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DEPARTMENT OF THE INTERIOR
UNITED STATES GEOLOGICAL SURVEY
CHARLES D. WALCOTT, DIRECTOR

DEVELOPMENT OF UNDERGROUND WATERS

IN THE

EASTERN COASTAL PLAIN REGION OF SOUTHERN CALIFORNIA

BY
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CONTENTS.

ILLUSTRATIONS.

LETTER OF TRANSMITTAL.

DEPARTMENT OF THE INTERIOR,
UNITED STATES GEOLOGICAL SURVEY,
HYDROGRAPHIC BRANCH,
Washington, D. C., September 23, 1904.

SIR: I transmit herewith a paper entitled "Development of Underground Waters in the Eastern Coastal Plain Region of Southern California," by Mr. W. C. Mendenhall, and recommend that it be published in the series of Water-Supply and Irrigation Papers.

This report is the first of three papers on the underground waters of the coastal plain of southern California, which are being prepared by the division of hydrology under the general direction of Mr. N. H. Darton. When the series is complete it will contain a list of nearly all the wells in this section of the State, with such data as to water levels, irrigation systems, and irrigated lands as could be collected by a careful canvass.

The studies, a part of whose results are being made available in this way, are planned to cover all the important water-bearing lands of the valley of southern California. In most instances the facts gathered concerning the wells and the distributing systems will be supplemented by a study of the local geology in so far as it controls the amount, distribution, and circulation of the ground waters. The hydrographic data and the geologic data will then be discussed and issued together in one report. In the coastal plain area, however, the geologic conditions being relatively simple, and the hydrographic data being large in volume and of paramount importance, it is deemed best to issue the latter at once, rather than to delay it pending the working out more fully of the comparatively unimportant geologic problems. Therefore the tables and maps are presented here for the consideration of water users, with a comparatively brief text, which is chiefly descriptive, but includes a discussion of the effects of development and drought in bringing about those changes in water levels and in the outlines of artesian areas which have been most marked within the last five or six years.

Very respectfully,

F. H. NEWELL,
Chief Engineer.

Hon. CHARLES D. WALCOTT,
Director United States Geological Survey.

DEVELOPMENT OF UNDERGROUND WATERS IN THE EASTERN COASTAL PLAIN REGION OF SOUTHERN CALIFORNIA.

By W. C. MENDENHALL.

INTRODUCTION.

In California generally, irrigation engineering and water development are further advanced than in any other part of the Union, and in no other part of the State has the scientific study of water conservation, distribution, and application been carried out so fully as in the valley region near Los Angeles. The lands are highly productive when water can be applied to them. The climate is semiarid, with a rainfall of from 10 to 20 inches in the tillable areas, practically all of which is confined to the winter months. This is not sufficient to mature the more valuable crops, hence irrigation must be resorted to, and the extension of the areas of cultivation is dependent upon an increase in the water supply. The flowing waters from the mountain canyons were long ago appropriated, and the attention of irrigators and engineers during the last decade has been turned largely toward the development of the subterranean sources.

As a preliminary step in the study of the amount, availability, distribution and proper use of underground waters, the majority of the wells within the region have been visited. Data have been collected concerning the size, depth, yield, and cost of the wells, and the temperature, purity, and use of the waters. The present and past artesian areas, the irrigated lands, and the main canal systems have been mapped. Outside the artesian belts the ground-water level—the position of the surface of the plane of saturation—has also been determined as closely as possible. In short, the object of the work has been to collect all information which will be of value in the further development of the water resources or which throws light on past development and its effects. It is planned, as the work continues, to examine carefully the general geologic conditions in the water-bearing areas, as the depth, form, storage capacity, and origin of the subterranean reservoirs and the circulation of the waters within them are questions of geology. The extent to which these stored waters may safely be

drawn upon depends upon their amount and the rate at which they are replenished. Some observations on the latter question have been made, and others more extended and systematic have been begun by the Survey.

By the valley of southern California, within which this work is undertaken, is meant that region extending 30 or 40 miles south of the San Gabriel and San Bernardino mountains, and lying between the Pacific Ocean and Cajon and San Gorgonio passes. It includes the greater part of the productive lands of the southern section of the State, and within it lie most of the prosperous settlements which have become famous for their beauty, fertility, and healthfulness.

In the preliminary work on the underground waters within this region the Survey representatives have examined about 11,000 wells of all kinds, from those but a few feet in depth and used only for domestic supply or for stock, to bored wells 1,200 feet deep and yielding in many cases copious flows of irrigation water. The amount of statistical data which has been thus assembled is large, and through the courtesy and interest of water users and irrigation companies is constantly increasing.

The Anaheim and Santa Ana quadrangles,[a] which, together comprise what is called in this paper the eastern coastal plain region, include an area 35 miles long and 15 miles wide, extending from longitude 117° 45′ to 118°, and from latitude 34° to the Pacific Ocean. This area includes the lower portion of Santa Ana River below its lower canyon through the Santa Ana Mountains. The greater part of the San Joaquin Hills are within the Santa Ana quadrangle, and the central part of the Puente Hills are in the Anaheim quadrangle. Between these groups of hills lies the eastern end of the southern California coastal plain, including a part of the famous peat lands of Orange County, and the perhaps equally well-known agricultural lands about Santa Ana, Orange, and Anaheim. Under these lower, comparatively level lands the important underground waters are found. The artesian basin of the coastal plain, the largest artesian basin in southern California, with an area of about 190 square miles, occupies the northwestern portion of the Santa Ana quadrangle, and extends along the western edge of the southern half of the Anaheim quadrangle. A broad zone, originally artesian, but not now yielding flowing water, stretches across the southwestern corner of the Anaheim quadrangle. Within this zone water lies within easy pumping distance.

[a] A quadrangle is the unit of survey adopted by the United States Geological Survey for the topographic and geologic atlas of the United States. It is a rectangular area 15 minutes, 30 minutes, or 1 degree in extent each way, bounded by parallels and meridians, and having an area of one-sixteenth, one-quarter, or one square degree. The quadrangles disregard political boundaries, such as those of States, counties, and townships. To each is given the name of some well-known place or feature within its limits. A sheet is the topographic map of one of the above areas.

COASTAL PLAIN.

The coastal plain, of which the lowlands in these two quadrangles form a part, extends from the Pacific to the base of the Puente Hills and the Santa Ana Mountains, and from the Santa Monica Mountains to the San Joaquin Hills. It is about 50 miles long and from 15 to 20 miles wide, and has an area of approximately 775 square miles. It is generally a smooth plain with an elevation along its inland edge of from 200 to 300 feet, from which it slopes gently to sea level at the coast. San Pedro Hill rises well above it, and its general regularity is interrupted by a long low ridge which extends from the vicinity of Palms to Huntington Beach. This ridge is not continuous, as a wide valley has been cut through it by each of the larger streams which flow across the coastal plain to the sea, thus breaking it into a series of detached but aligned hills of different heights. This broken ridge forms the seaward boundary of the coastal plain artesian basin. Within the area treated in this paper it is a rather inconspicuous physical feature, existing as the low, broad mesa about Huntington Beach, and perhaps as the similar feature north of Newport and enveloping the base of the San Joaquin Hills.

The coastal plain is underlain by a succession of sand, gravel, and clay beds whose constituent materials were transported to their present position by Santa Ana, San Gabriel, and Los Angeles rivers, and perhaps in small part by the waves and currents of the Pacific. This plain represents a former wide bay which was gradually filled by alluvial débris that has been redistributed, in part at least, by oceanic waters as beach sands and gravel. Convincing evidence of this factor in distribution is furnished by the recent marine shells which are so often found in deep and shallow wells and on the present surface some miles from the shore line.

CROPS.

Within the area under consideration crops and soils are varied, as is generally true throughout the coastal plain, and irrigation practice is not at all uniform. In the Anaheim quadrangle about Orange, Fullerton, and Anaheim are many citrus groves, and deciduous fruits and walnuts are extensively cultivated. Farther south, in the peat lands, celery is becoming a more and more important crop, and sugar beets, corn, and alfalfa are extensively grown.

The citrus groves require the regular application of water throughout the year, irrigation being constant, except when winter rains are sufficiently heavy to serve as a substitute. Practice is not uniform in the walnut groves, some growers maintaining that irrigation is not necessary. This may be true in moist lands, where the roots can reach the ground waters, but generally ranchers find it profitable to apply

water during the summer season. Deciduous orchards, generally in the lower lands, are under irrigation, but in the vicinity of La Habra are a number of flourishing groves which receive only the rainfall.

In preparing the peat lands for celery the soil is thoroughly flooded, and often water is turned on again once or twice before the crop is mature, but in the moister lands one or both of these later applications may be omitted. With sugar beets, also, practice varies. Water is almost invariably used in preparing the land, and is often, but not always, applied during the growth of the crop. Corn, alfalfa, potatoes, and peanuts are usually irrigated, while grapes and barley are sometimes watered during dry years, but these, with beans, are regarded as the principal dry crops.

On many of the lands which lie under the Santa Ana Valley or Anaheim canal systems, as well as on those watered from pumping plants, a certain amount of rotation is practiced, and lands which are irrigated one year may stand dry during another or may be planted to a crop requiring much more or much less water than the one grown during the preceding season. This is possible only with the annuals, of course. Groves or other crops requiring more than one year to mature can not be rotated in this way. These variations in crops and in irrigation practice make it difficult to estimate the duty of water per acre of irrigated land. Citrus lands are regarded as requiring an equivalent of approximately one miner's inch[a] continuous flow for each 5 acres. Other crops require less, some of them very much less.

The total area irrigated during the season of 1904 in the Anaheim quadrangle is estimated at 28,800 acres and in the Santa Ana quadrangle at 6,600 acres, a total of 35,400 acres.

In this estimate of the total acreage irrigated, and on the maps showing irrigated lands (Pls. II and III), those areas upon which water is applied in the manner known as "subirrigation" are not included. Subirrigation consists essentially in releasing the water on the surface or in ditches which are widely separated, whence it seeps laterally for long distances through the fine sandy subsoil which is under much of the peat lands. The method is applicable only where the water table lies near the surface. It amounts in effect to raising this water table locally, so that it may be reached by the roots of grasses, corn, beets, and other plants with short root systems. It is not possible to map the areas irrigated in this way or to estimate their amount, because the boundaries are wholly indefinite and the lands thus watered are often inseparable from those which are naturally moist enough to mature crops. This method is applied more generally to pasture lands than to cultivated areas.

[a] Wherever the term "miner's inch" is used in this report the old California miner's inch is meant. This unit is the amount of water that flows through a 1-inch orifice under 4 inches pressure. It is equal to 9 gallons a minute, one-fiftieth of a second-foot, or 14.478 acre-feet a year.

IRRIGATION SYSTEMS.

Three streams supply surface irrigating waters for the Santa Ana and Anaheim quadrangles. These are San Gabriel River, from which water is brought to a territory east of Whittier, in the La Habra district; Santa Ana River, in which the important Anaheim Union and Santa Ana Valley systems originate; and Santiago Creek, which supplies the Serrano and Carpenter ditches, in the vicinity of Villa Park and El Modena.

SAN GABRIEL SYSTEM.

LA HABRA AND EAST WHITTIER WATER COMPANY.

The La Habra and East Whittier Water Company procures water from the San Gabriel Valley, above the Paso de Bartolo, by means of a battery of wells and pumps. The water is discharged into an old

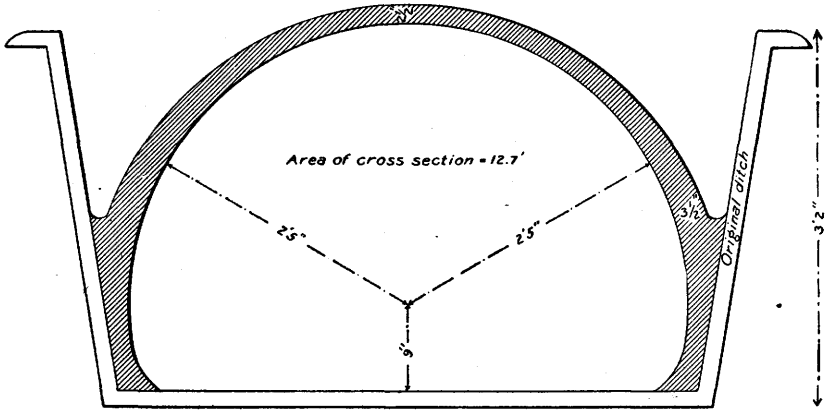


FIG. 1.—Cross section of East Whittier ditch.

ditch which has been covered with concrete and so converted practically into a pipe line (fig. 1). This line extends to Pickering avenue, Whittier. From Pickering avenue to the La Habra pumping station the water flows through a 36-inch wooden pipe line. From the pumping station about 3,300 feet of 26-inch steel pipe is used for the lift of 110 feet to the reservoir above. A 120-horsepower steam pump has been installed for this lift.

From this reservoir about 6,000 feet of cement pipe extends to an arroyo southeast of the pumping station, and a 24-inch concrete pipe runs from this point to the center of sec. 5, T. 3 S., R. 10 W. A 22-inch pipe extends thence to the reservoir and pumping station on the west line of the Rancho San Juan Cajon de Santa Ana. From this station a lower 22-inch gravity line extends to the east side of Brea Canyon, and a line about 2,000 feet long, with a lift of 66

feet, extends to a distributing box above the pumping station, whence a distributing pipe, in part steel, extends eastward to beyond Brea Canyon.

From the La Habra station the California Domestic Water Company has a gravity line running southward for 2 or 3 miles toward Coyote Creek and serving the adjacent lands.

SANTA ANA SYSTEMS.

All of the water flowing in Santa Ana River at Bedrock Canyon, 4 miles west of Rincon, where its flow is supposed to be at a maximum, is taken from the river bed and divided equally between the Anaheim Union Water Company, which supplies the lands north of the river, and the Santa Ana Valley Irrigation Company, which serves the lands south of the river.

A division box of wood, supported by piling, has been built at Bedrock Canyon. One-half the water of the river is diverted here into the Anaheim Union Water Company's canal; the other half, after the division, is returned to the river bed, and is taken out again at the headworks of the Santa Ana Valley Irrigation Company's canal 3 miles below.

ANAHEIM UNION WATER COMPANY.

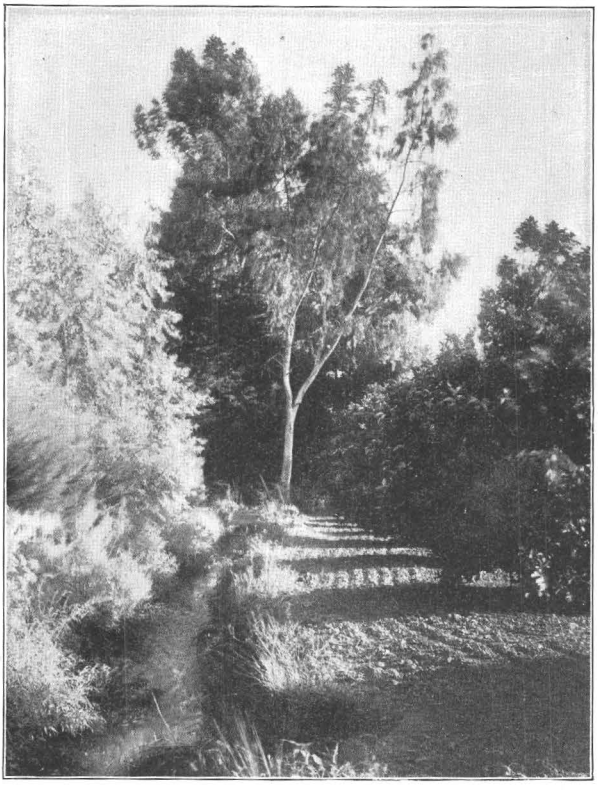
According to the report of William Ham. Hall, formerly State engineer of California, the Anaheim Union Water Company is the successor to the earlier rights held by the Anaheim Water Company, the Kramer ditch, and the North Anaheim Canal Company and its predecessors, the Cajon Irrigation Company and the Cañon de Santa Ana Water Company.

The Kramer ditch was the oldest of the water rights acquired. It had taken water from the river several years before the founding of Anaheim in 1857, and had used those waters to irrigate the Kramer tract. For its rights, the Anaheim Union Water Company gave 20 shares of nonassessable stock.

The Los Angeles Vineyard Society, organized in 1856, secured 1,165 acres of land from the Rancho San Juan Cajon de Santa Ana and a water right based on the riparian rights of the rancho. It built a ditch and diverted sufficient water to irrigate nearly 2,000 acres. In 1860 all the water rights, ditches, canals, and rights of way belonging to the society were conveyed to the Anaheim Water Company.

The Cajon Canal was begun in 1875, under the authority of the Bush act of 1874, which provided for the organization of irrigation districts in Los Angeles County, under the supervision of a county superintendent of irrigation.

District No. 1 was organized and built a small ditch, about 3 feet wide on the bottom, to the mouth of the canyon; District No. 2, formed



A. AN UNCEMENTED PORTION OF THE UPPER ANAHEIM CANAL.

B. A CEMENTED PORTION OF THE UPPER ANAHEIM CANAL.

later, joined the first district and the canal was enlarged to its present size. After an expenditure of $40,000 the work was abandoned.

In 1876 the Stearns Rancho Syndicate organized the Cañon de Santa Ana Water Company, with a capital stock of $200,000, and took possession of the canal. No work, however, had been done at the end of two years.

In 1877, seven landowners organized the Cajon Irrigation Company with a capital stock of $20,000. They filed on 4,320 miner's inches of water at the head of the partly completed Cajon canal, took possession adversely to the claim of the Cañon de Santa Ana Company, and brought suit to quiet title. The suit never came to trial, but possession on the part of the new company was never strongly resisted by the older, less active organization.

The stockholders of the new company, although not wealthy men and having a hard struggle to raise the necessary means, managed to continue construction upon their canal. At the time when they were most deeply involved, they sold one-half interest to the Anaheim Water Company for $20,000, and with these funds continued the work. In 1882, because of defects in their original organization, they reorganized, taking the name of the North Anaheim Canal Company, whose rights had been purchased for $500 in 1878. This last-named company was organized in 1872 to irrigate land northwest of Anaheim. Its ditch, with a capacity of 1,500 miner's inches, rarely received water except in winter.

The joint ownership of the Cajon canal by the Anaheim Water Company and the Cajon Company was never a satisfactory arrangement. Disagreements about the division of water led to lawsuits, and in 1884 a consolidation, resulting in the formation of the present Anaheim Union Water Company, was effected.

Under its present organization, which was completed in January, 1884, the $1,200,000 capital stock of the company is divided into 12,000 shares, of which 8,004 shares, representing 8,004 acres under irrigation, have been sold, the balance being held as treasury stock. The par value of the stock is $100 a share, and the present (1904) market value is about $65 a share. Stock in the water company is not appurtenant to the land, but may be bought or sold independently.

The main canal, of cement or earth construction, has a capacity of about 26 heads of 100 miner's inches each. The minimum supply is given as about 800 miner's inches. Hall gives the length of the main canals and branches as over 100 miles, and the officers of the company state that about 35 miles of laterals are cemented. (See Pl. IV.)

One share of stock entitles the owner to one head of 100 miner's inches for one-half hour during each run throughout the summer season

of minimum supply. When water is abundant there is no time limit, and all the water that the irrigator desires to purchase may be taken out. The water to which ownership of stock entitles the holder is paid for at present according to the following schedule:

Charge for water under canals of Anaheim Union Water Company per head of 100 miner's inches per hour.

November, December, January, and February	$0.30
March	.40
April and October	.50
May and September	.60
June, July, and August	.80

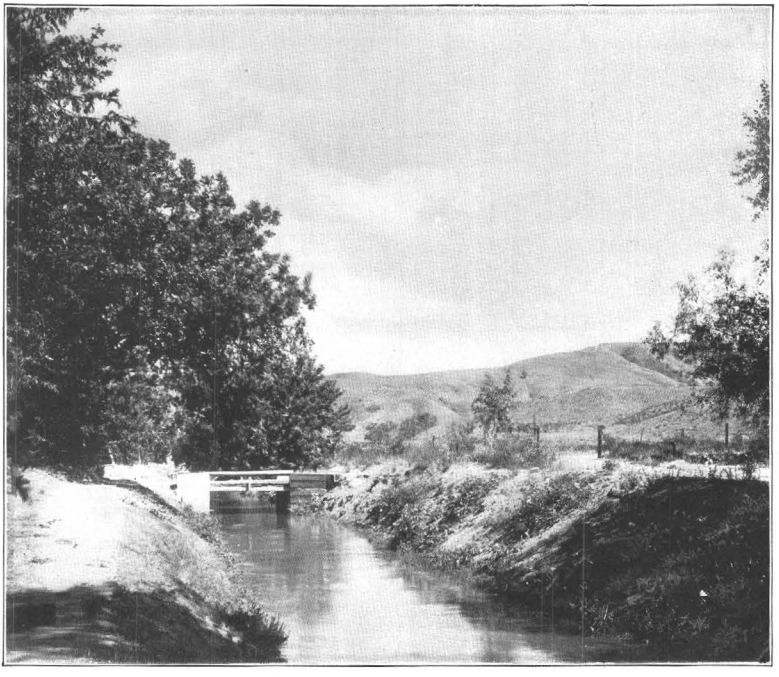
In addition to these payments for water, assessments are made each year to pay interest on debt and to make improvements. Of late years these assessments have averaged about $3.50 per year per share.

SANTA ANA VALLEY IRRIGATION COMPANY.[a]

The water rights of the Santa Ana Valley Irrigation Company, which serves the greater part of the irrigable lands south of Santa Ana River as far as Santa Ana and Tustin, are based on the riparian rights of the Rancho Santiago de Santa Ana to one-half of the water of Santa Ana River.

When this ranch was partitioned among its owners by decree of the court in 1868, each owner was given the right to divert from the river his share of the water for irrigation. A number of ditches were constructed from time to time on the basis of this right, the majority of them being afterwards abandoned. The rights of one of these were secured by the Chapman ditch, which was extended as far as Orange in 1871. In 1873 it was sold to the Semi-Tropic Land and Water Company and extended to Santa Ana and Tustin. This ditch and the Watson ditch, which it supplied, diverted one-half the waters of the river; the other half, which belonged to the irrigators north of the river, was in large part lost in the sandy bed of the stream before reaching the head of the Anaheim ditch. The result was a shortage of water on the lands served by the Anaheim ditch, and a suit was begun against the Semi-Tropic Water Company to establish the right of the Anaheim ditch to water amounting to its full capacity. In the lower court the decision was against the Semi-Tropic Company, but in an appeal this decision was reversed, the case remanded for trial, and a recommendation made by the court that the litigants agree upon an equal division of the water. This recommendation was accepted, litigation ceased, and the south-side irrigators have since held undisputed possession of one-half the flow of the river.

[a] The sketch of the earlier history of this organization, as of the Anaheim Union Company, is condensed from "Irrigation in California," by William Ham. Hall.



A. MAIN SANTA ANA CANAL ABOVE BURRUEL POINT.

B. CREST OF SUBMERGED DAM AT POINT OF ROCKS, SANTIAGO CANYON.

In 1877 the Santa Ana Valley Irrigation Company was incorporated with a capital stock of $100,000, divided into 20,000 shares. Its object was to extend the benefits of irrigation to the 20,000 acres of the original rancho entitled to water. Improvement of the original system was immediately begun and has been gradually extended until now the greater part of the main canal and laterals are cemented, and excellent service is rendered.

Of the 20,000 shares, 16,055 are sold, the balance remaining in the treasury. The par value is $5 per share; but as all assessments are added to the cost of shares, and as the value of the property has increased, these now (1904) have a market value of about $60.

The stock is appurtenant to the land, and may not be sold independently of it. Each share entitles the holder to 1 head of 100 miner's inches of water for a half hour each run during periods of scarcity and for an hour during ordinary periods. When water is abundant the irrigator may use all the water he wishes by paying the current rates. These rates are, during the day, 20 cents per 100 miner's inches per hour; during the night, 10 cents per 100 miner's inches per hour.

The company is well managed, has a small debt, and its system is in splendid condition. Service is rendered at a very low rate. The main canal (Pl. V, *A*) extends from the intake in the lower canyon of the Santa Ana to Burruel Point, a distance of about 9 miles. More than half of this canal is cement lined, with an average width at bottom of 12 feet, a depth of 5 feet, and a width at top of 22 feet. Its capacity is about 7,000 miner's inches. Below Burruel Point the main canal is divided into an upper and lower canal, from which a complete system of laterals forms a network through the country served. The principal laterals, as well as the main lines of the system, are shown on Pl. II.

SANTIAGO CANYON SYSTEMS.

Two small but efficient and interesting irrigation systems are served by the waters of Santiago Canyon.

At a narrow point in the canyon, known as the Point of Rocks, about 2½ miles above Villa Park, a very successful submerged dam (Pl. V, *B*) has been built across the channel of the stream. It extends from rim rock to rim rock, a distance of 110 feet, and has a maximum height, where the channel is deepest, of 19 feet. At this point its width on the bottom is 12 feet. It has a uniform width at the top of 3½ feet along its entire length. An earlier clay dam had been built at the same point, but after its partial destruction by floods the present rock and concrete structure was built in 1892 by the Serrano and Carpenter associations, jointly, at a cost of $3,700. All of the underflow of Santiago Creek at this point is forced to the surface, and as a result a continuous flow of 40 or 50 miner's inches is maintained throughout

the dry season. Some distance above the dam, in the valley of Santiago Creek, a reservoir of earth and sand is filled by the winter floods and is allowed to drain slowly away by seepage into the gravels of the creek bottom during the succeeding dry months. This helps to maintain the summer flow over the surface of the submerged dam. Without these inexpensive but most successful works all of the summer flow of Santiago Creek, during dry seasons at least, would escape by subsurface percolation.

From the submerged dam (Pl. V, *B*) the water is conducted along the south bank of Santiago Creek for 750 feet in a 28-inch cement pipe to a division gate, where it is divided equally between the Serrano and Carpenter companies, operating on the north and south banks of Santiago Creek, respectively.

SERRANO WATER COMPANY.

The Serrano Water Company's right dates back to an appropriation of one-half the waters of Santiago Creek by Bush and Watson in 1872. This right was later transferred to others, and in 1876 the Serrano Water Company was organized by J. O. and R. F. Lotspeich and five others, who held the right at that time.

Previous to 1879 the water was diverted by primitive dams into earthen ditches, but during that year a submerged dam of clay was constructed to bed rock and a cement distributing pipe laid from the dam to the lands served. In 1892, the older dam having been partly destroyed by flood, it was replaced by one of rock and cement, which is still in use. From the division gate below this dam the Serrano Company has 3,200 feet of 20-inch cement pipe to a division gate between the two tracts known as the Lotspeich and Grey tracts, served by this association. On the Lotspeich tract are about 3 miles of cement pipe from 10 to 16 inches in diameter, and on the Grey tract are about 1½ miles of similar pipe. In addition, the final distribution on a portion of each tract is made by open ditches. The association has 70 members and serves 1,303 acres. The water is apportioned to each member in proportion to his acreage, and runs through in 18½ days.

CARPENTER WATER COMPANY.

October 1, 1872, John F. and Alexander Carpenter entered upon and appropriated one half the water of Santiago Creek, the other half having been appropriated by Bush and Watson at an earlier date. J. F. Carpenter built the first ditch soon after his purchase, and conveyed his land and water rights to Oge and Bond in 1874. About 1881 the first pipe line of 10 and 12 inch cement pipe was constructed. It was extended in 1883 to the Santiago Land and Water Company's reservoir north of El Modena.

This original pipe line gave unsatisfactory service because of its small capacity, and in 1902 a new line was laid at a cost of $8,000. It consists of 2,400 feet of 20-inch cement pipe, 3,600 feet of 18-inch cement pipe, and about 9,000 feet of 16-inch pipe.

This company, unlike the Serrano Association, was incorporated in 1901, the stock being divided into 1,600 shares, at a par value of $10 per share. One thousand shares are distributed, and the remainder is held as treasury stock. The shares may not be sold except with the land.

When the water is low each irrigator uses the entire supply for 16½ minutes for each acre irrigated. At this rate it takes 18½ days to make a "run;" that is, to water once all of the lands under the pipe lines. When water is more abundant the lands served are divided into two or three sections, which are served simultaneously, and use the water for 33 or 49½ minutes per acre each, so that a run as before requires 18½ days, but each irrigator gets two or three times the amount of water that is served him when the supply is low. The light running expenses are provided for by annual assessments on the stock.

The title to the waters of Santiago Creek for irrigation purposes, as vested in the Carpenter and Serrano companies, was fully confirmed in a decision rendered June 1, 1896, in the superior court of Orange County, in which the owners of Rancho Lomas de Santiago were perpetually enjoined from using the waters, except for domestic purposes or for stock.

Both the Serrano and Carpenter companies are models of efficient and economical construction and management.

DRAINAGE DISTRICTS.

The reclamation of the peat lands in the western part of the Santa Ana quadrangle and in adjacent quadrangles to the west has been a problem of drainage rather than of irrigation. As these lands are generally nearly flat for long distances, or at best have a very gentle if uniform slope toward the coast, it has not been practicable for an individual farmer or ranch owner alone to undertake drainage. Successful ditches must be extended to the tidal sloughs to secure an outlet. This has often meant some miles of construction, and has necessitated cooperation on the part of the benefited landowners. The lands of the district are dark, especially fertile soils, enriched by vegetable mold. Without artificial drainage they are generally too damp for cultivation, since they include the lowlands along the lower course of Santa Ana River and overlying the lower edge and most effective portion of the artesian basin. Strong springs, representing leakages from the artesian waters below, are found at a number of points. The flow from these has kept the lands about them saturated

even during the dry season, and the first and most important problem has been to provide for the free escape of these spring waters.

Under a State law, passed in 1897, two drainage districts have been organized, each with its governing board of three directors, who properly apportion the expenses among the landowners benefited. The assessments for the maintenance of the systems are determined by these directors, the county collects them with the other taxes, and warrants are then drawn upon the county treasurer for expenses incurred in construction and maintenance.

BOLSA DRAINAGE DISTRICT.

Only a part of the Bolsa drainage district, the older of the two organizations, is in the Santa Ana quadrangle. It includes the region about Smeltzer and Celery and an area to the west in the Los Bolsas quadrangle.

The earliest ditch in this district is said to have been begun by the Stearns Rancho Company many years ago. Later the county extended the original Bolsa ditch, and finally, in 1899, the Bolsa drainage district in its present form was organized. It includes about 2,400 acres, and perhaps 15 miles of ditch have been dug. The network of ditches is being slowly extended, and much tile underdrain with outlets in the main ditches is being put in by ranchers. Maintenance is said to cost about $1,000 per year, and an additional sum is spent each season for new construction.

WILLOWS DRAINAGE DISTRICT.

The Willows drainage district was finally organized, after several unsuccessful attempts, during the spring of 1904. It includes an area of about 9,000 acres, centering about the village of Talbert. A number of old ditches, built by individual or community effort and varying in length and character of construction, are included in the district as now organized. One of the most important of these is the Willows ditch, dug in 1899 by Messrs. Lamb, King, Newland, and Bourchard. It is about 6 miles long, 6 or 7 feet wide, and 3 or 4 feet deep. It cost about $1,800.

The Lamb and Bourchard ditch was begun as a small ditch in 1875. In 1898 it was enlarged and extended, and is now about 3½ miles long, but of varying width and depth. The Newlands ditch is about 3½ miles long, 6 feet wide, and 3 feet deep.

The district at present includes about 20 miles of canals, but has been bonded for $20,000; $10,000 of the bonds are being sold and with the proceeds it is planned to perfect and extend the present system until about 28 miles of main canals are constructed.

The lands reclaimed by these systems are proving to be among the richest and most valuable in this part of the State.

UNDERGROUND WATER.

SOURCE.

The sands and gravels that underlie the coastal plain are saturated, from a point whose distance below the surface varies with locality, to bed rock, which lies at an unknown depth. The water has been supplied chiefly by the large streams that flow across the coastal plain and derive their supply from the higher mountains, where precipitation is greater and direct evaporation less than in the lowlands.

The amount at present stored in these gravels represents slow accumulation through long periods. Even through the summer it without doubt receives accessions from the underground flow of the larger rivers, from slow drainage of the slopes of neighboring hills, and from return waters from irrigation; but these contributions must be very small as compared with those received through the absorption of flood waters and direct rainfall during the winter. The winter accessions are received mainly along the inner edge of the coastal plain, where the rivers first discharge upon it, and where its sands and gravels are coarser; hence the saturating water must move slowly seaward at varying rates, which depend upon the coarseness of the medium through which it is percolating. Some of it passes beneath the clay beds which alternate with the sand and gravel in the flatter lower portions of the coastal plain and dip with the general surface toward the sea. The water beneath such a sloping, impervious clay bed finds its exit along the lower edge of the bed, but, checked by the increasing imperviousness of the stratum through which it is passing, or by a fold in the beds, or by an earlier ridge against which they abut, accumulates head and flows at the surface of the ground when the overlying confining mass is pierced by a drill. This is the general explanation of the artesian conditions which prevail here. North of the artesian belt the ground water is found at a depth which usually increases inland from the artesian area toward the hills. Near the hills it may lie at depths which preclude pumping at a profit for ordinary crops. South of the artesian area the depth of the ground-water level varies with the topography, being least in the lowest lands and greater in those which are higher.

The ground waters which are not artesian have precisely the same origin as those which exist under pressure. Indeed, they are part of the same subterranean water body, due to rainfall, in part local, in greater part run-off from the higher mountain areas which surround the valleys, whence they flow to the lowlands as winter flood waters.

PERMANENCE OF THE UNDERGROUND WATER SUPPLY.

The decade of dry years through which southern California has passed seems likely to have brought the flow of surface streams down to a minimum, so that those irrigators who depend on the surface

flows and have adjusted themselves thoroughly to this determined minimum have no ground for further concern as to their supply, provided their rights are so thoroughly adjusted legally that rivals can not enter the field and, either by surface diversions or by the installation of wells and pumps, either above or below them, divert their waters.

The supply derived from underground sources is in a less stable and well-adjusted condition. The underground reservoir, which lies along the coastal plain and furnishes the subterranean waters used in the Anaheim and Santa Ana quadrangles (see Pls. VI and VII), is by far the largest and has much the greatest capacity of any in southern California (see Pl. I). It is fed by the flood waters and, to a much smaller degree, by the underground seepage of the three most important streams in this part of the State—Los Angeles, San Gabriel, and Santa Ana rivers. Other less important accessions to its supply are local rainfall, minor drainage from adjacent hills, and return waters from irrigation.

The three largest streams named above, which form the main source of the underground waters, are somewhat less efficient now as agents for the replenishment of the underground supply than before the settlement of the country. All of their normal flow, for some years, has been diverted before it reaches the coastal plain, and an important percentage of the minor floods is used by irrigators along the upper parts of the streams. Only the greater floods reach the lower stretches, and of them a somewhat smaller percentage than formerly escapes absorption by the alluvial fans just below the canyon mouths, because the absorptive capacity of the fans has been increased by their drainage in the search for water for irrigation. The accretions from local rainfall and minor undiverted drainage from near-by hills have not been affected by settlement. They depend upon annual precipitation and vary with it. The accretions from return irrigation waters furnish a source which did not exist before the colonization of the region, but as these are a variable and probably generally a small portion of the extra drafts which man has made upon the underground supply, either by drawing directly from it or by diverting stream waters which would otherwise be added to it, they serve only to reduce slightly the effect of these drafts.

The sum of all these effects must be a notable decrease in the amount of water annually added to the underground reservoirs. Meanwhile there have been extensive drafts made upon them, and these drafts are constantly increasing. There are nearly 3,000 wells in the area under discussion and over 8,000 in the entire coastal plain belt. Of the former, 800 were flowing wells in the spring of 1904, 400 were equipped with power pumping plants, and nearly 900 had windmills over them.

The remainder were domestic wells, whose drafts upon the underground supply are inconsiderable. In the two quadrangles under discussion the total output from the wells that could be measured, or whose owners could furnish definite data as to the yield, amounts to 240 second-feet during the pumping and irrigating season. These figures include the yield both of artesian wells and pumping plants. The pumping season varies with the crop and the rainfall, but usually lasts from fifty to one hundred days. Many of the artesian wells are open the year round, others are capped when not in use, and since in the above computation there were omitted all wells which yield less than 1 miner's inch, all natural springs, of which there are several with a large yield, and a great number of artesian wells which for one or another reason were not accessible for measurement, it is considered well within the truth to estimate the draft of 240 second-feet as continuous for two to three months in the year, equivalent to an annual draft of 40 to 60 second-feet, upon the underground supplies.

The amount of annual withdrawals from underground sources may be estimated in another way. The total area under irrigation on the two quadrangles is about 35,000 acres. On the basis of a duty of 1 miner's inch to from 7 to 10 acres, continuous service, from 70 to 100 second-feet of water would be required for this acreage. As the minimum supply received in this area from the Santa Ana, the San Gabriel, and Santiago Creek is from 30 to 40 second-feet, this estimate leaves 40 to 60 second-feet to be supplied by the underground sources. Neither estimate is very accurate, but as the two are in accord the result may be accepted as being approximately correct.

This means that the water which is being drawn from the underground reservoir in the Santa Ana and Anaheim quadrangles is equal to from one to one and one-half times the minimum flow of Los Angeles River at the headworks of the city canal, or of Santa Ana River at Bedrock Canyon, where the diversion works of the Anaheim and Orange systems are located.

It is estimated that $250,000 is already invested in pumping plants, and the number of these is increasing as rapidly as the machinery can be secured. Many owners of stock in the Anaheim Union Water Company have disposed of their stock and depend upon the underground supply entirely.

The number of wells within the present artesian belt (see Pls. VI and VII) is being rapidly increased also, and with the decrease in pressure and the falling water plane some lands must be irrigated which formerly were sufficiently moist to mature crops without irrigation.

Here, as in other parts of southern California, the effect of the low rainfall of the last decade and the constantly increasing drafts upon the stored waters, is shown in a decreased flow in the artesian wells, a shrinkage of the artesian area, and a lowering of the water table outside of it. The original area of the coastal plain artesian belt was nearly 300 square miles; the present area is less than 200 square miles (Pl. I). Originally, there were about 36 square miles of artesian water-bearing lands in the Anaheim quadrangle; now there are only about 4 square miles in which the water flows (Pl. VI). In the Santa Ana quadrangle the loss has been less because this quadrangle includes the lower and more favorably situated portion of the artesian belt. The original

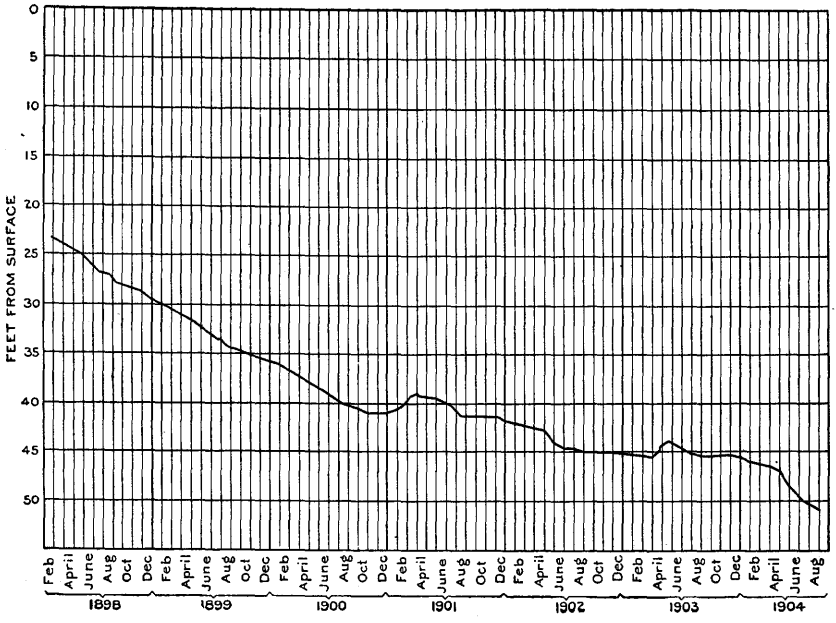


FIG. 2.—Diagram showing variation in water level near Anaheim.

area here was about 70 square miles, and the present area is nearly 57 square miles (Pl. VII).

The effect on the water plane outside of the artesian area is graphically shown in the accompanying profile (fig. 2) which has been prepared from a systematic series of measurements made by Mr. J. B. Neff, on the water level in the wells near Anaheim from which he draws his irrigation water. March 1, 1898, the surface of the zone of saturation in these wells stood 23 feet below the land surface. From this time through the remainder of the dry period, lasting until the fall of 1900, the decline was continuous and very regular, averaging between 6 and 7 inches per month The moderately heavy rainfall of

the succeeding winter (1900–1901) raised the level 2 feet, but the gain was lost by the middle of the following summer, and the decline continued at varying rates until April 1, 1903. During April and May the water level rose 1½ feet, but quickly fell about to the point at which it stood before the spring rains. This level was maintained until January 1, 1904. Since then the water has gone down rapidly because of the dry winter of 1903–4, and the rapid increase in the number of pumping plants, until, on August 1, 1904, it was more than 50 feet below the surface, an average decline of over 4 feet per year since observations began.

Rainfall, in inches, at Anaheim, Cal.

Year.	July.	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May.	June.	Total.
1878–79	0.00	0.00	0.00	0.15	T.	0.95	1.96	0.57	0.35	0.37	T.	0.00	4.35
1879–80	.00	.00	.00	.11	1.72	3.10	1.29	1.32	1.57	2.20	0.00	.00	11.31
1880–81	.00	.00	.00	.28	.44	4.92	.25	.28	.85	.06	.00	.00	7.08
1881–82	.00	.00	.00	.81	.34	.37	.40	1.90	2.42	.48	.40	.00	7.12
1882–83	.00	.00	.00	.26	.78	.00	1.48	1.98	1.22	0.10	2.78	.00	8.60
1883–84	.00	T.	.00	1.12	.00	1.40	2.80	10.58	6.70	1.75	.54	1.28	26.17
1884–85	.00	.00	.00	.15	.64	3.72	.61	.00	.00	.64	.00	.00	5.76
1885–86	.00	.00	.00	T.	2.93	1.16	4.63	.82	2.70	2.51	.00	.00	14.75
1886–87	.00	T.	.00	.00	.33	T.	.43	5.71	.00	2.21	T.	.00	8.68
1887–88	.00	.00	T.	.75	.92	2.16	6.29	.92	5.90	T.	.00	.00	16.94
1888–89	T.	.00	.00	T.	3.75	4.19	.14	1.28	7.97	.24	.57	.00	18.14
1889–90	.00	T.	.76	2.31	.30	10.95	3.36	1.54	.78	.00	T.	.00	20.00
1890–91	.00	.00	.29	.00	.19	3.36	.24	9.05	.59	1.81	.40	.00	15.93
1891–92	.00	.00	.00	.00	.00	1.44	.77	2.35	1.23	.15	1.48	.00	7.42
1892–93	.00	.00	.00	.19	.94	1.48	2.98	2.06	6.07	.23	.00	.00	13.95
1893–94	.00	.00	.00	.00	.30	2.38	.68	.35	.48	.13	.10	.00	4.42
1894–95	T.	T.	.10	.00	.00	5.69	6.92	.68	2.63	.05	.10	.00	16.07
1895–96	.00	.00	.00	.00	.97	.48	3.25	.00	3.03	T.	.00	.00	7.73
1896–97	.00	.00	.00	1.98	1.40	1.59	3.00	4.35	2.20	.00	.00	.00	14.52
1897–98	.00	.00	.10	1.60	.00	.00	1.65	.10	1.00	.20	1.00	.00	5.65
1898–99	.00	.00	T.	.00	.00	.20	2.78	.15	1.61	.20	.00	.51	5.25
1899–1900	.00	.00	.07	1.32	.84	1.45	1.29	.00	.73	1.09	1.49	.09	8.37
1900–1901	.00	.00	.00	.34	4.81	.00	3.50	3.11	.59	T.	2.30	.00	14.65
1901–2	.00	.00	.00	1.34	.50	.00	1.70	3.16	3.20	.11	.07	T.	10.08
1902–3	T.	.00	.00	.40	1.36	3.83	1.22	2.61	5.58	4.47	.00	.00	19.47
1903–4	.00	.00	.38	.06	.00	.00	.19	1.39	3.61	.82	(?)	.00	6.45

Average, 26 years, 11.45.

Rainfall, in inches, at San Bernardino, Cal.

Year.	July.	Aug.	Sept.	Oct.	Nov.	Dec.	Jan.	Feb.	Mar.	Apr.	May.	June.	Total.
1870–71	0.00	0.00	0.02	0.09	3.11	0.89	6.91	2.21	0.19	0.34	0.11	0.07	13.94
1871–72	.00	.04	.13	.60	.88	3.91	.00	2.20	.37	.79	.06	.00	8.98
1872–73	.00	.18	.04	.00	1.17	4.40	6.50	1.25	.51	.84	.21	.00	15.10
1873–74	.00	1.06	.02	.01	.74	5.73	5.51	8.76	1.08	.48	.42	.00	23.81
1874–75	.00	.00	.06	1.82	1.88	2.20	7.20	.15	.22	.07	.05	.00	13.65
1875–76	.00	.00	.00	.00	7.50	.02	6.55	1.92	3.41	.44	.03	.03	19.90
1876–77	.00	.00	.00	.20	.40	.00	3.50	4.03	.83	.26	.30	.00	9.52
1877–78	.00	.00	.00	.86	.50	3.95	3.33	6.68	2.57	1.71	.66	.07	20.33
1878–79	.07	.00	.02	.14	.05	4.70	3.59	1.00	.50	1.20	.24	.03	11.54
1879–80	.11	.02	.01	.94	3.40	6.50	1.56	1.33	1.45	5.00	.04	.00	20.36
1880–81	.00	.00	.00	.14	.67	8.80	1.40	.36	1.66	.46	.01	.00	13.50
1881–82	.00	.00	.00	.80	.27	.50	1.11	2.65	3.30	2.91	.00	.00	11.54
1882–83	.00	.00	.00	.10	.15	.45	1.60	1.10	2.82	2.95	.00	.00	9.17
1883–84	.19	.00	.53	.85	.09	2.63	1.63	12.20	9.95	5.68	3.17	.59	37.51
1884–85	.00	.00	.00	.00	.11	3.75	2.79	.11	.28	1.89	1.69	.19	10.81
1885–86	.00	.00	.00	.39	4.36	1.20	6.34	2.52	4.18	2.36	.32	.16	21.83
1886–87	.00	.00	.00	.00	.11	.61	.39	6.44	4.41	1.90	.42	.22	14.50
1887–88	.11	.04	.09	1.17	2.29	1.91	4.01	3.60	3.41	.58	.52	.03	17.76
1888–89	.00	.00	.00	.05	4.12	4.64	.93	1.50	6.55	2.05	1.13	.00	20.97
1889–90	.17	.63	.11	2.30	2.23	10.85	5.44	2.52	.89	.00	.31	.00	25.45
1890–91	.13	2.16	.88	.58	1.27	3.02	.00	7.78	.06	.53	1.67	.00	18.08
1891–92	.00	.91	.93	T.	T.	1.67	3.24	3.30	1.75	.37	2.10	.08	14.35
1892–93	.00	.00	.00	.16	1.02	2.23	4.53	3.37	8.00	.48	.03	.00	19.82
1893–94	.20	.00	.05	1.05	.30	2.28	1.26	.88	1.15	.40	.56	.00	8.13
1894–95	.00	.16	.37	.15	.00	7.25	7.39	1.14	3.44	.64	.44	.00	20.98
1895–96	.00	.00	.00	.00	1.14	.66	2.02	.00	2.92	.37	1.00	.00	8.11
1896–97	T.	.17	.00	2.10	.98	1.09	3.40	5.40	3.41	.08	.11	.00	16.74
1897–98	T.	.00	.13	2.10	.21	.57	2.10	.60	.97	.48	1.08	.00	8.24
1898–99	.00	.00	.00	.03	.05	.44	2.03	.51	3.22	.07	.19	.95	7.49
1899–1900	.00	T.	.01	.81	1.47	.84	.92	.00	.92	1.96	1.71	.00	8.64
1900–1901	.34	.00	.23	.36	6.10	.00	3.48	4.58	.43	.56	1.23	.05	17.36
1901–2	.00	.27	.07	1.09	.28	.04	1.65	3.02	3.89	.57	.12	.15	11.15
1902–3	.01	.00	.00	.09	1.94	1.94	1.96	1.67	6.47	3.10	.24	.00	17.42
1903–4	.00	.15	.46	.07	.00	.00	.18	2.21	5.34	.80	.16	.00	9.37

Average, 34 seasons, 15.06.

In order to determine the relative weights of excessive development and deficiency in rainfall in bringing about this effect, rainfall tables are given and charts presented in whch the excess and deficiency of rainfall for a period of years at Anaheim and at San Bernardino are shown (figs. 3 and 4).

Since the coastal plain basin is supplied chiefly by the drainage from Los Angeles, San Gabriel, and Santa Ana rivers, its water supplies are affected more by the rainfall within the San Gabriel and San Bernardino mountain ranges than by local rainfall. A composite

record, compiled from local records in each of these valleys and at various points within the coastal plain, would furnish the most satisfactory basis for comparison, but since excessive rainfall in one part

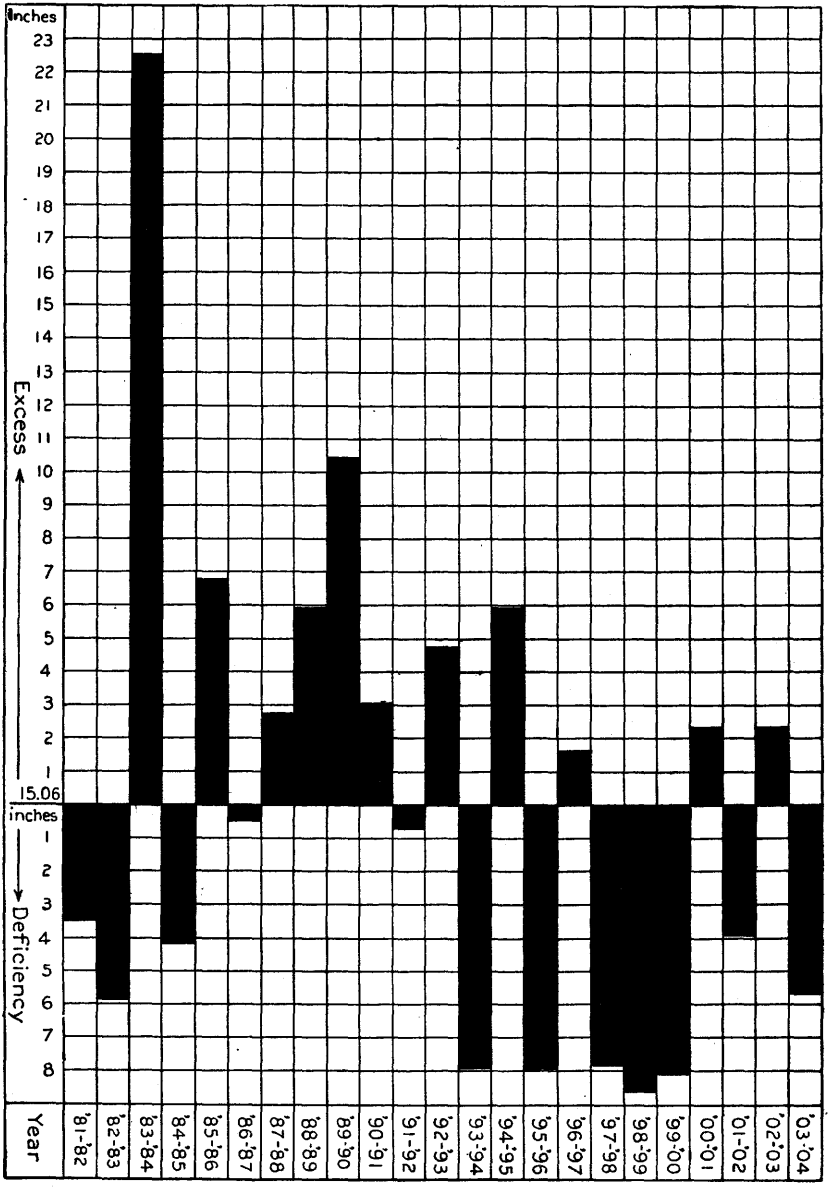


FIG. 3.—Chart showing departures from average rainfall at San Bernardino, Cal. *a* Average for 34 years (15.06 inches).

of southern California generally means excessive rainfall in other parts, although the absolute quantity at various points may differ greatly, the percentage of variation from the average at any point

may be assumed to be nearly equal to the percentage of variation from the average at other points.

By preparing charts, as those from San Bernardino and Anaheim are prepared, the departure from the average for each year is brought out instead of the total precipitation. It is thus seen at a glance whether the rainfall for any particular season is above or below the general average. Such charts are especially valuable for comparison with a profile like that of Mr. Neff's (fig. 2).

The underground waters should not be withdrawn faster than they

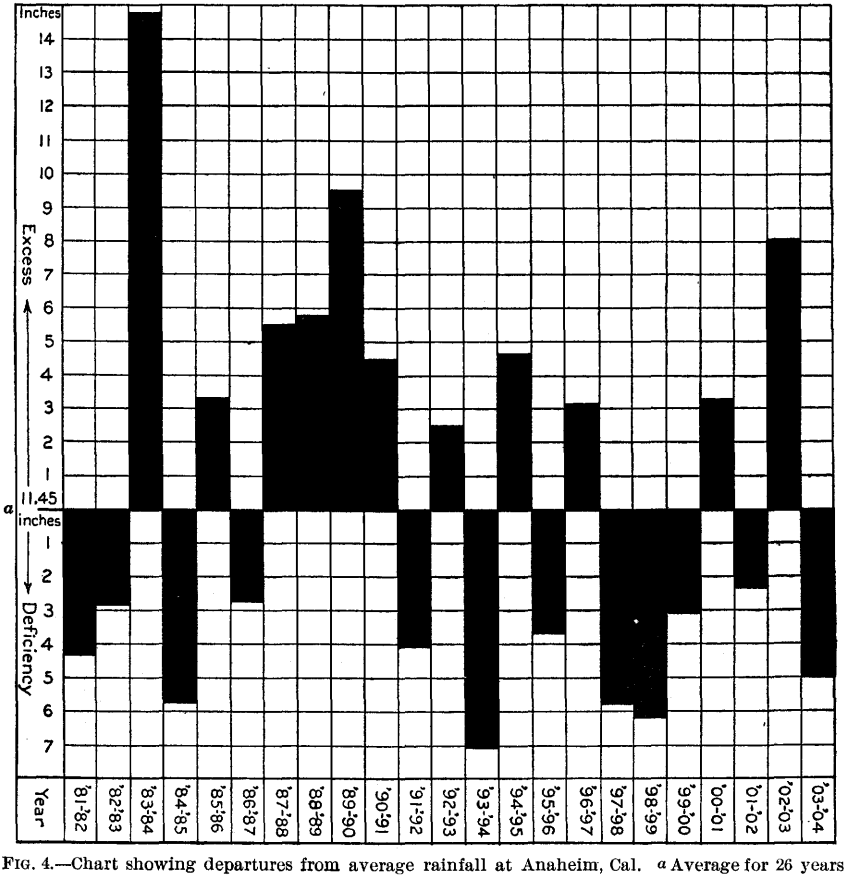


FIG. 4.—Chart showing departures from average rainfall at Anaheim, Cal. *a* Average for 26 years (11.45 inches).

are restored during years of average rainfall. In a conservative use of these stored waters, as regulating reservoirs and reserve supplies, they will of course be drawn down during years of deficiency in rainfall, but will recover during years of excessive precipitation. If the water plane continues to decline when the precipitation is above the average, and fails of restoration during years of great excess it means that a permanent lowering is taking place, whose rate may be expected to increase with further developments.

In the Neff wells the decline was sharpest, as should be expected, in the years of great deficiency which preceded 1901. The rainfall that winter, which was over 2 inches above the average in San Bernardino and somewhat more than 3 inches above the average at Anaheim, produced a temporary rise in the profile representing the Anaheim water level, but that rise was lost before the end of the succeeding August, proving that with the drafts at that time made upon the underground water bodies, a rainfall above the average was not sufficient to restore the waters annually taken out.

After this winter of excessive precipitation the decline was continuous, although not at a uniform rate, through the succeeding dry year, until early in 1903, when, in response to another year of increased rainfall, the water level rose about 1½ feet, but this effect had passed and the water level had fallen about to the level of the previous autumn, by August 1. The winter of 1903–4 was again a winter of marked deficiency and in the region about Anaheim there was a very rapid installation of pumps. In consequence, the water level declined during the spring of 1904 as rapidly as at any time since observations began, and on August 1, 1904, passed below the 50-foot level.

The significant point about these declines is that they have continued through years of more than average rainfall, although every foot of decline decreases pressure and yield of flowing wells and stops the flow of some wells entirely, thus tending to reduce the drafts. Evidently, the rapid increase in the number of wells more than offsets the decrease in individual yield, so that the constant effect is an increase in the total amount of water withdrawn. Eventually the falling water plane will cut off so many flowing and pumped wells that the drafts will no longer be in excess of the supply, and the water plane will then remain stationary. But that point will be permanently lower, and if drafts continue to be increased it may be much lower than the original ground-water level. Where it is finally fixed depends upon the water users themselves. One thing is certain, more water can not be continuously drawn from a reservoir of any sort than is supplied to it, and it is clear that more is now being taken from this portion of the coastal plain than is being added by natural processes. The water level therefore will continue to fall until by falling it has reduced the drafts until they are no longer in excess of supply. A series of years of heavy rainfall, which are earnestly hoped for by water users throughout southern California, would partly fill the depleted reservoirs, partly restore the original water level, brace the now tottering belief that the underground water resources are inexhaustible, and encourage further unwise development, so that when average conditions returned the decline would be more rapid than at present, and much harm would result. As a matter of fact,

the present cycle of dry years, coming thus early in the agricultural development of the region, will, if it continues long enough to call attention to the earnest need of conservation of subsurface supplies, be a scarcely disguised blessing. The general complaint, which one hears everywhere, of a scarcity of water means an awakening realization of the need of care, and is thus a most favorable omen. A public sentiment should be created which would make it impossible for any individual to use his water supplies carelessly, to leave artesian wells uncapped and flowing freely when the water is not needed, or to use upon his soil more than the necessary amount, and a further sentiment should be created unfavorable to the continued sinking of wells and installation of plants. This is much more difficult to create, because the bringing of more acreage under cultivation and the employment of capital and labor in such enterprises are regarded as general contributions to the prosperity and welfare of the section, and are welcomed accordingly. If, however, it is clearly understood that each additional plant thus installed is to a degree at the expense of those already in existence, since it contributes to the rapidity with which the water plane is lowering and to the expense, therefore, of lifting irrigation water, sentiment will change in this matter and it will be realized that it is better to protect the vested interests than to sacrifice these for a temporary increase in industrial activity.

In a region where underground water supplies are as important as here, and at the same time so liable to unwise overdevelopment, it may eventually be necessary to create a State commission with power to grant or to refuse to grant permits for drilling wells or installing pumping plants. Individual wishes and individual needs are scarcely to be trusted in matters which so vitally affect the community and the State at large. Especially is this true because it is just those landowners whose wells are most favorably located who, having an abundance of water themselves, do not realize the scarcity at other points, and drain away the water most rapidly from their less favorably situated neighbors.

INTERDEPENDENCE OF WELLS.

In general each well in the coastal plain, whether flowing or pumped, affects every other well in the same region. Widely separated wells will not have a measurable effect upon one another, the actual effect being too small for observation. All drain from a common source, the body of saturated sands and gravels which underlie the wide plain between the Puente Hills and the sea—and whatever reduces the amount of water in that body of alluvium affects all wells which draw from it.

The wells on the lowest ground are always most advantageously situated when the source of water is common to all, and there is no impervious obstruction to interfere with free circulation. These lower

wells affect the higher ones more than they are affected by them, the mutual effect thus differing in degree.

In the artesian area, where the water, in its slow movement toward the sea, has passed below strata of nearly impervious clay, strong flows may often be obtained from deeper horizons whose confining stratum extends farther inland and whose pressure therefore originates at a higher point, after shallow wells have ceased to flow. The yield from such a deeper well will usually be less than if it had been drilled before the shallow well failed, because its pressure has also been affected by the general lowering of the water plane; hence a degree of interdependence exists even between those water horizons which are separated by clay lenses.

This fact of interdependence may mean that users of underground waters in the coastal plain region are rivals; it should also mean that they have a common interest in preventing waste and conserving their supplies.

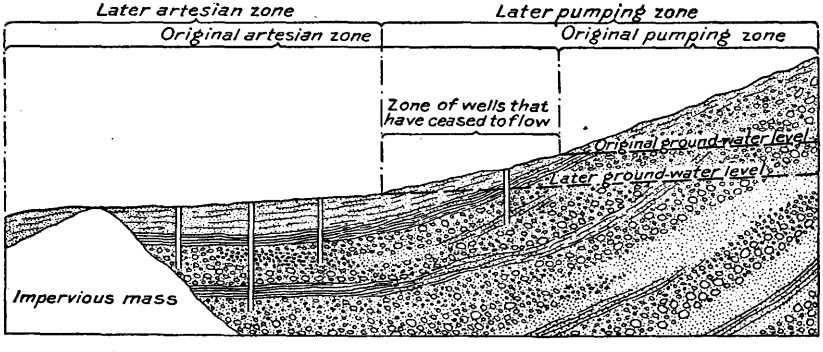


FIG. 5.—Diagrammatic cross section of southern California coastal plain.

COST OF WELLS.

As guides to the cost of wells the following tables of approximate charges for boring have been prepared from figures furnished by Messrs. Cunningham, Raines, Schantz, and Burrows, who have had much experience as well drillers in the Santa Ana region. The figures given by responsible drillers accord closely, the difference being due to local conditions or to the custom in one neighborhood of making an average estimate for a number of hundred feet, while in another this average may be split up into specific rates for integral parts of the total.

In the following table the price of drilling the first hundred feet and the additional price for each 50-foot increase in depth are given for the diameters generally used in this region:

Cost of drilling wells.

	4 inch.	5 inch.	6 inch.	7 inch.	8 inch.	9½ inch.	10 inch.
	Per ft.	*Per ft.*	*Per foot.*	*Per foot.*	*Per foot.*	*Per foot.*	*Per ft.*
First 100 feet	$0.30	$0.30	$0.35 to $0.40	$0.40	$0.40 to $0.50	$0.60 to $0.65	$0.65
Additional for each 50-foot increase	.25	.25	.20 to .30	.20 to .35	.20 to .35	.20 to .35	.35

For hydraulic wells the charge is 30 to 40 cents per foot, the diameter 2 to 4 inches and the depth usually less than 100 feet.

The Baker Iron Works, of Los Angeles, have furnished the following general price per foot for riveted steel casing made up into 2-foot joints of the sizes and gages generally used for wells. Such prices will vary with the steel market, so that constant minor departures from them are to be expected.

Cost of well casing.

Diameter.	Gage.	Price per foot.	Diameter.	Gage.	Price per foot.
Inches.			*Inches.*		
4	16	$0.32	9½	14	$0.75
4	14	.38	9½	12	.94
5	16	.35	10	16	.68
5	14	.43	10	14	.78
6	16	.42	10	12	.98
6	14	.50	12	14	.80
7	16	.48	12	12	1.10
7	14	.55	12	10	1.40
8	16	.55	14	12	1.30
8	14	.64	14	10	1.55
8	12	.78	16	12	1.55
9½	16	.65	16	10	1.70

For riveting starters the charges are from 20 to 25 cents per foot extra.

Rings range through about the following prices:

Cost of rings.

4 inch	$2.75
5 inch	3.50
6 inch	4.00
7 inch	5.00
8 inch	6.50
9 inch	7.00
10 inch	10.00
12 inch	12.00
14 inch	17.00
16 inch	20.00

In the artesian belt hydraulic wells of 2 or 3 inch diameter are often put down, and the standard pipes for these cost, respectively, 15 and 25 cents each per foot.

DESCRIPTION OF MAPS AND TABLES.

The maps presented with this report show (*a*) the areas irrigated in the spring of 1904, when the field work was done (Pls. II, III), (*b*) the pumping plants and distributing systems by which the water is secured and conducted to the land where it is used (Pls. II, III), (*c*) the areas of artesian water-bearing land at the beginning of 1904, and the original artesian area (Pls. VI, VII), (*d*) the zones of relative alkalinity in the underground waters (fig. 6), and (*e*) the elevation of the planes of saturation outside of the present artesian belt (Pls. VI, VII). Where the data are sufficient the elevation of the plane of saturation is shown by means of contours. The elevations used in determining the position of this plane are those furnished by the topographic sheets, which serve as bases for the maps. It is to be regretted that these elevations are somewhat inaccurate, as the sheets were prepared ten years ago, before modern refined topographic methods were in vogue; hence the hydrographic contours themselves are not exact as to absolute elevations. However, they are believed to show, with fair accuracy, the relation of the water level to the topographic contours as the latter are drawn. This is the essential thing, since it enables the user of the maps to tell the distance to the water plane by the difference between the elevations shown by the two sets of contours. Another matter for regret is that these contours have but an ephemeral value as practical guides in developing water. With the water plane lowering at a rate of from 0 to 5 feet per year, the depth to it, as recorded by these maps, will soon cease to be correct. But as records of the position of the water plane in the early part of the year 1904, they will always have interest and will serve as a basis for comparison in later years.

On the mesa lands, and in areas generally where the wells are few and the water plane is irregular, sufficient data do not exist to show its position by contour. In these cases the water elevations at the individual wells visited are shown in purple-blue figures, the positions of the wells in the same color, and the numbers of the wells in black.

From the determinations, by means of the electrolytic bridge, of the amounts of salts carried in solution in the waters, a map (fig. 6) has been prepared upon which waters with equal mineral contents are grouped in zones. The boundaries separating these zones are not sharp, but the grouping brings out the general fact that in the vicinity of the bed-rock hills of Tertiary shale and sandstone, which are impregnated with alkaline salts, the ground waters are distinctly more alkaline than at a greater distance, where they are derived chiefly from

the floods of the larger streams. The purer waters of the lowlands, too, make distinct bays in the less pure hill waters, and the position of these bays is so related to the surface channels of Santa Ana River and Santiago Creek as to suggest that they mark the position of the most rapid underground percolation from these streams, as sources, toward the artesian areas below.

On the maps showing the wells (Pls. VI, VII), those that were flowing at the time the field work was done are given a distinctive symbol, as are those on which pumping plants are installed, when the water

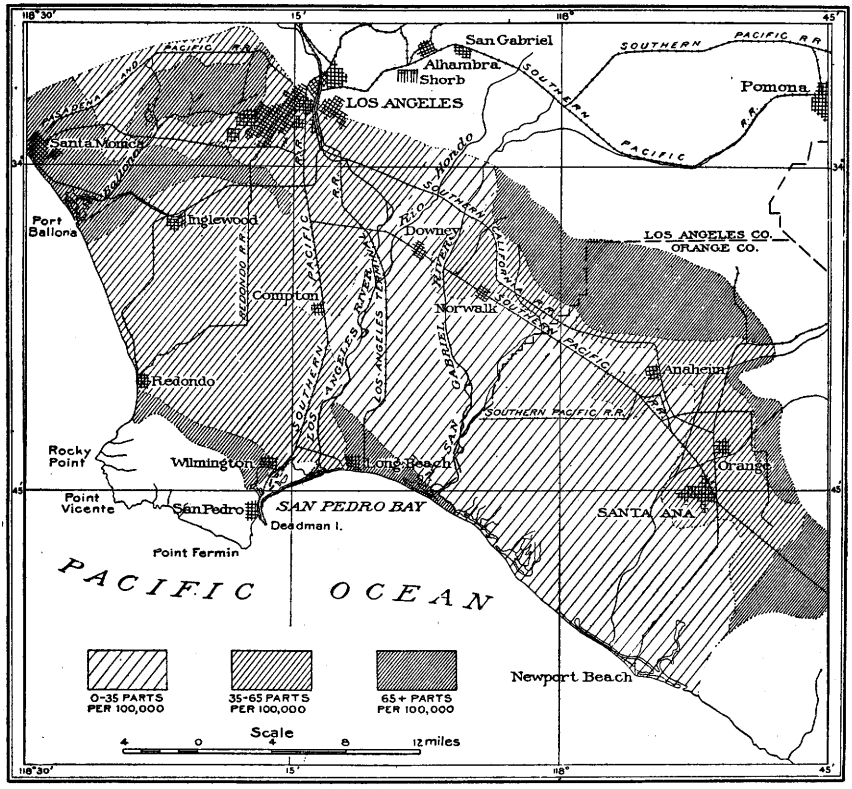


FIG. 6.—Map showing approximate amounts of dissolved solids in the underground waters of the eastern part of the coastal plain of southern California.

thus pumped is used in irrigation. The flowing wells will rapidly decrease for a time in number and yield, it is expected, and the pumping plants are increasing in number with equal rapidity.

Each well is numbered on the map, and in the tables the essential facts concerning it are given under the same number. Where it has been possible to secure definite data, the cost of the well and of the machinery is given.

Where wells were flowing or pumped and were accessible for measurement, the yield is given in the table; in other cases, where it was not possible to make independent determinations, statements of operators of pumping plants were taken.

The approximate proportion of salts in the water—that is, its alkalinity—was determined by the electrolytic bridge and the result appears in one of the columns. These results have also been generalized in the map (fig. 6) already referred to. In most cases they should be correct within three or four parts per 100,000; greater refinement is not possible with the rapid methods used. All the deep wells in the area furnish excellent potable waters, and of course they are thoroughly safe for irrigation. An occasional shallow well shows a much higher degree of alkalinity, due probably to a source too near the surface in alkaline soils. Near the coast, also, some wells are quite brackish, and generally the mesa waters, and those nearer the foothills, composed of alkali-bearing rocks, show the effects of their environment.

Under the heading "Map location," a letter and a number appear. The map has been divided into rectangles which are lettered horizontally and numbered vertically. This column tells at once in which of the rectangles the well is to be sought, and enables any number on the map to be readily found. The other columns in the table are self-explanatory.

ACKNOWLEDGMENTS.

The field work in the Anaheim quadrangle has been done almost entirely by Mr. A. J. Fisk, jr., Mr. E. R. Furstenfeld assisting for a short period.

Mr. A. P. McCarton has collected the greater part of the information embodied in the Santa Ana maps and tables, Mr. W. N. White being responsible for a small portion.

In securing information concerning the greater irrigating systems, the officers of the companies have been appealed to and have responded with unfailing courtesy. Mr. Mansur has supplied data as to the practice under the Santa Ana Valley system, and Mr. Sherwood, representing the Anaheim Union Water Company, has responded to inquiries about that system. Sketches of the Carpenter and Serrano companies, deriving their waters from Santiago Creek, have been furnished by Mr. Helwig and Mr. Collins.

Well drillers generally have answered queries as to phases of the work in which they are most interested, and Mr. E. C. Cunningham, of Santa Ana, in particular, has been reliable and obliging in these matters.

The office work involved in compiling the tables from the field records and in preparing the maps for publication, has been done largely by Mr. A. J. Fisk, jr.; assistance here has also been rendered by Mr. W. N. White.

WELL DATA.

Wells in the Anaheim quadrangle.

[*Cost of well and machinery. †Estimated. +Including tank in column "Cost of machinery." ?Doubtful. Wherever the term "miner's inch" is used in this report, the old California miner's inch is meant. This unit is the amount of water that flows through a 1-inch orifice under 4 inches pressure; it is equal to 9 gallons per minute, one-fiftieth second-foot or 14.478 acre-feet per year.]

Number of well.	Owner.	Location.	Map location.	Year completed.	Class of well.	Elevation of surface.	Elevation of water.	Depth of well.	Solids per 100,000.	Temperature of water.	Method of lift.	Cost of well.	Cost of machinery.	Use of water.	Quantity of water.
						Feet.	*Feet.*	*Feet.*		°*F.*					*Miner's inches.*
1	Hiram Phelps	Santa Ana	H-17		Bored, 7-inch	148		54							
2	M. S. Chapman	do	H-17	?1894	Bored, 3½-inch	157	102	58							
3	H. C. Hollister	do	H-16	?1885	Bored, 10-inch	167	97	135	44		Wind			Domestic; stock	
4	F. C. Bundy	do	H-17		Bored, 7-inch	166	113	113	40		do			do	
5	Wm. Whitehead	do	H-16		do	172	132	160			do	*$500.00		Domestic	
6	J. A. Engle	do	H-17	1894	do	174	114	115			do	115.00		Domestic; stock	
7	F. Rohrs, jr	do	I-17	1884	do	179	119	120	40	62	Hand			Domestic	
8	J. H. Schroeder	do	I-17	1894	do	182	117	76	48		Wind	80.00	$35.00	Domestic; stock	
9	F. Schroeder	do	I-17	1892	do	183	118	142	42		do		†200.00	Domestic	
10	H. W. Rohrs	do	I-17	1880	do	185	115	132	41		do	65.00	†400.00	Domestic; stock	
11	D. Parker	do	I-17	1901	do	185	115	158	42	63	do			do	
12	N. H. Leonard	do	I-17		Bored, 4¼-inch	185	115	200	39		do			do	
13	Geo. Young	do	I-16	1877	Bored, 7-inch	191	111	82	41		do	80.00	†180.00	do	
14	H. Machandre	do	I-17	1895	do	190	113	85	54	65	Hand			Domestic	
15	W. E. Deltz	do	I-17	1903	do	190	114	94	49	66	do	95.00	65.00	Domestic; stock	
16	L. Dearing	do	H-16	1883	do	153	98	67	51	62	Wind			do	
17	H. C. Hill	do	H-16	?1887	Bored, 6-inch	152	90	80	26		do			Domestic	
18	M. Nisson	do	H-16		Bored, 7-inch	149	86	86	25		do			do	

19	Allen McCowan	do	H-16	1900	Dug, 3 by 3 foot	152	103	62	37	62	Hand	60.00		do	
20	Mit Philips	do	H-16	1900	Bored, 7-inch	150	108	72	51		Wind	100.00	†225.00	do	
21	G. W. Greenfield	do	H-16	1901	do	152	102	80	51		do	105.00	†170.00	do	
22	John Johnston	do	H-16	?1883	do	153	95	64	40		do	95.00	240.00	do	
23	J. F. Spotts	do	H-16	1899	do	159	103	86	35		do	85.00	†180.00	do	
24	W. T. Brown	do	H-16	?1880	do	162	102	80	41	61	Hand			Domestic; stock	
25	Mrs. M. N. Schaefer	do	H-16	1902	do	162	108	74	47	61	Wind			Domestic	
26	R. M. Hargraves	do	H-16	1880	do	168	110	74	42		do	75.00	†225.00	Domestic; stock	
27	Otto Kolberg	do	H-15	?1888	do	163	98	74	48	63	Hand			Domestic	
28	A. Holbrook	do	H-15	1903	do	160	101	90	52		Wind			Domestic; stock	
29	Geo. Schaefer	do	H-15	1882	do	155	106	71	51	61	do			do	
30	G. E. Flint	do	H-15	1898	Dug, 3 by 3 feet, 60 feet; bored, 10-inch, 25 foot.	146	86	85	51		do			Domestic	
31	M. V. Adams	do	H-15		Bored, 7-inch	149	90	97	41		do	100.00	60.00	do	
32	T. F. Tedford	do	H-15	?1882	do	145	97	192	38		do			do	
33	M. Norcross	do	H-15	1900	Bored, 6-inch	147	105	94	32		do	150.00	+175.00	Domestic; irrigation.	
34	J. V. Sutten	do	H-15	1895	Bored, 7-inch	152	86	78	48		do			Domestic	
35	I. G. Veith	do	H-15		do	148	83	70	37		Gas		150.00	Domestic; irrigation.	
36	J. P. Heil	do	H-15		do	147			39		Wind			Domestic; stock	
37	E. P. McCue	do	H-15	1903	Bored, (2) 9½-inch	147	95	85	39	62	Gas	*1,250.00		Irrigation	†50
38	do	do	H-15	?1878	Bored, 7-inch	145	95	62	44	64	Hand			Domestic	
39	A. C. Cobb	do	G-15		do	133	79	60	43	62	Wind			do	
40	S. H. Naville	do	H-15		Bored, 6-inch	145	90	67	51	64	do		+100.00	do	
41	W. A. Dyer	do	H-15	1896	Bored, 7-inch	137	87	75	46	62	Hand	75.00		Domestic; stock	
42	A. W. Goodspead	do	G-15		Dug, 3 by 3 foot	133	92	43	52	63	do	50.00		Domestic	
43	L. B. Fine	do	H-16	1888	Bored, 7-inch	148	99	57	42	63	do	75.00	20.00	do	
44	J. S. Talcott	do	H-17	1890	do	148	98	62							
45	A. E. Hunt	do	H-17		do	145			42	62	Hand			Domestic	
46	R. Moyer	do	H-16	1900	do	136	94	50	46		Wind	45.00		do	
47	W. W. Henry	do	H-16	1903	do	134	94	46	50	62	Hand	50.00		do	
48	D. L. Mitchell	do	G-16	1903	do	130	92	58	48	61	do	50.00	15.00	do	
49	J. Crownenshield	do	G-16	1880	Bored, 4-inch	127	93	43	64	61	Wind	*163.00		Domestic; stock	
50	P. B. Matthews	do	G, H-16	1902	Bored, 7-inch	126	94	58	51		do	50.00	+150.00	Domestic	

Wells in the Anaheim quadrangle—Continued.

Number of well.	Owner.	Location.	Map location.	Year completed.	Class of well.	Elevation of surface.	Elevation of water.	Depth of well.	Solids per 100,000.	Temperature of water.	Method of lift.	Cost of well.	Cost of machinery.	Use of water.	Quantity of water.
						Feet.	*Feet.*	*Feet.*		°F.					*Miner's inches.*
51	Mrs. H. Bower	Santa Ana	G-16	1904	Dug, 7-foot diameter, 42 feet; bored, 10-inch, 150 feet.	127	85	192	55	....	Gas	$325.00	$1,150.00	Irrigation	59
52	Geo. Slocum	do	H, G-16	1886	Bored, 6-inch	134	90	60	70	63	Wind		+350.00	Domestic	
53	Mrs. N. Young	do	H, G-16	1884	Bored, 7-inch	137	93	60	42	61	do		+400.00	do	
54	C. C. L. Lesslie	do	G-16	1885	do	133	93	47	68	63	do			do	
55	E. Rurup	do	G-16		do	133	93	48	47	64	do			do	
56	M. E. Helme	do	H-17		do	138	96	44							
57	W. W. Halesworth	do	H-17	1885	do	136	97	55	54	....	Wind	75.00	+1,300.00	Domestic	
58	Geo. W. Ford	do	H-17	1889	do	132	77	125	40	....	do	150.00	+300.00	Domestic; stock	
59	Mrs. B. M. Edgers	do	H-17		do	136			48	....	do			Domestic	
60	Ransom Reid	do	H-17		Dug, 3 by 3 foot	135	81	70							
61	Mrs. A. W. Greenwald	do	H-17	1893	Bored, 7-inch	132	92	55	47	....	Wind	60.00	60.00	Domestic; stock	
62	E. D. Whittlesey	do	H-17		do	137	94	55	52	62	Hand			Domestic	
63	Mrs. M. E. Martin	do	H-17	?1878	do	138	93	55	70	61	Wind			Domestic; stock	
64	E. F. Greenleaf	do	H-17	1882	Bored, 6-inch	133	95	53	52	63	do			Domestic	
65	O. H. Greenwald	do	H-17	1902	Bored, 7-inch	132	92	60	46	62	Hand	60.00	10.00	do	
66	Sarah A. Ross	do	G-17	1882	do	129	95	78	80	63	do	80.00		do	
67	H. Diers	do	G-17	1900	do	127	100	52	39	62	Wind	60.00	+300.00	do	
68	E. A. Clardy	do	G-17	1903	do	123	97	48	95	63	Hand	*65.00		do	
69	F. L. Bundy	do	G 17	1900	do	119	90	123	39	65	Wind			do	
70	Wm. Keely	do	G-17		Bored, 5-inch	120			39	....	do			do	

71	U. J. Ross	do	G-17	1888	Bored, 7-inch	119	95	57	47	66	Hand			do		
72	G. D. Lillie	do	G-17		do	116			47		Wind			do		
73	Fred A. Marks	do	G-17	1880	do	110	90	55	35	66	do			Domestic; stock		
74	A. E. Hawley	do	G-17	1888	do	108	90	63	35	66	do			Domestic		
75	E. S. Nash	do	G-17	1888	do	103	82	87	50	65	do			do		
76	T. L. Scudder	do	G-17	1902	do	99	79	84	50	65	do	85.00	+150.00	Domestic; stock; irrigation.		
77	S. G. Cooper	do	G-17	1880	Bored, 10-inch	104	84	80	50	65	do			Domestic		
78	S. P. McNeal	do	G-17	1880	Bored, 7-inch	113	92	64	19	63	do	100.00	+400.00	do		
79	J. C. McCaul	do	G-17	1902	Bored (2), 7-inch	116					Gas		2,500.00	Irrigation	†110	
80	do	do	G-17	?1888	Bored, 7-inch	111			55		Wind			Domestic; stock		
81	do	do	G-17		Bored, 10-inch	110			40	63	Hand			Stock		
82	W. G. Neville	do	G-17		Bored, 7-inch	117	98	94	52		Wind			Domestic		
83	Van Horn	do	G-17		do	108	96	23	51	62	Hand			do		
84	Peter Rassmusen	do	G-17	1903	do	108	96	65	44	65	do	135.00		do		
85	R. R. Raymond	do	G-17	?1882	Bored (2), 7-inch	127	107	45	60		Wind	100.00	+100.00	Domestic; stock		
86	do	do	G-17	?1882	Bored, 7-inch	123	103	175			Hand	200.00	15.00	Stock		
87	J. C. Kirby	do	G-17	?1882	do	130	110	45	51	64	do			Domestic		
88	L. A. Greenleaf	do	G-17	1897	do	132	111	119	42		Wind	80.00	+200.00	do		
89	J. Steward	do	G-16		do	120			38		do			do		
90	Right & Barcus	do	G-16		do	125	75	65	44		do			do		
91	J. A. Smiley	do	G-16	1902	do	136	94	56	49		do	55.00	30.00	do		
92	S. P. Co	do	G-16	1900	do	137	92	52	45	68	Hand			do		
93	M. Witt	do	H-16	1901	do	148	108	155	39		Wind	275.00		do		
94	T. L. Kling	do	G-15, 16	1892	do	127	93	43	22	67	do			Domestic; stock		
95	J. W. Berry	do	G-16		do	130	97	43	87	66	Hand			Domestic		
96	A. R. Kelsey	do	G-15	1898	do	136	92	48	42	68	Wind	25.00	+150.00	Domestic; irrigation.		
97	Fred Schlueter	do	G-15		Dug, 3 by 3 foot	127	98	42	56	63	Hand			Domestic; stock		
98	Mrs. Martha Shaffer	do	G-15	1884	do	137	99	40	42		Wind			Domestic		
99	W. T. Walton	do	G-15	1896	Dug, 4 by 4 foot	133	95	40	48	60	Hand			do		
100	T. B. Laidley	do	G-15	1902	Bored, 6-inch	133	91	60	56	62	do	*100.00		do		
101	Mrs. Martha Shaffer	San Juan Cajon	G-15	1902	Bored, 10-inch	127	82	88			Gas	*1,250.00		Irrigation	†114	
101a	do	do	G-15	1902	Bored, 9¼-inch	127	82	330			do			do		
101b	do	do	G-15	1902	Bored, 7-inch	127	82	200			do			do		

Wells in the Anaheim quadrangle—Continued.

Number of well.	Owner.	Location.	Map location.	Year completed.	Class of well.	Elevation of surface.	Elevation of water.	Depth of well.	Solids per 100,000.	Temperature of water.	Method of lift.	Cost of well.	Cost of machinery.	Use of water.	Quantity of water.
						Feet.	*Feet.*	*Feet.*		°*F.*					*Miner's inches.*
102	Mrs. Martha Shaffer..	San Juan Cajon ..	G-15	.....	Bored, 7-inch....	127	.....	70	.....	.....	Wind.....	.....	.....	Stock.....	.....
103	M. C. Cuddeback.....	Santa Ana.....	G-15	1898	Dug, 3 by 3 foot..	133	91	43	49	.....	.....do.....	.....	.....	Domestic.....	.....
104	Otto Hoffman.....	.....do.....	G-15	.....	.....do.....	130	88	44	47	61	Hand.....	.....	.....	.....do.....	.....
105	Thos. H. Brown.....	.....do.....	G-15	1903	.....do.....	144	.....	44	.....	.....	.....do.....	.....	.....	.....do.....	.....
106	.....do.....	.....do.....	G-15	.....	.....do.....	148	101	48	47	64	.....do.....	.....	.....	.....do.....	.....
107	J. L. Sanborn.....	.....do.....	H-15	.....	Bored, 7-inch....	149	.....	80	44	62	.....do.....	.....	.....	.....do.....	.....
108	.....do.....	.....do.....	H-14, 15.	1885	.....do.....	152	102	80	47	62	Wind.....	.....	.....	.....do.....	.....
109	John C. Keefe.....	.....do.....	H-14	.....	.....do.....	154	101	54	53	.....	.....do.....	.....	.....	Domestic; stock..	.....
110	R. A. Adams.....	.....do.....	H-14	1898	Dug, 3 by 3 foot .	157	107	60	49	64	Hand.....	.....	.....	Domestic.....	.....
111	.....do.....	.....do.....	H-14	1900	Bored, 7-inch....	163	108	105	29	.....	Wind.....	$150.00	+$300.00	.....do.....	.....
112	John Bendick.....	.....do.....	H-15	1883	Bored, 8-inch....	161	105	59	35	66	Hand.....	150.00	50.00	.....do.....	.....
113	G. Enechel.....	.....do.....	H-15	.....	Dug, 2½-foot diameter.	159	100	85	41	.....	Wind.....	.....	.....	.....do.....	.....
114	Geo. Dierker.....	.....do.....	H-15	1897	Bored, 7-inch....	158	.....	70	34	67	Hand.....	.....	.....	.....do.....	.....
115	John A. Irvine.....	.....do.....	H-15	.....	.....do.....	163	92	79	37	62	Wind.....	.....	.....	.....do.....	.....
116	J. D. Parker.....	.....do.....	H-15	1874	.....do.....	155	96	75	38	.....	.....do.....	.....	.....	.....do.....	.....
117	J. V. Green.....	.....do.....	H-15	.....	.....do.....	160	97	78	37	69	Hand.....	.....	.....	.....do.....	.....
118	Mrs. E. Dreyer.....	.....do.....	H-15	1898	.....do.....	162	95	90	.....	.....	Wind.....	.....	.....	.....do.....	.....
119	E. Meehan.....	.....do.....	H-15	1897	.....do.....	163	128	88	39	67	.....do.....	.....	.....	.....do.....	.....
120	W. H. Burnham.....	.....do.....	H-15	1894	.....do.....	172	112	126	38	61	.....do.....	100.00	60.00	.....do.....	.....
121	.....do.....	.....do.....	H-15	1889	Bored, 10-inch...	173	113	124	38	61	.....do.....	125.00	75.00	Domestic; irrigation.	.....
122	.....do.....	.....do.....	H-15	1893	Bored, 7-inch....	173	113	122	38	61	Gas.....	100.00	450.00	.....do.....	.....

123	Mrs. Martha Ronty	do	I-17	1882	do	148	74	104	39	58	Hand			Domestic		
124	Thos. Morris	do	I-17	1884	do	170	108	90	39		Wind			do		
125	J. A. Booty	do	I-17		do	170	96	150	39		do			do		
126	A. E. Marshall	do	I-17	1901	Dug, 3 by 3-foot	185		85	53	61	Hand			do		
127	A. Deventier	do	I-17	1894	Bored, 7-inch	170	107	93	49	63	Wind	175.00		do		
128	F. S. Buchheim	do	I-17	1894	do	169	97	80	53	61	do			do		
129	K. Claaver	do	I-17	1903	do	167	107	140	36	64	Hand	235.00	22.00	do		
130	R. H. English	do	F-17		Bored, 10-inch	82	62	50	35		Wind			Domestic; stock		
131	do	do	F-17	1903	do	77	57	187								
132	G. A. Clark	Las Bolsas	F-17	1901	Driven, 2-inch	75	57	40	52	62	Hand			Domestic		
133	A. N. Van Nest	do	F-17	1897	Driven, 1½-inch	78	72	14	78	62	do			do		
134	J. H. Young	Santa Ana	F-17	1904	Dug, 4 by 4-foot	83	63	23		62	do			do		
135	Ben Clarke	do	F-17	1903	Driven, 1½-inch	76	66	19	36	64	do		7.50	do		
136	W. E. Ward	Las Bolsas	F-16, 17		Bored, 7-inch	101	80	90	35		Wind			do		
137	L. F. Marsile	do	F-16	1880	Bored, 4-inch	103	81	140	91	68	Hand			do		
138	do	do	F-16	1902	Bored, 10-inch	104	81	94	26		Gas		1,650.00	Irrigation		†80
138a	do	do	F-16	1903	Bored, 7-inch	104	81	94	26		do					
139	J. H. Belt	do	F-16	1888	Bored, 4-inch	105	85	87	34		Wind			Stock		
140	do	do	F-16, 17	1899	Bored, 7-inch	101	81	136	32	62						
141	B. F. Wolfe	do	F-16	1903	do	100	80	93	34	62	Hand	100.00	15.00	Domestic		
142	M. Atgen	do	F-17	1890	do	77	67	80	29		Wind			Domestic; irrigation.		
143	do	do	F-17	1901	Driven, 2-inch	77	71	17	78	62	Hand			Stock		
144	John Cudderback	do	F-17	1902	Bored (2), 7-inch	79	66	110			Gas		800.00	Irrigation		†60
145	Mrs. Clapp	do	F-17	1889	Bored, 7-inch	83	71	100	27		Wind			Domestic		
146	do	do	F-17	1898	Driven, 2-inch	80	72	14	78	62	Hand			Stock		
147	J. E. Brown	do	E-17	1892	Bored, 7-inch	77	65	157	35	63	Wind		+125.00	Domestic; irrigation.		
148	R. E. Beswick	do	E-17	1903	Driven, 1½-inch	73	60	22	40	63	Hand			Domestic		
149	D. D. Armes	do	E-17	1888	Bored, 4-inch	70	54	147	33		Gas			Domestic; irrigation.		
150	J. Killefer	do	E-17	1902	Driven, 2-inch	70	62	110	29	65	Hand	*54.00		Domestic		
151	Otto Buell	do	E-17		Bored, 7-inch	69		150	43		Wind			Domestic; irrigation.		
152	E. D. Music	do	E-17		do	70	56	125	33	64	Hand			Domestic; stock		
153	Wm. Shearer	do	E-17		Bored, 4-inch	68	59	160	29		Wind			Domestic		

Wells in the Anaheim quadrangle—Continued.

Number of well.	Owner.	Location.	Map location.	Year completed.	Class of well.	Elevation of surface.	Elevation of water.	Depth of well.	Solids per 100,000.	Temperature of water.	Method of lift.	Cost of well.	Cost of machinery.	Use of water.	Quantity of water.
						Feet.	*Feet.*	*Feet.*		°*F.*					*Miner's inches.*
154	Jessie Davis	Las Bolsas	E-17	1892	Bored, 7-inch	69	57	370	22	63	Wind	$1,000.00		Domestic	
155	do	do	E-17	1889	do	69	57	180			do	230.00			
156	J. Q. Adams	do	E-17	1879	Bored, 3½-inch	66	58	156	27	65	do			Domestic; irrigation.	
157	J. E Shrode	do	D-17	1890	Bored, 4-inch	68	56	140	27	64	Hand			Domestic	
158	J. Wertz	do	D-17	1898	Bored, 7-inch	66	55	167	25		Wind			Domestic; irrigation.	
159	L. L. Bailey	do	D-17		Bored, 4-inch	62	60	117	25	63	do			do	
160	J. Q. Johnson	do	D-17	1880	Bored, 7-inch	50	49	135	26	63	do			Domestic	
161	do	do	B-17	1900	do	50	49	151			Gas			Irrigation	†100
162	do	do	B-17	1898	Bored, 4-inch	51	51		31	64	Artesian			do	
163	do	do	B-17		Hydraulic, 2-inch.	47	49	148	31	64	do			do	4
164	do	do	B-17		Bored, 7-inch	46	49	148	31	64	do			do	
165	W. W. Thayer	do	E-17		Driven, 2½-inch	70			32	62	Wind			Domestic; irrigation.	
166	A. C. Chandet	do	E-17	1902	Bored, 7-inch	70	62	127	37		Gas	123.00	$325.00	Irrigation	†45
166a	do	do	E-17	1902	do	70	62	135	37		do	123.00		do	
167	Geo. Davis	do	D, E-17		Bored, 4-inch	72	64	90	30		Wind			Domestic	
168	M. Beswick	do	D-17	1892	Driven, 2-inch	70	58	60	27		do			do	
169	J. T. Wallace	do	D-17		Bored, 4-inch	72			31	63	Hand			do	
170	J. M. Hunnington	do	D-17	1896	do	70	60	101	31	63	do			do	
171	H. Hudson	do	D-17		Bored, 7-inch	70	58	115	32		Wind			do	
172	G. H. Mills	do	C-17	1872	do	58	61	100	26	65	do			Domestic; stock	

173	.....do.....	.....do.....	C-17....	1903	.....do.....	76	68	207	....	....	.....	300.00	.....	Not used.....	.....
174	.....do.....	.....do.....	C-17....	1904	.....do.....	71	68	135	29	64	Gas.....	350.00	850.00	Irrigation.....	†125
174a	.....do.....	.....do.....	C-17....	1904	.....do.....	71	68	166	29	64	.....do.....				
176	F. H. Teel.....	.....do.....	D-17....	1890	Bored, 4-inch....	65	52	153	29	65	Wind.....	.....	.....	Domestic; irrigation.	.....
177	Mrs. W. H. Morgan...	.....do.....	D-17....	1896	.....do.....	62	.....	145	31	65	Hand.....	.....	.....	Domestic.....	.....
178	H. W. Davis.....	.....do.....	C-17....	1882	Bored, 7-inch....	51	51	90	28	64	.....do.....	.....	.....	.....do.....	.....
179	.....do.....	.....do.....	C-17....	1882	.....do.....	52	51	150	28	62	Gas.....	.....	550.00	Irrigation.....	.....
180	W. N. H. Evans.....	.....do.....	C-17....	.....	.....do.....	62	58	90	31	64	Hand.....	.....	.....	Domestic.....	.....
181	.....do.....	.....do.....	C-17....	.....	.....do.....	60	58	150	31	64	.....do.....	.....	.....	Stock.....	.....
182	J. S. McKee.....	.....do.....	C-17....	.....	.....do.....	61	54	129	29	63	.....do.....	.....	.....	Domestic.....	.....
183	J. H. Carlyle.....	.....do.....	C-17....	.....	.....do.....	64	56	210	....	....	Wind.....	.....	.....	Not used.....	.....
184	.....do.....	.....do.....	C-17....	1882	.....do.....	64	56	140	25	63	.....do.....	.....	.....	Domestic.....	.....
185	J. P. Weinechank....	.....do.....	B-17....	.....	.....do.....	52	48	.....	31	64	.....do.....	.....	.....	Domestic; irrigation.	.....
186	S. R. Holdeman.....	.....do.....	C-17....	1882	.....do.....	58	55	152	....	....	Gas.....	.....	675.00	Irrigation.....	†50
187	.....do.....	.....do.....	C-17....	1889	.....do.....	55	53	154	31	64	Hand.....	.....	.....	Domestic.....	.....
188	A. O. Thompson.....	.....do.....	B-17....	1882	.....do.....	49	49	103	30	64	Artesian.....	.....	.....	Stock.....	.....
189	J. C. Thompson.....	.....do.....	B-17....	1882	.....do.....	47	47	65	25	63	.....do.....	.....	.....	Domestic.....	.....
190	R. R. Overlander.....	.....do.....	B-17....	.....	.....do.....	49	49	123	27	62	Gas.....	.....	400.00	Irrigation.....	.....
191	J. Magenty.....	.....do.....	B-17....	1898	.....do.....	49	49	147	27	62	.....	.....	.....	Not used.....	.....
192	.....do.....	.....do.....	B-17....	1890	Bored, 4-inch....	49	49	148	28	62	Hand.....	.....	.....	Domestic.....	.....
193	D. M. Watts.....	.....do.....	B-17....	1878	Bored, 8-inch....	48	48	90	26	64	Wind.....	.....	.....	Stock; irrigation.	.....
194	Lee Mahan.....	.....do.....	B-17....	.....	Bored, 4-inch....	48	48	103	27	64	Hand.....	.....	.....	Domestic.....	.....
195	J. L. Carpenter.....	.....do.....	B-17....	1892	Bored, 7-inch....	51	49	155	29	65	Wind.....	.....	.....	.....do.....	.....
196	R. E. Blakey.....	.....do.....	B-17....	.....	.....do.....	48	48	121	27	64	Artesian.....	.....	.....	Not used.....	3
197	.....do.....	.....do.....	B-17....	.....	.....do.....	48	48	118	27	64	.....do.....	.....	.....	Domestic.....	1
198	W. A. Parmel.....	.....do.....	C-17....	1897	.....do.....	65	54	156	26	63	Wind.....	.....	.....	.....do.....	.....
199	L. W. Jones.....	.....do.....	D-17....	.....	.....do.....	73	63	100	29	....	Gas.....	.....	400.00	Domestic; irrigation.	.....
200	Wm. Adams.....	.....do.....	D-17....	1897	Bored, 4-inch....	76	57	101	31	64	Wind.....	.....	.....	.....do.....	.....
201	M. A. Yetter.....	.....do.....	D-17....	.....	.....do.....	74	.....	.....	31	62	.....do.....	.....	.....	Domestic.....	.....
202	A. McAlhanny.....	.....do.....	D-17....	1882	Bored, 7-inch....	75	.....	.....	31	65	Hand.....	.....	.....	.....do.....	.....
203	R. T. Barnes.....	.....do.....	D-17....	1904	.....do.....	85	73	114	37	....	Wind.....	105.00	40.00	.....do.....	.....
204	J. G. Dunn.....	.....do.....	E-17....	1885	.....do.....	81	67	134	31	64	.....do.....	.....	.....	Domestic; irrigation.	.....

Wells in the Anaheim quadrangle—Continued.

Number of well.	Owner.	Location.	Map location.	Year completed.	Class of well.	Elevation of surface.	Elevation of water.	Depth of well.	Solids per 100,000.	Temperature of water.	Method of lift.	Cost of well.	Cost of machinery.	Use of water.	Quantity of water.
						Feet.	*Feet.*	*Feet.*		°F.					*Miner's inches.*
205	T. H. Bowen	Las Bolsas	E-17	1899	Bored, 7-inch	77	61	118	28	64	Gas	$120.00	$700.00	Irrigation	†30
206	H. J. Foot	do	E-17	1882	do	77	61	133	33	65	Wind			Domestic; irrigation.	
207	H. W. Head	do	E-17	1876	do	73	59	215	32		do			Domestic	
208	H. Clinton	do	F-17		do	90	72	93	32	65	do			do	
209	Lucinda Reed	do	E-17	1892	Bored, 4-inch	85	71	142	31	63	do	125.00	45.00	do	
210	D. W. McDonald	do	F-16	1904	Bored, 10-inch	108	88	80	36	63	Gas	*700.00		Irrigation	†35
211	A. B. Everts	do	F-17	1882	Bored, 7-inch	108	88	115	35	63	Wind			Domestic	
212	R. L. Greenleaf	do	F-17	1903	do	117	97	110	31	64	Hand			do	
213	D. E. Cozad	do	F-17	1897	Bored, 4-inch	119	99	77	37	63	do			do	
214	J. R. Hill	do	F-17	1902	Bored, 7-inch	122	99	92	35	64	Gas			Irrigation	†30
215	J. J. Swartzbuch	do	F-17	1892	do	124	97	98	29		Wind	100.00		Domestic	
216	Hending & Nichols	do	F-15	1902	Bored, 10-inch	120	80	120			Gas	*1,000.00		Irrigation	†40
217	J. O. Nichols	do	F-15	1903	Bored, 4-inch	118	80	131	32		Wind			Domestic	
218	do	do	F-15	1899	Bored, 7-inch	118	80	109			do			Irrigation	
219	N. Jacobson	Santa Ana	G-15		do	125		62	36	64	Hand			Domestic	
220	C. O. Ford	San Juan Cajon	G-14, 15	1897	Bored, 7-inch (2); bored, 9½-inch.	140	89	70	34		Gas	200.00	1,260.00	Irrigation	†77
221	do	do	G-14, 15	1903	Bored, 9½-inch	140	89	92	34						
222	do	do	G-15	1895	Bored, 4-inch	140	89	72	36	62	Wind			Domestic	
223	J. T. Megeath	Las Bolsas	F-16	1898	Bored, 7-inch	110	86	100	34		do	100.00	†100 00	Domestic; irrigation.	
224	Peter Brady	do	F-16		Driven, 1¼-inch	108	92	16	64	65	Hand			Domestic	

225	.....do	.....do	F-16	.....	Driven, 2-inch	109	89	27	49	....	Wind	.....	.....	Stock	.....	.....
226	P. D. Brady	.....do	F-16	1903	Bored, 6-inch	105	45	150	31	....	.....do	.....	.....	Domestic	.....	.....
227	D. Chapin	.....do	E-16	1891	Bored, 4-inch	102	76	198	32	....	.....do	.....	.....	Domestic; irrigation.	.....	.....
228	S. Bohn	.....do	E-16	1901	Bored, 10-inch	110	85	149	34	....	Gas	200.00	975.00	Irrigation	.....	†60
228a	.....do	.....do	E-16	1901	.....do	110	85	144	34	....	.....do	200.00				
229	.....do	.....do	E-16	1892	Bored, 4-inch	110	85	137	23	63	Hand	.....	.....	Not used	.....	.....
230	F. B. Mills	.....do	E-16	1904	Bored, 9½-inch	105	83	142	....	....	Gas	200.00	1,000.00	Irrigation	.....	†70
231	.....do	.....do	E-16	.....	Bored, 4-inch	105	83	105	27	65	Wind	.....	.....	Domestic	.....	.....
232	W. M. Mills	.....do	E-16	1904	Bored, 9½-inch	104	83	144	....	....	Gas	250.00	1,000.00	Irrigation	.....	†50
233	.....do	.....do	E-16	1878	Bored, 7-inch	104	83	150	27	65	Wind	.....	.....	Domestic	.....	.....
234	R. W. Elliott	.....do	E-16	1903	.....do	87	71	120	32	62	Hand	.....	.....	.....do	.....	.....
235	W. M. Elliott	.....do	E-16	1903	.....do	88	71	200	....	....	Gas	250.00	850.00	Irrigation	.....	†40
236	.....do	.....do	E-16	1890	Bored, 4-inch	88	71	108	31	63	Hand	.....	.....	Domestic	.....	.....
237	D. Conthard	.....do	E-16	1898	Bored, 3-inch	98	76	105	30	....	Wind	.....	.....	.....do	.....	.....
238	.....do	.....do	E-16	1882	Bored, 7-inch	103	77	117	....	....	.....do	.....	.....	Irrigation; stock	.....	.....
239	.....do	.....do	E-16	1901	Bored, 4-inch	91	75	125	32	....	.....do	.....	.....	Domestic; irrigation.	.....	.....
240	J. B. Eells	.....do	E-16	1903	Bored, 10-inch	94	76	123	....	....	Gas	150.00	1,000.00	Irrigation	.....	†50
241	.....do	.....do	E-16	1882	Bored, 7-inch	94	76	98	26	62	Hand	.....	.....	Domestic	.....	.....
242	J. N. Bill	.....do	E-16	.....	.....do	95	76	200	25	....	1-horse	.....	.....	Domestic; irrigation.	.....	.....
243	Chas. Swall	.....do	D-16	1900	Hydraulic, 2-inch	99	76	105	29	62	Wind	.....	145.00	Domestic	.....	.....
244	A. Klein	.....do	D-16	.....	Bored, 7-inch	95	74	126	28	63	Hand	.....	.....	.....do	.....	.....
245	Mrs. Dr. Head	.....do	D-16	.....	.....do	94	74	68	27	65	.....do	.....	.....	.....do	.....	.....
246	Harry Lee	.....do	D-16	1903	Bored, 10-inch	90	74	152	....	....	Gas	.....	925.00	Irrigation	.....	†40
247	.....do	.....do	D-16	.....	Bored, 7-inch	90	74	110	28	63	Wind	.....	.....	Domestic	.....	.....
248	Chester Lee	.....do	D-16	.....	Driven, 1¼-inch	90	74	.....	....	....	Hand	.....	.....	.....do	.....	.....
249	A. E. Cox	Santa Ana	I-17	1894	Bored, 7-inch	185	105	110	40	62	.....do	150.00	.....	.....do	.....	.....
250	Thos. Jessup	Las Bolsas	D-16	1894	Bored, 4-inch	85	65	100	28	....	Wind	.....	.....	.....do	.....	.....
251	D. Truesdell	.....do	D-16	1903	Bored, 7-inch	86	73	104	32	....	Gas	125.00	500.00	Irrigation	.....	33
252	F. D. Reed	.....do	D-16, 17	1882	.....do	85	72	153	....	....	.....do	.....	700.00	.....do	.....	†40
253	J. R. White	.....do	D-16, 17	1888	.....do	84	72	118	29	....	Wind	.....	.....	Domestic	.....	.....
254	.....do	.....do	D-16, 17	1898	.....do	84	73	145	....	....	Gas	145.00	525.00	Irrigation	.....	.....

Wells in the Anaheim quadrangle—Continued.

Number of well.	Owner.	Location.	Map location.	Year completed.	Class of well.	Elevation of surface.	Elevation of water.	Depth of well.	Solids per 100,000.	Temperature of water.	Method of lift.	Cost of well.	Cost of machinery.	Use of water.	Quantity of water.
						Feet.	*Feet.*	*Feet.*		°*F.*					*Miner's inches.*
255	A. F. Mills	Las Bolsas	D-17	1880	Bored, 7-inch	78	66	105	19	61	Hand			Domestic	
256	do	do	D-17	1887	do	75	67	140			Gas		$750.00	Irrigation	†70
257	do	do	D-17	1897	do	72	67	150			do			do	
258	B. E. Stone	do	D-16		do	82		112	32	62	Hand			Domestic	
259	Mrs. Mary Faacks	Santa Ana	I-16	1903	do	187	126	137	38	62	do	$150.00		do	
260	Santa Ana Cemetery Co.	do	I-17		do	185		135	41		Gas			Irrigation	
261	C. B. Pulver	do	J-17	1900	do	175	91	184	38	61	Wind	250.00	125.00	Domestic	
262	H. Hockemeyer	do	J-16		do	178	95	143	34	63	Hand			do	
263	E. C. H. Franzen	do	J-16	1895	do	187	117	133	35		Wind	250.00	100.00	do	
264	C. Lehman	do	J-16	1901	do	187	87	170	41	62	do			do	
265	P. L. Buchheim	do	J-16	1891	do	195		103	39	62	do			do	
266	Pondorf estate	do	J-17		do	174		125	40	62	Hand			do	
267	Chas. Mueller	do	J-17	1890	do	165	113	100	46		Wind	*+1,500.00		do	
268	A. A. Sloan	do	J-17	1897	do	165	69	102	46	65	do			do	
269	F. G. Fuller	do	J-17	1888	do	155	86	80	49		do			do	
270	M. T. Fall	do	J-17	1902	Dug, 3-foot diameter.	158	89	72	42	64	Hand			do	
271	W. D. Coberly	do	J-17		Bored, 7-inch	154	104	90	35		Gas		275.00	do	
272	V. E. Blodgett	do	J-17	1882	Bored, 6-inch	157	102	65	40	63	Hand			do	
273	A. N. Cox	do	J-17	1900	Bored, 7-inch	165	93	100	46		Gas			do	
274	A. F. Marsile	do	I-17	1882	do	165		96	39		Wind			do	
275	F. Launders	Las Bolsas	D-16		Bored, 4-inch	82			30	61	Hand			do	

276	Thos. Tonkley	do	D-16		Bored, 7 inch	85	75	120	29	62	do			do		
277	Maude Maddux	do	D-16		do	85		124	29	61	do			do		
278	James Hery	do	D-16		do	90	75	174	27	64	do			do		
279	A. B. Case	do	D-16	1903	do	85	71	146			Gas			Irrigation		† 30
280	C. E. Sweetser	do	D-16	1892	do	87	71	102	30	61	Hand			Domestic		
281	Mrs. L. A. Simpson	do	D-16	1882	do	85	68	152			Gas		550.00	Irrigation		† 45
282	S. M. Strong	Los Alamitos	B-16		do	67	61	150			Hand			Domestic		
283	E. Schneider	Las Bolsas	B-17	1899	do	60	56	145	28	63	Wind	145.00	75.00	do		
284	do	do	B-17		do	55	55	138	28	63	Artesian			Irrigation; stock		
285	M. A. Hausler	Los Alamitos	B-16	1878	do	66	63		31		Wind			Domestic		
286	Franklin Martin	Las Bolsas	B-16	1878	do	65	61	112	30	63	Hand			do		
287	do	Los Alamitos	B-16		do	60	60	178	29	64	Artesian			Stock		
288	Mrs. G. Treefathern	Las Bolsas	A-16		do	52	52	148	31	63	do			Domestic		
289	do	do	A-16		do	52	52				do			Stock		
290	A. J. Chaffee	do	D-16	1888	do	93	80	124	27	60	Hand			Domestic		
291	Garden Grove school district.	do	D-16	1877	do	95	81	122	28	63	Wind			do		
292	do	do	D-16	1903	Bored, 4-inch	95	81	117	28	63	Hand	140.00		Not used		
293	East side school district.	do	E-16	1900	Bored, 7-inch	103	85	120	29	64	do	140.00		Domestic		
294	J. Fulsom	do	D-16	1894	do	85	73	122	29	63	do	145.00		do		
295	Mrs. Edith Southern	do	C-16	1898	Hydraulic, 2-inch	80		117	28	63	Wind			do		
296	G. W. Crumley	do	C-16		Bored, 4-inch	80		104	28	63	Hand			do		
297	Mrs. M. Togg	do	C-16		do	80	62	134	28	63	do			do		
298	J. Winters	do	C-16	1903	Bored, 7-inch	80	70	146	28	63	Gas	145.00	400.00	Irrigation		† 25
299	J. K. Edgerly	do	C-16		Bored, 4-inch	82	68	120	28	63	Hand			Domestic		
300	J. L. Holly	do	C-16	1888	Bored, 7-inch	81	74	120	28	63	do			do		
301	H. S. Atkinson	do	C-16		do	80	70	108	27		Wind			Domestic; irrigation.		
302	Mrs. A. Alger	do	C-16		do	75			28	63	Hand			Domestic		
303	T. J. Pulley	do	C-16		do	76			28		do			do		
304	Wm. Mitchell	do	B-16		do	61			28		Wind			do		
305	do	do	B-16		do	55	51	158	28	63	Hand			do		
306	Mrs. C. J. Harris	do	B-16	1898	Hydraulic, 2-inch	53	51	148	28	64	Wind	70.00	65.00	do		
307	Mrs. J. Jones	do	B-17		Bored, 7-inch	53	51	147	27	64	do			Domestic		
308	do	do	B-17		do	53	51	152	28	64	do			Stock		

Wells in the Anaheim quadrangle—Continued.

Number of well.	Owner.	Location.	Map location.	Year completed.	Class of well.	Elevation of surface.	Elevation of water.	Depth of well.	Solids per 100,000.	Temperature of water.	Method of lift.	Cost of well.	Cost of machinery.	Use of water.	Quantity of water.
						Feet.	*Feet.*	*Feet.*		°F.					*Miner's inches.*
309	J. Beckwith	Las Bolsas	B-17	1884	Bored, 7-inch	54	51	144	28	64	Hand			Domestic	
310	J. Y. Anderson	do	A-17	1875	do	50	50	80	31	64	Artesian			Stock	
311	do	do	A-17	1879	do	48	48	120	31	64	Hand			Domestic	
312	do	do	A-17		do	48	48	147	31	64	do			do	4
313	Mrs. N. T. Lyman	do	A-16	1882	do	50	50	150	31	64	do			Irrigation	12
314	S. M. Alexander	do	A-16		do	48	48	190	30	64	do			Domestic	9
315	do	do	A-16		Bored, 3-inch	49	49		31	64	do			Irrigation	3
316	B. Phelps	do	A-16, 17		Bored, 7-inch	47	47	195	25	64	do			Domestic	
317	J. H. Cole	do	A-17		Bored, 4-inch	47	47	198	28	64	do			do	
318	W. O. Huston	do	A-17		Bored, 7-inch	47	47		23	61	do			do	
319	T. H. Thompson	do	E-16	1890	do	100	83	102	28	63	Gas	$105.00	$217.00	Domestic; irrigation.	
320	H. H. Vogt	do	A-17	1897	Hydraulic, 2-inch	47	47	127	31	64	Artesian	42.00		Domestic	1
321	do	do	A-17		Bored, 7-inch	49	49	157	31	64	do	138.00		Stock	4
322	do	do	A-17	1882	do	48	48	80			do			do	
323	do	do	A-17		do	49	49	80			do			do	
324	Jacob Walton	do	A-16	1882	do	49	49	240	29	64	Hand			Domestic	
325	H. H. Vogt	do	A-17		Hydraulic, 2-inch	46	46		33	64	Artesian			Irrigation	4
326	do	do	A-17		Bored, 7-inch	46	46		28	64	do			Stock	
327	do	do	A-17		Bored, 3-inch	46	46				do			Irrigation	12
328	W. H. Johnson	do	D-16	1892	Bored, 7-inch	92	76	162	31	64	Gas		900.00	do	†60
329	G. H. Lee	do	A-16	1882	Bored, 4-inch	49	49	96	23	65	Hand			Domestic	
330	do	do	A-16		Hydraulic, 2-inch	49	49	96	27	67	do			Stock	1

331	P. A. Raab	do	A-17	1890	Bored, 7-inch	49	49	166	23	66	Steam, artesian	200.00		Domestic	1
332	J. McCoy	do	A-17		do	44	44	205	31	65	Artesian			Domestic; stock	6
333	do	do	A-17		Hydraulic, 3-inch	40	40	100			do			Irrigation	
334	do	do	A-17		do	40	40	100	28	64	do			do	2
335	do	do	A-17	1879	Bored, 7-inch	45	45	236	28	64	do			do	
336	Westminster district school.	do	A-17		do	40	40		28	64	do			Domestic	
337	E. C. Phelps	do	A-17	1874	do	48	48	124			do			do	
338	J. N. Smith	Santa Ana	I-17	1892	do	145	94	63	38	61	Wind			do	
339	J. B. Gowdy	do	I-17	1900	do	142	92	135	38	63	do			Domestic; irrigation.	
340	McHenry Morrison	do	I-17	1901	do	155	94	101	38	60	do			Domestic	
341	J. A. Dowell	do	I-17	1901	Bored, 6-inch	150	94	127	38	60	do	172.50	+325.00	do	
342	A. S. Davis	do	J-17	1900	Bored, 7-inch	152	93	71	30	64	do	80.00	+100.00	Domestic; irrigation.	
343	A. F. Bennett	do	J-17	1901	do	148	106	100	39	62	do			Domestic	
344	F. Wakeham	do	J-17	1887	do	156	94	150	34	62	Gas, wind	*325.00		do	
345	E. R. Green	do	J-17	1900	do	146		90	40	60	Wind			do	
346	M. R. Blackmore	do	J-17		do	155	95	65	35	66	do			do	
347	T. H. Smith	do	J-17		Dug, 3 by 3 foot	147	96	54	47	64	Wind, gas			Domestic; stock	
348	C. W. Burns	do	J-17		Bored, 7-inch	145			41		Wind			Domestic	
349	W. B. Wall	do	J-17	1884	do	148		99	43	54	Gas			do	
350	H. L. Van Hise	do	K-17	1882	do	155		90	38	55	Wind			do	
351	C. E. Torrey	do	K-17	1901	do	160	90	88	37	52	do			do	
352	L. F. Thurston	do	K-17		do	152		90	37	56	do			do	
353	C. L. Cherel	do	K-17	1899	do	149		74	37	62	Hand			do	
354	H. H. Sparfield	do	K-17		do	149	70	99	42	61	do			do	
355	W. H. Kenyon	do	K-17		do	149		96	43	60	Wind			do	
356	Emily R. Smith	do	K-17	1892	do	149	100	65	37		do			Domestic; irrigation.	
357	A. G. Finley	do	L-17	1900	Dug, 3 by 3 foot	248	148	100						Not used	
358	J. D. Upton	do	K-16		Bored, 7-inch	195			42		Wind			Domestic	
359	Geo. Nay	do	K-17		do	170	93	77						Not used	
360	D. C. Drake	do	K-17	1894	Bored, 6-inch	195		75	40		Wind			Domestic	
361	W. D. Coberly	do	J-17	1882	Bored, 7-inch	165	92	85	41		do			do	
362	J. E. Luther	do	J-17	1899	do	168	92	112	45	65	do	105.00		do	

Wells in the Anaheim quadrangle—Continued.

Number of well.	Owner.	Location.	Map location.	Year completed.	Class of well.	Elevation of surface.	Elevation of water.	Depth of well.	Solids per 100,000.	Temperature of water.	Method of lift.	Cost of well.	Cost of machinery.	Use of water.	Quantity of water.
						Feet.	*Feet.*	*Feet.*		°*F.*					*Miner's inches.*
363	A. E. Bradley	Santa Ana	J-17		Bored, 7-inch	178	95	94	47		Wind			Domestic	
364	E. J. Stellberg	do	J-15	1899	do	180		114	45	65	do			do	
365	Joe Fitchen	do	J-16	1892	do	220	117	127	38		do	$200.00		do	
366	Claus Seba	do	J-16		do	212	107	108	41		do			do	
367	R. Frick	do	J-16	1898	do	210	99	125	41		do			do	
368	C. B. Campbell	do	I-16		do	110			41		do			do	
369	J. A. Meeg	do	I-16	1899	do	205	116	134	38		do	200.00	$100.00	do	
370	A. D. Bishop	do	I-16	1880	do	205	121	109	50		Gas			do	
371	Joseph Young	do	I-16	1874	do	201	111	100	63		Wind, gas			do	
372	Mrs. H. Laeter	Las Bolsas	A-17		do	48	48	129	30	64	Artesian			Stock; irrigation	†4
373	do	do	A-17		Hydraulic, 3-inch	47	47	120	31	64	do			Domestic	
374	do	do	A-17	1874	Bored, 7-inch	47	47	122	31	64	Wind, artesian			do	
375	do	do	A-17		Driven, 4 by 6 inch.	48	48	65	26	64	Artesian				
376	H. Laeter	do	B-17		Bored, 4-inch	48	48	130	27	64	do			Domestic	
377	do	do	B-17	1879	Bored, 7-inch	46	46	64	28	64	Gas, artesian		675.00	Irrigation	†10
378	Orange County	do	A-17	1901	Hydraulic, 3-inch	47	47	120			Artesian			Roads	
379	do	do	A-17	1901	do	48	48				do			do	
380	Mrs. B. A. Hazard	do	A-17	1878	Bored, 7-inch	46	46	135		64	do			Domestic; irrigation.	9
381	A. D. Bishop	do	A-17		Bored, 4-inch	46	46		27	64	do			Domestic	2
382	do	do	A-17		Bored, 7-inch	45	45	139	29	63	do			Irrigation	24
383	S. J. Murdock	do	A-17	1890	do	46	46		27	63	do			do	

384	Wm. Hoskings	do	A-17		Hydraulic, 2-inch	47	47	120	31	63	do			do		3
385	I. Chapman	do	A-17		Bored, 7-inch	47	47	82	32	65	do			do		
386	do	do	A-17		Hydraulic, 3-inch	47	47		35	64	do			Domestic		
387	do	do	A-17		Hydraulic, 2-inch	47	47		35	66	do			Irrigation		
388	Mrs. Riddlebach	do	A-17		Bored, 4-inch	47	47	108	33	64	do			Domestic		2
389	U. S. Lemon	do	A-17		do	46	46		31	64	do			do		
391	W. J. Edwards	do	A-17		do	46	46		27	59	do			do		
392	C. L. Williams	do	A-17		do	46	46		32	65	do			do		2
393	D. W. Osburn	do	A-17	1882	do	45	45	110	31	65	do			Domestic; irrigation.		14
394	J. J. Pyle	do	A-17	1874	Bored, 7-inch	45	45	80	33	65	Hand, artesian			Domestic		
395	do	do	A-17	1899	Hydraulic, 2-inch	45	45	107	35	64	Artesian	36.00		Irrigation		1
396	F. Wright	do	A-17	1900	Bored, 7-inch	44	44	100	32	65	do			Domestic; irrigation.		4
398	I. Chapman	do	A-17		do	45	45	96	33	65	do			Irrigation		8
400	Mrs. L. J. Hosking	do	A-17		Bored, 4-inch	48	48	55	29	65	do			do		5
401	do	do	A-17		Hydraulic, 2-inch	48	48	94	33	64	do			do		3
402	J. C. Joplin	do	A-16		Bored, 6-inch	49	49	84	31	64	do			Domestic		
403	do	do	A-16		Bored, 7-inch	49	49	190	29	64	do			Irrigation		1
404	do	do	A-16		do	49	49	200+	28	64	do			do		1
405	L. Wade	Santa Ana	H-16	1884	do	176		160	37		Wind			Domestic		
406	Mrs. Thompson	do	H-16	1900	Bored, 10-inch	192	25	167			Not raised	400.00		Not used		
407	F. M. Stocking	do	H-15		Bored, 7-inch	195		99	36		Wind			Domestic		
408	C. H. Morse	do	H-16	1890	do	175	117	140	32	65	do			do		
409	Wm. Pilcher	do	H-16	1897	Hydraulic, 2-inch	170		178			Not raised			Not used		
410	J. M. Morrison	do	H-16	1884	Bored, 7-inch	182	134	114	44		Hand			Domestic		
411	C. Oehlke	do	I-16		Bored, 8-inch	201		175	30		Gas			do		†7
412	H. W. Schoepf	do	I-16	1884	Bored, 6-inch	192	112	115	31		Wind			do		
413	A. L. Havens	do	I-16	1894	Bored, 7-inch, 66 feet; 6-inch, 66 to 120 feet.	182		126	37	64	do			do		
414	A. Schildmeyer	do	I-16	1894	Hydraulic, 2-inch	200	124	183	38		do	+ 200.00		do		
415	D. F. Campbell	do	I-16	1894	Bored, 7-inch	210		106	38		do			do		
416	A. H. Bibber	do	I-15	1884	do	225	146	122	39		do			do		
417	Geo. Acheson	do	I-15		do	210			38		do			do		
418	E. Arrowsmith	Los Alamitos	A-16		do	48	48	240	29	65	Artesian			Irrigation; stock		

Wells in the Anaheim quadrangle—Continued.

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						Feet.	*Feet.*	*Feet.*		°*F.*					*Miner's inches.*
419	W. Junkins	Los Alamitos	A-16		Bored, 7-inch	48	48	200+	29	64	Artesian			Domestic	1
420	do	do	A-16		Hydraulic, 3-inch	48	48	200+	28	64	do			Irrigation	3
421	A. M. Ladd	do	A-15	1896	Hydraulic, 2-inch	52	52	248	30	65	Hand, artesian			Domestic	
422	do	do	A-15	1900	Hydraulic, 3-inch	50	50	236	28	65	Artesian			Irrigation	4
423	Geo. E. Dundas	do	A-16	1894	Bored, 7-inch	53	53	196	30	65	do			do	9
424	M. S. Currier	do	A-16	1898	Hydraulic, 2-inch	52	52	180	27	65	do			Domestic	1
425	do	do	A-16		Bored, 6-inch	52	50	180			Not raised			Not used	
426	T. F. Derrick	do	A-16	1901	Driven, 2-inch	53	41	14	40	63	Hand			Domestic	
427	do	do	A-16	1901	Dug, 2 by 3 foot	52	46	8	93	61	do			Stock	
428	do	do	A-16	1894	Bored, 2-inch	52	52	240			Not raised			Not used	
429	Mr. Cutler	do	A-16		Hydraulic, 2-inch	51	50		27	65	Hand			Stock	
430	Geo. Hodgkinson	do	A-15	1889	Bored, 7-inch	54	52	198	25		Wind			Domestic	
431	J. R. Swayze	do	A-16	1877	do	55	52	277	29		do			Domestic; irrigation.	
432	do	do	A-16	1887	do	55	52	93	28	65	Not raised	$115.00		Not used	
433	do	do	A-16	1895	do	54	52	274	28	65	do	500.00		do	
434	do	do	A-16	1895	Bored, 4-inch	52	52	93	26	65	Artesian			Irrigation	
435	Adolf Ekstein	do	A-15	1880	Bored, 7-inch	56	54	260	25	64	Hand			Domestic	
436	do	do	B-15	1884	do	60	58	260			Gas		$600.00	Irrigation	†25
437	do	do	A-15	1897	Hydraulic, 2-inch	54	50	315			Not raised			Not used	
438	do	do	A-15	1894	Bored, 7-inch	56	54	265	32		Wind			Stock; irrigation	
439	do	do	A-15	1897	Hydraulic, 2-inch	56		265			do	100.00		Domestic	
440	S. Hill	do	A-15	1892	Bored, 7-inch	55	52	260	30	64	do	360.00	+250.00	do	

441	Oliver Hill	do	B-15	1892	do	56	53	200	30	64	Hand	*252.00		Stock	
442	do	do	A-15	1890	Dug, 4 by 4 foot	58		10	51	62	do			do	
443	Mrs. A. Becket	do	B-15	1878	Bored, 7-inch	62	55	184	34		Wind			Domestic	
444	Alfred Beckett	do	B-15	1884	do	64	54	230	29		do			Domestic; irrigation.	
445	S. F. Everett	do	B-16	1876	do	64		145	31	64	do			Domestic	
446	do	do	B-15	1895	Hydraulic, 3-inch	64			38		do			Stock	
447	J. C. McLain	do	B-15	1880	Bored, 7-inch	62	54	151	30	62	Hand			Domestic	
448	Mrs. L. H. Armstrong	do	B-15	1880	do	62	54	158	31	64	do			do	
449	D. L. Leverdeau	do	B-15		Bored, 4-inch	61	54	158	30		Wind			Domestic; irrigation.	
450	R. Herren	do	B-15	1884	Bored, 7-inch	61	56	145	31	64	do			Domestic	
451	do	do	B-15	1884	do	61	56	145			Not raised			Not used	
452	T. Y. Long	do	B-15	1884	do	68	56	170	31		Gas		500.00	Domestic; irrigation.	†45
453	Frank M. Rogers	do	B-15		Bored, 4-inch	73	60	180	31		Wind			do	
454	R. C. Young	do	B-16		Bored, 7-inch	74			31		do			do	
455	H. C. Parmley	do	B-16	1903	do	70	62	165	29	65	Gas	*1,200.00		Irrigation	†90
456	do	do	B-16	1903	do	70	62	165	29	65	do			do	
457	H. A. Young	do	B-15	1904	do	68	58	176	29	66	Hand	175.00		Not used	
458	do	do	B-15	1890	Driven, 1¼-inch	61		14	51	65	do			Domestic	
459	do	do	B-15		Bored, 7-inch	69	59	175			Not raised				
460	D. McMillian	do	B-16	1889	do	70	62	158	29	65	Hand			Domestic	
461	D. Nichols	do	B-16	1884	do	71	62	160	31	65	Wind			Domestic; irrigation.	
462	do	do	B-16	1889	Hydraulic, 2-inch	70	62	160			Not raised				
463	D. K. Sanford	do	B-16	1892	Bored, 7-inch	71	62	156	31	64	Wind			Domestic; irrigation.	
464	O. B. Baxter	do	C-16	1889	Bored, 6-inch	73	62	148	29		Horsepower			do	
465	David Burkhart	do	C-16	1880	Bored, 7-inch	76	66	148	31	65	Hand			Domestic	
466	F. G. Steward	Las Bolsas	C-16	1884	do	85	69	200	31	65	Wind			do	
467	E. A. Chaffee	do	C-16	1878	do	85	75	146	33		do			do	
468	J. Dement	do	G-16	1887	do	82	76	126	31	65	Horsepower			Domestic; irrigation.	
469	D. W. Lawton	do	C-16	1880	do	76	60	158	28		Wind			do	
470	W. McCullough	do	C-16	1874	do	87			29		do			do	
471	J. W. Hill	do	C-16	1884	do	85	78	124	31	64	do			Domestic	

Wells in the Anaheim quadrangle—Continued.

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						Feet.	*Feet.*	*Feet.*		°*F.*					*Miner's inches.*
472	J. D. Chaffee	Las Bolsas	C-16		Bored, 7-inch	85			31	64	Wind			Domestic	
473	A. J. Chaffee	do	C-16	1880	Bored, 4-inch	85	70	118	30	64	do			do	
474	Mrs. Esterbrook	do	C, D-16	1882	Bored, 7-inch	87	71	132	27	64	Wind, hand			do	
475	James Sturgess	do	D-16	1880	do	84	71	112	31	64	Hand			do	
476	W. W. Sterns	do	C-15	1890	do	83	71		27		Wind			do	
477	G. W. Ramsey	do	C-15	1890	Bored, 6-inch	83		148	29	65	Hand			do	
478	Harvey Miller	do	C-16	1895	Bored, 4-inch	83	71	160	31		Gas	*$800.00		Domestic; irrigation.	†40
479	Thos. Lyons	Los Alamitos	C-16		Bored, 7-inch	82	70	160	31	64	Hand			Not used	
480	W. Chaffee	do	B, C-15	1897	do	82	70	150			do			do	
481	R. H. Pulley	do	B-16	1882	do	76	64	146	31	65	Gas		$500.00	Irrigation	†60
482	Mr. Herman	do	B, C-15		do	78	66	161	31	65	Hand			Domestic	
483	L. A. Preston	Los Coyotes	C-15	1902	Hydraulic, 2-inch	88	68	92			Gas	40.00	150.00	Irrigation	
484	do	do	C-15	1895	do	88	68	150	27		Wind	60.00	40.00	Domestic	
485	do	do	C-15	1890	Bored, 7-inch	88	68	98	29	65	Hand			do	
486	E. A. Preston	do	C-15	1902	Hydraulic, 2-inch	86	68	92	29	65	Wind	40.00		Domestic; irrigation.	
487	do	do	C-15	1903	Bored, 7-inch	100	73	165			Gas	163.00	600.00	Irrigation	
488	do	do	C-15	1903	do	100	73	144			do			do	
489	Frank Wayman	do	C-15	1890	do	89	69	146	31	65	do	*1,250.00		do	†30
490	O. E. Heathe	do	C-15	1880	Bored, 6-inch	89	68	105	29	64	Wind			Domestic	
491	Garden Grove	do	C-15	1876	Bored (2), 7-inch	88	73	140			Gas	140.00	1,800.00	Irrigation	†100
492	Irrigation Co														

493	J. W. Hawkins	do	C-15		Hydraulic, 2-inch	88	73	100	29	65	Hand			Domestic		
494	E. J. Ware	do	D-15	1877	Bored, 7-inch	100	74	185	35		Gas	400.00	830.00	Irrigation		†40
495	F. M. Adams	do	D-15		Bored, 6-inch	94			32	65	Wind			Domestic		
496	Mrs. H. A. Warner	do	D-16	1877	Bored, 7-inch	87		212	35		Gas		700.00	Irrigation		†45
497	J. M. Woodruff	do	D-16	1890	do	85	73	189	31	65	Hand			Domestic		
498	Henry Assop	do	D-16	1903	Bored, 11-inch	90	74	98	28		Gas		165.00	Irrigation		†20
499	do	do	D-16	1896	Bored, 2-inch	90	76	100			Flows into pit	25.00		do		
500	E. Cochran	do	D-15	1894	Bored, 7-inch	95	75	140	30	65	Gas		385.00	Irrigation; domestic.		†20
501	O. A. Moody	do	D-14	1902	Hydraulic, 2-inch	95	77	106	30		Wind			Domestic; irrigation.		
502	do	do	D-16	1902	do	95	97	104	26		do			Domestic		
503	A. J. Newsome	do	D-16	1894	Bored, 7-inch	101	80	116	31	64	Gas, wind			Irrigation; domestic.		†10
504	do	do	D, E-16	1882	do	98	80	109			Not raised					
505	G. S. Martin	do	E-16	1894	do	105	87	104	31	64	Hand			Domestic		
506	W. M. Mills	do	E-16	1892	Bored, 4 inch	107	90	102	31		Wind			do		
507	Mrs. S. M. Mills	do	E-16	1872	Bored, 7-inch	104	88	133	31		do			Domestic; irrigation.		
508	S. Penfold	do	E-15	1904	Bored, 10-inch	110	90	120	34	65	Hand			Domestic		
509	J. L. Roach	Las Bolsas	E-16		Hydraulic, 2-inch	114	84	80	30		Wind			do		
510	B. Y. Duke	do	E-16	1891	Bored, 7-inch	114			32		do			do		
511	John McMillian	do	E-15	1902	Bored, 4-inch	112	92	94	31		do			do		
512	Hugh Rule	do	E-15	1892	Bored, 7-inch	119	88	107	35		do			do		
513	R. L. King	do	E-15	1903	Hydraulic, 4-inch	118	88	98	30	65	do	65.00	30.00	Domestic; irrigation.		
514	A. Carmicael	do	E-15	1898	Bored, 7-inch	120		116	31		do	100.00	+210.00	do		
515	I. B. Luther	do	E-15	1904	Bored, 4-inch	120		109	33	65	Hand			Domestic		
516	do	do	E-15	1902	Bored, 10-inch	124	87	134			Gas	125.00	1,950.00	Irrigation		†90
517	do	do	E-15	1901	Hydraulic, 2-inch	124	87	104	35	65	Hand	40.00		Domestic		
518	W. E. Schnitger	do	D-15	1899	Bored, 7-inch	102	77	106	33		Wind, gas			do		
519	do	do	D-15	1900	Bored, 9⅛-inch	105	78	143	31	62	Gas		1,500.00	Irrigation		126
520	do	do	D-15	1901	Bored, 7-inch	105	78	155			do			do		
521	A. A. Schnitger	do	D-15	1884	do	102	77	130	35	64	Hand			Domestic		
522	C. Holt	do	D-15	1897	Hydraulic, 2-inch	106	79	98	35		Wind			do		
523	J. Parks	do	E-15	1901	Bored, 7-inch	110	81	125	31		do			do		
524	R. J. Thompson	do	E-15	1903	do	115	80	114	33	62	Hand	104.00		do		

Wells in the Anaheim quadrangle—Continued.

Number of well.	Owner.	Location.	Map location.	Year completed.	Class of well.	Elevation of surface.	Elevation of water.	Depth of well.	Solids per 100,000.	Temperature of water.	Method of lift.	Cost of well.	Cost of machinery.	Use of water.	Quantity of water.
						Feet.	*Feet.*	*Feet.*		°*F.*					*Miner's inches.*
525	E. J. Minyard	Las Bolsas	E-15	1900	Hydraulic, 2-inch	110	78	87	23	65	Wind	$50.00	+$135.00	Domestic	
526	C. E. Lighthall	do	E-15		Bored, 4-inch	111	78	110	38		do			do	
527	F. A. Nelson	do	E-15	1898	Bored, 7-inch	117		168	29		do	160.00	60.00	Domestic; irrigation.	
528	C. Christensen	do	D-15		do	106	76	140	31		Gas		220.00	Domestic	
529	do	do	D-15	1900	do	108	78	154			do	155.00	1,250.00	Irrigation	†90
530	do	do	D-15	1900	do	108	78	132			do			do	
531	E. P. Fowler	do	D-14	1895	do	114	78	150			do			do	123
532	do	do	D-14	1896	do	114	78	271			do			do	
533	do	do	D-14	1897	Bored, 10-inch	114	78	150			do			do	
534	do	Los Coyotes	C-14	1899	Bored, 7-inch	103	76	160			do			do	96
535	do	do	C-14	1899	do	103	76	150			do			do	
536	do	do	C-14	1900	Bored, 8-inch	103	76	179	36		Gas, wind			Irrigation; domestic.	
537	do	do	C-14	1901	Bored, 7-inch	103	76	138	37		Wind			Domestic	
538	W. A. Newbery	Las Bolsas	D-14	1897	Bored, 10-inch	105	78	187			Gas			Irrigation	
539	do	do	D-14	1897	Bored, 7-inch	105	78	187	31	65	do		1,000.00	do	†108
540	do	do	D-14	1902	do	105	78	188			do			do	
541	Albert Bruskey	do	D-14, 15	1901	do	107	78	141	31	65	do	175.00	825.00	do	†35
542	P. B. Roy	do	E-15	1903	do	117	83	126			do		2,200.00	do	†135
543	do	do	E-15	1903	do	117	83	140			do			do	
544	do	do	E-15	1903	Bored, 6-inch	117	83	160	31		do			Domestic; stock	
545	W. W. Mewter	do	E-14	1901	Bored, 10-inch	120	81	131	29		do	165.80	1,596.00	Irrigation	98

546	J. A. Knapp	do	E-14	1900	Bored, 7-inch	120	81	137	31		do	135.00	900.00	do	†45
547	J. F. Culton	Los Coyotes	C-14	1890	do	98	75	247	42		Wind			Domestic	
548	J. W. Heart	Las Bolsas	D-14	1901	do	118	78	120	30		Gas	186.00	850.00	Irrigation	†40
549	W. J. Freeman	do	E-14	1903	Bored, 10-inch	120	80				do	*2,500.00		do	†110
550	do	do	E-14	1903	Bored, 12-inch	120	80				do			do	
551	do	do	E-14, 15		Bored, 7-inch	119			35		do		150.00	Domestic	
552	L. H. Wilcox	San Juan Cajon	E-13	1903	Hydraulic, 3-inch	135		98	27		Wind			do	
553	Hugh Grice	do	D-14	1901	Bored, 7-inch	112	82	138	31		do			do	
554	J. B. Neff	do	E-14	1894	do	135	88	100			Steam	90.00	2,800.00	Irrigation	†150
555	do	do	E-14	1898	do	135	88	100			do	105.00		do	
556	do	do	E-14	1897	do	134	89	113	32	65	Wind	100.00		Domestic	
557	W. L. Knowlton	do	E-13	1901	do	135	89	105			Gas	*1,200.00		Irrigation	†40
558	do	do	E-13	1903	Bored, 4-inch	133		96	33	65	Hand	32.00		Domestic	
559	Elizabeth Enearl	Las Bolsas	D-14	1894	Bored, 7-inch	120	82	110	36		Wind	94.00		do	
560			D-14	1902	do	120	82	149			Gas	114.00	1,500.00	Irrigation	†75
561	F. Newhall & Son	do	C-14		do	105	78				Wind			Domestic	
562	A. E. Nutt	Los Coyotes	C-14	1901	do	105	78	165			Gas	*2,000.00		Irrigation	†80
563	do	do	C-14	1901	do	105	78	169			do				
564	W. E. Case	Las Bolsas	D-15	1897	do	104	78	148	32	64	Hand			Domestic	
565	Gray Bros	do	D-15	1897	Hydraulic, 2-inch	104	78	136	31	64	Wind			Irrigation	
566	do	do	D-15	1900	Bored, 7-inch	104	78	247			do			do	
567	J. W. Cornelison	Santa Ana	H-15	1899	Dug, 3-foot diameter.	202	124	85	42		do			Domestic	
568	H. Bergemann	do	I-15, 16	1900	Bored, 7-inch	208	105	115			do			do	
569	H. Nieffer	do	I-15, 16		do	208			42		do			do	
570	Mrs. M. L. Travis	do	I, J-15	1896	do	228		120	41		do	125.00	+250.00	do	
571	J. C. Hyle	do	I-15	1897	do	228		119	33		do			do	
572	Geo. Schmidchen	do	J-15	1901	do	228		131	47		do	135.00		do	
573	Chas. Harter	do	J-16	1897	do	223		138	42		do	200.00		do	
574	W. F. Kaiser	do	J-15	1901	do	235	101	138	44		do			do	
575	D. C. Drake	do	I-15		do	226	111	118	42		do			do	
576	A. H. McCollum	do	I-15	1897	do	225		119	39		do			Domestic; irrigation.	
577	A. F. Schubert	do	I-15	1897	do	224		125	34		do	*300.00		Domestic	

Wells in the Anaheim quadrangle—Continued.

Number of well.	Owner.	Location.	Map location.	Year completed.	Class of well.	Elevation of surface.	Elevation of water.	Depth of well.	Solids per 100,000.	Temperature of water.	Method of lift.	Cost of well.	Cost of machinery.	Use of water.	Quantity of water.
						Feet.	*Feet.*	*Feet.*		°*F.*					*Miner's inches.*
578	Orange City Water Company.	Santa Ana	I-15		Bored, 9-inch	206	104	120			Gas			Not used	
579			I-15	1902	Bored, 12-inch, 440 feet. Bored, 10-inch, 180 feet.	230	121	620			Steam			Domestic	27
580	H. Fitchen	do	J-15	1900	Bored, 7-inch	248	125	148	44		Wind			do	
581	Henry West	do	J-15	1880	Dug, 2½-foot diameter.	250	125	128			do			do	
582	H. S. Grenenwald	do	L-15	1900	Bored, 7-inch	320	276	85	42		Gas			Domestic; irrigation.	†12
583	Perkins Bros	do	K-14	1900	do	276	91	247	56		do	$302.80	$1.150.00	do	†17
584	R. Emmick	do	H-15	1884	do	165	103	80	52	65	Hand			Domestic	
585	Mrs. C. R. Bush	do	H-15	1896	do	165	100	66	53		Wind			do	
586	Iven Ruck	do	H-15	1899	do	165		118	27		Hand			do	
587	W. A. Morrison	do	H-15	1894	do	165		128	33		do			do	
588	Mrs. Thos. Goss	do	H-14	1901	do	165	105	142	35		Gas			Domestic; irrigation.	
589	T. P. March	do	H-14		do	170			48		Wind			do	
590	H. Loptien	do	H-14	1870	do	170	100	74	51	65	do			Domestic	
591	Fred W. Struck	do	H-14	1894	do	168	102	72	49	65	do			do	
592	H. Rensch	do	H-14	1882	do	166	105	66	47		do			do	
593	R. Paulus	do	H-14	1902	do	165	105	70	52	65	Hand			do	
594	Max Struck	do	H-14	1902	do	167		72	42	65	Wind			do	
595	Fred Gerken	do	H-14	1900	do	165		72	45		do			do	

596	T. H. Brown	do	H-14	1899	do	170		123	30	65	do			Domestic; irrigation.	
597	W. Raugh	do	I-15	1898	do	205		95	42		do			Domestic	
598	Mrs. C. P. Mallory	do	I-14	1900	do	208		140	42		do			do	
599	F. H. Hollister	do	I-14		do	193	112	87	38		do			do	
600	C. S. Spencer	do	I-14	1896	do	188		129	33		do			do	
601	Henry Bosch	do	I-14		do	193			35	65	Hand			do	
602	Henry Rodieck	do	I-14	1901	do	191			39		Wind			do	
603	S. S. Raugh	do	I-14	1902	do	180		142	37		do			do	
604	O. Dowens	do	I-14		do	185	85	128	31		do			do	
605	A. C. Elliott	do	I-14	1890	do	195	95	142	29		Gas			Domestic; irrigation.	
606	C. F. Johnson	do	I-14	1903	do	200	92	128	38		Wind	200.00	+400.00	Domestic	
607	Chas. Carlson	do	I-14	?1882	Bored, 6-inch	207	100	100	40		do			do	
608	S. M. Davis	do	I-14	1901	Bored, 7-inch	213		110	39		do			do	
609	J. W. Rice	do	I-15		do	215		150	40		do			do	
610	John Hanson	do	I-15	1897	do	220		117	35		do			do	
611	J. H. Kurtz	do	I-15	1902	Dug, 3-foot diameter.	225	126	104	32		Hand			do	
612	Rob Apple	do	I-15	1900	Bored, 7-inch	224		122	37		Wind	145.00		do	
613	G. D. Toothaker	do	I-14	1900	do	218	118	130	38		do	195.00	80.00	do	
614	William Bierwagen	do	J-14	1900	do	232	100	147	37		do	150.00		do	
615	A. N. Saxton	do	J-15	1903	do	237	147	130	37	65	do			do	
616	R. S. Williams	do	J-15	1897	do	258	119	140			Not raised				
617	G. W. Brown	do	J, K-13, 14.	1899	Dug, 3 by 3 foot, 180 feet; bored, 7-inch, 12 feet.	298	98	200	43		Wind			Domestic	
618	C. O. Field	do	J-13, 14	1902	Dug, 3-foot diameter.	285	233	53	39	66	Hand			do	
619	Geo. Jesson	do	J-13		Bored, 7-inch	296	dry	161			Not raised				
620	J. P. Williams	do	K-13	1901	Dug, 3-foot diameter.	325	dry	210			Hand				
621	Villa Park school district.	do	K-14		Bored, 7-inch	300	100	225			Wind			Domestic	
622	S. A. Gilbert	San Juan Cajon	F-14	1901	do	135	95	122	35	65	do			Domestic; irrigation.	
623	A. P. Smith	do	F-14	1899	do	132	92	112	30		do			do	
624	John Wheaton	do	F-14	1897	Hydraulic, 2-inch	130	89	108			do	40.00		do	

Wells in the Anaheim quadrangle—Continued.

Number of well.	Owner.	Location.	Map location.	Year completed.	Class of well.	Elevation of surface.	Elevation of water.	Depth of well.	Solids per 100,000.	Temperature of water.	Method of lift.	Cost of well.	Cost of machinery.	Use of water.	Quantity of water.
						Feet.	*Feet.*	*Feet.*		°*F.*					*Miner's inches.*
625	J. M. Willoughby	San Juan Cajon ..	F-14	1904	Driven, 2-inch...	133	87	80	29	65	Gas.....	.....	.....	Domestic	.....
626	.....do	.....do	F-14	1904	Bored, 10-inch...	133	87	125	....	....	Not raised at present.	.....	.....	.....	.....
627	S. M. Wren	.....do	F-14	1900	Bored, 7-inch....	135	.....	107	33	....	Wind	$105.00	.....	Domestic	.....
628	J. B. Bowman.....	.....do	F-14	1904	Bored, 10-inch...	139	87	102	32	62	Gas.....	275.50	$1,000.00	Irrigation	†35
629	A. Warner.....	.....do	E-14	1901	.....do	125	85	127	....	....	.....do	*1,500.00	.....	.....do	†60
630	J. B. Ray	.....do	E-14	1901	.....do	127	84	115	....	....	.....do	202.00	1,300.00	.....do	†80
631	.....do	.....do	E-14	?1882	Bored, 4-inch....	127	84	90	44	....	Wind	.....	.....	Domestic	.....
632	G. C. Hiatt	Las Bolsas	D-14	1900	Bored, 7-inch....	120	84	198	....	....	Gas.....	*1,800.00	.....	Irrigation	†125
633	.....do	.....do	D-14	1900	.....do	120	84	150	....	....	.....do			.....do	
634	.....do	.....do	D-14	1904	.....do	120	84	145	....	....	.....do			.....do	
635	.....do	.....do	D-14	1898	.....do	115	81	108	40	....	Wind	.....	.....	Domestic	.....
636	O. E. Cheesebrough ..	Los Coyotes.....	C-14	.....	.....do	98	76	100	52	67	.....do	.....	.....	.....do	.....
637	.....do	.....do	C-14	.....	.....do	98	75	96	....	....	.....do	.....	.....	Irrigation	.....
638	T. J. Jones	.....do	C-14	1890	.....do	86	74	260	43	66	.....do	.....	.....	Domestic	.....
639	.....do	.....do	C-14	1900	.....do	101	82	165	....	....	Gas.....	*1,400.00	.....	Irrigation	†70
640	W. J. Hill	.....do	C-15	1885	Bored, 8-inch....	87	69	100	36	....	.....do	.....	.....	Domestic	.....
641	.....do	.....do	C-15	1875	Bored, 7-inch....	87	69	170	....	....	Steam	.....	.....	Irrigation	†70
642	S. Christensen	Los Alamitos	C-15	1885	.....do	82	65	176	31	65	Wind	.....	.....	Domestic	.....
643	C. N. Brown.....	Los Coyotes.....	B-15	1880	.....do	79	67	181	34	66	Hand.....	.....	.....	.....do	.....
644	F. A. Gates	.....do	B-15	1898	Hydraulic, 2-inch	77	67	140	38	64	Wind	.....	.....	Domestic; irrigation.	.....
645	Mrs. Nellie Town	.....do	B-15	1877	Bored, 7-inch....	77	67	180	38	65	.....do	.....	.....	.....do	.....

646	C. J. D. Beck	do	B-14	1903	Hydraulic, 2-inch	79	67	254	26	66	do			do	
647	E. L. Kellogg	do	C-14	1903	Bored, 7-inch	110	84	100	41		do			Domestic	
648	J. Detempb	Las Bolsas	D-14		do	110	82	100	35	65	do			do	
649	T. L. Garrison	San Juan Cajon	E-14	1904	do	128	86	129	25	62	Gas	*2,000.00		Irrigation	48
650	do	do	E-14	1904	do	128	86	131	25	62	do			do	
651	A. R. Dresser	Santa Ana	H-17	1888	do	150		58	46		Wind			Domestic	
652	Otis Jones	do	H-17	1889	do	150		59	56		do			do	
653	H. M. Seyor	do	H-17	1889	do	150		56	49		do			do	
654	J. Chandlier	do	H-17	1888	do	135	90	65	49		do			Domestic; irrigation.	
655	J. H. Sharp	do	K-16	1900	Bored, 9½-inch	200	83	136	43	66	Hand			Domestic	
656	H. M. Morse	do	H-17	1900	Bored, 7-inch	162		90	43		Wind, gas			Domestic; irrigation.	
657	J. A. Oderlin	do	I-17	1888	do	161	100	65	53		Wind			Domestic	
658	H. W. Sylvester	do	H-17		do	141	93	58			do			Domestic; irrigation.	
659	M. A. Kiefhaber	do	M-14	1892	Dug, 2 by 2 foot	475	460	21	57		do			Domestic	
660	J. N. Long	Los Coyotes	B-15	1903	Bored, 7-inch	80	65	170	45		do			do	
661	do	do	B-15	?1882	do	80	65	170			Gas			Irrigation	†90
662	do	do	B-15	1902	do	80	65	161			do			do	
663	S. S. Ball	do	C-14		Bored, 4-inch	94			32	65	Wind			Domestic	
664	Ruben Kidner	do	C-14		Hydraulic, 2-inch	98			41	65	Hand			do	
665	S. S. Ball	do	C-13		Bored, 10-inch	105	77	145	34	65	Gas			Irrigation	†90
666	do	do	C-13	1901	do	105	77	145	34	65	do			do	
667	W. R. Clark	do	B-13		Bored, 4-inch	88	72	100	21	66	Wind			Domestic	
668	do	do	C-13	1904	Bored, 7-inch	92	72	175			Gas			Irrigation	
669	do	do	C-13	1904	do	92	72	176			do			do	
670	P. A. Stanton	do	B-14		Bored, 3-inch	87			34	65	Hand			Stock	
671	W. A. Blizzard	do	B-13	1901	Hydraulic, 2-inch	85	70	147	35	65	Wind	100.00		Domestic	
672	J. M. Gilbert	do	B-14	1897	do	80		96	45		do			do	
673	do	do	B-14	1897	do	80		495			do			do	
674	do	do	B-13	1902	do	80		108	35	65	Hand			Stock	
675	W. J. Thompson	do	B-14	1892	Driven, 1¼-inch	74		35	32	65	do			Domestic	
676	A. Barter	do	B-14	1894	Bored, 7-inch	72	60	168	25	64	Wind			Domestic; irrigation.	
677	do	do	B-14	1898	Hydraulic, 2-inch	72	60	533	28	64	Hand			do	

Wells in the Anaheim quadrangle—Continued.

Number of well.	Owner.	Location.	Map location.	Year completed.	Class of well.	Elevation of surface.	Elevation of water.	Depth of well.	Solids per 100,000.	Temperature of water.	Method of lift.	Cost of well.	Cost of machinery.	Use of water.	Quantity of water.
						Feet.	*Feet.*	*Feet.*		°*F.*					*Miner's inches.*
678	W. H. Kennedy	Los Coyotes	B-14	?1882	Bored, 7-inch	73	62	183	33	65	Gas	*$1,000.00		Irrigation	68
679	do	do	B-14	1904	do	73	62	183	33	65	do			do	
680	J. H. Brown	do	B-14	1897	Hydraulic, 2-inch	73	62	265			Not raised				
681	De Los Marton	do	B-14	1904	Bored, 7-inch	72	62	146	32	65	Wind	145.00		Domestic	
682	James Kearns	do	B-14	1899	Hydraulic, 2-inch	72	62	276	32	65	do			Domestic; irrigation.	
683	T. Hill	do	B-14	1892	Driven, 1¼-inch	72		42	33	65	Hand			Domestic	
684	do	do	B-14	1897	Hydraulic, 2-inch	72	62	267	32	65	Wind			Domestic; irrigation.	
685	L. Hickox	do	B-14		Driven, 1¼-inch	71		14	27	65	Hand			Domestic	
686	J. Snow	do	B-14	1894	Bored, 4-inch	70	63	224	32		Wind			Domestic; irrigation.	
687	J. J. Hayes	Los Alamitos	B-15	1897	do	69	60	200	31	65	Hand			Domestic	
688	J. Corner	do	B-15	1896	Hydraulic, 2-inch	70	64	200+	40		Wind			do	
689	J. W. McClellen	Los Coyotes	C-14	1900	Bored, 7-inch	87	67	158			Gas	*1,400.00		Irrigation	†100
690	do	do	C-14	1904	do	87	67	172			do	170.00		do	
691	do	do	C-15	1880	do	87	67	365	28		Wind			Domestic	
692	Mrs. M. Merideth	San Juan Cajon	E-13		Dug, 3 by 3 foot; bored, 7-inch.	137			30		do			do	
693	H. E. Hunt	do	D, E-14	1903	Bored, 7-inch	126		113	33	66	Hand	100.00		do	
694	Robert Hansen	do	E-13	1894	Hydraulic, 2-inch	130	90	100	45		Wind	35.00		do	
695	A. O. Luer	Las Bolsas	D-13		Bored, 7-inch	118	88	101	50		do			do	
696	E. J. Sparkes	do	D-13	1894	Bored, 4-inch	118		100	46		do			do	
697	E. D. Merion	do	D-13	1884	Bored, 7-inch	112	84	110	44		do			do	

698	R. Westfall	do	D-14		do	115	85	96	58		do			do		
699	E. A. Sparkes	do	D-13	1894	do	115	84	100	68		do			do		
700	Mrs. M. Lare	Los Coyotes	B-14	1892	Bored, 4-inch	70			29	65	Hand			do		
701	A. Franklin	do	A-14	1903	Hydraulic,3-inch	66	63	138	31	65	do			do		
702	J. E. Miller	do	A-14	1896	Hydraulic,2-inch	66			31		Wind			do		
703	J. Everharte	do	A-14	1902	Bored, 7-inch	62	57	144	32		Hand			do		
704	J. R. Newsom	do	A-14	1897	Hydraulic,2-inch	55	52		31	65	Wind			do		
705	J. Stearn	do	A-14		do	53			31	65	Hand			do		
706	R. Kruger	do	A-14		do	54					Wind			Stock		
707	Ludwig Kunkel	do	A-13	1903	Driven, 1¼-inch	62	54	11	84	64	Hand			Domestic		
708	C. W. Overton	San Juan Cajon	E-11		Bored, 7-inch	152	122	70	35		Wind			do		
709	G. A. Mills	do	E-10	1897	Hydraulic,2-inch	150	122	136	30		do	40.00		do		
710	A. G. Miller	do	E-10		Bored, 4-inch	148		60+	30		do			do		
711	Ed B asley	do	E-10	1903	do	147		135	33		do			do		
712	R. S. Gregory	do	E-10	1899	do	150			40		do			Domestic; irrigation.		
713	J. Naeger	do	E-9	1890	do	165	125	120	77		do			Domestic		
714	Orange City Water Co.	do	E-9	1886	Bored, 11⅜-inch	165	98	118	75		Steam			do		92
715		do	E-9	1886	Bored, 7-inch	165	98	196			Gas			Not used		
716	H. S. Russel	do	E-10	1901	do	152	124	175	75		Wind			Domestic		
717	A. Hiltscher	do	E, D-9	1898	Bored, 4-inch	150	95	154	41		Gas			Domestic; irrigation.		
718	Orange Co. Nursery	do	D-9	1899	Bored, 7-inch	148	103	191	69		Electricity			do		†12
719	A. McDermont	do	D-9	1889	do	149	99	100	39		Wind			do		
720	Geo. Fiscus	do	F-13	1890	do	144	91	95	37		do			Domestic		
721	Wm. Kalbary	Santa Ana	H-14	1901	Dug, 4-foot diameter, 64 feet; bored, 6-inch, 24 feet.	165	103	88	43		do	100.00	$45.00	do		
722	Sam. Keuchel	do	H-13	1900	Bored, 7-inch	178	113	95	43		do			do		
723	F. W. Hughes	do	H-13	1900	Dug, 30-inch diameter.	185	115	73	48		do			do		
724	Ray Krueger	do	H-13	1903	Dug, 3½-foot diameter.	187	115	75	36		Hand			do		
725	Wm. Nolbe	do	H-13	1904	do	188	118	72	38		do			do		
726	J. P. Coyne	do	I-13		Bored, 7-inch	192	112	141	37		Wind			do		
727	C. Mensen Kamp	do	I-13	?1897	do	200		114	44		do			do		

Wells in the Anaheim quadrangle—Continued.

Number of well.	Owner.	Loc tio .	Map location.	Year completed.	Class of well.	Elevation of surface.	Elevation of water.	Depth of well.	Solids per 100,000.	Temperature of water.	Method of lift.	Cost of well.	Cost of machinery.	Use of water.	Quantity of water.
						Feet.	*Feet.*	*Feet.*		°*F.*					*Miner's inches.*
728	J. Kurtz	Santa Ana	J-13	1898	Bored, 7-inch	234	85	158	39		Wind			Domestic	
729	E. Meehan	do	J-13	1902	do	133	83	165	40		do			do	
730	H. W. Mills	do	J-13	?1896	do	137	93	160	32		do			do	
731	J. F. Snowden	do	J-13	1903	do	155		178	39		Gas	$300.00		do	
732	A. P. West	do	J-13	1903	Dug, 3-foot diameter.	263	96	168	42		Wind	210.00		do	
733	J. B. Shoemaker	do	I, J-12	1903	do	247	144	106	53		do	135.00		do	
734	W. H. Bass	do	I-12		Bored, 6-inch	259	Dry.	92			Not raised				
735	Olive Milling Co	do	I, J-12	1890	Bored, 7-inch	285	134	153			Steam			Domestic	
736	F. H. Meats	do	I-12	1903	do	225	118	170	47		Wind			do	
737	W. H. Stinchfield	do	I-12	1902	Dug, $3\frac{1}{4}$ by $3\frac{1}{2}$ feet; bored 8-inch, 20 feet.	222	115	106	49		do			do	
738	D. P. Crawford	do	I-11	1896	Bored, 7-inch	220	126	106	46		do			do	
739	Mary L. Paine	do	I-12	1903	do	215		124	45		do			do	
740	A. Peck	do	I-13	1894	do	196	146	155	37		do			do	
741	Olive road district	do	I-13	1901	do	198	111	186	37		Gas	240.00	$450.00	Roads	
742	H. Heim	do	I-12	1901	do	225	115	150	43		Wind			Domestic	
743	J. Timken	do	I-12	1904	do	209	111	118			Gas	177.00	150.00	do	
744	Taylor Bush	do	I-12	1900	Dug, 3-foot diameter.	206	110	98	51		Wind	49.00	85.00	do	
745	J. D. Heitshusen	do	H-12	1902	Dug, $3\frac{1}{4}$ by $3\frac{1}{2}$ feet, 90 feet; bored, 7-inch, 10 feet.	203	107	100	51		do			do	

746	A. H. Rohert	do	H-12	1903	Dug, 3-foot diameter, 90 feet; bored, 7-inch, 30 feet.	199	110	120	46		do	186.25	55.00	do	
747	Wm. Robbins	do	H-12	1899	Bored, 7-inch	197	Dry	95			Hand			do	
748	E. Tetzlaff	do	I-12	1902	Dug, 3 by 3 feet.	199	Dry	85			do			do	
749	J. R. Fletcher	do	I-12	1889	Bored, 7-inch	201	101	117	46		Wind			do	
750	Ben Dierker	do	H-12, 13	1902	Dug, 3-foot diameter.	196	108	90	32		do	85.00		do	
751	Paul Gatzke	do	H-13		Bored, 7-inch	194	Dry	86	32		do			do	
752	F. E. Robertson	do	H-13	1903	Dug, 3-foot diameter.	194	192	90	32		Hand			do	
753	Mrs. H. Adler	do	H-12	1898	Bored, 7-inch	195	95	103	42		Wind			do	
754	G. Kloth	do	H-13	?1889	do	183		95	38		Hand			do	
755	John Borchard	do	H-13	1901	Dug, 3-foot diameter, 60 feet; bored, 7-inch, 22 feet.	192	112	82	53		do			do	
756	T. M. Flippen	do	H-13	1893	Bored, 7-inch	183	102	100	43		do			do	
757	John Bunke	do	H-13	?1890	do	184		100	37		Wind; hand			do	
758	Jacob Bargsten	do	H-14	1891	do	172	103	72	41		Wind	98.00		do	
759	J. P. Kindt	San Juan Çajon	G-14	1900	Dug, 4-foot diameter.	159	92	69	40		do	95.00		do	
760	S. Hemmering	do	G-13	1903	Bored, 7-inch, 70 feet; 3-inch, 5 feet.	163	95	75	37		do	28.00		do	
761	J. A. Smith	do	F-14	1900	Bored, 10-inch	155	86	150	33		Gas	371.00	1,542.00	Irrigation	†60
762	do	do	F-14	1902	Bored, 7-inch	152		71	38		Wind	89.00	40.00	Domestic	
763	I. Clemens	do	F-14	1902	Bored, 10-inch	145	89	127			Gas	300.00	1,400.00	Irrigation	†70
764	do	do	F-14	1903	Bored, 7-inch	143	92	102	38		Hand	100.00	30.00	Domestic	
765	Wm. Green	do	F-14	?1884	do	141	90	86			Wind			do	
766	John Hanna	do	F-14		do	141	90	97	35		do			do	
767	Joe Fiscus	do	F-13	1897	Bored, 10-inch	146	92	123			Gas	166.70	1,775.00	Irrigation	
768	do	do	F-13	1901	Bored, 9⅛-inch	146	92	122			do	166.70		do	
769	Orange County	do	F-13		Bored, 7-inch	146	91	94	36		Wind			Roads	
770	Wm. Pannier	do	F-13	1897	do	152	92	75	44		do	72.00		Domestic	
771	do	do	F-13	1904	Bored, 10-inch	158	93	119			Gas			Irrigation	
772	do	do	F-13	1904	do	158	93	130			do			do	

Wells in the Anaheim quadrangle—Continued.

Number of well.	Owner.	Location.	Map location.	Year completed.	Class of well.	Elevation of surface.	Elevation of water.	Depth of well.	Solids per 100,000.	Temperature of water.	Method of lift.	Cost of well.	Cost of machinery.	Use of water.	Quantity of water.
						Feet.	*Feet.*	*Feet.*		°*F.*					*Miner's inches.*
773	Wagner Bros	San Juan Cajon	G-12	1902	Bored, 10-inch	185	101	109			Gas	$158.00		Irrigation	†50
774	do	do	G-12	1904	do	185	101	122			do	85.00		do	
775	P. A. Dargett	do	G-12	1903	Bored, 7-inch	181	106	102	40		Hand	120.00		Domestic	
776	Mrs. M. E. Stanley	do	G-12	1903	Bored, 6-inch	180		88	38		Wind			do	
777	W. W. Scott	do	G-12	?1884	Bored, 7-inch	181	103	85	40		do			do	
778	do	do	G-12	1904	Dug, 6-foot diameter, 73 feet; bored, 70-inch, 30 feet.	181	103	103	45		Gas	217.00		Irrigation	†25
779	C. D. Thompson	do	G-12	1901	Bored, 4 inch	182	106	80	41		Wind			Domestic	
780	Geo. Stanley	do	G-12	?1897	Bored, 6-inch	183	110	85	45		do			do	
781	G. Spingath	do	G-12	1902	Bored, 7-inch	182		106	43		Hand	120.00		do	
782	S. E. Wecker	do	G-12	1903	do	183		106	43		do	125.00		Domestic; stock	
783	John Berg	do	G-12	1901	Bored, 4-inch	182		98			do	100.00		Domestic	
784	do	do	G-12	1904	Bored, 10-inch	186	105	111			Gas	200.00	$1,375.00	Irrigation	†50
785	do	do	G-12	1898	Bored, 7-inch	186	105	108			do	131.00		do	
786	Peter Berg	do	G-12	1902	Bored (2), 10-inch	188	106	110	42		Gas (2)	600.00	2,000.00	Irrigation (2)	†75
787	W. Trapp	do	G-11	1902	Bored, 7-inch	192	110	101	43		Wind	111.00	60.00	Domestic	
788	do	do	G-11	1904	Bored, 10-inch	197	112	104			Gas	225.00	2,400.00	Irrigation	
788a	do	do	G-11	1904	do	197	112	112			do	225.00		do	
789	Wm. Wagner	do	G-11	?1887	Bored, 7-inch	185	110	80	42		Hand			Domestic	
790	Miller Scribner	do	F-13	1902	do	150	94	156	36		Gas	152.00	750.00	Irrigation	†25
791	C. L. Green	do	F-13	1904	do	153	95	101			do	88.07		do	
792	do	do	F-13	1904	do	153	95	84			do	71.48		do	

793	G. A. Hunter	do	F-12	?1879	Bored, 10-inch	164	102	248	43		do			do		85
794	do	do	F-12		Bored, 7-inch	158	99	85	39		Hand			Domestic		
795	Geo. Bauer	do	F-12	1901	Bored, 4-inch	170		99	38		do	95.00		do		
796	W. W. Terry	do	F-12	1900	do	170		83	45		Wind	65.00		do		
797	W. A. Ross	do	F-12		do	169	105	105	42		Gas			Domestic; irrigation.		
798	M. V. Stewart	do	F-12	?1900	Bored, 8-inch	172	104	106	44		do			Irrigation		†40
799	A. Gansmantel	do	F-12	?1897	Bored, 7-inch	169	104	89	42		Wind			Domestic; irrigation.		
800	H. Gebert	do	F-12	1901	Bored, 4-inch	173	105	104	46		Hand	60.00		Domestic		
801	F. M. Walber	do	F-12	1903	Bored, 7-inch	176	105	120	44		Gas		2,350.00	Irrigation		†75
802	do	do	G-12	1900	do	176	105	107	44	62	do			do		
803	do	do	F-12	?1898	do	175	106	107	43		do			Domestic		†3
804	A. H. Sheldon	do	F-12	1903	Bored, 6-inch	169	102	101			Not raised					
805	J. C. Ervines	do	F-12	1903	Bored, 4-inch	177	107	95	44		Wind	98.00	47.00	Domestic		
806	Wm. Herper	do	G-12	1903	Bored, 7-inch	179	107	100	42		Hand	100.00		do		
807	Edmund Henry	do	F-12	1901	Bored, 4-inch	178		90	48		do	*94.00		do		
808	M. L. Rogers	do	F-12		Bored, 7-inch	177	108	100	46		Wind			Domestic; stock		
809	A. Staehnke	do	F-12	1903	do	175	106	101	51		Hand			Domestic		
810	C. H. Thayer	do	F-12	1903	do	175	106	100	46		Gas	115.00	950.00	Irrigation		†25
811	Anaheim Cemetery	do	F-11		Bored, 8-inch	175	106	86	48		do			do		
812	G. L. Pickett	do	F-12	?1878	Bored, 7-inch	174	104	87	62		Wind			Domestic		
813	do	do	F-12	1901	do	174	104	108			Gas	122.00		Irrigation		†75
814	do	do	F-12	1901	do	174	104	101			do			do		
815	Mr. Fisher	do	F-12		do	169	104	86	42		Wind			Domestic		
816	L. S. Fletcher	do	F-12	1899	Bored, 4-inch	168		89	42		Wind, gas			Domestic; irrigation.		
817	M. A. Remick	do	F-12	1901	do	167	101		46		Wind			Domestic		
818	H. Kuebler	do	F-12	1898	Bored, 8-inch	167	101	96	44		do	96.00	40.00	do		
819	John Kuebler	do	F-12	1894	Bored, 6-inch	168	102	97			do	120.00		do		
820	W. T. McClellan	do	F-12	1904	Bored, 4-inch	155		80	42		Hand	54.40		do		
821	W. W. Weaver	do	F-12	1900	do	157		92	44		do	75.00		do		
822	J. Vetter	do	F-12	1902	do	157		82	43		do			do		
823	E. Kossert	do	F-12		Bored, 7-inch	158	100	83	40		Wind			do		
824	A. Schneider	do	F-12		do	154		85	41		do			do		
825	Mrs. N. J. Ramella	do	E-12	?1890	do	150	95	57			Hand			do		

Wells in the Anaheim quadrangle—Continued.

Number of well.	Owner.	Location.	Map location.	Year completed.	Class of well.	Elevation of surface.	Elevation of water.	Depth of well.	Solids per 100,000.	Temperature of water.	Method of lift.	Cost of well.	Cost of machinery.	Use of water.	Quantity of water.
						Feet.	*Feet.*	*Feet.*		°*F.*					*Miner's inches.*
826	Oscar Renner	San Juan Cajon	E-12	1894	Driven, 1¼-inch	150	.....	65	66	....	Hand	.....	.....	Domestic	.....
827	Max Früh	....do	E-12	1893	Bored, 4-inch	150	96	65	47	....	Wind	.....	.....	....do	.....
828	C. Stuckle	....do	E-12	?1888	Bored, 7-inch	150	96	76	42	....	Hand	.....	.....	....do	.....
829	....do	....do	F-12	1898	Bored, 4-inch	149	.....	69	61	....	Wind	.....	.....	....do	.....
830	D. Gervais	....do	F-13	1903	Bored, 10-inch	148	93	102	39	....	Gas	$132.00	$2,011.00	Irrigation	†100
831	....do	....do	F-13	1904	....do	148	93	103	....	....	....do	168.00		....do	
832	Mr. Kelley	....do	F-13	.....	Bored, 7-inch	135	90	79	43	....	Wind	.....	.....	Domestic	.....
833	J. C. Manerhan	....do	F-13	?1897	Hydraulic, 2-inch	136	.....	89	46	....	....do	55.00	.....	....do	.....
834	....do	....do	F-13	1902	Bored, 10-inch	138	88	98	....	....	Gas	300.00	1,300.00	Irrigation	†100
834a	....do	....do	F-13	1902	....do	138	88	104	....	....	....do			....do	
835	Ed. Kalf	....do	F-13	1902	Bored, 7-inch	136	87	92	44	....	Hand	100.00	.....	Domestic	.....
836	J. C. Schulz	....do	F-13	1898	Bored, 3-inch	135	.....	92	43	....	Wind	.....	.....	....do	.....
837	Mrs. M. Newbauer	....do	F-13	1902	Bored, 7-inch	130	89	99	45	....	....do	106.00	.....	....do	.....
838	W. W. Mickle	....do	D-13	?1890	....do	129	89	100	68	....	....do	.....	.....	....do	.....
839	S. Holman	....do	D-13	?1890	....do	128	80	96	65	....	....do	.....	.....	....do	.....
840	A. Binder	....do	D-13	.....	....do	130	89	.....	75	....	....do	.....	.....	....do	.....
841	Fairview Water Co.	....do	D-13	1903	....do	131	89	303	....	....	Gas	418.00			
842	....do	....do	D-13	1903	....do	131	89	100	....	....	....do	98.00	1,930.00	Irrigation	135
842a	....do	....do	D-13	1903	....do	131	89	101	....	....	....do	98.00		....do	
843	M. Neipp	....do	D-13	1883	....do	127	87	81	47	....	Wind	165.00	.....	Domestic	.....
844	H. F. Kealiher	....do	D-13	1902	....do	124	83	100	....	....	Gas	160.00	.....	Irrigation	†50
845	....do	....do	D-13	1903	....do	123	83	100	....	....	....do	160.00	.....	....do	

846	L. J. Johnson	do	D-13	1903	do	125	83	118	42		do	124.00	600.00	do	†15
847	H. F. Kealiher	do	D-13	1897	Bored, 4-inch	127	85	98	43		Wind	83.50		Domestic	
848	A. Hurtado	do	E-12, 13	1901	Bored, 3-inch	148		73	51		Hand	71.00		do	
849	R. Hermans	do	E-12, 13		Bored, 4-inch	148		76	47		Wind			do	
850	Mrs. Merideth	do	E-13	1901	Bored, 7-inch	148	94	101	40		do			Domestic; irrigation.	
851	F. Shanley	do	E-13	1896	do	148	96	94	42		do	94.00	45.00	do	
852	John Knutzen	do	E-13	1899	Bored, 4-inch	137	95	46			do			Domestic	
853	W. Berdrow	do	E-13		Bored, 8-inch	137	90	75	41		do			do	
854	Thos. Yaeger	do	E-13	1901	Bored, 4-inch	132		90	43		do	70.00		do	
855	Wm. Schwenckert	do	E-12	1903	Bored, 7-inch	138	90	100	41		Gas	88.00		Irrigation	†100
856	do	do	E-12	1903	do	138	90	98	41		do	86.40		do	
857	do	do	E-12	1880	do	135		90	45		Wind			Domestic	
858	P. C. Miller	do	D-12	1894	do	131	85	86	40		do	90.00		Stock	
859	do	do	D-12	?1880	do	129	84	84	43		do	90.00		Domestic	
860	G. J. Stock	do	D-13	1897	do	128	83	84	45		do	85.00		do	
861	W. R. Dickinson	do	D-13	1903	Bored, 4-inch	126		80	51		do			do	
862	A. Huch	do	D-13	1894	Bored, 7-inch	122	86	83	46		do	93.00		Domestic; stock	
863	C. G. Sparks	do	D-13	?1895	do	123	84	76	96		do			Domestic	
864	W. W. Adams	do	D-13	1898	do	125		96	86		do			do	
865	C. L. Carter	do	D-13	1900	do	120		100	80		Hand			do	
866	Mrs. Fay	do	D-13	1898	Bored, 10-inch	118		98	45		Gas, wind			do	†60
867	do	do	D-13	1898	do	118		101	45		Gas			do	
868	B. Heald	do	D-13	1902	Bored, 7-inch	120	87	130	43	66	do	130.00	700.00	Irrigation	†35
869	do	do	D-13	1891	Driven, 1¼-inch	120		50	43		Wind			Domestic	
870	do	do	D-13	?1894	Bored, 7-inch	121	88	100			do			Not used	
871	M. H. Litten	Los Coyotes	D-13	?1901	do	121	88	124	40		do			Domestic	
872	W. S. Tipton	do	D-12	1899	do	123		100	40		Wind, gas			Domestic; irrigation.	
873	B. W. Lentz	do	D-12	1902	Bored, 10-inch	123		137			Gas			Irrigation	†60
874	do	do	D-12	1902	Bored, 7-inch	123		137			do			do	
875	do	do	D-12		do	122	90	120	38		Wind			Domestic	
876	C. Macy	do	C-12	1903	do	116	86	85	73		do	95.00	50.00	do	
877	M. Lee	do	C-12	1903	Bored, 9¼-inch	114	85	182			Gas	2,500.00	905.00	Domestic; irrigation.	†50
878	Mr. Mardin	do	C-12	?1884	Bored, 7-inch	115	85	110	32		Hand			Not used	

Wells in the Anaheim quadrangle—Continued.

Number of well.	Owner.	Location.	Map location.	Year completed.	Class of well.	Elevation of surface.	Elevation of water.	Depth of well.	Solids per 100,000.	Temperature of water.	Method of lift.	Cost of well.	Cost of machinery.	Use of water.	Quantity of water.
						Feet.	*Feet.*	*Feet.*		°*F.*					*Miner's inches.*
879	John Johnson	Los Coyotes	C-12	1900	Driven, 1½-inch	114	.....	30	102	....	Hand	.....	.....	Domestic	.....
880	M. O. Kellogg	do	C-13	1875	Bored, 7-inch	112	82	168	34	....	Wind	.....	.....	do	.....
881	M. H. Cheeseman	do	C-13	1903	do	109	83	110	45	....	do	$105.00	.....	do	.....
882	Mrs. Johnson	do	C-13	?1899	Hydraulic, 2-inch	110	83	.....	33	....	do	.....	.....	do	.....
883	C. Raab Creamery Co.	do	C-13	?1897	Bored, 2-inch	112	.....	78	....	....	Steam	.....	.....	do	.....
884	A. S. Escalle	do	C-13	.....	Hydraulic, 1¼-inch.	112	.....	90	74	....	Wind	.....	.....	do	.....
885	Charles Finch	do	C-13	.....	Driven, 1½-inch	112	86	37	63	....	Hand	.....	.....	do	.....
886	Ben Johnson	do	C-13	?1900	do	115	88	36	106	....	do	.....	.....	do	.....
887	Julius Baling	do	C-13	1898	Bored, 7-inch	111	85	92	....	....	Wind	.....	.....	do	.....
888	do	do	C-13	1891	Driven, 1½-inch	109	.....	46	63	....	do	.....	.....	do	.....
889	Henry Schultz	do	C-13	1898	Bored, 7-inch	106	82	94	39	....	do	93.00	.....	Domestic; irrigation.	.....
890	do	do	C-13	1892	Driven, 1½-inch	104	.....	32	45	....	Hand	.....	.....	Domestic	.....
891	A. C. Bertram	do	C-13	1900	do	102	.....	22	56	....	do	.....	.....	do	.....
892	C. H. Lee	do	C-13	?1880	Bored, 7-inch	100	76	200+	29	....	Wind	.....	.....	Domestic; irrigation.	.....
893	W. Bashove	do	B-13	.....	Dug, 4-foot diameter.	92	77	16	43	....	Hand	.....	.....	Stock	.....
894	P. A. Stanton	do	B-13	1904	Bored, 10-inch	92	76	135	34	....	Gas	251.00	.....	Irrigation	†40
895	do	do	B-13	?1890	Bored, 3-inch	85	.....	128	34	....	Wind	.....	.....	Stock	.....
896	Mrs. Hein	do	B-13	1901	Bored, 7-inch	88	73	72	31	....	do	.....	.....	do	.....
897	Chas. Sparks	do	B-13	.....	do	90	72	150	29	....	do	.....	.....	do	.....
898	T. W. Dean	do	B-13	1900	Driven, 1½-inch	97	.....	30	73	....	Hand	.....	.....	Domestic	.....

899	C. Whalley	do	B-12	1902	Bored, 7-inch	98	79	127	45	Gas	88.00	$250.00	Irrigation	†20
900	A. M. Ball	do	B-12	?1880	do	98	77	100	35	Wind			Domestic; irrigation.	
901	do	do	B-12	1903	do	98	77	125		Gas			Irrigation	†30
902	A. Messersmith	do	C-12	1900	do	104	78	129	35	Wind	200.00		Domestic; irrigation.	
903	E. L. Hein	do	C-12	1901	Bored, 4-inch	106		160	44	do			Domestic	
904	J. B. Pierce	do	B-12	?1884	do	96		96	32	do			do	
905	Magnolia school district.	do	B-12	1903	Bored, 7-inch	85		120	40	do	115.00		do	
906	A. W. Dearden	do	B-13	1903	do	91		176	60	Hand	180.00		do	
907	J. H. Boney	do	B-13	1899	do	85	70	180	40	Gas	200.00	600.00	Domestic; irrigation.	†20
908	A. Baker	do	B-13	1904	do	81	66	159		Not raised				
909	do	do	B-13	1895	Hydraulic, 2-inch	80		290	31	Horsepower	75.00		Domestic; irrigation.	
910	J. W. Martin	do	B-13	?1895	do	75	64	500	30	Wind, hand			do	
910a	do	do	B-13	?1895	do	75	64	225	30	do			do	
911	F. E. Mittlestet	do	A-13	1902	Bored, 7-inch	73		226		Gas	226.00	425.00	Irrigation	†30
912	do	do	A-13	1896	Bored, 2-inch	73		466		Wind	150.00		Domestic	
913	Miles Cox	do	A-13	?1892	Bored, 7-inch	75	65	288	28	Gas			Irrigation	†15
914	J. Seiditz	do	A-13	?1895	Bored, 2-inch	72	63	151	32	Wind			Domestic; stock	
915	J. Heiman	do	A-13	1894	Bored, 7-inch	78		505		Steam			Irrigation	†40
916	John Nichols	do	A-13	?1894	Bored, 2-inch	65		172	31	Hand			Domestic	
917	L. Bressel	do	A-13	1900	Bored, 7-inch	65		171		Gas	173.00	675.00	Irrigation	†50
918	do	do	A-13	1896	Bored, 2-inch	65		273	26	Wind			Domestic	
919	L. Schmidka	do	A-13	1897	do	68		296	28	do	75.00		do	
920	C. W. Cornwall	do	A-13	1904	Bored, 7-inch	70	62	92		Gas	110.00		Irrigation	†35
921	do	do	A-13	1903	Bored, 7-inch (2)	70	62	88		do	200.00		do	
922	do	do	A-13	?1897	Bored, 2-inch	70	64	500		Not raised				
923	do	do	A-13	1897	Bored, 7-inch	70		400	29	Hand			Domestic	
924	G. Dreger	do	A-12	1900	Bored, 2-inch	69	61	107	30	Wind	40.00		do	
925	J. Dreger	do	A-12	1899	Driven, 1¼-inch	70		156		Hand			do	
926	C. W. Brenner	do	A-12	?1892	Bored, 1¼-inch	70	66	200+	31	do			do	
927	Wm. Domris	do	A-12	1896	Bored, 2-inch	72	68	267	30	Wind			do	
928	do	do	A-12	1904	Bored, 7-inch	72	63	121		Not raised	118.00			

Wells in the Anaheim quadrangle—Continued.

Number of well.	Owner.	Location.	Map location.	Year completed.	Class of well.	Elevation of surface.	Elevation of water.	Depth of well.	Solids per 100,000.	Temperature of water.	Method of lift.	Cost of well.	Cost of machinery.	Use of water.	Quantity of water.
						Feet.	*Feet.*	*Feet.*		°F.					*Miner's inches.*
929	Gus Linberg	Los Coyotes	A-12	1902	Driven, 1½-inch	68	61	12	43		Hand			Domestic; stock	
930	Geo. S. Burrows	do	A-12		Bored, 2-inch	69	63	200			Not raised				
931	Wm Gebert	do	A-12	1899	Hydraulic, 2-inch	73		500			do	$175.00			
932	do	do	A-12	1901	Driven, 2-inch	72		15	47		Wind			Domestic; stock	
933	C. Remland	do	A-12	1898	Bored, 2-inch	73	68	260	29		do	103.00		Domestic	
934	C. Urbigkait	do	A-12	1903	Bored, 7-inch	74	64	108	30		do	120.00	$50.00	do	
935	L. W. Rains	do	A-12	1895	Driven, 2-inch	73		12	46		do			do	
936	G. T. Collier	do	A-12	?1894	Bored, 7-inch	77	65	480	25		Hand, horse-power.			Domestic; irrigation.	
937	Thos. McGuire	do	A-12	1904	do	84	69	124			Not raised	116.00			
938	do	do	A-12	?1893	do	79	66	512			do				
939	do	do	A-12	1904	do	79	65	122			do	116.00			
940	Mrs. B. Masters	do	A-12	?1892	Hydraulic, 2-inch	77		125	29		Hand			Domestic	
941	do	do	A-12	?1894	Driven, 2-inch	80		30	42		Wind			do	
942	M. Schantz	do	A-12	1901	Bored, 7-inch	89	72	116	31		Hand			do	
943	J. E. Hart	do	A-12	1899	Bored, 10-inch	87	72	120	29		Gas			Irrigation	†25
944	do	do	A-12	1902	Driven, 1½-inch	81		18	46		Wind			Domestic	
945	John Gustarfason	do	A-11	1897	Bored, 7-inch	87	72	125	31		do			do	
946	J. O. Brown	do	A-12		Bored, 2-inch	77		325	29		do			do	
947	E. B. Foster	do	A-11	1892	Bored, 7-inch	79	70	504	31		do	1,000.00		Stock	
948	do	do	A-11	1883	do	79	70	275			do			Not used	
949	do	do	A-11	?1898	Hydraulic, 2-inch	75		466	32		do			Domestic	
950	W. G. Potter	do	A-11	?1878	Bored, 7-inch	73	65	276			Not raised				

951	.....do	.....do	A-11	1875	.....do	74	.....	300	31	....	Wind	.....	.....	Domestic	.....	.....
952	Mrs. Hahn	.....do	A-12	.....	Driven, 1¼-inch..	72	.....	12	38	....	Hand	.....	.....	.....do	.....	.....
953	Mrs. Burrows	.....do	A-12	?1890	Bored, 2-inch....	69	60	225	29	....	Wind	.....	.....	.....do	.....	.....
954	W. S. Taylor	.....do	A-11	1894	Driven, 1¼-inch..	73	65	25	40	....	.....do	.....	.....	Domestic; stock	.....	.....
955	W. G. Longhbro	.....do	A-11	1903	Bored, 7-inch....	72	66	259	Gas	....	.....	335.00	175.00	Irrigation	.....	†17
956	.....do	.....do	A-11	?1896	Bored, 2-inch....	72	.....	255	30	....	Wind	130.00	.....	Domestic	.....	.....
957	S. Milner	.....do	A-11	1899	.....do	71	.....	450	32	....	.....do	135.00	.....	Domestic; irrigation.	.....	.....
958	Malcolm Bros	.....do	A-11	1899	Bored, 8-inch....	84	68	263	31	....	Gas	.....	.....	Irrigation	.....	†25
959	.....do	.....do	A-11	.....	Hydraulic, 2-inch	84	.....	300+	31	....	Wind	.....	.....	Domestic	.....	.....
960	C. C. Butterfield	.....do	A-11	?1895	Bored, 2-inch....	88	.....	295	33	....	.....do	.....	.....	Domestic; stock	.....	.....
961	.....do	.....do	B-11	1904	Bored, 12-inch...	92	75	502	34	....	Gas	1,400.00	.....	Irrigation	.....	.....
962	Wm. Porter	.....do	B-12	1900	Bored, 7-inch....	92	72	94	43	....	Wind	.....	.....	.....do	.....	.....
963	P. Hussey	.....do	B-12	1903	.....do	95	.....	106	33	....	.....do	110.00	.....	Domestic	.....	.....
964	Wm. A. Green	.....do	B-12	1902	.....do	95	76	140	....	....	Gas	150.00	650.00	Irrigation	.....	†11
965	.....do	.....do	B-12	1903	.....do	95	76	98	....	....	.....do	92.00		.....do	.....	†23
966	Wm. Porter	.....do	B-12	.....	Bored, 4-inch....	90	73	37	....	....	Wind	.....	.....	Domestic; stock	.....	.....
967	T. Thowson	.....do	B-12	1898	Driven, 1¼-inch..	88	.....	16	57	....	Hand	.....	.....	Domestic	.....	.....
968	J. B. Crayne	.....do	B-12	1901	Bored, 7-inch....	91	78	106	37	....	Wind	.....	.....	.....do	.....	.....
969	Mrs. J. B. Cameron	.....do	B-12	1902	.....do	96	75	123	....	....	Gas	166.00	.....	Irrigation	.....	†25
970	.....do	.....do	B-12	1901	Bored, 4-inch....	96	76	96	32	....	Wind	.....	.....	Domestic; stock	.....	.....
971	L. Harling	.....do	B-12	1903	.....do	101	.....	92	28	....	.....do	58.90	.....	Domestic	.....	.....
972	H. Hodle	.....do	B-12	1903	Bored, 7-inch....	100	78	109	32	....	Hand	.....	.....	.....do	.....	.....
973	Geo. Lenz	.....do	B, C-12	?1899	.....do	105	82	90	33	....	Wind	80.00	.....	Domestic; irrigation.	.....	.....
974	A. Steinke	.....do	B-12	1901	Bored, 4-inch....	106	82	95	31	....	.....do	.....	.....	Domestic	.....	.....
975	E. D. Murphy	.....do	C-12	1903	.....do	106	82	89	40	....	Hand	69.00	.....	Domestic; stock	.....	.....
976	R. C. Hein	.....do	C-12	?1891	Bored, 7-inch....	108	84	102	54	....	Wind	.....	.....	.....do	.....	.....
977	P. A. Peterson	.....do	C-12	1903	Bored, 10-inch...	108	80	112	....	....	Not installed ...	211.80	.....	.....	.....	.....
977a	.....do	.....do	C-12	1903	.....do	108	80	118	....	....	.....do	224.20	.....	.....	.....	.....
978	J. Hedges	.....do	C-11	1903	Bored, 7-inch....	112	84	104	55	....	Gas	90.40	.....	Irrigation	.....	†25
979	.....do	.....do	C-11	1903	.....do	112	84	104	....	....	.....do	90.40	.....	.....do	.....	
980	.....do	.....do	C-11	1899	Bored, 4-inch....	110	84	70	33	....	Wind	.....	.....	Domestic	.....	.....
981	J. A. Simpson	.....do	B-11	1904	Bored, 7-inch....	108	83	103	32	....	Gas	85.00	.....	Irrigation	.....	†17
982	.....do	.....do	B-11	1903	Bored, 4-inch....	108	83	94	32	....	Wind	80.00	.....	Domestic	.....	.....
983	.....do	.....do	B-11	1899	Bored, 7-inch....	110	82	130	35	....	.....do	133.00	.....	Irrigation	.....	.....

Wells in the Anaheim quadrangle—Continued.

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						Feet.	*Feet.*	*Feet.*		°*F.*					*Miner's inches.*
984	C. W. Amy	Los Coyotes	B-11	?1890	Bored, 4-inch	103	84	65	31	....	Wind			Domestic	
985	M. C. Morgan	do	B-11	?1900	Hydraulic, 5-inch	101	80	175	....	....	Gas			Irrigation	† 18
986	do	do	B-11	?1900	Hydraulic, 6-inch (2)	101	80	80	33	....	do			do	
987	Mr. Spomg	do	B-11	.....	Hydraulic, 2-inch	98	.....	80	31	....	Hand			Domestic	
988	Mr. Humerlich	do	B-11	.....	Driven, 1¼-inch	98	.....	30	35	....	do			do	
989	S. Krueger	do	B-11	?1900	do	98	.....	51	36	....	do			Domestic; stock	
990	Ed Kelley	do	B-11	?1894	Bored, 2-inch	100	.....	68	35	....	Wind			do	
991	A. Humerlich	do	A, B-11	1892	Driven, 1¼-inch	90	.....	30	35	....	Hand			do	
992	A. L. Glass	do	A-11	1901	Bored, 7-inch	87	70	408	....	....	Gas			Irrigation	† 40
993	do	do	A-11	?1896	Bored, 2-inch	87	.....	413	33	....	Wind			Domestic	
994	P. A. Stanton	do	B-11	?1903	Bored, 7-inch	108	89	72	56	....	do			Domestic; irrigation.	
995	Brookhurst Ranch	do	C-11	?1887	do	113	87	169	31	....	do			Domestic; stock	
996	P. A. Stanton	do	C-11	1901	do	116	87	118	35	....	do			do	
997	do	do	C-11	1904	Bored, 10-inch	118	83	375	....	....	Gas	$550.00	$1,500.00	Irrigation	† 100
998	do	do	C-11	1898	Bored, 7-inch	118	90	199	....	....	do	228.85		do	† 40
998a	do	do	C-11	1898	do	118	90	225	....	....	do			do	
999	N. M. Barron	do	C-11	1903	do	114	86	140	43	....	Hand			Domestic; stock	
1000	Chas. Allgeyer	do	C-11	1904	do	114	92	94	....	....	Wind	94.00	45.00	do	
1001	F. H P. Miller	do	C-11	1903	do	119	93	64	33	....	do	76.00	+275.00	Domestic; irrigation.	
1002	D. A. Browning	do	C-11	1888	do	122	92	75	35	....	do	78.00		Domestic; stock	

1003	C. T. Blackfan	do	C-11	1897	Bored, 3-inch, 20 feet; 2-inch, 53 feet.	125		73	40		do			do		
1004	O. L. Matthew	do	D-11	1896	Bored, 2-inch	124		375	29		do			Domestic		
1005	G. H. Hatfield	do	D-11	1892	Bored, 7-inch	128	95	95	35		Gas	95.00	825.00	Domestic; irrigation.		†35
1006	do	do	D-11	1903	do	128	95	131	35		do	125.00		Irrigation		
1007	Mrs. C. C. Browning	do	D-11	1879	do	132		375	28		Not installed			Domestic; stock		
1008	do	do	D-11	1904	do	132	94	205	47		Electric motor	220.50		Irrigation		
1009	do	do	D-11	1904	do	132	94	105			Not installed	92.35		do		
1010	do	do	D-11	1904	do	132	94	105			do	92.35		do		
1011	J. G. Welch	San Juan Cajon	D-11	1904	Bored, 4-inch	136	94	95	33		Hand	85.00		Domestic		
1012	W. C. Heyman	do	D-11	?1897	do	130		80	31		Wind			Domestic; stock		
1013	E. Bushnell	Los Coyotes	D-11	?1898	Bored, 2-inch	126		75	42		do			Domestic		
1014	W. F. Sonneman	San Juan Cajon	D-11	?1897	do	127		80	39		do			do		
1015	H. Requarth	Los Coyotes	D-11	1902	Bored, 7-inch	126	90	80	42		Gas			Irrigation		†25
1016	Mrs. Reardon	do	C-12	1900	Bored, 9½-inch	116		246			do			do		†45
1017	do	do	C-12		Driven, 1¼-inch	115			60		Hand			Domestic		
1018	E. Henry	do	C-12	1902	Bored, 4-inch	113	87	79	35		Wind	60.00		do		
1019	A. C. Spalding	do	C-12	1903	Bored, 7-inch	116	88	77	37		Hand	75.90		Domestic; stock		
1020	Truman Campbell	do	C-12	?1901	Bored, 9½-inch	118	89	182	31		Gas	250.00	625.00	Irrigation; domestic.		†48
1021	A. Henry	do	C-12	1901	Bored, 6-inch	118	89	75	42		Hand	65.00		Domestic		
1022	M. M. Poole	do	C-12	1899	Bored, 7-inch	119	90	82	57		do			do		
1023	A. N. Henry	do	C-12	1870	do	120	89	320			Wind			do		
1024	do	do	C-12	1898	do	122	89	225			Gas	500.00		Irrigation		†75
1025	do	do	C-12	1897	do	122	89	600			do			do		
1026	Chas. W. Spooner	do	C-12		do	120	89	77	53		Hand			Domestic		
1027	W. E. Morsch	do	D-12		do	120	89	78	56		do			do		
1028	Fred Stankey	do	D-12	1902	Bored, 4-inch	122	81	78	58		Wind			do		
1029	Lewis Gleichner	do	D-12	1902	Bored, 7-inch	123		137	57		do	130.00		do		
1030	John Huhn	do	D-12	1899	Driven, 1¼-inch	125		40	66		Hand			Domestic; stock		
1031	F. H. Wessler	San Juan Cajon	D-12	1901	Bored, 3-inch	126		77	83		do	79.00		Domestic		
1032	V. Montgomery	do	D-12		do	126		78	42		do			do		
1033	B. J. Snodgrass	do	D-12	1902	Driven, 2-inch	127		47	78		do			do		
1034	D. Stark	do	D-12	?1889	Bored, 9½-inch	127		160	38		Wind			Domestic; irrigation.		

Wells in the Anaheim quadrangle—Continued.

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						Feet.	*Feet.*	*Feet.*		°*F.*					*Miner's inches.*
1035	G. Meger	San Juan Cajon	D-12	.....	Bored, 7-inch	125	89	101	34	....	Wind	.....	.....	Domestic; stock	.....
1036	J. Newman	....do	D-12	1903	Bored, 4-inch	125	.....	120	48	....	Hand	$98.00	.....	Domestic	.....
1037	J. W. Duckworth	....do	D-12	1898	Bored, 4-inch, 60 feet; 2-inch, 44 feet.	125	85	104	44	....	Wind	.....	.....	....do	.....
1038	Loara district school	....do	D-12	1902	Bored, 4-inch	129	.....	100	38	....	....do	.....	.....	....do	.....
1039	L. Bolz	....do	D-12	1902	....do	130	.....	75	44	....	....do	.....	.....	....do	.....
1040	G. Betts	....do	D-12	1902	Driven, 1¼-inch	130	.....	40	63	....	Hand	.....	.....	....do	.....
1041	G. Grenke	....do	D-12	1903	Bored, 4-inch	126	85	132	43	....	....do	.....	.....	....do	.....
1042	Jacob Rinker	....do	D-12	?1899	Hydraulic, 2-inch	133	.....	108	45	....	....do	.....	.....	....do	.....
1043	F. Dettner	....do	D-12	.....	Bored, 7-inch	134	92	126	39	....	Wind	.....	.....	....do	.....
1044	F. Henderson	....do	D-12	1882	Hydraulic, 2-inch	133	.....	55	57	....	Hand	.....	.....	....do	.....
1045	H. Williams	....do	D-12	1903	Driven, 1¼-inch	134	.....	40	49	....	Wind	.....	.....	....do	.....
1046	Mrs. S. Rees	....do	D-12	1900	Bored, 3-inch	134	.....	89	50	....	....do	.....	.....	....do	.....
1047	T. J. F. Boege	....do	D-12	1886	Bored, 7-inch	136	96	92	....	....	....do	.....	.....	....do	.....
1048	....do	....do	D-12	1902	....do	136	96	88	40	....	Gas	75.20	$300.00	....do	.....
1049	Mr. Spencer	....do	D-12	.....	....do	137	95	80	20	....	Hand	.....	.....	....do	.....
1050	Union Brewing Co	....do	D-12	?1890	....do	136	96	86	40	....	Steam	.....	.....	....do	.....
1051	C. Bennerscheidt	....do	D-12	1884	....do	133	93	88	42	....	Hand	.....	.....	....do	.....
1052	John Shaw	....do	D-12	1900	....do	129	.....	103	43	....	Gas	.....	.....	Domestic; irrigation.	†30
1052a	....do	....do	D-12	1901	....do	129	.....	103	43	....	....do	.....	.....	Irrigation	
1053	C. W. Marden	....do	D-12	1903	Bored, 10-inch	128	91	125	....	....	Not installed	140.00	.....	.....	.....

1054	.....do.....	.....do.....	D-12....	?1900	Bored, 7-inch....	128	89	98	41	....	Wind.....	100.00	.....	Domestic.....	.....	
1055	Tim Carroll.....	.....do.....	D-12....	?1880	.....do.....	130	.....	115	37	....	Horsepower	.....	.....	Irrigation	.....	
1056	Chas. Lange.....	.....do.....	D-12....	1877	.....do.....	132	93	84	40	....	Wind.....	.....	.....	Domestic.....	.....	
1057	Mrs. Fay.....	.....do.....	E-12....	?1893	Bored, 8-inch....	138	95	81	38	....	.....do.....	.....	.....	Domestic; irrigation.	.....	
1058	.....do.....	.....do.....	E-12....	1894	Bored, 7-inch....	138	.....	90	.....	....	Gas.....	.....	.....	Irrigation	.....	
1059	F. A. Korn	.....do.....	E-12....	?1874	.....do.....	138	94	98	.....	....	Hand.....	.....	.....	Domestic.....	.....	
1060	F. A. Maurer.....	.....do.....	E-12....	1880	.....do.....	138	.....	95	43	....	Wind.....	.....	.....	.....do.....	.....	
1061	W. H. Hunt	.....do.....	E-12....	?1897	Driven, 1¼-inch..	139	.....	63	47	....	Hand.....	.....	.....	.....do.....	.....	
1062	F. Mickle.....	.....do.....	D-12....	1900	Bored, 7-inch....	137	90	125	44	....	Wind.....	117.00	.....	.....do.....	.....	
1064	N. A. Bittner.....	.....do.....	D-12....	?1896	Bored, 3-inch....	138	.....	79	40	....	.....do.....	45.00	45.00	.....do.....	.....	
1065	Mrs. Felber.....	.....do.....	D-12....	1899	Bored, 4-inch, 25 feet; 2-inch, 55 feet.	139	.....	80	45	....	Hand.....	.....	.....	.....do.....	.....	
1066	J. Everhardy.....	.....do.....	D-12....	?1884	Bored, 7-inch....	140	.....	90	49	....	Wind.....	.....	.....	Domestic; irrigation.	.....	
1067	F. A. Korn.....	.....do.....	D-12....	?1880	.....do.....	140	94	87	49	....	Horsepower	.....	.....	.....do.....	.....	
1068	W. G. Krutz	.....do.....	D-12....	?1885	.....do.....	139	94	57	52	....	Wind.....	.....	.....	Domestic.....	.....	
1069	W. A. Wallace.....	.....do.....	D-12....	?1899	Bored, 4-inch....	137	.....	96	59	....	Gas.....	.....	.....	Domestic; irrigation.	.....	
1070	J. McCorkindale.....	.....do.....	D-12....	1903	Bored, 7-inch....	136	97	99	49	....	.....do.....	.....	.....	Irrigation	}	†68
1070a	.....do.....	.....do.....	D-12....	1901	.....do.....	136	97	99	49	....	.....do.....	.....	.....	.....do.....	}	
1071	.....do.....	.....do.....	D-12....	.....	Bored, 4-inch....	136	.....	80	61	....	Wind.....	.....	.....	Domestic.....	.....	
1072	Chas. Eells.....	.....do.....	D-12....	?1899	Bored, 7-inch....	132	93	140	50	....	.....do.....	.....	.....	.....do.....	.....	
1073	H. D. Young.....	.....do.....	D-12....	1903	.....do.....	132	94	80	58	....	.....do.....	.....	.....	.....do.....	.....	
1074	P. Boons.....	.....do.....	D-12....	?1894	Driven, 1¼-inch..	130	.....	35	80	....	Hand.....	.....	.....	Domestic; stock..	.....	
1075	F. W. Fleischman	.....do.....	D-11,12.	1902	Bored, 7-inch....	134	.....	84	31	....	Gas.....	.....	.....	Domestic.....		13
1076	W. I. Carver.....	.....do.....	D-11....	1903	.....do.....	140	98	79	38	....	Wind.....	.....	.....	.....do.....	.....	
1077	.....do.....	.....do.....	D-11....	?1903	.....do.....	142	98	79	39	....	Hand.....	.....	.....	.....do.....	.....	
1078	.....do.....	.....do.....	E-11....	1901	.....do.....	145	101	75	.....	....	Gas.....	.....	.....	Irrigation	}	†22
1079	.....do.....	.....do.....	E-11....	1901	Bored, 10-inch...	145	101	86	...	....	.....do.....	.....	.....	.....do.....	}	
1080	Mrs. A. Frohling	.....do.....	E-12....	1903	Bored, 3-inch....	144	.....	105	54	....	Wind.....	100.00	.....	Domestic.....	.....	
1081	A. Bittner	.....do.....	E-12....	?1902	Bored, 7-inch....	143	94	144	.....	.....	Gas.....	.....	.....	Irrigation	}	†75
1082	.....do.....	.....do.....	E-12....	?1902	.....do.....	143	94	144	.....	.....	.....do.....	.....	.....	.....do.....	}	
1083	.....do.....	.....do.....	E-12....	?1880	.....do.....	140	92	81	44	....	Wind.....	.....	.....	Domestic.....	.....	
1084	J L. Shumacher.....	.....do.....	E-12....	?1899	.....do.....	139	93	90	45	....	.....do.....	77.00	.....	.....do.....	.....	

Wells in the Anaheim quadrangle—Continued.

Number of well.	Owner.	Location.	Map location.	Year completed.	Class of well.	Elevation of surface.	Elevation of water.	Depth of well.	Solids per 1,000,000.	Temperature of water.	Method of lift.	Cost of well.	Cost of machinery.	Use of water.	Quantity of water.
						Feet.	*Feet.*	*Feet.*		°F.					*Miner's inches.*
1085	A. B. Markle	San Juan Cajon	E-12		Bored, 7-inch	139	93	81	40		Gas			Domestic; irrigation.	
1086	J. A Tyler	do	E-12		do	145	105	73	40		Wind			Domestic	
1087	G. Baumgart	do	E-12	1903	do	143	95	100	46		Gas	$91.00	$225.00	Domestic; irrigation.	
1088	Orphans Home	do	E-12		do	145	96	95	43		Wind			Domestic	
1089	C. O. Rust	do	E-12	1874	do	148	96	92	37		do			do	
1090	do	do	E-12	?1899	do	148	96	100	37		Gas	100.00		do	
1091	M. C. Langenberger	do	E-12	?1869	do	152	96	95	37		do			do	
1092	J. J. Snyder	do	E-11	?1863	do	148	99	69	37		Wind			do	
1093	J. A Eymann	do	E-11	?1865	do	148	99	80	35		do			do	
1094	Mrs. F. Dyer	do	E-11	1881	do	153	103	70	38		do			do	
1095	do	do	E-11	1903	do	153	104	110			Gas	101.00		Irrigation	†95
1096	do	do	E-11	1903	do	153	104	119			do	110.40		do	
1097	Mrs. N. G. Perry	do	E-11	1900	Bored, 4-inch	153		84	39		Wind	47.45	40.00	Domestic	
1098	A. R. Eddis	do	E-11	?1899	Bored, 3-inch	154		85	35		do			do	
1099	H. Wilke	do	E-11	1889	Bored, 7-inch	154	99	95	39		do			do	
1100	Mrs. J. Stoodtholl	do	E-11	?1870	do	154	103	90	37		do			Domestic; irrigation.	
1101	A. Backs	do	E-12		do	152	98		32		do			Domestic	
1102	Anaheim city	do	E-12	1896	Bored, 10-inch	153	99	112	39		Steam			do	
1103	do	do	E-12	1896	do	153	99	116	39		do			do	
1104	do	do	E-12	1896	do	153	99	120	39		do			do	

1105	Mr. F. Ruhmann	do	E-12		Bored, 7-inch	153	99	96	41	Wind			do		
1106	W. J. Fisher	do	E-12	?1898	Hydraulic, 2-inch.	150		90		do			do		
1107	Wm. Heying	do	E-12	?1901	Bored, 4-inch	149		88	41	do			do		
1108	H. Hussman	do	E-12	?1870	Bored, 7-inch	150		110	39	do			do		
1109	T. S. Grimshaw	do	E-12	1883	do	149		90	45	do			do		
1110	J. Bennerscheidt	do	E-12	1880	do	149		90	55	do			do		
1111	J. M. Roberts	do	E-12	1885	do	147	96	89	40	do			do		
1112	J. Bennerscheidt	do	E-12	?1884	do	148		90	38	do			do		
1113	M. Nebeling	do	E-12		do	149	96	73	40	do			do		
1114	R. Fossek	do	E-12	?1885	do	149	96	85	44	do			do		
1115	Wm. Konig	do	E-12	?1870	do	152	98	83	45	Horsepower			do		
1116	Colonel Hart	do	E-12		do	153	98	87	40	Wind			do		
1117	F. Bamn	do	E-12	?1888	do	153	99	83	40	do			do		
1118	H. A. Stough	do	E-12	1893	do	150	103	98	41	do			do		
1119	J. B. Rea	do	E-12	?1897	do	154	97	96	39	do			do		
1120	Mr. McWilliams	do	E-12	1893	do	155	100	88	45	do	96.00	40.00	do		
1121	P. J. Mercereau	do	E-12	1901	do	154	99	100	40	Gas			Domestic; irrigation.		
1122	Miss S. M. Zeien	do	E-12		Bored, 4-inch	154		90	34	Wind			Domestic		
1123	A. Rimpan	do	E, F-12	?1883	Bored, 7-inch	157	100	85	44	do			do		
1124	P. Stechert	do	E-12	?1888	do	155	99	92	43	do			do		
1125	Mrs. E. Pellegrin	do	E-12		do	154	98	100		do			do		
1126	J. E. Strehle	do	E-12		do	160	101	80	35	Horsepower			Domestic; irrigation.		
1127	E. F. Wyatt	do	E-12	1903	do	161		99	35	Gas	800.00	175.00	do		
1128	A. Becker	do	F-12		Bored, 4-inch	161		75	52	Wind			Domestic.		
1129	A. Bissell	do	F-12		do	165		80	50	do			do		
1130	A. E. Susmil	do	F-12	?1899	do	167		78	53	Gas	69.75	150.00	Domestic; irrigation.		
1131	H. Kreger	do	F-12		Bored, 7-inch	168	101	87	39	Wind			do		
1132	H. Gunderson	do	F-12		do	169		92	38	Hand			Domestic; stock		
1133	L. J. Christopher	do	F-11	1903	do	169	105	90	39	do	92.00		Domestic		
1134	Wm. Kretschmer	do	F-11		do	168		100	40	Wind			do		
1135	J. H. Brunworth	do	F-11	?1889	do	168	103	101	31	do			do		
1136	Mrs. A. D. Adams	do	F-11	1903	do	169		92	35	Hand			do		

Wells in the Anaheim quadrangle—Continued.

Number of well.	Owner.	Location.	Map location.	Year completed.	Class of well.	Elevation of surface.	Elevation of water.	Depth of well.	Solids per 100,000.	Temperature of water.	Method of lift.	Cost of well.	Cost of machinery.	Use of water.	Quantity of water.
						Feet.	*Feet.*	*Feet.*		°*F.*					*Miner's inches.*
1137	F. W. Beecroft	San Juan Cajon	F-11	?1894	Bored, 7-inch	169	103	103	35		Gas			Domestic; irrigation.	
1138	M. Neblung	do	F-11		do	163	99	137	36		Wind			Domestic	
1139	James Shearer	do	F-11		do	162	99	86	42		do			do	
1140	A. W. Maxwell	do	E-11		Bored, 4-inch	161		90	32		do			do	
1141	do	do	F-11	1902	Bored, 10-inch	163	102	103			Gas	$103.00		Irrigation	†80
1142	do	do	F-11	1902	do	163	102	113			do	113.00		do	
1143	M. A. Smith	do	E-11		Bored, 7-inch	161	105	110	45		Hand			Domestic	
1144	J. E. Allen	do	F-11	1900	Bored, 4-inch	166		74	48		Wind			do	
1145	J. A. Aubert	do	F-11		do	166		96	49		Hand			do	
1146	Joe Roesler	do	F-11	1901	do	165		80	54		do	76.00		do	
1147	John Campbell	do	F-11	1900	Bored, 7-inch	166	103	94	33		Wind			do	
1148	Frank Edison	do	F-11	1896	do	166	102	96	41		do			Domestic; irrigation.	
1149	W. H. Yarger	do	F-11		do	166	102	71	45		do			Domestic	
1150	Mrs. Staley	do	F-11		do	178		86	39		do			do	
1151	W. I. Wilson	do	G-11	1889	do	185	108	83			do			do	
1152	J. B. McFarland	do	G-11		do	188	108	86	35		do			do	
1153	L. Parker	do	G-11		do	185	108	91	41		do			do	
1154	Mrs. Staley	do	F-11	1903	Bored, 10-inch	178	108	103	42		Gas			Irrigation	†85
1155	do	do	F-11	1903	do	178	108	103			do			do	
1156	Thomas Ahern	do	G-11	1904	do	182		119			Not installed				
1156a	do	do	G-11	1904	do	182		127			do				

1157	E. Tucker	do	H-11		Bored, 7-inch	202	111	99	41		Wind			Domestic		
1158	A. Derksen	do	H-11	1901	Bored, 10-inch	208	114	100	47		do	196.00		do		
1159	Mrs. D. Berdtch	do	H-11	1902	do	199	115	181	46		Hand	300.00		Domestic; stock		
1160	Orange County	do	G-12	1900	Bored, 7-inch	187		106			Gas			Roads		
1161	E. C. Conger	Santa Ana	I-11		do	227	140	142	68		Wind			Domestic		
1162	Passmore ranch	do	I-11	1893	do	245		51	96		do			do		
1163	do	do	I-11	1894	Dug, 3 by 4 foot	230	205	27	61		Hand			Stock		
1164	J. Watson	do	K-11	1903	Dug, 4-foot diameter.	262	193	77			Wind			Domestic		
1165	John Bush	do	K-11	1900	Dug, 3 by 4 foot	250	225	30	75		do			Domestic; stock		
1166	August Lemke	do	K-11	1902	Dug, 3 by 3 foot	249	196	57	48		Hand			do		
1167	Chris Lemke	do	K-11	1897	Dug, 3 by 4 foot	254	230	31	73		do			do		
1168	Mrs. V. Yorba	do	L-11	1903	Bored, 7-inch	300		196	86		Gas			Domestic; irrigation.		
1169	E. W. Pyne	do	M-10		Driven, 1½-inch	325		25	66		Hand			Domestic		
1170	do	do	M-10		Bored, 4-inch	320	303	46	66		do			do		
1171	Beralta school district.	do	M-10	1900	Bored, 2-inch	315		100+	51		Wind			do		
1172	J. Bulliod	do	M-10		Dug, 3¼ by 3¼ foot	320	305	17	54		Hand			Domestic; stock		
1173	R. Cooper	do	N-10	1886	Dug, 3 by 3 foot	325	304	23	65		do			Domestic		
1174	Mrs. H. Bedoma	Canyon de Santa Ana.	M-10	?1877	Bored, 7-inch	275	222	62	65		Wind			Domestic; stock		
1175	D. M. Towne	do	M-10		Bored, 4-inch	263	Dry.	51			do			Domestic		
1176	Yorba school district.	do	L-10	?1899	do	267		68	61		do			Not used		
1177	Mrs. Yorba	do	L-9		Bored, 7-inch	270		49			do			Domestic		
1178	Geo. G. Bayha	do	L-10	1903	do	260	208	64	61		Gas			do		
1179	W. R. Carpenter	San Juan Cajon	H-10	1899	do	225	111	120	44		Hand	225.00		do		
1180	Beng. Kraemer	do	H-10	1900	do	220	115	146	38		Wind			do		
1181	E. M. Kraemer	do	H-10	1886	do	205	115	129			Not raised					
1182	do	do	H-10	1902	Bored, 10-inch	205	115	160	40		Gas			Irrigation		51
1183	Joseph Baxter	do	H-10	1904	do	198	110	187			do	400.00	$1,950.00	do		
1184	Wm. Crotther	do	H-10	1890	Bored, 6-inch	196	111	109	50		Wind			Domestic		
1185	Placentia school district.	do	H-9	1903	Bored, 7-inch	220		255	65		do			do		
1186	P. Hansen	do	H-9	?1878	do	225	136	130	67		do			do		
1187	Wesley Almes	do	H-9	1903	do	225	130	151	61		Hand	150.00		do		
1188	Joseph East	do	H-9	1894	Bored, 6-inch	245	161	124	83		Wind			do		

Wells in the Anaheim quadrangle—Continued.

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						Feet.	*Feet.*	*Feet.*		°*F.*					*Miner's inches.*
1189	Saml. Kraemer	San Juan Cajon	H-9	1902	Bored, 7-inch	270	119	200	73		Wind	$310.00	$65.00	Domestic	
1190	Mr. Mesmer	do	I-9		do	283	200	139	57		do			do	
1191	W. B. Hervey	do	H-9		do	280	130	325	83		do			do	
1192	R. J. Laidlaw	do	I-9	?1897	Bored, 6-inch	310	222	275	71		do			Domestic; irrigation.	
1193	Jas. Stafford	Olinda	I-9	?1897	Bored, 7-inch	285	200	105	95		do			Domestic	
1194	J. W. Newell	do	J-9	?1896	do	312	245	180	90		do			Domestic; irrigation.	
1195	Santa Fe Oil Co	do	J-8	1900	Bored, 10-inch	350	260	360	66		Steam			Oil wells	
1196	do	do	J-8	1901	do	350		260	45		do			do	
1197	do	do	J-8	1902	do	350		200	42		do			do	
1198	do	do	J-8	1903	do	350	260	195	38		do			do	
1199	Iowa Oil Co	do	J-7	1902	Bored, 7-inch	378	258	200	73		do			Oil well	
1200	F. R. Holcome	San Juan Cajon	D-10	1890	Bored, 4-inch	132		69	71		Wind			Domestic; irrigation.	
1201	J. A. Vail	do	D-10	1892	do	130	107	76	48		do			do	
1202	J. Widdmer	do	D-9		Bored, 7-inch	135		175	55		do			Domestic	
1203	Mrs. A. Stone	do	E-10	1896	do	147	116	83	55		do			Domestic; irrigation.	
1204	Jacob Wintter	do	E-10	1882	Bored, 6-inch	143		146	37		do			Domestic	
1205	W. A. Barnes	do	E-10	1903	Bored, 7-inch	147	107	138	36		Hand	131.00		do	
1206	S. N. Fuller	do	D-10	1902	do	147	115	200+	42		Wind			do	
1207	E. Stone	do	D-10	1901	do	148	115	142	44		do			do	
1208	B. F. Porter	do	D-10	1892	do	136		95	50		do			do	

1209	Geo. F. Miles	do	E-11	1903	Bored, 10-inch	152	96	256			Gas	*3,000.00		Irrigation	†35
1210	do	do	D-11	1901	Hydraulic, 4-inch	145	103	114	29		Wind			Domestic	
1211	G. D. Houston	do	D-11		Bored, 4-inch	130	94	80	33		do			do	
1212	W. Ruderick	do	D-10		Bored, 7-inch	126	96	117	32		do			do	
1213	A. B. Johnson	do	D-10	1899	Bored, 4-inch	127	103	83	39		do			do	
1214	A. Goodwin	do	D-10	1884	Bored, 7-inch	127	102	350	38		do			do	
1215	J. H. Clever	do	D-9, 10	1899	do	147	102	181			Gas	*1,500.00		Irrigation	22
1216	do	do	D-9, 10	1891	Bored, 4-inch	145	100	68	66		Hand			Domestic	
1217	M. V. B. Lovering	Los Coyotes	D-10	1883	Bored, 7-inch	127	96	141	35		Wind			do	
1218	Alex. Gardner	do	D-10	1899	Hydraulic, 4-inch	125	104	167	30		Gas			do	
1219	W. H. Routzahn	do	D-10		Bored, 7-inch	124	91	200+	33		Wind			do	
1220	P. A. Nicholas	San Juan Cajon	D-10	?1888	do	132			42		Gas			Domestic; irrigation.	
1221	O. M. Skinner	Los Coyotes	C-10	1893	do	121	92	196	42		Wind	300.00		Domestic	
1222	Wm. Schulte	do	C-10	1876	do	119	92	135	38		do			do	
1223	M. A. Spencer	do	C-10	1892	do	119	91	136	42		do	160.00		do	
1224	I. A. Christlieb	do	C-10	1898	do	118	93	198	40		do			do	
1225	Smith Rancho Co	do	C-10	1882	do	112	89	354	37		do			do	
1226	do	do	C-10	1885	do	112	89	581			Not raised				
1227	S. A. Bedell	do	C-10	1876	do	112	89	361	51		do				
1228	do	do	C-10	1904	Bored, 10-inch	112	89	365	65		Gas	850.00	1,000.00	Irrigation	†50
1229	Dean & Braly	San Juan Cajon	E-9	1898	Bored, 4-inch	155		145	55		Wind			Domestic	
1230	M. Cookson	Los Coyotes	B-10	?1892	Bored, 7-inch	86	76	235			Gas			Irrigation	
1231	do	do	B-10		do	86	76	267			do		2,000.00	do	†135
1232	do	do	B-10		do	86	76	278			do			do	
1233	do	do	B-10		do	87	76	240	39		Hand			Domestic; stock	
1234	J. W. Watson	do	A-9	?1882	do	75	75	175			Gas, artesian			Irrigation	†50
1235	do	do	A-9		do	75	75	175			do			do	
1236	do	do	A-10	?1882	do	75	75	200+	34		Artesian			Not used	
1237	do	do	A-10		Hydraulic, 3-inch	74	74	265	33		Wind			Domestic	
1238	Gus Hansen	do	B-10	1899	Bored, 7-inch	103	92	295			Not raised				
1239	do	do	B-10	1902	Bored, 10-inch	103	95	518			Gas	*2,200.00		Irrigation	37
1240	do	do	B-10	1894	Hydraulic, 2-inch	103	92	280	33		Wind			Stock	
1241	do	do	B-10	1900	Hydraulic, 3-inch	102	91	170	35		do			Domestic	
1242	Mr. Leonard	do	A-10	?1882	Hydraulic, 2-inch	78	72	200+	29		Hand			do	

Wells in the Anaheim quadrangle—Continued.

Number of well.	Owner.	Location.	Map location.	Year completed.	Class of well.	Elevation of surface.	Elevation of water.	Depth of well.	Solids per 100,000.	Temperature of water.	Method of lift.	Cost of well.	Cost of machinery.	Use of water.	Quantity of water.
						Feet.	*Feet.*	*Feet.*		°F.					*Miner's inches.*
1243	J. Jones	Los Coyotes	A-10	1895	Bored, 6-inch	74	72	359	28		Hand	$600.00		Domestic	
1244	J. H. Wright	do	A-10	1893	Bored, 4-inch	74	72		33		do			do	
1245	Pacific Creamery Co.	do	A-10	1892	Bored, 7-inch	76	72	340	28	65	Steam			do	
1246	Geo. Wilcox	do	A-10	1892	do	76	72	190	31	65	Not raised				
1247	I. D. Jaynes	do	A-10		Bored, 6-inch	77	73	150			Gas			Irrigation	†40
1248	do	do	A-10	1890	Bored, 4-inch	76	72	137	34	65	Hand			Domestic	
1249	Los Lomas Rancho	do	B-9	?1898	Bored, 10-inch	95	92	1,000			Not raised				
1250	do	do	A-8	?1898	do	140	140	450	30	66	Artesian			Domestic; irrigation.	†15
1251	do	do	A-8		do	140	140	450	30	66	do			do	†3
1252	do	do	A-8		do	141	140	450			Not raised				
1253	J. T. Coleman	do	A-10		Bored, 7-inch	72	68	200+	42		Gas		$500.00	Irrigation	†40
1254	do	do	A-10		do	72	68	100			Not raised				
1255	Geo. H. Warren	do	A-10	1902	Hydraulic, 2-inch	75	71	365	56		Wind			Domestic	
1256	R. A. Sailor	do	A-10	1891	Bored, 7-inch	74	71	200+	25	66	Horse power			Domestic; irrigation.	
1257	J. E. Millikin	do	A-11	1894	Hydraulic, 2-inch	74	69	200	28	65	Gas			do	
1258	J. Yohn	do	A-11		do	74	66	150			Wind			Irrigation	
1259	do	do	A-11		do	74	66	135	35		do			Domestic	
1260	Wm. Goldie	do	A-11	1902	do	87	79	75	34		do			do	
1261	J. Kee	do	A-11	?1882	do	87	79	400+	35		do			do	
1262	E. D. Hiserodt	do	C-10	1900	Hydraulic, 3-inch	123	100	80	33	65	do	50.00		do	
1263	A. H. Gale	do	C-11	1902	do	124		60	59		do			do	

1264	J. E. Houston	do	C-11		Driven, 1¼-inch	123	103	40	61		do			Domestic; irrigation.		
1265	J. A. Clark	do	C-11	1904	Bored, 12-inch	123	94	350			Not raised	738.65				
1266	do	do	C-11	1901	Hydraulic, 3-inch	124	100	87	32		Wind			Domestic		
1267	J. Schneider	do	C-10	1896	do	123	105	86	35		do			do		
1268	S. K. Hollman	do	C-11	1894	Bored, 7-inch	115	91	180	31		do			do		
1269	A. E. Spreague	do	B-11	1890	do	105	87	200+	34		Gas			Irrigation		†25
1270	do	do	B-11	1900	Bored, 10-inch	105	87	200+	34		do			do		
1271	W. D. Smith	do	B-10	1897	Hydraulic, 2-inch	92	83	200	33		Wind			Domestic; irrigation.		
1272	I. R. Williams	do	B-11	1895	Bored, 4-inch	97	85	90	28		do			Domestic		
1273	do	do	B-11	1876	Bored, 7-inch	98	85	200			Not raised					
1274	W. S. Young	do	A-11	1901	Hydraulic, 4-inch	83	73	110	29	66	Hand			Domestic		
1275	do	do	A-11	1894	Hydraulic, 2-inch	83		412			Not raised					
1276	J. H. Bouvesruc	do	B-10	1898	Bored, 7-inch	90	79	212			Gas			Irrigation		†35
1277	do	do	B-10	1892	Hydraulic, 3-inch	90	79	212			do			do		
1278	H. H. Howell	do	A-10		Bored, 7-inch	84	76	400+			do			do		†25
1279	do	do	A-10		Driven, 1¼-inch	84	76	14	39		Hand			Domestic		
1280	Columbia Commercial Company.	do	D-9	1903	Bored, 7-inch	127	89	180			Gas			Irrigation		16
1281	do	do	D-9	1904	do	127	89	160			do			do		11
1282	Mrs. S. Rorden	San Juan Cajon	E-10	1884	do	150	114	166	49		Wind			Domestic		
1283	H. Burdorf	do	E-10	?1882	do	154	114	200+	37		do			do		
1284	do	do	E-10	1904	do	160	109	132			Gas			Irrigation		
1285	do	do	E-10	1903	Bored, 10-inch	160	109	382			do			do		
1286	R. F. Parker	do	E-10	1899	Hydraulic, 3-inch	162	110	125	34		Wind			Domestic		
1287	A. Miller	do	E-10	?1882	Bored, 7-inch	163	110	82	34		do			do		
1288	Ed Sell	do	E-10	1899	Hydraulic, 3-inch	170	113	115	35		do			do		
1289	do	do	E-10	1902	Bored, 8-inch	169	113	160			Gas		800.00	Irrigation		
1290	A. Wright	do	F-10	1892	Bored, 7-inch	170	106	121	46		Wind			Domestic		
1291	W. A. Goodwin	do	F-10	1903	Bored, 6-inch	173	103	120	35		Hand			do		
1292	J. B. Harlow	do	F-10	1900	Hydraulic, 4-inch	174	105	96	45	65	do			do		
1293	B. Schumacher	do	F-10	1885	Bored, 7-inch	176	112	113	62	65	do			do		
1294	A. L. Michaeli	do	F-10		do	178	110	98	48	65	do			do		
1295	A. Porter	do	F-10	1903	do	178	108	114	40		Wind			do		
1296	Mrs. M. Selinger	do	G-10	1885	do	181	110	100	53		do			do		

Wells in the Anaheim quadrangle—Continued.

Number of well.	Owner.	Location.	Map location.	Year completed.	Class of well.	Elevation of surface.	Elevation of water.	Depth of well.	Solids per 100,000.	Temperature of water.	Method of lift.	Cost of well.	Cost of machinery.	Use of water.	Quantity of water.
						Feet.	*Feet.*	*Feet.*		°*F.*					*Miner's inches.*
1297	A. Duffill	San Juan Cajon	G-10	.....	Bored, 7-inch	195	108	202	49	....	Wind	.....	.....	Domestic	.....
1298	E. Krentz	.....do	F-10	1902	Hydraulic, 4-inch	169	103	93	34	65	Hand	.....	.....	.....do	.....
1299	W. B. Houston	.....do	F-10	1903	.....do	173	103	109	64	66	.....do	.....	.....	.....do	.....
1300	A. B. Annin	.....do	E-9, 10	1897	Hydraulic, 3-inch	170	128	142	49	....	Wind	.....	.....	.....do	.....
1301	T. J. McCart	.....do	E-9	1891	Bored, 10-inch	200	114	140	51	....	Gas	.....	.....	.....do	1½
1302	L. B. Benchley	.....do	E-9	1899	Bored, 7-inch	235	100	305	....	....	.....do	*$1,000.00	.....	Domestic; irrigation.	6
1303	J. C. Sheppard	.....do	E-9	1891	.....do	173	.....	107	73	....	Wind, gas	.....	.....	Domestic	.....
1304	Stearn & Goodman	.....do	E-9	1901	Hydraulic, 4-inch	173	.....	100	48	....	Hand	.....	.....	Domestic; stock	.....
1305	H. W. Krug	.....do	F-9	1904	Bored, 10-inch	180	119	126	....	....	Gas	.....	.....	Irrigation	.....
1306	A. Block	.....do	F-9	1900	Hydraulic, 4-inch	184	112	124	102	....	Wind	.....	.....	Domestic	.....
1307	Touwsau Bros	.....do	E-9	1903	Bored, 10-inch, 230 feet; 7-inch, 70 feet.	235	100	300	48	....	Gas	.....	.....	Domestic; irrigation; stock.	.....
1308	.....do	.....do	E-9	1902	Bored, 7-inch	250	109	232	....	....	Not raised	.....	.....	.....	.....
1309	J. C. Rogers	.....do	F-9	1899	Hydraulic, 3-inch	192	.....	160	68	....	Hand	.....	.....	Domestic	.....
1310	O. des Granges	.....do	F-9	1900	Bored, 7-inch	198	113	183	51	....	Wind	.....	.....	.....do	.....
1310a	J. des Granges	.....do	G-9	1904	.....do	205	.....	166	....	....	Hand	.....	.....	.....do	.....
1311	C. S. Knowlton	.....do	F-9	1884	.....do	192	110	123	72	....	.....do	.....	.....	.....do	.....
1312	J. J. Hunter	.....do	F-10	1882	.....do	165	103	125	48	....	Wind	.....	.....	Domestic; irrigation.	.....
1313	Mrs. Mary Hunter	.....do	F-10	1893	.....do	165	103	125	53	....	.....do	.....	.....	.....do	.....
1314	Santa Isabel Rancho	.....do	G-9, 10	1904	Bored, 10-inch	204	103	335	....	....	Gas, steam	.....	.....	Irrigation	.....
1315	.....do	.....do	G-9, 10	?1882	Bored, 7-inch	202	106	125	70	....	Wind	.....	.....	Domestic	.....

1316	F. X. Dauser	do	G-10	1903	Bored, 12-inch	200	104	262			Gas			Irrigation	†35
1317	do	do	G-10	1896	Bored, 7-inch	199	105	108	76		Wind			Domestic	
1318	S. S. Twombly	do	F-9	1890	do	194	74	150	76		do			do	
1319	Mrs. Mattie Hansen	do	G-9	1883	do	207	106	115	88		do			do	
1320	Mrs. Tombes	do	G-9	1902	do	252	170	165			do			do	
1321	A. T. Pendleton	do	G-8	1900	do	267	173	187	107		do	222.50		Domestic; irrigation.	
1322	F. J. McFadden	do	G-8	1902	do	267		188	97		do			Domestic	
1323	J. R. Hinde	do	G-8	1876	Bored, 12-inch	283	188	113	94		do			do	
1324	J. K. Tuffree	do	H-8	?1878	Bored, 7-inch	284		190	49		Gas			Domestic; irrigation.	
1325	Jas. J. Ortega	do	H-8	?1888	do	182		200+	91		do			Domestic	
1326	J. N. Nenno	do	H-7	1903	Bored, 10-inch	365	232	550	62		do	1,500.00	$875.00	Domestic; irrigation.	
1327	Wm. Key estate	do	G-8	1900	Bored, 10-inch, reduced to 7-inch, reduced to 2-inch.	300	167	700	56		do			Domestic; stock	
1328	Thos. Strain	do	G-8	1901	Bored, 8-inch	322	132	329	54		do	545.00	1,300.00	Domestic; irrigation.	
1329	E. K. Clokke	do	G-8	1892	Bored, 3-inch	270		150	83		Wind			Domestic	
1330	F. B. Dunham	do	G-8	?1887	Bored, 7-inch	265	173	123	73		do			do	
1331	D. Hetchbrink	do	G-9	1901	Bored, 4-inch	235		153	88		do	154.00	55.00	do	
1332	Henry Hetchbrink	do	G-9	1886	Bored, 7-inch	248	158	130	86		do			do	
1333	W. F. Coulter	do	G-9	1899	Bored, 4-inch	223	127	130	96		do			do	
1334	E. Utt	do	F-6	?1899	Bored, 7-inch	380	313	97	57		do			Domestic; stock	
1335	E. Ford	do	F-6		do	364	306	100	102		do			Domestic	
1336	do	do	F-6	1903	Bored, 10-inch	372		185			Gas			Irrigation	5
1337	E. Utt	do	F-6	1904	Bored, 7-inch	375	302	320			do	800.00	700.00	do	
1338	Mr. Green	do	E-6		Dug, 3 by 3 foot	320	295	27	57		Hand			Domestic	
1339	S. W. Baldwin	do	E-5	1901	Bored, 8-inch	356	261	199	68		Gas	253.50	947.00	Irrigation	†10
1340	G. W. King	do	E-6	1901	Bored; 10-inch	315	278	345	52		do			do	†30
1341	M. C. Dodge	do	E-5	1898	Bored, 7-inch	352	260	160	70		Wind	201.00		Domestic	
1342	Union Oil Co	do	E-5	1902	do	338		400			Compressed air			Oil wells	†10
1343	Union Oil Co	do	E-5		Bored, 8-inch	338	270	170			Not raised				
1344	Mr. Chenney	do	E-5		Bored, 7-inch	335	269	81	54		Wind			Domestic	
1345	E. H. Stone	do	E-6	?1897	do	335			40		do			do	

Wells in the Anaheim quadrangle—Continued.

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						Feet.	*Feet.*	*Feet.*		°*F.*					*Miner's inches.*
1346	Jack Hunter	San Juan Cajon	D-6		Bored, 7-inch	327	272	76	56		Wind			Stock	
1347	J. Good	do	D-6	1903	do	310		90	58		Hand	$107.00		Domestic	
1348	T. P. Warne	do	D-5	1895	Bored, 4-inch	328		100	61		Wind			do	
1349	La Habra School District.	La Habra	D-5		Bored, 7-inch	325		90	45		do			do	
1350	C. H. H. Parker	do	D-5	1900	Bored, 10-inch	327	277	118	52	71	do	150.00	$225.00	Domestic; irrigation.	
1351	F. R. Aldrich	do	D-5	1896	Bored, 7-inch	350	130		42		do			Domestic	
1352	J. M. Cusick	do	D-5		Bored, 2-inch	370	?220	537	70		do			do	
1353	C. J. Proud	do	D-5	1902	Bored, 10-inch	352	272	430			Not installed			Not used	
1354	F. W. Bishop	do	D-4	1901	Bored, 7-inch	400	200	236	44		Wind			Domestic	
1355	A. L. Roache	do	C-4		Bored, 10-inch	475		265	75		do			do	
1356	do	do	C-4	1900	Bored, 12-inch	475	225	600+			Gas			Irrigation	†17
1357	D. Bastanchury	San Juan Cajon	E-7		Dug, 5-foot diameter.	305	254	53	81		Wind			Domestic; stock	
1358	do	do	E-7	1904	Bored, 12-inch	327		892	70		do			Domestic; irrigation.	
1359	I. B. Varney	La Habra	D-6		Bored, 6-inch	301		100	65		do			do	
1360	C. W. Leffingwell	Santa Gertrudis	A-4	1898	Bored, 10-inch	265	173	583			Compressed air			Irrigation	35
1361	do	do	A-4	1896	do	255	185	282			do			do	10
1362	do	do	A-4	1900	Hydraulic, 3-inch	265	165	605			Gas			do	†3
1363	do	do	A-5		Dug, 3 by 3 foot	247	190	60			Wind			Domestic	
1364	do	do	A-5		Bored, 12-inch, 700 feet; 9⅝-inch, 207 feet.	260	188	907			Not raised				

1365	W. W. Dowell	La Habra	A-4		Bored, 7-inch	305	220	190	67		Wind			Domestic	
1366	J. R. Dyer	do	A-4		do	324	205	140	71		do			do	
1367	Scott George	do	B-4	1898	Hydraulic, 3-inch	374	194	537			Not raised				
1368	W. H. Landieth	do	B-5	1899	Bored, 6-inch	360	235	500			Compressed air			Not used	
1369	H. Bush	do	B-5	1896	Hydraulic, 4½-in.	332	234	165	65		Wind			Domestic	
1370	S. M. Smith	do	B-5	1899	Bored, 10-inch	335	252	450			Gas	1,150.00	1,000.00	Irrigation	†30
1371	do	Los Coyotes	B-5	1897	Bored, 7-inch	320	220	140	67		Wind			Domestic	
1372	do	do	B-5	1899	Bored, 8-inch	320	220	200			do			Not used	
1373	Mr. Session	do	B-6		Bored, 7-inch	288	249	162	67		do			Domestic	
1374	J. L. Toler	do	B-6	1875	do	310	165	185	75		do			do	
1375	T. B. Cooper	do	B-6	1904	do	298	247	173	88		Hand			do	
1376	J. A. Gill	do	C-6	1903	do	295	245	123	81		Wind			Domestic; irrigation.	
1377	T. L. Jackson	La Habra	C-5	1900	do	325	285	99	52		do			do	
1378	Jos. Schrott	do	C-5	?1899	Bored, 6-inch	362	252	160	57		do			Domestic	
1379	C. L. McComber	Los Coyotes	A-8	1901	Bored, 5-inch	110	110	285	30		Gas, artesian			Irrigation	†30
1379a	do	do	A-8	1903	Bored, 10-inch	110	105	285			Gas			do	
1380	Tom McFadden	La Habra	D-5	?1903	Dug, 3½-foot diameter.	300	282	19	70		Hand			Domestic	
1381	J. G. Lanner	do	D-5	1898	Bored, 8-inch	320		80	43		Wind, gas			Domestic; irrigation.	
1382	R. C. Hiatt	do	D-5		Bored, 6-inch	312	276	68	45		Wind			Domestic	
1383	H. A. McDonald	do	C-5	1904	Bored, 7-inch	323		120	68		do	147.00	75.00	Domestic; irrigation.	
1384	H. E. Hart	do	C-5		do	328		145	45		do			Domestic	
1385	Thos. Dawson	do	C-5	?1899	do	327	271	80	38		do			do	
1386	C. O. Cook	do	C-5		do	330	271	126	60		Gas			Domestic; irrigation.	
1387	Mrs. Arfwedson	do	C-5		Bored, 8-inch	328	270	109	49		Wind			do	
1388	Harry Little	do	C-5		Bored, 7-inch	310	271	102	64		do			do	
1389	F. D. Chaffee	do	C-6	1897	Bored, 6-inch	295	258	87	82		do	78.00		Domestic	
1390	Mr. Baldwin	do	D-6	1902	Dug, 4-foot diameter.	315	266	54	81		do			do	
1391	J. Leutwiler	do	C-6	1899	Bored, 8-inch	285	251	88	78		do	85.00		do	
1392	J. Leuhm	do	C-5	1897	Bored, 10-inch	305	258	101	73		do			do	
1393	A. L. Roach	do	C-6	1901	Dug, 6 by 6 foot	262	262	30	95		Gas, wind, artesian.			Domestic; irrigation.	†2

Wells in the Anaheim quadrangle—Continued.

Number of well.	Owner.	Location.	Map location.	Year completed.	Class of well.	Elevation of surface.	Elevation of water.	Depth of well.	Solids per 100,000.	Temperature of water.	Method of lift.	Cost of well.	Cost of machinery.	Use of water.	Quantity of water.
						Feet.	*Feet.*	*Feet.*		°*F.*					*Miner's inches.*
1394	A. L. Roach	La Habra	C-6	.....	Bored, 4-inch	262	262	600+	94	....	Gas, artesian	.....	.....	Irrigation	.....
1395	M. A. St. Clair	La Puente	H-1	1901	Bored, 10-inch	550	509	100	35	70	Wind	$80.00	$65.00	Domestic; stock	.....
1396	F. Grazide	do	H-1	1900	Bored, 9¼-inch	515	488	83	33	70	Gas	.....	.....	Irrigation	†50
1397	J. Ybarra	do	H-1	1894	Dug, 4 by 4 foot	525	487	40	....	....	Wind	.....	200.00	Domestic; stock	.....
1398	W. McClintock	do	H-1	1902	Bored, 9¼-inch	542	508	64	35	....	Gas	75.00	.....	do	2
1399	Valentine Paton	do	H-1	1901	do	525	.....	58	35	69	Flows into tunnel.				
1399a	do	do	H-1	1901	do	525	.....	60	35	69	do				
1399b	do	do	H-1	1901	do	525	.....	72	35	69	do	400.00	a 8,000.00	Irrigation	†100
1399c	do	do	H-1	1902	do	525	.....	80	35	69	do				
1399d	do	do	H-1	1902	do	525	.....	90	35	69	do				
1400	J. Ybarra	do	H-1	1901	Bored, 10-inch	505	486	70	....	....	Gas	75.00	400.00	do	.....
1401	C. B. Ybarra	Rincon De La Brea	H-1	.....	Dug, 4 by 3½ foot	525	511	18	60	70	Wind	.....	.....	Domestic; irrigation	.....
1402	J. M. Chavy	La Puente	H-1	1904	Dug, 4 by 4 foot	475	459	18	38	....	do	.....	.....	Domestic	.....
1403	W. H. Howell	Rincon De La Brea	G-1	1899	Bored, 10-inch	475	460	65	45	68	Gas	.....	.....	Irrigation	†55
1404	A. E. Kepner	La Puente	G-1	1900	do	480	460	85	....	....	do	100.00	500.00	do	.....
1405	B. F. Rowland	do	E-1	1897	do	425	400	270	....	....	do	.....	1,725.00	do	†160
1405a	do	do	E-1	1897	Bored, 10-inch(2)	425	400	140	....	....	do	.....		do	
1406	do	do	E-1	.....	Bored, 7-inch	405	367	67	61	....	Wind	.....	.....	.....	.....
1409	F. Grazide	do	F-2	1903	Bored, 12-inch	500	465	70	68	....	Gas	.....	.....	Domestic; irrigation	†10
1410	S. A. Middagh	do	G-1	1901	Bored, 10-inch	495	468	70	....	....	Wind	.....	.....	Not used	.....

a Cost of tunnel and shafts.

Wells in the Santa Ana quadrangle.

[* Cost of well and machinery. † Estimated. + Including tank in column "Cost of machinery". ? Doubtful.]

Number of well.	Owner.	Location.	Map location.	Year completed.	Class of well.	Elevation of surface.	Elevation of water.	Depth of well.	Solids per 100,000.	Temperature of water.	Method of lift.	Cost of well.	Cost of machinery.	Use of water.	Quantity of water.
						Feet.	*Feet.*	*Feet.*		°*F.*					*Miner's inches.*
1	A. A. Mallett	Las Bolsas	A-1	1876	Bored, 7-inch	30	30	.....	36	....	Artesian	.....	.....	Domestic; irrigation; stock.	7
2	J. J. Pyle	.....do	A-1	1875	.....do	27	27	107	33	64	.....do	$105.00	.....	Stock	42
3	O. B. Byram	.....do	A-1	1875	.....do	30	30	107	30	....	.....do	105.00	.....	Domestic; irrigation; stock.	.....
4	.....do	.....do	A-1	1889	Hydraulic, 3-inch	30	30	110	32	....	.....do	57.75	.....	Irrigation	5
5	G. W. Mack	.....do	A-1	1889	Hydraulic, 2-inch	30	30	110	32	....	.....do	.....	.....	.....do	.....
6	.....do	.....do	A-1	1894	Bored, 7-inch	29	29	107	31	....	.....do	.....	.....	Domestic; stock	.....
7	W. J. Edwards	.....do	A-1	1875	Bored, 6-inch	33	33	172	30	....	.....do	.....	.....	.....do	22
8	H. R. Case	.....do	A-1	1900	Hydraulic, 2-inch	27	27	115	33	....	.....do	.....	.....	Irrigation; stock	.....
9	.....do	.....do	A-1	1888	Bored, 7-inch	27	27	119	32	....	.....do	.....	.....	Domestic; stock	.....
10	.....do	.....do	A-1	1900	Hydraulic, 2-inch	27	27	110	....	....	.....do	.....	.....	Domestic; irrigation.	8
11	J. H. Birch	.....do	A-1	1888	Bored, 7-inch	28	28	108	33	....	.....do	125.00	.....	Domestic; stock.	12
12	.....do	.....do	A-1	.....	Bored, 4-inch	28	28	111	33	....	.....do	.....	.....	Domestic	.....
13	Baily Cook	.....do	A-1	1884	Bored, 7-inch	37	37	.....	33	....	Artesian, wind	.....	.....	Domestic; stock.	.....
14	.....do	.....do	A-1	1900	Hydraulic, 1½-inch.	35	35	114	33	....	Artseian	30.00	.....	Stock	.....
15	W. J. Edwards	.....do	A-1	1900	.....do	35	35	114	33	....	.....do	30.00	.....	.....do	2
16	.....do	.....do	A-1	1896	Bored, 7-inch	32	32	118	33	....	.....do	100.00	.....	Domestic; stock.	.....
17	.....do	.....do	A-1	1897	Driven, 4-inch	32	32	114	32	....	.....do	.....	.....	.....do	9
18	.....do	.....do	A-1	1879	Bored, 7-inch	32	32	110	33	....	.....do	.....	.....	Stock	7

Wells in the Santa Ana quadrangle—Continued.

Number of well.	Owner.	Location.	Map location.	Year completed.	Class of well.	Elevation of surface.	Elevation of water.	Depth of well.	Solids per 100,000.	Temperature of water.	Method of lift.	Cost of well.	Cost of machinery.	Use of water.	Quantity of water.
						Feet.	*Feet.*	*Feet.*		°*F.*					*Miner's inches.*
19	A. A. Mallett	Las Bolsas	A–1	1876	Bored, 7-inch	30	30				Artesian			Stock	
20	E. D. Linder	do	A–1	1892	do	32	32	108	32		do			Domestic	
21	E. C. Phelps	do	A–1		do	35	35	125	30		do			Irrigation	
22	do	do	A–1		Bored, 3-inch	35	35		32		do			do	
23	J. H. Metzgar	do	A–1	1892	Bored, 2-inch	36	36	112	33		do			Domestic; irrigation; stock.	
24	do	do	A–1		do	37	37		31		do			Irrigation	
25	Dan Head	do	B–1		Hydraulic, 2-inch	38	38		33		do			do	
26	do	do	B–1		do	38	38		32		do			do	
27	Sterling Price	do	B–1	1901	Bored, 4-inch	39	39		34		do			do	14
28	do	do	B–1	1899	Bored, 6-inch	39	39	107	33		do			Stock	
29	do	do	B–1		Hydraulic, 2-inch	40	40	71	34		do			Domestic; stock	3
30	do	do	B–1		Bored, 4-inch	41	41	79	33		do			do	
31	do	do	B–1		do	43	43	110	34		do			Domestic	
32	Mr. Cowtin	do	B–2		Bored, 7-inch	44	44		33					Domestic; stock	
33	C. C. Johnson	do	B–1	1900	Hydraulic, 2-inch	44	44		33		Artesian			do	
34	B. M. Watts	do	B–1	1884	Bored, 8-inch	45	45	90	32		do			do	
35	F. R. Hazzard	do	A, B–1	1894	Bored, 7-inch	45	45	140	33		Siphon			Domestic; irrigation; stock.	
36	Durand estate	do	B–1		do	46	46	124	35		Artesian			Irrigation; stock	2
37	do	do	B–1		do	46	46	129	32		Siphon			do	
38	German-American Bank.	do	B–1		Bored, 4-inch	44	44	125	32		Artesian			Domestic; stock	8

39	Frank Baker	do	C-1		do	49	49	100	32		do			Stock		
40	W. G. Jones	do	B-1	1880	Bored, 7-inch	50	50	120	33		Wind			Domestic; stock		
41	do	do	B-1	1898		49	49	128	32		Artesian			Irrigation		
42	do	do	B-1	1894	Bored, 7-inch	49	49	142	32		Siphon			do		
43	Earnest Ward	do	C-1	1898	do	53	52	135	21		Not raised			Not used		
44	G. B. Grove	do	B-1	1879	do	52	52	97	33		Flows into pit			Irrigation		
45	Earnest Ward	do	B, C-1	1884	do	53	53	112	33		Hand			Domestic		
46	G. B. Grove	do	B-1		Bored, 4-inch	53			31		do			Domestic; stock		
47	Peter Ulrich	do	C-1	1896	Hydraulic, 2-inch	49	49	96	32		Artesian			Domestic		
48	P. J. Milton	do	C-1	1896	Bored, 4-inch	50	50	104	31		do	$100.00		Domestic; stock		3
49	Bolsa school district	do	C-1		do	50			33		do			Domestic		
50	J. H. Wertz	do	C-1		Hydraulic, 2-inch	49	49		32		do			do		
51	Mr. Head	do	C-1		Bored, 4-inch	49	49	127			do			Irrigation; stock		3
52	Samuel McCoy	do	C-1		do	49	49	106	31		do			Domestic; stock		
53	do	do	C-1		Bored, 7-inch	50	50	108	32		do			Stock		2
54	J. A. Connor	do	C-1	1876	Bored, 4-inch	48	48	101	33		do			Domestic; stock		
55	Mr. Cooper	do	C-1		do	48	48		33		do			Stock		
56	John Warren	do	C-1		Bored, 7-inch	48	48	110	33		do			Domestic; stock		2
57	W. D. Junkin	do	C-1		Hydraulic, 2-inch	49	49		33		do			do		
59	C. H. Hartle	do	C-1	1900	do	51	51	112	33		do			do		
60	do	do	C-1	1902	do	51	51	123	33		do			Irrigation		
61	do	do	C-1	1897	Bored, 4-inch	50	50	105	32		do			do		
62	J. E. Palla	do	C-1		do	50	50		32		do			Domestic; stock		
63	W. M. Crum	do	C-1	1898	Bored, 2-inch	50	50		34		do			do		
64	Mrs. Mary Ward	do	C-1	1890	do	50	50	100			Hand, artesian			do		
65	C. R. Ward	do	C-1		Bored, 7-inch	52	52		32		Artesian			Stock		
66	Harry West	do	C-1	1884	Bored, 4-inch	57	57	116	34		do			do		
67	C. C. Fife	do	C-1	1889	do	54	54	75	25		Hand	75.00		Domestic		
68	J. Dilley	do	C-1	1889	Bored, 7-inch	54	54	106	33		do	175.00		Domestic; stock		
69	do	do	C-1	1870	do	54	54		26		Not raised			Not used		
70	J. D. Price	do	D-1	1881	do	65	53	120	42		Wind	125.00	+$85.00	Domestic; stock		
71	S. Q. Conkle	do	D-1	1890	Bored, 4-inch	60		104	37		do	104.00	71.00	do		
72	John Newell	do	D-1			58		60+	33		do			do		
73	Geo. N. Shore	do	D-1		Bored, 4-inch	58	55		31		do			do		

Wells in the Santa Ana quadrangle—Continued.

Number of well.	Owner.	Location.	Map location.	Year completed.	Class of well.	Elevation of surface.	Elevation of water.	Depth of well.	Solids per 100,000.	Temperature of water.	Method of lift.	Cost of well.	Cost of machinery.	Use of water.	Quantity of water.
						Feet.	*Feet.*	*Feet.*		°*F.*					*Miner's inches.*
74	A. Leatherman	Las Bolsas	D-1	1890	Bored, 4-inch	60	55	112	37	....	Horsepower	.....	$160.00	Domestic; stock	40
76	Moter Helney	....do	D-1	.....	....do	55	54	87	....	....	Wind	.....	.....	Not used	.....
77	Mr. Addington	....do	D-1	.....	....do	53	53	.....	34	....	Artesian	.....	.....	Stock	.....
78	J. M. Wallace	....do	D-1	.....	....do	52	46	.....	35	....	Wind	.....	.....	Domestic; stock	.....
79	J. E. Hodges	....do	D-1	1890	....do	52	43	125	39	....	Hand	$110.00	.....	....do	.....
80	E. B. Lunsford	....do	D-1	.....	....do	50	44	.....	33	....	Wind	.....	.....	....do	.....
81	Mr. Blackburn	....do	D-1	1895	Bored, 2-inch	50	.....	112	35	....	....do	.....	.....	Domestic	.....
82	J. W. Vawter	....do	D-1	?1892	Bored, 7-inch	50	.....	390	35	....	....do	.....	.....	Domestic; stock	.....
83	....do	....do	D-1	1900	....do	55	48	165	27	....	Gas	188.00	300.00	Irrigation	†20
84	W. A. Plument	....do	D-1	.....	Bored, 4-inch	49	.....	.....	37	....	Hand	.....	.....	Domestic; stock	.....
85	A. J. McArthur	....do	D-1	1897	Hydraulic, 2-inch	55	.....	165	23	....	Wind	70.00	55.00	....do	.....
86	E. A. Teal	....do	D-1	1886	Bored, 4-inch	58	46	?140	27	....	....do	.....	.....	Domestic	.....
87	Elizabeth Rosemeyer	....do	D-1	1890	Bored, 7-inch	55	47	150	40	....	Hand	.....	.....	Domestic; stock	.....
89	J. D. Price	....do	E-1	1892	Bored, 4-inch	58	?46	107	25	....	....do	95.00	.....	Stock	.....
90	Orange Co	....do	E-1	1900	Bored, 7-inch	55	47	150	....	....	Horsepower	.....	.....	Not used	.....
91	C. W. Blankenbeckler	....do	E-1	?1884	....do	55	47	117	39	....	Wind, hand	.....	.....	Domestic	.....
92	Alexander Alec	....do	E-1	1891	....do	55	48	150	33	....	Hand	.....	.....	....do	.....
94	Joe McCormick	....do	E-1	1890	Bored, 4-inch	60	48	.....	38	....	....do	.....	.....	Domestic; stock	.....
95	Mrs. Chrisp	....do	E-1	1889	....do	55	47	150	42	....	Wind, hand	.....	.....	....do	.....
96	Mr. Wallace	....do	E-1	1903	Bored, 7-inch	53	.....	86	36	....	Hand	.....	.....	Stock	.....
97	J. F. Stacey	....do	E-1	1890	Bored, 4-inch	55	47	168	32	....	.....	.....	.....	.....	.....
98	Mr. Head	....do	E-1	1903	....do	52	49	.....	40	....	Wind	.....	.....	Stock	.....

99	R. Pyke	do	E-1	1899	do	50	46	?150	36		do			Domestic; stock	
100	L. M. Steck	do	E-1			49			34		Steam			do	
101	N. N. Farlow	do	E-1	1898	Bored, 4-inch	50	46	115	39		Wind	115.00	60.00	do	
102	do	do	E-1	1898	do	49	45	83	43		Wind; gas	83.00	60.00	Irrigation	
103	Mrs. James Stanley	do	E.1	1896	do	49		130	42		Wind		100.00	Domestic; stock	
104	G. W. Hollister	do	E-1	?1879	do	49	46	111	39		do	50.00	10.00	Domestic; irrigation; stock.	
105	R. M. Phenneger	do	E-2	1878	Bored, 6-inch	47	47		43		do			Domestic; stock	
106	P. De Rosa	do	E-1, 2	1880	Bored, 4-inch	48					Hand			Stock	
107	E. I. Tolle	do	E-2	1874	do	47			43		do			do	
108	Geo. W. Clark	do	E-2	1892	do	48		?110	39		do			Domestic; stock	
109	Wm. Morgan	do	E-2			47		200+	29		Wind			do	
110	E. A. Matthis	do	E-2	1904	Dug, 3 by 3 feet	44	36	9	103		Hand			Domestic	
111	J. S. Dameron	do	E-2	1880	Bored, 7-inch	44	42	130	39		do			Domestic; stock	
112	J. Howard Bell	do	E-2		Bored, 4-inch	43	41		41		do			Stock	
113	M. A. Groom	do	E-2	1890	do	45	43	150	36		Wind	175.00	40.00	Domestic; stock	
114	R. P. Mitchell	do	E-2	1902	Bored, 2-inch	45		104	43		Hand	50.00		Domestic	
115	New Hope school district.	do	E, D-2	1885	Bored, 4-inch	45	42	150	37		do			do	
116	Walter D. Lamb	do	D-2	1880	Bored, 3-inch	45	41	104	40		Wind		65.00	Domestic; stock	
117	do	do	D-2	1883	Bored, 5-inch	46	42	130			Not raised			Not used	
118	do	do	D-2	1896	Bored, 4-inch	46	41	111			do			do	
119	A. L. Jesse	do	D-2	?1901	do	46	41	135	35		Wind			Domestic	
121	Mr. Kinsel	do	D-1	1902	Bored, 7-inch	48	43	156	32		Hand			do	
122	A. J. Addington	do	D-1	1886	Bored, 4-inch	48	38	100	39		do			Domestic; stock	
123	F. E. Anderson	do	D-2		Bored, 2-inch	45	42	130	34		do			Domestic	
124	do	do	D-2		Bored, 4-inch	45	42	130			Not raised			Not used	
125	D. E. Jessee	do	D-2	1899	Hydraulic, 2-inch	44	42	120	39		Wind	50.00	18.00	Domestic; stock	
126	do	do	D-2		Bored, 4-inch	43	43	100	35		Artesian			Stock	
127	T. E. Chantry	do	D-2		Bored, 7-inch	45	43				Not raised			Not used	
128	J. Willetts	do	D-2		Bored, 4-inch	44			37		Wind			Domestic; stock	
129	N. Bower	do	D-2	?1892	do	44	44	106	33		Artesian			do	
130	J. C. Jones	do	D-2	1898	Hydraulic, 3-inch	45	42	120	31		Hand			do	
131	C. W. Warner	do	D-2	1898	Bored, 4-inch	45	41	?116	31		Wind	86.00	20.00	do	
132	Marshall Vawters	do	D-2	1898	do	46	42	258	29		Wind; hand			do	
133	Henry Davis	do	D-1	1903	Driven, 1½-inch	49		15	37		Hand	5.00		Domestic	

Wells in the Santa Ana quadrangle—Continued.

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						Feet.	*Feet.*	*Feet.*		°*F.*					*Miner's inches.*
134	A. Jessee	Las Bolsas	D-1	1897	Hydraulic, 2-inch	49	.....	115	39	....	Hand	$47.00	.....	Domestic; stock	.....
135	Leonard Davis	....do	D-1	1903	Driven, 1¼-inch	50	.....	16	67	....	....do	6.00	.....	Domestic	.....
136	J. D. Addington	....do	D-1	?1891	Bored, 4-inch	50	42	110	39	....	Hand, horse-power.	.....	.....	Domestic; stock	.....
137	D. W. Head	....do	D-1	?1886	.....	51	.....	.....	37	....	Hand	.....	.....	....do	.....
138	Eugene Pohl	....do	D-2	.....	Bored, 4-inch	44	44	115	33	....	Artesian	.....	.....	Domestic	.....
139	A. Leatherman	....do	D-2	1896	....do	43	43	80	31	....	....do	.....	.....	Stock	.....
140	T. J. Fowler	....do	D-2	1900	Bored, 2-inch	43	43	.....	32	....	....do	.....	.....	Domestic	.....
141	....do	....do	D-2	1900	Bored, 4-inch	45	45	.....	33	64	....do	.....	.....	Stock	.....
142	Eugene Pohl	....do	D-2	.....	....do	43	43	118	32	64	....do	.....	.....	....do	.....
143	W. M. Ward	....do	C-2	1896	Hydraulic, 2-inch	42	42	.....	35	64	....do	100.00	.....	.....	.....
144	Geo. Covalt	....do	C-2	.....	Bored, 7-inch	42	42	103	35	65	....do	.....	.....	Domestic; stock	.....
145	Alexander Strouthers.	....do	C-2	.....	.....	42	42	123	35	....	....do	81.35	.....	....do	.....
146	....do	....do	C-2	.....	Bored, 7-inch	45	45	116	38	....	....do	.....	.....	Irrigation; stock	.....
147	....do	....do	C-2	.....	....do	43	43	?116	40	....	....do	.....	.....	Stock	.....
148	....do	....do	C-2	.....	....do	42	42	122	42	65	....do	.....	.....	Domestic; irrigation.	7
149	N. Burwell	....do	C-2	1899	Hydraulic, 2-inch	42	42	115	32	67	....do	40.00	.....	Domestic; stock	2
150	....do	....do	C-2	1900	Bored, 7-inch	42	42	115	....	....	....do	115.00	.....	Irrigation	.....
151	....do	....do	C-2	.....	....do	41	41	115	33	....	....do	115.00	.....	....do	.....
152	....do	....do	C-2	1900	Hydraulic, 2-inch	42	42	115	32	67	....do	.....	.....	Stock	.....
153	Silas Wright	....do	C-2	1900	....do	42	42	102	32	66	....do	.....	.....	....do	4

154	....do	....do	C-2	.....	Bored, 4-inch	42	42	154	32	67	....do	.....	.....	....do	.....	
155	J. W. McKeen	....do	C-2	1894	Bored, 7-inch	42	42	76	33	67	....do	.....	.....	Domestic; stock	.....	
156	....do	....do	B, C-2	1898	....do	42	42	123	32	....	....do	.....	.....	Irrigation	.....	7
157	....do	....do	C-2	1904	....do	42	42	138	31	65	....do	135.00	.....	....do	.....	106
158	R. A. McKeen	....do	C-2	1902	Hydraulic, 3-inch	42	42	76	....	....	....do	.....	.....	Domestic; stock	.....	
159	J. A. Ross	....do	C-1	?1893	Bored, 4-inch	47	47	?80	33	?62	....do	.....	.....	Domestic	.....	
160	T. D. Cheny	....do	C-1	1890	....do	47	47	112	29	64	....do	.....	.....	Domestic; stock	.....	
161	....do	....do	C-1	1901	Bored, 7-inch	50	50	154	32	66	....do	.....	.....	Irrigation; stock	.....	
162	C. W. Addington	....do	D-1	1903	Hydraulic, 2-inch	51	51	?105	36	66	Hand	30.00	.....	Domestic; stock	.....	
163	W. L. Ross	....do	C-1	1890	Hydraulic, 4-inch	47	47	?80	31	67	Artesian	.....	.....	Domestic	.....	1
164	....do	....do	C-2	1902	Hydraulic, 2-inch	46	46	90+	33	....	....do	.....	.....	Irrigation; stock	.....	
165	H. L. Harding	....do	C-2	1902	Bored, 4-inch	45	45	88	31	....	....do	62.00	.....	Domestic; stock	.....	
166	C. Biedlback	....do	C-2	.....	Bored, 7-inch	43	43	101	32	66	....do	.....	.....	Domestic; irrigation; stock.		7
168	A. M. Ward	....do	C-2	1901	....do	39	39	130	30	....	....do	140.00	.....	Irrigation	.....	
169	....do	....do	C-2	1898	Hydraulic, 2-inch	37	37	90	30	66	....do	30.00	.....	Domestic	.....	
170	Chas. Heil	....do	C-2	1898	.....	37	37	?90	27	70	.....	.....	.....	Stock; irrigation	.....	
171	....do	....do	C-2	.....	Hydraulic, 2-inch	37	37	?90	....	....	Artesian	.....	.....	Stock	.....	
172	....do	....do	C-2	.....	Bored, 7-inch	38	38	119	32	66	....do	.....	.....	Irrigation	.....	
173	John L. Adams	....do	B-2	1901	Hydraulic, 2-inch	37	37	123	30	....	....do	74.00	.....	....do	.....	
174	....do	....do	B-2	1896	....do	33	33	72	30	....	....do	19.00	.....	Domestic	.....	1
175	W. J. Adams	....do	B-2	1896	Bored, 4-inch	35	35	88	32	68	....do	.....	.....	Domestic; stock	.....	15
176	H. Hazeltine	....do	B-2	.....	Bored, 7-inch	37	37	.....	....	....	....do	.....	.....	Irrigation; stock	.....	7
177	....do	....do	B-2	.....	Bored, 4-inch	37	37	.....	....	....	....do	.....	.....	....do	.....	
178	G. A. Walker	....do	B-2	1903	....do	35	35	100+	33	67	....do	.....	.....	Domestic; stock	.....	
179	....do	....do	B-2	1893	....do	35	35	.....	32	66	....do	.....	.....	Stock	.....	
180	Mrs. Gilbert	....do	A, B-2	1903	....do	34	34	.....	....	....	....do	.....	.....	Irrigation	.....	
181	....do	....do	B-2	.....	Hydraulic, 2-inch	35	35	.....	32	66	....do	.....	.....	Not used	.....	
182	J. C. Nelson	....do	B-1	.....	Bored, 7-inch	38	38	111	32	66	....do	.....	.....	Irrigation; stock	.....	7
183	....do	....do	B-1	.....	Bored, 4-inch	38	38	.....	32	....	....do	.....	.....	Domestic	.....	
184	E. A. Chaffee	....do	B-1	1885	....do	40	40	96	32	....	....do	.....	.....	Domestic; stock	.....	
185	....do	....do	B-1	1885	....do	38	38	100	33	66	....do	.....	.....	Irrigation	.....	4
186	....do	....do	B-1	1885	....do	42	42	?100	33	....	....do	.....	.....	....do	.....	4
187	....do	....do	B-1	1903	Hydraulic, 3-inch	41	41	113	32	67	....do	60.00	.....	Domestic	.....	8
188	J. R. Fowler	....do	B-1	1900	Bored, 4-inch	43	43	94	31	66	....do	74.00	.....	Domestic; irrigation.	.....	

Wells in the Santa Ana quadrangle—Continued.

Number of well.	Owner.	Location.	Map location.	Year completed.	Class of well.	Elevation of surface.	Elevation of water.	Depth of well.	Solids per 100,000.	Temperature of water.	Method of lift.	Cost of well.	Cost of machinery.	Use of water.	Quantity of water.
						Feet.	*Feet.*	*Feet.*		°*F.*					*Miner's inches.*
189	J. R. Fowler	Las Bolsas	B–1, 2	1901	Hydraulic, 3-inch	43	43	95	32	65	Artesian			Stock	
190	do	do	C–1	1901	do	45	45	118			do	$81.00		Irrigation	
191	Will Cheney	do	C–1	1900	Bored, 7-inch	47	47	?160	32		do	170.00		do	2
192	German-American Bank.	do	B–1		do	47	47	124	33	65	do			do	7
193	do	do	B–1		do	47	47				do			do	
194	Will Cheney	do	C–1	1900	Hydraulic, 3-inch	46	46	?80	32	65	do	13.20		do	18
195	Mrs. McFadden	do	C–2	1900	Hydraulic, 4-inch	45	45	?80	33	65	do	40.00		do	†17
196	Golden West Celery Co.	do	D–2		Bored, 7-inch	32	32		33	65	do			Domestic; irrigation.	
197	J. T. Worthy	do	B–2		Hydraulic, 2-inch	30	30		31	66	do			Domestic	
198	Oliver Stewart	do	A–2		Bored, 7-inch	32	32	112	32		do			Irrigation	
199	do	do	A–2	1903	Bored, 4-inch	32	32	110	33		do			do	
200	David Stewart	do	A–2		Hydraulic, 2-inch	29	29	110	37		do			do	
201	E. P. Justice	do	A–1	1884	Bored, 4-inch	35	35	114	32	65	do	90.00		Domestic; stock	
202	do	do	A–1	1897	do	35	35	114	32	65	do	90.00		do	1
203	do	do	A–1, 2	1894	do	32	32	96	32	65	do			Domestic; irrigation.	1
204	Mrs. Steltzer	do	A–1	1899	do	32	32	100	31	65	do			Domestic; stock	
205	M. F. McDonnell	do	A–1	1899	Bored, 7-inch	36	36	190	29	64	do	102.00		Domestic; irrigation; stock.	2
206	do	do	A–1	1890	Hydraulic, 2-inch	36	36	90	32	65	do			do	
207	Walker & Co	do	A–1		do	34	34		32	65	do			Stock	
208	do	do	A–1		Bored, 4-inch	35	35		32	64	do			do	

209	David Stewart	do	A-1		do	34	34	100	32	65	do			Domestic; stock		
211	J. P. Walker	do	A-1	1889	do	32	32	100	32	65	do			Domestic; irrigation; stock.		
212	Mary Mefford	do	A-1	1896	do	31	31	100+	31	65	do			Domestic; stock		
213	do	do	A-1	1900	Bored, 7-inch	30	30	100+	31	65	do			do		
214	Jas. McMillan	do	A-2	1885	Bored, 4-inch	29	29	86	32	65	do			do		
215	do	do	A-2	1894	do	30	30	100+	30		do			Stock		
216	Oliver Stewart	do	A-2		do	32	32	110	33	64	do			Domestic; stock		
217	David Stewart	do	A-2		do	32	32		31	64	do			do		
219	Golden West Celery Co	La Bolsa Chica	A-2	1888	Bored, 7-inch	26	26	100	31		do			Irrigation		
220	do	do	A-2		do	24	24	98	32		do			Domestic		
221	B. F. Townsend	do	A-2		do	24	24		23	63	do			Domestic; stock		
222	W. L. James	do	A-2	1899	do	26	26	96	32	64	do	100.00		do		29
223	do	do	A-2	1901	Bored, 6-inch	27	27		25		do	100.00		Irrigation		55
224	do	do	A-3	1904	Bored, 4-inch	27	27	69	32	64	do	45.00		do		8
227	B. F. Townsend	do	A-2		Hydraulic, 2-inch	22	22		30	64	do					4
228	do	do	A-2		Bored, 7-inch	22	22		24		do			Irrigation; stock		
229	do	do	A-2		do	22	22		31		do			Irrigation		
230	do	do	A-2		do	23	23		30		do			do		
231	do	do	A-2		do	24	24		31	63	do			do		
232	Southern Pacific R. R. Co.	do	A-2		do	22	22		31	64	Steam, artesian			Locomotives		
233	John Langdon	do	A-2		Hydraulic, 2-inch	20	20		29	63	Artesian			Domestic; stock		
234	do	do	A-2		Bored, 4-inch	20	20	75	25		do			Irrigation		18
235	do	do	A-3	1903	Bored, 6-inch	20	20	175	29	63	do			do		38
236	Mr. Stolp	Las Bolsas	A-3		Bored, 7-inch	22	22		28	64	do			Domestic; irrigation; stock.		
237	do	do	A-3		Bored, 4-inch	22	22		27	63	do			Irrigation		
238	do	do	A-3		do	21	21		22		do			do		
239	James Cain	La Bolsa Chica	A-3		Bored, 7-inch	25	25	300+	24	64	do			Domestic; stock		
240	do	Las Bolsas	A-3		Hydraulic, 2-inch	25	25		29	64	do			Stock		
241	M. F. McDonnell	do	A-3		Hydraulic, 1½-inch.	25	25		28	63	do			do		
242	Eugene Pohl	do	A-3	1902	Hydraulic, 2-inch	24	24	171	35		do			Domestic; stock		
243	do	do	A-3		Bored, 4-inch	24	24	156	140		do			Irrigation; stock		
244	J. S. Collings	do	A-3	1891	Hydraulic, 2-inch	23	23	90	27		do			Domestic		

Wells in the Santa Ana quadrangle—Continued.

Number of well.	Owner.	Location.	Map location.	Year completed.	Class of well.	Elevation of surface.	Elevation of water.	Depth of well.	Solids per 100,000.	Temperature of water.	Method of lift.	Cost of well.	Cost of machinery.	Use of water.	Quantity of water.
						Feet.	*Feet.*	*Feet.*		°*F.*					*Miner's inches.*
245	Mrs. A. Brush	Las Bolsas	A-2	1882	Bored, 4-inch	27	27	96	32	61	Artesian			Domestic; stock	
246	do	do	A-2	1899	Bored, 7-inch	27	27	300+	29		do			Irrigation	
247	Ocean View school district.	do	A-2		Bored, 4-inch	27	27		31	62	do			Domestic	
248	David Brush	do	A-2	1884	do	27	27	65	33	62	do			Stock	
249	Mr. Waddell	do	A-2		Hydraulic, 2-inch	27	27		31	62	do			do	
250	David Brush	do	A-2	1887	do	27	27		31	62	do			Domestic; stock	
251	do	do	A-2	1896	do	29	29		34	62	do			Stock	
252	do	La Bolsa Chica	A-2	1899	Bored, 4-inch	27	27		31	62	do			Irrigation	
253	John McFadden	do	A-2		do	27	27		31		do			Domestic; stock	
254	do	do	A-2		do	27	27		30	62	do			Stock	
255	Mr. Waddell	Las Bolsas	A-2		do	26	26		25		do			Domestic; stock	
256	S. C. Thompson	do	A-2	1902	do	23	23	?89	27	61	do	$100.00+		Irrigation; stock	
257	do	do	A-2	1902	Hydraulic, 3-inch	24	24	?89			do			Irrigation	
258	do	do	A-3	1903	Hydraulic, 2-inch	22	22	115	29		do	88.00		do	8
259	J. M. Hall	do	A-3	1899	Bored, 7-inch	22	22	150	28	60	do			Irrigation; stock	19
260	do	do	A-2	1900	Hydraulic, 2-inch	23	23	216	28	62	do			Irrigation	
261	do	do	A-2	1898		23	23	215	29		do	126.00		do	
262	V. F. Barnes	do	A-3	1901	Hydraulic, 2-inch	22	22	170+	29	61	do			Domestic; stock	
263	L. L. Stolp	do	A-3	1903	Hydraulic, 3-inch	23	23		27	60	do			do	
264	J. S. Collings	do	A-3	1904	Hydraulic, 4-inch	24	24	171	31		do	111.15		Irrigation	20
265	do	do	A-3	1901	Bored, 7-inch	25	25	?186	30		do			do	
266	J. T. Stockton	do	A-3		Hydraulic, 2-inch	28	28		27		do			Domestic; stock	

267	.....do.....	.....do.....	A-3.....	1904	Bored, 7-inch....	28	28	200+	27	....	.....do.....	.....	.....	Domestic; irrigation; stock.	.....
268	D. C. Tauts.....	.....do.....	A-3.....	1900	Hydraulic, 2-inch	32	32	225	28	63	.....do.....	.....	.....	.....do.....	.....
269	.....do.....	.....do.....	A-3.....	1899	Hydraulic, 3-inch	28	28	176	26	....	.....do.....	.....	.....	Irrigation	.....
270	Mr. Stewart	.....do.....	A-3.....	1904	Hydraulic, 2-inch	26	26	200+	28	....	.....do.....	.....	.....	Irrigation; stock.	4
271	J. Brush.....	.....do.....	A-3.....	1899	.....do.....	25	25	100+	28	....	.....do.....	.....	.....	Domestic; stock	.....
272	.....do.....	.....do.....	A-3.....	1892	.....do.....	23	23	100	29	....	.....do.....	.....	.....	Stock	5
273	.....do.....	.....do.....	A-3.....	1894	Bored, 4-inch....	23	23	?140	28	....	.....do.....	.....	.....	.....do.....	.....
275	W. H. Young.....	.....do.....	B-2.....	.....	.....do.....	24	24	.....	30	62	.....do.....	.....	.....	Domestic; stock	.....
277	C. A. S. Howard.....	.....do.....	B-3.....	.....	Bored, 7-inch....	26	26	300+	26	....	.....do.....	.....	.....	Irrigation	.....
278	.....do.....	.....do.....	B-3.....	.....	Bored, 4-inch....	26	26	64	29	59	Not raised.....	.....	.....	Not used.....	.....
279	G. H. McGill.....	.....do.....	B-2.....	1897	Hydraulic, 2-inch	26	26	96	30	60	Artesian.....	.....	.....	Domestic	.....
280	.....do.....	.....do.....	B-2, 3...	1892	Bored, 4-inch....	26	26	100	42	62	.....do.....	85.00	.....	Stock.....	.....
281	.....do.....	.....do.....	B-3.....	1892	.....do.....	27	27	118	29	61	.....do.....	85.00	.....	Irrigation	.....
282	W. H. Young.....	.....do.....	B-2.....	.....	Bored, 7-inch....	27	27	115	32	62	.....do.....	.....	.....	Domestic; irrigation; stock.	7
283	Lewis Heil	.....do.....	B-2.....	1897	Bored, 4-inch....	30	30	99	29	62	.....do.....	.....	.....	Domestic; stock	.....
284	.....do.....	.....do.....	B-2.....	1899	Bored, 7-inch....	32	32	128	27	62	.....do.....	138.00	.....	Irrigation; stock.	.....
285	.....do.....	.....do.....	B-2.....	1896	.....do.....	36	36	99	31	62	.....do.....	100.00	.....	Irrigation	.....
286	.....do.....	.....do.....	B-3.....	1902	.....do.....	36	36	150	25	62	.....do.....	.....	.....	.....do.....	.....
287	W. H. Young.....	.....do.....	B-2.....	.....	.....do.....	30	30	.....	32	62	.....do.....	.....	.....	.....do.....	.....
288	Fred Heil	.....do.....	B-2.....	1903	Hydraulic, 2-inch	32	32	.....	32	63	.....do.....	.....	.....	Stock.....	.....
289	.....do.....	.....do.....	B-2.....	1896	.....do.....	34	34	98	33	63	.....do.....	.....	.....	Domestic; stock	.....
290	.....do.....	.....do.....	B-2.....	1898	Hydraulic, 3-inch	33	33	.....	29	63	.....do.....	.....	.....	Irrigation	.....
291	.....do.....	.....do.....	B-2.....	1900	Bored, 7-inch....	33	33	.....	31	62	.....do.....	.....	.....	.....do.....	.....
292	.....do.....	.....do.....	B-2.....	1900	.....do.....	34	34	.....	31	62	.....do.....	.....	.....	.....do.....	.....
293	.....do.....	.....do.....	B-2.....	1900	.....do.....	35	35	.....	30	63	.....do.....	.....	.....	.....do.....	.....
294	.....do.....	.....do.....	B-2.....	1898	Hydraulic, 2-inch	35	35	98	31	62	.....do.....	.....	.....	.....do.....	.....
295	.....do.....	.....do.....	B-2.....	1898	.....do.....	35	35	?100	29	62	.....do.....	.....	.....	.....do.....	4
296	Mr. Hemstock.....	.....do.....	B-3.....	.....	.....do.....	36	36	100	31	63	.....do.....	.....	.....	Domestic	4
297	.....do.....	.....do.....	B-3.....	.....	Bored, 4-inch....	31	31	.....	30	65	.....do.....	.....	.....	Irrigation	.....
298	M. C. Adams	.....do.....	B-3.....	1901	Hydraulic, 2-inch	29	29	100+	31	65	.....do.....	.....	.....	.....do.....	2
299	.....do.....	.....do.....	B-3.....	1900	.....do.....	30	30	100	28	64	.....do.....	.....	.....	Domestic; stock	.....
300	L. Decius.....	.....do.....	B-3.....	.....	Bored, 7-inch....	30	30	125	29	65	.....do.....	.....	.....	Irrigation	1
301	Robt. Elliot	.....do.....	B-3.....	.....	Hydraulic, 2-inch	31	31	.....	29	64	.....do.....	.....	.....	Domestic; stock	.....

Wells in the Santa Ana quadrangle—Continued.

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						Feet.	*Feet.*	*Feet.*		°*F.*					*Miner's inches.*
302	Robt. Elliott	Las Bolsas	B-3		Bored, 7-inch	33	33		31	64	Artesian			Irrigation	
303	do	do	B-3		Hydraulic, 2-inch	33	33		36	66	do			do	
304	Jeff Leak	do	B-3		Bored, 7-inch	32	32	135	35	64	do			do	
305	G. L. Bayless	do	B-3		Hydraulic, 1¼-inch.	31	31		31	62	do			Domestic; stock	
306	Jeff Leak	do	B-3		Hydraulic, 2-inch	31	31		31	63	do			Irrigation	
307	Geo. Mareoyama	do	B-3		do	27	27	75	30	64	do			Domestic; stock	4
308	do	do	B-3		Bored, 3-inch	27	27	75	30	64	do			Irrigation	
309	D. C. Fauts	do	B-3	1901	Bored, 7-inch	30	30	200	27	64	do			Irrigation; stock	42
310	do	do	B-3	1900	Hydraulic, 3-inch	30	30	176	27	64	do			do	8
311	Mr. Fox	do	B-3		Bored, 7-inch	33	33		29	64	do			Irrigation	
312	C. A. Fowler	do	B-3		Hydraulic, 2-inch	33	33		29	65	do			Domestic; irrigation; stock.	
313	do	do	B-3		Hydraulic, 1¼-inch.	33	33		32	66	do			Irrigation	
314	do	do	B-3		Hydraulic, 2-inch	32	32		30	66	do			do	
315	Mrs. Williams	do	B-3	1897	Bored, 4-inch	34	34	140	31	65	do	$213.00		do	
316	J. C. McDowell	do	B-3	1902	Bored, 7-inch	33	33	144			do			do	95
317	Mr. Fox	do	B-3		Bored, 4-inch	32	32		30	64	do			do	
318	do	do	B-3		Bored, 7-inch	33	33		27	65	do			do	
319	J. C. McDowell	do	B-3	1899	Hydraulic, 2-inch	33	33	99	32	65	do			Domestic; stock	
320	C. W. Fox	do	B-3		Bored, 2-inch	35	35		31	65	do			do	
321	John L. Adams	do	B, C-3		Hydraulic, 3-inch	35	35	80	30	64	do			do	
322	do	do	C-3		Hydraulic, 2-inch	35	35		33		do			Irrigation; stock	

323	Mr. Fox	do	B-3	1898	Hydraulic, 3-inch	35	35	89	28	64	do			Irrigation		10
324	Mr. Raymond	do	B-3	1898	Bored, 3-inch	35	35	112	30	63	do			do		
325	James Heaston	do	C-3		Hydraulic, 2-inch	33	33		28	64	do			Domestic; stock		
326	James S. Heaston	do	C-3	1902	do	33	33		32	64	do	38.00		Irrigation		4
327	C. McDowell	do	C-3		Hydraulic, 1½-inch.	33	33		28	63	do			Domestic; stock		
329	Silas Wright	do	C-2	1895	Bored, 7-inch	41	41	88	31	61	do	88.00		Irrigation; stock		19
330	do	do	C-2	1895	Hydraulic, 2-inch	40	40	80	30	63	do			Irrigation		
331	do	do	C-2	1895	do	41	41	103	32	63	do			Irrigation; stock		
332	do	do	C-2	1884	Bored, 4-inch	41	41	106	31	63	do	74.20		do		15
333	do	do	C-2	1879	Hydraulic, 4-inch	39	39	102	31	63	do			do		
334	Frank Beswick	do	C-2		Hydraulic, 2-inch	39	39		34		do			do		2
335	Silas Wright	do	C-2	1897	Bored, 7-inch	39	39	109	26	62	do	109.00		Irrigation		42
336	do	do	C-2	1895	Hydraulic, 2-inch	39	39	106	30	64	do	36.00		Irrigation; stock		
337	Lewis Heil	do	C-2	1896	do	38	38	94	32	64	do			do		4
338	R. R. McDowell	do	C-3	1898	Hydraulic, 3-inch	37	37	85	31	64	do			Domestic; stock		
339	James Lintott	do	C-3		Hydraulic, 2-inch	35	35		33	64	do			do		
340	do	do	C-3		do	35	35		32	64	do			Irrigation		
341	W. A. Jones	do	C-3	1903	Bored, 4-inch	36	36	97	31	65	do	75.00		Domestic; irrigation; stock.		
342	Mrs. M. F. Jepsen	do	C-3	1900	Hydraulic, 2-inch	37	37		26	65	do			do		
343	do	do	C-3	1900	Bored, 4-inch	37	37	94	31	65	do			Irrigation; stock		20
344	J. S. Rice	do	C-3	1884	do	38	38		31	64	do			Domestic; irrigation; stock.		
345	Robert Graham	do	D-3		do	39	39	96	32	65	do			do		4
346	M. B. Price	do	C-3	1884	do	40	40		31		do					
347	I. Harshlan	do	D-3	1899	Hydraulic, 2½-inch.	37	37	76	32	65	do	35.00		Domestic; stock		6
348	do	do	C-3		Bored, 4-inch	37	37	100+	27	64	do			Irrigation		
349	S. H. Overacker	do	D-3	1902	do	37	37	101	34	65	do	70.00		do		14
350	do	do	D-3	1900	Hydraulic, 2-inch	36	36	96	33	64	do	41.00		do		
351	G. A. Winn	do	D-3	1903	Bored, 7-inch	39	39	97	35	64	do			Domestic; irrigation; stock.		12
352	do	do	D-3		Hydraulic, 4-inch	40	40	89	32	63	do			Irrigation		
353	Eugene Pohl	do	D-2		Bored, 4-inch	43	43	125	35	63	do			Domestic; irrigation; stock.		
354	do	do	D-2		do	42	42	120	30	64	do			Irrigation; stock		

Wells in the Santa Ana quadrangle—Continued.

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						Feet.	*Feet.*	*Feet.*		°*F.*					*Miner's inches.*
355	Eugene Pohl	Las Bolsas	D-2		Bored, 4-inch	42	42	122	32	64	Artesian			Irrigation; stock.	
356	Silas Wright	do	C-2	1895	Bored, 7-inch	40	40	102	33	65	do			do	
357	J. P. Jaques	do	D-2	1903	do	42	42	116	36	66	do	$160.00		Domestic; stock.	
358	S. H. Overacker	do	D-2	1898	Bored, 4-inch	41	41	98	35	65	do	75.00		do	
359	Chas. O'Donnell	do	D-3	1903	Bored, 7-inch	40	40	101	34	67	do			Irrigation; stock.	19
360	T. J. Williams	do	D-3	1888	Hydraulic, 4-inch	40	40	142	35		do	150.00		Stock	
361	do	do	D-3	1884	Bored, 6-inch	41	41	160	35	66	Not raised			Not used	
362	do	do	D-3	1884	Bored, 4-inch	40	40	140	35		Artesian, hand			Domestic; irrigation.	
363	H. A. Williams	do	D-3	1874	do	37	37	100	33		do			Domestic; stock.	
364	do	do	D-3	1874	do	37	36	110	34	66	Horsepower		$160.00	Irrigation	30
365	do	do	D-3	1904	Bored, 7-inch	37	37	164			Gas	113.00	700.00	do	
366	John Smith	do	D-3	1899	Hydraulic, 2-inch	37	37	107	35	66	Artesian			Stock	Small.
367	Mr. Martin	do	E-3	1874	Hydraulic, 3-inch	38	38	115	38		do			do	Small.
369	Mr. Bates	do	D-3	1902	Hydraulic, 2-inch	35	35	116	33	65	do			Irrigation	4
370	do	do	D-3	1902		34	34		31		do			do	Small.
371	J. P. Jaques	do	D-3		Bored, 4-inch	36	36		33	64	do			Stock	Small.
372	M. T. Doig	do	D-2	1884	do	41	41	130	36	65	Wind			Domestic; stock.	
373	do	do	D-2	1884	do	41	41	130			Artesian			Irrigation; stock.	
374	W. A. Bedford	do	D-2		do	41			35	65	Hand				
375	J. E. Ann	do	D-2	1902	do	41	41	160	30	64	do	180.00		Domestic; stock.	
376	E. Butts	do	E-2		do	42	42		38	62	do			do	
377	J. T. Smith	do	D-2	1899	Bored, 2-inch	43	41	130	36	61	do			do	

378	W. A. Bedford	do	E-2	1884	Bored, 4-inch	43	42	90			Not raised			Not used	
379	F. E. Anderson	do	D-2		do	43	43	112	35	63	Artesian			Irrigation	
381	E. L. Elliott	do	E-3	?1883	do	34	34	104	33	64	do			Domestic; stock	
382	Geo. Brown	do	E-2		Hydraulic, 1¼-inch.	34	34		30		do			Stock	
383	L. W. Weary	do	E-3, 4	?1884	Bored, 4-inch	34	24	104			Hand			Domestic; stock	
384	Jasper Botchard	do	D-3, 4		Hydraulic, 3-inch	34	34	116	31	64	Artesian			Irrigation; stock	8
385	do	do	D-3		Bored, 3-inch	34	34	104	31	64	do			do	
386	do	do	D-4		Hydraulic, 3-inch	34	34		32		do			do	12
387	S. J. Pankey	do	D-3		Bored, 4-inch	35	35	100+	35	63	do			Domestic; stock	
388	B. B. Miller	do	D-3	1904	Hydraulic, 1¼-inch.	36	36	96	33	63	do			do	
391	Caspar Borchard	do	D-4	?1902	Hydraulic, 2-inch	32	32	120	31	61	do			do	4
392	Von Suelts	do	E-4		Bored, 4-inch	32	32				do			Stock	
393	A. F. Hallstrom	do	E-4	1903	Bored, 7-inch	32	32	400	29		do			Domestic; stock	Small.
394	Mr. Hoskins	do	E-4	1903	Bored, 4-inch	33	33	340	25		Artesian, gas			Irrigation	Small.
395	do	do	E-	1903	Bored, 6-inch	34	34	300+	28	68	do			do	Small.
396	John DeVenney	do	E-4	?1889	Bored, 7-inch	33		126	28	64	Artesian			Domestic; stock	
397	Mr. DeWitt	do	E-3		Bored, 4-inch	33	33	79	33	64	do			Irrigation; stock	Small.
398	Mr. Black	do	D-4		do	32	32	98	29	63	do			Stock	Small.
400	Frank Thompson	do	C-4	1900	Hydraulic, 1¼-inch.	33	33	82	32	63	do			Domestic; stock	
401	G. W. Brown	do	C-4	1898	Bored, 2-inch	35	35	100	31	64	do			Domestic; irrigation.	1
402	do	do	D-4	1900	do	34	34	125			do			Irrigation	1
403	Wm. Hammer	do	C-4		do	35	35	90	32	64	do			Stock	3
404	Mrs. Roberts	do	D-3		do	39	39		33	64	do			Irrigation; stock	
405	J. H. Hoff	do	C-3	1903	Bored, 4-inch	37	37	99	35	64	do			Irrigation	4
406	S. Breutlinger	do	C-3	1903	Bored, 2-inch	37	37	100			do			Domestic; stock	
407	G. A. Warner	do	C-3	1904	do	36	36	98	30	64	do			Domestic; irrigation.	2
408	N. D. Helms	do	C-3	1904	Bored, 3-inch	36	36	83	30	64	do			Irrigation	3
409	L. D. Rush	do	C-4	1900	Bored, 2-inch	33	33	90	32	64	do			Domestic; irrigation.	3
410	Dan Gerson	do	C-4	?1898	Bored, 4-inch	33	33	100	32	64	do			Irrigation	5
411	Oswald Kutzner	do	C-4	1900	Bored, 2-inch	30	30	96	32	64	do			do	4
412	B. G. Page	do	C-4	1904	do	30	30	102	33	64	do			Domestic	Small.

Wells in the Santa Ana quadrangle—Continued.

Number of well.	Owner.	Location.	Map location.	Year completed.	Class of well.	Elevation of surface.	Elevation of water.	Depth of well.	Solids per 100,000.	Temperature of water.	Method of lift.	Cost of well.	Cost of machinery.	Use of water.	Quantity of water.
						Feet	*Feet.*	*Feet.*		°*F.*					*Miner's inches.*
413	Geo. Dixon	Las Bolsas	D-4	1898	Bored, 2-inch	30	30	96	32	64	Artesian			Domestic; irrigation.	4
414	do	do	D-4	1898	do	31	31	96	32	64	do			Irrigation	4
415	O. H. Ellis	do	D-4	1903	do	29	29	96	32		do			Domestic; stock	2
416	do	do	D-5	1898	do	27	27	96			do			Stock	2
417	Wm. Dunn	do	C-4		Bored, 3½-inch	31	31	98	33	64	do			Irrigation	
418	W. H. Sprouls	do	C-4	1901	Bored, 2-inch	32	32	90	31	64	do			Domestic; stock	
419	Mrs. M. Page	do	C-4	1904	do	32	32	90	33	64	do			Domestic; irrigation.	5
420	do	do	C-4	1900	do	33	33	93			do			Irrigation	4
422	L. A. Lindsay	do	C-4	1902	Bored, 3-inch	34	34	83	31	64	do			Domestic; stock	3
423	Mrs. Nimocks	do	C-4	?1896	Bored, 7-inch	35	35	84	32	64	Artesian, gas			Domestic	Small.
424	T. P. McWaters	do	C-4	1901	Bored, 2-inch	36	36	86			Artesian			Irrigation	2
425	Bowman Martin	do	C-4	1898	Bored, 3-inch	37	37	78	31	64	do			Irrigation; stock	11
426	John Walsh	do	C-4	?1885	Bored, 4-inch	36	36	70	29	64	do			Domestic; stock	
427	Bowman Martin	do	C-4		Bored, 2-inch	37	37				do			Irrigation	2
428	R. J. Cary	do	C-3		do	38	38	86	31		do			Domestic; stock	
430	Mr. Dundas	do	C-3		do	38	38		33	64	do			Irrigation; stock	Small.
431	do	do	C-3		do	37	37				do			Irrigation	2
432	J. R. Cary	do	C-3	1897	do	37	37	110	32	64	do			Domestic	3
433	do	do	C-3	1897	do	37	37	115			do			Stock	4
434	do	do	C-3		Bored, 7-inch	37	37	110			Not raised			Not used	
435	James Cox	do	C-4		Bored, 2-inch	36	36	79	31	63	do			Domestic; stock	1

436	Omie Ater	do	C-4	1901	do	35	35	90	33	64	do			do	
437	A. F. Swift	do	C-4	1903	do	34	34	96	29	65	Artesian			Domestic; irrigation.	4
438	Harry West	do	C-5	1900	do	33	33	75			do			Domestic; stock	
439	do	do	C-5	1899	Bored, 3-inch	33	33	80	28	64	do			Irrigation	2
442	Omie Ater	do	C-4	1900	Bored, 2-inch	37	37	90			do			do	4
443	W. F. Taylor	do	C-4	?1884	Bored, 7-inch	37	37	100	33	64	do			do	8
444	Talbert school district	do	B-4	1898	Bored, 2-inch	37	37	?100	31	64	do			Domestic	
445	J. H. Cox	do	C-4	1900	do	37	37	91	31	64	do			Irrigation	Small.
446	A. Martel	do	B-4	1898	do	37	37	100	32		do			Domestic; irrigation.	1
447	do	do	C-4	1897	do	37	37	100			do			Irrigation	
448	J. H. Cox	do	C-4	1903	do	37	37	90	31	64	do			do	2
449	R. B. Wardlow	do	B-4	1897	Bored, 4-inch	38	38	84	32	64	Artesian, wind			Domestic; stock	
450	do	do	B-4	1904	do	38	38	90			Artesian			Irrigation	2
451	do	do	B-4	?1894	Bored, 7-inch	38	38	96			Not raised			Not used	
452	do	do	B-3	1904	Bored, 4-inch	39	39	90	33	64	Artesian			Irrigation	Small.
453	do	do	B-4		Bored, 2-inch	38	38	86			do			Irrigation; stock	Small.
454	C. W. Fox	do	B-3			38	38	90	33	64	Hand			Domestic	
456	R. B. Wardlow	do	B-3	1898	Bored, 2-inch	39	39	100	31	64	Artesian, hand			do	
457	do	do	B-3	1902	do	40	40	90	32	63	Artesian			Irrigation; stock	2
458	A. McChristian	do	B-3	1899	do	39	39	106	32	63	do			Domestic; irrigation.	3
459	do	do	C-4	1902	do	38	38	93			do			Irrigation	3
460	do	do	C-3		do	38	38	86	31	64	do			do	1
461	do	do	C-3	1901	do	39	39	100	31	64	do			do	1
462	do	do	B, C-4	?1898	do	38	38	98	31	63	do			do	2
463	R. B. Wardlow	do	B-4	1904	do	37	37	90	30	64	do			Not used	Small.
464	do	do	C-4	1904	do	37	37	96			do			Stock	4
465	do	do	C-4	1898	do	37	37	92			do			Irrigation	3
466	do	do	C-4	1902	do	37	37	90	32	64	do			do	2
468	W. F. Taylor	do	C-4		do	37	37	93	32	65	do			Domestic; stock	1
469	Sam Talbert	do	B-4	1904	do	37	37	90	32	64	do			Domestic	4
470	do	do	B-4	1898	Bored, 4-inch	37	37	90	31	65	do			Domestic; stock	
471	do	do	B-4	1903	Bored, 7-inch	37	37	120	31	64	do			Irrigation	5

Wells in the Santa Ana quadrangle—Continued.

Number of well.	Owner.	Location.	Map location.	Year completed.	Class of well.	Elevation of surface.	Elevation of water.	Depth of well.	Solids per 100,000.	Temperature of water.	Method of lift.	Cost of well.	Cost of machinery.	Use of water.	Quantity of water.
						Feet.	*Feet.*	*Feet.*		°*F.*					*Miner's inches.*
472	J. Alton	Las Bolsas	C-4		Bored, 4-inch	36	36		34	64	Artesian			Domestic; irrigation.	1
473	O. P. Wood	do	C-4	?1900	Bored, 2-inch	35	35		33	64	do			Domestic	
474	do	do	C-4	1901	do	34	34	90			do			Irrigation	
475	T. J. Lewis	do	B-4	1904	Bored, 7-inch	38	38	131	32	64	do			do	24
476	do	do	B-4	1903	do	38	38	120			do			do	9
477	do	do	B-4		Bored, 4-inch	36	36		32	64	do			do	5
478	John H. Pope	do	B-5	1898	Bored, 7-inch	35	35	120	30	65	do			Domestic; irrigation.	12
479	Geo. Edwards	do	C-5	1897	Bored, 2-inch	35	35	80	30	65	do			Domestic	1
480	Geo. Bradley	do	B, C-5		Bored, 7-inch	35	35		30	65	do			Domestic; irrigation.	7
481	T. V. Talbert	do	B-4, 5	1901	do	38	38	100	30	63	do			Irrigation	7
482	J. E. McGowen	do	B-4		Bored, 2-inch	40	40	97	31	63	do			Domestic; stock.	2
483	do	do	B-4	1904	Bored, 7-inch	40	40	130		63	do			Irrigation	14
484	R. Courreges	do	B-4	1900	do	45	45	210			do			do	12
485	L. Wells	do	B-3	1901	Bored, 4-inch	38	38	100	31	64	do			Domestic; irrigation.	8
489	R. Courreges	do	B-4	1897	Bored, 8-inch	50	33	148	31	65	Wind			Domestic; stock.	
490	do	do	B-4	1898	Bored, 7-inch	55	33	149			do			Stock	
491	A. J. Young	do	A-4	1903	Bored, 2-inch	35	35	288			Artesian			Irrigation	6
492	do	do	A-4	1903	do	35	35	258			do			Not used	
493	S. J. Strakes	do	A-4	1898	Bored, 3-inch	45		?100			Hand			Domestic	
494	H. H. Lewis	do	A-3, 4	1901	Bored, 7-inch	30	30	318			Artesian			Irrigation	6

495	C. S. Hoff	do	A-3	1900		30	30	300+			do			do	
496	A. C. Shears	do	A-3	1896	Bored, 2-inch	35	23	153			Wind			Domestic; stock	
497	W. J. Horton	do	A-3	1902	Bored, 6-inch	30	30	?400			Artesian			Irrigation	11
498	A. A. Fisk	do	A-3		Bored, 2-inch	35		160			Hand			Domestic	
499	J. T. Stockton	do	A-3	1904	Bored, 10-inch	30	30	360			Artesian			Irrigation	
500	John Blalock	do	A-3		Bored, 7-inch	30	30	346+			do			do	6
501	S. W. Elliott	do	A-3	1897	Bored, 2-inch	33	33	162			do			do	4
502	do	do	A-3	1897	do	35	35	162			Hand			Domestic; stock	
503	do	do	A-3	1898	Bored, 3-inch	30	30	147			Artesian			Irrigation	
504	W. M. Fowler	do	A-3	1897	Bored, 2-inch	35	35	147			Siphoned			do	
505	do	do	A-3, 4	1897	do	40	35	149			Hand			Domestic; stock	
506	S. J. Strakes	do	A-3	1897	Bored, 3-inch	30	30	?100			Artesian			Irrigation	
508	A. C. Adams	do	A-4	1900	Bored, 7-inch	40	40	365			do			do	9
509	S. J. Strakes	do	A-4	1897	Bored, 4-inch	45	30	121			Hand			Domestic	
510	R. Courreges	do	B-4	1898	Bored, 2-inch	40	40	84	31	64	Artesian			Irrigation	1
511	T. V. Talbert	do	B-4		Bored, 7-inch	38	38	?120	37	64	do			do	
512	J. W. Fairchild	do	B-4	1902	Bored, 2-inch	38	38	90	31	64	do			Domestic	2
513	do	do	B-4	?1874	Bored, 7-inch	40	40	90			do			Irrigation	7
515	W. R. Fowler	do	B-4	?1900	do	37	37	115			do			do	4
516	R. O. Wells	do	B-4	1902	Bored, 2-inch	38	38	100	31	64	do			Domestic; stock	Small.
517	Sam Dungan	do	B-4		Bored, 3-inch	40	40	?100	31		do			Domestic; irrigation.	
518	W. R. Fowler	do	B-4	1903	Bored, 2-inch	38	38	75			do			Irrigation	4
519	C. F. Ward	do	B-4	1903	Bored, 7-inch	38	38	104			do			Domestic; irrigation,	22
520	do	do	B-4		do	38	38	108			do			Irrigation	17
525	Henry Talbert	do	B-5	1902	do	35	35	?120	32		do			do	16
526	Dan Rhodes	Santa Ana	F-1		Bored, 6-inch	73	63	?100	44		Wind			Domestic; stock	
527	Mr. Dearendoff	do	F-1	?1901	Driven, 1¼-inch	75	63		108		do			Irrigation	
527a	do	do	F-1	?1901	Bored, 7-inch	75	63	100			do			do	
528	Chinese Market Gardeners.	do	F-1		do	80	62	160	38		do			Domestic; stock	
529	J. S. Cardell	do	F-1	?1889	Bored, 4-inch	63	52	80	47		do			Domestic	
530	C. C. Rubottom	do	F-1		Bored, 3¼-inch	60	48	60	37		do			Domestic; stock	
531	S. D. Butler	do	F-1	1888	Bored, 4-inch	65	54	83	46		do			Irrigation	
532	Henry Lucas	do	F-1	1887		60	51	100	44	65	Hand			Domestic	

Wells in the Santa Ana quadrangle—Continued.

Number of well.	Owner.	Location.	Map location.	Year completed.	Class of well.	Elevation of surface.	Elevation of water.	Depth of well.	Solids per 100,000.	Temperature of water.	Method of lift.	Cost of well.	Cost of machinery.	Use of water.	Quantity of water.
						Feet.	*Feet.*	*Feet.*		°*F.*					*Miner's inches.*
533	Geo. Meganity	Santa Ana	F-1	1888	Bored, 4-inch	58	48	83	47	67	Hand			Domestic	
534	S. D. Butler	do	F-1	1888	do	58	47	126			Wind			Irrigation	
535	W. W. Wilmot	do	F-1		do	45		68			Hand			Not used	
536	Mrs. M. R. Baley	do	F-1		do	60	48	90	41		Wind			Domestic; irrigation.	
537	V E. Pierson	do	F-1	1903	Bored, 10-inch	50	40	104	35	66	Gas			Irrigation	†68
538	do	do	F-1	?1894	Bored, 4-inch	58	49	68			Hand			Domestic	
539	do	do	F-1	?1884	do	48	37	80			Not raised			Not used	
540	S. Trivoli	do	F-1	1898		55	49		47	65	Wind			Stock	
543	E. C. Johnson	do	F-1	?1899	Bored, 4-inch	73	72	?56	51	66	do			Domestic; stock	
544	A. L. Carter	do	F-1	?1884	do	80			52		Hand			Domestic; irrigation.	
545	A. A. Arms	do	F-1	1897		85	81	?64	50	67	Wind			Domestic; stock	
546	Frank Talbert	do	F-1	1902	Bored, 7-inch	75	72	?50	47	66	do			Domestic; irrigation; stock.	
547	W. F. McClintock	do	F-1	1899	Bored, 4-inch	73	71	?60	52	64	Hand			Domestic; stock	
548	do	do	F-1		Bored, 6-inch	75	71	?60			Flows into reservoir.			Stock	
549	do	do	F-1		Bored, 4-inch	75	71	?60			do			do	
550	W. H. Bates	do	G-1		Bored, 7-inch	85	77	?80	51		Wind			Domestic; irrigation; stock.	
551	L. T. Oswald	do	G-1	1904	do	85	77	52	120		Hand	$52.00		do	
552	Samuel Ross	do	G-1	1903	Bored, 9½-inch (3)	85	73	62			Gas	321.00	$1; 200.00	Irrigation	†80
553	Robert McFadden	do	G-1		Bored, 7-inch	90	69	118	38		Wind			Domestic; stock	

554	Samuel Ross	do	G-1	1902	do	88	78	152			Not raised			Not used		
556	H. S. Pankey	do	G-1	1890	do	75		66	48		Wind					
557	do	do	G-1	1890	do	75	66	49	42		Hand			Domestic		
558	do	do	G-1	1901	do	75	57	65			Gas	200.00		Irrigation		
559	do	do	G-1	1901	Bored, 10-inch	75	57	65			do	200.00		do		†80
560	do	do	G-1	1902	do	75	57	65			do	200.00		do		
561	Santa Ana Gun Club	do	F-1		Bored, 4-inch	74	74		48		Artesian			Stock		
562	Mr. Towle	do	G-1			77			86		Hand			do		
563	L. Rees	do	G-1	1900	Bored, 6-inch	77	57	66	41		do			Domestic; stock		
564	do	do	G-1	1878	Bored, 7-inch	75	64	312			Not raised			Not used		
565	Garensy Estate	do	G-1		do	90		312			do			do		
566	Samuel Ross	do	G-1	1903	do	76	66	80+	50		Wind	100.00	150.00	Domestic; stock		
567	do	do	G-1	1884	do	76	66	80+			Hand			Not used		
568	do	do	G-1	1884	Bored, 6-inch	83	76	80+			Not raised			do		
569	Mr. Melvin	do	G-1	1900	Bored, 4-inch	77		100	49	64	Wind			Domestic; irrigation.		
570	Mrs. J. Hassheider	do	G-1		Bored, 7-inch	75	47	61	50	67	do			Domestic; stock		
571	Dan. Rhodes	do	G-1		do	95	65	104	44	67	do			do		
572	Mrs. Mary Hawley	do	G-1	1903	Bored, 4-inch	95		80	45	67	Hand	65.00		do		
573	J. T. Wilson	do	G-1		Bored, 7-inch	93			49		Hand, gas			do		
574	Geo. Wandsheer	do	G-1	?1894	do	100	82	51	44		Wind, hand			do		
575	Mr. Buhart	do	G-1	1903	Bored, 12-inch	103	86	62	62	67	Wind			do		
576	A. E. Bird	do	G-1	1902	Bored, 7-inch	103		?68	47		do	68.00	+135.00	Domestic; irrigation; stock.		
577	R. Best	do	G-1		do	103	80	53	55		do			do		
578	M. Erreca	do	G-1		do	101			49		do			Domestic; stock		
579	U. L. Wilhite	do	G-1	1884	do	115	90	65	44		Hand			do		
580	John Manthei	do	G-1		do	92		?85	54		Wind			do		
581	C. M. Young	do	G-1		Bored, 6-inch	120	95	55	90		do			Domestic; irrigation; stock.		
583	T. M. Turner	do	G-1	1890	Bored, 7-inch	115		55	56	67	do			Domestic; stock		
584	Theo. Oswald	do	G-1	1888	do	113	100	54	53	66	do		+335.00	do		
585	Mr. Shelton	do	G-1	1891	do	102	90	56	52		do	50.00	150.00			
586	V. R. Casey	do	G-1		do	100	81	55	51	66	do			Domestic; stock		
587	Wm. Houmsom	do	G-1		Bored, 4-inch	105			51	66	do		+120.00	Domestic; irrigation; stock.		

Wells in the Santa Ana quadrangle—Continued.

Number of well.	Owner.	Location.	Map location.	Year completed.	Class of well.	Elevation of surface.	Elevation of water.	Depth of well.	Solids per 100,000.	Temperature of water.	Method of lift.	Cost of well.	Cost of machinery.	Use of water.	Quantity of water.
						Feet.	*Feet.*	*Feet.*		°*F.*					*Miner's inches.*
590	J. G. Bailey	Santa Ana	H-1	1876	Dug, 10 feet; bored, 7-inch, 301 feet	135	.....	311	41	....	Wind	.....	.....	Domestic; stock	.....
591	Santa Ana Steam Laundry Company.	.....do	H-1	1901	Bored, 7-inch	132	96	?86	51	....	Steam	.....	$600.00	Domestic	.....
592	Santa Ana city waterworks.	.....do	G, H-1	1899	Bored, 10-inch	100	78	350	42	67	.....do	.....	.....	.....do	166
593	.....do	.....do	G-1	1893	Bored, 7-inch	100	78	350	45	67	.....do	.....	.....	.....do	
594	.....do	.....do	G-1	1903	Bored, 12-inch	100	78	350	34	67	.....do	$775.40	.....	.....do	
595	.....do	.....do	G-1	1903	.....do	100	78	387	....	....	.....do	775.40	.....	.....do	
596	.....do	.....do	G-1	1901	.....do	102	80	351	43	67	.....do	950.00	.....	.....do	
597	L. M. Edwards	.....do	G-1	.....	Bored, 7-inch	100	79	60	46	....	Wind	.....	.....	Domestic; stock	.....
598	Robert Show	.....do	G-1	.....	.....	105	.....	.....	67	....	Hand	.....	.....	.....do	.....
599	Wm. Briggs	.....do	G-1	.....	Bored, 7-inch	100	.....	.....	62	....	.....do	.....	.....	.....do	.....
600	P. White	.....do	G-1	.....	.....do	98	.....	.....	52	....	Wind	.....	.....	.....do	.....
601	F. J. Heil	.....do	G-1	1902	.....do	85	60	72	....	....	Not raised	87.00	.....	Not used	.....
602	.....do	.....do	G-1	1883	.....do	80	.....	76	49	....	Wind	.....	.....	Domestic; stock	.....
603	W. A. Penrod	.....do	G-1	1899	.....do	85	74	48	50	....	Hand	.....	.....	.....do	.....
604	Mrs. M. Funk	.....do	G-1	1888	Bored, 6-inch	85	72	57	60	....	.....do	.....	.....	.....do	.....
605	Chas. Silkwood	.....do	G-1	.....	Bored, 4-inch	85	.....	.....	52	....	.....do	.....	.....	.....do	.....
606	Mrs. S. A. Sexton	.....do	G-1	.....	Bored, 7-inch	100	82	56	48	....	.....do	.....	.....	.....do	.....
607	F. M. Gist	.....do	H-1	1882	.....do	105	83	110	41	67	Wind	.....	.....	Stock	.....
608	N. Palmer	.....do	H-1	1875	.....	125	.....	300+	42	....	.....do	.....	.....	Domestic; irrigation; stock.	.....

609	Mrs. L. Moye	do	H-1	1890	Bored, 7-inch	130	98	?53	55		do			Domestic; stock	
610	Mr. Clinton	do	H-1		do	130			66		do			do	
611	J. H. Bruner	do	H-1	1877	do	130	100	58			do			Not used	
612	S. T. Miller	do	H-1	1886		136		40	57		do			Domestic; stock	
613	Ahlers & East	do	I-1	1904	Bored, 10-inch	138	96	336	36	71	Steam	672.00		Domestic	
614	P. Blanco	do	I-1			130			62		Hand			do	
615	D. Halladay	do	H-1	1882	Bored, 7-inch, 150 feet; 6-inch, 145 feet.	130	99	295			Wind			Not used	
616	Mrs. M. K. Beckett	do	H-1	1888		130		?160	52		do			Domestic; stock	
617	W. S. Rose	do	I-1	1892		133	87	57	64		do			do	
618	B. F. Nimms	do	I-1	?1893	Bored, 7-inch	133	98	42	60		Hand			do	
619	V. Earhart	do	I-1	1899	do	120	101	36	83		Wind			do	
620	M. D. Halladay	do	H-1	1886	do	130	110	279	48		do			do	
621	R. J. Blee	do	H-1	1888	Bored, 9½-inch	127	112	?325	46		do			Stock; domestic	
622	Robert Talbert	do	H-1	1888	Bored, 7-inch	125	100	52	57		do			Domestic	
623	F. E. Bangs	do	H-1	1901	do	120	100	120	48		do	150.00	150.00	Domestic; stock	
624	D. Halladay	do	H-1	1900	Bored, 10-inch	120	98	450			Not raised	800.00		Not used	
625	L. F. & A. S. Holbrook	do	H-1, 2		Bored, 6-inch	116	100	58	65		Wind			Domestic; stock	
626	D. V. Pritchard	do	I-2	1892	Bored, 7-inch	112	100	42	90		Hand			Domestic	
627	do	do	I-2	1900	do	115	100	105			Not raised			Not used	
628	Chas. Andres	do	H-2	?1876	do	100		40	74		Hand			Domestic; stock	
629	Mr. Burch	do	H-1, 2	1901	do	110	92	63	60		do			Not used	
630	H. A. Skiles	do	H-1, 2	1898	do	110	92	30	106		do	25.00		Domestic; stock	
631	L. B. Skiles	do	H-1	1898	do	110	92	30	106		Wind	25.00		Stock; domestic	
632	W. H. Conder	do	H-1	1900	do	110		?100	49		do			Domestic; stock	
633	E. G. Huntington	do	H-1		Bored, 6-inch	110	93	60	48	68	do		40.00	do	
634	W. H. Ivans	do	H-2	?1886	Bored, 7-inch	105		?60	61		Hand			do	
635	Stephen Ross	do	H-2	1894	Bored, 6-inch	100	98	368	32		Wind			do	
636	Mr. Lancaster	do	H-2		Bored, 7-inch	98			36		Hand			do	
637	Mr. Lewis	do	G, H-2		Dug, 4 by 4 foot	85	75	12			Wind			Stock	
638	J. L. Barger	do	G-2		Bored, 4-inch	85	83	?270	42		Hand			Domestic; stock	
639	do	do	G-2		Bored, 7-inch	85	76	83			Not raised			Not used	
640	Chas. Anderson	do	G-2	?1894	Bored, 6-inch	80	71	60	35		Wind		+119.00	Domestic; stock	
641	A. C. Stanley	do	G-2	1902	Bored, 7-inch	87		91			do	91.00	40.00	do	
642	Mrs. Brown	do	G-1		do	87	79	115	39		Hand			Stock	

Wells in the Santa Ana quadrangle—Continued.

Number of well.	Owner.	Location.	Map location.	Year completed.	Class of well.	Elevation of surface.	Elevation of water.	Depth of well.	Solids per 100,000.	Temperature of water.	Method of lift.	Cost of well.	Cost of machinery.	Use of water.	Quantity of water.
						Feet.	*Feet.*	*Feet.*		°*F.*					*Miner's inches.*
643	Morse & Randal	Santa Ana	G-1	1902	Bored, 7-inch	88	77	340	37	....	Hand	$488.37	.....	Stock	.....
644	.....do	.....do	G-1	1904	Bored, 12-inch	88	77	270	....	....	Not raised	321.00	.....	Not used	.....
645	J. A. Buckingham	.....do	G-1	?1875	Bored, 7-inch	95	80	39	57	68	Wind	.....	.....	Domestic; stock	.....
646	Frank Clapp	.....do	H-1	1890	.....do	100	82	38	56	....	Hand	.....	.....	Domestic	.....
647	James McFadden	.....do	H-2	1889	.....do	95	85	260	29	....	Wind	.....	.....	Domestic; stock	.....
648	.....do	.....do	H-2	1904	Bored, 10-inch	95	85	270	....	....	Installing pumping plant.	.....	.....	.....	.....
649	.....do	.....do	H-2	1902	.....do	95	85	270	....	....	.....do	.....	.....	.....	.....
650	.....do	.....do	H-2	1892	Bored, 7-inch	80	80	250	34	....	Artesian	.....	.....	Stock	.....
651	.....do	.....do	H-3	1870	Bored, 4-inch	58	58	50	42	69	.....do	.....	.....	Domestic; stock	.....
652	.....do	.....do	H-3	1901	Bored, 7-inch	58	58	400+	42	70	.....do	.....	.....	.....do	.....
653	.....do	.....do	H-3	?1901	Hydraulic, 2-inch	58	58	264	37	71	.....do	.....	.....	.....	.....
654	.....do	.....do	G-3	1899	Bored, 7-inch	53	53	260	37	70	.....do	.....	.....	Irrigation	29
655	.....do	.....do	G-3	1899	.....do	51	51	260	....	....	.....do	.....	.....	Irrigation; stock	8
656	.....do	.....do	H-3	.....	Bored, 10-inch	65	65	64	49	64	.....do	.....	.....	Stock	.....
657	W. W. Fisher	.....do	H-3	.....	.....	60	60	260+	42	68	.....do	.....	.....	Irrigation	.....
658	Delhi school district	.....do	H-3	1903	Hydraulic, 2-inch	62	62	224	44	68	.....do	91.00	.....	Domestic	.....
659	James McFadden	.....do	G-4	1899	Bored, 7-inch	42	42	360	....	....	.....do	.....	.....	Stock	.....
660	.....do	.....do	H-3	1888	.....do	48	48	80	48	66	.....do	.....	.....	.....do	Small.
661	.....do	.....do	H-4	1888	.....do	44	44	60	....	....	.....do	.....	.....	.....do	.....
662	.....do	.....do	G-5	1904	Bored, 4-inch	48	48	.....	44	70	.....do	.....	.....	.....do	.....

663	Henry Yount	do	H-2	1899	Bored, 7-inch	90	84	344			Gas	500.00	$600.00	Domestic; irrigation; stock.	
664	J. D. Carter	do	H-2	1898		72	54	21	57		Hand			Domestic; stock	
665	L. H. Price	do	H-3	1896	Bored, 7-inch	68	62	380+	44		Gas			do	
666	do	do	H-3	1888	Bored, 4-inch	65	65	380+	40		Artesian			Irrigation	†27
667	C. E. Buell	do	H-3		Hydraulic, 2-inch	68	68	?260	41	70	do			Domestic; irrigation; stock.	
668	do	do	H-3		Hydraulic, 3-inch	67	67	260+	41		do			Irrigation	17
669	G. W. Stuart	do	H-3	1902	Bored, 7-inch	65	65	63	44		Hand	63.00		Domestic; stock	
670	do	do	H-3	1903	Bored, 3-inch	65	65	265	43	70	Artesian			Domestic; irrigation; stock.	5
673	Mr. Russell	do	H-3	1900	Hydraulic, 2-inch	58	58	263	42		do			Domestic; stock	
674	W. W. Fisher	do	H-3		do	58	58	260+	41	69	do			Domestic	
675	do	do	H-3		do	55	55	27	49	68	do			Stock	Small.
676	W. L. Neill	do	H-3		Bored, 7-inch	55	55	27	49	68	do			do	
677	Delhi school district	do	H-3		Bored, 4-inch	62	62				do			Not used	
678	Henry Meason	do	H-3	?1884	Bored, 5-inch	63	63		40	68	do			Domestic; stock	
679	do	do	H-3	1899	Hydraulic, 2-inch	62	62	180	34	68	do			do	
680	do	do	H-3	1898	do	60	60	?180			do				
681	Alfred Williams	do	I-3		Bored, 7-inch	64	64	200			do			Not used	
682	do	do	I-3		do	64	64	196	37	69	do			Irrigation	
683	O. B. and C. C. Bridgeford.	do	I-3	1892	Bored, 4-inch	65	63	53	51		Hand			Domestic; stock	
684	J. L. Allen	do	H-3		Bored, 5-inch	58	58	?200	39		Artesian			Stock	Small.
685	do	do	H-3			54	50	?150	44		Hand			Domestic; stock	
686	L. W. Allen	do	H-3	1904	Hydraulic, 3-inch	57	57				Artesian			Irrigation	
687	G. Mall	do	I-3	1903	Hydraulic, 2-inch	54	54	?210	37	70	do	85.00		Domestic; irrigation; stock.	
688	J. W. Robertson	do	I-3	1904	Bored, 2-inch	55	55	212	38	70	do	85.00		Domestic; stock	
689	J. P. Manning	do	H-4	1900	Bored, 4-inch	50	50	206+	40	72	do			do	
690	G. W. Gynn	do	H-3	1897	do	53	53	?209	38	71	do			Stock	
691	do	do	H-3	1901	Hydraulic 3-inch	53	53	212	40		do	100.00		Domestic; stock	3
692	do	do	H-3	1902	Bored, 7-inch	53	53	220	41	73	do	250.00		Irrigation	7
693	J. R. McCarter	do	H-3		Hydraulic, 2-inch	54	54	200+	43	72	do			do	
694	J. J. Ryan	do	H-3	1903	Driven, 2-inch	53	53	239			do			do	
695	do	do	H-3		Bored, 4-inch	57	57	40	52	72	Hand			Domestic; stock	
696	G. Mall	do	H-3	1904	Hydraulic, 2-inch	53	53	239	42		Artesian	127.00		Irrigation	5

Wells in the Santa Ana quadrangle—Continued.

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						Feet.	*Feet.*	*Feet.*		°*F.*					*Miner's inches.*
698	Mr. Feathero	Santa Ana	H-4		Bored, 7-inch	48	48		45	67	Artesian			Stock	
699	C. A. Leighton	do	H-4		Hydraulic, 2-inch	52	52	200+	42	69	do			Irrigation	4
701	do	do	H-4		do	45	45	35	50		do			Domestic; stock	
702	Mr. Quick	do	H-4	1900	Bored, 7-inch	50	50	214	44	69	do			Irrrigation	
703	D. Boyd	do	H-4	1904	Hydraulic, 3-inch	45	45	196	41	70	do	$108.00		do	11
704	do	do	H-4	1897	Hydraulic, 2 inch	45	45	194	34	72	do	105.00		Irrigation; stock	3
705	do	do	H-4	1886	Bored, 4-inch	43	43	132	42	68	do			Domestic	
706	F. N. Morse	do	I-4		Hydraulic, 4-inch	53	53	218	41	70	do			Domestic; stock	4
707	do	do	I-3	1904	Bored, 10-inch	44	44	490	39	73	do	1,055.00		Irrigation	10
708	J. S. Fox	do	I-3	1878	Bored, 5-inch	60	60	?200	36	71	do			Domestic; irrigation; stock.	3
709	Mrs. Huntzinger	do	I-3	1884	Bored, 3-inch, inside of 7-inch.	65	65		37	68	do			Domestic; stock	
710	Chas. H. Wilbur	do	I-3	1903	Hydraulic, 2-inch	70	70	264	33	71	do	150.00		Domestic; irrigation; stock.	2
711	do	do	I-3	1899	Bored, 7-inch	75	75	331			do	400.00		Irrigation	4
712	W. S. Hall	do	I-3	1903	Hydraulic, 3-inch	73	73	250	38	68	do			Domestic; stock	2
713	do	do	I-3	1887	Bored, 7-inch	73	70	34	46	67	Hand			Not used	
714	Frank Thomas	do	I-3	1890	Bored, 4-inch	79	79	196	38	70	Artesian			Domestic; stock	4
715	J. S. Ellis	do	I-3	1904	Bored, 10-inch	67	67	284	37	70	do	500.00		Irrigation	
716	do	do	I-3	?1876	Bored, 4-inch, inside of 7-inch.	67	67	250	37		do			Stock	
717	do	do	I-3	1900	Hydraulic, 3-inch	67	67	299	40		do	130.00		Domestic; stock	
718	Irvine Rancho Co	do	I-3	1904	Hydraulic, 2-inch	67	67	312	43	71	do				4

719	J. A. Wilkes	do	I-3	1899	do	75	75	?150	40		do			Stock		
720	do	do	I-2	1892	Bored, 7-inch	85	85	185	38	71	Gas			Irrigation		42
721	Alton Warner	do	I-2		Hydraulic, 3-inch	85	83		42		Wind, horse-power.			Stock		
722	T. F. Brooks	do	I-2			90			54		Hand			Domestic		
723	J. C. Thomas	do	I-2	1902	Bored, 7-inch	98	93	200+			Not raised			Not used		
724	T. J. McCarter	do	I-2	1902	do	105		90+	51		Wind			Domestic; stock		
725	W. S. Ritchey	do	I-1	1870		110	98	200+	44		do			do		
726	B. S. Kerns	do	G-1		Bored, 6-inch	75	64	59	44		do			do		
727	Mathews & Travis	do	G-1	?1887	Bored, 7-inch	80	69	18	51		do			do		
728	P. M. Conkle	do	G-1	1903	Bored, 10-inch	76		98	48		Wind, hand			do		
729	T. P. Page	do	G-1	1903	Bored, 7-inch	76	68	69	51		Wind	72.00	+$295.00	do		
730	T. McPearson	do	G-1	1903	do	71	66	71	49		Hand			do		
731	J. S. Kohler	do	G-1		do	72	64	59	52		do			do		
732	B. W. Walker	do	G-1	1900	do	75	61	375	160		Gas	600.00	950.00	Irrigation		†40
733	C. A. Barton	do	G-1	1886		74		?85	46		Wind	80.00		Domestic; stock		
734	J. H. Parsons	do	G-2	1902	Bored, 7-inch	73		87	55	68	do			do		
735	Walter L. Neill	do	G-2		Bored, 4-inch	68	62	152	48	68	Hand			Stock		
736	do	do	G-2		Bored, 7-inch	68	65	64	54		do			Domestic; stock		
737	Fair Association	do	G-2		do	70			37		Wind			Roads		
738	R. J. Blee	do	G-2	?1900	do	75	75	355			Artesian	527.00		Stock		†35
739	Fair Association	do	G-2		do	64			43	68	Wind			Roads		
740	Mrs. S. E. Blake	do	G-2	?1898	do	63	63	?390	43	70	Artesian			Irrigation		
741	do	do	G-2	1897	do	62	62	95	40		Wind			Domestic; stock		
742	G. W. Bissett	do	G-2	?1884	Bored, 5-inch	63	63	?72	33	69	Artesian			Domestic; irrigation.		
743	do	do	G-2	?1884	Bored, 4-inch	65	65	?62	41	68	do			Domestic; stock		
744	B. W. Walker	do	G-2	1904	Bored, 9¾-inch (2)	70	69	114	41		Gas	300.00		Irrigation		
745	do	do	G-2		Bored, 4-inch	70	70		48	67	Hand			Domestic; stock		
746	C. C. Edingeir	do	G-2		do	73	72	54	52		do			Domestic		
747	do	do	G-2			74	74	56	47		Hand, artesian			Stock		
748	David Fickas	do	G-2		Dug, 5 by 5 foot	66	64	3	48	66	Hand					
749	G. H. Judd	do	G-2	1884	Bored, 4-inch	60	60	?130	48	68	Artesian			Domestic; stock		
750	do	do	G-2	1888	Bored, 4-inch, inside of 9-inch.	60	60	91	46	68	do			Domestic; irrigation.		
751	W. C. Ten Eyck	do	G-2	1898	Bored, 4-inch	57	57	96	48	68	do			do		

Wells in the Santa Ana quadrangle—Continued.

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						Feet.	*Feet.*	*Feet.*		°*F.*					*Miner's inches.*
752	W. C. Ten Eyck	Santa Ana	G-2	1892	Bored, 5-inch	57	57	75	44	67	Artesian			Domestic; stock	
753	P. Stefanazzi	do	G-2	1879	Bored, 4-inch	56	56	67	42	67	do			do	
754	J. F. Cavanaugh	do	G-2	1881	do	55	55	55	46	66	do			do	
755	do	do	G-2	1892	do	53	53	69	43		do			Stock	4
756	do	do	G-2	1902	Hydraulic, 2-inch	53	53	75	44	66	do	$40.00		Irrigation	Small.
757	Joe Nusbaumer	do	G-2	?1892	Bored, 4-inch	58	58	?88	42		Wind	75.00		Domestic; stock	
758	do	do	G-2	1890	Bored, 7-inch	60	60	90+			Artesian			Irrigation	
759	do	do	G-2	1902	Hydraulic, 3-inch	61	61	?336	33	67	do	240.00		do	5
760	W. C. Long	do	G-2	1876	Hydraulic, 3¼-inch.	56	56	75	46	65	do			Domestic	
761	do	do	G-2	1902	Bored, 4-inch	55	55	377	29	65	do	275.00		Irrigation; stock	
762	do	do	G-2	1898	do	55	55	102	44	66	do			Irrigation	
763	do	do	G-2	1884	Bored, 2-inch, inside of 4-inch.	56	56	75	40	65	do			do	
764	do	do	G-2	1879	Bored, 4-inch	58	58	?150	43		do			do	
765	do	do	G-2	1886	Bored, 2-inch, inside of 4-inch.	58	58	114	47		do			do	
766	T. W. Clark	do	F-2		Bored, 4-inch, inside of 7-inch.	53	53		54	67	do			do	
767	F. W. Clark	do	F-2		Bored, 7-inch	50	50	?110	51	63	do			do	
768	J. W. Harmon	do	F-2	1879	Bored, 4-inch, inside of 7-inch.	53	53	98	37		Hand			Domestic; stock	
769	do	do	F-2	1879	Bored, 4-inch	52	52	85	41		do			Stock	
770	do	do	F-2	1878	Hydraulic, 2-inch	55	55	61	49	68	Artesian			do	

771	.....do	.....do	F-2	1904	Bored, 9½-inch	52	52	95	....	....	Gas	....	....	Irrigation	....	....	
772	.....do	.....do	F-2	1878	Bored, 6-inch	52	52	78	....	....	.....do	....	....	.....do	....	....	
773	.....do	.....do	F-2	1878	Bored, 10-inch	52	52	78	....	....	.....do	....	....	.....do	....	....	
774	.....do	.....do	F-2	.....	Bored, 6-inch	50	48	190	....	....	Hand	....	....	Not used	....	....	
775	J. T. Raitt	.....do	F-2	.....	Bored, 7-inch	48	42	201	....	....	Not raised	....	....	.....do	....	....	
776	.....do	.....do	F-1	1904	Bored, 10-inch	52	50	110	40	....	Steam	....	....	Domestic; stock	....	....	
777	.....do	.....do	F-1	1900	.....do	52	50	113	40	....	.....do	....	....	.....do	....	....	
778	.....do	.....do	F-1	.....	Bored, 7-inch, inside of 10-inch.	52	50	98	40	....	.....do	....	....	.....do	....	....	
779	.....do	.....do	F-1	1901	Bored, 10-inch	52	50	110	40	....	.....do	....	....	.....do	....	....	
780	J. A. Timmons	.....do	F-1	1888	Bored, 4-inch	58	54	110	37	....	Hand	....	....	Domestic	....	....	
781	.....do	.....do	F-1	1901	Bored, 9-inch	61	59	112	....	....	Not raised	....	....	Not used	....	....	
782	.....do	.....do	F-1	1901	Hydraulic, 2-inch	62	60	112	....	....	.....do	....	....	.....do	....	....	
783	Joseph Thacker	.....do	F-1	.....	Bored, 10-inch	55	.....	.....	42	....	Hand	....	....	Domestic; stock	....	....	
784	David McCarty	.....do	F-1	.....	Bored, 4-inch	57	.....	.....	48	....	.....do	....	....	.....do	....	....	
785	Oliver Litten	.....do	F-1	1887	Bored, 6-inch	60	.....	?110	36	69	.....do	....	....	.....do	....	....	
786	.....do	.....do	F-1	?1883	Bored, 7-inch	60	57	?110	43	66	Wind	....	....	Stock	....	....	
787	Geo. M. Stanton	.....do	F-1	?1883	Bored, 6-inch	55	49	350	37	....	.....do	....	....	Irrigation; stock	....	....	
788	.....do	.....do	F-1	?1883	Bored, 4-inch	57	57	75+	37	....	Hand	....	....	Domestic	....	....	
789	M. A. Simco	.....do	F-1	1891	.....do	57	55	?95	42	66	Wind	....	....	Domestic; stock	....	....	
790	V. H. Duncan	.....do	F-2	.....	.....do	50	50	80	43	65	Artesian	....	....	.....do	....	....	
791	.....do	.....do	F-2	.....	Hydraulic, 2-inch	48	48	69	41	65	.....do	....	....	Stock	....	....	1
792	.....do	.....do	F-2	.....	Hydraulic, 1½-inch.	51	51	.....	38	....	.....do	....	....	.....do	....	....	
793	R. M. Dungan	.....do	F-2	.....	Bored, 4-inch	46	45	138	38	....	Hand	....	....	Domestic; stock	....	....	
794	.....do	.....do	F-3	.....	Bored, 6-inch	47	47	85	39	....	Artesian	....	....	Stock	....	....	
795	Mr. Boland	.....do	E-2	1874	.....do	47	47	?450	31	66	.....do	....	....	Domestic; stock	....	....	35
796	V. H. Duncan	.....do	F-2	.....	Bored, 4-inch, inside of 6-inch.	45	43	56	....	....	Not raised	....	....	Not used	....	....	
797	S. P. Boland	.....do	F-2	1882	Bored, 4-inch	40	40	90	37	65	Artesian	....	....	Domestic	....	....	
798	.....do	.....do	F-2	1902	Bored, 7-inch	43	43	116	39	65	.....do	....	....	Irrigation	....	....	4
799	.....do	.....do	F-2	1878	Bored, 2-inch, inside of 4-inch.	43	43	94	38	65	.....do	....	....	.....do	....	....	
800	J. W. Harmon	.....do	F-2	.....	.....	55	52	95	35	....	.....	....	....	.....	....	....	
801	Elmer Lipton	.....do	F-2	.....	Bored, 7-inch	52	52	61	47	69	Artesian	....	....	Domestic; stock	....	....	
802	Mrs. McCarmack	.....do	F-2	.....	Bored, 2-inch	52	52	.....	....	....	.....do	....	....	Domestic	....	....	

Wells in the Santa Ana quadrangle—Continued.

Number of well.	Owner.	Location.	Map location.	Year completed.	Class of well.	Elevation of surface.	Elevation of water.	Depth of well.	Solids per 100,000.	Temperature of water.	Method of lift.	Cost of well.	Cost of machinery.	Use of water.	Quantity of water.
						Feet.	*Feet.*	*Feet.*		°					*Miner's inches.*
803	Phil Rutherford	Santa Ana	F-2		Bored, 4-inch	47	47		43	65	Artesian			Domestic; irrigation.	
804	do	do	F-2		Bored, 5-inch, inside of 7-inch.	46	46	200+	42	66	do			Irrigation	
805	do	do	F-2		Bored, 7-inch	48	48	79	43	65	do			do	
806	Mr. Harvey	do	F, G-2, 3		do	48	48	200+	33	67	do			do	
807	W. A. Bear	do	F-3	?1879	Bored, 3-inch	43	43	85	37	66	do			Domestic	
808	Jos. Nusbaumer	do	F-3		Bored, 4-inch	44	44	200+	37	66	do			Stock	
809	F. P. Bowland	do	F-3	?1880	Bored, 8-inch	40	40		42		do			Domestic; irrigation.	
810	do	do	F-3	?1894	Bored, 4-inch	38			38	65					
811	do	do	F-3		do	38	38	60			Hand			Not used	
812	R. P. Selvidge	do	F-3		do	38	38	90+	39		Gas			Irrigation	
813	do	do	F-3	1904	Bored, 7-inch	38	38	?158	37	65	do			do	
814	E. M. Peet	do	F-3		Bored, 6-inch	40	40	?75	39	66	Artesian			Domestic; stock	
815	R. P. Selvidge	do	F-3		Hydraulic, 3-inch	38	38		36	65	do			do	
816	Mr. Raibel	do	F-3		Bored, 4-inch	38	38	62	35	66	do				Small.
817	Mrs. Raibel	do	F-3		Bored, 3-inch	38	38		37	65	do			Stock	
818	T. C. Williams	do	F-3	?1874	Hydraulic, 3-inch	40	40	60	36	65	do			Domestic; stock	
819	do	do	F-3		do	43	43	59	37	66	do			Stock	Small.
820	do	do	F-3		Bored, 7-inch	43	43	200+	36	68	do			Irrigation	
821	do	do	F-3		Bored, 6-inch	42	42		35	66	do			Irrigation; stock	
822	do	do	F-3		Bored, 7-inch	42	42	108	32	66	do			do	7

823	Mrs. S. L. Rogers	do	G-2	?1880	Bored, 3-inch, inside of 7-inch.	58	58	65	43	66	do			Domestic; irrigation.	1
824	Martha M. Smith	do	G-2		Hydraulic, 3-inch	57	57	60	44	66	do			do	
825	H. W. Rulison	do	G-2	1892	Bored, 3-inch	55	55	56	43		do	$75.00			1
826	do	do	G-2	1892	Hydraulic, 3-inch	55	55		45		do			Stock	
827	Mrs. E. M. Harvey	do	G-2	1880	Bored, 4-inch	57	57	?55	41	66	do			Domestic; stock	5
828	Mrs. Raibel	do	G-2		Hydraulic, 3-inch	64	64		48		do			Irrigation; stock	2
829	John Turner	do	G-3		Bored, 7-inch	55	55	133	43	67	do			do	
830	L. J. Carter	do	G-3	1886	Bored, 4-inch	53	53	49	40	66	do	45.00		Domestic; irrigation.	8
831	L. S. Carter	do	G-3	1890	do	55	55	65	41		do	45.00		Irrigation	14
832	John Turner	do	G-3		Bored, 7-inch	51	51	42	41	66	do			Domestic; stock	
833	do	do	G-3		Hydraulic, 3-inch	52	52		43	67	do			Domestic; irrigation.	
834	do	do	G-3		do	51	51		41	67	do			Stock	Small.
835	do	do	G-3		do	52	52		40	67	do			Irrigation; stock	
836	J. L. Benight	do	G-3	1903	Hydraulic, 2-inch	45	45	?66	42		do			Domestic; stock	4
837	do	do	G-3		Bored, 4-inch	50	50	62	43	66	do			Irrigation; stock	2
838	John Turner	do	G-3		Hydraulic, 3-inch	50	50		43	66	do			do	
839	do	do	G-3		Bored, 4-inch	48	48		42		do			do	
840	B. F. Townsend	do	G-3		do	44	44		34	67	do			Stock	
841	F. J. Graser	do	G-3		Hydraulic, 3-inch	44	44	?60	43	67	do			Irrigation	2
842	do	do	G-3		Bored, 4-inch	45	45	58	42		do			Irrigation; stock	25
843	do	do	G-3		Hydraulic, 2-inch	44	44	?60	45	65	do			Domestic; stock	
844	A. H. Williams	do	G-3	1903	do	43	43	66	41	66	do	27.00		do	
845	do	do	G-3	?1875	do	43	43	?60	42	66	do			Stock	
846	Mrs. E. A. Raibel	do	G-3	?1870	Bored, 4-inch	43	43	?300	34	68	do			Irrigation; stock	8
847	E. Mitchell	do	F-3	?1876	do	43	43	70	39	65	do			do	
848	do	do	G-3	?1876	Bored, 7-inch	45	45	74	39	65	do			do	
849	do	do	G-3	1900	Hydraulic, 2-inch	48	48	58	32	68	do	20.00		Stock	
850	Mr. Greenleaf	do	F-3		Bored, 6-inch	43	43	?70	43		do			do	Small.
851	A. H. Williams	do	F-3	1899	Hydraulic, 2-inch	44	44	?72	43	66	do	25.00		Irrigation	
852	Mrs. E. A. Raibel	do	F-3	?1870	Hydraulic, 3-inch	42	42	52	40	66	do			Stock	2
853	T. C. Williams	do	F-3		Bored, 3-inch	42	42		38	66	do			Domestic	
857	J. L. Pinney	do	F-4		Bored, 4-inch	38	38	64	34	68	do			Domestic; irrigation; stock.	

Wells in the Santa Ana quadrangle—Continued.

Number of well.	Owner.	Location.	Map location.	Year completed.	Class of well.	Elevation of surface.	Elevation of water.	Depth of well.	Solids per 100,000.	Temperature of water.	Method of lift.	Cost of well.	Cost of machinery.	Use of water.	Quantity of water.
						Feet.	*Feet.*	*Feet.*		°*F.*					*Miner's inches.*
858	J. L. Pinney	Santa Ana	F-3	1904	Bored, 10-inch	37	37	106	34	65	Artesian			Irrigation	
860	J. H. Sanders	do	E-4		Bored, 2-inch, inside of 7-inch.	35	35	?300	37	67	do			Domestic; stock	1
861	J. L. Pinney	do	E-3	?1884	Bored, 4-inch, inside of 7-inch.	36	36	64	34	67	do			Stock	
862	do	do	E-3		Bored, 4-inch	34	34	102	35	66	do			Irrigation	
863	do	do	E-3	1903	do	34	34	187			do			Stock	
864	Mr. Selvidge	do	E-3		do	37	37	96	38	65	do			do	Small.
866	E. C. Martin	do	I-1			125			49		Wind			Domestic; stock	
867	A. O. Birch	do	I-1	1899	Bored, 7-inch	132	112	?45	91		do	$45.00	$50.00	do	
868	P. Allen	do	I-1		Bored, 6-inch	121	91		52		do			Domestic	
869	J. P. Pope	do	I-1		Bored, 7-inch	117	97		151		do			do	
870	Winslow & Decker	do	I-2		do	114	96	52	62		do			do	
871	C. B. Bridgeford	do	I-2	1884	do	100		297	38		do			Domestic; stock	
872	John Cubber	do	I-2		do	107	88	50	68		do			do	
873	A. Fuller	do	I-2	1899	Bored, 10-inch, reduced to 6-inch.	107		360+	71		Gas			Irrigation	†50
874	do	do	I-2	1899	Bored, 6-inch	107		180			Wind			Domestic	
875	W. G. Smith	do	I-2	1878	Bored, 4-inch	110	84	?56	37	66	Hand			Domestic; stock	
876	W. Williams	do	I-2	1876	Bored, 5-inch	113	93	?220	46	67	Wind			do	
877	A. C. Williams	do	I, J-2		Bored, 7-inch	113	90	76	52		Hand			Stock	
878	O. H. Burke	do	I-1		do	118	98	?40	74	66	Wind		270.00	Domestic; stock	
879	C. P. Rice	do	I-1	?1875	do	121		90	52		do			Domestic	

880	B. Fread	do	I-1	?1895	do	128		?140	57	67	do			do	
881	T. F. Lee	do	I-1	1898	do	128	94	51	86	66	do		65.00	do	
882	Mrs. A. A. Twombly	do	I-1	?1883		128		?50	85	67	Hand			Domestic; stock	
883	J. S. House	do	I-1		Bored, 7-inch	128	103	?55	70		Wind			do	
885	W. H. Clary	do	I-1	?1897	do	132	95	?65	73		do			Domestic	
886	M. A. Menges	do	I-1	?1880	do	132	94	49	98		do			Domestic; stock	
887	Mrs. H. J. Winslow	do	I-1	?1884	Bored, 6-inch	127	103	52	70		do		133.00	do	
888	J. C. Metzgar	do	I-1		Bored, 6-inch, inside of 7-inch.	125	97	56	68		do			do	
889	F. P. Fraser	do	I-1	1902	Bored, 7-inch	125	95	?42	74		Hand	45.00		Domestic	
890	J. F. Schlange	do	I-1		Bored, 6-inch	126	102	28	201		Wind			do	
891	A. McFadden	do	I-1	?1885	Bored, 7-inch	121		60+	59		do			do	
892	W. P. Brown	do	I-1	1901	do	120	100	42	60		do			do	
895	J. S. Leck	do	J-2		do	113	83	?90	37		Hand			Domestic; stock	
896	Mrs. M. Richey	do	J-2	1882	do	110	98	90	68	65	Wind			Domestic	
897	do	do	J-2	?1889	do	110	93	183			Not raised			Not used	
898	Santa Fe R. R. Co	do	J-2		Bored, 8-inch	90	83		55		Hand			Domestic	
899	E. L. Bouman	do	J-2	1901	Bored, 7-inch	104	91	67	140		do			Domestic; stock	
900	F. W. Harding	do	J-2			102			190		Wind			do	
902	T. J. Crawford	do	J-2	1889	Bored, 4-inch	100		?66	82		Hand			Domestic	
903	L. A. Cock	do	J-2	1884	Bored, 7-inch	75	64	?96	52		do			Domestic; stock	
904	P. Ramon	do	J-3	1880	Bored, 4-inch	66	66	120+	52		do			do	
905	E. M. Wheeler	do	K-2	1889		70		45	63						
906	do	do	K-2	1904	Bored, 7-inch	70	64	80	33		Gas	76.80		Stock	†20
907	Irvine Rancho Co	San Joaquin	K-2		Hydraulic, 2-inch	65	65	200	53	68	Artesian			do	
908	S. P. Bowland	Santa Ana	K-2		Bored, 7-inch	85			73	65	Wind			Domestic; stock	
909	W. G. Mitchell	do	K-2	1902		103		96	63		do			do	
911	E. M. Neally	do	J-2		Bored, 7-inch	114			48	66	do			Domestic	
912	S. Stevens	do	J-2		do	115			65		Hand			do	
913	J. B. Bowman	do	J-2		do	113		30+	124		do			do	
914	E. H. Stanley	do	J-2	1897	Hydraulic, 2-inch	113	106	280+			Wind			Domestic; stock	
915	C. C. Cozzad	do	J-2	?1884		112		?100	107		Wind, hand			do	
916	Louis Ebel	do	J-2			112		?140			Hand			Domestic; irrigation.	
917	G. G. Godfrey	do	J-2	1879	Bored, 7-inch	112	100	?250	36		do			Domestic	
918	E. M. Crellin	do	J-2	?1895	do	115	88	166	42		Wind			Domestic; stock	

Wells in the Santa Ana quadrangle—Continued.

Number of well.	Owner.	Location.	Map location.	Year completed.	Class of well.	Elevation of surface.	Elevation of water.	Depth of well.	Solids per 100,000.	Temperature of water.	Method of lift.	Cost of well.	Cost of machinery.	Use of water.	Quantity of water.
						Feet.	*Feet.*	*Feet.*		°*F.*					*Miner's inches.*
919	W. C. Crawford	Santa Ana	J-2	1898	Bored, 7-inch	116		?69	78		Wind			Domestic	
921	P. T. Adams	do	J-1		do	120			56		do			Domestic; stock	
922	I. L. Marchant	do	J-1	?1889	do	125		?130	57		do			Domestic	
923	H. A. Allen	do	J-1			128	95	86			do			Domestic; stock	
924	F. E. Monahan	do	I-1	1884	do	133	97	52			do			do	
925	Mrs. M. L. Adams	do	I-1	?1888	do	133			70		do			do	
926	J. M. Raugh	do	I-1	?1889	do	133		?90	81		do		$140.00	do	
928	Mrs. A. C. Gulick	do	J-1	?1880	do	133	93	47	72		do			do	
929	L. F. Sheets	do	J-1	1879	Bored, 4-inch	133	90	300+	56		do			do	
930	Geo. Liggett	do	J-1		Bored, 7-inch	130		?80	75		Hand			do	
931	L. Hillyard	do	J-1	?1892	do	130	100	?60	77		Wind			do	
932	Mrs. S. E. Wilcox	do	J-1	1880	do	130		?80			do			do	
933	V. V. Tubbs	do	J-1	?1873	do	140		75	54		Wind, gas			do	
934	do	do	J-1	1902	do	140	87	202			Not raised			Not used	
935	H. Diers	do	J-1		do	133	81	56	115		Wind			Domestic; stock	
936	Henry Leck	do	J-1	?1880	do	132	112	?100	62		do			Domestic	
937	J. T. Morehead	do	J-1	1894	do	132	92	103	59		do	$63.00	170.00	Domestic; stock	
938	M. E. Phillips	do	J-1	1890	do	134	94	70	37		Hand			Not used	
939	C. B. Leddick	do	J-1		do	137			59		Wind			Domestic; stock	
940	C. W. Bowers	do	K-1	1886	do	132	79	?67	60		do			do	
941	J. S. Rice	do	K-1		Hydraulic, 3-inch	135			61	66	do			do	
942	James Smith	do	K-1		Bored, 7-inch	128			48		Hand			do	
943	E. Chast	do	K-1	1894	Hydraulic, 3-inch	131	91	50	48		Wind			do	

944	Mr. Thorpe	do	K-1	1888	Bored, 7-inch	135			44		Hand			Not used		
945	A. L. Paul	do	K-1	1902	Dug, 3 by 3 foot	135	85	100+	50		do			Domestic; stock		
947	Mrs. M. J. Clifford	do	K-1	1886	Bored, 7-inch	127		61	57		do					
948	E. L. Bouman	do	K-1		Dug, 3 by 3 foot; bored, 7-inch.	128		?120	45		do			Domestic; stock		
949	Mr. Ross	do	K-1		Bored, 7-inch	128	78	?120	53		Wind			do		
950	John Taylor	do	K-1	1884	Dug, 4 by 4 foot	125	78	50	53		Hand			do		
951	C. M. Halderman	do	K-1		Bored, 6-inch	133	87	77			Not raised			Not used		
952	do	do	K-1		Bored, 7-inch	132			46		Wind			Domestic; stock		
953	G. W. Diffenderfer	do	J-1	1895		130		80	60		do			do		
954	David Hewes	do	J-1		Bored, 7-inch	128	89	115	57		do			Domestic		
956	C. E. Utt	do	J-1	1897	Bored, 10½-inch	127	102	450	52		Gas			do		10
958	J. O. Pebele	do	J, K-1	1885	Dug, bored, 7-inch	127	97	57	57		Wind		97.00	do		
959	Irvine Rancho Co	Lomas De Santiago.	M-3	?1876	Bored, 7-inch	135	96	300+	131		do			Stock		
960	do	do	M-2	?1877	do	135	127	?400	59	68	do			Domestic		
961	do	San Joaquin	L-2	1897	do	74	72	?350			Not raised			Not used		
962	do	Santa Ana	I-4	1878	do	47	47	?200	41	70	Artesian			Irrigation; stock		
963	do	do	K-1	1890	do	117	105	?80	53	70	Wind			Domestic; stock		
964	do	San Joaquin	M-7	1891	Bored, 6-inch	168	156	200	60		Wind, horsepower.			do		
965	do	Santa Ana	F-7	1891	do	63	63	200			Artesian			Irrigation		3
966	do	do	F-7	1891	do	63		200	25		Hand					
967	do	Lomas De Santiago.	L-4	1891	Bored, 7-inch	100	100	300+	69	73	Artesian			Not used		Small.
968	do	do	M-2	1894	Bored, 8-inch	138	117	719	43		Steam			Irrigation		†15
970	do	San Joaquin	H-6	1897	Hydraulic, 2-inch	55	55	125	22		Artesian			Domestic		4
971	J. Morris	Lomas De Santiago.	M-2	1897	Bored, 6-inch	150	120	?100	115		Wind			Domestic; stock		
972	Irvine Rancho Co	do	M-6	1897	Bored, 7-inch	160	107	163	69		do			do		
974	do	San Joaquin	K-6	1897	Dug, 4 by 4 foot	80	68	14	79		do			do		
975	S. T. Rutherford	do	K-5	1897	Dug, 3¾ by 3¾ foot	80	76	16			do			do		
976	Mr. Warne	Santa Ana	G-5	1897	Hydraulic, 2-inch	48	48	158	35	71	Artesian			Not used		Small.
977	Irvine Rancho Co	San Joaquin	L-3	1898	do	75	75	400	53	71	do		240.00	Stock		5
978	do	do	K-4	1898	do	65	65	362	72		do		240.00	do		Small.
979	do	do	J-5	1898	do	55	55	288								4
981	do	do	I-7	1898	do	50	50	165	30	81	Artesian			Stock		9

Wells in the Santa Ana quadrangle—Continued.

Number of well.	Owner.	Location.	Map location.	Year completed.	Class of well.	Elevation of surface.	Elevation of water.	Depth of well.	Solids per 100,000.	Temperature of water.	Method of lift.	Cost of well.	Cost of machinery.	Use of water.	Quantity of water.
						Feet.	*Feet.*	*Feet.*		°*F.*					*Miner's inches.*
982	Irvine Rancho Co	San Joaquin	I-4	1898	Hydraulic, 2-inch	43	43	204	46	71	Artesian			Stock	7
983	do	do	J-4	1898	do	45	45	138	46	71	do			do	6
984	do	do	J-3	1899	do	48	48	150	49	72	do			do	5
988	do	do	H-6	1899	Hydraulic, 3-inch	60	60	210	37	71	do			do	3
989	do	do	H-6	1899	Hydraulic, 2-inch	55	55	140	25	75	do			Domestic; stock	6
990	do	Santa Ana	I-3	1899	Hydraulic, 4-inch	72	72	351	43		do			Irrigation	†25
991	do	do	J-3	1899	do	65	65	183			do			do	
993	do	San Joaquin	N-6	1899	Hydraulic, 4-inch, 155 feet; hydraulic, 2-inch, 141 feet.	200		296	69		Wind			Domestic	
1002	do	do	H-7	1899	Hydraulic, 3-inch	60		397	34	79	Flows into reservoir.			Stock	Small.
1003	do	Santa Ana	K-1	1900	Hydraulic, 2-inch	103		208	42		Not raised			Not used	
1006	do	San Joaquin	L-2	1900	do	75	75	189	42		Artesian			Stock	
1011	do	do	J-6	1900	do	25	25	163	52	72	do			do	
1012	do	do	I-6	1900	Hydraulic, 3-inch	35	35	70			do			Irrigation	19
1015	do	do	I-6		do	28	28	88	28	77	do			do	2
1016	do	do	H-7		Hydraulic, 2-inch	40	40	226	31	70	do			Artificial pond	
1020	do	do	H-7		do	40	40	112	32	77	do			Domestic	2
1024	do	do	J-6	1900	Hydraulic, 3-inch	25	25	122	66	72	do				10
1027	do	do	J-6	1900	Hydraulic, 2-inch	25	25	51	57	72	do			Stock	4
1028	do	do	I-6	1900	Hydraulic, 3-inch	55	55	80			do				†12

1035	.....do.....	Lomas De Santiago.	M-2....	1900	Bored, 10-inch...	150	130	317	....	....	.....	.....	.....	.....	.....	
1039	.....do.....	San Joaquin.....	I-6.....	1900	Bored, 7-inch....	35	35	298	31	70	Artesian.....	.....	.....	Irrigation	.....	
1040	.....do.....	.....do.....	I-6.....	1900	.....do.....	35	35	91	26	77	.....do.....	.....	.....	.....do.....	.....	
1046	.....do.....	Santa Ana.....	J-3.....	1901	Bored, 10-inch...	65	65	193	40	69	.....do.....	.....	.....	.....do.....	.....	†18
1047	.....do.....	Lomas De Santiago.	L-1.....	1901	Bored, 12-inch...	145	.....	164	49	75	Gas.....	.....	.....	.....do.....	.....	32
1040	.....do.....	San Joaquin.....	L-2.....	1901	Bored, 10-inch...	75	73	252	45	....	Wind.....	.....	.....	Domestic; stock.	.....	
1051	.....do.....	Lomas De Santiago.	N-4, 5...	1903	Hydraulic, 4-inch	220	100	246	141	....	.....do.....	$117.50	$60.00	.....do.....	.....	
1054	.....do.....	.....do.....	N-4.....	1903	.....do.....	115	.....	200	....	....	.....	30.00	.....	.....	.....	
1056	.....do.....	.....do.....	N-4.....	1903	.....do.....	215	135	271	90	....	Wind.....	96.25	60.00	Domestic	.....	
1058	.....do.....	.....do.....	N-3.....	1903	.....do.....	120	.....	321	....	....	.....do.....	49.50	.....	.....do.....	.....	
1062	.....do.....	.....do.....	L-2.....	1903	Bored, 15-inch...	130	102	400	....	....	.....	925.33	.....	.....	.....	
1064	.....do.....	San Joaquin.....	N-6.....	1903	Hydraulic, 3-inch, inside of 4-inch.	200	126	368	....	....	.....	85.00	.....	.....	.....	
1066	.....do.....	.....do.....	M-6.....	1903	Hydraulic, 4-inch	140	.....	75	....	....	.....	22.00	.....	.....	.....	
1069	.....do.....	.....do.....	L-6.....	.....	.....do.....	135	70	114	....	....	.....	45.00	.....	.....	.....	
1071	.....do.....	Santa Ana.....	F-7.....	1904	.....do.....	65	.....	210	....	....	.....	33.00	.....	.....	.....	
1073	.....do.....	.....do.....	G-6.....	1904	Hydraulic, 3-inch	50	50	152	22	75	Artesian.....	44.00	.....	Stock	.....	9
1075	.....do.....	.....do.....	I-4.....	1904	Hydraulic, 4-inch	52	52	394	44	68	.....do.....	.....	.....	Irrigation.....	.....	
1077	.....do.....	.....do.....	I-3.....	1904	.....do.....	55	55	415	42	72	.....do.....	.....	.....	Not used.....	.....	
1084	W. H. Best.....	.....do.....	K-1.....	1900	Bored, 10-inch...	110	100	?375	44	....	Hand.....	.....	.....	.....	.....	
1085	W. L. G. Haskins.....	.....do.....	K-1.....	1893	Bored, 7-inch....	110	98	51	56	....	.....do.....	51.00	.....	Domestic; stock.	.....	
1086	Hayrod Bros.....	Lomas De Santiago.	M-1.....	1902	Dug, 4 by 4 foot..	275	252	30	....	....	.....do.....	.....	.....	Stock	.....	
1087	Wm. Jeffrey	San Joaquin.....	L-5.....	?1894	Dug, 3½ by 3½ foot.	90	75	16	83	68	Wind	.....	.....	Domestic; stock.	.....	
1088	W. D. Bowman.....	Santa Ana.....	L-1.....	1904	Bored, 7-inch....	95	.....	58	49	....	Hand.....	60.00	16.00	.....do.....	.....	
1089	Cubben & McFadden.	Lomas De Santiago.	M-5.....	1903	.....do.....	140	100	100+	78	73	Gas.....	.....	.....	Domestic; irrigation; stock.	.....	†27
1090	Fred Page	San Joaquin.....	L-6.....	1901	Dug, 2 by 4 foot..	98	71	28	91	65	Wind	.....	.....	Domestic ..	.....	
1092	C. S. Hubbard	Santa Ana.....	K-2.....	1892	Bored, 6-inch....	75	65	?26	57	....	Hand.....	.....	.....	Domestic; stock.	.....	
1093	.....do.....	.....do.....	K-2.....	1890	.....do.....	80	68	?50	61	68	Hand; wind...	.....	.....	.....do.....	.....	
1095	B. E. Buck	.....do.....	K-1.....	?1893	.....	115	.....	.....	54	65	Hand.....	.....	.....	Domestic	.....	
1096	C. C. Lambert	.....do.....	K-1.....	1892	Bored, 8-inch....	115	80	?70	53	....	Wind	.....	.....	.....do.....	.....	
1097	Mr. Cullom.....	.....do.....	K-1.....	.....	Bored, 7-inch....	115	89	34	55	....	Hand	.....	.....	Domestic; stock.	.....	

Wells in the Santa Ana quadrangle—Continued.

Number of well.	Owner.	Location.	Map location.	Year completed.	Class of well.	Elevation of surface.	Elevation of water.	Depth of well.	Solids per 100,000.	Temperature of water.	Method of lift.	Cost of well.	Cost of machinery.	Use of water.	Quantity of water.
						Feet.	*Feet.*	*Feet.*		°*F.*					*Miner's inches.*
1098	E. E. Cook	Santa Ana	K-1		Bored, 7-inch	115	93	25	56		Wind			Domestic; stock	
1099	M. W. Johnson	do	K-2	1894	do	100		118	56		do			Domestic	
1101	Mr. Higgins	do	K-2		Bored, 6-inch	95			57	68	do			Domestic; stock	
1102	Thos. Rawling	do	K-1		Bored, 7-inch	100			183		Hand			Domestic	
1103	Wm. McGreevy	do	I-1		Bored, 6-inch	103	66	42	62		Wind			do	
1104	Wm. Halesworth	do	I-1		do	103		?55	65		do			do	
1106	G. R. Smith	do	I-1		Bored, 7-inch	135	97	46	73	67	do			do	
1107	M. P. Mathews	do	I-1		do	140		52	55		do			do	
1108	H. C. Babcock	do	I-1	1904	Dug, 4-foot diameter.	148	95	54	95		Hand			do	
1109	Mrs. S. W. Baker	do	I-1	1899	Bored, 7-inch	133		49	66						
1110	J. E. Taylor	do	I-1	1900	do	133	96	48	73	65	Wind, electric motor.			Domestic	
1111	J. B. Joplin	do	I-1	1888	do	133		46	70	67	Wind			do	
1112	H. W. Lewis	do	J-1	1901	do	135			52		do	$100.00		do	
1114	H. A. Allen	do	J-1	?1883	Bored, 6-inch	130		?160	65		do			do	
1115	Mrs. Hilton	do	J-1		Bored, 7-inch	130			71		do			do	
1116	L. Carrier	do	J-1	?1888	do	130	97	76	61		do			do	
1117	W. H. Comstock	do	J-1	?1894	do	125	94	62	68		do			do	
1118	J. Griset	do	J-1	1902	do	130		100+	63		Hand			do	
1120	A. G. Campbell estate	do	J-2	?1897	do	115		56	63		Wind			Domestic; stock	
1121	Mrs. S. P. Turner	do	J-1	1899	do	115	98	?110	59		do	111.00		Domestic	
1122	Mr. Wullingberger	do	J-2	1878	do	115	85	80	64		do			do	

1123	E. L. Higgins	do	J-1	1884	do	118		?65	60		do			do	
1124	John Awe	do	J-1	1892	do	120		?80	52		do			do	
1125	J. W. Ballard	do	J-1		do	120			48		do			do	
1126	Geo. Preble	do	J-1			125		90			do			do	
1127	W. L. Adams	do	J-1	?1879	Bored, 6-inch	125	112	450			Not raised			Not used	
1128	Thompson Bros.	do	J-3	1900	Bored, 7-inch	55	55	284	48	73	Artesian			Domestic; irrigation; stock.	
1129	do	do	J-3	1900	do	53	53	282	50	68	do			do	1
1131	Robert Boyd	do	I-4	1902	Hydraulic, 2½-inch.	45	45	108	40	68	do			do	5
1132	Irvine Rancho Co	San Joaquin	G-8	?1895	Bored, 7-inch	100	25	?150	161		Wind			Stock	
1133	W. W. McCarrell	Santa Ana	F-4	1903	Dug, 3½ by 3½ foot.	40	32	13	151	62	Hand			do	
1134	B. W. Ellis	do	F-4	1903	Hydraulic, 2-inch	40	40	?230	35	63	Artesian			Domestic; stock	3
1135	do	do	F-4	?1884	Bored, 4-inch	40	40	?190	39		do			Stock	
1136	do	do	F-4	?1884	do	38	38	?190	25	62	do			Irrigation	
1137	Fred Raibel	do	E-4		Hydraulic, 2-inch	35	35		30	63	do			Domestic	
1138	I. M. Von Schriltz	do	E-4	1902	Bored, 4-inch	35	35	200+	29	66	do			Stock	
1139	do	do	E-4	1903	Bored, 10-inch	35	35	?400	32	68	do			Irrigation	1
1140	do	do	E-4		Bored, 4-inch	35	35	141	30	65	do			do	1
1141	do	do	E-4		do	35	35	152	29	66	do			do	1
1142	Mrs. Mary Smith	do	E-4	?1874	Hydraulic, 3¼-inch.	35	35	?312	38	65	do			Domestic; stock	Small.
1143	P. J. Matthews	do	E-4		Bored, 4-inch	35	35		30	65	Artesian, hand			do	
1144	Mr. Davis	do	E-4		Bored, 6-inch	35	35		34	67	Artesian			Domestic; irrigation; stock.	
1145	J. W. De Witt	do	F-4		Bored, 3½-inch	42	42	185	32	66	do			do	
1146	do	do	F-4	1889	Bored, 4-inch	40	40	?225	36	65	do			Irrigation; stock	
1148	R. W. McClain	do	F-4			42			34		do				
1149	do	do	F-4		Bored, 4-inch	42	42	375	32		Not raised			Not used	
1150	W. H. Kedford	do	F-4	?1874	Bored, 3½-inch	45	45		37		Artesian			Domestic; stock	
1151	Newport school district.	do	F-4		Hydraulic, 2-inch	43	43		37		do			Domestic	
1152	W. F. Cullen	do	F-4	1874	Bored, 4-inch	43	43	160	37		do			Domestic; irrigation; stock.	
1153	E. S. Wakeham	do	F-4	?1884	Hydraulic, 2-inch	43	43	310	30	71	do			do	
1154	do	do	F-4	?1874	Bored, 7-inch	43	43	?160	68	69	do			Stock	

Wells in the Santa Ana quadrangle—Continued.

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						Feet.	*Feet.*	*Feet.*		°*F.*					*Miner's inches.*
1155	M. H. Bear	Santa Ana	G-4	1894	Hydraulic, 2-inch	40	40	125	39	....	Artesian			Domestic; irrigation; stock.	.....
1156	Thos. Armstrong	do	G-4	?1880	Bored, 4-inch	40	40	?180	38	....	do			do	.....
1157	do	do	F-4	.....	do	45	45	?90	30	67	do			Stock	.....
1158	J. G. Lynch	do	G-4	1884	.....	40	40	195	37	69	do			Irrigation	.....
1159	G. W. Ford	do	G-4	1884	Bored, 4-inch	40	40	210	39	....	do			do	11
1160	L. Wakeham	do	G-5	.....	Hydraulic, 4-inch	40	40	320	32	72	do			Domestic; irrigation.	11
1161	T. J. Mitchell	do	G-5	?1885	Dug, 3½ by 3½ foot.	40	36	8	32	62	Hand			Stock	.....
1163	J. E. Garner	do	G-4	.....	Bored, 4-inch	40	.....	30	40	....	do			Domestic	.....
1164	do	do	G-4	.....	do	40	.....	60	39	....	do			Stock	.....
1165	F. D. Leonard	do	G-4	.....	do	40	.....	.....	43	....	do			Domestic; stock	.....
1166	Wm. Gracer	do	F-4	1901	Hydraulic, 2-inch	42	42	325	29	....	Artesian	$225.00		do	Small.
1167	do	do	F-4	?1884	Bored, 7-inch	40	40	.....	35	....	do			Irrigation	9
1168	Mr. Stanley	do	E-4	.....	.....	40	40	.....	37	....	do			.....	.....
1169	L. A. Mann	do	E-4	1902	Bored, 3-inch	35	35	326	33	69	do			Domestic; irrigation; stock.	†11
1170	Sherman Babb	do	E-4	1900	Bored, 4-inch	35	35	326	29	....	do	300.00		Irrigation; stock	.....
1171	Wm. Gracer	do	E-4	1884	do	32	.....	?100	32	68	Hand			Domestic; stock	.....
1172	Edwin Snow	do	E-4	1886	Bored, 6-inch	30	30	300+	28	71	Artesian			Domestic; irrigation.	†60
1173	G. B. Streeter	do	F-4	.....	Bored, 4-inch	45	45	.....	40	....	do			Domestic; stock	.....
1174	A. T. Cole	do	F-4	1894	Hydraulic, 2-inch	40	40	?108	35	67	do			do	.....
1175	do	do	F-4	?1880	Bored, 4-inch	40	40	140	41	67	do			Irrigation	.....

1176	J. S. Brooks	do	F-5		do	40	40		39	68	do			Domestic; stock	
1177	Ben Forward	do	F-5		Bored, 7-inch	40	40		37	67	do			Domestic; irrigation; stock.	Small.
1178	J. T. Harris	do	F-5		Bored, 4-inch	47	47	108	30		do			Domestic; irrigation.	
1179	H. A. Bingham	do	F-5		Bored, 3-inch	50	50	200+	33		do			Domestic; irrigation; stock.	Small.
1180	do	do	F-5		Hydraulic, 2-inch	55	55		36	68	do			Domestic	
1181	J. C. Hopkins	do	F-5	?1886	Bored, 4-inch	50	50	?180	29	72	do			Domestic; irrigation; stock.	17
1182	F. D. Leonard	do	F-6	?1875	Bored, 7-inch	72	72	316	25	78	do			Irrigation	11
1183	do	do	F-5	1902	do	45	45	170	32	67	do			Domestic; stock	
1184	Fairview Colony	do	F-5	?1886	Bored, 4-inch	50	50	154	26	73	do			Domestic; irrigation.	5
1185	do	do	G-5	?1875	Bored, 3-inch	45		70			Not raised			Not used	
1186	J. Speed	do	G-5	1898	Hydraulic, 3-inch	45	45		33	71	Artesian			Domestic; irrigation; stock.	
1187	Fred Chatterton	do	G-5	1898	Bored, 4-inch	45	45	182	31	69	do	100.00		do	
1188	do	do	G-5	1886	do	45	37	200			Not raised			Not used	
1189	Fairview Colony	do	G-5	?1875	do	45	45	105			do			do	
1190	T. J. Mitchell	do	G-5	?1886	do	40	40	180			Artesian			Stock	
1191	do	do	G-5	1886	Bored, 7-inch	40	40	?180			do			do	
1192	M. A. Baker	do	G-5	?1894	Bored, 4-inch	45	43	?180	31	67	Not raised			Not used	
1194	Fairview Colony	do	G-5	?1880	Hydraulic, 3-inch	45	45	?175	33		Artesian			Irrigation; stock	
1195	J. L. Goodwin	do	G-5	1898	Bored, 3-inch	45	45	228	26	72	do			Domestic	
1196	O. B. Hallock	do	F-5	?1899	Hydraulic, 3-inch	45	45	160	33		do	80.00		Domestic; stock	
1197	do	do	G-5	1902	do	45	45	220	26	72	do	110.00		Irrigation	Small.
1198	A. A. Holden	do	F-5		Bored, 4-inch	45	45		31	72	do			Domestic; irrigation; stock.	5
1200	Mr. Lurvey	do	G-5	1901	Hydraulic, 2-inch	45	45	333	21	70	do			Domestic; irrigation.	Small.
1201	Mr. Einhoff	do	D-8	1902	Bored, 7-inch	98	68	675			Not raised			Not used	
1202	C. T. Platt	do	F-5	1904	Bored, 12-inch	48	48	294	36	71	Artesian			Irrigation	
1203	G. Leibermann	do	G-5	1902	Hydraulic, 2-inch	45	45	360	33	69	do	120.00		Domestic; irrigation; stock.	
1204	Mr. Stevens	do	G-5		Bored, 4-inch	45	45	178	27	73	do			do	4
1205	M. A. Baker	do	G-5		do	48	48	120	32	73	do			do	1
1206	Irvine Rancho Co	do	G-6		Dug, 3 by 3 foot	48			81		Hand			Domestic; stock	

Wells in the Santa Ana quadrangle—Continued.

Number of well.	Owner.	Location.	Map location.	Year completed.	Class of well.	Elevation of surface.	Elevation of water.	Depth of well.	Solids per 100,000.	Temperature of water.	Method of lift.	Cost of well.	Cost of machinery.	Use of water.	Quantity of water.
						Feet.	*Feet.*	*Feet.*		°*F.*					*Miner's inches.*
1207	G. Leibermann	Santa Ana	G-5	1886	Bored, 3-inch	45	45	?180	33		Artesian			Irrigation; stock.	
1208	C. M. McClintock	do	F-5	?1870	Bored, 7-inch	40	40		38	67	do			Domestic; irrigation; stock.	
1209	do	do	F-5	?1880	Bored, 4-inch	40	40	125			do			Stock	
1210	J. H. Meyer	do	E-6	?1886	Bored, 7-inch	72	72	360	33		do			Domestic; stock	
1211	H. D. Meyer	do	D-6	1897	Dug, 4 by 4 foot	25	20	14	96		Wind			Domestic; irrigation; stock.	
1212	W. L. Adams	do	D-6	1904	Bored, 7-inch	25	19	528	96	72	Not raised			Not used	
1213	do	do	D-6	1879		25	19	400	98		Wind				
1214	Mr. Powell	Las Bolsas	D-5		Hydraulic, 2-inch	25	25	?100	31	66	Artesian			Stock	
1215	W. S. Brunton	do	C-5	?1899	Hydraulic, 1½-inch.	25	25	90	31	66	do			Domestic; stock	Small.
1218	Wm. Lamb	do	C-5	1895	Hydraulic, 2-inch	33	33	118	29	65	do			Irrigation; stock.	
1219	do	do	C-5		do	33	33	98	31	66	do			Stock	
1220	do	do	C-5		do	32	32	108	28	66	do			do	
1221	do	do	C-5		do	33	33	108	30	64	do			do	
1222	A. T. Swift	do	B-5	1904	Bored, 7-inch	35	35	130	27	65	do	$160.00		Domestic; irrigation; stock.	19
1223	do	do	B-5	1904	do	36	36	134	29	65	do	160.00		Irrigation	19
1224	do	do	B-5	?1897	Hydraulic, 2-inch	35	35	?60	27	66	do			Stock	
1225	I. M. Von Schriltz	do	E-4		Bored, 4-inch	32	32	65	36	66	do			do	
1226	do	do	D-4	1904	Bored, 6-inch	32	32	112	33	64	do			Irrigation; stock.	6
1227	Wm. Lamb	do	B-5	1890	Bored, 4-inch	34	34	108	29	66	do			Stock	
1228	do	do	B-5		Bored, 3-inch	34	34		30		do			Domestic	

1229	.....do.....	.....do.....	B–5	.....	Bored, 4-inch	34	34	108	29	66	.....do.....	.....	.....	Irrigation.....	21
1231	.....do.....	.....do.....	B–5	1904	Bored, 3-inch	33	33	88	30	....	.....do.....	.....	.....	.....do.....	19
1232	.....do.....	.....do.....	B–5	?1900	Bored, 2-inch	32	32	89	27	65	.....do.....	.....	.....	Domestic; stock	.....
1233	.....do.....	.....do.....	B–6	?1899	.....do.....	30	30	108	....	....	.....do.....	.....	.....	Not used.....	.....
1234	.....do.....	.....do.....	B–6	.....	Bored, 3-inch	27	27	128	....	....	.....do.....	.....	.....	Stock.....	.....
1235	.....do.....	.....do.....	C–6	.....	Hydraulic, 2-inch	27	27	87	27	....	.....do.....	.....	.....	.....do.....	.....
1236	.....do.....	.....do.....	C–5	1899	.....do.....	32	32	80	....	....	.....do.....	.....	.....	Not used.....	.....
1237	.....do.....	.....do.....	C–5	.....	.....do.....	31	31	80	26	67	.....do.....	.....	.....	Irrigation.....	.....
1238	.....do.....	.....do.....	C–6	.....	.....do.....	34	34	?80	27	65	.....do.....	.....	.....	.....do.....	6
1239	.....do.....	.....do.....	C–6	.....	.....do.....	34	34	80	....	....	.....do.....	.....	.....	.....do.....	.....
1240	.....do.....	.....do.....	C–5	1885	.....do.....	28	28	114	30	65	.....do.....	.....	.....	Stock.....	.....
1241	.....do.....	.....do.....	C–5	1885	Bored, 2-inch	27	27	.....	27	....	.....do.....	.....	.....	Irrigation; stock	8
1242	H. S. Worthy.....	.....do.....	B–5	1899	Bored, 4-inch, inside of 7 inch.	36	36	.....	29	64	.....do.....	.....	.....	Domestic; irrigation.	.....
1243	A. L. Whitesides.....	.....do.....	B–5	1904	Bored, 7-inch	40	40	123	28	63	.....do.....	127.00	.....	.....do.....	12
1244	C. E. and E. Griset ...	.....do.....	A–5	1903	Bored, 6-inch	60	60	104	29	66	Gas.....	75.00	$1,000.00	Irrigation.....	†20
1245	Mrs. Belle Martin	.....do.....	A–4	.....	.....	60	....	.....	29	....	Wind.....	.....	.....	Domestic.....	.....
1246	T. A. Wells.....	.....do.....	B–4	1904	Bored, 7-inch	60	60	174	31	65	Gas, artesian..	.....	375.00	Domestic; irrigation; stock.	†23
1247	W. E. Wells.....	.....do.....	B–4	1901	Hydraulic, 2-inch	60	60	.....	27	65	Artesian.....	.....	.....	.....do.....	.....
1248	J. B. Raine & Son	.....do.....	A–4	1901	Bored, 7-inch	75	42	83	30	....	Gas.....	.....	.....	Manufacturing ..	†40
1249	La Bolsa Tile Co.....	.....do.....	A–4	1903	Bored, 6-inch	75	42	86	29	....	Steam.....	86.00	.....	.....do.....	.....
1250	Huntington Beach Co.	.....do.....	A–5	1900	Bored, 10-inch	70	66	400	....	....	Gas.....	500.00	100.00	Irrigation.....	†35
1251	.....do.....	.....do.....	A–5	1897	Bored, 8-inch	70	.....	870	43	74	.....do.....	.....	.....	.....do.....	†15
1252	.....do.....	.....do.....	A–6	1900	Bored, 10-inch	70	68	400	....	....	.....do.....	500.00	.....	.....do.....	†35
1253	.....do.....	.....do.....	A–6	1898	Bored, 8-inch	70	.....	135	....	....	.....do.....	.....	.....	.....do.....	†30
1254	.....do.....	.....do.....	A–5, 6	1898	Bored, 6-inch	70	.....	75	....	....	Compressed air	.....	.....	.....do.....	†40
1255	.....do.....	.....do.....	A–6	1897	.....do.....	70	.....	?250	24	68	Wind.....	250.00	150.00	Domestic.....	.....
1256	A. W. Brown.....	.....do.....	B–6	1898	Bored, 2-inch	24	24	95	25	67	Artesian.....	.....	.....	Stock.....	.....
1257	.....do.....	.....do.....	B–6	1901	Bored, 7-inch	25	25	?130	29	....	.....do.....	.....	.....	Irrigation.....	.....
1258	L. T. Wells.....	.....do.....	B–5	1903	Bored, 4-inch	32	32	?80	29	66	.....do.....	.....	.....	Domestic; stock.	4
1259	.....do.....	.....do.....	B–5	1901	Hydraulic, 2-inch	32	32	.....	29	64	.....do.....	.....	.....	Irrigation.....	.....
1260	.....do.....	.....do.....	B–6	1901	Bored, 3-inch	30	30	102	29	64	.....do.....	.....	.....	.....do.....	5
1262	A. L. Whitesides	.....do.....	B–5	1904	Hydraulic, 2-inch	35	35	?114	....	....	Artesian.....	65.00	.....	.....do.....	†4
1264	.....do.....	.....do.....	B–5	.....	Bored, 3-inch	35	35	101	28	....	.....do.....	.....	.....	.....do.....	11
1265	J. L. Worthy.....	.....do.....	B–5	.....	Bored, 4-inch	32	32	100+	28	65	.....do.....	.....	.....	.....do.....	.....

Wells in the Santa Ana quadrangle—Continued.

Number of well.	Owner.	Location.	Map location.	Year completed.	Class of well.	Elevation of surface.	Elevation of water.	Depth of well.	Solids per 100,000.	Temperature of water.	Method of lift.	Cost of well.	Cost of machinery.	Use of water.	Quantity of water.
						Feet.	*Feet.*	*Feet.*		°*F.*					*Miner's inches.*
1268	J. B. Bushard	Las Bolsas	B-6	1901	Bored, 3-inch	24	24	80	27	66	Artesian			Domestic; irrigation.	†16
1269	do	do	B-6	1899	Hydraulic, 2-inch	25	25	80	27	66	do			Irrigation	4
1270	do	do	B-6	1899	do	21	21	87	28	64	do			do	†9
1272	do	do	B-6	1900	Bored, 3-inch	24	24	80	27	64	do			Stock	
1273	do	do	B-6	1898	Bored, 7-inch	22	22	90	27	65	do			Irrigation	2
1274	J. C. Farnsworth	do	B-6	1898	do	20	20	100	27	65	do			Not used	
1276	Caspar Borchard	do	C-6	1898	Hydraulic, 2-inch	23	23	85	28		do			Irrigation	3
1277	do	do	C-6	1904	Bored, 3-inch	20	20	85	27	67	do			do	9
1278	do	do	C-6	1904	do	20	20	85	26	67	do	$65.00		do	9
1279	do	do	C-6	1900	Hydraulic, 2-inch	19	19		29	68	do			do	4
1280	do	do	C-6	1904	Bored, 3-inch	23	23	85	27	66	do			Domestic; irrigation; stock.	†12
1281	John Borchard	do	A-7		Bored, 4-inch	35	1	?34	25		Wind			Domestic; stock	
1282	Lydia A. Timmons	do	A-7		Bored, 7-inch	50	7	81	25		do	35.00		do	
1283	J. M. Hearn	do	A-7	1902	do	50		117	26		do	50.00		do	
1284	David Brush	do	A-6	1901	do	35	7	520	28		do	1,000.00	$200.00	do	
1285	N. Cary	do	A-6	1902	Hydraulic, 2-inch	35		?70	25		do	30.00		do	
1286	O. Utterssport	do	A-6		Bored, 7-inch	38	15	133	25		do			do	
1287	A. W. Brown	do	A-6	1903	do	50		34	66		do			do	
1288	W. T. Newland	do	A-6	1902	Bored, 4-inch	50	27	79	26		do	50.00	65.00	do	
1289	O. Utterssport	do	A-6	1901	Hydraulic, 2-inch	25	25	55	30		Artesian	50.00		Stock	
1289a	do	do	A-6	1901	Hydraulic, 3-inch	25	25	55	30		do			do	

1290	James Robinson	do	A-6	1901	Hydraulic, 4-inch	23	23	116	25		do	100.00		Domestic	Small.
1291	O. Utterssport	do	A-6		Bored, 2-inch	23	23	70	27		do	50.00			6
1292	W. T. Newlands	do	B-6	1900	Bored, 4-inch	23	23	108	27		do	27.00		Not used	†33
1293	do	do	B-6	1900	Bored, 3-inch	23	23	106	24		do			Irrigation	18
1294	Caspar Borchard	do	C-5	1898	Hydraulic, 2-inch	26	26	85	25	72	do			Domestic; irrigation; stock.	4
1295	do	do	C-5	1904	Bored, 3-inch	25	25	85		70	do			Irrigation	12
1296	do	do	C-5	1904	do	25	25	85	25	70	do			do	12
1297	do	do	C-5	1904	Hydraulic, 3-inch	25	25		25		do			do	18
1298	do	do	C-5	1904	do	24	24	85	25		do			do	28
1299	do	do	C-5, 6	1900	Hydraulic, 2-inch	24	24				do			do	4
1300	do	do	C-5	1900	do	24	24	85	26		do			do	6
1301	W. T. Newlands	do	B-6	1900	do	24	24	101	25		do			do	10
1302	Caspar Borchard	do	B, C-6	1900	do	20	20	85	25		do			Domestic	
1303	J. C. Farnsworth	do	B-6	1904	Hydraulic, 3-inch	20	20	92	27		do			Domestic; irrigation; stock.	11
1304	J. C. Townsend	do	B-7		Bored, 4-inch	18	18	93	27		do			Irrigation	†28
1305	J. M. Broad	do	B-7		do	18	18	137	27		do			do	1
1306	do	do	B-7			18	18		26		do			do	
1307	Mr. Woods	do	C-7		Hydraulic, 2-inch	14	14	81	25	66	do			Not used	
1308	N. J. Sanders	do	C-7		Bored, 4-inch	13	13		26		do				
1309	J. W. Sowles	do	C-6		Hydraulic, 2-inch	17	17	86	124		do				
1310	do	do	C-6	1899		18	18	?75	25		do			Domestic; stock	
1312	do	do	C-6		Hydraulic, 2-inch	19	19	91	29		do			Irrigation	3
1314	Henry Hockmeyer	do	C-7	1899	Hydraulic, 3-inch	10	10	87	26		do			do	5
1315	Mr. Meyers	do	C-7		Hydraulic, 2-inch	23	23	51	107	63	Siphon			Domestic; stock	
1316	Banning Bros	do	C-8		Dug, 2 by 3 foot	24	22	5	117		Wind			do	
1317	Mr. Snow	Santa Ana	D-5		Bored, 6-inch	55	55		22		Artesian			Domestic; irrigation; stock.	
1318	Henry Hockmeyer	Las Bolsas	B-7	1901	Hydraulic, 2-inch	12	12	111	25		do	42.00		do	†4
1319	do	do	B-7	1899	Bored, 7-inch	13	13	126	26		do	126.00		Stock	19
1320	do	do	B-7		Hydraulic, 2-inch	12	12	98	25		do	47.00		Irrigation	4
1321	do	do	B-7	1901	do	9	9	?106	29		do	38.00		do	
1323	Pacific Gun Club	do	C-8		Hydraulic, 3-inch	8	8	83	93	67	do			Stock	
1324	do	do	C-8		Hydraulic, 2-inch	5	5	98	155		do			do	
1326	do	do	C-8	1902	Bored, 4-inch	2	17—	100	66					Artificial pond	

Wells in the Santa Ana quadrangle—Continued.

Number of well.	Owner.	Location.	Map location.	Year completed.	Class of well.	Elevation of surface.	Elevation of water.	Depth of well.	Solids per 100,000.	Temperature of water.	Method of lift.	Cost of well.	Cost of machinery.	Use of water.	Quantity of water.
						Feet.	*Feet.*	*Feet.*		°*F.*					*Miner's inches.*
1327	Mr. Meyers	Las Bolsas	C-7	.....	Hydraulic, 2-inch	9	9	?90	29	....	Artesian	$32.00	.....	Domestic; stock	.....
1328	John Borchard	.....do	B-7	?1899	.....do	15	15	100+	28	64	.....do	.....	.....	.....do	.....
1329	.....do	.....do	B-7	?1899	.....do	13	13	100+	28	63	.....do	.....	.....	Domestic	.....
1330	W. T. Newlands	.....do	B-7	.....	Bored, 4-inch	17	17	?130	30	66	.....do	.....	.....	Irrigation	.....
1331	J. S. Rice	Santa Ana	D-5	.....	.....do	40	40	192	26	71	.....do	.....	.....	Domestic; irrigation; stock.	.....
1332	.....do	.....do	D-5	.....	Bored, 7-inch	50	50	.....	23	72	.....do	.....	.....	Irrigation; stock	.....
1333	R. J. Webster	Las Bolsas	D-5	1904	Bored, 4-inch	27	27	75	35	65	.....do	.....	.....	.....do	4
1335	J. E. Snow	Santa Ana	D-5	.....	Hydraulic, 3-inch	50	50	182	23	72	.....do	.....	.....	.....do	4
1336	.....do	.....do	D-5	.....	Bored, 3-inch, inside of 6-inch.	50	50	218	24	70	.....do	.....	.....	Stock; irrigation.	3
1337	.....do	.....do	D-5	1903	Bored, 4-inch	50	50	?230	22	....	.....do	.....	.....	Domestic; stock	4
1338	.....do	.....do	E-5	.....	Hydraulic, 3-inch	50	50	157	28	....	.....do	.....	.....	Irrigation; stock	2
1339	W. S. Brunton	.....do	E-5	?1899	Bored, 3-inch, inside of 7-inch.	50	50	?200	26	73	.....do	.....	.....	Domestic	†2
1340	Clark Bros. & Babb	.....do	E-5	1886	Bored, 4-inch	50	50	?250	30	....	Wind	.....	.....	Domestic; stock	.....
1341	George H. Clark	.....do	E-5	?1901	Hydraulic, 3-inch	47	47	180	29	....	Artesian	.....	.....	.....do	Small.
1342	.....do	.....do	E-5	1904	Bored, 12-inch	42	42	375+	....	....	.....do	.....	.....	Irrigation	.....
1343	.....do	.....do	E-5	1886	Bored, 7-inch	51	33	265	30	....	Wind	.....	.....	Stock	.....
1344	L. Montgomery	.....do	E-5	1886	Bored, 4-inch	52	52	280	25	....	Artesian	.....	.....	Domestic; irrigation; stock.	†45
1345	Geo. W. Grifiths	.....do	E-5	1892	Bored, 6-inch	52	.....	320	31	....	Wind	.....	.....	.....do	.....
1346	Clark Bros. & Jefferson.	.....do	E-6	.....	Bored, 4-inch, inside of 7-inch.	74	.....	375+	....	....	Not raised	300.00	.....	Not used	.....

1347	Chas. Stanley	do	E–5, 6		Bored, 7-inch	60	58		27		Wind			Domestic; stock		
1348	Irvine Rancho Co	do	F–8		do	85			156		do			do		
1349	Newport Beach Co	do	D–10	1901	Dug, 12 by 12 foot	2	4–	8	105		Gas	50.00	$450.00	Sewers		
1350	do	do	D–10		Dug, 4 by 6 foot	2	1–	4			Wind			Domestic		
1351	"Boy" Club	do	F–10		Dug, 3 by 4 foot	6	1	7			do			do		
1352	do	do	F–10		Dug, 4 by 4 foot	2	2–	6		68	Hand			Stock		
1354	Newport Beach Co	do	D–10		Bored, 4-inch	2	2	500+			Hand valve			Not used		
1355	do	do	D–10		Dug, 3-foot diameter.	2	0	4		67	Wind			Domestic		
1356	M. A. Baker	do	G–5	1904	Hydraulic, 3-inch	48	48		29	72	Artesian			do		8
1358	L. M. Brooks	San Joaquin	M–15	1904	Dug, 4 by 4 foot	75	43	33		62	Hand			Stock		
1359	F. C. Frefren	do	M–15	?1898	Bored, 7-inch	75	10–	97			Wind			do		
1360	L. M. Brooks	do	L–15	1904	Dug, 4 by 4 foot	35	29	12			Hand			do		
1361	J. D. Ponder	do	M–15	1903	do	35	27	12		66	Wind			do		
1362	G. A. Burton	do	M–15		Dug, 3 by 3 foot	55	45	16		65	Hand			do		
1363	Joe Yoch	do	M–15		Bored, 7-inch	50	39	109			Wind			do		
1364	do	do	M–15		Dug, 4 by 4 foot	35	24	18			do			do		
1365	O. Warling	do	M–14		do	50	44	12			do			do		
1366	Mr. Clark	do	M–14		Dug, 8 by 8 foot	75	66	14			do			do		
1369	Mrs. Brown	do	N–12		Dug, 3½ by 3½ foot	225	213	15	174		Hand			Domestic; stock		
1370	Fred Farmer	do	N–12		Dug, 4 by 4 foot	232	231	8	187		Gas			Irrigation		
1371	do	do	N–12		Bored, 7-inch	235	231	22	112	67	and			Domestic		
1372	Chas. Rauth	do	N–11		Dug, 4 by 4 foot	350	347	10	52		Wind			Domestic; stock		

INDEX.

O

PUBLICATIONS OF UNITED STATES GEOLOGICAL SURVEY.

[Water-Supply Paper No. 137.]

The serial publications of the United States Geological Survey consist of (1) Annual Reports, (2) Monographs, (3) Professional Papers, (4) Bulletins, (5) Mineral Resources, (6) Water-Supply and Irrigation Papers, (7) Topographic Atlas of United States—folios and separate sheets thereof, (8) Geologic Atlas of the United States—folios thereof. The classes numbered 2, 7, and 8 are sold at cost of publication; the others are distributed free. A circular giving complete lists may be had on application.

Most of the above publications may be obtained or consulted in the following ways:

1. A limited number are delivered to the Director of the Survey, from whom they may be obtained, free of charge (except classes 2, 7, and 8), on application.

2. Every member of Congress is allotted a certain number, from whom they may be obtained, free of charge, on application.

3. Other copies are deposited with the Superintendent of Documents, Washington, D. C., from whom they may be had at prices slightly above cost.

4. Copies of all Government publications are furnished to the principal public libraries in the large cities throughout the United States, where they may be consulted by those interested.

The Professional Papers, Bulletins, and Water-Supply Papers treat of a variety of subjects, and the total number issued is large. They have therefore been classified into the following series: A, Economic geology; B, Descriptive geology; C, Systematic geology and paleontology; D, Petrography and mineralogy; E, Chemistry and physics; F, Geography; G, Miscellaneous; H, Forestry; I, Irrigation; J, Water storage; K, Pumping water; L, Quality of water; M, General hydrographic investigations; N, Water power; O, Underground waters; P, Hydrographic progress reports. This paper is the fortieth in Series O, the complete list of which follows (PP=Professional Paper; B=Bulletin; WS=Water-Supply Paper):

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WS 123. Geology and underground water conditions of the Jornada del Muerto, New Mexico, by C. R. Keyes. 1905. — pp., 9 pls.
WS 136. Underground waters of the Salt River Valley, by W. T. Lee. 1905. — pp., 24 pls.
B 264. Record of deep-well drilling for 1904, by M. L. Fuller, E. F. Lines, and A. C. Veatch. 1905. 106 pp.
PP 44. Underground water resources of Long Island, New York, by A. C. Veatch and others. 1906.
WS 137 Development of underground waters in the eastern coastal plain region of southern California, by W. C. Mendenhall. 1905. 140 pp., 7 pls.

The following papers also relate to this subject: Underground waters of Arkansas Valley in eastern Colorado, by G. K. Gilbert, in Seventeenth Annual, Pt. II; Preliminary report on artesian waters of a portion of the Dakotas, by N. H. Darton, in Seventeenth Annual, Pt. II; Water resources of Illinois, by Frank Leverett, in Seventeenth Annual, Pt. II; Water resources of Indiana and Ohio, by Frank Leverett, in Eighteenth Annual, Pt. IV; New developments in well boring and irrigation in eastern South Dakota, by N. H. Darton, in Eighteenth Annual, Pt. IV; Rock waters of Ohio, by Edward Orton, in Nineteenth Annual, Pt. IV; Artesian well prospects in the Atlantic coastal plain region, by N. H. Darton, Bulletin No. 138.

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