	18.30	51.63	74.33	46.25	60.65	89.73	98.83	77.80	40.49	11.19	1.38
15	5.45	15.94	48.07	73.11	40.08	60.47	90.55	97.55	84.19	43.94	10.54	2.10
16	5.68	14.84	50.15	73.08	33.81	55.63	90.17	98.00	85.70	43.35	10.44	2.69
17	4.43	19.28	59.27	71.87	32.05	53.60	88.87	97.49	86.90	38.03	10.22	3.44
18	2.94	21.15	64.37	70.07	30.90	51.29	85.86	94.22	85.69	35.00	8.17	3.68
19	3.91	22.88	65.52	58.87	33.72	48.80	81.22	96.98	86.60	34.09	7.33	3.12
20	7.86	24.37	64.73	57.23	34.08	48.98	80.10	93.22	83.99	33.07	6.70	2.21
21	9.58	23.76	66.21	63.73	36.40	46.94	82.27	91.40	81.78	30.58	6.34	2.14
22	7.92	21.83	68.08	64.73	39.29	48.45	77.20	89.57	80.95	29.28	5.90	1.52
23	7.09	19.35	66.53	61.51	40.94	59.38	87.01	86.06	77.47	25.48	5.50	-.85
24	8.68	16.95	72.87	62.19	37.90	60.67	89.10	85.04	75.56	22.15	6.52	....
25	6.25	17.97	74.74	52.35	40.14	62.28	81.00	.....	74.79	20.94	6.12	.....
26	6.92	20.97	74.11	45.18	48.29	64.34	80.92	.....	72.15	20.55	5.69	....
27	8.59	22.84	78.55	43.78	49.66	67.78	80.00	.....	67.16	19.56	5.23	+.32
28	9.64	21.00	77.95	50.25	43.20	68.23	87.58	.....	65.62	18.25	4.65	-.50
29	9.52		74.70	43.33	46.14	71.98	83.63	98.77	70.80	18.38	4.08	1.32
30	10.66		73.25	41.60	45.97	77.56	87.73	96.80	e68.95	15.07	3.10	2.09
31	10.85		76.38		44.69		91.02	95.93		14.30		3.95

e Estimated.

13.25.34.323. L. D. and W. F. Kerr. Drilled unused water-table well in valley fill, diameter 12 inches, depth 141 feet. Highest water level 86.31 below lsd, Mar. 12, 1948; lowest 97.74 below lsd, Nov. 5, 1953. Records available: 1948-53. Jan. 23, 95.87; Mar. 12, 95.98; May 14, 96.40; July 13, 96.80; Sept. 15, 97.28; Nov. 5, 97.74.

13.26.7.333. Howard Amason. Drilled unused water-table well in valley fill, diameter 6 inches, depth 118 feet. Highest water level 4.45 below lsd, Oct. 1, 1941; lowest 28.34 below lsd, Sept. 19, 1953. Records available: 1939-53.

Daily highest water level from recorder graph

Day	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	....	.....	24.07	25.71	25.17	.....	26.89	.....	.....	.....	27.59	.....
2	24.05	.....	24.10	25.76	25.17	.....	26.92	.....	.....	.....	27.56	.....
3	24.05	.....	24.13	25.79	25.17	.....	26.96	.....	.....	.....	27.53	.....
4	24.05	23.69	24.16	25.81	25.17	.....	27.00	.....	28.26	.....	27.51	.....
5	24.05	23.69	24.21	25.78	25.17	.....	27.02	.....	28.26	.....	27.51	.....
6	24.06	23.69	24.26	25.75	25.15	.....	27.04	.....	28.24	.....	.....	.....
7	24.06	23.69	24.29	25.70	25.14	.....	.....	.....	28.21	.....	.....	.....
8	24.06	23.69	24.33	25.65	25.14	h25.99	h27.07	.....	28.19	.....	.....	.....
9	24.06	23.68	24.36	25.61	.....	26.00	27.10	.....	28.19	.....	h27.45	.....
10	24.06	23.68	24.38	.....	.....	26.06	27.14	.....	28.19	.....	27.45	.....

13.26.7.333--Continued.

Day	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
11	24.06	23.68	24.40	.....	.....	26.12	27.17	.....	28.19	.....	27.45	.....
12	24.07	.....	24.44	.....	.....	26.17	27.20	.....	.....	.....	27.44	.....
13	24.07	h23.73	24.47	.....	.....	26.17	27.23	.....	.....	.....	27.43	.....
14	24.07	23.73	24.51	.....	h25.37	26.16	27.24	.....	28.25	.....	27.43	.....
15	24.08	23.74	24.57	.....	25.39	26.14	27.24	.....	28.25	.....	27.41	.....
16	24.08	23.75	24.62	.....	25.43	26.16	27.24	.....	28.28	.....	27.40	.....
17	24.07	23.75	24.67	25.48	25.44	26.14	27.25	.....	28.32	.....	27.38	.....
18	24.04	23.77	24.71	25.47	25.43	26.13	27.27	.....	28.33	.....	27.37	.....
19	24.01	23.78	24.76	25.47	25.43	26.12	27.29	.....	28.34	.....	27.35	.....
20	23.99	23.80	.....	25.45	25.43	26.12	27.29	.....	28.33	.....	27.33	.....
21	23.96	23.80	24.96	25.42	.....	26.18	.....	.....	.....	.....	27.31	.....
22	23.92	23.83	25.06	25.40	.....	26.22	.....	.....	.....	.....	27.30	.....
23	23.88	23.86	25.16	25.39	.....	26.28	.....	.....	.....	.....	27.29	.....
24	23.85	23.87	25.25	25.38	.....	26.33	h27.22	.....	.....	.....	.....	27.00
25	23.82	23.88	25.34	.....	.....	26.41	27.20	.....	.....	.....	.....	27.00
26	23.79	23.90	25.42	.....	.....	26.49	27.19	.....	.....	.....	.....	27.00
27	23.76	23.96	25.50	.....	.....	26.58	27.19	.....	.....	.....	.....	26.98
28	23.75	24.03	25.56	.....	.....	26.66	27.19	.....	.....	.....	.....	26.97
29	23.73		25.62	.....	.....	26.75	27.23	.....	.....	.....	.....	26.96
30	23.72		25.64	.....	.....	26.85	27.26	.....	.....	27.64	.....	.....
31	.....		25.67		.....		.....	.....		27.61		.....

h Tape measurement.

13.26.17.321. Leo Nowak. Drilled domestic water-table well in valley fill, diameter 6 inches, depth 122 feet. Highest water level 6.00 below lsd, Apr. 15, 1942; lowest 22.37 below lsd, May 16, 1944. Records available: 1937-53. Jan. 24, 23.55, pumped recently; Mar. 12, 33.10, pumping; May 14, 28.43, pumped recently; July 13, 34.39, pumping; Sept. 14, 27.57, pumped recently; Nov. 5, 27.67, pumped recently.

13.26.23.111. Horton Burke. Drilled irrigation water-table well in valley fill, diameter 16 inches, depth 287 feet. Highest water level 3.55 below lsd, Feb. 2, 1942; lowest 11.16 below lsd, Sept. 10, 1951. Records available: 1938-53. Jan. 24, 6.95; Mar. 12, 7.15; May 14, 8.40; July 13, 42.78, pumping; Sept. 14, 10.81; Nov. 5, 8.53.

13.26.28.121. G. L. Grassie. Drilled stock water-table well in valley fill, diameter 6 inches. Highest water level 13.99 below lsd, Apr. 5, 1941; lowest 30.79 below lsd, July 13, 1953. Records available: 1938-53. Jan. 24, 21.99; Mar. 12, 30.66, pumped recently; May 14, 28.83; July 13, 30.79; Sept. 14, 30.77; Nov. 5, 25.07.

14.23.8.340. M. D. Kincaid. Drilled stock water-table well in limestone member of San Andres formation, diameter 8 inches, depth 460 feet. Land-surface datum is 3,845 feet above msl. Highest water level 257.55 below lsd, Feb. 9, 1943; lowest 289.30 below lsd, Sept. 15, 1953. Records available: 1940-53. Jan. 20, 276.11; Mar. 14, 276.28; May 15, 278.06; July 22, 279.68; Sept. 15, 289.30; Nov. 10, 280.94. In intake area of artesian aquifer.

14.23.24.444. M. D. Kincaid. Drilled stock water-table well in valley fill, diameter 6 inches, depth 178 feet. Highest water level 152.15 below lsd, July 13, 1951; lowest 162.45 below lsd, Sept. 15, 1953. Records available: 1951-53. Jan. 20, 155.68; Mar. 14, 156.05, pumping; May 15, 157.48; July 22, 159.23; Sept. 15, 162.45; Nov. 10, 160.30.

14.25.1.344a. V. F. Flores. Drilled domestic water-table well in valley fill, diameter 6 inches, depth 135 feet. Highest water level 71.19 below lsd, Jan. 23, 1950; lowest 98.99 below lsd, Sept. 15, 1953. Records available: 1949-53. Jan. 22, 91.85; Mar. 14, 89.20; May 15, 91.70; July 22, 97.53; Sept. 15, 98.99; Nov. 10, 97.03.

14.25.2.233a. Massey and Dale. Formerly L. F. Massengale. Drilled irrigation water-table well in valley fill, diameter 12 inches, depth 200 feet. Highest water level 52.13 below lsd, Jan. 27, 1942; lowest 101.08 below lsd, Nov. 10, 1953. Records available: 1940-53. Jan. 22, 96.76; Mar. 13, 111.85, pumping; May 15, 97.56; July 22, 117.69, pumping; Sept. 15, 118.80, pumping; Nov. 10, 101.08.

14.25.20.443. Breeb Hurst. Drilled unused water-table well in valley fill, diameter 10 inches, depth 86 feet. Highest water level 71.46 below lsd, Jan. 22, 1942; lowest 77.58 below lsd, Nov. 10, 1953. Records available: 1938-53. Jan. 20, 77.07; Mar. 14, 77.20; May 15, 77.30; July 22, 77.44; Sept. 15, 77.50; Nov. 10, 77.58.

14.25.25.221. John M. Norris. Drilled unused water-table well in valley fill, diameter 6 to 4 inches. Highest water level 24.50 below lsd, Jan. 16, 1926; lowest 82.01 below lsd, Feb. 27-28, Mar. 1, 1953. Records available: 1926, 1937-47, 1949, 1951-53. Recording gage removed Mar. 13, 1953.

Daily highest water level from recorder graph

Date	Water level	Date	Water level	Date	Water level	Date	Water level
Jan. 2	h81.85	Jan. 15	81.78	Feb. 5	81.87	Feb. 27	82.01
9	h81.78	16	81.71	6	81.83	28	82.01
10	81.82	18	81.75	13	h81.86	Mar. 1	82.01
11	81.79	19	81.75	14	81.86	6	h82.11
12	81.81	20	81.73	16	81.87	13	h82.15
13	81.81	21	81.71	19	h81.92	May 15	h82.80
14	81.78	Feb. 4	h81.82				

h Tape measurement.

14.26.7.433. O. T. Kunkel. Drilled unused domestic water-table well in valley fill, diameter 10 inches, depth 126 feet. Highest water level 88.15 below lsd, Jan. 21, 1953; lowest 101.38 below lsd, July 22, 1953. Records available: 1953. Jan. 21, 88.15; Mar. 12, 94.75, nearby well being pumped; May 15, 94.13; July 22, 101.38, nearby well being pumped; Sept. 15, 101.07; Nov. 10, 98.24.

14.26.7.443. O. T. Kunkel. Drilled domestic water-table well in valley fill, diameter 6 inches, depth 120 feet. Highest water level 23.69 below lsd, Mar. 8, 1927; lowest 56.20 below lsd, May 19, 1945. Records available: 1927, 1932, 1935-53. Jan. 21, 47.37. Measurement discontinued.

14.26.12.433b. Commins. Drilled irrigation water-table well in valley fill. Highest water level 12.50 below lsd, Jan. 22, 1942; lowest 20.10 below lsd, Sept. 10, 1951. Records available: 1940-53. Jan. 21, 35.73, pumping; Mar. 12, 18.51, May 15, 35.00, pumping; July 22, 19.91; Sept. 16, 37.70, pumping; Nov. 10, 18.15.

14.26.15.333. Dub Andrus. Drilled irrigation water-table well in valley fill, diameter 12 inches, depth 178 feet. Highest water level 13.61 below lsd, Oct. 16, 1941; lowest 50.76 below lsd, Sept. 4, 1952. Records available: 1938-53. Jan. 22, 43.37; Mar. 12, 44.12; May 15, 45.86; July 22, 89.41, pumping; Nov. 10, 50.52.

14.26.19.444a. E. E. Lane. Drilled domestic water-table well in valley fill, diameter 16 inches, depth 109 feet. Highest water level 86.74 below lsd, Mar. 14, 1949; lowest 103.79 below lsd, Nov. 10, 1953. Records available: 1949-53. Jan. 20, 100.17; Mar. 13, 100.87; May 15, 102.13; July 22, 102.90; Sept. 15, 103.51; Nov. 10, 103.79.

14.26.30.111. State Engineer and Pecos Valley Artesian Conservancy District. Drilled water-table observation well in sands and gravels in the Orchard-Park terrace of the Pecos Valley fill, diameter 9 inches, depth 210 feet, cased to 190, perforations 95-190. Highest water level 81.36 below lsd, July 15, 1953; lowest 83.02 below lsd, Dec. 23, 1953. Records available: 1953. Recording gage installed July 15, 1953.

Daily highest water level from recorder graph

July 15	81.36	July 22	81.46	Sept. 16	82.44	Oct. 31	e82.49
16	81.39	23	81.48	17	82.46	Nov. 1	82.51
17	81.39	24	81.49	18	82.48	2	82.53
18	81.40	25	81.53	19	82.49	3	82.59
19	81.41	26	81.53	20	82.52	4	82.61
20	81.43	27	81.55	21	82.54	5	82.62
21	81.45	Sept. 15	h82.44	Oct. 30	h82.48	Dec. 23	h83.02

e Estimated.
h Tape measurement.

14.26.32.331. F. B. Chambers. Drilled unused water-table well in valley fill, diameter 6 inches, depth 104 feet. Highest water level 32.14 below lsd, Nov. 12, 1941; lowest 72.10 below lsd, Nov. 10, 1952. Records available: 1927, 1937-53. Jan. 20, 44.97. Measurement discontinued.

14.26.35.344a. J. Q. Mitchell. Drilled stock and domestic water-table well in valley fill, diameter 6 inches. Highest water level 73.63 below lsd, Nov. 11, 1952; lowest 75.23 below lsd, Nov. 10, 1953. Records available: 1952-53. Jan. 19, 73.88; Mar. 14, 74.08; May 15, 74.32; July 22, 74.58; Sept. 16, 74.95; Nov. 10, 75.23.

15.24.32.211. Carl Mangum. Drilled stock water-table well in valley fill, diameter 10 inches, depth 200 feet. Highest water level 37.63 below lsd, Jan. 9, 1945; lowest 64.04 below lsd, Sept. 16, 1953. Records available: 1940-53. Jan. 16, 57.24; Mar. 16, 62.35; May 15, 59.07; July 22, 63.55; Sept. 16, 64.04; Nov. 10, 60.70.

15.25.35.111. Mrs. M. M. Spence. Drilled domestic water-table well in valley fill, diameter 6 inches. Highest water level 12.48 below lsd, Oct. 15, 1941; lowest 35.78 below lsd, Sept. 16, 1953. Records available: 1938-53. Jan. 13, 33.18; Mar. 14, 32.57; May 15, 32.90; July 22, 35.54; Sept. 16, 35.78; Nov. 10, 35.44.

15.26.4.444. Mrs. H. B. Cowan. Drilled unused water-table well in valley fill, diameter 6 inches, depth 106 feet. Highest water level 32.71 below lsd, Nov. 12, 1941; lowest 59.33 below lsd, Sept. 4, 1952. Records available: 1939-53. Jan. 17, 50.49; Mar. 14, 55.94; May 15, 50.18; July 22, 52.83; Sept. 16, 52.67; Nov. 10, 50.38.

15.26.19.212. Jim Revado. Drilled domestic and stock water-table well in valley fill, diameter 6 inches, depth 104 feet. Highest water level 39.53 below lsd, Jan. 17, 1951; lowest 44.95 below lsd, Nov. 10, 1953. Records available: 1951-53. Jan. 16, 42.55; Mar. 14, 42.93; May 15, 43.41; July 22, 43.89; Sept. 16, 45.30, pumping; Nov. 10, 44.95

Eddy County

Roswell basin. --The general discussion of water-level changes in the Eddy County part of the Roswell basin has been included with the Chaves County as the areas are one continuous ground-water province.

Carlsbad area. --The Carlsbad Ground-Water Basin includes the following areas: La Huerta and adjacent vicinity north and east of the Pecos River, the area mostly west of the Pecos River, and southward from Carlsbad to the Black River valley, and the Black River valley southwestward to the New Mexico-Texas State line. The basin as declared by the State Engineer on October 16, 1947, did not include the Black River valley and comprised approximately 490 square miles; the Black River extension, declared October 21, 1952, increased the area to about 635 square miles.

It is estimated that about 32,500 acres of land in the basin are irrigated of which about 23,500 acres are in the Carlsbad Irrigation District. Surface water available to the irrigation district is diverted from the Pecos River at Lake Avalon and from the Black River. These waters generally are supplemented by water pumped from wells. About 3,600 acres of irrigated land west of the Southern Canal and north of the East Canal is outside of the irrigation district and is irrigated entirely from wells. In the Black River valley south and west of the Carlsbad Irrigation District about 1,600 acres are irrigated with water from Black River, Blue Springs, and Rattlesnake Springs, and about 700 acres are irrigated with water from wells. The principal aquifers yielding water to wells in the basin are: the Carlsbad limestone in the area including Carlsbad and north and west of Carlsbad, and the valley alluvium in the remainder of the area and the area north of Carlsbad.

A deficiency of precipitation and available surface water during recent years has resulted in large withdrawals of ground water for irrigation. Precipitation in 1953 in the Carlsbad area was about 45 percent of normal. The precipitation at Carlsbad was 5.97 inches, 7.28 inches below normal, as compared with 7.09 inches in 1952. Precipitation during the growing season, April through September, although about 70 percent of the annual amount, was also about 45 percent of normal.

Surface water diverted at Lake Avalon for use in the Carlsbad Irrigation District amounted to approximately 91,160 acre-feet in 1951, 71,350 acre-feet in 1952, and 55,450 acre-feet in 1953. These quantities of surface water were not enough to satisfy the estimated duty requirements of about 3 acre-feet per acre irrigated, and as a consequence large amounts of water were required from wells.

Large withdrawals of ground water and deficient precipitation have resulted in a general decline of ground-water levels in the area south and east of Carlsbad. The net yearly change of ground-water levels in the Carlsbad area in 1953 was observed by measuring water levels in 68 selected wells during January 1954 and comparing these measurements with similar measurements made in the same wells in January 1953. Figure 55 shows the net annual changes in water levels from January 1953 to January 1954. By the end of 1953 in most of the area where there is appreciable pumping, water levels reached the lowest winter levels since records began in 1947.

The net decline of water levels in wells from January 1953 to January 1954 ranged from less than a foot in the vicinity of Carlsbad and La Huerta to more than 6 feet in the vicinity of Otis. In this period the water levels declined more than 2 feet under about 47 square miles, more than 4 feet under about 23 square miles, and more than 6 feet under about 8 square miles. These declines, although substantially less than the declines observed in 1951 and 1952, indicate a considerable depletion of ground-water storage during 1953.

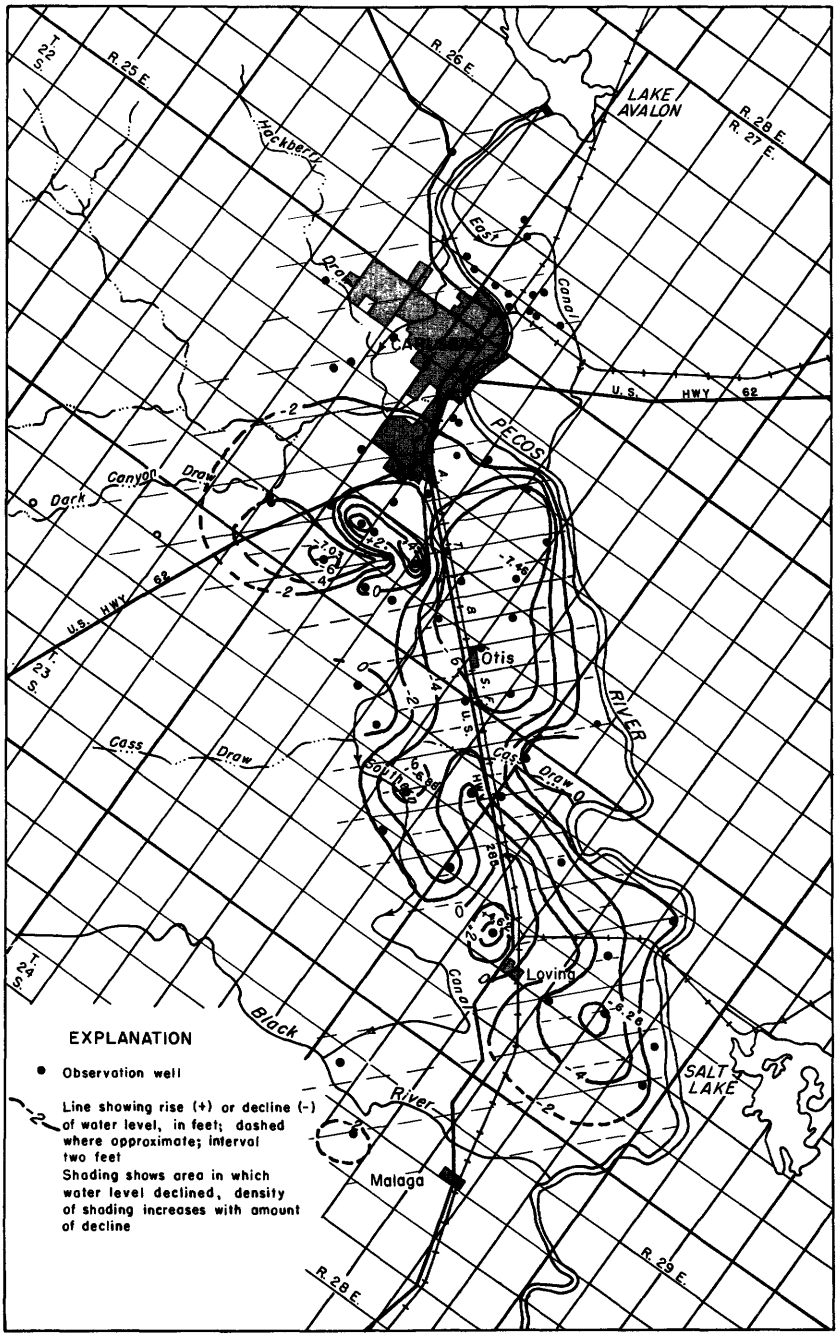


Figure 55. --Change in ground-water level from January 1953 to January 1954 in Carlsbad area, Eddy County, N. Mex.

A rise of ground-water levels, ranging from less than a foot to almost 6 feet was indicated south of Carlsbad in parts of secs. 28, 29, 30, and 32, T. 22 S., R. 27 E. Declines ranging from about 14 feet to about 21 feet were reported for the same and adjacent areas for both 1951 and 1952. The apparent rise of water levels during 1953 in this area may be accounted for largely or, in part, by one or both of the following factors: (1) Torrential rains occurred in the area on October 22, 1953, when 1.91 inches were measured at the Carlsbad Airport and as much as 5 inches were reported unofficially locally in the vicinity of Otis. Fields, drains, and arroyos were flooded. The local rise in water levels in 1953 and also the fact that the general decline in larger areas was less in 1953 than in 1952 or 1951 may be the result, in part, of recharge from this rainstorm but was, in part, due to consequent reduction in pumping. (2) There generally is considerable pumping from wells in the area during January to irrigate alfalfa and to flood fields prior to plowing. Some of the measurements showing the greatest decline may have been made in January 1953 shortly after such a period of early-season pumping and may have included the resulting drawdown. It is significant that the area showing a rise of water levels during 1953 has had an average annual decline of more than 7 feet since 1951.

The greatest decline of water levels during 1953 in wells deriving water from the Carlsbad limestone was 1.84 feet in well 22.26.3.344 in Happy Valley west of Carlsbad although the average decline was less than 1 foot. This decline was caused partly by the withdrawal of roughly 10,000 acre-feet of ground water from the Carlsbad limestone during the year and partly by decreased recharge.

The decline of water levels in 1953, in the valley alluvium, was partly the result of decreased recharge due to decreased precipitation, but largely the result of heavy withdrawals from the ground-water reservoir by pumping from wells.

Roswell Basin

16.23.15.323. D. W. Runyan. Drilled stock water-table well in limestone member of San Andres formation, diameter 10 inches, depth 1,485 feet. Highest water level 211.87 below lsd, Mar. 25, 1945; lowest 235.67 below lsd, Sept. 17, 1953. Records available: 1940-53. In intake area of artesian aquifer. Jan. 10, 231.15; Mar. 17, 231.93; May 18, 232.72; July 24, 234.83; Sept. 17, 235.67; Nov. 12, 234.97.

16.25.1.344. Buck Bros. Drilled domestic and stock water-table well in valley fill, diameter 6 inches, reported depth 120 feet. Highest water level 9.50 below lsd, Jan. 16, 1942; lowest 45.32 below lsd, Sept. 11, 1951. Records available: 1938-53. Jan. 15, 25.08, pumped recently; Mar. 16, 46.89, pumping; May 16, 41.17, pumped recently; July 22, 58.12, pumped recently; Sept. 16, 55.87, pumped recently; Nov. 11, 31.45, pumped recently.

16.25.6. Lot 4. F. M. Nelson. Drilled unused water-table well in valley fill, diameter 6 inches, depth 100 feet. Highest water level 9.84 below lsd, Apr. 14, 1942; lowest 15.97 below lsd, Dec. 6, 1943. Records available: 1937-53. Jan. 15, 12.43; Mar. 16, 10.90; May 15, 11.11; July 22, 11.42; Sept. 16, 11.04; Nov. 10, 10.53.

16.25.6.313. Frank Childress. Drilled unused water-table well in valley fill, diameter 20 inches. Highest water level 27.06 below lsd, Apr. 23, 1942; lowest 30.39 below lsd, Sept. 22, 1953. Records available: 1937-53.

Daily highest water level from recorder graph

Day	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	.....	.....	29.00	29.25	h29.32	.....	29.87	.....	.....	.....	30.19	.....
2	h29.32	.....	29.01	29.27	29.34	.....	29.83	.....	.....	.....	30.19	.....
3	29.25	.....	29.03	29.30	29.40	.....	29.83	.....	.....	.....	30.17	.....
4	29.21	29.15	29.16	29.23	29.51	.....	29.88	.....	.....	.....	30.17	.....
5	29.10	29.12	29.25	29.19	29.48	.....	29.91	.....	.....	.....	30.09	.....
6	29.07	29.12	29.25	29.14	29.35	.....	29.94	.....	.....	.....	30.00	.....
7	29.07	29.17	29.25	29.12	29.25	.....	29.95	.....	.....	.....	.....	.....
8	29.13	29.05	29.34	29.12	.....	29.44	29.97	.....	.....	.....	.....	.....
9	29.26	29.05	29.17	29.23	.....	29.44	30.03	.....	.....	.....	.....	.....
10	29.23	29.14	29.09	29.31	.....	29.56	30.06	.....	.....	.....	h30.15	.....
11	29.25	.....	29.09	.....	.....	29.62	29.98	.....	.....	.....	30.12	.....
12	29.16	.....	29.10	.....	.....	29.61	29.98	.....	.....	.....	30.12	.....
13	29.12	29.21	29.08	.....	.....	29.55	30.04	.....	.....	.....	30.12	.....
14	29.04	29.19	.....	.....	.....	29.49	29.98	.....	.....	.....	30.07	.....
15	29.04	29.14	.....	.....	h29.19	29.48	29.96	.....	.....	.....	30.03	.....
16	29.28	29.14	29.18	.....	29.19	h29.59	29.96	.....	30.24	.....	30.00	.....
17	29.18	29.31	29.13	29.15	29.20	29.62	30.01	.....	30.22	.....	29.93	.....
18	29.13	29.06	29.14	29.15	29.26	29.63	30.05	.....	30.22	.....	29.88	.....
19	29.13	29.01	29.13	29.40	29.24	29.62	30.00	.....	30.25	.....	29.88	.....
20	29.13	29.08	29.04	29.41	29.19	29.65	30.00	.....	30.27	.....	29.91	.....

16.25.6.313--Continued.

Day	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
21	29.05	29.28	29.04	29.26	29.19	29.71	.....	.....	30.29	.....	29.90	.....
22	29.05	29.36	29.10	29.26	29.24	29.74	h30.11	.....	30.39	.....	30.00	.....
23	h29.23	29.25	29.21	29.20	.....	29.69	30.09	.....	30.30	.....	.....	.....
24	29.27	29.21	29.29	29.18	.....	29.66	30.07	.....	.....	.....	.....	h30.10
25	29.21	29.19	29.30	.....	.....	29.66	30.07	.....	.....	.....	.....	.....
26	29.17	29.19	29.28	.....	.....	29.75	30.07	.....	.....	.....	.....	.....
27	29.16	29.15	29.28	.....	.....	29.78	30.11	.....	.....	.....	.....	.....
28	29.21	29.02	29.24	.....	.....	29.78	30.11	.....	.....	.....	.....	.....
29	29.12		29.14	.....	.....	29.81	30.08	.....	.....	.....	.....	.....
30	29.08		29.14	.....	.....	29.90	.....	.....	.....	h30.15	.....	.....
31	29.08		29.17		.....		.....	.....		30.15		.....

h Tape measurement.

16.25.11.113. Cottonwood. Drilled observation artesian well in limestone member of San Andres formation, diameter 7 to 4 inches, depth 800 feet, 526 feet of 7-inch casing, 155 feet of 4-inch casing, depth to artesian aquifers 226-230, 526-550, 770-790. Land-surface datum is 3,454.39 feet above msl. Highest water level 40.44 below lsd, Jan. 16, 1952; lowest 73.61 below lsd, Sept. 9-10, 1953. Records available: 1951-53.

Daily highest water level from recorder graph

Day	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	46.18	49.65	50.77	58.12	56.90	56.08	63.09	68.89	73.25	69.87	61.42	.....
2	46.23	49.70	50.65	58.43	56.82	56.07	63.36	69.03	73.12	69.61	61.08	.....
3	46.12	49.87	50.63	58.73	56.70	56.13	63.78	69.12	73.12	69.38	60.87	.....
4	46.07	50.24	50.58	58.99	56.52	56.26	64.12	69.34	73.28	68.88	60.62	.....
5	45.96	50.51	50.35	59.05	56.44	56.54	64.30	69.50	73.37	68.50	60.36	.....
6	45.98	50.79	50.20	59.32	56.37	56.64	64.55	69.59	73.42	68.18	60.15	.....
7	46.03	51.08	50.10	59.37	56.34	56.55	64.86	69.78	73.48	67.88	59.88	53.85
8	46.09	51.23	49.88	59.47	56.28	56.57	.....	70.27	73.58	67.71	59.60	53.71
9	46.23	51.35	49.78	59.54	56.18	56.75	65.31	70.50	73.61	67.44	59.29	53.61
10	46.29	51.65	49.77	59.55	56.23	56.96	65.37	70.44	73.61	67.09	59.07	53.34
11	46.42	51.60	49.87	59.54	56.08	57.50	65.63	70.50	73.57	66.73	58.89	53.29
12	46.35	51.71	50.49	59.59	56.08	57.91	65.85	70.69	73.38	66.56	58.68	53.07
13	46.43	51.88	50.84	59.37	56.05	58.20	66.18	70.90	72.96	66.52	58.50	52.89
14	46.52	51.98	51.23	59.16	55.85	58.42	66.37	71.04	72.70	66.37	58.28	52.66
15	46.65	52.04	51.56	59.18	55.60	.....	66.57	71.22	72.61	66.16	58.05	52.53
16	46.83	51.95	51.73	59.08	55.40	.....	66.84	71.40	72.24	66.03	57.81	52.49
17	46.83	52.07	52.18	58.95	55.33	.....	67.02	71.63	71.98	65.88	57.61	52.40
18	46.87	52.09	52.57	58.89	55.19	.....	67.12	71.67	71.79	65.56	57.51	52.33
19	47.00	52.12	53.20	58.78	55.12	.....	67.14	71.74	71.57	65.40	57.44	52.20
20	47.08	52.28	53.64	58.58	55.12	.....	67.23	71.77	71.46	e65.20	57.16	51.97
21	47.09	52.44	54.07	58.51	55.22	.....	67.38	71.87	71.35	.....	57.06	51.86
22	47.18	52.18	54.58	58.23	55.38	.....	67.57	72.03	71.28	.....	56.77	.....
23	47.28	52.10	54.95	57.97	55.32	.....	67.84	72.14	71.17	.....	56.56	.....
24	47.36	51.59	55.35	57.88	55.27	60.64	67.85	72.21	71.05	.....	56.45	.....
25	47.52	51.32	55.66	57.89	55.30	61.18	67.97	72.38	70.97	.....	56.32	.....
26	47.48	51.31	55.99	57.68	55.55	61.49	67.98	72.60	70.78	63.10	56.08	.....
27	47.78	51.16	56.45	57.39	55.80	61.97	68.11	72.76	70.53	62.92	55.97	.....
28	48.18	50.96	56.91	57.18	55.94	62.26	68.23	72.83	70.30	62.67	55.74	.....
29	48.64		57.16	57.07	56.03	62.53	68.42	72.88	70.22	62.32	55.47	.....
30	49.00		57.43	56.95	56.08	62.72	68.58	73.01	70.12	62.03	55.21	.....
31	49.36		57.79		56.14		68.68	73.17		61.75		.....

e Estimated.

16.26.19.133a. E. Jeffries. Drilled unused water-table well in valley fill, diameter 13 inches, depth 71 feet. Highest water level 24.30 below lsd, Jan. 11, 1952; lowest dry at 58.87, July 23, 1953. Records available: 1951-53. Jan. 13, 41.45; July 23, dry at 58.87; Nov. 11, 47.66.

16.26.28.431. Robert Horner. Drilled unused irrigation water-table well in valley fill, diameter 16 inches, depth 200 feet. Highest water level 8.72 below lsd, Jan. 15, 1942; lowest 36.87 below lsd, July 23, 1953. Records available: 1938-53. Jan. 13, 21.21; Mar. 16, 26.40; May 16, 26.60; July 23, 36.87; Nov. 11, 27.02.

17.26.7.344. W. F. Culbertson. Drilled irrigation water-table well in valley fill, diameter 12 inches, depth 129 feet. Highest water level 31.53 below lsd, Jan. 14, 1942; lowest 82.26 below lsd, Sept. 6, 1952. Records available: 1940-53. Jan. 9, 76.69. Measurement discontinued.

17.26.7.433. Joe Nunn. Drilled irrigation water-table well in valley fill, diameter 10 inches, depth 158 feet. Highest water level 26.90 below lsd, Jan. 14, 1942; lowest 79.30 below lsd, Nov. 11, 1953. Records available: 1938-53. Jan. 13, 73.92; Mar. 7, 66.23, nearby well being pumped; May 18, 75.71; July 23, 66.71, nearby well being pumped; Sept. 17, 67.50; Nov. 11, 79.30.

17.26.10.333. Sam Sanders. Drilled irrigation water-table well in valley fill, diameter 12 inches, depth 247 feet. Highest water level 4.60 below lsd, Jan. 14, 1942; lowest 57.91 below lsd, Mar. 17, 1952. Records available: 1939-53. Jan. 9, 27.91. Bimonthly measurements will not be made in the future. An annual measurement will be made but will not be published in the water-level report.

17.26.10.433. D. D. Sullivan. Drilled irrigation water-table well in valley fill, diameter 12 inches, depth 210 feet. Highest water level 14.41 below lsd, Jan. 14, 1942; lowest 45.28 below lsd, Sept. 17, 1953. Records available: 1938-53. Jan. 12, 36.88; May 19, 34.73; July 23, 67.81, pumping; Sept. 17, 45.28; Nov. 11, 30.76.

17.26.16.333. Artesia Cemetery. Drilled municipal water-table well in valley fill, diameter 6 inches. Highest water level 6.14 below lsd, Jan. 13, 1942; lowest 66.05 below lsd, Sept. 6, 1952. Records available: 1937-53. Jan. 9, 39.25; Mar. 17, 54.98; May 19, 47.37; July 23, 62.51; Sept. 17, 60.00; Nov. 11, 45.97.

17.26.24.333a. Mary E. Yates. Dug observation water-table well in valley fill, diameter 4 inches. Highest water level 2.67 below lsd, Mar. 17, 1952; lowest 6.16 below lsd, Sept. 6, 1952. Records available: 1951-53. Jan. 8, 3.54; Mar. 16, 2.89; May 19, 3.36; July 9, 5.21; Sept. 17, 5.66; Nov. 11, 4.51.

18.23.5.333. Joe Clements. Drilled stock water-table well in limestone member of San Andres formation, diameter 6 inches, depth 420 feet. Highest water level 385.50 below lsd, July 21, 1945; lowest 425.93 below lsd, Sept. 17, 1953. Records available: 1945-53. In intake area of artesian aquifer. Jan. 10, 423.66; Mar. 17, 424.30, pumped recently; May 18, 424.27; July 24, 425.09; Sept. 17, 425.93; Nov. 12, 425.69.

18.25.23.111. Mrs. G. M. Phelps. Drilled unused artesian(?) well in limestone member of San Andres(?) formation, diameter 8 inches, depth 300 feet. Highest water level 90.67 below lsd, Jan. 12, 1942; lowest 154.47 below lsd, Sept. 16, 1953. Records available: 1942-53. Jan. 12, 144.30; Mar. 16, 148.96; May 16, 147.59; July 23, 153.17; Sept. 16, 154.47; Nov. 11, 148.20.

18.26.4.111b. T. A. Southard. Drilled domestic water-table well in valley fill, diameter 6 inches, reported depth 200 feet. Highest water level 18.19 below lsd, Jan. 28, 1943; lowest 65.02 below lsd, Sept. 16, 1953. Records available: 1937-53. Jan. 8, 43.28; Mar. 16, 50.36; May 16, 51.47; July 23, 63.18; Sept. 16, 65.02; Nov. 11, 50.09.

18.26.5.330. Artesia. Drilled unused artesian well in limestone member of San Andres formation, diameter 8 inches, depth 1,056 feet, depth to artesian aquifers 750, 820, 905. Land-surface datum is 3,394.50 feet above msl. Highest water level 8.30 above lsd, Jan. 12, 1942; lowest 115.05 below lsd, Aug. 12, 1953. Records available: 1931-53.

Daily highest water level from recorder graph

Day	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	45.73	54.04	47.87	e86.90	60.66	66.73	98.09	107.68	112.88	83.77	60.15	50.77
2	45.91	53.02	47.25	86.39	61.30	68.45	99.91	104.90	114.07	83.06	59.57	50.42
3	46.25	55.00	48.23	86.37	58.83	68.93	101.57	104.00	113.33	82.03	59.07	50.44
4	45.83	55.93	49.32	84.92	58.40	69.64	102.20	107.07	113.35	80.03	58.74	50.47
5	45.00	57.43	50.19	82.63	59.98	70.47	101.82	108.97	112.37	79.34	58.19	50.05
6	46.12	57.80	51.25	81.08	60.59	70.42	101.57	109.85	108.88	79.29	57.62	49.73
7	46.37	58.16	52.25	80.63	60.78	69.11	101.97	111.71	107.55	78.50	57.24	49.38
8	47.35	56.17	51.85	80.14	61.01	67.77	103.40	112.59	107.62	77.85	56.73	49.47
9	47.26	55.00	51.58	79.77	61.43	68.12	103.28	112.36	107.62	76.87	56.36	49.63
10	48.23	56.14	53.31	80.60	60.62	68.63	103.59	112.00	108.18	75.85	56.10	49.20
11	48.00	54.82	55.75	79.73	60.27	68.17	103.33	113.75	107.74	74.53	55.87	49.08
12	47.12	55.33	57.85	77.54	60.63	68.87	102.85	115.05	105.80	73.76	55.86	48.82
13	48.69	55.27	61.69	75.57	61.38	68.87	102.55	114.55	.....	73.53	55.50	48.65
14	49.92	54.49	63.64	75.36	61.90	67.90	103.92	114.64	.....	73.10	55.08	48.53
15	49.83	54.10	65.84	74.87	63.43	68.13	104.60	113.07	102.33	73.14	54.78	48.62
16	50.63	52.97	65.73	74.60	62.37	70.88	105.04	109.86	102.43	73.40	54.60	49.33
17	51.38	53.78	70.86	74.11	61.42	70.76	106.03	109.45	101.47	72.72	55.14	49.58
18	50.72	53.86	74.05	73.32	60.67	71.91	100.51	111.13	100.33	70.53	55.15	50.19
19	49.80	54.27	77.13	69.60	63.85	74.05	97.83	110.09	98.40	69.83	55.37	49.74
20	51.43	53.55	79.51	68.05	65.26	76.86	97.34	109.77	95.27	69.10	55.10	49.95

18.26.5.330--Continued.

Day	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
21	52.19	52.93	e80.95	68.88	.....	77.38	98.07	108.73	93.84	68.73	54.63	49.74
22	51.47	50.88	81.49	69.79	69.80	78.11	99.26	109.34	93.86	68.72	53.70	49.95
23	50.48	49.95	81.86	66.58	71.19	82.33	100.68	107.58	93.28	66.66	53.28	49.02
24	52.17	49.00	84.61	65.23	71.40	85.65	103.69	107.18	92.03	65.27	53.60	48.58
25	51.87	48.04	85.76	63.79	69.89	88.54	104.92	108.30	90.79	64.57	53.50	48.03
26	51.00	48.14	87.56	61.61	73.95	90.76	e105.30	109.34	88.58	64.18	53.14	47.76
27	52.43	49.07	88.58	60.80	74.87	92.90	104.92	110.50	86.33	63.42	52.75	47.62
28	54.35	48.93	89.07	60.39	78.90	94.00	105.42	111.97	85.08	62.91	51.98	47.57
29	54.88		88.02	59.38	69.47	94.82	105.25	112.86	84.25	62.19	51.22	48.00
30	55.52		87.34	59.95	68.28	96.33	105.00	110.60	84.32	61.17	51.10	49.33
31	55.51		87.63		67.51		107.01	109.57		60.56		49.72

e Estimated.

18.26.7.234a. C. H. Hutsonpiller. Drilled unused water-table well in valley fill, diameter 8 inches, depth 159 feet. Highest water level 43.50 below lsd, Feb. 9, 1943; lowest 78.97 below lsd, Oct. 31, Nov. 6, 1953. Records available: 1937-53.

Daily highest water level from recorder graph

Day	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	.....	.....	75.88	76.79	h77.68	.....	78.04	.....	.....	.....	78.97	.....
2	73.28	.....	75.90	76.82	77.68	.....	78.05	.....	.....	.....	78.97	.....
3	73.21	.....	75.91	76.87	77.70	.....	78.06	.....	.....	.....	78.97	.....
4	73.16	h74.85	75.95	76.90	77.70	.....	78.07	.....	h78.68	.....	78.97	.....
5	73.09	74.87	75.95	76.92	77.70	.....	78.09	.....	78.68	.....	78.97	.....
6	73.02	74.96	75.97	76.96	77.70	.....	78.09	.....	78.69	.....	78.97	.....
7	73.00	75.02	75.98	77.00	77.71	.....	78.10	.....	78.71	.....	.....	.....
8	73.00	75.06	76.00	77.03	.....	h77.83	78.10	.....	78.71	.....	.....	.....
9	73.03	75.11	75.99	77.06	.....	77.84	78.11	.....	78.72	.....	.....	.....
10	73.05	75.19	75.99	77.10	.....	77.85	78.11	.....	78.72	.....	.....	.....
11	73.09	75.26	75.99	.....	.....	77.85	78.12	.....	78.73	.....	h78.93	.....
12	73.09	h75.38	76.01	.....	.....	77.86	78.13	.....	78.73	.....	78.92	.....
13	73.10	75.40	76.02	.....	.....	77.86	78.15	.....	.....	.....	78.92	.....
14	73.12	75.45	.....	.....	.....	77.87	78.17	.....	.....	.....	78.90	.....
15	73.18	75.50	.....	.....	.....	77.87	78.19	.....	.....	.....	78.90	.....
16	73.30	75.55	h76.14	.....	h77.69	77.87	78.20	.....	h78.75	.....	78.88	.....
17	73.36	75.58	76.17	h77.58	77.68	77.87	78.21	.....	78.75	.....	78.86	.....
18	73.42	75.60	76.20	77.59	77.69	77.88	78.22	.....	78.77	.....	78.85	.....
19	73.51	75.66	76.24	77.61	77.68	77.88	78.23	.....	78.77	.....	78.83	.....
20	73.62	75.70	76.28	77.62	77.68	77.89	78.24	.....	78.78	.....	78.81	.....
21	73.70	75.75	76.32	77.63	77.69	77.89	78.26	.....	78.79	.....	78.81	.....
22	73.79	75.76	76.37	77.67	77.69	77.90	78.27	.....	78.79	.....	78.79	.....
23	e73.92	75.79	76.41	77.71	77.70	77.90	78.28	.....	78.79	.....	78.78	.....
24	74.01	75.82	76.46	77.74	.....	77.94	78.28	.....	.....	.....	.....	77.76
25	74.08	75.84	76.50	.....	.....	77.94	78.29	.....	.....	.....	.....	77.39
26	74.15	75.85	76.54	.....	.....	77.96	78.31	.....	.....	.....	.....	77.38
27	74.22	h75.87	76.62	.....	.....	77.96	78.32	.....	.....	.....	.....	77.30
28	74.31	75.88	76.63	.....	.....	77.98	78.32	.....	.....	.....	.....	.....
29	74.37		76.66	.....	.....	77.98	78.33	.....	.....	.....	.....	.....
30	74.43		76.70	.....	.....	78.00	78.35	.....	.....	78.96	.....	.....
31	.....		76.75		.....		78.36	.....		78.97		.....

e Estimated.
h Tape measurement.

18.26.24.223a. Sanders Terry. Drilled irrigation water-table well in valley fill, diameter 12 inches, depth 63 feet. Highest water level 4.29 below lsd, Mar. 19, 1951; lowest 11.60 below lsd, Nov. 11, 1953. Records available: 1947-53. Jan. 8, 9.07; Mar. 16, 8.10; May 19, 8.81; July 10, 10.39; Sept. 17, 11.16; Nov. 11, 11.60.

18.26.28.121a. Town of Dayton. Drilled observation water-table well in valley fill, diameter 8 inches, depth 250 feet, cased to 182, casing slotted 92-182. Highest water level 59.79 below lsd, Feb. 5, 1952; lowest 72.61 below lsd, Nov. 25, 28, 1953. Records available: 1951-53.

Daily highest water level from recorder graph

Day	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	67.16	67.00	67.12	67.53	68.47	68.74	69.23	70.23	71.34	72.16	72.52	72.53
2	67.15	67.05	67.10	67.56	68.47	68.75	69.26	70.27	71.37	72.17	72.51	72.53
3	67.06	67.08	67.11	67.60	68.50	68.75	69.28	70.32	71.39	72.20	72.53	72.56
4	67.05	67.07	67.12	67.61	68.50	68.77	69.32	70.35	71.44	72.19	72.55	72.53
5	67.00	67.12	67.08	67.69	68.50	68.81	69.35	70.44	71.45	72.21	72.53	72.54

18.26.28.121a--Continued.

Day	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
6	66.99	67.13	67.10	67.69	68.50	68.81	69.37	70.48	71.50	72.21	72.53	72.56
7	67.01	67.19	67.12	67.78	68.50	68.85	69.40	70.50	71.53	72.21	72.61	72.51
8	67.00	67.13	67.08	67.83	68.50	68.85	69.45	70.53	71.55	72.23	72.59	72.53
9	66.95	67.22	67.03	67.88	68.50	68.87	69.47	70.55	71.58	72.25	72.57	72.51
10	66.93	67.26	67.02	67.86	68.52	68.88	69.52	70.58	71.60	72.23	72.57	72.46
11	66.91	67.23	67.02	67.93	68.51	68.89	69.53	70.63	71.76	72.25	72.60	72.48
12	66.88	67.26	67.01	67.99	68.56	68.90	69.57	70.64	71.79	72.27	72.60	72.47
13	66.88	67.25	66.96	68.00	68.58	68.91	69.59	70.72	71.81	72.28	72.60	72.49
14	66.84	67.26	66.99	68.07	68.55	68.92	69.63	70.77	71.84	72.31	72.59	72.47
15	66.92	67.23	66.96	68.12	68.57	68.93	69.66	70.79	71.86	72.31	72.60	72.45
16	66.88	67.30	66.95	68.11	68.61	68.94	69.70	70.83	71.87	72.31	72.60	72.48
17	66.86	67.27	66.97	68.16	68.62	68.95	69.73	70.86	71.92	72.33	72.59	72.46
18	66.84	67.20	66.98	68.23	68.62	68.96	69.77	70.89	71.93	72.35	72.59	72.42
19	66.83	67.22	66.99	68.26	68.58	68.99	69.83	70.93	71.93	72.34	72.62	72.41
20	66.85	67.28	66.98	68.24	68.62	69.01	69.87	70.97	71.95	72.35	72.58	72.38
21	66.78	67.29	67.03	68.27	68.63	69.03	69.90	71.02	71.97	72.38	72.59	72.39
22	66.89	67.25	67.10	68.28	68.64	69.04	69.91	71.05	71.97	72.41	72.59	72.44
23	66.88	67.22	67.15	68.32	68.63	69.04	69.96	71.08	72.00	72.43	72.58	72.39
24	66.89	67.22	67.20	68.34	68.66	69.06	69.99	71.12	72.01	72.40	72.59	72.35
25	66.86	67.21	67.23	68.40	68.67	69.11	70.02	71.16	72.02	72.44	72.61	72.35
26	66.87	67.18	67.28	68.39	68.66	69.12	70.05	71.18	72.03	72.47	72.58	72.31
27	66.92	67.17	67.34	68.39	68.68	69.13	70.09	71.20	72.07	72.48	72.60	72.30
28	66.92	67.09	67.33	68.40	68.65	69.18	70.10	71.23	72.12	72.48	72.61	72.28
29	66.92		67.37	68.42	68.67	69.19	70.15	71.27	72.16	72.48	72.60	72.28
30	66.93		67.42	68.42	68.72	69.21	70.19	71.29	72.15	72.50	72.58	72.31
31	67.02		67.46		68.72		70.21	71.32		72.51		72.24

19.23.27.111. C. R. Coffin. Drilled stock water-table well in limestone member of San Andres formation, diameter 6 inches, depth 416 feet. Land-surface datum is 3,940 feet above msl. Highest water level 368.75 below lsd, Oct. 19, 1943; lowest 381.35 below lsd, Sept. 17, 1953. Records available: 1940-53. Jan. 10, 377.27; Mar. 17, 375.10; Sept. 17, 381.35; Nov. 12, 380.75.

19.26.12.322. Forrest Lee. Drilled irrigation water-table well in valley fill. Highest water level 36.46 below lsd, July 16, 1952; lowest 48.07 below lsd, Nov. 11, 1953. Records available: 1952-53. Jan. 7, 41.54, pumping; May 18, 42.52; Sept. 17, 47.15; Nov. 11, 48.07.

19.26.13.333. U. S. Bureau of Reclamation. Drilled observation water-table well in valley fill, diameter 4 inches. Land-surface datum is 3,271.05 feet above msl. Highest water level 11.67 below lsd, May 18, 1953; lowest 14.70 below lsd, Nov. 13, 1952. Records available: 1952-53. Jan. 7, 14.21; Mar. 17, 12.40; May 18, 11.67; July 10, 12.68; Sept. 17, 13.37; Nov. 11, 13.90.

19.26.14.431a. Albert Lee. Drilled unused water-table well in valley fill, diameter 6 inches, depth 100 feet. Highest water level 11.75 below lsd, Jan. 4, 1945; lowest 45.06 below lsd, May 18, 1953. Records available: 1945-46, 1948-53. Jan. 7, 47.72, nearby well being pumped; Mar. 17, 53.64, nearby well being pumped; May 18, 45.06; July 23, 59.89, nearby well being pumped; Sept. 17, 64.63, nearby well being pumped; Nov. 11, 43.02.

19.26.27.233. Lakewood School. Drilled domestic water-table well in valley fill, diameter 8 inches, depth 127 feet. Highest water level 37.63 below lsd, May 11, 1942; lowest 76.55 below lsd, Sept. 18, 1953. Records available: 1937-39, 1941-53. Jan. 7, 69.31, pumped recently; Mar. 17, 76.05, pumping; May 18, 75.11, pumped recently; July 23, 76.91, pumped recently; Sept. 18, 76.55; Nov. 12, 72.12, pumping.

20.26.7.122. J. B. Moutry. Drilled domestic water-table well in valley fill, diameter 6 inches, depth 120 feet, cased to 120. Highest water level 35.48 below lsd, Nov. 12, 1941; lowest 80.28 below lsd, Sept. 6, 1952. Records available: 1937-53. Jan. 7, 64.75; Mar. 17, 72.56; May 18, 74.60, pumped recently; July 23, 81.79, pumped recently; Nov. 12, 75.71.

Carlsbad Area

21.27.19.334. F. R. Dickson. Drilled irrigation artesian(?) well in Carlsbad limestone, diameter 12 inches, depth 320 feet, cased to 94. Land-surface datum is 3,136 feet above msl. Highest water level 26.10 below lsd, Jan. 17, 1950; lowest 33.02 below lsd, Nov. 25, 1953. Records available: 1946-53. Jan. 14, 32.40; Mar. 20, 31.23; May 20, 32.66; July 31, 32.86; Nov. 25, 33.02.

21.27.30.442. T. Ives. Drilled domestic and irrigation artesian(?) well in Carlsbad limestone, diameter 7 inches, reported depth 256 feet. Highest water level 7.80 below lsd, Sept. 21, 1949; lowest 15.87 below lsd, Mar. 20, 1953. Records available: 1947-53. Jan. 14, 14.32; Mar. 20, 15.87; May 20, 14.20; July 31, 15.17; Sept. 28, 14.22; Nov. 25, 14.98.

21.27.32.112. L. E. Loman. Drilled domestic and irrigation artesian well in Carlsbad limestone, diameter 6 inches, reported depth 305 feet. Land-surface datum is 3,112 feet above msl. Highest water level 4.64 below lsd, Jan. 17, 1950; lowest 11.40 below lsd, Sept. 28, 1953. Records available: 1947-53. Jan. 15, 10.75; Mar. 20, 10.61; May 20, 10.14; July 31, 11.37; Sept. 28, 11.40; Nov. 25, 10.74.

21.27.32.112a. S. Tracy. Drilled irrigation water-table well in alluvium, diameter 15 inches, reported depth 105 feet. Land-surface datum is 3,112 feet above msl. Highest water level 11.09 below lsd, Sept. 15, 1950; lowest 14.95 below lsd, Jan. 24, 1950. Records available: 1950-53. Jan. 15, 14.68; Mar. 20, 14.75; May 20, 14.44; July 31, 35.07, pumping; Sept. 28, 14.69; Nov. 25, 35.70, pumping.

22.26.3.344. I. O. Harris. Drilled irrigation artesian(?) well in Carlsbad limestone, diameter 14 inches, reported depth 360 feet. Land-surface datum is 3,180 feet above msl. Highest water level 72.43 below lsd, Jan. 17, 1950; lowest 83.23 below lsd, July 31, 1953. Records available: 1948-53. Jan. 15, 78.53; July 31, 83.23; Nov. 18, 82.90.

22.26.14.213. H. E. Stevenson. Drilled irrigation artesian(?) well in Carlsbad(?) limestone and Rustler(?) limestone, reported depth 200 feet. Land-surface datum is 3,180 feet above msl. Highest water level 63.87 below lsd, Jan. 17, 1950; lowest 72.30 below lsd, Sept. 29, 1953. Records available: 1947-53. Feb. 28, 69.45; Mar. 20, 69.60; May 20, 71.02; July 31, 84.27, pumping; Sept. 29, 72.30; Nov. 18, 71.41.

22.26.24.224. D. N. Vest. Drilled unused water-table well in alluvium, diameter 11 inches, depth 200 feet. Highest water level 72.24 below lsd, Oct. 21, 1950; lowest 106.00 below lsd, Sept. 10-13, 1953. Records available: 1948-53.

Daily highest water level from recorder graph

Day	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	98.24	99.55	99.92	100.82	102.24	102.45	103.51	104.99	105.79	105.31	104.29	103.13
2	98.37	99.56	99.92	100.88	102.31	102.45	103.54	105.03	105.83	105.25	104.16	103.10
3	98.24	99.66	99.97	100.98	102.36	102.42	103.62	105.06	105.83	105.22	104.11	103.11
4	98.25	99.70	100.17	101.02	102.41	102.44	103.69	105.09	105.88	105.26	104.11	103.13
5	98.17	99.70	100.13	101.04	102.37	102.46	103.75	105.14	105.94	105.21	103.98	103.09
6	98.17	99.78	100.16	101.13	102.29	102.50	103.81	105.14	105.94	105.15	103.90	103.26
7	98.22	99.87	100.23	101.15	102.21	102.52	103.87	105.19	105.95	105.09	103.96	103.12
8	98.31	99.77	100.30	101.28	102.16	102.54	103.94	105.24	105.98	105.06	104.11	103.12
9	98.43	99.82	100.23	101.39	102.11	102.58	104.00	105.25	105.99	105.02	103.99	.....
10	98.42	99.98	100.25	101.46	102.17	102.66	104.04	105.26	106.00	104.92	103.91	.....
11	98.57	99.99	100.28	101.47	102.13	102.68	104.07	105.28	106.00	104.86	103.88	.....
12	98.52	100.05	100.34	101.65	102.14	102.70	104.09	105.36	106.00	104.85	103.85	.....
13	98.53	100.03	100.32	101.67	102.27	102.68	104.20	105.38	106.00	104.82	103.81	.....
14	98.55	100.03	100.34	101.68	102.12	102.66	104.22	105.38	105.93	104.80	103.73	.....
15	98.60	99.98	100.44	101.78	102.09	102.67	104.26	105.37	105.93	104.76	103.66	.....
16	98.82	100.05	100.39	101.80	102.09	102.70	104.32	105.42	105.90	104.71	103.61	.....
17	98.79	100.11	100.38	101.81	102.13	102.77	104.37	105.45	105.84	104.68	103.51	.....
18	98.80	99.93	100.39	101.93	102.15	102.79	104.45	105.50	105.83	104.66	103.50	.....
19	98.85	99.80	100.37	102.09	102.10	102.81	104.48	105.52	105.81	104.59	103.50	.....
20	98.91	100.05	100.32	102.08	102.06	102.86	104.50	105.54	105.75	104.52	.....	102.92
21	98.81	100.17	100.33	102.06	102.11	102.92	104.56	105.56	105.80	104.53	103.46	102.94
22	98.88	.....	100.43	102.10	102.13	102.96	104.63	105.58	.....	104.50	103.47	103.10
23	99.06	.....	100.52	102.17	102.11	103.00	104.71	105.59	.....	104.50	103.35	.....
24	99.11	100.00	100.55	102.17	102.14	103.05	104.72	105.62	.....	104.37	103.42	.....
25	99.14	100.00	100.55	102.22	102.18	103.10	104.76	105.64	.....	104.35	103.45	.....
26	99.17	100.03	100.57	102.19	102.27	103.19	104.80	105.68	105.47	104.44	103.39	102.96
27	99.22	100.02	100.60	102.14	102.29	103.24	104.85	105.69	105.42	104.40	103.39	102.90
28	99.35	99.89	100.58	102.08	102.27	103.33	104.87	105.69	105.34	104.39	103.41	102.95
29	99.32		100.60	102.08	102.30	103.41	104.89	105.70	105.35	104.30	103.41	102.92
30	99.36		100.66	102.19	102.35	103.49	104.94	105.73	105.38	104.26	103.31	103.12
31	99.47		100.77		102.40		104.97	105.75		104.27		103.09

22.26.35.222. Carlsbad Airfield 3. Drilled municipal water-table well in alluvium, diameter 12 inches, depth 256 feet. Highest water level 132.53 below lsd, Oct. 14, 1942; lowest 198.54 below lsd, July 30, 1953. Records available: 1942-53. Jan. 15, 178.39; Mar. 19, 179.78; May 20, 191.02; July 30, 198.54.

22.26.36.111. Carlsbad Airfield 1. Drilled municipal water-table well in alluvium, diameter 12 inches, depth 194 feet. Highest water level 131.81 below lsd, Oct. 14, 1942; lowest 194.09 below lsd, Sept. 11, 1952. Records available: 1942-53. Jan. 15, 177.21; Mar. 19, 178.58; May 20, 189.42.

22.26.36.111a. Carlsbad Airfield 2. Drilled unused water-table well in alluvium, diameter 12 inches, depth 260 feet. Highest water level 131.50 below lsd, Oct. 14, 1942; lowest 202.12 below lsd, Sept. 9, 1953. Records available: 1942-53. Recording gage installed Sept. 9, 1953.

Daily highest water level from recorder graph

Date	Water level	Date	Water level	Date	Water level	Date	Water level
Jan. 15	h177.66	Sept. 30	199.50	Oct. 30	191.21	Nov. 23	187.16
Mar. 19	h178.46	Oct. 1	199.30	31	191.91	24	187.10
May 20	h189.75	7	197.22	Nov. 1	191.55	25	187.03
July 30	h197.23	8	196.97	2	191.32	26	186.98
Sept. 9	h202.12	9	196.72	3	191.25	27	186.84
10	201.87	10	196.46	4	191.08	28	186.73
11	201.97	11	196.10	5	190.62	29	186.62
12	201.94	12	195.93	6	190.25	30	186.42
13	201.94	13	195.78	7	190.12	Dec. 1	186.39
14	201.62	14	195.53	8	190.03	2	186.11
15	201.86	15	195.28	9	189.77	4	h185.35
16	201.87	16	195.10	10	189.69	5	185.14
17	201.83	17	194.93	11	189.53	6	185.18
18	201.73	18	194.76	12	189.18	7	184.98
19	201.65	19	194.49	13	189.04	8	184.92
20	201.47	20	194.37	14	189.04	9	185.07
21	201.21	21	194.27	15	188.58	16	184.30
22	201.16	23	194.13	16	188.32	17	184.10
23	201.07	24	193.70	17	188.18	18	184.02
24	200.79	25	193.36	18	188.08	19	183.94
25	200.42	26	193.15	19	187.97	20	183.64
26	200.15	27	192.83	20	187.66	21	183.67
27	199.95	28	192.65	21	187.55	22	183.82
28	199.58	29	192.42	22	187.31	23	183.52
29	199.60						

h Tape measurement.

22.27.10.333. Mrs. M. Enifer. Drilled irrigation water-table well in alluvium, diameter 18 inches. Land-surface datum is 3,080 feet above msl. Highest water level 3.80 below lsd, Sept. 15, 1950; lowest 21.30 below lsd, Nov. 27, 1953. Records available: 1947-53. Jan. 15, 16.44; Mar. 20, 19.37; May 20, 34.19, pumping; July 30, 33.69, pumping; Nov. 27, 21.30.

22.27.22.421. Enea Grandi. Drilled irrigation water-table well in alluvium, diameter 16 inches, reported depth 150 feet. Land-surface datum is 3,100 feet above msl. Highest water level 21.43 below lsd, Sept. 15, 1950; lowest 52.06 below lsd, Nov. 27, 1953. Records available: 1947-53. Jan. 18, 42.57; Nov. 27, 52.06.

22 22.27.28.133. Roy Thomason. Drilled irrigation water-table well in alluvium, diameter 16 inches, reported depth 205 feet. Land-surface datum is 3,137 feet above msl. Highest water level 57.05 below lsd, Jan. 18, 1950; lowest 96.37 below lsd, May 20, 1953. Records available: 1947-53. Jan. 20, 96.16; Mar. 19, 86.94; May 20, 96.37; July 30, 106.70, pumping; Sept. 29, 104.95; pumping; Nov. 25, 94.50.

22.27.30.133. W. H. Merchant. Drilled unused water-table well in limestone conglomerate and alluvium, diameter 8 inches, depth 207 feet. Land-surface datum is 3,190 feet above msl. Highest water level 96.80 below lsd, Nov. 24, 1944; lowest 155.01 below lsd, Sept. 29, 1953. Records available: 1944-53. Jan. 20, 137.22; Mar. 19, 138.43; May 20, 146.92; July 30, 160.62, nearby well being pumped; Sept. 29, 155.01; Nov. 25, 144.34.

22.27.35.433. Munoz Methola. Drilled irrigation water-table well in alluvium, diameter 16 inches, reported depth 245 feet. Land-surface datum is 3,085 feet above msl. Highest water level 20.10 below lsd, Sept. 14, 1950; lowest 53.19 below lsd, May 21, 1953. Records available: 1947-53. Jan. 24, 44.01; Mar. 19, 50.31, pumping; May 21, 53.19. Measurement discontinued.

23.27.9.211. Jim Chadwick. Drilled irrigation water-table well in alluvium, diameter 16 inches, depth 200 feet. Highest water level 41.70 below lsd, Sept. 15, 1950; lowest 51.56 below lsd, Mar. 20, 1952. Records available: 1949-53. Jan. 24, 50.37, nearby well being pumped; May 20, 65.92, pumping; July 30, 62.60, pumped recently; Nov. 27, 47.17.

23.27.23.211. W. H. Sweavingen. Drilled unused water-table well in alluvium, diameter 12 inches. Land-surface datum is 3,120 feet above msl. Highest water level 19.17 below lsd, Jan. 17, 1951; lowest 25.31 below lsd, Nov. 27, 1953. Records available: 1947-53. Jan. 24, 23.08; Mar. 19, 23.25; May 20, 23.50; July 30, 24.45; Sept. 29, 24.97; Nov. 27, 25.31.

23.28.23.133. A. R. Donaldson. Drilled irrigation water-table well in alluvium, diameter 16 inches, depth 148 feet. Land-surface datum is 3,020 feet above msl. Highest water level 38.25 below lsd, Sept. 14, 1950; lowest 61.20 below lsd, July 30, 1953. Records available: 1947-53. Jan. 24, 48.64; Mar. 19, 49.36; May 20, 53.12; July 30, 61.20; Sept. 29, 74.35, pumping; Nov. 27, 57.54.

Hidalgo County

Animas, Playas, and Virden Valleys. --Animas and Playas Valleys, in southwestern New Mexico, are semiarid intermontane valleys in a region of basin and range topography. Animas Valley is bounded on the west by the Peloncillo Range and on the east by the Animas Range and Pyramid Mountains. Playas Valley is separated from Animas Valley by a low divide between the Animas and Pyramid Mountains. Virden Valley is the New Mexico portion of the Duncan-Virden Valley, which lies along the Gila River in the northwestern part of Hidalgo County. A total of 205 square miles in the Animas Ground-Water Basin was declared by order of the State Engineer of New Mexico dated May 5, 1948, and the following month, on June 14, 1948, the basin was closed to further appropriation of underground waters. About 20 square miles of the Virden Valley Ground-Water Basin was declared by order of the State Engineer dated December 5, 1938. The Playas Valley is not declared as a ground-water basin.

In January 1953 water levels were measured in 75 wells in Animas Valley, 7 wells in Playas Valley, and 6 wells in Virden Valley. Water levels were measured at bimonthly intervals in 46 wells in the Animas Valley and 8 wells in the Playas Valley. A recording gage was maintained throughout the year on well 25.20.34.241 in the heavily pumped area of Animas Valley. Periodic measurements of water level began in the Animas and Playas Valleys in 1948. Measurements of water level made in January, not all of which are included herein, were used in preparing the accompanying map showing changes in water level. (See fig. 56.)

Ground water in the Virden Valley is pumped mainly for irrigation to supplement the surface-water supply. Less surface water was available for diversion in 1953 than in 1952, resulting in increased pumping to make up for the deficiency. Water levels declined an average of about 1.5 feet during 1953 as a result of the increased pumpage. Reference is made to the section on Greenlee County, Arizona for further discussion of the Duncan-Virden Valley.

Precipitation in both Animas and Playas Valleys was below normal in 1953. Animas Station received a total of 8.34 inches, 2.04 inches below normal, and Lordsburg had 8.03 inches of precipitation, 1.48 inches below normal. Hachita received a total of 8.34 inches, 2.07 inches below normal. Precipitation during the growing season was below normal in both Animas and Playas Valleys.

An estimated 20,000 acre-feet of water was pumped in 1953 in Animas Valley to irrigate approximately 11,000 acres. This compares with 18,000 acre-feet and 10,900 acres in 1952. Ground-water levels continued to decline in Animas Valley in 1953, the net annual declines generally being greater than in 1952. The pattern of declines in 1953 was similar to that of prior years and is shown on figure 56. Water levels declined more than 1 foot under an area of about 130 square miles, and more than 2 feet under about 75 square miles. A 3-foot decline in water levels occurred under an area of about 32 square miles, 4 feet under an area of about 14 square miles, and 5 feet under an area of about 6 square miles. Water levels declined more than 6 feet in 2 wells in sec. 25, T. 25 S., R. 20 W. The area of greatest net decline is centered around the area of heaviest pumping Tps. 25 - 26 S., R. 20 W. In the period from April 1948 when records began to the end of 1953, water levels declined a maximum of about 25 feet under a small area where the pumping is concentrated.

About 1,350 acres were irrigated in Playas Valley in 1953, of which approximately 1,270 acres were in T. 30 S., R. 16 W., and about 80 acres were in T. 32 S., R. 17 W. Water levels rose slightly in 2 wells near Hatchet Gap; well 30.16.11.331 had a rise of 0.31 foot, and well 30.16.14.211 had a rise of 0.49 foot from the previous year. Water levels in the other 5 observation wells declined. The largest observed net decline in water level, 4.65 feet, was in well 30.16.14.233. The average net decline in water level for the irrigated areas was about 1.5 feet. Water levels in Animas and Playas Valleys reached the lowest level since records began in 1948.

Animas Valley

23.20.25.422. Kerr Cattle Co. Drilled irrigation water-table well in bolson deposits, diameter 16 inches, depth 150 feet. Highest water level 31.36 below lsd, May 21, 1948; lowest 35.29 below lsd, July 29, 1953. Records available: 1948-53. Jan. 24, 32.97; Mar. 23, 33.08; July 29, 35.29; Sept. 23, 34.71; Nov. 21, 34.21.

24.20.1.444. Fred Kerr. Drilled irrigation water-table well in bolson deposits, diameter 30 to 18 inches, depth 92 feet. Highest water level 29.75 below lsd, Apr. 4, 1948; lowest 40.86 below lsd, July 29, 1953. Records available: 1948-53. Jan. 24, 34.27; Mar. 23, 45.49, pumping; May 14, 37.30; July 29, 40.86; Sept. 23, 50.20, pumping; Nov. 21, 36.77.

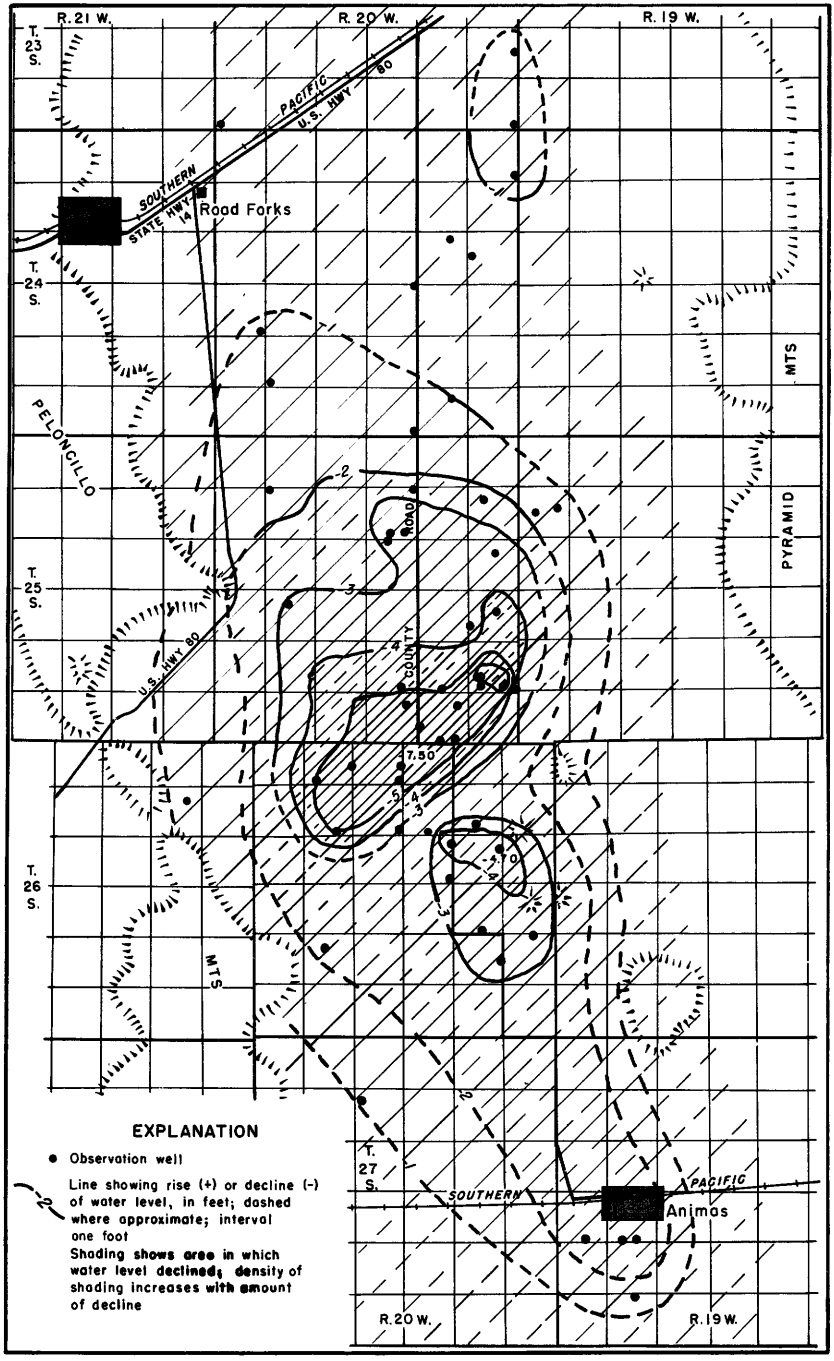


Figure 56. --Change in ground-water level from January 1953 to January 1954 in Animas Valley, Hidalgo County, N. Mex.

24.20.13.133. P. Kerr. Drilled stock water-table well in bolson deposits, diameter 6 inches, depth 26 feet. Highest water level 14.02 below lsd, May 21, 1948; lowest 16.96 below lsd, Sept. 23, 1953. Records available: 1948-53. Jan. 24, 16.44; Mar. 23, 16.41; May 14, 17.52, pumping; July 29, 16.72; Sept. 23, 16.96; Nov. 21, 18.00, pumping.

24.20.14.214. Kerr Cattle Co. Dug unused water-table well in bolson deposits, diameter 10 feet, depth 32 feet. Highest water level 14.74 below lsd, May 21, 1948; lowest 17.28 below lsd, Nov. 21, 1953. Records available: 1948-53. Jan. 24, 16.74; Mar. 23, 16.74; May 14, 16.73; July 29, 16.93; Sept. 23, 17.10; Nov. 21, 17.28.

24.20.19.444. R. E. Macow. Drilled irrigation water-table well in bolson deposits, diameter 16 inches, depth 100 feet. Highest water level 33.16 below lsd, Apr. 4, 1948; lowest 44.23 below lsd, Sept. 22, 1953. Records available: 1948-53. Jan. 19, 38.09; Mar. 20, 37.70; May 13, 73.48, pumping; July 27, 66.39, pumping; Sept. 22, 44.23; Nov. 20, 41.00.

24.20.22.222. W. W. Roark. Drilled unused water-table well in bolson deposits, diameter 6 inches, depth 28 feet. Highest water level 17.35 below lsd, May 21, 1948; lowest 20.39 below lsd, Nov. 21, 1953. Records available: 1948-53. Jan. 21, 19.63; Mar. 23, 19.58; May 13, 19.57; July 29, 20.00; Sept. 23, 20.28; Nov. 21, 20.39.

24.20.29.333. Mrs. May Smith. Drilled irrigation water-table well in bolson deposits, diameter 14 inches, depth 142 feet. Highest water level 37.39 below lsd, Apr. 6, 1948; lowest 47.20 below lsd, July 27, 1953. Records available: 1948-53. Jan. 19, 41.49; Mar. 21, 41.11; May 13, 45.00, nearby well being pumped; July 27, 47.20; Sept. 22, 46.81; Nov. 20, 44.26.

24.20.34.444. Elmer L. Kerr. Drilled stock water-table well in bolson deposits, diameter 6 inches, depth 33 feet. Highest water level 25.77 below lsd, Mar. 16, 1951; lowest 29.23 below lsd, Nov. 21, 1953. Records available: 1951-53. Jan. 22, 28.38, pumping; Mar. 23, 28.04; May 13, 28.15; July 29, 28.57; Sept. 23, 28.92; Nov. 21, 29.23.

24.20.35.214. Elmer L. Kerr. Drilled irrigation water-table well in bolson deposits, diameter 12 inches, depth 79 feet. Highest water level 17.40 below lsd, Apr. 4, 1948; lowest 22.23 below lsd, Nov. 21, 1953. Records available: 1948-53. Jan. 22, 21.04; Mar. 23, 21.38; May 14, 21.08; July 29, 21.96; Sept. 23, 22.16; Nov. 21, 22.23.

25.19.7.143. R. I. Richins and G. A. McDonald. Drilled domestic water-table well in bolson deposits, diameter 6 inches. Highest water level 28.73 below lsd, Nov. 11, 1952; lowest 31.46 below lsd, Nov. 21, 1953. Records available: 1952-53. Jan. 22, 28.92; Mar. 23, 29.04; May 14, 29.30; Sept. 23, 30.25; Nov. 21, 31.46.

25.19.7.234. R. I. Richins and G. A. McDonald. Drilled water-table well in bolson deposits, diameter 18 inches, depth 95 feet. Highest water level 31.31 below lsd, May 21, 1949; lowest 35.84 below lsd, Nov. 21, 1953. Records available: 1948-53. Jan. 22, 34.44; Mar. 23, 34.64; May 14, 34.86; July 29, 35.40; Sept. 23, 35.63; Nov. 21, 35.84.

25.20.8.111. T. H. McCants. Dug domestic and stock water-table well in bolson deposits, diameter 36 inches, depth 80 feet. Land-surface datum is 4,220.39 feet above msl. Highest water level 57.46 below lsd, May 22, 1948; lowest 62.22 below lsd, Nov. 20, 1953. Records available: 1948-53. Jan. 19, 61.05, pumping; Mar. 21, 61.83, pumping; May 13, 61.80, pumping; July 27, 61.54; Sept. 22, 62.54, pumping; Nov. 20, 62.22.

25.20.10.222. Valley View Church. Drilled domestic water-table well in bolson deposits, diameter 4 inches, depth 32 feet. Land-surface datum is 4,189.88 feet above msl. Highest water level 27.44 below lsd, Apr. 6, 1948; lowest 36.94 below lsd, Sept. 23, 1953. Records available: 1948-53. Jan. 21, 34.46; Mar. 23, 34.31; May 13, 35.25; July 29, 36.29; Sept. 23, 36.94; Nov. 21, 36.93.

25.20.13.213. George Wright. Drilled irrigation water-table well in bolson deposits, diameter 18 inches, depth 123 feet. Land-surface datum is 4,195.64 feet above msl. Highest water level 28.05 below lsd, Mar. 21, 1949; lowest 47.32 below lsd, July 29, 1953. Records available: 1948-53. Jan. 22, 36.98; Mar. 23, 36.63; May 14, 46.44, pumped recently; July 29, 47.32; Sept. 23, 67.58, pumping; Nov. 21, 41.36.

25.20.15.122a. Mrs. H. K. Wood. Drilled irrigation water-table well in bolson deposits, diameter 14 inches, depth 49 feet. Highest water level 37.53 below lsd, Jan. 17, 1950; lowest dry at 49, July 29, Sept. 23, 1953. Records available: 1950-53. Jan. 21, 43.54; Mar. 23, 43.29; May 14, 46.11; July 29, dry at 49; Sept. 23, dry at 49; Nov. 21, 47.47.

25.20.20.142. Standsberry. Dug stock water-table well in bolson deposits, diameter 4 (?) feet, depth 68 feet. Highest water level 60.09 below lsd, Apr. 6, 1948; lowest dry at 68, July 27, 1953. Records available: 1948-53. Jan. 24, 66.04; Mar. 21, 66.27; May 13, 66.70; July 27, dry at 68.

25.20.24.313. Rudiger & Jundt. Drilled irrigation water-table well in bolson deposits, diameter 16 inches, depth 97 feet. Land-surface datum is 4,221.43 feet above msl. Highest water level 42.43 below lsd, Apr. 1, 1948; lowest 70.12 below lsd, Sept. 23, 1953. Records available: 1948-53. Jan. 22, 57.97; Mar. 23, 57.05; May 14, 89.77, pumping; July 28, 71.05, pumped recently; Sept. 23, 70.12; Nov. 21, 83.84.

25.20.25.334. Richins Bros. Drilled irrigation water-table well in bolson deposits, diameter 18 inches, depth 115 feet. Land-surface datum is 4,239.18 feet above msl. Highest water level 54.94 below lsd, Apr. 1, 1948; lowest 82.87 below lsd, July 28, 1953. Records available: 1948-53. Jan. 22, 69.25; Mar. 23, 75.48, pumped recently, nearby well being pumped; May 14, 103.62, pumping; July 28, 82.87; Sept. 23, 102.64, pumping; Nov. 21, 76.40.

25.20.25.444. Richins Bros. Drilled water-table well in bolson deposits, diameter 16 inches, depth 204 feet. Land-surface datum is 4,261.29 feet above msl. Highest water level 69.00 below lsd, Apr. 1, 1948; lowest 89.09 below lsd, Nov. 21, 1953. Records available: 1948-53. Jan. 22, 82.87; Mar. 23, 105.12, pumping, nearby well being pumped; July 28, 106.55, pumping; Sept. 23, 105.78, pumping; Nov. 21, 89.09.

25.20.27.434. Geo. S. Tippetts. Drilled irrigation water-table well in bolson deposits, diameter 33 inches, depth 102 feet. Land-surface datum is 4,231.80 feet above msl. Highest water level 52.65 below lsd, Mar. 21, 1949; lowest 79.16 below lsd, Sept. 23, 1953. Records available: 1948-53. Jan 24, 66.63, pumped recently; Mar. 23, 68.46; May 14, 73.25, pumped recently; July 29, 85±, pumping; Sept. 23, 79.16; Nov. 21, 74.28.

25.20.29.424. Standsberry. Drilled irrigation water-table well in bolson deposits, diameter 16 inches, depth 125 feet. Highest water level 53.80 below lsd, Jan. 18, Mar. 21, 1950; lowest 65.87 below lsd, Sept. 22, 1953. Records available: 1950-53. Jan. 19, 61.87; Mar. 21, 61.87; May 13, 63.74; July 27, 64.60; Sept. 22, 65.87; Nov. 20, 65.85.

25.20.34.241. H. H. Hatch. Drilled unused well in valley fill, diameter 36 inches, reported depth 120 feet, caved at 90. Land-surface datum is 4,235.37 feet above msl. Highest water level 51.44 below lsd, Apr. 2, 1948; lowest 82.03 below lsd, Sept. 23, 1953. Records available: 1948-53.

Daily highest water level from recorder graph

Day	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	.....	.....	68.02	72.01	75.20	77.93	.....	80.35	.....	79.73	77.10	74.62
2	.....	67.37	68.76	72.18	75.08	77.94	.....	80.34	.....	79.54	76.98	74.67
3	.....	67.32	69.10	72.33	74.95	78.00	.....	80.38	.....	79.07	76.90	74.73
4	.....	67.31	68.88	72.39	74.83	78.24	.....	80.54	.....	79.05	76.95	74.63
5	.....	67.40	69.19	72.46	.....	78.42	.....	80.74	.....	.....	76.98	74.63
6	67.80	67.41	68.96	72.48	.....	78.59	.....	.....	.....	.....	77.02	74.63
7	67.82	67.37	69.41	72.72	.....	78.64	.....	.....	.....	.....	76.94	.....
8	67.86	67.28	68.84	72.93	.....	78.81	.....	.....	.....	.....	76.49	.....
9	67.79	67.37	68.63	73.47	.....	78.68	.....	.....	.....	.....	76.05	.....
10	67.75	67.49	69.54	73.65	.....	78.56	.....	.....	.....	.....	75.99	.....
11	67.71	67.45	69.67	73.98	.....	78.55	.....	.....	.....	.....	75.94	.....
12	67.66	67.41	69.91	74.90	76.29	78.88	.....	.....	.....	.....	75.94	.....
13	67.61	67.34	70.03	74.90	76.17	78.85	.....	.....	.....	.....	75.97	.....
14	67.56	67.32	70.15	75.11	76.51	79.06	79.90	.....	.....	.....	75.96	.....
15	67.58	67.37	70.31	74.90	76.41	79.23	80.02	.....	.....	.....	75.89	.....
16	67.62	67.35	70 42	74.85	76.67	79.32	80.16	.....	.....	.....	75.89	.....
17	67.55	67.19	70.54	74.58	77.28	79.33	80.16	.....	.....	.....	75.96	.....
18	67.51	67.04	.....	74.71	77.29	79.06	79.96	.....	.....	.....	76.00	.....
19	67.47	67.04	.....	75.06	77.27	79.00	79.92	.....	.....	.....	75.70	.....
20	67.43	.....	.....	75.00	77.38	79.06	79.86	.....	.....	.....	75.17	.....
21	67.34	.....	.....	75.10	77.85	79.22	79.90	.....	.....	.....	75.35	.....
22	67.42	.....	.....	75.28	77.76	79.24	79.96	.....	.....	78.03	75.39	.....
23	67.43	.....	70.36	.....	77.72	79.32	79.98	.....	82.03	77.88	75.31	.....
24	67.40	67.83	71.00	75.83	77.58	79.28	80.16	.....	81.81	77.75	75.29	.....
25	67.38	68.02	70.93	76.07	.....	79.33	80.27	.....	81.55	77.68	75.24	.....
26	67.53	68.14	71.12	75.82	....	79.42	80.22	.....	81.45	77.66	75.15	.....
27	67.65	88.23	71.32	75.65	77.57	79.44	80.05	.....	81.38	77.56	75.10	.....
28	67.76	68.29	71.50	75.61	77.59	79.56	80.05	.....	81.18	77.39	75.04	.....
29	67.72		71.54	75.78	77.65	.....	80.24	.....	79.89	77.32	74.98	.....
30	67.54		71.59	75.36	77.82	.....	80.26	.....	79.59	77.22	74.83	.....
31	.....		71.90		77.96		80.35	.....		77.23		.....

h Tape measurement.

25.20.35.241. W. Veck. Drilled irrigation water-table well in bolson deposits, diameter 16 inches, depth 120 feet. Land-surface datum is 4,238.81 feet above msl. Highest water level 53.25 below lsd, Apr. 2, 1948; lowest 91.52 below lsd, Sept. 23, 1953. Records available: 1948-53. Jan. 22, 70.99; May 14, 91.50, pumping; July 28, 102.13, pumping; Sept. 23, 91.52; Nov. 21, 79.53.

25.20.35.434. W. Veck. Drilled irrigation water-table well in bolson deposits, diameter 16 inches, depth 120 feet. Land-surface datum is 4,245.96 feet above msl. Highest water level 50.27 below lsd, Apr. 2, 1948; lowest 81.86 below lsd, Sept. 23, 1953. Records available: 1948-53. Jan. 21, 73.57; May 14, 77.50, nearby well being pumped; July 28, 94.20, pumping; Sept. 23, 81.86; Nov. 21, 80.91.

26.19.31.333. Luther Edwards. Drilled irrigation water-table well in bolson deposits, diameter 15 inches, depth 200 feet. Land-surface datum is 4,340.62 feet above msl. Highest water level 84.13 below lsd, Mar. 22, 1949; lowest 97.22 below lsd, Nov. 20, 1953. Records available: 1948-53. Jan. 20, 92.91; Mar. 21, 92.40; July 28, 124.19, pumping; Nov. 20, 97.22.

26.20.2.344. R. H. Wamel. Drilled irrigation water-table well in bolson deposits, diameter 16 inches, depth 157 feet. Highest water level 66.33 below lsd, Mar. 22, 1949; lowest 90.47 below lsd, Nov. 21, 1953. Records available: 1948-53. Jan. 21, 86.59; Mar. 21, 77.47; May 14, 85.27, nearby well being pumped; Sept. 23, 130.99, pumping; Nov. 21, 90.47.

26.20.4.444a. W. W. Roark. Drilled irrigation water-table well in bolson deposits, diameter 16 inches. Highest water level 79.81 below lsd, Jan. 21, 1953; lowest 99.76 below lsd, Sept. 23, 1953. Records available: 1952-53. Jan. 21, 79.81; Mar. 21, 79.96; May 14, 92.76; July 28, 101.50, pumping; Sept. 23, 99.76; Nov. 21, 90.11.

26.20.5.334. D. A. Lee. Drilled irrigation water-table well in bolson deposits, diameter 40 to 12 inches, depth 100 feet. Land-surface datum is 4,240.81 feet above msl. Highest water level 54.05 below lsd, Apr. 3, 1948; lowest 75.05 below lsd, Nov. 21, 1953. Records available: 1948-53. Jan. 21, 68.63; Mar. 23, 75.54, nearby well being pumped; May 14, 85.75, nearby well being pumped; July 28, 75.02; Sept. 23, 85.70, nearby well being pumped; Nov. 21, 75.05.

26.20.5.334a. D. A. Lee. Drilled irrigation water-table well in bolson deposits, diameter 16 inches, depth 200 feet. Highest water level 68.58 below lsd, Jan. 21, 1953; lowest 69.95 below lsd, Nov. 12, 1952. Records available: 1952-53. Jan. 21, 68.58. Bimonthly measurements will not be made in the future. An annual measurement will be made but will not be published in the water-level report.

26.20.9.444a. Mrs. H. K. Wood. Drilled irrigation water-table well in bolson deposits, diameter 18 inches, depth 140 feet. Land-surface datum is 4,259.56 feet above msl. Highest water level 72.52 below lsd, May 23, 1948; lowest 105.35 below lsd, Sept. 23, 1953. Records available: 1948-53. Jan. 22, 88.67; Mar. 21, 104.25, pumping; May 13, 117.50, pumping; July 28, 103.41, pumped recently; Sept. 23, 105.35; Nov. 21, 95.72.

26.20.10.344. S. O. Wright. Drilled irrigation water-table well in bolson deposits, diameter 16 inches, depth 144 feet. Land-surface datum is 4,266.12 feet above msl. Highest water level 63.08 below lsd, Mar. 22, 1949; lowest 91.53 below lsd, Sept. 23, 1953. Records available: 1948-53. Jan. 21, 75.40; Mar. 21, 74.03; May 13, 85.64, nearby well being pumped; July 28, 88.92; Sept. 23, 91.53; Nov. 21, 82.19.

26.20.14.242. R. H. Wamel. Drilled water-table well in bolson deposits, diameter 16 inches, depth 150 feet. Land-surface datum is 4,293.30 feet above msl. Highest water level 79.44 below lsd, Apr. 3, 1948; lowest 98.24 below lsd, Nov. 20, 1953. Records available: 1948-53. Jan. 20, 94.05; Mar. 21, 93.89; May 13, 93.78; July 28, 96.03; Sept. 22, 97.18; Nov. 20. 98.24.

26.20.15.444. Crabtree. Drilled irrigation water-table well in bolson deposits, diameter 16 inches, depth 148 feet. Land-surface datum is 4,284.18 feet above msl. Highest water level 62.91 below lsd, Mar. 22, 1949; lowest 91.35 below lsd, July 28, 1953. Records available: 1948-53. Jan. 20, 75.29; May 13, 109.37, pumping; July 28, 91.35; Sept. 22, 137.65, pumping; Nov. 20, 83.40.

26.20.17.133. J. E. Weatherby. Dug stock water-table well in bolson deposits, diameter 36 to 6 inches, depth 63 feet. Highest water level 53.20 below lsd, May 23, 1948; lowest 62.48 below lsd, Jan. 19, 1953. Records available: 1948-53. Jan. 19, 62.48. Measurement discontinued.

26.20.25.211. R. H. Wamel. Dug unused water-table well in bolson deposits, diameter 36 inches, depth 112 feet. Highest water level 93.42 below lsd, Sept. 27, 1948; lowest 112.05 below lsd, Nov. 20, 1953. Records available: 1948-53. Jan. 20, 108.40; Mar. 21, 107.78; May 13, 108.44; July 28, 109.88; Sept. 22, 111.10; Nov. 20, 112.05.

26.20.26.422. Kate Washburn. Drilled water-table well in bolson deposits, diameter 16 inches, depth 151 feet. Land-surface datum is 4,311.09 feet above msl. Highest water level 75.65 below lsd, Apr. 5, 1948; lowest 94.53 below lsd, Nov. 20, 1953. Records available: 1948-53. Jan. 20. 88.90; Mar. 21, 87.82; May 13, 127.56, pumping; Nov. 20, 94.53.

26.20.29.142. Kate Washburn. Drilled irrigation water-table well in bolson deposits, diameter 14 inches, depth 132 feet. Highest water level 48.86 below lsd, May 23, 1948; lowest 57.05 below lsd, Nov. 20, 1953. Records available: 1948-53. Jan. 19, 54.95; Mar. 21, 55.15; Nov. 20, 57.05.

26.21.11.200. R. F. Robinson. Drilled stock water-table well in bolson deposits, diameter 6 inches, depth 89 feet. Highest water level 77.71, pumping, below lsd, July 23, 1948; lowest 83.90 below lsd, Nov. 20, 1953. Records available: 1948-53. Jan. 19, 83.23; Mar. 21, 82.34; May 13, 82.50; July 27, 83.89; Sept. 22, 83.43; Nov. 20, 83.90.

27.19.20.343. Felix Gauthier. Drilled water-table well in bolson deposits, diameter 16 inches. Highest water level 131.90 below lsd, July 29, 1949; lowest 138.70 below lsd, Sept. 22, 1953. Records available: 1949-53. Jan. 20, 135.97; Mar. 20, 135.72; May 13, 136.65; July 27, 137.85; Sept. 22, 138.70; Nov. 20, 138.37.

27.19.21.111. U. S. Government. Drilled unused water-table well in bolson deposits, diameter 6 inches, depth 139 feet. Highest water level 123.93 below lsd, July 29, 1949; lowest 129.30 below lsd, July 27, 1953. Records available: 1949-53. Jan. 20, 128.05; Mar. 20, 128.34; May 13, 128.63; July 27, 129.30; Sept. 22, 128.85.

27.19.32.211. Herbert Strange. Drilled unused water-table well in bolson deposits, diameter 6 inches, depth 155 feet. Highest water level 144.84 below lsd, May 25, 1949; lowest 149.35 below lsd, Sept. 22, 1953. Records available: 1949-53. Jan. 20, 147.67; Mar. 20, 147.37; May 13, 149.22; July 27, 148.80; Sept. 22, 149.35; Nov. 20, 148.75.

27.20.9.100. Kate Washburn. Dug stock water-table well in bolson deposits, diameter 36 to 6 inches, depth 86 feet. Highest water level 71.20 below lsd, Aug. 1, Sept. 3, 1949; lowest 77.85 below lsd, Sept. 22, 1953. Records available: 1949–53. Jan. 19, 75.42, pumping; Mar. 21, 76.05, pumping; May 13, 75.25; July 27, 75.58; Sept. 22, 77.85; Nov. 20, 76.51.

27.20.12.444. Mrs. Edna Curry. Drilled irrigation water-table well in bolsom deposits, diameter 16 inches, depth 200 feet. Highest water level 105.15 below lsd, Mar. 22, 1949; lowest 113.60 below lsd, Nov. 12, 1952. Records available: 1949-53. Jan. 20, 112.55. Measurement discontinued.

27.20.12.444a. Mrs. Edna Curry. Drilled irrigation water-table well in bolson deposits, diameter 16 inches. Highest water level 111.67 below lsd, Mar. 21, 1953; lowest 117.89 below lsd, Sept. 22, 1953. Records available: 1953. Mar. 21, 111.67; May 13, 148.08, pumping; July 20, 156.38, pumping; Sept. 22, 117.89; Nov. 20, 112.57.

28.19.15.433. Joe G. Good. Dug unused water-table well in bolson deposits, diameter 36 inches, depth 35 feet. Highest water level 28.56 below lsd, Jan. 17, 1951; lowest 33.55 below lsd, May 25, 1949. Records available: 1949-53. Jan. 20, 33.13; Mar. 20, 33.12; May 13, 32.53; July 27, 33.08; Sept. 22, 32.02; Nov. 20, 31.60.

28.19.15.433a. Joe G. Good. Drilled stock water-table well in bolson deposits, diameter 6 inches, depth 306 feet. Highest water level 206.31 below lsd, Nov. 23, 1949; lowest 216.65 below lsd, July 27, 1953. Records available: 1949-53. Jan. 20, 216.24; Mar. 20, 219.05, pumping; May 13, 216.72, pumping; July 27, 216.65; Sept. 22, 216.77, pumping; Nov. 20, 218.94, pumping.

28.19.20.244. U. S. Government. Drilled stock water-table well in bolson deposits, diameter 6 inches, depth 270 feet. Highest water level 255.54 below lsd, May 24, 1949; lowest 260.44 below lsd, Nov. 25, 1951. Records available: 1948-53. Jan. 20, 256.56; Mar. 20, 258.11, pumping; May 13, 257.68, pumping; July 27, 257.02; Sept. 22, 257.06, pumping; Nov. 20, 257.64, pumping.

29.19.3.100. T. B. Strickland. Dug stock water-table well in bolson deposits, diameter 36 inches, depth 30 feet. Highest water level 22.65 below lsd, Dec. 4, 1950; lowest 27.94 below lsd, July 19, 1952. Records available: 1949-53. Jan. 20, 26.27; Mar. 20, 26.18; May 13, 26.27; July 27, 26.46; Sept. 22, 26.60; Nov. 20, 26.83.

29.19.3.300. T. B. Strickland. Dug water-table well in bolson deposits, diameter 6 feet, depth 20 feet. Highest water level 12.96 below lsd, Sept. 26, 1950; lowest dry at 20.5, May 21, 1952. Records available: 1949-53. Jan. 20, 18.48; Mar. 20, 18.36; May 13, 18.52; July 27, 18.82; Sept. 22, 19.09; Nov. 20, 19.91.

Playas Valley

30.16.11.331. Sim Smith. Drilled irrigation water-table well in bolson deposits, diameter 12 inches. Highest water level 40.88 below lsd, Mar. 15, 1951; lowest 47.00 below lsd, July 30, 1953. Records available: 1951-53. Jan. 23, 44.46; Mar. 20, 44.13; May 12, 58.51, pumping; July 30, 47.00; Sept. 21, 45.50; Nov. 23, 44.49.

30.16.14.211. M. T. Everhart, Jr. Drilled irrigation water-table well in bolson deposits, diameter 12 inches, depth 180 feet. Highest water level 31.69 below lsd, May 20, 1949; lowest 52.88 below lsd, May 24, 1952. Records available: 1948-53. Jan. 23, 42.18; May 12, 53.41, nearby well being pumped; Sept. 21, 40.73; Nov. 23, 40.50.

30.16.16.244. A. G. McMath. Drilled irrigation water-table well in bolson deposits, diameter 16 inches, depth 80 feet. Highest water level 37.48 below lsd, July 29, 1951; lowest 44.90 below lsd, Sept. 21, 1953. Records available: 1950-53. Jan. 23, 38.97; Mar. 20, 39.11; May 12, 43.29; Sept. 21, 44.90; Nov. 23, 40.59.

30.16.29.422. Myers Bros. Drilled irrigation water-table well in bolson deposits, diameter 16 inches, depth 160 feet. Highest water level 43.85 below lsd, Feb. 4, 1949; lowest 61.17 below lsd, Nov. 23, 1953. Records available: 1948-53. Jan. 23, 57.47; Mar. 20, 56.30; May 12, 56.43; Sept. 21, 60.57; Nov. 23, 61.17.

32.16.30. Lot 2. C. C. Edwards. Drilled irrigation water-table well in bolson deposits, diameter 16 inches, depth 150 feet. Highest water level 85.11 below lsd, Mar. 27, 1952; lowest 86.78 below lsd, July 30, 1953. Records available: 1952-53. Mar. 27, 1952, 85.11; May 24, 100.65, pumping; July 30, 1953, 86.78; Sept. 21, 85.70; Nov. 23, 85.60.

32.17.13.240. Victoria Land & Cattle Co. Drilled unused water-table well in bolson deposits, diameter 6 inches, depth 64 feet. Highest water level 57.92 below lsd, May 20, 1949; lowest 59.34 below lsd, July 30, 1953. Records available: 1949-53. Jan. 23, 58.80; Mar. 20, 58.74; May 12, 58.79; July 30, 59.34; Sept. 21, 58.98; Nov. 23, 59.01.

32.17.23.434. Mr. Timberlake. Drilled irrigation water-table well in bolson deposits, diameter 12 inches, depth 162 feet. Highest water level 96.09 below lsd, Mar. 23, 1949; lowest 99.35 below lsd, Nov. 23, 1948. Records available: 1948-53. Jan. 23, 97.91; July 30, 98.12.

Virden Valley

18.21.32.130. P. Lunt. Drilled stock well, diameter 8 inches, depth 114 feet. Land-surface datum is about 3,757 feet above msl. Highest water level 35.30 below lsd, June 3, 1940; lowest 55.35 below lsd, Mar. 10, 1942. Records available: 1939-53. Jan. 27, 44.27; May 7, 43.91; Aug. 5, 43.62; Nov. 12, 45.46.

18.21.32.440. J. Pierce. Near Virden. Dug unused domestic well, diameter 36 inches, depth 40 feet. Land-surface datum is about 3,736 feet above msl. Highest water level 29.12 below lsd, Jan. 7, 1941; lowest dry, Aug. 27, Nov. 5, 1951. Records available: 1939-53. Jan. 27, 32.84; May 7, 33.11; Nov. 12, 33.15.

19.20.18.120. Floyd Johns. Drilled domestic well, diameter 8 inches, depth 60 feet. Land-surface datum is about 3,804 feet above msl. Highest water level 20.05 below lsd, Feb. 1, 1945; lowest 55.00 below lsd, July 23, 1947. Records available: 1939-53. Jan. 27, 27.28; May 7, 31.38; Aug. 5, 38.19; Nov. 12, 31.48.

19.21.2.330a. Byron Echols. Drilled irrigation well, diameter 20 inches, depth 80 feet. Land-surface datum is about 3,755 feet above msl. Highest water level 14.58 below lsd, Mar. 1, 1949; lowest 23.19 below lsd, Nov. 5, 1951. Records available: 1948-53. Jan. 27, 15.01; Aug. 5, 17.71; Nov. 12, 19.22.

19.21.2.410. J. E. Payne. Drilled unused irrigation well, diameter 18 inches, depth 106 feet. Land-surface datum is about 3,788.6 feet above msl. Highest water level 41.66 below lsd, Oct. 22, 1941; lowest 53.13 below lsd, Nov. 5, 1951. Records available: 1939-53. Jan. 27, 44.43; May 7, 45.46; Aug. 5, 46.58; Nov. 12, 48.35.

19.21.12.420. Nancy O. Pace. Dug domestic well, diameter 4 feet, depth 30 feet. Land-surface datum is 3,792 feet above msl. Highest water level 10.16 below lsd, May 6, 1952; lowest dry, Nov. 5, 1951. Records available: 1939-53. Jan. 27, 23.34; May 7, 20.35; Aug. 5, 23.28; Nov. 12, 22.30.

Lea County

Tatum-Lovington-Hobbs area.--The Tatum-Lovington-Hobbs area, in the southeastern part of New Mexico, is a part of the High Plains. Ground water in sufficient quantities for irrigation, industrial, and municipal use is obtained from the Ogallala formation. The Lea County Ground-Water Basin was declared by order of the State Engineer on August 21, 1931,and closed to further appropriation on December 29, 1948. The boundaries of the basin were extended on October 1, 1952, to include all of the High Plains area in Lea County except Townships 9, 10, and part of 11 in the north end of the county. This extension increased the area covered from about 1,270 square miles to about 2,180 square miles. After further study of the area, parts of the basin were reopened on December 31, 1952,to the appropriation of ground water.

As part of the investigation of ground-water conditions in the area which began in 1929, water levels were measured in 180 wells in January 1953 and in 33 of these at bimonthly intervals. Recording gages were maintained on three wells, one about a mile northwest of Lovington, one about 17 miles southwest of Lovington, and the other about 12 miles east of Lovington. The latter recorder was installed in September 1953. The measurements made in January, all of which are not reported herein, are used to prepare figure 57 illustrating the net annual change in ground-water storage in the area.

Precipitation in 1953 in Lea County was near normal at Tatum but considerably below normal to the south. The precipitation amounted to 16.15 inches at Tatum--0.46 inch below normal, 9.37 inches at Lovington--6.10 inches below normal, 10.09 inches at Hobbs--5.86 inches below normal, and 8.82 inches at Pearl--4.68 inches below normal. Precipitation during the growing season, April through September, was also far below normal. About 65 to 70 percent of the annual amount for Tatum and Lovington occurred during the growing season whereas only about 45 to 50 percent of the annual amount occurred during this period at Hobbs and Pearl.

During 1953 a survey was made of irrigated acreage and location of irrigation wells in Lea County. The area covered included all of the declared ground-water basin of Lea County and northward to the Roosevelt County line. The boundaries of the irrigated acreage within the individual sections of land were obtained by odometer, where feasible, or otherwise estimated. The survey included all cultivated irrigated cropland but did not include the uncultivated irrigated pasture land which was difficult or impossible to discern from native pasture. The results of the survey and estimate show that about 92,600 acres of land were irrigated, which is less than indicated by estimates made for previous years though no actual decrease in acreage occurred. Before 1953 the irrigated acreage figures were based on estimates only.

The amount of ground water required for the irrigation of crops was about the same in 1953 as in 1952. This is indicated by electric power records of 138 irrigation pumps for which records are available for both 1952 and 1953. A revised estimate, based on the irrigated acreage survey in 1953, indicated about 166,000 acre-feet was pumped in 1952 for irrigation rather than 180,000 acre-feet as previously estimated. In 1953 it is estimated that about 165,000 acre-feet of water was pumped for irrigation. Pumpage for municipal use at Lovington reportedly increased from about 767 acre-feet in 1952 to about 970 acre-feet in 1953. Pumpage for municipal use at Hobbs was about 4,360 acre-feet in 1953 which is an increase over 1952. The estimate of pumpage at Lovington and Hobbs is based on metered water use plus an estimate of unmetered use. The total estimate of ground-water consumption including that for irrigation, municipal, stock, and industrial use was about 180,000 acre-feet in 1953.

As a result of the deficient precipitation and high pumpage of ground water in 1953, the net declines in water levels were again appreciable. The map shows the areal changes in water levels from January 1953 to January 1954. In this period the water levels declined more than 1 foot under about 373 square miles, more than 2 feet under about 137 square miles, more than 3 feet under about 49 square miles, and more than 4 feet under about 7 square miles. This is compared with like declines in 1952 of 1, 2, 3, and 4 feet under 454, 226, 89, and 38 square miles, respectively. The areas of greatest decline coincide with the areas of greatest pumpage. In general, throughout the county, the net annual declines in water level and the extent of declines were not as great as for the preceding year. This decreased decline with an equivalent pumpage is to be expected as the water is being removed from storage in an areally extensive aquifer. If the amount of development and water requirements remain approximately the same in succeeding years, the successive net annual declines are expected to gradually decrease.

In the 4 years from 1950 through 1953, the net declines in water level in the areas of greatest concentration of pumpage have averaged about 1 foot per year at Humble, 2 feet per year in the vicinity of Lovington, and 3 feet or more per year near Prairieview, McDonald, and about 7 miles east and 12 miles southeast of Lovington. By the end of 1953 new alltime record low water levels were reached in all observation wells except those distant from the effects of pumping.

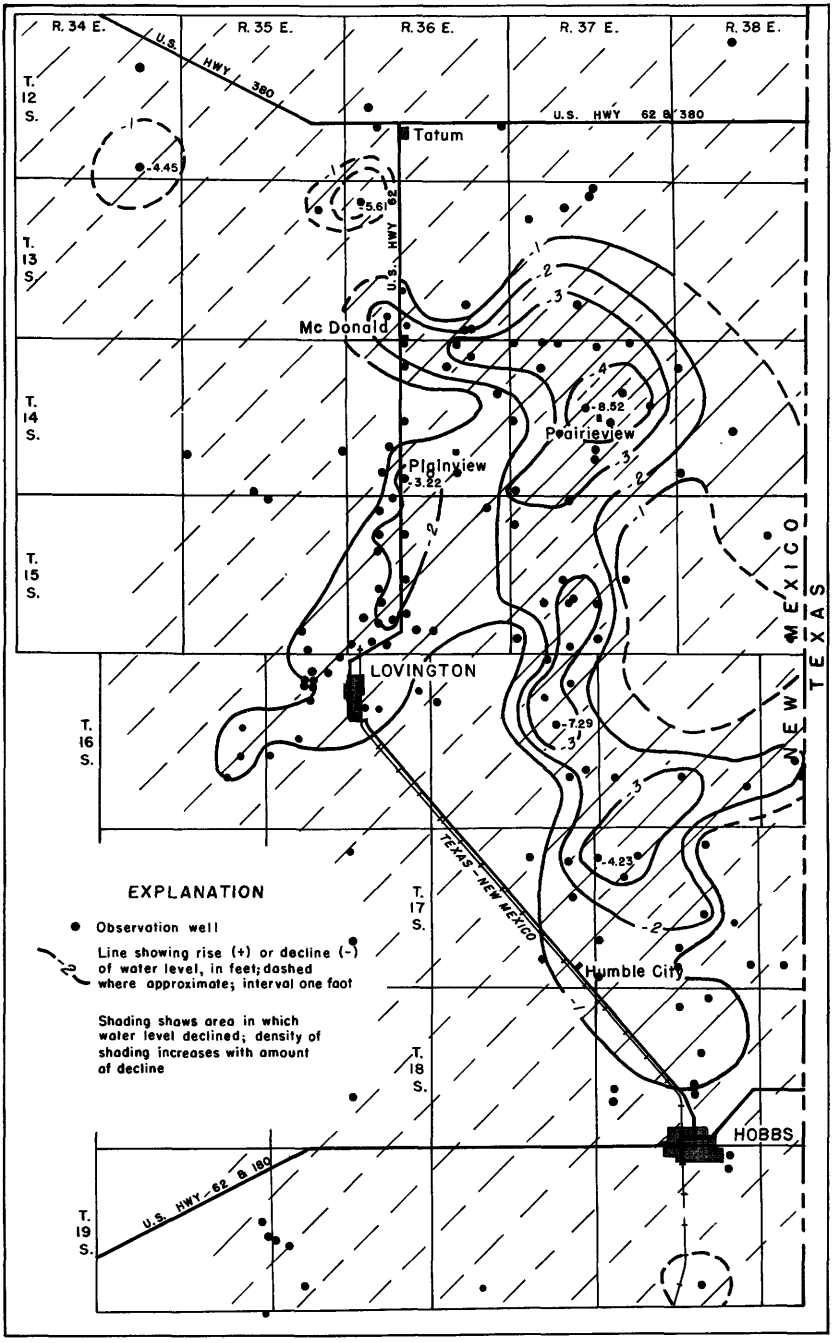


Figure 57. --Change in ground-water level from January 1953 to January 1954 in Tatum-Lovington-Hobbs area of High Plains, Lea County, N. Mex.

Tatum-Lovington-Hobbs Area

11.33.25.442. Owner unknown. Drilled water-table well in Ogallala formation, diameter 8 inches, depth 69 feet. Records available: 1953. Nov. 2, 33.90; Nov. 10, 33.91.

12.31.23.333. F. E. Dickson. Drilled unused water-table well in Ogallala formation, diameter 3 inches, depth 148 feet. Highest water level 130.15 below lsd, Nov. 13, 1953; lowest 130.28 below lsd, July 22, 1953. Records available: 1953. July 22, 130.28; Sept. 4, 130.18; Nov. 13, 130.15.

12.31.26.333. F. E. Dickson. Drilled unused water-table well in Ogallala formation, diameter 6 inches, depth 145 feet. Highest water level 132.10 below lsd, July 27, 1953; lowest 132.12 below lsd, Sept. 4, 1953. Records available: 1953. July 22, 132.11; July 27, 132.10; Sept. 4, 132.12; Nov. 13, 132.11.

12.31.26.333a. F. E. Dickson. Drilled unused water-table well in Ogallala formation, diameter 8 inches, depth 145 feet. Highest water level 130.41 below lsd, Nov. 13, 1953; lowest 130.78 below lsd, July 27, 1953. Records available: 1953. July 22, 130.42; July 27, 130.78; Sept. 4, 130.44; Nov. 13, 130.41.

12.34.11.413. A. D. Jones Estate. Drilled unused water-table well in Ogallala formation, diameter 15 inches, depth 87 feet. Highest water level 29.57 below lsd, May 24, 1949; lowest 31.39 below lsd, Nov. 10, 1953. Records available: 1949-53. Jan. 10, 31.04; Mar. 24, 31.15; May 25, 31.24; July 27, 31.28; Sept. 4, 31.34; Nov. 10, 31.39.

12.36.24.434a. J. C. Clay. Drilled domestic water-table well in Ogallala formation, diameter 6 inches. Highest water level 22.85 below lsd, Jan. 15, 1948; lowest 24.82 below lsd, Sept. 4, 1953. Records available: 1947-53. Jan. 16, 24.42; Mar. 24, 24.55; May 25, 24.85, pumping; July 24, 24.83; Sept. 4, 24.82; Nov. 5, 25.63, pumping.

13.35.2.111a. Owner unknown. Drilled unused water-table well in Ogallala formation. Highest water level 27.30 below lsd, Apr. 20, 1953; lowest 27.61 below lsd, Nov. 9, 1953. Records available: 1953. Apr. 20, 27.30; May 8, 27.32; July 24, 27.44; Sept. 9, 27.53; Nov. 9, 27.61.

13.37.7.234. W. D. Patton. Drilled unused water-table well in Ogallala formation, diameter 6 inches. Highest water level 29.56 below lsd, Mar. 27, Nov. 15, 1947; lowest 32.05 below lsd, Nov. 5, 1953. Records available: 1945-53. Jan. 16, 31.54; Mar. 24, 31.65; May 25, 31.79; July 24, 31.83; Sept. 8, 31.95; Nov. 5, 32.05.

13.37.13.132. A. M. Brownfield. Drilled unused water-table well in Ogallala formation, diameter 8 inches, depth 41 feet. Highest water level 25.46 below lsd, Aug. 12, 1941; lowest 31.07 below lsd, Nov. 5, 1953. Records available: 1930-53. Mar. 24, 30.42; May 25, 30.59; July 27, 30.78; Sept. 8, 30.89; Nov. 5, 31.07.

14.35.33.433. W. A. Anderson. Drilled unused water-table well in Ogallala formation, diameter 6 inches, depth 62 feet. Land-surface datum is 4,013.59 feet above msl. Highest water level 39.65 below lsd, May 21, July 25, 1951, Jan. 9, May 24, 1952; lowest 42.39 below lsd, Nov. 15, 1929. Records available: 1929-53. Jan. 10, 40.69; Mar. 23, 40.76; May 25, 40.86; July 24, 41.00; Sept. 8, 41.16; Nov. 6, 41.46.

14.36.4.111. Lewis Beaman. Drilled domestic water-table well in Ogallala formation, diameter 6 inches. Highest water level 42.73 below lsd, Mar. 23, 1949; lowest 55.62 below lsd, Sept. 4, 1953. Records available: 1949-53. Jan. 16, 50.53; Mar. 23, 50.25; May 25, 51.99; July 22, 53.89; Sept. 4, 55.62; Nov. 19, 52.40.

14.36.13.211. Mattie Chambers. Drilled unused water-table well in Ogallala formation, diameter 12 inches, depth 87 feet. Land-surface datum is 3,904.59 feet above msl. Highest water level 35.74 below lsd, Jan. 30, May 24, 1946; lowest 42.21 below lsd, Nov. 24, 1953. Records available: 1929-53. Jan. 15, 40.78; Mar. 23, 40.98; May 25, 41.24; July 24, 41.51; Sept. 4, 41.73; Nov. 24, 42.21.

14.37.15.222. C. A. Pope. Drilled unused irrigation water-table well in Ogallala formation. Highest water level 53.89 below lsd, Mar. 23, 1953; lowest 60.80 below lsd, Nov. 20, 1953. Records available: 1953. Mar. 23, 53.89; May 25, 74.05, nearby well being pumped; July 27, 83.18, nearby well being pumped; Sept. 8, 86.53, nearby well being pumped; Nov. 20, 60.80.

14.37.27.131. J. R. Fort. Drilled unused water-table well in Ogallala formation, diameter 7 inches, depth 58 feet. Highest water level 36.10 below lsd, May 22, 1947; lowest 50.35 below lsd, Nov. 20, 1953. Records available: 1929-53. Jan. 15, 45.82; Mar. 23, 45.60; May 25, 46.72; July 27, 48.12; Sept. 8, 49.62; Nov. 20, 50.35.

14.37.31.333. T. N. and E. N. Miller. Drilled irrigation water-table well in Ogallala formation, diameter 16 inches, reported depth 130 feet. Highest water level 43.59 below lsd, Mar. 21, 1949; lowest 71.96 below lsd, Sept. 10, 1953. Records available: 1949-53. Jan. 14, 53.25; Mar. 23, 83.65, pumping; May 25, 56.91; July 27, 62.53; Sept. 10, 71.96; Nov. 20, 58.34.

14.38.21.311. Claude Cox. Drilled irrigation water-table well in Ogallala formation, diameter 16 inches. Highest water level 32.48 below lsd, Jan. 21, 1949; lowest 47.23 below lsd, July 24, 1952. Records available: 1949-53. Jan. 13, 42.22; Mar. 23, 40.64; May 25, 45.24; July 27, 46.81; Nov. 20, 44.57.

15.36.8.111a. Gordon Gann. Drilled domestic water-table well in Ogallala formation, diameter 6 inches. Highest water level 41.33 below lsd, Mar. 23, 1949; lowest 55.64 below lsd, Sept. 19, 1952. Records available: 1949-53. Jan. 9, 62.71, pumping, nearby well being pumped; Mar. 23, 69.63, nearby well being pumped; May 25, 44.93, pumped recently; July 22, 58.65, pumping; Sept. 10, 56.33, pumping; Nov. 19, 53.38.

15.37.21.334. R. W. Dean. Drilled stock water-table well in Ogallala formation, diameter 8 inches, reported depth 80 feet. Highest water level 29.10 below lsd, July 27, 1943; lowest 42.33 below lsd, Jan. 13, 1953. Records available: 1930-53. Jan. 13, 42.33; Mar. 23, 52.72, pumping, nearby well being pumped; May 25, 48.25, pumping; July 27, 48.63, pumping; Sept. 8, 52.69, pumping; Nov. 17, 50.49, pumping.

16.35.13.112. W. T. Zuber. Drilled irrigation water-table well in Ogallala formation, diameter 12 inches, reported depth 100 feet. Highest water level 42.36 below lsd, Mar. 26, 1948; lowest 53.03 below lsd, Sept. 14, 1953. Records available: 1948-53. Jan. 9, 47.53; Mar. 24, 47.22; May 25, 50.17; July 22, 52.13; Sept. 14, 53.03; Nov. 20, 49.76.

16.36.4.Lot 12. E. H. Byers. Drilled unused water-table well in Ogallala formation, diameter 8 inches, depth 65 feet. Highest water level 43.35 below lsd, Mar. 14, 1943; lowest 57.05 below lsd, Oct. 11, 1953. Records available: 1934-53.

Daily highest water level from recorder graph

Day	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	53.63	54.03	53.26	53.09	54.59	54.55	55.26	55.78	56.33	56.89	56.19	55.70
2	53.61	54.00	53.25	53.11	54.53	54.51	55.23	55.75	56.41	56.91	56.17	55.69
3	53.58	53.96	53.25	53.15	54.49	54.49	55.22	55.72	56.44	56.84	56.15	55.69
4	53.56	53.90	53.23	53.17	54.48	54.46	55.27	55.69	56.46	56.97	56.13	55.67
5	53.52	53.87	53.21	53.18	54.54	54.44	55.28	55.68	56.48	56.96	56.10	55.66
6	53.49	53.82	53.20	53.21	54.60	54.41	55.30	55.63	56.48	56.95	56.10	55.65
7	53.48	53.77	53.19	53.23	54.66	54.38	55.33	55.64	56.47	56.99	56.08	55.63
8	53.47	53.74	53.17	53.27	54.73	54.36	55.37	55.63	56.49	57.00	56.05	55.63
9	53.47	53.71	53.17	53.30	54.73	54.35	55.42	55.65	56.51	57.01	56.03	55.62
10	53.43	53.67	.....	53.32	54.68	54.44	55.45	55.66	56.54	57.03	56.01	55.61
11	53.40	53.64	.....	53.34	54.66	54.54	55.49	55.72	56.57	57.05	56.00	55.61
12	53.38	53.61	.....	53.44	54.72	54.23	.....	55.84	56.57	57.01	55.98	55.59
13	53.36	53.57	.....	53.46	54.79	54.81	.....	55.93	56.62	56.93	55.96	55.59
14	53.34	53.54	.....	53.49	54.78	54.91	.....	55.96	.....	56.67	55.95	55.57
15	53.34	53.51	.....	.....	54.81	54.91	.....	56.00	h56.68	56.79	55.93	55.56
16	53.31	53.49	.....	.....	54.82	54.90	.....	56.05	56.68	56.73	55.92	55.55
17	53.30	53.47	.....	.....	54.85	54.97	.....	56.09	56.71	56.68	55.90	55.55
18	53.29	53.47	.....	.....	54.86	54.93	.....	56.12	56.73	56.63	55.87	55.53
19	53.27	53.45	.....	.....	54.84	54.94	.....	56.17	56.73	56.58	55.86	55.53
20	53.28	e53.43	e53.11	h54.21	54.84	55.01	55.74	56.22	56.68	56.55	55.84	55.51
21	53.32	53.40	e53.09	54.23	54.89	55.05	55.77	56.25	56.67	56.51	55.83	55.51
22	53.41	53.37	e53.07	54.30	54.91	55.06	55.82	56.18	56.72	56.48	55.81	.....
23	53.50	53.35	53.04	54.36	54.93	55.08	55.85	56.33	56.75	56.44	55.78	.....
24	53.60	53.35	53.03	54.43	54.87	55.09	55.37	56.36	56.77	56.40	55.77	.....
25	53.69	53.32	53.02	53.51	54.83	55.13	55.81	56.39	56.79	56.38	55.76	.....
26	53.72	53.30	53.02	54.53	54.79	55.14	55.95	56.41	56.80	56.35	55.75	.....
27	53.77	53.29	53.03	54.27	54.74	55.18	55.75	56.39	56.83	56.33	55.74	.....
28	53.86	53.27	53.03	54.64	54.68	55.21	55.93	56.36	56.83	56.29	55.73	.....
29	53.92		53.04	54.65	54.65	55.23	55.90	56.33	56.84	56.26	55.72	.....
30	53.99		53.05	54.63	54.61	55.24	55.86	56.30	56.87	56.24	55.71	55.40
31	54.02		53.07		54.58		55.82	56.28		56.23		55.38

e Estimated.
h Tape measurement.

16.37.11.111. A. J. Birkshire. Drilled irrigation water-table well in Ogallala formation, diameter 16 inches, reported depth 118 feet. Highest water level 31.93 below lsd, Jan. 23, 1949; lowest 61.01 below lsd, Sept. 3, 1953. Records available: 1949-53. Jan. 12, 47.26; Mar. 23, 46.25; July 21, 57.57; Sept. 3, 61.01; Nov. 17, 55.51.

16.38.3.333. State of New Mexico. Drilled test hole water-table well in Ogallala formation, diameter 8 inches, depth 107 feet, cased to 100. Highest water level 24.82 below lsd, Nov. 3-10, 1953; lowest 25.02 below lsd, Oct. 18-24, 1953. Records available: 1953. Recording gage installed Sept. 21, 1953.

Daily highest water level from recorder graph

Day	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	.....	.....	.....	h25.00	24.83	24.87
2	.....	.....	.....	25.00	24.83	24.87
3	.....	.....	h24.98	25.00	24.82	24.87
4	.....	.....	.....	25.00	24.82	24.87
5	.....	h24.93	.....	25.00	24.82	24.87
6	.....	.....	.....	25.00	24.82	24.87
7	.....	.....	.....	25.00	24.82	24.88
8	.....	.....	.....	25.00	24.82	24.88
9	.....	.....	.....	25.00	24.82	24.88
10	.....	.....	.....	25.00	24.82	24.88
11	.....	.....	.....	25.00	h24.85	24.89
12	.....	.....	.....	25.00	24.85	24.89
13	.....	.....	.....	25.01	24.85	24.89
14	.....	.....	.....	25.01	24.85	24.89
15	.....	.....	.....	25.01	24.85	24.89
16	.....	.....	.....	25.01	24.85	24.89
17	h24.85	.....	.....	25.01	24.85	24.89
18	.....	.....	.....	25.02	24.85	24.89
19	.....	.....	.....	25.02	24.85	24.89
20	.....	.....	.....	25.02	24.85	24.89
21	h24.87	.....	h24.98	25.02	24.85	24.89
22	.....	.....	24.98	25.02	24.85	24.89
23	.....	.....	24.98	h25.02	24.85	24.90
24	.....	.....	24.98	25.02	24.85	24.90
25	.....	.....	24.98	24.94	24.86	24.90
26	.....	.....	24.99	24.92	24.86	24.90
27	.....	.....	24.99	24.90	24.86	24.90
28	.....	.....	24.99	24.88	24.86	24.90
29	.....	.....	24.99	24.87	24.86	24.90
30	.....	.....	24.99	24.83	24.87	24.90
31	.....	.....		h24.83		24.90

h Tape measurement.

16.38.34.131. Ralph Moe. Drilled irrigation water-table well in Ogallala formation, diameter 16 inches, reported depth 140 feet. Highest water leavel 35.06 below lsd, May 22, 1947; lowest 58.35 below lsd, Sept. 3, 1953. Records available: 1947-53. Jan. 8, 67.43, nearby well being pumped; Mar. 23, 49.33; May 22, 52.64; July 21, 72.35, nearby well being pumped; Sept. 3, 58.35; Nov. 17, 53.00.

17.33.13.341. Potash Co. of America. Drilled water-table well in Ogallala formation, diameter 6 inches, depth 252 feet, cased to 252. Highest water level 146.00 below lsd, Jan. 21, 1953; lowest 149.74 below lsd, Nov. 19, 1953. Records available: 1952-53.

Daily highest water level from recorder graph

Day	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	146.36	146.05	146.86	147.96	148.21	148.39	148.74	149.21	148.79	149.22	149.21	.....
2	146.38	146.09	147.04	147.94	148.19	148.37	148.76	149.25	148.79	149.19	149.20	.....
3	146.20	146.18	147.04	148.11	148.22	148.43	148.79	149.24	148.82	.....	149.27	149.54
4	146.24	146.14	147.05	147.81	148.17	148.47	148.82	149.25	148.87	149.13	149.33	.....
5	146.20	146.21	147.06	147.94	148.15	148.49	148.83	149.22	148.83	.....	149.29	.....
6	146.23	146.23	147.20	147.86	148.14	148.48	148.85	149.29	.....	.....	149.34	.....
7	146.28	146.31	147.25	148.00	148.20	148.53	148.85	149.34	148.99	149.01	.....	.....
8	146.30	146.29	147.26	148.01	148.20	148.51	148.91	149.32	149.01	149.09	149.47	.....
9	146.21	146.35	147.25	148.08	148.21	148.56	148.92	149.24	149.06	149.05	149.45h	149.37
10	146.21	146.41	147.35	147.94	148.29	148.55	148.92	149.25	149.10	148.96	149.48	149.27
11	146.17	146.32	147.42	148.06	148.24	148.54	148.90	149.28	149.16	148.95	149.53	149.33
12	146.13	146.38	147.48	148.12	148.35	148.56	148.99	149.25	149.20	149.00	149.56	149.26
13	146.16	146.32	147.45	147.96	148.30	148.52	148.97	149.24	149.20	149.00	149.56	149.30
14	146.08	146.39	147.61	148.06	148.20	.....	149.02	149.20	149.28	148.97	149.60	149.22
15	146.24	146.32	147.60	148.10	148.26	148.54	149.02	149.19	149.32	148.93	149.63	149.21

17.33.13.341--Continued.

Day	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
16	146.12	146.53	147.62	147.91	148.28	148.58	149.05	149.17	149.34	148.90	149.66	149.23
17	146.12	146.46	147.64	147.99	.....	148.57	149.07	149.13	149.35	148.91	149.67	149.21
18	146.13	146.39	147.68	148.09	148.28	148.60	149.06	149.09	149.39	148.88	149.64	149.12
19	146.12	146.50	147.64	148.00	148.18	148.62	149.11	149.05e	149.37	148.86	149.74	149.10
20	146.14	.....	147.63	147.93	148.23	148.65	149.13	149.03	149.43	148.80	149.63	149.01
21	146.00	146.72	.....	148.00	148.20	148.67	149.12	149.01	149.44	148.85	149.65	149.10
22	146.17	146.67	147.74	148.08	148.16	148.65	149.12	148.97	149.35	148.85	.....	149.14
23	146.17	146.69	147.80	148.09	148.11	148.66	149.10	148.98	149.36	148.82	149.60	148.99
24	146.15	146.78	147.81	148.12	148.19	148.66	149.10	148.90	149.39	148.80	149.63	148.94
25	146.12	146.84	147.80	148.22	148.20	148.70	149.16	148.88	149.44	148.83	149.66	148.97
26	146.10	146.83	147.86	148.16	148.17	148.67	149.12	148.83	149.36	149.03	149.57	148.85
27	146.13	146.89	147.91	148.12	148.16	148.70	149.13	148.81	149.36	.....	149.61	148.84
28	146.08	146.80	147.82	148.11	148.17	148.75	149.12	148.74	149.30	148.99	149.59	148.84
29	146.06		147.90	148.17	148.27	148.72	149.18	148.75	149.36	148.98	.....	148.81
30	146.07		147.96	148.20	148.33	148.74	149.20	148.80	149.31	149.04	149.45	148.93
31	146.19		147.97		.....		149.18	148.79		149.18		148.76

e Estimated.
h Tape measurement.

17.33.13.434. Potash Co. of America. Drilled industrial water-table well in Ogallala formation, diameter 16 inches. Highest water level 144.18 below lsd, Nov. 17, 1948; lowest 171.23 below lsd, Nov. 18, 1952. Records available: 1948-53. Jan. 8, 160.26; Mar. 24, 161.35; May 23, 187.79, pumping; July 21, 160.61; Sept. 14, 159.86; Nov. 20, 188.44, pumping.

17.33.26.422. Phillips Petroleum Co. Drilled unused water-table well in Ogallala formation, diameter 8 inches, depth 200 feet. Highest water level 160.56 below lsd, Jan. 21, 1951; lowest 161.25 below lsd, Nov. 20, 1953. Records available: 1950-53. Jan. 8, 161.11; Mar. 24, 161.15; May 23, 161.07; July 22, 161.21; Sept. 14, 161.11; Nov. 20, 161.25.

17.34.21.143. Duval Sulphur & Potash Co. Drilled industrial water-table well in Ogallala formation, diameter 12 inches, depth 246 feet. Highest water level 112.71 below lsd, Jan. 21, 1951; lowest 123.28 below lsd, July 22, 1953. Records available: 1951-53. Jan. 8, 121.99; Mar. 24, 122.30; May 23, 122.99; July 22, 123.28; Sept. 14, 122.53, pumped recently; Nov. 20, 158.71, pumping.

17.34.35.130. Phillips Petroleum Co. Drilled unused water-table well in Ogallala formation, diameter 8 inches, depth 132 feet. Highest water level 89.81 below lsd, July 21, 1953; lowest 91.98 below lsd, Jan. 26, 1941. Records available: 1940-53. Jan. 7, 89.88; Mar. 24, 89.96; May 23, 89.91; July 21, 89.81; Sept. 11, 89.94; Nov. 20. 89.91.

17.35.35.213. Phillips Petroleum Co. Drilled unused water-table well in Ogallala formation, diameter 9 inches, depth 129 feet. Highest water level 38.60 below lsd, Jan. 16, 1948; lowest 41.45 below lsd, Jan. 26, 1941. Records available: 1940-53. Jan. 7, 39.48; Mar. 24, 39.53; May 23, 39.56; July 22, 39.58; Sept. 3, 39.62; Nov. 20, 39.61.

17.36.3.333. State of New Mexico. Drilled unused water-table well in Ogallala formation, diameter 2 inches, depth 85 feet. Highest water level 42.00 below lsd, Mar. 24, May 15, 1944; lowest 45.01 below lsd, June 18, 1939. Records available: 1939-53. Jan. 7, 42.66; Mar. 24, 42.73; May 23, 42.96; July 22, 43.19; Sept. 3, 43.35; Nov. 20, 43.19.

17.36.27.131. Wallace Mitchell. Drilled irrigation water-table well in Ogallala formation. Highest water level 33.00 below lsd, Sept. 23, 1949; lowest 36.52 below lsd, May 17, 1950. Records available: 1947-53. Jan. 7, 34.03; Mar. 24, 34.01; May 23, 66.18, pumping; July 22, 36.34; Sept. 3, 35.72; Nov. 20, 34.80.

17.38.7.111a. Jim Cunningham. Drilled irrigation water-table well in Ogallala formation, diameter 16 inches, reported depth 135 feet. Highest water level 35.59 below lsd, Mar. 21, 1952; lowest 49.21 below lsd, Sept. 8, 1953. Records available: 1951-53. Jan. 6, 39.41; Mar. 23, 38.71; May 22, 44.81; July 21, 42.55; Sept. 8, 49.21; Nov. 17, 44.60.

17.38.30.312. Mrs. W. L. Goedeke. Drilled and dug unused water-table well in Ogallala formation, diameter 7 inches, depth 56 feet. Highest water level 26.47 below lsd, Feb. 4, 1942; lowest 41.12 below lsd, May 22, 1953. Records available: 1929-53. Jan. 6, 35.99; Mar. 20, 36.90; May 22, 41.12. Measurement discontinued.

17.38.34.113. W. E. Busby. Drilled irrigation water-table well in Ogallala formation, diameter 12 inches, depth 120 feet. Highest water level 24.78 below lsd, Jan. 15, 1944; lowest 31.66 below lsd, Sept. 3, 1953. Records available: 1943-53. Jan. 6, 28.59; Mar. 20, 32.23, pumped recently; May 22, 29.44; July 21, 30.12; Sept. 3, 31.66; Nov. 17, 29.48.

18.35.17.144. International Mineral and Chemical Corp. Drilled industrial water-table well in Ogallala formation, diameter 13 inches, depth 190 feet. Highest water level 69.44 below lsd, Oct. 7, 1953; lowest 69.48 below lsd, Sept. 11, 1953. Records available: 1953. Sept. 11, 69.48; Oct. 7, 69.44; Nov. 20, 69.45.

18.35.20.144. International Mineral and Chemical Corp. Drilled industrial water-table well in Ogallala formation, diameter 13 inches, depth 175 feet. Highest water level 75.76 below lsd, Nov. 20, 1953; lowest 75.82 below lsd, Sept. 11, 1953. Records available: 1953. Sept. 11, 75.82; Oct. 7, 75.77; Nov. 20, 75.76.

18.35.20.214. International Mineral and Chemical Corp. Drilled industrial water-table well in Ogallala formation, diameter 12 inches, depth 170 feet. Records available: 1953. Dec. 9, 72.19.

18.36.27.111. State of New Mexico. Drilled unused water-table well in Ogallala formation, diameter 6 inches. Highest water level 38.09 below lsd, Oct. 23, 1942; lowest 41.75 below lsd, Mar. 15, 1941. Records available: 1939-53. Jan. 7, 40.76; Mar. 20, 40.79; May 22, 40.88; July 21, 40.90; Sept. 3, 40.93; Nov. 16, 40.95.

18.38.15.241. Glenn Staley. Drilled unused water-table well in Ogallala formation, diameter 6 inches, depth 107 feet. Highest water level 26.65 below lsd, Nov. 4-7, 1942; lowest 42.52 below lsd, Sept. 3, 1953. Records available: 1940-53. Jan. 6, 34.72; Mar. 20, 35.23; May 22, 39.68; Sept. 3, 42.52; Nov. 17, 36.35.

18.38.30.223. Mrs. Sadie Davis. Drilled unused water-table well in Ogallala formation, diameter 6 inches, depth 50 feet. Highest water level 23.01 below lsd, Nov. 17, 1947; lowest 29.82 below lsd, Nov. 1932. Records available: 1931-53. Jan. 7, 24.70; Mar. 20, 24.76; May 22, 24.01; July 21, 23.56; Sept. 3, 23.44; Nov. 16, 24.15.

19.37.32.241. Mrs. E. A. Anderson. Dug unused water-table well in Ogallala formation, diameter 8 feet, depth 28 feet. Highest water level 10.12 below lsd, Nov. 28, 1941; lowest 13.89 below lsd, June 17, 1934. Records available: 1929-53. Jan. 7, 12.21; Mar. 20, 12.71, nearby well being pumped; May 22, 12.45; July 21, 12.33; Sept. 3, 12.19; Nov. 16, 12.11.

20.35.1.221. J. L. Wood. Dug unused water-table well in Ogallala formation, size 4 by 4 feet, depth 28 feet. Highest water level 19.38 below lsd, July 28, 1943; lowest 25.68 below lsd, Sept. 18, 1936. Records available: 1929-53. Jan. 7, 24.07; Mar. 20, 24.19; May 22, 24.35; July 21, 24.40; Sept. 3, 24.45; Nov. 16, 24.51.

20.37.9.110. W. H. Laughlin. Dug and drilled water-table well in Ogallala formation, size 4 by 6 feet, depth 53 feet. Highest water level 26.89 below lsd, Mar. 30, 1943; lowest 47.54 below lsd, Aug. 12, 1935. Records available: 1929-53. Jan. 7, 33.04; Mar. 20, 29.86; May 22, 33.18; July 21, 33.74; Sept. 3, 34.01; Nov. 16, 33.94.

Luna County

Mimbres Valley.--Large quantities of ground water are pumped for irrigation, industrial, stock, and domestic supplies in the lower course of the Mimbres River west, south, and east of Deming, in southwestern New Mexico. The State Engineer of New Mexico defined the area of the Mimbres Valley Ground-Water Basin by order dated July 29, 1939, and extended the area by orders dated April 7, 1942, and April 13, 1942. The basin was closed to further appropriation of underground waters on April 20, 1945. Five years later, on April 26, 1950, the Red Mountain, Columbus, and Eastern Extension areas were reopened for appropriation. The Columbus area was closed January 9, 1953. A total area of 908 square miles has been declared by the State Engineer as comprising the Mimbres Valley Ground-Water Basin.

Water levels were measured in January 1953 in 161 wells throughout the area. Recording gages were maintained on 2 of these wells throughout 1953; one was removed from a well during the year; and one was relocated to another well in the area. Water levels were measured at bimonthly intervals during the year in 57 of the observation wells. The January measurements, all of which are not reported herein, were used in preparing figure 58 showing the changes in water level in 1953.

Precipitation on the Mimbres Valley, particularly on the headwaters of the Mimbres River is the principal source of the water stored in the aquifer. Precipitation in 1953 was, in general, well below normal throughout the area. According to U. S. Weather Bureau records, precipitation at Deming was less than half of normal for the year. Precipitation at Columbus, in the southern part of the area, was 6.36 inches, 2.36 inches below normal, and at Florida, to the north of the area, 6.75 inches, 3.29 inches below normal. Mimbres Ranger Station, Faywood, and Gage reported below normal precipitation also. Rainfall in the irrigated areas of the Mimbres Valley during the growing season was also below normal.

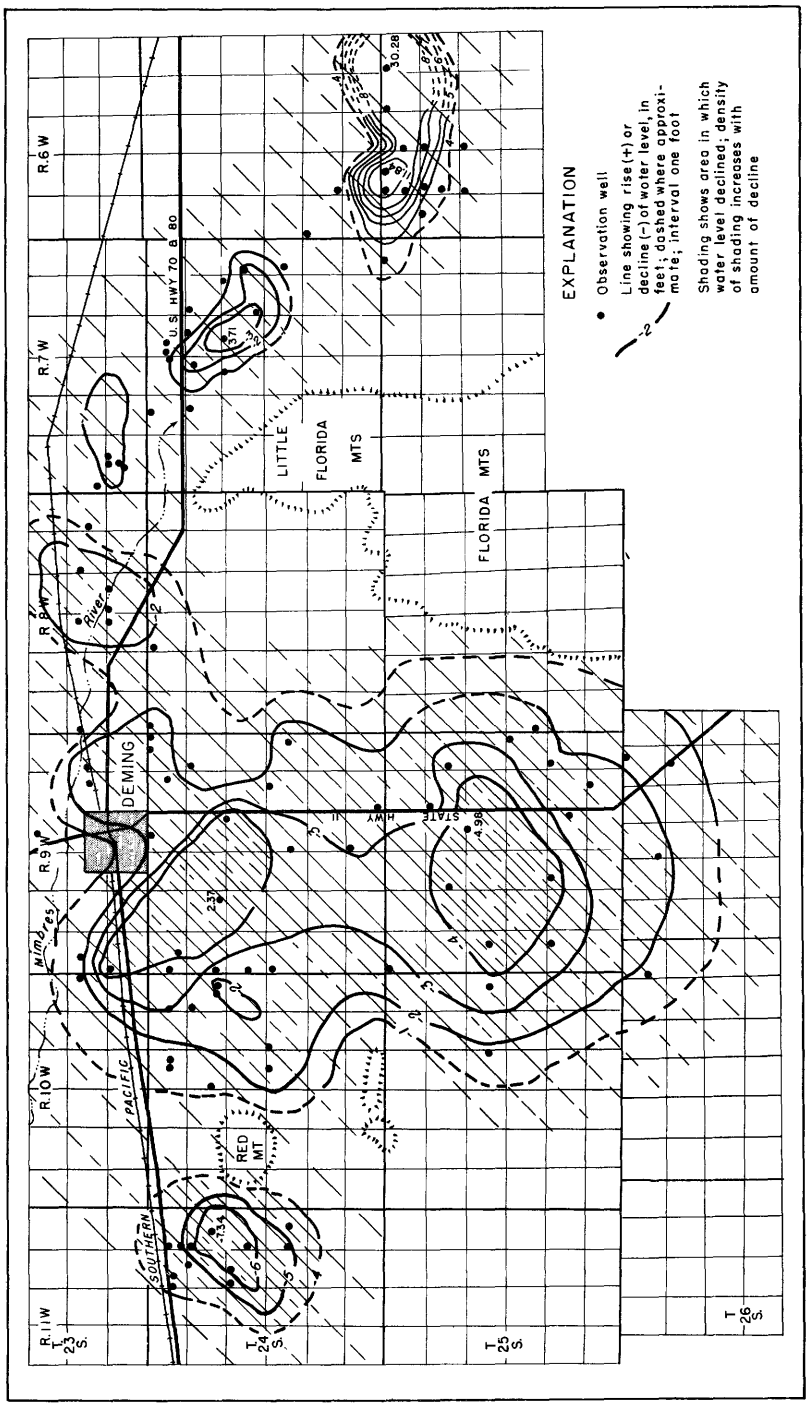


Figure 58. --Change in ground-water level from January 1953 to January 1954 in Mimbres Valley, Luna County, N. Mex.

Irrigated acreage in the Mimbres Valley increased from about 27,600 acres in 1952 to about 33,800 acres in 1953. This increase in acreage was due primarily to new development in the Columbus area, and to a small development east of the Little Florida Mountains, known locally as the Franklin area. The amount of water pumped increased from about 68,000 acre-feet in 1952 to about 79,000 acre-feet in 1953. As the pumpage is from ground-water storage there again were net annual declines in water level.

The Franklin area, which includes most of T. 25 S., R. 6 W., and sections 1 and 12 in T. 25 S., R. 7 W., reached a peak in development during 1953. Extensive drilling came to an end in 1953 after about 47 wells were completed, land was cleared, leveled, and cultivated, and roads were located. Of the land cleared 4,045 acres were irrigated, at least once, during 1953; however, 1,815 acres of this total had no crop. Cotton was irrigated on 2,085 acres, and beans on 145 acres. Poor soil and insufficient water caused crop failures in parts of the area. Large declines in water levels occurred in observation wells in this area from January 1953 to January 1954 with the greatest observed net declines occurring in wells having strong artesian head in the northeast part of T. 25 S., R. 6 W. During this period water levels declined more than 4 feet under an estimated area of about 14 square miles, and more than 8 feet under about 5 square miles.

Ground-water use increased in newly developed areas a few miles north and east of Columbus in the southern part of the main Mimbres Valley. A total of 2,985 acres was irrigated in this area in 1953, consisting of 2,630 acres planted to cotton, 225 acres to beans, and 130 acres to other crops. As a year's record of water-level measurements is not available for most of the observation wells in this area, the annual net changes in water levels are not known.

Irrigated land in the main area south of Deming, comprising about 22,000 acres, remained about the same as in 1952. A net decline in water levels of 4 feet occurred under a total of about 21 square miles in two separate parts of the main area, centered in the north half of T. 24 S., R. 9 W., and the central part of T. 25 S., R. 9 W. Ground-water levels declined more than 1 foot under about 167 square miles, more than 2 feet under about 104 square miles, and more than 3 feet under about 47 square miles.

Water levels continued to decline in 1953 in the Lewis Flats area about 12 miles east of Deming, where about 3,000 acres were irrigated. Water levels declined more than 1 foot under about 7 square miles, more than 2 feet under about 3 square miles, and more than 3 feet under about 1 square mile.

Approximately 1,700 acres were irrigated in the area west of Red Mountain in 1953. Large net annual declines in water levels again occurred. Water levels declined more than 4 feet under about 14 square miles, more than 5 feet under about 6 square miles, and more than 6 feet under about 2 square miles.

By the end of 1953 water levels in nearly all observation wells reached the lowest winter levels since records began, which, for the main irrigated area south of Deming was in 1927. In the center of the main irrigated area, about 6 miles south of Deming, a major net decline of water levels has taken place, amounting to more than 40 feet since 1913. Of this decline, however, 10 feet occurred since 1950, 15 feet from 1940 to 1950, 6 feet from 1930 to 1940, and 9 feet from 1913 to 1930. Thus the annual average net decline of water levels has gradually increased from year to year commensurate with the increase in development of irrigated acreage.

Mimbres Valley

21.10.6.112. Fletcher Tigner. Dug unused water-table well in alluvium of Quaternary age, diameter 12 feet, depth 23 feet. Highest water level 6.57 below lsd, Feb. 25, 1933; lowest 10.97 below lsd, July 14, 1953. Records available: 1928-53. Jan. 6, 9.82; Mar. 12, 9.72; May 7, 10.52; July 14, 10.97; Sept. 15, 10.20; Nov. 10, 10.15.

21.11.35.310. State of New Mexico. Drilled unused water-table well in valley fill, diameter 28 inches, depth 179 feet. Highest water level 13.50 below lsd, Mar. 15, 1949; lowest 37.77 below lsd, Nov. 10, 1953. Records available: 1929-53. Jan. 6, 36.73; Mar. 12, 37.08; May 7, 37.35; July 14, 37.66; Sept. 15, 36.60; Nov. 10, 37.77.

22.10.18.121. State of New Mexico. Drilled unused water-table well in valley fill, diameter 30 inches, depth 223 feet. Highest water level 68.00 below lsd, Sept. 30, 1929; lowest 79.31 below lsd, Nov. 10, 1953. Records available: 1928-53. Jan. 6, 78.69; Mar. 13, 78.59; May 7, 78.86; July 14, 78.88; Sept. 15, 79.11; Nov. 10, 79.31.

22.11.2.210. State of New Mexico. Drilled unused water-table well in valley fill, diameter 28 inches, depth 200 feet. Highest water level 20.38 below lsd, Nov. 11, 1941; lowest 37.71 below lsd, Nov. 10, 1953. Records available: 1929-53. Jan. 6, 36.86; Mar. 12, 37.08; May 7, 37.25; July 14, 37.44; Sept. 15, 37.19; Nov. 10, 37.71.

22.11.13.122. State of New Mexico. Drilled unused water-table well in valley fill, diameter 28 inches, depth 190 feet. Highest water level 58.00 below lsd, July 31, 1928; lowest 70.91 below lsd, Nov. 10, 1953. Records available: 1928-53. Jan. 6, 70.20; Mar. 13, 70.40; May 7, 70.57; July 14, 70.78; Sept. 15, 70.76; Nov. 10, 70.91.

22.11.13.221. State of New Mexico. Drilled unused water-table well in valley fill, diameter 28 inches, depth 225 feet. Highest water level 65.14 below lsd, July 31, 1928; lowest 77.60 below lsd, Nov. 10, 1953. Records available: 1928-53. Jan. 6, 76.94; Mar. 13, 77.12; May 7, 77.22;July 14, 77.41; Sept. 15, 77.47; Nov. 10, 77.60.

23.7.30.Lot 16. H. T. Foster. Dug and drilled unused water-table well in valley fill, diameter 36 inches, depth 157 feet. Highest water level 22.45 below lsd, May 22, 1933; lowest 36.27 below lsd, July 22, 1953. Records available: 1931-53. Jan. 16, 33.47; Mar. 13, 33.79; May 8, 35.15; July 22, 36.27; Sept. 17, 36.10; Nov. 13, 34.42.

23.7.31.133. William Haas. Drilled unused water-table well in valley fill, diameter 14 inches, reported depth 450 feet. Highest water level 37.99 below lsd, Jan. 8, 1951; lowest 52.75 below lsd, Sept. 20, 1948. Records available: 1947-53. Jan. 15, 46.44; Mar. 13, 47.14; May 8, 47.56; July 22, 46.29; Sept. 17, 43.76; Nov. 13, 43.96.

23.8.34.211. E. B. Law. Drilled irrigation water-table well in valley fill, diameter 16 inches, depth 168 feet. Highest water level 27.22 below lsd, Sept. 2, 1929; lowest 64.46 below lsd, July 22, 1953. Records available: 1928-53. Jan. 17, 48.66; Mar. 14, 47.48; May 8, 83.05, pumping; July 22, 64.46; Sept. 17, 85.24, pumping; Nov. 13, 52.96.

23.9.22.213. Roy Perkins. Dug and drilled unused water-table well in valley fill, diameter 36 inches, depth 150 feet. Highest water level 58.12 below lsd, Sept. 9, 1930; lowest 74.61 below lsd, Sept. 15, 1953. Records available: 1928-53. Jan. 7, 67.27; Mar. 13, 67.44; May 7, 70.86; July 14, 74.25; Sept. 15, 74.61; Nov. 10, 69.18.

23.9.25.311. Albert Ernst. Drilled irrigation water-table well in valley fill, diameter 36 inches, depth 150 feet. Highest water level 50.34 below lsd, June 16, 1928; lowest 73.11 below lsd, Sept. 17, 1953. Records available: 1927-53. Jan. 17, 64.34; Mar. 13, 63.98; May 8, 66.40; July 22, 72.00, pumped recently; Sept. 17, 73.11; Nov. 13, 69.55.

24.7.4.424. G. D. Hatfield. Drilled stock and domestic water-table well in valley fill, diameter 10 inches, depth 107 feet. Highest water level 64.58 below lsd, Apr. 16, 1929; lowest 98.69 below lsd, Sept. 6, 1952. Records available: 1928-53. Jan. 15, 91.01; May 11, 95.20; July 22, 95.96, pumping; Sept. 17, 101.48, pumped recently; Nov. 12, 94.98.

24.7.5.211. R. M. Williamson. Dug and drilled stock and domestic water-table well in valley fill, diameter 12 inches, depth 123 feet. Highest water level 64.15 below lsd, Oct. 28, 1926; lowest 94.42 below lsd, Sept. 17, 1953. Records available: 1928-53. Jan. 15, 92.90; Mar. 13, 92.47; May 8, 93.09; July 22, 93.92; Sept. 17, 94.42; Nov. 13, 94.33.

24.7.8.212. J. W. McDougall. Dug and drilled irrigation water-table well in valley fill, diameter 8 feet. Highest water level 78.47 below lsd, Jan. 5, 1940; lowest 90.53 below lsd, Jan. 9, 1951. Records available: 1940-53.

Date	Water level	Date	Water level	Date	Water level	Date	Water level
Jan. 9, 1951	90.53	Jan. 15, 1953	87.50	May 8, 1953	87.53	Sept. 17, 1953	88.53
Jan. 11, 1952	88.44	Mar. 14	87.16	July 22	88.51	Nov. 13	88.30

24.7.9.111. Smyer Bros. Drilled irrigation water-table well in valley fill, diameter 14 inches, depth 125 feet. Highest water level 76.91 below lsd, May 9, 1939; lowest 90.51 below lsd, Sept. 22, 1950. Records available: 1939-53. Jan. 15, 85.22; Mar. 14, 84.22; July 22, 97.35, nearby well being pumped; Sept. 17, 97.58, nearby well being pumped; Nov. 12, 87.64.

24.7.9.111a. Smyer Bros. Drilled irrigation water-table well in valley fill, diameter 14 inches, depth 285 feet. Highest water level 36.41 below lsd, Mar. 27, 1946; lowest 94.66 below lsd, July 21, 1951. Records available: 1946-53. Jan. 15, 85.14; Nov. 12, 87.60.

24.7.9.241. G. D. Hatfield. Drilled unused water-table well in valley fill, diameter 40 inches, depth 132 feet. Highest water level 84.60 below lsd, Jan. 5, 1940; lowest 94.94 below lsd, Nov. 12, 1953. Records available: 1940-53. Jan. 16, 93.38; Mar. 14, 92.32; July 14, 87.66, nearby well being pumped; Sept. 17, 93.58; Nov. 12, 94.94.

24.7.9.241a. G. D. Hatfield. Drilled irrigation water-table well in valley fill, diameter 16 inches, depth 375 feet. Highest water level 21.48 below lsd, Mar. 21, 1945; lowest 119.59 below lsd, Sept. 17, 1953. Records available: 1944-53.

Date	Water level	Date	Water level	Date	Water level	Date	Water level
Jan. 9, 1951	57.87	Jan. 16, 1953	68.48	May 11, 1953	b101.64	Sept. 17, 1953	119.59
Jan. 11, 1952	63.86	Mar. 14	87.36	July 14	a179.91	Nov. 12	75.24

a Pumping
b Pumped recently.
c Nearby well being pumped.

24.7.14.221. J. H. Winslow. Drilled unused water-table well in valley fill, diameter 28 inches, depth 118 feet. Highest water level 71.15 below lsd, Apr. 19-20, 1939; lowest 89.70 below lsd, Sept. 17, 1953. Records available: 1939-53. Recording gage removed Sept. 19, 1953.

Daily highest water level from recorder graph

Day	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.
1	87.83	87.49	87.22	87.37	88.03	88.27	88.61	88.48	89.46
2	87.82	87.47	87.23	87.40	88.04	88.29	88.63	88.79	89.47
3	87.79	87.46	87.23	87.42	88.04	88.31	88.65	88.93	89.49
4	87.79	87.44	87.23	87.44	88.06	88.32	88.67	89.01	89.50
5	87.77	87.42	87.21	87.46	88.07	88.35	88.69	89.04	89.51
6	87.77	87.42	87.21	87.48	88.09	88.36	88.70	89.06	89.52
7	87.76	87.41	87.21	87.50	88.11	88.38	88.72	89.08	89.54
8	87.76	87.37	87.20	87.54	88.12	88.40	88.73	89.11	89.55
9	87.74	87.37	87.20	87.56	88.12	88.42	88.75	89.12	89.57
10	87.73	87.39	87.19	87.58	88.12	88.44	88.77	89.12	89.59
11	87.72	87.39	87.19	87.58	88.07	88.47	88.99	89.14	89.60
12	87.70	87.37	87.17	87.62	88.07	88.48	88.80	89.15	89.62
13	87.69	87.37	87.16	87.64	88.07	88.48	88.82	89.17	89.63
14	87.67	87.37	87.14	87.65	88.08	88.48	88.84	89.18	89.64
15	87.69	87.35	87.12	87.69	88.09	88.49	88.86	89.19	89.66
16	87.68	87.35	87.12	87.71	88.10	88.51	88.88	89.21	89.68
17	87.67	87.35	87.10	87.73	88.10	88.53	88.89	89.22	89.70
18	87.65	87.33	87.11	87.77	88.11	88.55	88.90	85.71	(f)
19	87.64	87.33	87.12	87.79	88.12	88.57	88.91	86.05	.....
20	87.63	87.34	87.13	87.81	88.12	88.58	88.92	87.89	.....
21	87.59	87.34	87.14	87.81	88.11	88.52	88.94	88.57	.....
22	87.61	87.31	87.16	87.84	88.11	88.52	88.95	88.93	.....
23	87.60	87.30	87.19	87.87	88.12	88.52	88.96	89.15	.....
24	87.59	87.30	87.21	87.90	88.15	88.52	85.33	89.24	.....
25	87.57	87.29	87.23	87.92	88.17	88.53	85.66	89.31	.....
26	87.56	87.27	87.25	87.95	88.20	88.55	87.78	89.35	.....
27	87.55	87.25	87.27	87.96	88.20	88.56	88.45	89.38	.....
28	87.53	87.22	87.29	87.97	88.23	88.58	88.75	89.40	.....
29	87.51		87.30	88.00	88.26	88.59	88.90	89.41	.....
30	87.50		87.32	88.02	88.29	88.60	88.17	89.43	.....
31	87.50		87.36		88.30		88.00	89.44	.....

f Dry.

24.7.16.211b. Geo. Snyder. Drilled irrigation water-table well in valley fill, diameter 12 inches, reported depth 150 feet. Highest water level 79.83 below lsd, May 6, 1941; lowest 96.14 below lsd, July 21, 1951. Records available: 1941-53. Jan. 16, 92.89; Mar. 14, 92.56; May 11, 92.67; July 14, 93.16; Sept. 17, 93.58; Nov. 12, 93.83.

24.7.24.312. Bill Birchfield. Drilled unused water-table well in valley fill, diameter 30 inches, depth 89 feet. Highest water level 65.83 below lsd, Mar. 14, 1940; lowest 78.07 below lsd, Nov. 12, 1953. Records available; 1940-53. Jan. 14, 77.43; Mar. 15, 77.55; May 11, 77.66; July 14, 77.76; Sept. 16, 77.92; Nov. 12, 78.07.

24.8.4.111. Foy Riley. Drilled unused water-table well in valley fill, diameter 24 inches, reported depth 100 feet. Highest water level 35.06 below lsd, May 6, 1941; lowest 52.88 below lsd, Oct. 7-13, 1953. Records available: 1941-53.

Daily highest water level from recorder graph

Day	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	50.09	49.74	49.49	49.76	50.70	51.11	51.56	51.93	52.45	52.84	52.79	52.37
2	50.09	49.74	49.49	49.81	50.72	51.12	51.58	51.94	52.48	52.85	52.78	52.36
3	50.07	49.73	49.49	49.87	50.74	51.13	51.60	51.94	52.49	52.85	52.76	52.35
4	50.06	49.71	49.52	49.89	50.73	51.14	51.62	51.94	52.51	52.86	52.75	52.33
5	50.03	49.70	49.50	49.90	50.73	51.16	51.63	51.95	52.53	52.87	52.72	52.33

24. 8. 4. 111--Continued.

Day	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
6	50.01	49.70	49.50	49.94	50.73	51.19	51.64	51.97	52.54	52.87	52.71	52.33
7	50.00	49.70	49.50	49.98	50.73	51.21	51.65	51.98	52.55	52.88	52.71	52.30
8	50.00	49.66	49.49	50.03	50.73	51.22	51.68	52.01	52.56	52.88	52.70	52.29
9	49.98	49.66	49.48	50.09	50.74	51.24	51.69	52.03	52.58	52.88	52.68	52.29
10	49.97	49.67	49.47	50.13	50.75	51.26	51.71	52.05	52.59	52.88	52.66	52.25
11	49.95	49.67	49.47	50.15	50.75	51.28	51.72	52.07	52.61	52.88	52.65	52.25
12	49.93	49.65	49.46	50.20	50.76	51.30	51.73	52.09	52.63	52.88	52.63	52.24
13	49.92	49.65	49.45	50.23	50.78	51.31	51.74	52.11	52.64	52.88	52.62	52.24
14	49.89	49.65	49.45	50.25	50.79	51.32	51.75	52.12	52.64	52.87	52.60	52.22
15	49.89	49.62	49.45	50.30	50.81	51.33	51.77	52.14	52.65	52.87	52.59	52.21
16	49.89	49.63	49.45	50.32	50.82	51.34	51.78	52.17	52.66	52.86	52.57	52.20
17	49.87	49.61	49.45	50.34	50.84	51.36	51.80	52.19	52.67	52.85	52.56	52.18
18	49.86	49.56	49.45	50.39	50.86	51.38	51.82	52.21	52.68	52.84	52.54	52.17
19	49.85	49.56	49.46	50.44	50.88	51.39	51.83	52.23	52.69	52.83	52.55	52.15
20	49.83	49.57	49.46	50.47	50.90	51.40	51.84	52.24	52.70	52.83	52.53	52.13
21	49.80	49.58	49.48	50.50	50.93	51.41	51.85	52.26	52.72	52.83	52.53	52.12
22	49.81	49.57	49.50	50.52	50.95	51.41	51.87	52.27	52.73	52.83	52.52	52.12
23	49.81	49.55	49.52	50.54	50.98	51.42	51.87	52.29	52.74	52.82	52.50	52.12
24	49.80	49.55	49.53	50.57	50.99	51.44	51.89	52.32	52.75	52.82	52.49	52.10
25	49.77	49.55	49.53	50.59	51.00	51.46	51.90	52.34	52.77	52.82	52.48	52.09
26	49.75	49.54	49.56	50.61	51.00	51.47	51.92	52.36	52.78	52.82	52.46	52.07
27	49.76	49.52	49.60	50.63	51.01	51.49	51.92	52.38	52.79	52.82	52.45	52.04
28	49.75	49.48	49.62	50.64	51.04	51.51	51.92	52.39	52.80	52.82	52.44	52.04
29	49.73		49.63	50.67	51.07	51.52	51.92	52.41	52.82	52.81	52.42	52.03
30	49.75		49.66	50.69	51.09	51.54	51.93	52.43	52.83	52.81	52.40	52.03
31	49.76		49.71		51.10		51.93	52.44		52.80		52.02

24. 9. 2. 421. Roscendo Trujillo. Dug domestic water-table well in valley fill, depth 74 feet. Highest water level 48.02 below lsd, Dec. 19, 1931; lowest 69.51 below lsd, Sept. 23, 1950. Records available: 1931-53. Jan. 10, 68.41; Mar. 16, 69.04; May 9, 75.61, nearby well being pumped.

24. 9. 6. 431. State of New Mexico. Drilled irrigation water-table well in valley fill, diameter 12 to 6 inches, depth 1,000 feet, cased to 650, perforations 300(?)-440. Highest water level 57.28 below lsd, Feb. 15, 1942; lowest 96.34 below lsd, Nov. 10, 1953. Records available: 1941-53. Jan. 8, 86.48; Mar. 13, 100.01, nearby well being pumped; May 7, 106.08, nearby well being pumped; July 22, 148.20, pumping; Nov. 10, 96.34.

24. 10. 10. 311. Jim Hurt. Drilled stock and domestic water-table well in valley fill, diameter 8 inches, depth 131 feet. Highest water level 74.82 below lsd, Oct. 23, 1928; lowest 97.24 below lsd, Nov. 10, 1953. Records available: 1927-53. Jan. 8, 95.65; Mar. 13, 95.69, pumping; May 7, 97.12, pumping; July 22, 101.94, nearby well being pumped; Sept. 15, 114.30, nearby well being pumped; Nov. 10, 97.24.

24. 10. 12. 431. Steve Hrna. Dug and drilled unused water-table well in valley fill, diameter 36 to 12 inches, reported depth 132 feet. Highest water level 77.61 below lsd, May 6-13 1940; lowest 103.89 below lsd, Sept. 13, 1953. Records available: 1939-53.

Daily highest water level from recorder graph

Day	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	93.79	92.87	92.12	92.63	93.78	95.70	100.93	101.56	103.04	102.23	98.45	97.39
2	93.76	92.84	92.09	92.70	93.82	95.93	101.00	101.59	103.34	102.16	98.39	97.36
3	93.73	92.80	92.09	92.76	93.86	96.45	101.10	101.65	103.40	102.18	98.29	97.35
4	93.69	92.77	92.08	.....	93.89	96.62	101.17	101.89	103.34	101.56	98.24	97.26
5	93.65	92.74	92.06	.....	93.93	97.32	101.25	102.04	103.42	101.18	98.16	97.21
6	93.62	92.72	92.04	.....	93.91	97.73	101.48	102.28	103.46	100.95	98.08	97.21
7	93.61	92.68	92.02	.....	93.91	97.97	101.58	102.55	103.46	100.79	98.07	97.26
8	93.59	92.64	92.00	92.98	93.93	98.07	101.71	102.64	103.54	100.57	98.00	97.28
9	93.55	92.63	91.97	93.02	93.94	98.14	101.74	102.73	103.60	100.42	97.92	97.27
10	93.52	92.62	91.95	93.04	94.00	98.26	101.86	102.71	103.62	100.25	97.85	97.10
11	93.48	92.59	91.95	93.06	94.00	98.46	101.90	102.76e	103.78	100.07	97.83	97.07
12	93.45	.....	91.94	93.11	94.01	98.66	101.89	102.81	103.87	100.00	97.79	97.05
13	93.41	92.54	91.93	93.14	94.03	98.72	101.68	102.86	103.89	100.00	97.74	97.02
14	93.44	92.52	91.93	93.17	94.05	98.74	101.80	102.98	103.74	99.95	97.73	96.98
15	93.37	92.48	91.93	93.21	94.08	98.84	101.92	103.12	103.58	99.70	97.73	96.93
16	93.34	92.47	91.93	93.21	94.16	99.03e	101.95	103.21	103.65	99.54	97.73	96.93
17	93.30	92.43	91.94	93.26	94.22	99.43	101.98	103.26	103.70	99.47	97.71	96.98
18	93.27	92.39	91.95	93.31	94.22	99.62	101.61	103.24	103.70	99.36	97.77	96.95
19	93.24	92.38	91.96	93.36	94.31	99.93	101.62	102.57	103.50	99.21	97.74	96.92
20	93.21	92.36	91.99	93.40	94.38	99.90	101.86	101.92	103.55	99.12	97.69	96.89

24.10.12.431--Continued.

Day	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
21	93.18	92.35	92.04	93.42	94.43	99.97	101.97	101.61	103.35	99.05	.....	96.85
22	93.16	92.32	92.10	93.46	94.59	100.11	102.06	101.54	103.37	98.98	.....	96.81
23	93.13	92.28	92.18	93.49	94.66	.....	102.18	101.49	103.63	98.94	.....	96.81
24	93.10	92.27	92.23	93.52	94.70	.....	102.28	101.48	103.70	98.83	.....	.....
25	93.07	92.24	92.28	93.56	94.71e	100.21	102.38	101.77	103.49	98.78	97.72	.....
26	93.04	.....	92.33	93.60	94.84	100.43	102.09	.....	103.13	98.78	97.70	.....
27	93.01	92.17	92.38	93.63	94.95	100.59	102.09	102.39	102.90	98.80	97.69	.....
28	92.98	92.13	92.43	93.65	95.14	100.35	101.61	102.39	102.79	98.68	97.64	.....
29	92.95		92.46	93.70	95.30	100.39	101.50	102.39	102.66	98.68	97.58	.....
30	92.92		92.51	93.74	95.73	100.65	101.54	102.61	102.39	98.61	97.52	.....
31	92.90		92.56		95.71		101.54	102.70		98.53		96.02

e Estimated.

24.10.22.211. E. F. Hurt. Dug and drilled irrigation water-table well in valley fill, diameter 36 inches, reported depth 206 feet. Highest water level 69.27 below lsd, May 21, 1942; lowest 87.01 below lsd, Nov. 10, 1953. Records available: 1941-53. Jan. 9, 83.37; Mar. 13, 82.91; May 7, 86.47; July 22, 113.21, pumping; Sept. 15, 116.40, pumping; Nov. 10, 87.01.

24.11.8.110. S. C. Phillips. Drilled stock water-table well in valley fill, diameter 5 inches, depth 160 feet. Highest water level 146.68 below lsd, Oct. 31, 1939; lowest 150.31 below lsd, Jan. 19, 1953. Records available: 1939-53. Aug. 9, 1952, 149.85, pumping; Jan. 19, 1953, 150.31; Mar. 19, 150.50, pumping; May 15, 151.82, pumping; July 30, 150.10; Sept. 15, 152.40, pumping; Nov. 10, 150.04.

24.11.12.111. C. L. Taylor. Drilled irrigation water-table well in valley fill, diameter 16 inches, reported depth 200 feet. Land-surface datum is 4,418 feet above msl. Highest water level 101.55 below lsd, Jan. 11, 1951; lowest 117.48 below lsd, Nov. 10, 1953. Records available: 1951-53. Jan. 7, 108.73; Mar. 13, 107.99; May 7, 115.50, pumped recently; July 15, 129.65, pumping; Sept. 15, 127.91, pumping; Nov. 10, 117.48.

24.11.12.324. Lee Palayo. Drilled irrigation water-table well in valley fill, diameter 16 inches, depth 200 feet. Land-surface datum is 4,408 feet above msl. Highest water level 98.53 below lsd, Jan. 11, 1951; lowest 116.60 below lsd, Nov. 10, 1953. Records available: 1951-53. Jan. 8, 106.44; Mar. 13, 105.38; May 7, 115.91; July 15, 132.44, pumping; Sept. 15, 147.39, pumping; Nov. 10, 116.60.

24.11.13.311. Phillips. Drilled irrigation water-table well in valley fill, diameter 16 inches, depth 250 feet, cased to 250. Highest water level 95.48 below lsd, Jan. 23, 1952; lowest 107.90 below lsd, Nov. 10, 1953. Records available: 1952-53. Jan. 27, 99.90; Mar. 13, 99.49; May 7, 135.78, pumping; July 15, 137.10, pumping; Sept. 15, 139.42, pumping; Nov. 10, 107.90.

24.11.14.122. Charles Waldrop. Drilled irrigation water-table well in valley fill, diameter 12 inches, reported depth 210 feet. Land-surface datum is 4,405 feet above msl. Highest water level 107.66 below lsd, Jan. 23, 1952; lowest 127.24 below lsd, Sept. 15, 1953. Records available: 1951-53. Jan. 27, 112.17; Mar. 13, 111.75; May 7, 117.05, pumped recently; July 15, 148.67, pumping; Sept. 15, 127.24; Nov. 10, 121.43.

24.11.24.311. Madrid. Drilled irrigation water-table well in valley fill, diameter 16 inches, reported depth 200 feet. Highest water level 87.71 below lsd, Jan. 23, 1952; lowest 96.69 below lsd, Nov. 10, 1953. Records available: 1951-53. Jan. 8, 90.80; Mar. 13, 90.57; May 7, 94.43; July 15, 105.71, pumping; Sept. 15, 112.73, pumping; Nov. 10, 96.69.

25.6.2.111. C. W. Johnson, Jr. Drilled irrigation artesian well in valley fill, diameter 16 inches, depth 235 feet, cased to 235, perforations 180-235. Highest water level 0.45 below lsd, Mar. 14, 1953; lowest 36.86 below lsd, Nov. 12, 1953. Records available: 1952-53. Jan. 13, 1.29; Mar. 14, 0.45; May 8, 51.49, pumped recently, nearby well being pumped; July 18, 73.81, nearby well being pumped; Sept. 16, 59.83, nearby well being pumped; Nov. 12, 36.86.

25.6.3.111. E. C. Ross. Drilled irrigation artesian well in valley fill, diameter 16 inches, depth 232 feet. Highest water level 2.95 below lsd, Mar. 14, 1953; lowest 53.24 below lsd, July 18, 1953. Records available: 1952-53. Jan. 13, 4.05; Mar. 14, 2.95; July 18, 53.24; Sept. 16, 47.29; Nov. 12, 25.66.

25.6.4.111. W. O. Douglas. Drilled irrigation water-table well in valley fill, diameter 18 inches, depth 231 feet, cased to 230, perforations 100-225. Highest water level 68.22 below lsd, Mar. 14, 1953; lowest 77.16 below lsd, Sept. 16, 1953. Records available: 1952-53. Jan. 13, 68.64; Mar. 14, 68.22; May 8, 72.17; July 18, 76.98; Sept. 16, 77.16; Nov. 12, 74.40.

25. 6. 5. 111. Claud McDonald. Drilled irrigation water-table well in valley fill, diameter 18 inches, depth 231 feet, cased to 231, perforations 100-225. Highest water level 66. 6 below lsd, Mar. 19, 1952; lowest 84. 70 below lsd, Aug. 9, 1952. Records available: 1952-53. Jan. 13, 70. 63; Mar. 14, 69. 93; May 8, 129. 84, pumping; July 17, 128. 03, pumping; Sept. 16, 129. 53, pumping; Nov. 12, 81. 59.

25. 6. 7. 211. H. C. Telles. Drilled irrigation water-table well in valley fill, diameter 16 inches, depth 230 feet. Highest water level 65. 34 below lsd, Mar. 14, 1953; lowest 73. 40 below lsd, July 20, 1953. Records available: 1953. Jan. 30, 66. 13; Mar. 14, 65. 34; July 20, 73. 40; Sept. 16, 132. 57, pumping; Nov. 12, 71. 46.

25. 6. 8. 111. Franklin. Drilled unused water-table well in valley fill, diameter 16 inches, reported depth 340 feet. Highest water level 64. 08 below lsd, May 9, 1951; lowest 79. 74 below lsd, July 17, 1953. Records available: 1950-53. Jan. 13, 65. 10; Mar. 24, 65. 86; May 11, 70. 89; July 17, 79. 74; Sept. 16, 73. 25; Nov. 12, 70. 36.

25. 6. 16. 111. L. C. Williams. Drilled irrigation water-table well in valley fill, diameter 16 inches, depth 230 feet, perforations 134-230. Highest water level 63. 03 below lsd, Jan. 13, 1953; lowest 73. 77 below lsd, May 11, 1953. Records available: 1953. Jan. 13, 63. 03; Mar. 14, 75. 82, pumped recently; May 11, 73. 77; July 20, 67. 48; Sept. 16, 65. 71; Nov. 12, 63. 39.

25. 6. 17. 111. Von Glahn Farming Co. Drilled irrigation water-table well in valley fill, diameter 16 inches, depth 230 feet, perforations 134-230. Highest water level 64. 66 below lsd, Mar. 14, 1953; lowest 68. 81 below lsd, Nov. 12, 1953. Records available: 1953. Jan. 13, 64. 67; Mar. 14, 66. 66; July 17, 92. 66, pumping; Sept. 16, 90. 45, pumped recently; Nov. 12, 68. 81.

25. 6. 20. 111. Von Glahn Farming Co. Drilled unused irrigation water-table well in valley fill, diameter 16 inches, depth 234 feet, perforations 114-230. Highest water level 68. 80 below lsd, Mar. 14, 1953; lowest 86. 77 below lsd, July 17, 1953. Records available: 1953. Mar. 14, 68. 80; May 11, 77. 20; July 17, 86. 77; Sept. 16, 86. 38; Nov. 12, 81. 09.

25. 7. 1. 122. Claude Mizer. Drilled irrigation water-table well in valley fill, diameter 16 inches, depth 230 feet, perforations 130-230. Highest water level 69. 99 below lsd, Jan. 14, 1953; lowest 75. 80 below lsd, Nov. 12, 1953. Records available: 1953. Jan. 14, 69. 99; May 11, 76. 23, nearby well being pumped; July 16, 119. 45, pumping; Nov. 12, 75. 80.

25. 8. 19. 331. Tom Crawford. Drilled stock water-table well in valley fill, diameter 8 inches, depth 88 feet. Highest water level 59. 01 below lsd, Jan. 12, 1942; lowest 77. 67 below lsd, Sept. 18, 1953. Records available: 1942-43, 1945-53. Jan. 10, 73. 39; Mar. 16, 73. 13; May 9, 74. 66; July 21, 77. 13; Sept. 18, 77. 67; Nov. 13, 78. 35, pumping.

25. 9. 11. 111. R. J. Bishop. Dug and drilled irrigation water-table well in valley fill, diameter 4 feet, depth 220 feet. Highest water level 59. 69 below lsd, Mar. 17, 1939; lowest 91. 28 below lsd, Nov. 13, 1953. Records available: 1939-53. Jan. 10, 86. 44; Mar. 16, 85. 60, pumped recently; May 9, 88. 59, pumped recently; Sept. 18, 95. 14, pumped recently; Nov. 13, 91. 28.

25. 9. 28. 121. Leonard Zumwalt. Dug and drilled irrigation water-table well in valley fill, diameter 42 to 22 inches, depth 101 feet. Highest water level 65. 82 below lsd, Mar. 13, 1942; lowest 96. 06 below lsd, Nov. 13, 1953. Records available: 1941-53. Jan. 12, 88. 48; May 9, 107. 94, pumped recently; July 21, 109. 04, pumping; Sept. 18, 98. 89, pumping; Nov. 13, 96. 06.

26. 9. 11. 211. State of New Mexico. Dug and drilled unused water-table well in valley fill, diameter 12 inches, depth 80 feet. Highest water level 36. 92 below lsd, Apr. 15, 1939; lowest 47. 94 below lsd, Nov. 13, 1953. Records available: 1939-53. Jan. 12, 46. 75; Mar. 16, 46. 87; May 9, 47. 08; July 21, 47. 35; Sept. 18, 47. 60; Nov. 13, 47. 94.

27. 8. 5. 320. Inman. Dug stock water-table well in valley fill, diameter 40 inches, reported depth 60 feet. Highest water level 25. 61 below lsd, Mar. 13, 1951; lowest 28. 55 below lsd, Mar. 26, 1952. Records available: 1951-53. Jan. 26, 26. 52, pumping; Mar. 16, 25. 98; May 9, 27. 18, pumping; July 21, 27. 24, pumping; Sept. 18, 28. 86, pumping; Nov. 13, 27. 83, pumping.

27. 8. 15. 131. Hilario Lopez. Drilled irrigation water-table well in valley fill, diameter 12 inches, depth 510 feet, cased to 430, perforations 280-430. Highest water level 32. 86 below lsd, Nov. 7, 1952; lowest 40. 68 below lsd, Sept. 18, 1953. Records available: 1952-53. Jan. 26, 32. 98; May 9, 35. 65; July 21, 34. 57; Sept. 18, 40. 68; Nov. 13, 35. 49.

27.8.35.120. Mrs. M. M. Gibson. Drilled irrigation water-table well in valley fill, diameter 12 to 8 inches, depth 550 feet, cased to 550, perforations 155-550. Highest water level 20.84 below lsd, Mar. 16, 1953; lowest 37.28 below lsd, Sept. 18, 1953. Records available: 1952-53. Jan. 26, 21.10; Mar. 16, 20.84; July 21, 32.94; Sept. 18, 37.28; Nov. 13, 33.70.

27.9.12.111. Waterloo School. Drilled unused water-table well in valley fill, diameter 6 inches, depth 32 feet. Highest water level 26.95 below lsd, Mar. 22, 1945; lowest 30.59 below lsd, Sept. 8, 1952. Records available: 1944-53. May 9, 29.45; July 21, 30.04.

28.7.28.124. Leon Telles. Drilled irrigation artesian well in valley fill, diameter 14 to 10 inches, depth 723 feet, cased to 723, perforations 95-100, 420-530, 537-723. Highest water level 10.92 below lsd, July 24, 1952; lowest 53.92 below lsd, Nov. 14, 1953. Records available: 1952-53. Jan. 26, 12.12; Mar. 18, 13.65; July 21, 156.33, pumping; Sept. 18, 197.66, pumping; Nov. 14, 53.92.

28.8.36.111. M. R. Hemley. Drilled irrigation artesian well in valley fill, diameter 16 inches, depth 270 feet, cased to 250, gravel packed and casing perforated. Highest water level 22.61 below lsd, Jan. 26, 1953; lowest 35.37 below lsd, July 21, 1953. Records available: 1952-53. Jan. 26, 22.61; May 15, 32.68; July 21, 35.37; Nov. 14, 31.71.

29.7.4.111. Frances S. Counett. Drilled unused water-table well in valley fill, diameter 8 inches, depth 185 feet. Highest water level 0.65 below lsd, July 21, 1953; lowest 3.56 below lsd, May 15, 1952. Records available: 1940-53.

Date	Water level	Date	Water level	Date	Water level	Date	Water level
Jan. 6, 1952	2.34	Sept. 8, 1952	1.15	Mar. 18, 1953	2.89	Sept. 18, 1953	0.88
May 15	3.56	Nov. 7	2.03	May 15	3.20	Nov. 14	1.37
July 24	1.06	Jan. 18, 1953	2.50	July 21	.65		

29.8.12.244. A. G. Anderson. Drilled unused water-table well in valley fill, diameter 12 inches, depth 180 feet. Highest water level 7.07 below lsd, Mar. 17, 1940; lowest 12.78 below lsd, Sept. 18, 1953. Records available: 1940-53. Jan. 16, 8.28; Mar. 18, 8.36; July 21, 11.88; Sept. 18, 12.78; Nov. 14, 10.87.

Quay County

House area.--The House area is on the High Plains in southwestern Quay County, about 40 miles south of Tucumcari. Irrigation in the area is by water pumped from wells in the Ogallala formation. The program of measuring water levels in observation wells, which began in 1941, was continued in 1953. Water levels were measured in 58 wells in January and in about 24 wells at bimonthly intervals during the year. Recording gages were maintained on 2 wells, one about half a mile north of House and the other about 2½ miles north of House. Only the water-level measurements made on wells at bimonthly intervals are reported herein, but all measurements made annually were used in the preparation of figure 59 illustrating the net annual changes in ground-water storage in the House area.

Most of the recharge to the ground-water body in the House area is from local precipitation and drainage into the valley. Precipitation in the House area was about 60 to 70 percent of normal in 1953. The precipitation amounted to 10.09 inches at House, 4.48 inches below normal, and 8.65 inches at Hassell, 6.09 inches below normal. About 70 percent of the precipitation occurred during the growing season, April through September.

About 3,240 acres were irrigated in 1953 according to a survey made during the year. This was about 790 acres less than reported for 1952. Even though there was more precipitation and less irrigated acreage in 1953 than in 1952 it is estimated that more ground water was pumped for irrigation because of an increase in crops such as alfalfa which require more water. It is estimated about 5,670 acre-feet of water was pumped for irrigation in 1953 as compared with 5,300 acre-feet in 1952.

The year-to-year net declines in water levels continued as a result of deficient precipitation and continued pumping of ground water. As a result of the deficient precipitation and increased pumpage in 1953, the net declines in water level were generally greater than 1952. Figure 59 shows the areal changes in water levels from January 1953 to January 1954. In this period the ground-water levels declined more than 1 foot under about 11 square miles, more than 2 feet under about 4 square miles, and more than 3 feet under about 1 square mile. Comparable areas of like decline in 1952 occurred under about 7 square miles, 2 square miles, and no square miles, respectively. The largest net declines in 1953, in excess of 3 feet, occurred under an area centered about 3.5 miles north of House, in the area where pumping was greatest. As a result of the declines, water levels reached record-low levels in most of the observation wells. By the end of the year water levels in the most heavily pumped area, about 3 miles north of House, were about 18 feet lower than April 1941 when records began and about 23 feet lower than in 1943 when the highest levels generally were recorded.

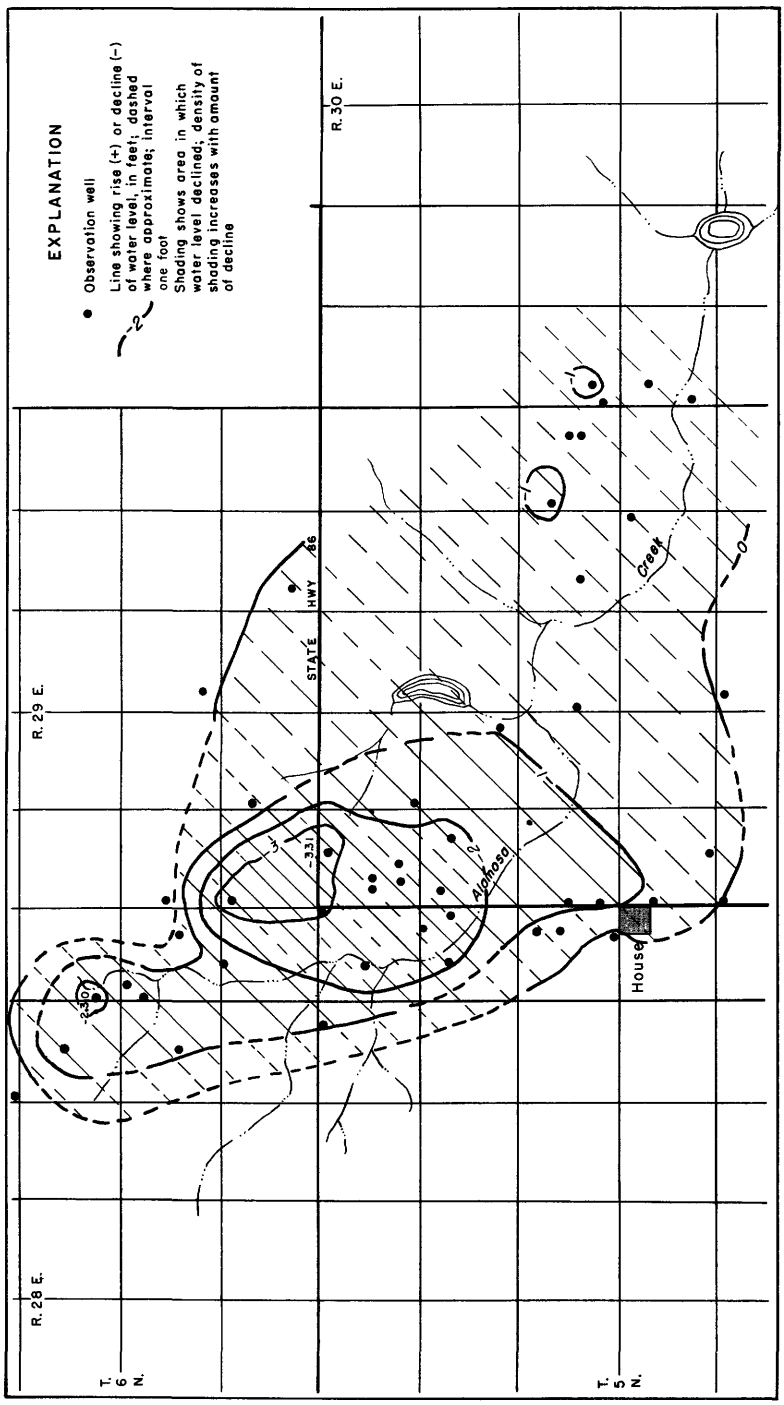


Figure 59.--Change in ground-water level from January 1953 to January 1954 in House area, Quay County, N. Mex.

House Area

5.28.1.221. D. C. Wyatt. Drilled irrigation water-table well in Ogallala formation, diameter 16 inches, depth 133 feet, cased to 134. Highest water level 46.63 below lsd, Mar. 29, 1946; lowest 54.41 below lsd, May 30, 1953. Records available: 1946-53. Jan. 21, 51.30; Mar. 28, 51.20; May 30, 54.41; July 30, 52.83; Sept. 26, 53.55; Nov. 20, 53.44.

5.29.5.342. William Martin. Drilled unused water-table well in Ogallala formation, depth 80 feet. Land-surface datum is 4,656 feet above msl. Highest water level 30.15 below lsd, Feb. 2, 1943; lowest 51.34 below lsd, Oct. 15, 19-20, 1953. Records available: 1941-53.

Daily highest water level from recorder graph

Day	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	.....	47.40	47.06	46.77	47.48	48.48	48.88	49.43	.....	51.10	51.26	50.84
2	47.77	47.38	47.04	46.77	47.53	48.51	48.90	49.45	.....	51.13	51.25	50.81
3	47.75	47.38	47.04	46.76	e47.56	48.53	48.94	49.46	.....	51.15	51.24	50.81
4	47.74	47.37	47.03	46.73	47.59	48.55	48.96	49.49	.....	51.19	51.24	50.79
5	47.72	47.35	47.02	46.72	47.62	48.56	48.97	49.51	.....	51.20	51.21	50.78
6	47.71	47.33	47.02	46.72	46.64	48.58	49.02	49.53	50.37	51.22	51.21	50.77
7	47.69	47.32	47.00	46.73	47.66	48.58	49.04	49.55	.....	51.25	51.21	.....
8	47.69	47.30	46.99	46.73	47.70	48.58	49.06	49.58	.....	51.27	51.18	.....
9	47.68	47.30	46.98	46.74	47.72	48.57	49.10	49.59	.....	51.28	51.17	.....
10	47.67	47.28	46.97	46.72	47.77	48.59	49.12	49.62	.....	51.30	51.15	.....
11	47.65	47.27	46.96	46.73	47.80	48.59	49.13	49.64	.....	51.31	51.15	.....
12	47.64	47.26	46.94	46.74	47.84	48.57	49.16	49.67	.....	51.32	51.13	.....
13	47.62	47.24	46.93	46.75	47.87	48.57	49.18	49.68	50.57	51.33	51.13	50.68
14	47.61	47.23	46.93	46.76	47.90	48.55	49.19	49.71	.....	51.33	51.11	50.66
15	.....	47.22	46.91	46.80	47.91	48.55	49.21	49.72	.....	51.34	51.08	50.65
16	47.59	47.22	46.90	46.84	47.94	48.54	49.23	49.76	.....	.....	51.07	50.63
17	47.58	47.20	46.89	46.87	47.97	48.57	49.24	49.81	.....	.....	51.06	50.62
18	47.56	47.19	46.89	46.97	48.00	48.59	49.25	49.83	.....	.....	51.03	50.60
19	47.55	47.18	46.88	47.00	48.03	48.61	49.26	49.87	.....	51.34	51.02	50.58
20	47.54	.....	46.87	47.04	48.04	48.64	49.24	49.87	50.81	51.34	51.00	50.57
21	47.52	.....	46.86	47.08	48.08	48.65	49.27	49.93	.....	51.33	50.99	50.56
22	47.51	.....	46.86	47.13	48.10	48.67	49.27	49.96	.....	51.33	50.96	50.55
23	47.50	.....	46.86	47.17	48.13	48.69	49.28	50.00	.....	51.31	50.95	50.52
24	47.50	.....	46.85	47.21	48.17	48.71	49.29	50.02	.....	51.32	50.94	50.51
25	47.48	.....	46.84	47.28	48.21	48.74	49.30	50.03	h50.96	51.32	50.92	50.49
26	47.47	.....	46.83	47.32	48.25	48.76	49.30	50.06	50.96	51.32	50.92	50.49
27	47.46	.....	46.82	47.34	48.29	48.79	49.33	50.08	51.00	.....	50.89	50.49
28	47.44	.....	46.80	47.36	48.30	48.80	49.34	50.10	51.02	.....	50.88	50.48
29	47.43		46.79	47.38	48.36	48.83	49.36	.....	51.05	.....	50.87	50.47
30	47.42		46.78	47.44	48.40	48.85	49.38	50.17	51.07	.....	50.86	50.46
31	47.41		46.78		48.44		49.41	.....		.....		50.45

e Estimated.
h Tape measurement.

5.29.6.222. L. L. Poe. Drilled irrigation water-table well in Ogallala formation, diameter 16 inches, depth 125 feet. Highest water level 51.51 below lsd, Mar. 28, 1946; lowest 76.73 below lsd, Sept. 26, 1953. Records available: 1945-53. Jan. 21, 67.88; Mar. 28, 66.88; May 30, 71.95; Sept. 26, 76.73; Nov. 20, 72.47.

5.29.7.141. D. L. Birch. Drilled unused water-table well in Ogallala formation. Highest water level 28.95 below lsd, Sept. 22, 1942; lowest 44.16 below lsd, Nov. 20, 1953. Records available: 1942-53. Jan. 21, 41.52; Mar. 28, 41.68; May 30, 42.38; July 30, 42.93; Sept. 26, 43.77; Nov. 20, 44.16.

5.29.8.232. G. W. Turner. Drilled irrigation water-table well in Ogallala formation, diameter 16 inches, depth 139 feet, cased to 98. Highest water level 34.19 below lsd, Feb. 2, Mar. 25, 1943; lowest 51.62 below lsd, Sept. 25, 1953. Records available: 1941-53. Jan. 20, 47.36; Mar. 28, 46.95; May 30, 49.96; July 30, 51.31; Sept. 25, 51.62; Nov. 20, 50.35.

5.29.9.400. W. Y. Head. Drilled stock water-table well in Ogallala formation, diameter 6 inches. Highest water level 21.33 below lsd, Jan. 21, 1942; lowest 27.53 below lsd, Oct. 1, 1948. Records available: 1941-53. Jan. 21, 36.30, pumping; Mar. 28, 50.05, pumping; May 30, 26.60; July 30, 45.70, pumping; Sept. 25, 27.30; Nov. 20, 26.60.

5.29.13.131. J. C. Barron. Drilled irrigation water-table well in Ogallala formation. Highest water level 56.74 below lsd, Mar. 28, 1946; lowest 69.62 below lsd, Mar. 28, 1953. Records available: 1946-53. Jan. 20, 58.84; Mar. 28, 69.62; May 29, 65.88; July 29, 62.28; Sept. 25, 64.27; Nov. 19, 61.90.

5.29.15.311b. R. A. Tullis. Drilled unused water-table well in Ogallala formation, diameter 20 inches, reported depth 90 feet. Highest water level 17.52 below lsd, Sept. 23, 1942; lowest 22.53 below lsd, Nov. 19, 1953. Records available: 1942-53. Jan. 20, 22.31; Mar. 28, 22.31; May 29, 22.37; July 29, 22.44; Sept. 25, 22.49; Nov. 19, 22.53.

5.29.17.133. W. W. Kuykendall. Drilled unused water-table well in Ogallala formation, diameter 12 inches, depth 57 feet. Land-surface datum is 4,748 feet above msl. Highest water level 29.82 below lsd, Jan. 21, 1942; lowest 46.92 below lsd, Nov. 7-13, 1953. Records available: 1941-53.

Daily highest water level from recorder graph

Day	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	45.43	45.15	44.90	44.74	44.97	45.60	46.00	46.26	.....	46.81	46.90	46.80
2	45.42	45.14	44.90	44.74	44.98	45.62	46.01	46.27	.....	46.82	46.91	46.78
3	45.41	45.14	44.89	44.74	45.00	45.63	46.02	46.28	.....	46.82	46.91	46.78
4	45.41	45.13	44.88	44.74	45.02	45.65	46.02	46.29	.....	46.83	46.91	46.76
5	45.41	45.13	44.88	44.75	45.04	45.67	46.03	46.30	.....	.....	46.91	46.76
6	45.40	45.12	44.87	44.75	45.05	45.69	46.02	46.31	.....	.....	46.91	46.75
7	45.39	45.11	44.86	44.75	45.06	45.70	46.03	46.32	.....	.....	46.92	46.74
8	45.39	45.09	44.86	44.76	45.09	45.73	46.03	46.32	.....	.....	46.92	46.74
9	45.36	45.09	44.85	44.77	45.11	45.74	46.04	46.33	.....	.....	46.92	46.73
10	45.36	45.09	44.84	44.78	45.13	45.75	46.05	46.34	.....	.....	46.92	46.72
11	45.35	45.07	44.83	44.78	45.15	45.76	46.06	46.35	.....	.....	46.92	46.72
12	45.35	45.07	44.82	44.79	45.17	45.77	46.08	46.35	.....	.....	46.92	46.73
13	45.35	45.05	44.81	44.79	45.20	45.78	46.08	46.36	.....	.....	46.92	46.72
14	45.34	45.05	44.81	44.79	45.22	45.79	46.09	46.37	.....	.....	46.91	46.72
15	45.32	45.02	44.80	44.80	45.24	45.82	46.10	46.39	.....	46.84	46.91	46.72
16	45.30	45.01	44.80	44.80	45.26	45.83	46.11	46.39	.....	46.84	46.91	46.70
17	45.30	45.01	44.79	44.80	45.28	45.85	46.12	46.40	.....	46.84	46.91	46.69
18	45.30	45.00	44.79	44.82	45.31	45.86	46.13	46.41	.....	46.84	46.91	46.69
19	45.30	44.99	44.79	44.82	45.33	45.87	46.14	46.42	.....	46.84	46.90	46.68
20	45.27	44.99	44.78	44.84	45.35	45.88	46.16	46.43	46.73	46.84	46.88	46.66
21	45.26	44.98	44.78	44.84	45.38	45.69	46.18	46.44	46.74	46.85	46.87	46.66
22	45.25	44.96	44.78	44.84	45.40	45.90	46.19	46.45	46.75	46.85	46.86	46.65
23	45.24	44.95	44.79	44.85	45.42	45.91	46.20	46.46	46.75	46.86	46.86	46.64
24	45.24	44.94	44.78	44.86	45.44	45.92	46.21	46.50	46.75	46.87	46.85	46.64
25	45.22	44.93	44.78	44.87	45.46	45.93	46.22	46.51	46.77	46.88	46.84	46.63
26	45.21	44.93	44.77	44.89	45.48	45.95	46.23	46.52	46.77	46.88	46.84	46.63
27	45.19	44.92	44.77	44.90	45.50	45.95	46.23	46.53	46.78	46.89	46.83	46.58
28	45.19	44.91	44.76	44.92	45.53	45.96	46.24	46.54	46.79	46.89	46.83	46.57
29	45.17		44.75	44.93	45.56	45.98	46.25	46.55	46.80	46.89	46.82	46.57
30	45.16		44.75	44.95	45.56	45.99	46.25	46.56	46.80	46.89	46.82	46.56
31	45.16		44.74		45.58		46.26	.....		46.90		46.55

5.29.18.434. A. O. Norris. Drilled irrigation water-table well in Ogallala formation, diameter 16 inches, depth 87 feet, cased to 87. Highest water level 49.82 below lsd, Mar. 28, 1946; lowest 66.16 below lsd, Sept. 25, 1952. Records available: 1946-53. Jan. 20, 62.09; Mar. 28, 60.97; May 29, 63.42; July 29, 65.69; Sept. 26, 71.28, pumping; Nov. 20, 64.15.

5.29.23.222a. E. C. Harris. Drilled irrigation water-table well in Ogallala formation, diameter 16 inches. Highest water level 30.00 below lsd, Mar. 30, 1950; lowest 31.55 below lsd, May 28, 1951. Records available: 1949-53. Jan. 20, 31.07; Mar. 28, 31.10; May 29, 31.14; July 29, 31.22; Sept. 25, 31.18; Nov. 19, 31.07.

5.29.27.112. E. D. Gallehon. Drilled unused water-table well in Ogallala formation, diameter 16 inches, depth 152 feet, cased to 152. Highest water level 70.50 below lsd, May 28, 1951; lowest 72.14 below lsd, May 30, 1948. Records available: 1947-53. Jan. 20, 70.70; Mar. 28, 70.59; May 29, 70.62; July 29, 70.67; Sept. 25, 70.68; Nov. 19, 70.69.

5.29.29.111. C. A. Morrow. Drilled irrigation water-table well in Ogallala formation, diameter 16 inches, reported depth 91 feet. Highest water level 65.91 below lsd, Feb. 2, 1943; lowest 72.72 below lsd, Sept. 18, 1947. Records available: 1941-53. Jan. 20, 69.60; Mar. 28, 69.42; May 29, 69.36; July 29, 69.46; Sept. 25, 69.46; Nov. 19, 69.60.

5.30.18.331. W. C. Lee. Formerly Jerry Thompson. Drilled irrigation water-table well in Ogallala formation, diameter 16 inches, depth 75 feet, cased to 60. Highest water level 34.76 below lsd, Mar. 28, 1946; lowest 49.70 below lsd, July 30, 1952. Records available: 1944-53. Jan. 20, 40.37; Mar. 28, 52.13, pumping; May 29, 45.87; July 29, 49.22; Sept. 25, 46.99; Nov. 19, 42.92.

5.30.20.333a. J. C. Barron. Drilled stock water-table well in Ogallala formation, diameter 6 inches. Records available: 1953. July 29, 26.34, pumped recently; Sept. 25, 26.11; Nov. 25, 27.20, pumping.

5.30.31.442. R. V. Brownd. Drilled irrigation water-table well in Ogallala formation, diameter 16 inches, depth 129 feet, cased to 129. Highest water level 98.79 below lsd, Jan. 9, 1951; lowest 100.12 below lsd, Oct. 1, 1948, Mar. 30, 1950. Records available: 1943-53. Jan. 20, 98.98; Mar. 28, 98.82; May 29, 105.62, pumping; July 29, 99.23; Sept. 25, 99.45; Nov. 19, 98.99.

6.28.1.232. C. M. Brown. Drilled stock and domestic water-table well in Ogallala formation, reported depth 98 feet. Highest water level 66.00 below lsd, Nov. 20, 1953; lowest 72.93 below lsd, Apr. 1, 1948. Records available: 1947-53. Jan. 26, 66.34; Mar. 28, 66.57, nearby well being pumped; May 30, 66.45; July 30, 66.57; Sept. 26, 66.30; Nov. 20, 66.00.

6.28.24.233. Byers Irwin. Drilled irrigation water-table well in Ogallala formation, diameter 16 inches, reported depth 131 feet, cased 79-131. Highest water level 77.97 below lsd, Mar. 27, 1944; lowest 91.75 below lsd, Sept. 26, 1953. Records available: 1944-53. Jan. 26, 83.99; Mar. 28, 99.67, pumping; May 30, 89.73; July 30, 90.71; Sept. 26, 91.75; Nov. 20, 87.27.

6.28.25.411. R. A. Davenport. Drilled irrigation water-table well in Ogallala formation, diameter 16 inches, depth 116 feet, cased to 116, perforations 76-116. Highest water level 51.87 below lsd, Mar. 27, 1944; lowest 61.06 below lsd, May 30, 1953. Records available: 1943-53. Jan. 26, 55.76; Mar. 28, 55.71; May 30, 61.06; Sept. 26, 59.23; Nov. 20, 57.31.

6.29.27.332. J. D. Green. Drilled unused water-table well in Ogallala formation, diameter 16 inches, depth 181 feet, cased to 100. Highest water level 43.43 below lsd, Nov. 30, 1950, Mar. 28, 1952; lowest 44.33 below lsd, Mar. 29, 1944. Records available: 1944-53. Jan. 21, 43.76; Mar. 28, 43.54; May 30, 43.68; July 30, 43.70; Sept. 26, 43.75; Nov. 20, 43.72.

6.29.30.112. L. M. McDaniels. Drilled unused water-table well in Ogallala formation, Highest water level 47.98 below lsd, Nov. 20, 1942; lowest 56.15 below lsd, July 30, 1953. Records available: 1941-53. Jan. 26, 52.66; Mar. 28, 52.91; May 30, 53.70; July 30, 56.15; Sept. 26, 55.07; Nov. 20, 54.47.

6.29.30.412. R. W. Dean. Drilled irrigation water-table well in Ogallala formation, diameter 18 inches, depth 122 feet, cased to 122. Highest water level 73.63 below lsd, Apr. 1, 1947; lowest 79.47 below lsd, May 28, 1951. Records available: 1946-53. Jan. 21, 79.02; Mar. 28, 78.91; May 30. 79.04; July 30, 79.12; Sept. 26, 79.25; Nov. 20, 79.36.

6.29.33.131. Frank Morrow. Drilled irrigation water-table well in Ogallala formation, diameter 20 inches, depth 139 feet, cased to 139. Highest water level 54.18 below lsd, Apr. 8, 1945; lowest 65.96 below lsd, May 30, 1953. Records available: 1942-53. Jan. 21, 60.07; Mar. 28, 59.70; May 30, 65.96; July 30, 63.61; Sept. 26, 61.84; Nov. 20, 61.06.

6.29.35.314. T. W. Coleman. Formerly P. R. Gates. Drilled irrigation water-table well in Ogallala formation, diameter 14 inches, depth 76 feet, cased 28-76. Highest water level 38.24 below lsd, Apr. 1, 1947; lowest 47.20 below lsd, July 30, 1948. Records available: 1945-53. Jan. 21, 39.75; Mar. 28, 39.38; May 30, 42.85; July 30, 51.18, pumping; Sept. 26, 43.07; Nov. 20, 40.47.

Roosevelt County

Portales Valley.--Portales Valley, in northern Roosevelt County, is a broad depression in the High Plains, and extends east-southeast from the western edge of the High Plains through Portales to the Texas State line. The Portales Ground-Water Basin was declared by order of the State Engineer on May 1, 1950. The declared basin covers an area of about 228 square miles which includes most of the Portales Valley. Water levels have been measured since 1931 in the area to determine the effects of pumping and precipitation upon the ground-water storage. Water levels were measured in 183 wells in January 1953 and in about 39 of these at bimonthly intervals during the year. Recording gages were maintained on 4 wells, one about 7 miles northwest of Portales, one about a mile northeast of Portales, one about a mile south of Portales, and one about 11 miles southeast of Portales. The January measurements, all of which are not reported herein, were used in preparing figure 60 which shows the change in water levels in 1953.

Fluctuations of water levels result partly from variation in the amount of recharge to the ground-water body by precipitation, but in areas of heavy pumping such as the area about Portales, fluctuations are large and are the result mainly of withdrawals of ground water by pumping for irrigation. The amount of ground water that must be pumped for irrigation of crops depends in part upon the amount and distribution of precipitation.

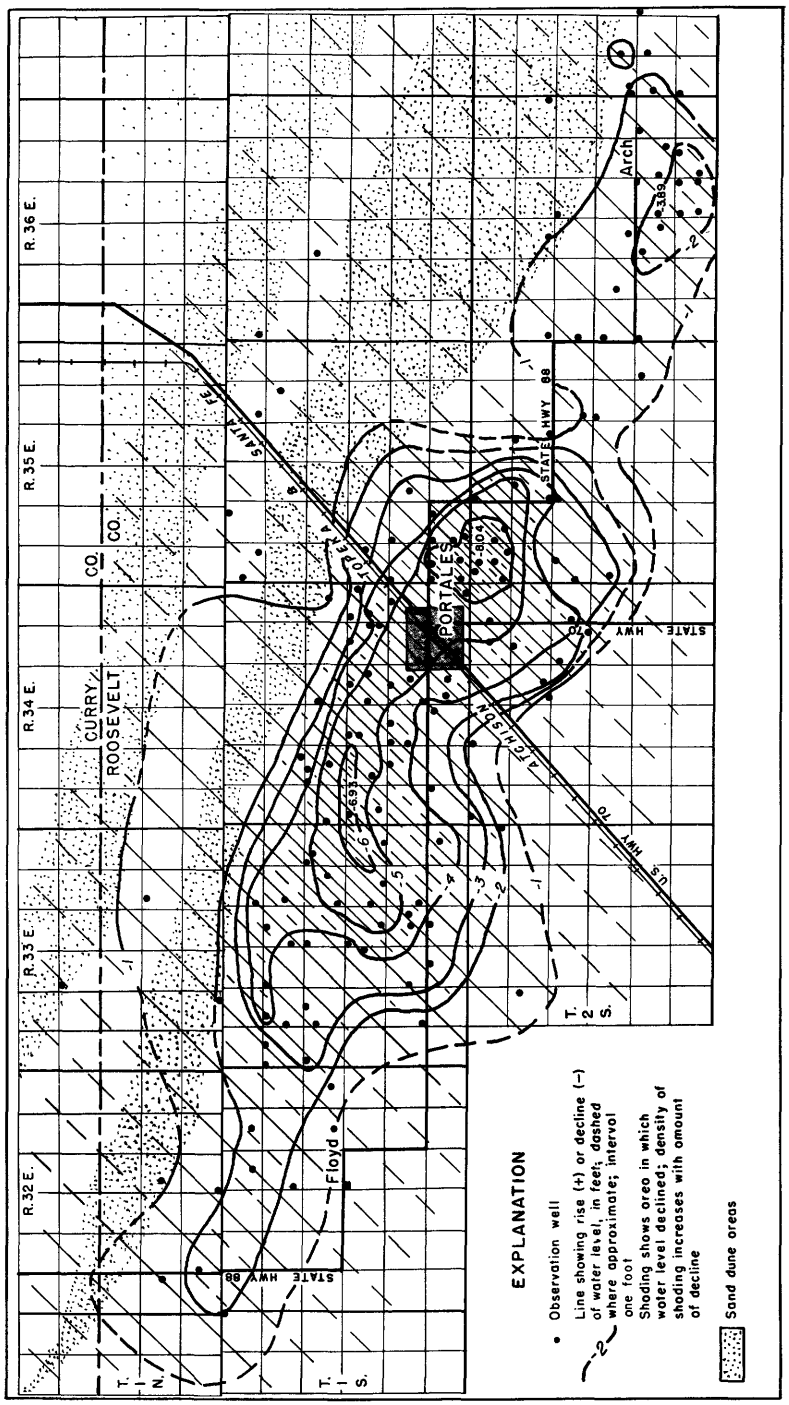


Figure 60.--Change in ground-water level from January 1953 to January 1954 in Portales Valley, Roosevelt County, N. Mex.

Precipitation in Portales Valley in 1953 was below normal at all stations, ranging from about 55 percent of normal at Floyd in the northwest part of the valley to about 70 percent of normal at Arch in the southeast part of the valley. Precipitation at Floyd was estimated at about 8.9 inches, 6.6 inches below normal; at a station 7 miles northwest of Portales 10.76 inches, 7.25 inches below normal; at Portales 10.82 inches, 7.25 inches below normal; and at Arch 10.73 inches, 4.81 inches below normal. These figures are as reported by the U. S. Weather Bureau except for Floyd for which the missing July record was estimated. Precipitation during the growing season, April through September, was about 55 to 60 percent of normal and about 65 to 75 percent of the total precipitation for the year.

The amount of ground water required for the irrigation of crops was about 20 percent greater in 1953 than in 1952 as indicated by electric power records for 508 irrigation pumps for which records are available for both 1952 and 1953. Reliable data on irrigated acreage are not available but it is estimated that about 42,000 acres was irrigated in 1953. In 1952 it was estimated that about 35,000 acres was irrigated. However, on the basis of the estimate for 1953 there was probably about 39,000 acres irrigated in 1952. It is estimated that about 90,000 acre-feet of water was pumped for irrigation in 1953 as compared with about 70,000 acre-feet in 1952. Pumpage for municipal use at Portales reportedly increased from about 1,190 acre-feet in 1952 to about 1,280 acre-feet in 1953. As a result of the deficient precipitation and record high pumpage of ground water in 1953 the net declines in water levels were, in general, larger than for any previous year. Figure 60 shows the areal changes in water levels from January 1953 to January 1954. In this period the water levels declined more than 1 foot under about 200 square miles, more than 2 feet under about 103 square miles, more than 3 feet under about 74 square miles, more than 4 feet under about 43 square miles, more than 5 feet under about 20 square miles, and more than 6 feet under about 4 square miles. In comparison, the water levels declined more than 1, 2, 3, 4, and 5 feet under 136, 65, 24, 8, and 2 square miles, respectively, in 1952. The area under which there were net declines of water level in excess of 4 feet encompassed primarily the heavily pumped area and extended in a band 2 to 4 miles wide along the valley from about 10 miles northwest of Portales to 4 miles southeast of Portales. The largest net decline recorded in 1953, 8.0 feet, was in a well about 2 miles southeast of Portales. The declines in excess of 6 feet southeast of Portales compare with declines of about 2 feet in 1952. By the end of 1953 water levels reached the lowest winter levels since records began in 1932 except in some outlying areas where water levels were still slightly above the record-low levels observed in 1941 prior to the heavy precipitation in that year. In the heavily pumped area from Portales to about 6 miles northwest, water levels have declined more than 30 feet since records began in 1932. Of this decline more than 25 feet has occurred since 1940 and more than 15 feet since 1950.

Portales Valley

1N. 32. 7. 300. W. J. Crenshaw. Drilled stock water-table well in valley fill, diameter 14 inches, depth 50 feet. Highest water level 14.68 below lsd, May 11, 1944; lowest 18.89 below lsd, July 11, 1940. Records available: 1931-53. Jan. 28, 17.14; Mar. 27, 16.70, pumped recently; May 29, 17.44, pumping; July 29, 17.64; Sept. 25, 17.84; Nov. 17, 17.92, pumping.

1N. 32. 27. 321. Carl Essary. Drilled irrigation water-table well in valley fill, diameter 16 inches, reported depth 105 feet. Highest water level 44.66 below lsd, Mar. 30, 1950; lowest 49.64 below lsd, May 25, 1951. Records available: 1947-53. Jan. 28, 45.98. Bimonthly measurements will not be made in the future. An annual measurement will be made but will not be published in the water-level report.

1N. 33. 36. 400b. Woodburn Bros. Drilled stock water-table well in valley fill, diameter 4 inches, depth 28 feet. Highest water level 1.81 below lsd, Nov. 24, 1941; lowest 13.97 below lsd, Jan. 13, 1941, Jan. 26, 1953. Records available: 1931-36, 1938-53. Jan. 26, 13.97; Mar. 27, 12.77, pumping; May 28, 15.38, pumping; July 28, 17.64, pumping; Nov. 17, 15.31, pumping.

1N. 33. 36. 400c. Woodburn Bros. Drilled observation water-table well in valley fill, diameter 8 inches, depth 43 feet, cased to 40, perforations 8-40. Highest water level 7.88 below lsd, Apr. 9, 1953; lowest 9.47 below lsd, Oct. 14, 1953. Records available: 1953. Recording gage installed Apr. 9, 1953.

Daily highest water level from recorder graph

Day	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	....	....	....	8.93	8.64	9.08	9.42	9.21	9.13
2	....	8.10	8.36	8.92	8.69	9.09	9.41	9.21	9.12
3	....	8.09	....	8.92	8.75	9.09	9.42	9.22	9.11
4	....	....	....	8.95	8.77	9.07	9.42	9.22	9.11
5	....	....	....	8.97	8.84	9.11	9.39	9.22	9.11
6	....	8.04	....	8.97	8.87	9.12	9.42	9.18	9.11
7	....	....	....	8.97	8.92	9.14	9.43	9.18	9.11
8	....	....	....	8.96	8.97	9.19	9.45	9.16	9.11
9	h7.88	....	....	8.94	9.02	9.17	9.44	9.16	9.10
10	7.90	....	....	8.94	9.02	9.17	9.42	9.15	9.10

1N. 33. 36. 400c--Continued.

Day	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
11	7.88	8.20	....	8.96	9.01	9.18	9.44	9.15	9.09
12	7.89	8.18	....	8.99	8.99	9.20	9.44	9.14	9.10
13	7.89	8.13	....	8.95	9.03	9.21	9.46	9.14	9.10
14	7.90	8.11	....	8.98	9.06	9.22	9.47	....	9.11
15	7.93	8.09	....	9.02	9.10	9.23	9.42	....	9.11
16	7.92	8.08	....	9.04	9.00	9.27	9.39	....	9.10
17	7.93	8.13	....	8.93	8.92	9.28	9.40	....	9.10
18	7.97	8.12	....	8.65	8.84	9.29	9.39	9.17	9.10
19	7.95	8.13	....	8.69	8.82	9.30	9.38	9.16	9.11
20	7.95	8.17	....	8.45	8.82	9.33	9.39	9.15	9.10
21	7.95	8.18	8.71	8.45	8.81	9.37	9.36	9.15	9.12
22	....	8.20	8.74	8.46	8.81	9.33	9.33	9.14	9.13
23	....	8.20	8.80	8.44	8.83	9.35	9.32	9.15	9.13
24	....	....	8.80	8.39	8.83	9.37	9.30	9.14	9.12
25	....	....	8.81	....	8.87	9.37	9.26	9.13	9.12
26	....	8.27	8.80	....	8.92	9.36	9.24	9.13	9.11
27	....	8.29	8.84	....	8.95	9.38	8.24	9.13	9.11
28	....	8.28	8.85	h8.52	9.00	9.40	9.23	9.12	9.12
29	....	....	8.88	8.52	9.02	9.41	9.22	9.12	9.12
30	....	....	8.89	8.53	9.07	9.43	9.22	9.12	9.12
31		....		8.56	9.08		9.21		9.12

h Tape measurement.

1. 31. 1. 222. W. G. Griffith. Drilled irrigation water-table well in valley fill, diameter 12 inches, reported depth 156 feet, cased to 135. Highest water level 74.81 below lsd, May 29, 1947; lowest 80.14 below lsd, July 29, 1953. Records available: 1944-53. Jan. 28, 76.85; Mar. 27, 76.59; May 29, 78.33; July 29, 80.14; Sept. 25, 79.75; Nov. 17, 79.11

1. 32. 3. 431. M. Nall. Drilled irrigation water-table well in valley fill. Highest water level 35.98 below lsd, Mar. 25, 1949; lowest 47.65 below lsd, Sept. 25, 1953. Records available: 1948-53. Jan. 28, 41.44; Mar. 27, 41.31; May 28, 53.04, pumped recently; July 29, 46.27; Sept. 25, 47.65; Nov. 17, 45.15.

1. 32. 10. 331. J. R. Meadows. Drilled irrigation water-table well in valley fill, diameter 14 to 12 inches, reported depth 122 feet, cased to 122. Highest water level 45.23 below lsd, Jan. 15, May 29, 1947; lowest 50.57 below lsd, Sept. 23, 1952. Records available: 1946-53. Jan. 28, 50.18. Bimonthly measurements will not be made in the future. An annual measurement will be made but will not be published in the water-level report.

1. 32. 14. 431. Robert Morrison. Drilled unused water-table well in valley fill, diameter 12 inches, depth 104 feet. Highest water level 43.55 below lsd, Apr. 6, 1945; lowest 57.49 below lsd, Sept. 23, 1952. Records available: 1944-53. Jan. 28, 53.22; Mar. 27, 52.60; May 28, 55.62; July 29, 58.37, nearby well being pumped; Sept. 25, 57.45; Nov. 17, 55.02.

1. 33. 7. 111. J. F. Holman. Drilled irrigation water-table well in valley fill, reported depth 90 feet. Highest water level 12.15 below lsd, Nov. 24, 1942; lowest 33.29 below lsd, Jan. 28, 1953. Records available: 1940-53. Jan. 28, 33.29. Bimonthly measurements will not be made in the future. An annual measurement will be made but will not be published in the water-level report.

1. 33. 10. 313a. Jim Allen. Drilled irrigation water-table well in valley fill. Highest water level 22.49 below lsd, Jan. 15, 1947; lowest 40.36 below lsd, Nov. 22, 1952. Records available: 1946-53. Jan. 27, 38.98. Bimonthly measurements will not be made in the future. An annual measurement will be made but will not be published in the water-level report.

1. 33. 12. 144a. Woodburn Bros. Drilled irrigation water-table well in valley fill, diameter 16 inches, depth 112 feet, cased 0-2, 53-112, perforations 53-112. Highest water level 53.93 below lsd, May 27, 1952. Records available: 1951-53. Jan. 26, 70.27, pumping. Bimonthly measurements will not be made in the future. An annual measurement will be made but will not be published in the water-level report.

1. 33. 14. 331c. J. E. Stacey. Drilled irrigation water-table well in valley fill. Highest water level 19.37 below lsd, Jan. 16, 1945; lowest 49.82 below lsd, Sept. 24, 1953. Records available: 1944-53. Jan. 27, 40.70; Mar. 27, 67.11, pumping; May 28, 44.37; July 29, 46.83; Sept. 24, 49.82; Nov. 17, 47.37.

1. 33. 15. 111. Anderson Carter. Drilled irrigation water-table well in valley fill. Highest water level 31.22 below lsd, July 27, 1950; lowest 39.18 below lsd, Jan. 27, 1953. Records available: 1950-53. Jan. 27, 39.18. Bimonthly measurements will not be made in the future. An annual measurement will be made but will not be published in the water-level report.

1.33.17.211. Bertha Campbell. Drilled irrigation water-table well in valley fill, diameter 14 inches, depth 102 feet, cased to 92. Highest water level 17.29 below lsd, Aug. 1, 1945; lowest 39.09 below lsd, July 29, 1953. Records available: 1945-53. Jan. 28, 32.35; Mar. 27, 32.08; May 28, 36.86; July 29, 39.09; Sept. 24, 38.96; Nov. 17, 37.07.

1.33.28.311. J. C. Rolan. Drilled irrigation water-table well in valley fill, diameter 15 inches, reported depth 116 feet, cased to 115. Highest water level 39.21 below lsd, Mar. 26, 1943; lowest 58.55 below lsd, Sept. 25, 1953. Records available: 1938-53. Jan. 28, 52.87; Mar. 27, 52.70; July 29, 57.03; Sept. 25, 58.55; Nov. 17, 56.92.

1.33.29.333. M. H. Rea. Drilled stock water-table well in valley fill, diameter 7 inches, depth 51 feet. Highest water level 29.48 below lsd, Nov. 24, 1942; lowest 38.07 below lsd, Nov. 17, 1953. Records available: 1940-53. Jan. 28, 36.30; Mar. 27, 35.99; May 29, 36.95, pumping; July 29, 37.36; Sept. 25, 38.01; Nov. 17, 38.07.

1.33.34.211. R. T. Bilberry. Drilled irrigation water-table well in valley fill, diameter 12 inches, depth 100 feet. Highest water level 19.54 below lsd, Mar. 26, 1943; lowest 44.75 below lsd, Sept. 22, 1952. Records available: 1939-53. Jan. 27, 40.42. Bimonthly measurements will not be made in the future. An annual measurement will be made but will not be published in the water-level report.

1.34.13.412. Ben Donathan. Drilled unused water-table well in valley fill, diameter 15 inches, depth 157 feet. Highest water level 51.43 below lsd, Aug. 6, 1944; lowest 56.77 below lsd, May 20, 1941. Records available: 1938-53. Jan. 24, 55.49. Bimonthly measurements will not be made in the future. An annual measurement will be made but will not be published in the water-level report.

1.34.15.131. P. M. Marcus. Drilled irrigation water-table well in valley fill. Highest water level 49.19 below lsd, Mar. 26, 1946; lowest 65.50 below lsd, Sept. 24, 1953. Records available: 1945-53. Jan. 24, 57.47; Mar. 27, 60.50; May 28, 60.45; July 28, 62.56; Sept. 24, 65.50; Nov. 17, 61.12.

1.34.17.411a. O. L. Spencer. Drilled unused water-table well in valley fill, diameter 12 inches, reported depth 85 feet. Highest water level 31.74 below lsd, Mar. 29, 1947; lowest 51.80 below lsd, July 28, 1953. Records available: 1947-53. Jan. 26, 44.46; Mar. 27, 49.69, nearby well being pumped; May 28, 53.49, nearby well being pumped; July 28, 51.80; Sept. 24, 56.77, nearby well being pumped; Nov. 17, 51.15.

1.34.22.421a. R. C. Grunig. Drilled irrigation water-table well in valley fill, diameter 16 inches, reported depth 114 feet. Highest water level 42.27 below lsd, July 30, 1949; lowest 57.79 below lsd, Sept. 24, 1953. Records available: 1948-53. Jan. 24, 49.26; May 28, 56.32; July 28, 55.37; Sept. 24, 57.79; Nov. 17, 55.72.

1.34.25.211. J. B. H. Young. Drilled unused water-table well in valley fill, diameter 12 inches, reported depth 101 feet. Highest water level 31.98 below lsd, May 16, 1933; lowest 56.13 below lsd, Oct. 21, 1953. Records available: 1931-53.

Daily highest water level from recorder graph

Day	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	.....	.....	.....	49.61	51.12	52.41	53.60	54.37	55.40	55.96	56.08	.....
2	.....	.....	.....	49.59	51.19	52.43	53.59	54.40	55.42	55.97	56.07	.....
3	.....	.....	.....	49.65	51.32	52.49	53.59	54.44	55.42	55.98	56.07	.....
4	.....	.....	.....	49.62	51.35	52.55	53.61	54.48	55.44	56.00	56.06	.....
5	.....	.....	.....	49.63	51.42	52.62	53.64	54.52	55.45	56.01	56.04	.....
6	.....	.....	.....	49.60	51.48	52.68	53.67	54.52	55.46	56.02	56.04	.....
7	.....	.....	.....	49.64	51.53	52.74	53.70	54.60	55.48	56.03	56.04	.....
8	.....	.....	.....	49.68	51.61	52.80	53.75	54.64	55.50	56.04	56.02	.....
9	.....	.....	.....	49.78	51.68	52.85	53.79	54.67	55.53	56.06	56.01	.....
10	.....	.....	.....	49.93	51.70	52.89	53.83	54.72	55.56	56.07	56.00	.....
11	.....	.....	.....	49.95	51.79	52.95	53.89	54.75	55.59	56.08	55.99	.....
12	.....	.....	.....	49.99	51.84	53.00	53.93	54.79	55.61	56.09	55.98	.....
13	.....	.....	.....	50.02	51.86	53.04	53.97	54.84	55.61	56.07	55.96	.....
14	.....	.....	.....	50.17	51.87	53.08	53.98	54.88	55.61	56.10	55.95	.....
15	.....	.....	.....	50.24	51.85	53.11	53.99	54.92	55.62	56.10	55.94	.....
16	.....	.....	.....	50.35	51.89	53.14	54.00	54.95	55.63	56.11	55.94	.....
17	.....	.....	.....	50.32	51.90	53.17	54.01	54.98	55.65	56.12	55.93	.....
18	.....	.....	.....	50.46	51.91	53.20	54.02	55.01	55.67	56.12	55.92	.....
19	.....	.....	.....	50.53	51.93	53.24	54.03	55.03	55.69	56.12	55.91	.....
20	.....	.....	.....	50.47	51.95	53.28	54.04	55.05	55.72	56.11	.....	.....

1.34.25.211--Continued.

Day	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
21	.....	.....	.....	50.49	51.98	53.32	54.08	55.07	55.75	56.13	.....	.....
22	.....	.....	.....	50.61	52.00	53.35	54.09	55.10	55.78	56.11	.....	.....
23	h50.18	.....	.....	50.60	52.07	53.39	54.12	55.12	55.80	56.12	.....	.....
24	50.16	.....	.....	50.63	52.11	53.42	54.14	55.14	55.82	56.11	.....	.....
25	50.08	.....	49.62	50.73	52.14	53.47	54.17	55.17	55.84	56.12	.....	.....
26	.....	.....	49.62	50.80	52.19	53.50	54.20	55.20	55.86	56.12	.....	.....
27	.....	.....	49.65	50.86	52.19	53.53	54.22	55.23	55.88	56.11	.....	.....
28	.....	.....	49.58	50.88	52.22	53.57	54.25	55.27	55.90	56.10	.....	.....
29	.....		49.56	50.90	52.26	53.60	54.28	55.31	55.93	56.09	.....	.....
30	.....		49.57	51.00	52.30	53.60	54.30	55.35	55.94	56.09	.....	.....
31	.....		49.59		52.37		54.33	55.38		56.08		.....

h Tape measurement.

1.34.33.223a. Portales Municipal Airport. Drilled irrigation water-table well in valley fill, diameter 12 inches. Highest water level 28.84 below lsd, Jan. 26, 1946; lowest 49.76 below lsd, Sept. 24, 1953. Records available: 1946-53. Jan. 27, 45.45; Mar. 26, 45.08; May 26, 46.99; July 28, 48.32; Sept. 24, 49.76; Nov. 16, 49.51.

1.35.2.300. Eastern New Mexico State College Park. Drilled irrigation water-table well in valley fill, depth 140 feet. Highest water level 42.88 below lsd, May 12, 1944; lowest 48.37 below lsd, July 11, 1940. Records available: 1935-53. Jan. 24, 44.85; Mar. 27, 45.32; May 28, 45.10; July 27, 45.23; Sept. 24, 45.07; Nov. 17, 44.97.

1.35.6.131a. F. K. Montague. Dug irrigation water-table well in valley fill. Highest water level 7.27 below lsd, May 26, 1951; lowest 9.18 below lsd, Nov. 21, 1952. Records available: 1950-53. Jan. 24, 8.77. Bimonthly measurements will not be made in the future. An annual measurement will be made but will not be published in the water-level report.

1.35.6.400. J. C. Brown. Drilled unused water-table well in valley fill, diameter 6 inches, depth 23 feet. Highest water level 5.13 below lsd, Nov. 25, 1941; lowest 15.46 below lsd, Jan. 16, 1941. Records available: 1931-53. Jan. 24, 13.32; Mar. 25, 13.44; May 28, 13.48; July 27, 13.62; Sept. 24, 13.77; Nov. 17, 13.92.

1.35.11.241. A. Hobbs Estate. Drilled unused water-table well in valley fill, diameter 6 inches, depth 51 feet. Highest water level 13.98 below lsd, Mar. 27, 1943; lowest 20.09 below lsd, Sept. 22, 1940. Records available: 1940-53. Jan. 24, 16.90; Mar. 27, 16.93; May 28, 17.00; July 27, 17.23; Sept. 24, 17.30; Nov. 17, 17.19.

1.35.27.344a. Lawson Read. Formerly H. J. McCroary. Drilled unused water-table well in valley fill, diameter 6 inches. Highest water level 29.02 below lsd, Jan. 13, 1951; lowest 32.53 below lsd, Nov. 16, 1953. Records available: 1945-53. Jan. 21, 42.67, pumping; Mar. 25, 42.59, pumping; May 27, 32.15; July 27, 32.42; Sept. 22, 42.64, pumping; Nov. 16, 32.53.

1.35.28.143. Travis Culpepper. Drilled irrigation water-table well in valley fill, diameter 12 inches, depth 151 feet. Highest water level 44.08 below lsd, Mar. 27, 1943; lowest 52.99 below lsd, Sept. 22, 1953. Records available: 1935-53. Jan. 21, 49.22; Mar. 25, 50.49; May 27, 50.97; July 27, 51.71; Sept. 22, 52.99; Nov. 16, 52.38.

1.36.5.300. W. H. McDaniel. Drilled stock water-table well in valley fill, diameter 6 inches. Highest water level 32.84 below lsd, Jan. 28, 1943; lowest 36.01 below lsd, Jan. 16, 1941. Records available: 1939-53. Jan. 24, 34.40, pumping. Bimonthly measurements will not be made in the future. An annual measurement will be made but will not be published in the water-level report.

1.36.16.100. State of New Mexico. Drilled stock water-table well in valley fill, diameter 8(?) inches. Highest water level 14.14 below lsd, Nov. 25, 1941; lowest 24.17 below lsd, Sept. 22, 1940. Records available: 1939-53. Jan. 24, 31.19, pumping. Bimonthly measurements will not be made in the future. An annual measurement will be made but will not be published in the water-level report.

2.34.2.233. Louisa Trout. Drilled unused water-table well in valley fill, diameter 12 inches, depth 89 feet. Highest 32.71 below lsd, Mar. 6, 15, 1942; lowest 64.72 below lsd, Sept. 30, 1953. Records available: 1931-53.

2.34.2.233--Continued.

Daily highest water level from recorder graph

Day	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	58.33	57.66	57.30	57.86	59.54	61.50	.....	63.16	63.63	64.65	63.80	.....
2	58.39	57.64	57.30	57.90	59.53	61.72	.....	63.15	63.64	64.59	63.79	.....
3	58.29	57.63	57.32	57.99	59.68	61.85	.....	63.16	63.68	64.57	63.75	.....
4	58.33	57.69	57.30	58.05	59.61	61.93	.....	63.22	63.82	64.50	63.70	.....
5	58.30	57.65	57.26	58.09	59.59	62.11	.....	63.22	63.98	64.46	63.67	.....
6	58.25	57.57	57.28	58.05	59.60	62.19	.....	63.28	64.00	64.42	63.63	.....
7	58.22	57.66	57.30	58.09	59.74	62.30	.....	63.39	64.00	64.40	63.64	.....
8	58.20	57.59	57.22	58.18	59.89	62.38	.....	63.41	64.27	64.39	63.59	.....
9	58.23	57.60	57.18	58.02	60.10	62.22	.....	63.47	64.40	64.38	63.58	.....
10	58.22	57.65	57.17	58.69	60.30	62.22	.....	63.48	64.48	64.36	63.54	.....
11	58.20	57.58	57.16	58.88	60.43	62.21	e63.70	63.57	64.49	64.49	63.50	.....
12	58.14	57.60	57.15	58.78	60.60	62.20	e63.58	63.60	64.50	64.59	63.62	.....
13	58.10	57.52	57.09	58.79	60.75	62.19	.....	63.61	64.40	64.50	63.53	.....
14	58.05	57.53	57.13	58.87	60.81	62.20	.....	63.65	64.39	64.40	63.49	.....
15	58.10	57.53	57.11	58.87	60.95	62.19	e63.31	63.68	64.42	64.38	63.44	.....
16	58.00	57.58	57.08	58.88	60.80	62.23	e63.18	63.68	64.40	64.50	63.42	.....
17	57.98	57.47	57.08	58.89	60.79	62.27	.....	63.64	64.39	64.57	63.40	.....
18	57.94	57.40	57.10	58.94	60.73	62.28	.....	63.60	64.38	64.44	63.36	.....
19	57.90	57.40	57.06	59.10	60.75	62.29	.....	63.59	64.37	64.40	63.35	.....
20	57.90	57.50	57.03	59.09	60.73	62.31	.....	63.58	64.34	64.30	63.33	.....
21	57.85	57.50	57.09	59.08	60.78	62.31	.....	63.58	64.30	64.27	.....	.....
22	57.88	57.40	57.16	59.18	60.74	62.33	.....	63.54	64.26	64.20	.....	.....
23	57.86	57.38	57.19	59.08	60.73	62.37	.....	63.50	64.24	64.18	.....	.....
24	57.84	57.37	57.23	59.07	60.75	62.49	.....	63.50	64.24	64.12	.....	.....
25	57.80	57.34	57.25	59.09	60.80	62.55	.....	63.50	64.27	64.08	.....	.....
26	57.78	57.30	57.32	59.11	60.77	62.57	.....	63.55	64.29	64.02	.....	.....
27	57.78	57.35	57.48	59.12	60.74	62.60	63.14	63.59	64.30	64.00	.....	.....
28	57.73	57.30	57.62	59.17	60.79	62.62	63.12	63.61	64.29	63.98	.....	.....
29	57.70		57.60	59.25	60.81	62.66	63.13	63.64	64.54	63.91	.....	.....
30	57.67		57.61	59.43	60.84	62.69	63.16	63.65	64.72	63.89	.....	.....
31	57.70		57.78		61.63		63.17	63.66		63.65		.....

e Estimated.

2.34.4.441. Maud Wallace. Dug observation water-table well in valley fill, diameter 2 inches, depth 14 feet. Highest water level 4.17 above lsd, Jan. 27, 1942; lowest 14.53 below lsd, Sept. 24, 1953. Records available: 1939-53. Jan. 27, 7.85; Mar. 26, 9.80; May 26, 11.12; July 28, 11.17; Sept. 24, 14.53; Nov. 16, 14.34.

2.34.10.431. L. W. Allen. Drilled irrigation water-table well in valley fill, diameter 14 inches, depth 100 feet, cased to 95. Highest water level 24.05 below lsd, July 31, 1945; lowest 39.14 below lsd, May 27, 1953. Records available: 1945-53. Jan. 21, 34.17; Mar. 26, 35.43; May 27, 39.14; July 28, 37.62; Sept. 24, 38.84; Nov. 16, 37.39.

2.34.13.133. L. J. Sanders. Dug and drilled irrigation water-table well in valley fill, diameter 14 inches, depth 112 feet, cased to 80. Highest water level 17.92 below lsd, May 12, 1944; lowest 37.09 below lsd, Nov. 20, 1952. Records available: 1944-53. Jan. 21, 26.61. Bimonthly measurements will not be made in the future. An annual measurement will be made but will not be published in the water-level report.

2.35.4.111. E. S. Weber. Drilled irrigation water-table well in valley fill. Highest water level 12.94 below lsd, Jan. 29, 1942; lowest 41.06 below lsd, Sept. 21, 1952. Records available: 1935, 1938-53. Jan. 20, 29.34; Sept. 22, 39.60. Bimonthly measurements will not be made in the future. An annual measurement will be made but will not be published in the water-level report.

2.35.6.121. Dallas Clark. Drilled irrigation water-table well in valley fill, diameter 12 inches, depth 102 feet. Highest water level 16.73 below lsd, Jan. 28, 1942; lowest 54.75 below lsd, Sept. 22, 1953. Records available: 1931-53. Jan. 23, 42.81; Mar. 25, 42.36; May 27, 46.66; July 28, 51.13; Sept. 22, 54.75; Nov. 18, 51.79.

2.35.6.443a. J. A. Vandevender. Drilled irrigation water-table well in valley fill, diameter 14 inches. Highest water level 27.86 below lsd, Mar. 28, 1947; lowest 39.72 below lsd, May 24, 1950. Records available: 1947-53. Jan. 21, 32.99. Bimonthly measurements will not be made in the future. An annual measurement will be made but will not be published in the water-level report.

2.35.9.122. L. D. Griffith. Drilled irrigation water-table well in valley fill. Highest water level 20.28 below lsd, Jan. 13, 1951; lowest 33.17 below lsd, Sept. 23, 1953. Records available: 1946-53. Jan. 21, 24.70; Mar. 25, 24.95; May 28, 28.75; July 27, 29.38; Sept. 23, 33.17; Nov. 16, 29.13.

2.35.14.414. Portales First National Bank. Dug observation water-table well in valley fill, diameter 2 inches, depth 9 feet. Highest water level 0.07 above lsd, Jan. 30, 1943; lowest 5.29 below lsd, Sept. 23, 1953. Records available: 1939-52. Jan. 20, 3.57; Mar. 26, 3.30; May 27, 3.89; July 28, 4.62; Sept. 23, 5.29; Nov. 18, 4.92.

2.35.15.131. Portales First National Bank. Dug observation water-table well in valley fill, diameter 2 inches, depth 8 feet. Highest water level 0.02 above lsd, Jan. 29, 1942; lowest dry at 5.86, Nov. 20, 1952. Records available: 1939-53. Jan. 20, 5.49. Measurement discontinued.

2.35.15.131a. Portales First National Bank. Dug observation water-table well in valley fill, diameter 3 inches, depth 11 feet, cased to 10. Highest water level 6.58 below lsd, May 27, 1953; lowest 8.24 below lsd, Sept. 23, 1953. Records available: 1953. May 27, 6.58; July 28, 7.42; Sept. 23, 8.24; Nov. 18, 8.09.

2.35.16.333. A. J. Cline. Dug observation water-table well in valley fill, diameter 2 inches, depth 14 feet. Highest water level 3.77 below lsd, Nov. 26, 1941; lowest 13.83 below lsd, May 27, 1948. Records available: 1939-53. Jan. 21, dry at 9.43; Mar. 26, 10.30; May 26, 10.17; July 27, 9.32; Sept. 23, 11.03; Nov. 16, dry at 11.18.

2.35.18.211. State of New Mexico. Dug observation water-table well in valley fill, diameter 2 inches, depth 11 feet. Highest water level 1.99 below lsd, July 20, 1942; lowest 11.08 below lsd, Nov. 16, 1953. Records available: 1939-53. Jan. 21, 8.64; Mar. 26, 8.62; May 26, 8.66; July 28, 9.43; Sept. 24, 11.06; Nov. 16, 11.08.

2,35.19.134. Roy Faircloth. Drilled irrigation water-table well in valley fill, diameter 10 inches, depth 70 feet. Highest water level 25.87 below lsd, Nov. 27, 1950, Jan. 12, 1951; lowest 40.68 below lsd, May 27, 1953. Records available: 1946-53. Jan. 21, 28.23; Mar. 26, 31.93, pumped recently; May 27, 40.66; Sept. 24, 39.13; Nov. 16, 32.74.

2.35.23.111. P. O. Dozier. Drilled irrigation water-table well in valley fill. Highest water level 21.32 below lsd, Mar. 27, 1951; lowest 29.86 below lsd, May 27, 1953. Records available: 1949-53. Jan. 20, 24.53; Mar. 26, 24.33; May 27, 29.86; July 28, 27.77; Sept. 23, 27.84; Nov. 18, 26.46.

2.35.25.114a. Joe Caraway. Drilled irrigation water-table well in valley fill, diameter 12 inches, depth 96 feet. Highest water level 22.07 below lsd, Jan. 12, 1951; lowest 29.38 below lsd, Sept. 29, 1948. Records available: 1948-53. Jan. 20, 25.38; Mar. 26, 25.55; May 27, 28.24; July 28, 26.97; Sept. 23, 27.41; Nov. 18, 27.04.

2.36.7.332. Loren Johnson. Drilled irrigation water-table well in valley fill, diameter 14 inches, depth 133 feet. Highest water level 15.02 below lsd, Sept. 26, 1950; lowest 21.26 below lsd, May 29, 1948. Records available: 1944-53. Jan. 21, 19.66. Bimonthly measurements will not be made in the future. An annual measurement will be made but will not be published in the water-level report.

2.36.8.432a. S. W. Davis. Drilled irrigation water-table well in valley fill. Highest water level 15.66 below lsd, Nov. 28, 1950; lowest 22.64 below lsd, July 28, 1953. Records available: 1948-53. Jan. 21, 19.57; Mar. 26, 44.03, pumping; May 27, 44.97, pumping; July 28, 22.64; Sept. 23, 46.94, pumping; Nov. 18, 20.86.

2.36.20.321. W. O. Davis. Dug and drilled irrigation water-table well in valley fill, diameter 11 inches, depth 123 feet. Highest water level 8.12 below lsd, Jan. 30, 1942; lowest 21.97 below lsd, June 29, 1932. Records available: 1931-53. Jan. 20, 15.76; Mar. 26, 15.72; May 27, 16.38; July 28, 16.61; Sept. 23, 17.18; Nov. 18, 17.19.

2.36.27.311a. J. M. Riley. Drilled irrigation water-table well in valley fill, reported depth 105 feet. Highest water level 12.75 below lsd, Nov. 28, 1950; lowest 27.44 below lsd, Sept. 23, 1953. Records available: 1947-53. Jan. 20, 16.60; Mar. 26, 16.93; May 27; 21.88; July 28, 23.14; Sept. 23, 27.44; Nov. 18, 21.78.

2.36.28.114b. Morgan Trammel. Drilled unused water-table well in valley fill, diameter 12 inches, depth 44 feet. Highest water level 7.30 below lsd, Dec. 4, 1941; lowest 21.62 below lsd, Sept. 28-29, 1953. Records available: 1932-53.

2.36.28.114b--Continued.

Daily highest water level from recorder graph

Day	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	17.76	17.69	17.48	17.59	18.43	19.69	20.20	20.26	.....	21.58	20.96	20.41
2	17.77	17.68	17.49	17.61	18.46	19.71	20.22	20.23	.....	21.56	20.93	20.39
3	17.75	17.68	17.49	17.66	16.49	19.73	20.24	20.22	.....	21.54	20.91	20.38
4	17.74	17.65	17.51	17.68	18.51	19.74	20.25	20.21	.....	21.53	20.90	20.37
5	17.72	17.65	17.50	17.70	18.52	19.74	20.28	20.22	.....	21.52	20.87	20.35
6	17.72	17.64	17.50	17.72	18.53	19.72	20.30	20.25	.....	21.51	20.85	20.34
7	17.71	17.63	17.51	17.73	18.56	19.72	20.33	20.30	.....	21.51	20.84	20.33
8	17.71	17.62	17.50	17.77	18.59	19.71	20.38	20.37	.....	21.49	20.82	20.31
9	17.71	17.62	17.48	17.80	18.64	19.72	20.42	20.43	.....	21.48	20.78	20.30
10	17.70	17.62	17.46	17.83	18.70	19.73	20.45	20.49	.....	21.46	20.77	20.26
11	17.69	17.61	17.46	17.84	18.74	19.76	20.48	20.56	.....	21.44	20.76	20.28
12	17.68	17.60	17.46	17.91	18.80	19.77	20.52	20.62	.....	21.42	20.74	20.26
13	17.67	17.58	17.45	17.93	18.84	19.77	20.54	20.67	.....	21.40	20.72	20.25
14	17.66	17.58	17.44	17.96	18.86	19.74	20.57	20.72	.....	21.38	20.70	20.23
15	17.66	17.57	17.45	18.00	18.90	19.72	20.61	20.76	.....	21.36	20.68	20.22
16	17.65	17.58	17.45	18.01	18.92	19.71	20.63	.....	.....	21.34	20.66	20.22
17	17.64	17.56	17.45	18.02	18.95	19.72	20.65	.....	.....	21.32	20.63	20.21
18	17.64	17.53	17.46	18.09	18.99	19.76	20.67	.....	.....	21.29	20.60	20.19
19	17.63	17.53	17.46	18.12	19.03	19.79	20.67	.....	.....	21.28	20.58	20.17
20	17.62	17.54	17.45	18.15	19.08	19.81	20.66	.....	.....	21.24	20.56	20.15
21	17.61	17.54	17.46	18.16	19.15	19.65	20.64	.....	.....	21.22	20.56	20.15
22	17.61	17.53	17.44	18.19	19.21	19.88	20.63	.....	.....	21.20	20.53	20.15
23	17.63	17.52	17.45	18.23	19.28	19.92	20.60	.....	h21.57	21.18	20.52	20.13
24	17.63	17.51	17.46	18.25	19.33	19.97	20.56	.....	21.57	21.16	20.51	20.13
25	17.61	17.50	17.45	18.28	19.38	20.00	20.53	.....	21.58	21.14	20.50	20.11
26	17.62	17.50	17.46	18.31	19.43	20.04	20.49	.....	21.59	21.12	20.48	20.09
27	17.63	17.50	17.48	16.34	19.49	20.08	20.45	.....	21.61	21.10	20.47	20.09
28	17.65	17.48	17.51	18.36	19.53	20.11	20.43	.....	21.62	21.08	20.46	20.06
29	17.66		17.52	18.38	19.58	20.14	20.36	.....	21.62	21.05	20.44	20.08
30	17.67		17.53	18.41	19.62	20.17	20.34	.....	21.61	21.02	20.43	20.08
31	17.69		17.56		19.66		20.30	.....		20.99		20.07

h Tape measurement.

2.36.30.111. L. B. Thornton. Dug observation water-table well in valley fill, diameter 2 inches, reported depth 10 feet. Highest water level 0.45 below lsd, Nov. 26, 1941; lowest 8.76 below lsd, Sept. 23, 1953. Records available: 1941-53. Jan. 20, 5.80; Mar. 26, 5.42; May 27, 5.74; July 28, 7.83; Sept. 23, 8.76; Nov. 18, 7.85.

2.36.34.312. L. W. Walker. Drilled irrigation water-table well in valley fill, diameter 12 inches, reported depth 65 feet, cased to 51. Highest water level 14.10 below lsd, Nov. 28, 1950; lowest 25.96 below lsd, May 28, 1953. Records available: 1947-53. Jan. 20, 18.40; May 28, 25.98; July 28, 20.60; Sept. 23, 20.64; Nov. 16, 20.66.

2.36.35.212a. Mrs. Eunice Harrison. Drilled irrigation water-table well in valley fill. Highest water level 8.24 below lsd, Jan. 12, 1951; lowest 18.17 below lsd, May 28, 1953. Records available: 1947-53. Jan. 20, 12.11; Mar. 26, 11.80; May 28, 18.17; July 28, 15.84; Sept. 23, 17.75; Nov. 16, 14.74.

2.37.30.134. C. S. Chunn. Drilled irrigation water-table well in valley fill, diameter 16 inches, reported depth 115 feet, cased to 80. Highest water level 18.06 below lsd, Nov. 28, 1950; lowest 24.45 below lsd, July 28, 1953. Records available: 1949-53. Jan. 20, 20.92; July 28, 24.45; Sept. 23, 33.40, pumped recently; Nov. 18, 23.08.

Sierra County

Truth or Consequences area.--Thermal and nonthermal waters occur in the artesian basin which lies along the floodplain of the Rio Grande in the central part of Sierra County in south-central New Mexico. Truth or Consequences (formerly Hot Springs) is a health resort utilizing hot mineral waters which come from artesian wells drilled to the Magdalena limestone, or which discharge from the overlying alluvium. Nonthermal water for irrigation and for municipal supply comes from artesian wells in the Tertiary and Quaternary deposits in Mud Springs Draw, about a mile southwest of Truth or Consequences. About 36 square miles of the Hot Springs Ground-Water Basin was declared by order of the State Engineer of New Mexico dated April 15, 1935. The basin was closed to further appropriation of mineral (thermal) water on July 1, 1937, and 10 years later the same was done for the fresh (nonthermal) artesian water. A portion of the basin, amounting to about 1.5 square miles, was reopened for the appropriation of mineral (thermal) water in 1947 and 1950. Water levels in thermal wells at Truth or Consequences have been measured at periodic intervals since 1939. In January 1953 water levels were measured in

11 thermal wells and 1 nonthermal well. Recording gages were maintained on 2 thermal wells: No. 6, a deep artesian well; and No. 6a, a shallow dug well in alluvium. The recorder previously maintained on No. 25, a well dug into limestone near the upper edge of the spring area, was removed in May 1953. Data on the recorder wells are reported herein.

Water levels declined an average of 0.45 foot from January 1953 to January 1954 in 9 of the thermal wells measured, as compared to an average decline of 0.18 foot in these wells in 1952. The measured net lowering in artesian pressures ranged from 0.24 foot to 0.65 foot. Water levels in all 9 thermal wells reached record winter lows by the end of 1953. An average decline of about 2 feet has occurred in these wells since January 1942, when the highest water levels on record occurred. Seasonal changes in artesian head of the thermal wells are caused primarily by the stage of the water in the Rio Grande, where most of the thermal waters discharge. Daily changes in artesian head are caused by the pumping of wells.

Truth or Consequences Area

6. Harry Dakos. Lot 4, block 8 in Truth or Consequences. Drilled unused artesian well, diameter 7 inches, depth 105 feet. Land-surface datum is 4,243.75 feet above msl. Highest water level 1.66 above lsd, Dec. 24, 1941; lowest 0.66 below lsd, Nov. 8, 1953. Records available: 1940-53.

Daily highest water level above and below lsd from recorder graph

Day	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	...	+0.12	+0.35	+0.46	+0.15	0.00	+0.13	+0.09	-0.01	-0.53	-0.63	-0.50
2	...	.12	.28	.45	.11	+.03	.13	.12	+.03	.53	.61	.50
3	...	.14	.25	.45	.09	.03	.09	.12	.05	.53	.61	.53
4	-0.23	.17	.23	.45	.08	.03	.10	.13	.05	.56	.62	.52
5	.19	.18	.24	.47	.08	.01	.10	.12	+.04	.55	.60	.52
6	.15	.19	.24	.47	...	+.02	.11	.13	.00	.57	.59	.55
7	.15	.20	.29	.42	...	-.01	.13	.15	-.01	.57	.65	.54
8	.20	.27	.29	.43	...	-.02	.14	.15	.03	.58	.66	.53
9	.18	.25	.32	.43	...	.00	.15	.16	.07	.58	.58	.54
10	.17	.24	.34	.46	...	+.04	.17	.17	.07	.58	.56	.50
11	.14	.23	.33	.47	.03	.08	.17	.17	.07	.60	.56	.50
12	.13	.25	.33	.44	.04	.09	.18	.27	.13	.60	.58	.56
13	.14	.25	.35	.46	.04	.11	.19	.24	.19	.60	.57	.55
14	.12	.25	.33	.46	.09	.16	.19	.23	.20	.62	.57	.54
15	.12	.30	.34	.43	.08	.16	.12	.21	.25	.62	.56	.51
16	.07	.27	.34	.43	.06	.15	.12	.22	.31	.61	.55	.54
17	.07	.28	.35	.43	.00	.16	.11	.31	.30	.61	.54	.51
18	-.02	.34	.36	.36	.01	.18	.09	.29	.33	.60	.52	.51
19	.00	.33	.38	.31	.03	.18	.03	.22	.34	.58	.55	.50
20	+.02	.23	.39	.32	.04	.14	.03	.17	.36	.59	.54	.48
21	.04	.22	.38	.33	.03	.15	.00	.15	.39	.64	.55	.47
22	.03	.27	.38	.36	.04	.16	.00	.11	.43	.62	.56	.52
23	.04	.27	.38	.36	.07	.17	+.01	+.02	.42	.63	.55	.54
24	.04	.27	.39	.34	.06	.16	-.04	-.01	.43	.62	.56	.54
25	.08	.25	.40	.29	.00	.16	-.03	.04	.46	.64	.58	.51
26	.09	.27	.42	.21	.04	.14	-.07	.07	.47	.64	.55	.47
27	.09	.28	.42	.25	.06	.12	.00	.07	.48	.64	.55	.46
28	.09	.36	.45	.26	.07	.10	+.04	.07	.48	...	.55	.48
29	.10		.49	.23	.07	.11	.05	.09	.52	...	.56	.47
30	.10		.47	.20	.02	.13	.08	.06	.53	...	.54	.53
31	.09		.45		.02		.09	.05		...		.54

6a. Harry Dakos. Lot 4, block 8 in Truth or Consequences. Dug unused water-table well in alluvium, diameter 24 inches, depth 6 feet. Land-surface datum is 4,240.71 feet above msl. Highest water level 1.26 above lsd, June 2, 1952; lowest 2.73 below lsd, Oct. 27-29, 1953. Records available: 1941-53.

Daily highest water level above and below lsd from recorder graph

Day	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	-2.40	-2.05	+1.13	-1.68	-1.31	-2.03	-2.13	-1.89	-1.52	-2.58	-2.72	-2.69
2	2.41	2.04	+.98	1.69	1.44	2.03	2.13	1.92	1.46	2.59	2.71	2.69
3	2.42	2.03	+.69	1.69	1.55	2.03	2.12	1.94	1.27	2.60	2.71	2.69
4	2.41	2.02	-.23	1.70	1.64	2.03	2.13	1.96	1.36	2.61	2.71	2.69
5	2.38	2.01	-.82	1.70	1.72	2.02	2.12	1.98	1.44	2.63	2.70	e2.69
6	2.36	2.00	-1.03	1.71	1.79	2.01	2.12	1.99	1.56	2.64	2.70	2.70
7	2.34	1.99	+1.16	1.71	1.85	2.01	2.12	1.99	1.64	2.65	2.70	2.70
8	2.33	1.97	1.16	1.71	1.89	2.00	2.11	2.00	1.75	2.66	2.71	2.70
9	2.32	-1.96	1.17	1.72	1.92	2.00	2.10	2.00	1.80	2.67	2.72	2.70
10	2.31	+1.05	1.16	1.73	1.96	2.01	2.09	2.01	1.85	2.68	....	2.70

6a--Continued.

Day	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
11	-2.30	+0.94	+1.05	-1.73	-2.00	-2.02	-2.08	-2.00	-1.92	-2.69	....	-2.69
12	2.29	+.38	+.89	1.73	2.02	2.04	-.02	+1.30	1.96	2.69	....	2.69
13	2.29	-.61	+.47	1.74	2.04	2.05	+.48	1.25	2.00	2.69	....	2.69
14	2.28	1.00	-.22	1.74	2.06	2.07	-.28	1.14	2.04	2.70	....	2.68
15	2.27	1.22	.71	1.74	2.08	2.10	.71	.88	2.12	2.70	....	2.68
16	2.26	1.37	.92	1.74	2.09	2.11	1.03	.38	2.16	2.70	....	2.67
17	2.24	1.49	1.08	1.75	2.09	2.12	1.26	1.26	2.21	2.70	....	2.67
18	2.22	1.57	1.19	1.76	2.08	2.13	1.44	1.31	2.24	2.71	....	2.66
19	2.20	1.63	1.30	1.77	2.07	2.14	1.58	1.29	2.28	2.71	....	2.66
20	2.18	1.69	1.37	1.80	2.06	2.14	1.69	1.24	2.32	2.70	....	2.65
21	2.16	1.74	1.43	-1.82	2.06	2.14	-1.78	1.20	2.35	2.71	....	2.64
22	2.15	1.77	1.49	+1.17	2.06	2.14	+.32	1.14	2.38	2.71	....	2.64
23	2.14	1.80	1.53	1.15	2.05	2.15	+.14	.97	2.41	2.71	....	2.64
24	2.13	1.82	1.56	1.07	2.05	2.15	-.55	.85	2.43	2.71	....	2.64
25	2.11	1.83	1.61	.91	2.05	2.15	.98	+.42	2.46	2.72	-2.71	2.64
26	2.10	1.84	1.62	+.57	2.04	2.15	1.24	-.01	2.48	2.72	2.71	2.64
27	2.08	-1.85	1.64	-.19	2.05	2.14	1.47	.38	2.51	2.73	2.70	2.63
28	2.08	+1.14	1.65	.72	2.05	2.14	1.61	.72	2.52	2.73	e2.70	2.63
29	2.07		1.66	.97	2.05	2.13	1.72	.98	2.54	2.73	2.70	2.62
30	2.06		1.67	1.15	2.04	2.13	1.79	1.19	2.56	2.72	2.70	2.62
31	2.05		1.68		2.04		1.84	1.38		2.72		2.63

e Estimated.

25. Jim Knox. Lot 4, block 93 in Truth or Consequences. Dug unused artesian well in Magdalena limestone, size 5 by 5 feet, depth 20 feet. Land-surface datum is 4,242.20 feet above msl. Highest water level 6.60 below lsd, May 13, 1942; lowest 8.89 below lsd, Nov. 15, 1951. Records available: 1939-53. Recording gage removed May 7, 1953.

Daily highest water level from recorder graph

Date	Water level	Date	Water level	Date	Water level	Date	Water level
Jan. 5	h8.74	Mar. 22	8.07	Apr. 1	8.05	Apr. 13	8.05
Feb. 1	8.29	23	8.07	2	8.05	19	8.20
2	8.29	24	8.06	3	8.06	20	8.18
Mar. 15	8.11	25	8.09	4	8.06	21	8.17
16	8.11	26	8.07	5	8.05	26	8.26
17	8.09	27	8.07	6	8.05	27	8.26
18	8.08	28	8.06	7	8.05	May 3	8.39
19	8.07	29	8.05	8	8.07	4	8.39
20	8.05	30	8.05	9	8.06	5	8.38
21	8.06	31	8.06	12	8.05	6	(f)

h Tape measurement.
f Dry.

Torrance and Santa Fe Counties

Estancia Valley.--The Estancia Valley irrigation area lies within a closed topographic and structural basin east of the Manzano Mountains in central New Mexico. The basin, about 50 miles long from north to south, and about 25 miles wide from east to west, extends from southern Santa Fe County into south-central Torrance County. About 80 percent of the irrigated area is in Torrance County. The Estancia Ground-Water Basin was declared by order of the State Engineer on January 31, 1950. The lands included within the basin amount to about 1,482 square miles.

Water levels have been measured in observation wells in the irrigated area since 1941. In 1953 water levels were measured in 102 wells in February, 47 wells in May, 45 wells in August, and 37 wells in November. Well 7.8.27.221, has been equipped with a recording gage since 1945. The February water-level measurements, many of which are not reported herein, were used in preparing figure 61 which shows the net change in water level in 1953.

Precipitation within the area of the closed basin of Estancia Valley is the ultimate source of ground-water recharge, whether by direct penetration to the water-bearing formation or from runoff from the surrounding higher lands. The amount of ground water pumped for irrigation purposes depends not only upon the total annual precipitation but also upon the distribution of precipitation, particularly during the growing season. Deficient precipitation during the growing season results in greater requirements of ground water for irrigation. Conversely, normal or excessive precipitation results in lesser ground-water requirements for irrigation. An interpretation of fluctuations in ground-water levels is therefore dependent on a knowledge of those factors.

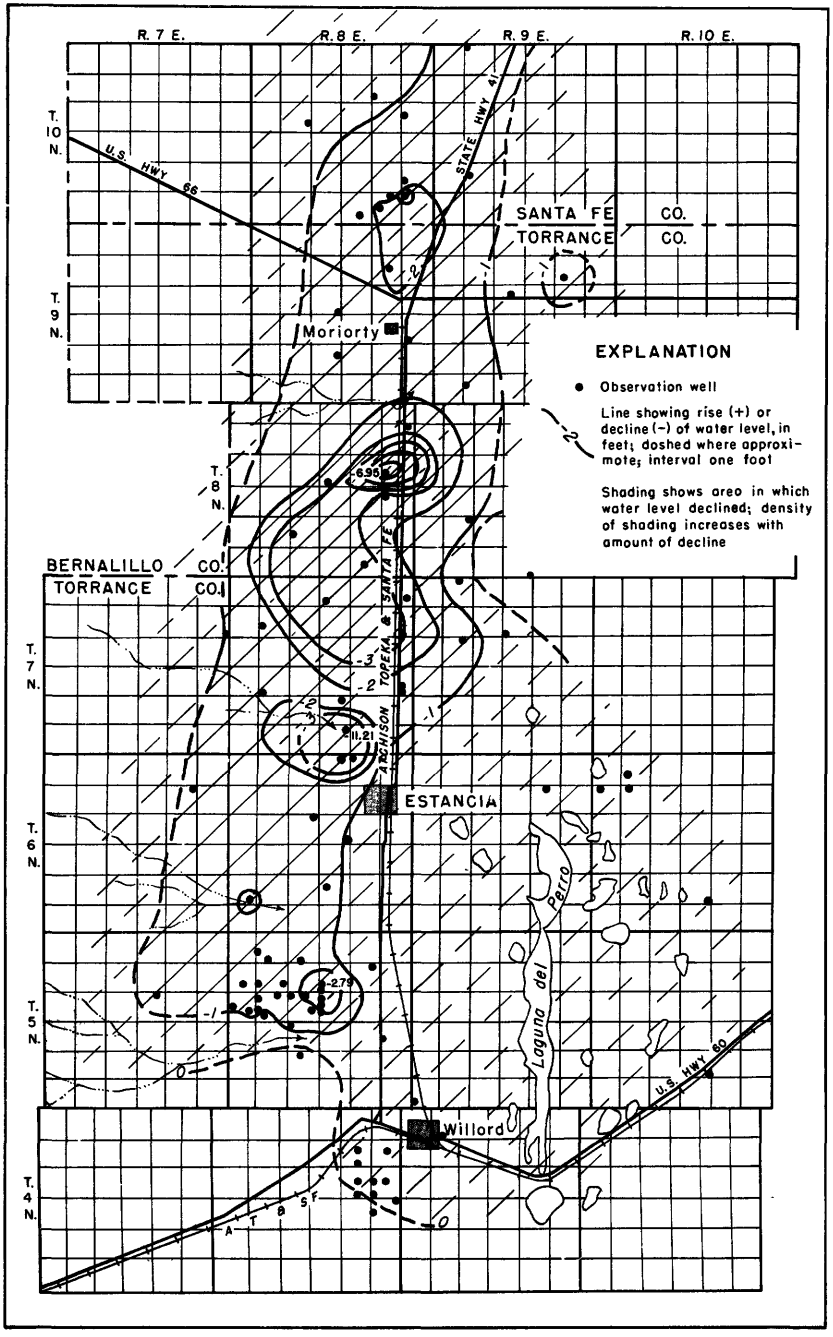


Figure 61. --Change in ground-water level from February 1953 to February 1954 in Estancia Valley, Torrance County, N. Mex.

Precipitation during 1953 at the 5 precipitation stations in Estancia Valley, for which there are complete records, averaged about 65 percent of normal. The precipitation at Estancia was 11.01 inches, 1.58 inches below normal; at McIntosh 8.00 inches, 5.24 inches below normal; at Mountainair 8.74 inches, 6.90 inches below normal; at Otto 7.10 inches, 4.48 inches below normal; and at Tajique 13.47 inches, 6.07 inches below normal. During the growing season from April to September precipitation averaged only 60 percent of normal. The precipitation records thus indicate that the total recharge to the ground-water body in 1953 in Estancia Valley probably was less than average, and that the amount of ground water required for the irrigation of crops was above average.

It is estimated that about 21,000 acres of land in Estancia Valley was irrigated from wells and that about 36,500 acre-feet of water was pumped in 1953. In 1952 about 21,000 acres were also irrigated but only about 30,000 acre-feet of water was pumped. The increase in pumpage in 1953 over 1952 was due partly to the lesser amount of precipitation during the growing season. Precipitation during the growing season in 1952 amounted to about 80 percent of normal. In 1951 both the total annual precipitation and the growing season precipitation were only about 55 percent of normal, and it was estimated that about 40,000 acre-feet of ground water was pumped to irrigate 20,000 acres of land.

Because of the increase in pumping in 1953 the net annual declines in water level were greater than in 1952. The areas in Estancia Valley in which ground-water levels declined from February 1953 to February 1954 are shown on figure 61. Ground-water levels during 1953 declined more than 1 foot under a total area of about 222 square miles as compared with a like decline under 104 square miles in 1952 and 197 square miles in 1951.

The greatest net decline in 1953, as in years past, occurred in the area of heavy pumping centered about 10 miles north of Estancia where the ground-water levels declined more than 2 feet under about 42 square miles. In 1952 the area of maximum net decline of more than 2 feet was centered the same as in 1953 but included an area of only about 25 square miles. In this same area of heavy pumping in 1953 water levels declined more than 3 feet under an area of about 22 square miles, more than 4 feet under an area of almost 3 square miles. The maximum decline recorded in this area was 7 feet.

The area of next greatest net annual decline occurred about 3 miles northwest of Estancia where the water levels declined more than 2 feet under about 8 square miles and more than 3 feet under about 4 square miles. Declines in this area in 1952 were not appreciable. In the northern part of the valley, about 3 miles north of Moriarty, ground-water levels declined more than 2 feet under an area of about 5 square miles. In 1952 the maximum recorded decline in this area was 1.4 feet. In the heavily pumped area, about 5 miles southwest of Estancia, the water levels declined generally 1 to 2 feet in 1953. The declines in this area were generally less than in previous years.

During the 5-year period from February 1949 to February 1954 water levels have declined generally between 11 and 16 feet in an area 1 to 2 miles wide extending from 5 to 12 miles north of Estancia. Declines of more than 10 feet have occurred in the north part of T. 5 N., R. 8 E., during the same 5-year period.

Torrance County

Estancia Valley

4.8.11.233. R. B. Slease. Drilled unused water-table well in valley fill, diameter 14 inches. Highest water level 81.31 below lsd, Feb. 15, May 2, 1951; lowest 82.03 below lsd, May 28, 1952. Records available: 1950-53. Feb. 9, 81.66; May 25, 81.60; Aug. 17, 81.86; Nov. 7, 82.00.

4.8.11.433. R. B. Slease. Drilled unused water-table well in valley fill, diameter 16 inches, reported depth 180 feet, cased to 160. Highest water level 82.93 below lsd, May 2, 1951; lowest 83.83 below lsd, Aug. 7, 1952. Records available: 1950-53. Feb. 19, 83.33; May 25, 83.22; Aug. 17, 83.69; Nov. 7, 83.67.

4.8.12.333. R. B. Slease. Drilled unused water-table well in valley fill, diameter 16 inches, reported depth 272 feet, cased to 212(?). Highest water level 70.53 below lsd, Aug. 2, 1950; lowest 71.69 below lsd, Aug. 21, 1951. Records available: 1950-53. Feb. 9, 71.17; May 25, 71.55; Aug. 17, 71.54; Nov. 7, 71.55.

4.8.13.133. R. B. Slease. Drilled irrigation water-table well in valley fill, diameter 16 inches, reported depth 225 feet, cased to 197. Land-surface datum is 6,140 feet above msl. Highest water level 79.37 below lsd, Feb. 15, 1951; lowest 81.32 below lsd, May 28, 1952. Records available: 1949-53. Feb. 9, 79.80; May 25, 79.96; Aug. 17, 99.04, pumping; Nov. 7, 80.06.

4. 8. 13. 233. R. B. Slease. Drilled irrigation water-table well in valley fill, diameter 16 inches, reported depth 216 feet, cased to 216. Land-surface datum is 6,130 feet above msl. Highest water level 70. 82 below lsd, Feb. 15, 1951; lowest 75. 46 below lsd, Aug. 7, 1952. Records available: 1950-53. Feb. 9, 71. 25; May 25, 71. 06; Aug. 17, 94. 41, pumping; Nov. 7, 71. 76.

4. 8. 13. 333. R. B. Slease. Drilled irrigation water-table well in valley fill, diameter 16 inches, reported depth 230 feet, cased to 230. Highest water level 79. 62 below lsd, May 2, 1951; lowest 81. 75 below lsd, Aug. 7, 1952. Records available: 1950-53. Feb. 19, 80. 13; May 25, 79. 96; Aug. 17, 81. 39; Nov. 17, 80. 49.

4. 8. 14. 233. R. B. Slease. Drilled unused water-table well in valley fill, diameter 16 inches. Highest water level 91. 96 below lsd, Feb. 15, 1951; lowest 93. 05 below lsd, Aug. 21, 1951. Records available: 1950-53. Feb. 19, 92. 42; May 25, 92. 31; Aug. 17, 92. 76.

4. 8. 14. 433. R. B. Slease. Drilled unused water-table well in valley fill, diameter 16 inches, depth 211 feet, cased to 211(?). Highest water level 93. 81 below lsd, May 19, 1950; lowest 94. 93 below lsd, Aug. 21, 1951. Records available: 1950-53. Feb. 19, 94. 35; May 25, 94. 19; Aug. 17, 94. 57; Nov. 7, 94. 60.

4. 8. 24. 133. R. B. Slease. Drilled irrigation water-table well in valley fill, diameter 20 to 16 inches, reported depth 230 feet, cased to 100. Highest water level 84. 46 below lsd, May 4, 1949; lowest 86. 97 below lsd, May 28, 1952. Records available: 1949-53. Feb. 19, 85. 28; May 25, 85. 11; Aug. 17, 88. 87, pumped recently; Nov. 7, 85. 55.

4. 9. 10. 133. Homer Arnn. Drilled stock water-table well in valley fill, diameter 6 inches. Land-surface datum is 6,080 feet above msl. Highest water level 17. 05 below lsd, May 2, 1951; lowest 18. 46 below lsd, Oct. 25, 1948. Records available: 1941-53. Feb. 9, 18. 69, pumping, estimated; May 25, 17. 17; Aug. 17, 23. 05, pumping; Nov. 7, 17. 75.

5. 8. 5. 344. O. R. Ethridge. Drilled irrigation water-table well in valley fill, diameter 18 inches, reported depth 200 feet, cased to 118. Highest water level 51. 14 below lsd, Feb. 18 1947; lowest 71. 34 below lsd, Aug. 17, 1953. Records available: 1947-53. Feb. 25, 62. 65; May 26, 95. 16, pumping Aug. 17, 71. 34; Nov. 10, 66. 96.

5. 8. 8. 424. A. T. Austin. Drilled irrigation water-table well in valley fill, diameter 20 inches, reported depth 204 feet, cased to 98. Highest water level 62. 03 below lsd, Mar. 23, 1948; lowest 83. 45 below lsd, Aug. 22, 1951. Records available: 1948-53. Feb. 25, 72. 39; May 26, 83. 42, pumping; Aug. 17, 83. 04; Nov. 10, 77. 68.

5. 8. 10. 331a. Frank Craven. Drilled irrigation water-table well in valley fill, diameter 18 inches, reported depth 158 feet, cased to 91. Highest water level 19. 79 below lsd, Mar. 22, 1948; lowest 35. 83 below lsd, Nov. 7, 1953. Records available: 1947-53. Feb. 16, 29. 37; Aug. 17, 50. 46, pumping, nearby well being pumped; Nov. 7, 35. 83.

5. 8. 15. 131. Joe Begley. Drilled irrigation water-table well in valley fill, diameter 16 inches, reported depth 125 feet, cased to 59. Highest water level 13. 68 below lsd, May 8, 1945; lowest 37. 70 below lsd, Aug. 17, 1953. Records available: 1945-53. Feb. 18, 24. 79; May 26, 64. 67, pumping; Aug. 17, 37. 70; Nov. 10, 30. 66.

5. 8. 17. 113. Madison Davis. Drilled irrigation water-table well in valley fill, diameter 16 inches, reported depth 148 feet, cased to 59. Highest water level 43. 29 below lsd, May 8, 1945; lowest 60. 35 below lsd, May 26, 1953. Records available: 1945-53. Feb. 25, 56. 76; May 26, 60. 36.

5. 8. 17. 311a. Ray Brown. Drilled irrigation water-table well in valley fill. Highest water level 29. 50 below lsd, Mar. 23, 1948; lowest 67. 49 below lsd, Aug. 22, 1951. Records available: 1947-53. Feb. 25, 40. 00; May 26, 58. 65, pumping; Aug. 17, 45. 14; Nov. 10, 43. 53.

5. 8. 18. 233. S. W. Hodgson. Drilled irrigation water-table well in valley fill, diameter 16 inches, reported depth 153 feet, cased to 80. Highest water level 38. 69 below lsd, Feb. 18, 1947; lowest 58. 14 below lsd, Aug. 17, 1953. Records available: 1946-53. Feb. 27, 49. 98; May 26, 65. 52, pumping; Aug. 17, 58. 34; Nov. 10. 52. 98.

5. 8. 21. 111. R. B. Ford. Drilled irrigation water-table well in valley fill, diameter 16 inches, reported depth 169 feet, cased to 60. Highest water level 27. 23 below lsd, Feb. 18, 1947; lowest 40. 91 below lsd, Nov. 19, 1952. Records available: 1946-53. Feb. 25, 39. 17; May 26, 38. 64; Aug. 17, 40. 62.

5. 8. 24. 311. E. B. Wallace. Drilled irrigation water-table well in valley fill, diameter 16 inches, reported depth 200 feet, cased to 150. Land-surface datum is 6,115 feet above msl. Highest water level 21. 93 below lsd, Feb. 20, 1946; lowest 26. 11 below lsd, May 28, 1952. Records available: 1946-53. Feb. 11, 23. 26; May 26, 56. 71, pumping; Aug. 17, 56. 74, pumping; Nov. 7, 24. 78.

5. 9. 31. 331. Homer Arnn. Drilled unused water-table well in valley fill, diameter 24 inches, reported depth 210 feet, cased to 50. Land-surface datum is 6, 108 feet above msl. Highest water level 32. 12 below lsd, Nov. 2, 1950; lowest 34. 10 below lsd, Feb. 13, 1941. Records available: 1941-53. Feb. 25, 32. 82; May 25, 32. 82; Aug. 17, 33. 01; Nov. 7, 33. 15.

6. 8. 1. 111. Pat Homan. Drilled unused water-table well in valley fill and Magdalena group, diameter 18 inches, reported depth 450 feet. Highest water level 21. 95 below lsd, Feb. 9, 1950; lowest 27. 68 below lsd, Aug. 10, 1948. Records available: 1948-53. Feb. 19, 24. 77; May 26, 24. 98; Aug. 18, 25. 39.

6. 8. 3. 221. Ellison Timmins. Drilled unused water-table well in valley fill, diameter 18 to 20 inches, reported depth 195 feet, cased to 195. Land-surface datum is 6, 160 feet above msl. Highest water level 26. 09 below lsd, Apr. 8, Aug. 13, 1942; lowest 36. 27 below lsd, Aug. 18, 1953. Records available: 1941-53. Feb. 19, 29. 83; May 27, 31. 18; Aug. 18, 36. 27; Nov. 10, 34. 00.

6. 8. 15. 444. Estancia Cemetery. Drilled irrigation water-table well in valley fill. Land-surface datum is 6, 155 feet above msl. Highest water level 29. 90 below lsd, June 18, 1943; lowest 34. 11 below lsd, Nov. 10, 1953. Records available: 1941-53. Feb. 25, 32. 96; May 26, 33. 20, pumping; Aug. 18, 33. 75; Nov. 10, 34. 11.

6. 8. 27. 134. R. M. Spruill. Drilled stock water-table well in valley fill, diameter 6 inches, reported depth 100 feet, cased to 100. Land-surface datum is 6, 164 feet above msl. Highest water level 19. 47 below lsd, Apr. 8, 1942; lowest 34. 79 below lsd, Nov. 19, 1952. Records available: 1941-53. Feb. 25, 24. 55; May 26, 24. 99; Aug. 17, 26. 20; Nov. 10, 29. 03, pumping.

6. 8. 32. 212. O. R. Ethridge. Drilled irrigation water-table well in valley fill, diameter 18 inches, reported depth 209 feet, cased to 84. Highest water level 23. 22 below lsd, Feb. 18, 1947; lowest 32. 66 below lsd, Aug. 22, 1951. Records available: 1947-53. Feb. 25, 30. 24; May 26, 72. 31, pumping; Aug. 17, 70. 29, pumping; Nov. 10, 32. 30.

6. 9. 11. 211. H. E. Means. Drilled irrigation water-table well in valley fill, diameter 18 inches, reported depth 148 feet. Highest water level 5. 07 below lsd, May 4, 1949; lowest 9. 44 below lsd, Aug. 18, 1953. Records available: 1949-53. Feb. 19, 7. 45; May 26, 23. 53, pumped recently; Aug. 18, 9. 44; Nov. 5, 8. 49.

6. 10. 5. 312. Berkshire Bros. Drilled unused water-table well in valley fill(?), diameter 16 inches, reported depth 186 feet. Highest water level 6. 18 below lsd, Aug. 22, 1951; lowest 11. 04 below lsd, Feb. 16, 1949. Records available: 1949-53. May 26, 9. 86; Aug. 18, 9. 95; Nov. 11, 9. 82.

6. 10. 5. 312a. Berkshire Bros. Drilled irrigation water-table well in valley fill(?), diameter 20 inches. Highest water level 11. 54 below lsd, Feb. 8, 1950; lowest 17. 10 below lsd, May 26, 1953. Records available: 1950-53. Feb. 26, 13. 32; May 26, 17. 10; Aug. 18, 15. 17; Nov. 11, 14. 08.

6. 10. 7. 112. Owner unknown. Stock water-table well in valley fill, diameter 6 inches. Land-surface datum is 6, 080 feet above msl. Highest water level 5. 74 below lsd, Feb. 16, 1949; lowest 11. 68 below lsd, May 27, 1952. Records available: 1949-53. Feb. 19, 8. 25, pumping; May 26, 12. 41, pumped recently; Aug. 18, 9. 87, pumping; Nov. 5, 8. 38, pumping.

6. 10. 8. 112. J. M. Milburn & Son. Drilled irrigation water-table well in valley fill, diameter 16 inches, reported depth 169 feet, cased to 73. Highest water level 7. 90 below lsd, Sept. 2, 1948; lowest 15. 83 below lsd, Aug. 22, 1951. Records available: 1948-53. Feb. 19, 10. 99; Nov. 5, 10. 91.

7. 7. 12. 444. C. B. Roland. Drilled carbon dioxide test water-table(?) well in Magdalena group, diameter 7 inches, reported depth 1, 359 feet, cased to 60. Land-surface datum is 6, 349 feet above msl. Highest water level 31. 37 below lsd, Feb. 19, 1947; lowest 47. 37 below lsd, Nov. 4, 1953. Records available: 1941-53. Feb. 26, 46. 78; May 27, 46. 96; Aug. 18, 47. 17; Nov. 4, 47. 37.

7. 8. 1. 231. Myrtle Homan Estate. Drilled stock water-table well in valley fill, diameter 8 inches, reported depth 56 feet, cased to 20. Land-surface datum is 6, 142 feet above msl. Highest water level 25. 10 below lsd, Feb. 20, 1947; lowest 32. 03 below lsd, Nov. 5, 1953. Records available: 1941-53. May 27, 30. 81; Aug. 18, 37. 09, pumping; Nov. 5, 32. 03.

7. 8. 12. 433a. Arthur Schmidt. Drilled unused water-table well in valley fill, diameter 12 inches, reported depth 103 feet. Highest water level 21. 09 below lsd, Feb. 15, 1951; lowest 30. 37 below lsd, Aug. 23, 1951. Records available: 1947-53. Feb. 11, 23. 80.

7.8.24.431. R. T. Floyd. Drilled irrigation water-table well in valley fill, diameter 12 inches, reported depth 300 feet. Highest water level 21.77 below lsd, May 28, 1947; lowest 34.31 below lsd, Aug. 22, 1952. Records available: 1947-53. Feb. 11, 23.77; May 27, 31.21; Aug. 18, 44.40, pumped recently; Nov. 4, 28.13.

7.8.27.221. F. C. Pace. Drilled unused water-table well in valley fill, diameter 6 inches. Land-surface datum is 6,185 feet above msl. Highest water level 19.06 below lsd, May 7-10, 1947; lowest 28.36 below lsd, Oct. 10, 1953. Records available: 1941-53.

Daily highest water level from recorder graph

Day	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	.....	24.49	24.26	24.18	.....	25.44	27.72	27.82	27.90	28.16	27.57	26.84
2	.....	24.49	24.28	24.17	.....	25.54	27.74	27.85	27.85	28.20	27.53	26.82
3	.....	24.48	24.28	24.17	.....	25.63	27.77	27.85	27.81	28.21	27.51	26.82
4	.....	24.46	24.32	24.14	.....	25.72	27.78	27.85	27.77	28.25	27.48	26.79
5	.....	24.45	24.28	24.15	.....	25.82	27.77	27.83	27.73	28.27	27.43	26.78
6	.....	24.45	24.29	24.11	.....	25.92	27.74	27.83	27.70	28.29	27.41	26.80
7	.....	24.45	24.30	24.12	.....	26.02	27.63	27.85	27.66	28:31	27.39	26.75
8	.....	24.40	24.27	24.09	.....	26.12	27.60	27.87	27.61	28.33	27.37	26.75
9	.....	24.45	24.25	24.14	.....	26.21	27.55	27.89	27.57	28.35	27.34	26.74
10	.....	24.46	24.24	24.07	.....	26.31	27.53	27.92	27.53	28.36	27.32	26.68
11	.....	24.44	24.24	24.10	.....	26.41	27.50	27.94	27.50	28.35	27.29	26.68
12	.....	24.44	24.24	24.11	.....	26.51	27.46	27.97	27.47	28.32	27.26	26.69
13	.....	24.39	24.20	24.08	.....	26.60	27.43	27.99	27.41	28.30	27.24	26.68
14	.....	24.40	24.23	24.09	.....	26.69	27.39	28.02	27.38	28.25	27.20	26.66
15	.....	24.38	24.20	24.09	.....	26.79	27.34	28.04	27.35	28.21	27.18	26.64
16	.....	24.40	24.20	24.05	.....	26.87	27.30	28.06	27.32	28.17	27.16	26.64
17	.....	24.39	24.18	24.04	.....	26.95	27.27	28.08	27.28	28.13	27.13	26.62
18	.....	24.32	24.18	24.14	.....	27.05	27.26	28.12	27.27	28.09	27.08	26.60
19	h24.63	24.33	24.16	24.17	.....	27.12	27.24	28.12	27.27	28:05	27.08	26.58
20	24.61	24.38	24.14	24.14	.....	27.19	27.23	28.12	27.31	28.01	27.05	26.56
21	24.56	24.40	24.21	24.12	.....	27.26	27.24	28:15	27.40	27.97	27.05	26.55
22	24.61	24.36	24.24	24.12	.....	27.32	27.28	28.17	27.51	27.94	27.05	26.55
23	24.62	24.33	24.25	24.10	.....	27.38	27.33	28.18	27.61	27.90	27.02	.....
24	24.61	24.33	24.23	24.12	.....	27.43	27.42	28.18	27.71	27.85	27.02	.....
25	24.56	24.34	24.21	24.16	.....	27.48	27.50	28.17	27.80	27.83	26.99	.....
26	24.55	24.33	24.20	24.21	.....	27.52	27.58	28.14	27.87	27.79	26.97	.....
27	24.55	24.32	24.21	24.23	h24.93	27.55	27.62	28.11	27.93	27.75	26.95	.....
28	24.54	24.26	24.16	24.22	24.97	27.60	27.68	28.08	27.95	27.71	26.94	.....
29	24.52		24.16	.....	25.11	27.64	27.72	28.03	28.01	27.68	26.92	.....
30	24.50		24.18	.....	25.23	27.68	27.75	27.98	28.09	27.64	26.88	.....
31	24.54		24.19		25.33		27.78	27.95		27.60		.....

h Tape measurement.

7.8.34.222. Lilburn Homan. Drilled irrigation water-table well in valley fill, diameter 18 inches, reported depth 129 feet, cased to 109. Highest water level 18.51 below lsd, May 29, 1947; lowest 35.46 below lsd, Aug. 23, 1951. Records available: 1947-53. Feb. 19, 27.72; May 26, 36.16, pumping.

8.8.12.212. Lawrence Groff. Drilled irrigation water-table well in valley fill, diameter 20 inches, reported depth 180 feet. Highest water level 29.74 below lsd, May 20, 1948; lowest 43.62 below lsd, Nov. 4, 1953. Records available: 1948-53. Feb. 16, 38.56; May 27, 64.20, pumped recently; Aug. 18, 108.66, pumping; Nov. 4, 43.62.

8.8.15.343. Ed. W. Davis. Dug stock and domestic water-table well in valley fill, reported depth 102 feet. Highest water level 97.00 below lsd, Feb. 23, 1950; lowest 103.09 below lsd, Aug. 18, 1953. Records available: 1950-53. Feb. 24, 101.98; May 27, 102.63; Aug. 18, 103.09; Nov. 4, 103.66, nearby well being pumped.

8.8.26.222. Owner unknown. Drilled stock water-table well in valley fill, depth 20 feet. Land-surface datum is 6,188 feet above msl. Highest water level 6.50 below lsd, Sept. 6, 1946; lowest 17.32 below lsd, Aug. 18, 1953. Records available: 1941-53. Feb. 24, 16.19, pumping; May 27, 18.90, pumping; Aug. 18, 17.32; Nov. 5, 21.63, pumping.

8.8.28.311. Cecil Thomas. Drilled irrigation water-table well in valley fill, diameter 16 inches, reported depth 275 feet, cased to 154. Highest water level 134.53 below lsd, Feb. 13, 1952; lowest 149.98 below lsd, Aug. 20, 1952. Records available: 1951-53. Feb. 24, 137.56; May 27, 142.74; Nov. 4, 149.64.

8.8.35.322. A. C. Hibner. Drilled irrigation water-table well in valley fill(?), diameter 16 inches, reported depth 228 feet, cased to 110. Land-surface datum is 6,240 feet above msl. Highest water level 50.12 below lsd, May 28, 1947; lowest 74.65 below lsd, Aug. 18, 1953. Records available: 1947-53. Feb. 24, 65.38; May 27, 70.00; Aug. 18, 74.65; Nov. 5, 71.41.

9.8.11.233. Manuel Lujan. Drilled irrigation water-table well in valley fill(?), reported depth 320 feet. Highest water level 56.80 below lsd, May 20, 1948; lowest 64.04 below lsd, Aug. 19, 1952. Records available: 1948-53. Feb. 28, 60.19; May 28, 102.46, pumping; Aug. 19, 104.52, pumping.

9.9.32.131a. G. L. Dean. Drilled unused water-table well in valley fill(?), diameter 10 inches, reported depth 72 feet. Highest water level 5.70 below lsd, Feb. 20, 1947; lowest 10.09 below lsd, Nov. 4, 1953. Records available: 1943-53. Feb. 24, 8.35; May 27, 8.79; Aug. 19, 10.04; Nov. 4, 10.09.

Santa Fe County

Estancia Valley

10.7.23.212. G. F. Mosley. Drilled irrigation water-table(?) well in Magdalena(?) group, diameter 12 inches, reported depth 200 feet. Highest water level 137.18 below lsd, Feb. 17, 1949; lowest 144.42 below lsd, May 28, 1953. Records available: 1948-53. Feb. 28, 142.40, nearby well being pumped; May 28, 144.42.

10.8.13.133. W. R. Irby. Drilled irrigation water-table well in valley fill, reported depth 518 feet. Highest water level 86.75 below lsd, Feb. 22, 1950; lowest 96.61 below lsd, Aug. 20, 1952. Records available: 1950-53. Feb. 28, 90.63; May 28, 140.60, pumping; Aug. 19, 146.94, pumping.

10.8.17.424. Kenneth Martin. Unused water-table well in valley fill, diameter 6 inches, reported depth 150 feet. Highest water level 135.44 below lsd, May 3, 1949; lowest 140.13 below lsd, Nov. 20, 1951. Records available: 1949-53. Feb. 28, 137.80, pumping.

10.8.25.311. Floyd Irvin. Drilled irrigation water-table well in valley fill(?), diameter 16 inches, reported depth 238 feet, cased to 40. Highest water level 72.85 below lsd, Feb. 17, 1949; lowest 85.69 below lsd, May 28, 1953. Records available: 1948-53. Feb. 20, 77.92; May 28, 85.69; Aug. 19, 93.44, pumping.

10.8.35.312. Valley Irrigation Co. Drilled irrigation water-table well in valley fill. Highest water level 65.19 below lsd, May 20, 1948; lowest 72.31 below lsd, Aug. 1, 1950. Records available: 1948-53. Feb. 20, 68.67; May 28, 96.21, pumping, nearby well being pumped; Aug. 19, 101.71, pumping.

10.8.35.331. Valley Irrigation Co. Drilled irrigation water-table well in valley fill. Highest water level 65.12 below lsd, Feb. 7, 1950; lowest 72.92 below lsd, Nov. 1, 1950. Records available: 1948-53. Feb. 20, 68.93; May 28, 77.10, pumped recently; Aug. 19, 104.04, pumping.

10.8.36.111. Valley Irrigation Co. Drilled irrigation water-table well in Glorieta(?) sandstone member of San Andres formation, diameter 13 inches, reported depth 309 feet, cased to 231. Highest water level 34.91 below lsd, Sept. 15, 1947, Mar. 25, 1948; lowest 54.90 below lsd, Aug. 19, 1953. Records available: 1947-53. Feb. 20, 41.31; May 28, 49.10; Aug. 19, 54.90.

10.9.29.130. Glen Terry. Drilled irrigation water-table well in Glorieta sandstone member of San Andres formation, diameter 14 inches, reported depth 200 feet, cased to 140. Highest water level 55.13 below lsd, Feb. 18, 1949; lowest 63.90 below lsd, May 28, 1953. Records available: 1949-53. Feb. 28, 60.37; May 28, 63.90; Aug. 19, 70.35, pumping; Nov. 11, 63.87.

Valencia County

Grants-Bluewater area.--The Grants-Bluewater area is near the towns of Grants and Bluewater on the northeast flank of the Zuni Mountains in north-central Valencia County. Surface water stored in Bluewater Reservoir is distributed by the Bluewater-Toltec Irrigation District, which includes most of the acreage irrigated in the Grants-Bluewater area. The supply of water to the reservoir from winter snow runoff and summer rains has been insufficient for irrigation needs most years. Irrigation wells, originally drilled for supplemental water, have increased in number to become the principal source of irrigation waters on district and other lands.

Water levels in observation wells in the area have been measured periodically since 1946. Water levels were measured in 34 wells in February 1953, and in about 27 wells at bimonthly intervals. The net change in ground-water storage from year to year is determined by comparing the measurements of water levels made in February for the appropriate years. The seasonal fluctuations due to pumping and recharge are reflected in the bimonthly measurements of water

levels. A recording gage has been maintained since November 1946, on a well (12.11.9.222) about 2.5 miles north-northwest of the town of Bluewater.

The San Andres formation is the principal aquifer. Recharge to the San Andres is primarily from surface water that leaks from Bluewater Reservoir, and from the lower end of Bluewater Canyon and the irrigation canals after being released from Bluewater Reservoir. Recharge to the aquifer results also from precipitation upon the San Andres outcrop area in the Zuni Mountains, and from precipitation that penetrates through the alluvium and lava in parts of the valley. Some recharge may be derived from the return of irrigation waters applied on the land.

Precipitation in 1953 was about 5.4 inches, about 50 percent of the normal of 10.1 inches at Bluewater, an estimated 6.7 inches at Grants, and about 5.1 inches from May to December at the Grants Airport, for which there are no records from January to April. Precipitation at Bluewater during the growing season from April to September was about 3.6 inches or 50 percent of normal for this period. During this period there was no precipitation at Bluewater in September, and all other months were below normal except April, which was only 0.05 inch above normal. In July and August, precipitation at Bluewater was 3 inches, about 60 percent of the total for the growing season, and about 55 percent of the total annual precipitation. In July and August, precipitation at Grants Airport was 3.55 inches of which 2.76 inches occurred in July.

Surface water for irrigation was not released from Bluewater Reservoir in 1953, according to the records at the gaging station on Bluewater Creek near Bluewater Dam. The pumpage of ground water in 1953, on the basis of electric power records for 20 of the 25 used irrigation wells and one industrial well, is estimated to have been approximately 12,000 acre-feet, an increase of about 1,600 acre-feet over that pumped in 1952, when 6,000 acre-feet of surface water was available for distribution. The pumpage for 1953 is comparable, however, to the 11,900 acre-feet and 11,800 acre-feet pumped to irrigate approximately 6,000 acres in 1951 and 1950, respectively, when surface water also was not available. Because of the lack of surface water, pumping in the upper part of the area, where most of the surface water is used, when available, increased from about 1,000 acre-feet in 1952 to about 1,600 acre-feet in 1953. The increase in pumpage in 1953 over that for 1952 is also due, in part, to the deficient precipitation and, in part, to the increase in industrial use for concentrating uranium ores.

Ground-water levels in all of the observed wells in the Grants-Bluewater irrigation area showed net declines during 1953. About 90 percent of these wells showed new record lows. However, in 1952 net rises of water levels occurred in the upper part of the area near Bluewater, and net declines in the area southeast of Bluewater near Grants, illustrating the effect on recharge to the aquifer produced by surface waters released for irrigation of lands in the upper part of the area.

The net declines in 1953 were greatest in the upper part of the area near Bluewater, and ranged from 2.9 feet in well 12.11.20.424 to 10.8 feet in well 12.11.5.413, which is near the mouth of Bluewater Canyon. In contrast, the water level in this latter well, showed the greatest net rise in the upper area in 1952, when surface water was distributed. The declines in the upper area in 1953 were a little less than those which occurred in 1950 and 1951 when, as in 1953, surface water was not available. The smaller decline in 1953 may be due, in part, to the normally decreasing rate of decline with time that occurs when ground water is removed from storage in a large aquifer. On December 31, 1953, the water levels in this area were about 41 feet lower than in February 1946 when records began.

The net declines in water level in 1953 in the irrigated area southeast from Bluewater ranged from 0.7 foot in windmill well 11.10.4.222 which is finished in a perched zone to 6.6 feet in irrigation well 12.11.15.341. The declines in this area in most wells were about the same as in 1950 and 1951. In 1952, when surface water was available, when precipitation was slightly greater during the growing season, and when pumpage was somewhat less than in 1953, the net declines in this area ranged from about 0.4 fcot to about 1.0 foot. Ground-water levels in this area by the end of 1953 were from 18 to 22 feet lower than in February 1946.

Between the two areas discussed above there is a narrow belt trending generally east-west, in which the lowering of water levels in observation wells ranged from about 1 foot to 3 feet.

The 1953 records obtained from the recording gage on well 12.11.9.222 indicate that the water level rose from about 146.8 feet below land surface at the beginning of January to about 144.7 feet on March 20. After March 20, the water level declined irregularly to about 146.3 feet on April 15, when pumping began in the area. After April 15, the rate of decline increased, and by June 19, the water level had lowered to about 165.2 feet. No records are available from June 20 to October 7, except for a tape measurement on August 11. On that day the water level was 167.62 feet, the lowest known water level for 1953. A comparison, however, with the years 1950 and 1951 indicates that the rate of decline which began on April 15 would have continued into about the first week of July and then decreased or leveled off until sometime in late August or early September, when the water levels would begin to rise as pumpage decreased. The water level recorded on August 11 is probably close to the lowest level for the season. On October 8 the water level had risen to about 164.3 feet below land surface and continued to rise

steadily until by December 31 the water level stood at about 156.6 feet, or about 10 feet lower than the level on January 1, and about 12 feet lower than the high on March 20.

Grants-Bluewater Area

10.8.26.324. Santa Fe Railway. Drilled industrial water-table well in alluvium, diameter 14 to 12 inches, depth 178 feet. Land-surface datum is 6,150 feet above msl. Highest water level 21.41 below lsd, Apr. 15, 1953; lowest 21.78 below lsd, Oct. 17, 1952. Records available: 1952-53. Feb. 17, 21.51; Apr. 15, 21.41; June 10, 21.53; Aug. 10, 21.68.

10.9.26.224. Robert Gottlieb. Drilled stock water-table well in basalt, diameter 6 inches, depth 100 feet. Land-surface datum is 6,274.97 feet above msl. Highest water level 8.14 below lsd, Sept. 2, 1947; lowest 8.96 below lsd, Feb. 10, 1949, Dec. 16, 1952. Records available: 1946-53. Feb. 17, 9.04, pumping; Apr. 15, 8.97, pumping; June 10, 8.95, pumping; Aug. 10, 8.46; Dec. 19, 8.77, pumping.

10.10.26.331. Monico Mirabal. Drilled irrigation well in Glorieta sandstone member of San Andres formation, diameter 16 inches, depth 216 feet. Highest water level 22.18 below lsd, Feb. 21, 1952; lowest 24.33 below lsd, Aug. 12, 1953. Records available: 1952-53. Feb. 20, 23.03; Apr. 16, 22.97; Aug. 12, 24.33; Oct. 9, 24.12; Dec. 17, 23.78.

11.10.4.111. Buford Yarbo. Drilled unused water-table well in alluvium of Quaternary age, diameter 12 inches, depth 118 feet. Highest water level 67.68 below lsd, May 10, 1946; lowest 86.63 below lsd, Aug. 16, 1951. Records available: 1946-53. Feb. 17, 80.08; Apr. 15, 80.68; June 10, 86.11; Dec. 17, 85.32.

11.10.4.211. J. Church Co. Drilled irrigation artesian well in San Andres formation, diameter 16 inches, depth 150 feet. Highest water level 57.97 below lsd, Feb. 26, 1946; lowest 82.23 below lsd, Oct. 31, 1951. Records available: 1946-53. Feb. 17, 76.03; Apr. 15, 86.09, pumping; June 10, 86.21, pumped recently; Aug. 10, 86.05, pumping; Dec. 17, 81.32.

11.10.4.222. J. Church Co. Drilled domestic water-table well in alluvium of Quaternary age, diameter 6 inches, depth 94 feet. Highest water level 58.70 below lsd, May 10, 1946; lowest 73.52 below lsd, Oct. 8, 1953. Records available: 1946-53. Feb. 17, 72.40, pumped recently; Apr. 15, 72.44; June 10, 74.05, pumped recently; Aug. 10, 73.04, pumped recently; Oct. 8, 73.52; Dec. 17, 73.15.

11.10.8.222. Salvador Milan. Drilled irrigation artesian well in San Andres formation, diameter 16 inches, depth 165 feet. Highest water level 57.85 below lsd, Feb. 27, 1946; lowest 89.06 below lsd, Oct. 8, 1953. Records available: 1946-53. Feb. 19, 74.25; Apr. 16, 77.10; June 11, 90.61, pumping; Aug. 11, 86.32; Oct. 8, 89.06; Dec. 17, 79.50.

11.10.9.222. A. R. Card. Drilled irrigation artesian well in San Andres formation, diameter 20 inches, depth 480 feet. Highest water level 54.49 below lsd, Feb. 26, 1946; lowest 79.76 below lsd, Aug. 10, 1953. Records available: 1946-53. Feb. 17, 69.85; Apr. 15, 72.82; June 10, 101.04, pumping; Aug. 10, 79.76; Dec. 17, 74.35.

11.10.16.121. Frank Wilson. Drilled irrigation artesian well in San Andres formation, diameter 16 inches, depth 155 feet. Highest water level 46.47 below lsd, Feb. 27, 1946; lowest 71.29 below lsd, Oct. 9, 1953. Records available: 1946-53. Feb. 19, 62.01; Apr. 16, 82.54, pumping; June 11, 86.10, pumping; Aug. 11, 89.23, pumping; Oct. 9, 71.29; Dec. 17, 66.13.

11.10.26.411. City of Grants. Drilled public-supply water-table well in alluvium of Quaternary age, diameter 16 inches, depth 110 feet. Highest water level 7.40 below lsd, Mar. 11, 1947; lowest 18.07 below lsd, Dec. 18, 1953. Records available: 1946-53. Feb. 20, 16.30, nearby well being pumped; Apr. 16, 14.91, nearby well being pumped; Dec. 18, 18.07.

11.10.27.410. Cecil Moore. Drilled unused water-table well in alluvium and basalt of Quaternary age, diameter 9 inches, depth 50 feet. Highest water level 35.54 below lsd, Mar. 11, 1947; lowest 45.69 below lsd, Oct. 9, 1953. Records available: 1946-53. Feb. 18, 40.09; Apr. 16, 40.03; June 11, 42.33; Aug. 11, 44.80; Oct. 9, 45.69; Dec. 17, 43.35.

12.10.29.434. A. R. Card. Drilled unused artesian well in San Andres formation, diameter 18 inches, depth 205 feet. Highest water level 65.46 below lsd, Oct. 14, 1944; lowest 98.68 below lsd, June 10, Aug. 11, 1953. Records available: 1944, 1946-53. Feb. 17, 86.16; Apr. 15, 98.50; nearby well being pumped; June 10, 98.68; Aug. 11, 98.68; Oct. 8, 96.02; Dec. 17, 91.58.

12.10.30.242. E. E. Harden. Drilled domestic water-table well in alluvium of Quaternary age, diameter 4 inches, depth 160 feet. Highest water level 88.45 below lsd, May 10, 1946; lowest 107.09 below lsd, June 25, 1952. Records available: 1946-53. Feb. 17, 102.30; Apr. 15, 102.99; Oct. 8, 108.88, pumping; Dec. 18, 106.63.

12.10.30.412. Fred Freas. Drilled irrigation artesian well in San Andres formation, diameter 16 inches, depth 225 feet. Highest water level 90.04 below lsd, Feb. 26, 1946; lowest 113.21 below lsd, Dec. 17, 1953. Records available: 1946-53. Feb. 17, 107.61; Apr. 15, 109.94; June 10, 111.98, pumping; Dec. 17, 113.21.

12.10.30.421. Milton Harding. Drilled irrigation artesian well in San Andres formation, diameter 16 inches, depth 245 feet. Highest water level 88.38 below lsd, Feb. 26, 1946; lowest 119.69 below lsd, Oct. 8, 1953. Records available: 1946-53. Feb. 17, 105.84; Apr. 15, 108.20; Oct. 8, 119.69; Dec. 17, 111.34.

12.10.32.111. J. Church Co. Drilled irrigation artesian well in San Andres formation, diameter 20 inches, depth 253 feet. Highest water level 82.09 below lsd, Feb. 26, 1946; lowest 111.12 below lsd, Oct. 8, 1953. Records available: 1946-53. Feb. 17, 99.68; Apr. 15, 101.55; June 10, 113.01, pumping; Oct. 8, 111.12; Dec. 17, 104.87.

12.11.5.413. J. Church Co. Drilled unused artesian well in San Andres(?) formation, diameter 8 inches, depth 357 feet. Highest water level 183.46 below lsd, Oct. 12, 1949; lowest 231.65 below lsd, Aug. 10, 1953. Records available: 1948-53. Feb. 18, 208.79; Apr. 16, 209.94; June 11, 225.45; Aug. 10, 231.65; Oct. 6, 230.02; Dec. 18, 222.35.

12.11.9.114a. J. Church Co. Drilled unused artesian well in San Andres(?) formation, diameter 16 inches, depth 523 feet. Highest water level 123.30 below lsd, Aug. 19, 1949; lowest 175.35 below lsd, Aug. 14, 1951. Records available: 1948-53. Feb. 18, 153.27; Apr. 16, 152.54; June 11, 161.32; Aug. 10, 164.73; Oct. 6, 164.93; Dec. 18, 162.24.

12.11.9.222. J. Church Co. Drilled unused water-table well in San Andres(?) formation, diameter 18 inches, depth 500 feet. Highest water level 115.70 below lsd, Feb. 27, 1946; lowest 167.62 below lsd, Aug. 11, 1953. Records available: 1946-53.

Daily highest water level from recorder graph

Day	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1	146.67	145.78	144.76	145.41	151.15	160.72	.....	.....	.....	.....	161.17	158.25
2	146.79	145.79	144.76	145.47	151.54	160.76	.....	.....	.....	.....	161.05	158.21
3	146.72	145.82	144.76	145.58	151.92	161.12	.....	.....	.....	.....	160.95	158.17
4	146.65	145.71	144.90	145.64	152.10	161.96	.....	.....	.....	.....	160.83	158.04
5	146.52	145.66	144.88	145.44	152.37	162.13	.....	.....	.....	.....	160.66	158.05
6	146.45	145.67	144.89	145.39	152.73	162.21	.....	.....	.....	.....	160.62	158.07
7	146.46	145.55	144.88	145.48	152.94	162.48	.....	.....	.....	.....	160.64e	157.86
8	146.54	145.38	144.77	145.70	153.19	162.44	.....	.....	.....	164.32	160.56	.....
9	146.54	145.43	.....	145.85	153.42	162.46	.....	.....	.....	164.14	160.40	.....
10	146.48	145.57	.....	145.95	153.70	162.90	.....	.....	.....	163.93	160.28	.....
11	146.41	145.58	.....	145.95	153.94	162.73	.....	h167.62	.....	163.71	160.16	.....
12	146.35	145.53	.....	145.99	154.25	162.65	.....	.....	.....	163.62	160.06	.....
13	146.23	145.46	.....	146.07	154.50	162.74	.....	.....	.....	163.52	159.98	.....
14	146.16	145.48	.....	146.13	154.75	163.50	.....	.....	.....	163.37	159.83	.....
15	146.18	145.40	.....	146.34	154.90	164.16	.....	.....	.....	163.20	159.71	.....
16	146.25	145.44	.....	146.81	155.77	164.66	.....	.....	.....	163.05	159.58	.....
17	146.21	145.36	.....	147.21	156.27	164.75	.....	.....	.....	162.93	159.37	.....
18	146.18	145.08	.....	147.75	156.32	165.23	.....	.....	.....	162.74	159.35h	157.30
19	146.17	145.07	144.72	148.23	156.44	165.23	.....	.....	.....	162.61	159.32	157.22
20	146.09	145.15	144.72	148.63	157.25	.....	.....	.....	.....	162.55	159.15	157.09
21	146.00	145.22	144.73	148.91	158.06	.....	.....	.....	.....	162.38	159.16	157.05
22	146.04	145.14	144.83	148.98	158.72	.....	.....	.....	.....	162.22	159.15	157.06
23	146.13	145.06	144.82	148.96	159.27	.....	.....	.....	.....	162.08	159.07	157.04
24	146.09	145.01	145.04	149.08	159.36	.....	.....	.....	.....	161.95	159.03	156.95
25	146.03	145.04	145.07	149.25	159.92	.....	.....	.....	.....	161.88	158.98	156.89
26	145.98	145.02	145.12	149.43	160.53	.....	.....	.....	.....	161.80	158.87	156.73
27	145.98	144.97	145.26	149.59	160.83	.....	.....	.....	.....	161.70	158.81	156.62
28	145.97	144.81	145.28	150.00	160.61	.....	.....	.....	.....	161.60	158.75	156.64
29	145.84		145.01	150.31	160.50	.....	.....	.....	.....	161.48	158.66	156.61
30	145.79		145.03	150.81	160.53	.....	.....	.....	.....	161.41	158.46	156.69
31	145.94		145.25		160.62		.....	.....		161.32		156.61

e Estimated.
h Tape measurement.

12.11.9.424. George Rowley. Drilled unused artesian well in San Andres formation, diameter 16 inches, depth 505 feet. Highest water level 93.75 below lsd, May 10, 1946; lowest 119.96 below lsd, Oct. 6, 1953. Records available: 1946-53. Feb. 18, 112.60; Apr. 16, 112.89; June 11, 116.79; Oct. 6, 119.96; Dec. 18, 119.62.

12.11.14.213. Dyan Berryhill. Drilled unused water-table well in alluvium of Quaternary age and Blue Water basalt (of Nichols), diameter 4 inches, depth 130 feet. Highest water level 98.26 below lsd, Feb. 8, 1950; lowest 101.25 below lsd, June 25, 1952. Records available: 1949-53. Feb. 20, 100.77; Apr. 15, 100.80; June 10, 100.93; Aug. 10, 100.97; Dec. 19, 101.12.

12.11.15.341. Edward Freas. Drilled irrigation artesian well in San Andres formation, diameter 14 inches, depth 457 feet. Highest water level 99.78 below lsd, Oct. 12, 1949; lowest 147.23 below lsd, Aug. 10, 1953. Records available: 1946-53. Feb. 19, 123.00; Apr. 16, 126.00, nearby well being pumped; June 11, 160.68, pumping;Aug. 10, 147.23; Oct. 7, 143.10; Dec. 18, 135.40.

12.11.20.424. J. F. Nielson. Drilled stock artesian well in San Andres formation, diameter 18 inches, depth 310 feet. Highest water level 236.29 below lsd, Oct. 12, 1949; lowest 265.69 below lsd, June 20, 1951. Records available: 1946-53. Feb. 20, 258.11; Aug. 12, 265.01; Oct. 7, 264.02; Dec. 18, 261.03.

12.11.22.414. Hassell. Drilled unused artesian well in San Andres(?) formation, diameter 20 inches, depth 440 feet. Highest water level 110.59 below lsd, Feb. 27, 1946; lowest 150.39 below lsd, Aug. 15, 1951. Records available: 1946-53. Feb. 19, 140.51.

12.11.23.233. Harmon and Read. Drilled domestic artesian well in San Andres formation, diameter 8 inches, depth 300 feet. Highest water level 67.17 below lsd, June 25, 1952; lowest 70.85 below lsd, Apr. 16, 1953. Records available: 1946-53. Apr. 16, 70.85; June 11, 70.83; Aug. 12, 70.49; Oct. 8, 82.50, pumped recently; Dec. 18, 72.19, pumped recently.

12.11.24.411. Anaconda Copper Co. Drilled industrial well in limestone member of San Andres formation, diameter 14 to 12 inches, depth 357 feet, cased to 357, perforations 249-357. Land-surface datum is 6,612.96 feet above msl. Highest water level 149.31 below lsd, Feb. 18, 1953; lowest 160.21 below lsd, June 19, 1952. Records available: 1952-53. Feb. 18, 149.31; Apr. 16, 150.65, pumped recently; June 11, 160.63, pumped recently; Aug. 12, 162.12, pumped recently; Oct. 8, 162.42, pumping.

12.11.25.223. J. C. Church. Drilled irrigation artesian well in San Andres formation, diameter 18 inches, depth 238 feet. Highest water level 100.18 below lsd, Feb. 27, 1946; lowest 129.95 below lsd, Oct. 8, 1953. Records available: 1946-53. Feb. 17, 118.36; Apr. 15, 121.27, pumped recently, nearby well being pumped; June 10, 129.97; pumped recently; Oct. 8, 129.95.

12.11.25.223a. J. C. Church. Drilled irrigation artesian well in San Andres formation, diameter 18 inches, depth 236 feet. Highest water level 106.82 below lsd, Feb. 3, 1947; lowest 131.28 below lsd, Oct. 6, 1953. Records available: 1946-53. Feb. 17, 119.42; Apr. 15, 124.03, pumping; June 10, 130.86; Oct. 6, 131.28; Dec. 18, 125.26.

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