



Frontispiece—DIAGRAMMATIC SECTION OF THE KOOLAU RANGE AT HONOLULU

Showing the geologic structure of the Honolulu artesian system and the zone of fresh water, separated by a zone of mixture from the underlying salt water. The diagram illustrates why wells too far seaward yield salt water only and do not flow, as for example, No. 18 near Diamond Head. It also shows that when increased draft or lowered by weaning, causes the zone of mixture to rise, wells near the inland edge of the coastal plain, such as No. 98 at Queen's Hospital, are less danger of going salty than those farther seaward, such as No. 93 at pier 3. A Mountain well (labeled "slart") has a great advantage over artesian wells because it taps the water-bearing lavas above sea level rather than several hundred feet below sea level. The sediments, with locally interstratified volcanics, are the caprock of the artesian system. The artesian water is derived from rainfall on the lava beds and from leakage through the dikes bounding the dike complex. The flowing well on the right derives its supply from the dike complex. Such wells are not in danger of going salty because the complex is saturated with fresh water to great depths, but the yield of such wells is small. Wells 408 and 409 near Waimanalo are supplied from such a structure.

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 MAX H. CARSON, *Chief Hydrographer*

Bulletin 4

RECORDS OF THE DRILLED WELLS ON
 THE ISLAND OF OAHU, HAWAII

By HAROLD T. STEARNS
Geologist in Charge

Hawaiian Ground-Water Investigations
 U. S. Geological Survey

and

KNUTE N. VAKSVIK
Artesian Well Engineer, U. S. Geological Survey

Prepared in cooperation with the Geological Survey,
 United States Department of Interior



Printed in the
 Territory of Hawaii, United States of America
 AUGUST 1938

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BY HAROLD T. STEARNS AND KNUTE N. VAKSVIK

INTRODUCTION

General Statement

The description, location, log, and meter tests of all the drilled wells on Oahu are given herein as of March 1, 1938. Except for the discharges of plantation wells, which are published on pages 275 to 322 of Bulletin 1*, head, chloride, and discharge records are listed only to the close of 1934, the date when this report was compiled. All head measurements and salt determinations made by the U. S. Geological Survey since 1934 will be found in the annual U. S. Geological Survey Water-Supply Papers entitled "Water levels and artesian pressure in observation wells in the United States." Records of wells in the district of Honolulu are currently printed in the biennial reports of the Board of Water Supply, Honolulu. Most of the records of the plantation wells have been furnished by the owners.

Plate 2† shows the location of the wells, whether they are sealed, and whether the log is known. The static level or head of a well is the height above mean sea level to which the water will rise when all flow from the well is shut off. In the nonartesian wells the static level is the level of the water table of the basal zone of saturation in the basalts of the Koolau and Waianae volcanic series. Many of the wells are sub-artesian; that is, the water stands in the well above the level at which it was first encountered but does not overflow.

Logs

All the available logs of wells on Oahu are published herein. These logs are very valuable because they record the character of the cap rock along much of the coast of Oahu and reveal many scientific data regarding the submergence of the island, the late lava flows, and the form and extent of submarine valleys. Many of the logs are graphically shown in plate 20 of Bulletin 1 and some of the fundamental conclusions in Bulletin 1 were drawn from a study of these logs. Few wells are now being drilled; hence the preservation of these logs is highly essential. For each well, the original log as reported by the driller is given if available, also the driller's name if known. The printing of the driller's log enables future investigators to give their own interpretation to the record. Considerable latitude exists in the interpretation because there is a great deal of difference in the terminology used by the various drillers.

The abbreviations in parentheses following the driller's description of the material encountered are the geologic symbols of the formations penetrated as interpreted by the senior author. The detailed explanations of these symbols are given in the following table and the distribution of the formations is shown in plate 2 of Bulletin 2. A few of the formations listed in the table have not yet been encountered in wells.

*Stearns, H. T., and Vaksvik, K. N., *Geology and ground-water resources of the island of Oahu, Hawaii*: Div. of Hydrography, Terr. of Hawaii, Bull. 1, 1935.

†Stearns, H. T., *Geologic map of the island of Oahu, Hawaii*: Div. of Hydrography, Terr. of Hawaii, Bull. 2 (in press).

EXPLANATION OF THE GEOLOGIC SYMBOLS USED IN THE WELL LOGS AND A DESCRIPTION OF THE GENERAL CHARACTER AND WATER-BEARING PROPERTIES OF THE ROCKS OF OAHU

Major geologic unit	Rock assemblage	Thickness (feet)	Symbol in log	General character	Water-bearing characteristics
Recent sedimentary rocks.		10±	Rf	Brown to white marine mud containing shells, coral and other calcareous marine organisms dredged from the ocean floor and used to fill up salt marshes and other lowlands. Around Pearl Harbor the fills are mostly brown mud, in places containing numerous shells and very little coral.	The coral fills are very permeable and yield brackish water at shallow depths, but the brown muds are almost impermeable.
		20±	Rs	Unconsolidated marine calcareous sediments consisting chiefly of cream-colored and light-tan beach sand made up of grains of worn coral, corals, algae, and shells, with appreciable amounts of foraminifers and other calcareous marine organisms. In a few places, lava detritus occurs sparingly; in some places coral pebbles and shell fragments predominate; near tide cones grains of olivine are conspicuous.	Very permeable and usually contain brackish or sea water except where they form barriers to fresh-water lagoons. At such places they usually yield water sufficiently fresh for irrigating truck gardens. At the end of a few squares in the Koolau Range potable water can be found in them.
		10-90	Rd	Unconsolidated fine-grained cross-bedded cream-colored calcareous sand blown inward from the present beach and forming dunes.	Very permeable; usually containing brackish or sea water.
		20±	Ra	Unconsolidated noncalcareous deposits chiefly younger alluvium, a black to brown fluviatile deposit generally consisting of coarse detritus only slightly weathered and in many places subangular. In the valley bottoms near the sea it usually consists of black sticky mud called "taro-patch clay." Much of the younger alluvium is reworked older alluvium. Included also is mud composed of angular blocks, usually with brown interstitial soil, forming aprons on the steep slopes at the base of cliffs. In the mountain areas much of the younger alluvium resembles, include, and is in places inseparable from hillside deposits because of the terracial character of the streams and the precipitous slope of the valley walls. Extensive mantles of hill wash are included.	Except for the fine sediments, the deposits as a whole are permeable. Fairly clean gravel beds occur along the main streams. Because in most places the sediments are underlain by permeable rocks most of the water in them is in transit to lower levels, hence it is more important as an intake formation than as an aquifer. At the mouths of the valleys it contains a water table and yields potable to brackish water sufficient for irrigating truck gardens.
Recent or latest Pleistocene lavas and pyroclastic rocks of the Honolulu volcanic series.	Thin deposits of Tantalus and Sugar Loaf.	20-100	Qtb	The basalt consists of dense to flows of gray nephelitic-melilitic basalt erupted from Tantalus and Sugar Loaf craters generally weathered brown and covered with a few inches to a few feet of soil. Clinker blocks, usually with brown interstitial soil, forming aprons on the steep slopes at the base of cliffs. In the mountain areas much of the younger alluvium resembles, include, and is in places inseparable from hillside deposits because of the terracial character of the streams and the precipitous slope of the valley walls. Extensive mantles of hill wash are included.	Extremely permeable, water perched in it gives rise to several large high-level springs.
	Basalts and freefountain deposits of Tantalus and Sugar Loaf.	25±	Qtf	The freefountain deposits are friable, black bedded and in places cemented by secondary calcite. Near the vents they contain coarse magmatic ejecta, but elsewhere consist of glassy material a quarter of an inch in diameter or less, mostly fragments of rhyolite bombs and pumice drifted away from the vents by strong winds during the eruption, and deposited conformably on preexisting surfaces.	Extremely permeable; is important chiefly as an intake formation because in most places it lies above the water table. In Makiki Valley carries perched water.
	Black ash of Black Point.	6±	Qbf	Cross-bedded, fine, friable, black glassy volcanic ash, in some places drifted by the wind and in places containing thin rhyolitic layers.	Permeable but contains no water because of its small areal extent.
		2-50	Qkb	Thin vesicular black ash and pahoehoe flows from numerous vents, partly veneered with soil, and red in places owing to weathering.	Extremely permeable; occur only in a semi-arid area near the ocean where recharge is small and where they are easily permeated by sea water, hence yield brackish water only.
	Basalts and pyroclastic rocks of Koko fissure.	40±	Qkf	Friable red to brown coarse freefountain deposits consisting chiefly of cinders and spatter, forming spatter heaps and cinder cones around the vents from which the basalt issued.	Extremely permeable but too small in areal extent to form an important aquifer. In Kalama Valley the deposits will probably yield fresh water in small amounts.
Sedimentary rocks contemporaneous with the late Pleistocene and middle (?) Pleistocene lavas and pyroclastic rocks of the Honolulu volcanic series.		2 1200	Qkt	Grey to red-brown bedded deposits of lithic tuff composed of angular fragments of basalt and post-Koolau basalt, limestone, and other ejecta in a matrix of palagonite and glass, generally cemented by calcite or zeolites; forming cones near the vents but thin elsewhere, and capped by pteromagnesian opalites.	The tuff beds vary in permeability according to their coarseness and induration, but all occur in a semi-arid area near the seacoast, where recharge is slight and where they are easily accessible to sea water, hence they yield only brackish water in small amounts.
	Unconformity—	100±	Pis	Consolidated calcareous sediments consisting of reef limestone marls, and other consolidated marine sediments laid down by several different stands of the sea.	Permeable; yield brackish water in large quantities, which in some places is suitable for irrigation and stock use.
		125±	Pd	Consolidated calcareous dunes consisting of thin-bedded calc cross-bedded calcareous sand blown inward from ancient beaches chiefly during the recession of the sea from Kneea to Waipi'a stand.	Permeable; yield brackish or ocean water.
		900±	Pa	Consolidated and partly consolidated noncalcareous deposits consisting of older alluvium, ancient talus and landslide deposits, and marine noncalcareous sediments. In the valleys they are characterized by friable red to brown, poorly assorted lenticular conglomerate, but along the coast, where marine they are brown stratified siltsstones with scattered lenses of gravel. They form valley fills, fans, and deltas and are usually terraced.	Usually poorly permeable in the wet areas and yield little water in the Honolulu volcanics. In dry areas they are less rotted and yield potable water, in places sufficient for irrigation. They make up the bulk of the cap rock.

EXPLANATION OF THE GEOLOGIC SYMBOLS USED IN THE WELL LOGS AND A DESCRIPTION OF THE GENERAL CHARACTER AND WATER-BEARING PROPERTIES OF THE ROCKS OF OAHU—(Continued)

<p>Local Unconformity</p> <p>Punchbowl volcanics. Castle volcanics. Kamaoiki basalt. Black Point basalt. Makuae volcanics. Kaimuki volcanics. Diamond Head tuff. Training School volcanics. Maukaui volcanics. Aloani volcanics. Saka Lakes tuff. Kaka volcanics. Ulupou tuff. Moku Many volcanics. Makuae breccia. Pali volcanics. Kauaii volcanics. Kaneohe volcanics. Alamau tuff. Haku volcanics. Kaibi volcanics. Rocky Hill volcanics. Mokulua basalt. Mokapu basalt. Hawaiiian volcanics.</p>	<p>10-100</p> <p>Qhb</p> <p>100 ±</p> <p>Qhf</p> <p>200 ±</p> <p>Qhbr</p> <p>700 ±</p> <p>Qht</p>	<p>Basalt member consists of dense and vesicular, jointed as and pahoehoe flows of olivine, nephelitic, and nephelitic-melilitite basalt, generally flooring valleys in the Koolau Range and poured out of numerous vents. They are interstratified with and cap the consolidated calcareous and noncalcareous sediments. Soils developed on them range from yellow to red.</p> <p>Fire-fountain member consists of friable red to black bedded ciners, spatter, and bombs; coarse, thick, and forming cones near the vents but inter-granulated elsewhere.</p> <p>Consolidated breccia consisting of angular blocks of various types of basalt as much as 6 feet in diameter, rarely bedded, with little matrix, filling vents blasted in Koolau basalt.</p> <p>Tuff member consists of gray to red-brown bedded deposits of lithic tuff composed of angular fragments of Koolau basalt, limestone, and other objects in a matrix of palagonite and glass, generally cemented by calcite, forming cones near the vents but thin elsewhere, and caused by phreatomagmatic explosions.</p>	<p>The flows vary considerably in permeability. The flows that reach the sea level carry fresh water near the coast but at higher altitudes generally yield perched water where uncertain in quantity. They are usually in the lowest part of the flow only.</p> <p>Extremely permeable but too small an area: to form an important aquifer.</p> <p>Mostly impermeable on the surface but may carry water in unconsolidated streaks.</p> <p>The tuff beds vary in permeability according to their texture and induration, but all contain numerous joints through which water can percolate. They lie mostly above the water table and in dry areas, hence water will be found in them in only small amounts, and it may be brackish.</p>
<p>Great Erosional Unconformity</p> <p>Koolau volcanic series.</p>	<p>3000 ±</p> <p>Tab Tkt Tkd Tkb</p>	<p>Gray, blue, red, and black jointed, dense to very vesicular, holocrystalline and microcrystalline, aphanitic and porphyritic effusive basalt poured out of fissures and vents in rapid succession as short and long pahoehoe and as flows 10 to 80 feet thick. The conspicuous phenocrysts are olivine and feldspar or both. Individual beds have dips as steep as about 15° but all dip away from the center of the Koolau Range. The flows at the surface are deeply weathered to red and black soils. The beds consist of red and yellow lithic and vitric tuff from a few inches to 10 feet thick intercalated with Tkb (Tkt); dike complex consisting of Tkd injected with numerous nearly vertical dikes a few inches to 12 feet thick, generally microcrystalline, a few with olivine and feldspar phenocrysts, some platy and vesicular. The dikes similar to those in Tkd but not so close together and mostly intruded near the end of Koolau activity (Tkb); and mottled firmly cemented breccia consisting of fragments of basalt cemented by calcite, quartz, and zeolites (Tkb).</p>	<p>The basalt is extremely permeable and yields large quantities of fresh water near sea level and at high levels in dry areas near the coast, where it yields slightly brackish water in only small quantities. Small bodies of perched water occur on the tuff beds; large quantities of high-level water are confined by the dike complex in most places except in narrow ridges with low recharge or near the center of the dike complex, where only almost impervious intrusive rocks exist. The breccia is virtually impermeable, and wells drilled into it will be failures.</p>
<p>Koolau volcanic series.</p>	<p>500 ±</p> <p>Tlab Tkd Tkb</p>	<p>Angular basalt, consisting of brown, gray, greenish-gray, and black jointed dense to very vesicular massive basalt flows dipping southward. The vesicles and crevices are filled with calcite, quartz, and zeolites, indicating that the lavas have been subjected to hydrothermal alteration. The clinker phases of the as flows are finely cemented breccia. The dikes are single and multiple, usually vertical, a few inches to 6 feet wide, usually microcrystalline, r-few with olivine phenocrysts, chiefly cross-jointed, some platy and vesicular. The dikes are similar to the angular basalt and differ from those through which the basalt issued. The amount of extrusive basalt present is negligible and the joint cracks in the dikes are nearly all filled with secondary minerals (Tkd); and dikes similar to those in Tkd but not so close together (Tkb). The entire Koolau series appears to be part of the caldera complex of the Koolau Volcano.</p>	<p>The basalt is a poor water bearer, because so many of its crevices are filled with secondary minerals; hence wells ending in it will yield water in only small quantities, usually vertical, and about the water may be brackish. It lies mostly in a dry belt, where recharge is small. The dike complex contains little high-level water and is nearly impermeable; hence wells drilled into it yield little or no water.</p>
<p>Erosional Unconformity</p> <p>Waianae volcanic series.</p>	<p>500 ±</p> <p>Twb Twd Twp Twb</p>	<p>Basalt consisting of black to gray lava flows ranging in thickness from 1 to 400 feet, poured out from fissures and cinder cones. The flows range in composition from hornblende-biotite trachytes to nephelitic-melilitite basalt. Flows containing phenocrysts of olivine with or without feldspar phenocrysts predominate. Thin layers of lithic and vitric tuffs occur sparingly. The basalt consists of three groups, which are in most places separated by either soil or lacunas. The upper basalt member consists of light gray, relatively short massive as flows, many of which issued from large cinder cones. The middle basalt member has almost equal amounts of as and pahoehoe, and its lavas are thinner and darker than the upper lavas. The lower basalt member consists mostly of basic pahoehoe in thin flows except near the bottom, where thick flows occur. It is separated in some places from the middle lavas by talus breccias and an angular unconformity, but in other places it merges into the middle basalt. The lower basalt is separated from the upper where the two are in juxtaposition by a soil layer several inches to 2 feet thick and in one place, by an erosional unconformity (Twb); dike complex consisting of Twd injected with numerous dikes a few inches to 15 feet wide and a few sills (Twd); dikes and other intrusives similar to those in Twd but not so close together (Twb); fire-fountain deposits consisting of ciners, bombs, and pumice forming cones and intercalated with gray talus breccia consisting of angular blocks derived from the lower basalt tightly cemented together (Twb).</p>	<p>Water occurs in the basalt member near sea level and at high levels in many places in the dike complex or in the soil or vitric tuff deposits.</p>

Methods used to obtain head readings

The readings of head were mostly made with a mercury U-tube, shown in plate 32B, Bulletin 1. An error of 0.1 foot in head may result from the personal equation in reading the height of the mercury column. A similar error may result from a loss of head by leaking valves and connections at the time of the reading. A much greater error may occur from leaks in the well casing or from concealed and unknown outlets below the measuring point. These outlets, like the leaky casing, always cause the static level to be below normal. An error of a few hundredths of a foot may also exist in the level lines, and for some wells for which the altitude of the measuring point has been furnished by private companies the error may be even more. Their error results usually from the use of a slightly different datum from that of the U. S. Coast and Geodetic Survey. In comparing the head of two wells in the same artesian area it should also be noted that nearby pumping or the chloride content of the water in the well may make one lower than the other. An increase in chloride raises the specific gravity of the water column in the well, thereby causing the water to stand lower in it than in an adjacent fresher well. It will also be noted that the fluctuations in head are much greater in artesian wells than in nonartesian wells. As there were constantly changing conditions of draft from the aquifers and a constantly changing water level caused by barometric and tidal pressure, the water level in the wells was virtually never static, but as a rule, the change was so slight during any one day as to make it unnecessary to publish the hour of measurement.

Explanation of the chloride records

The chloride (Cl) content of the water in the chloride records is expressed in parts per million. The common custom in the Hawaiian Islands is to express chloride in grains of salt (NaCl) per United States gallon, because water is measured in gallons. But as many waters contain other chlorides besides sodium chloride or common salt, the use of the term "salt" rather than "chloride" is incorrect. Furthermore, the use of parts per million is practically universal in the United States and is simpler to use in a quantitative way. Parts per million of chloride may be converted into grains of salt per United States gallon by dividing by 10.39. Not all the available determinations of head or chloride have been compiled. Some of the plantations keep daily records, which are too voluminous to publish, so that for some wells the monthly average is given.

Meter tests

If the static level in any well falls below the normal level for the artesian area in which the well is located, a leak in the casing is suspected. In order to obtain definite proof of a leak and its position, it is necessary to lower in the well a meter* which will indicate the flow or movement of water. First the flow of the well is stopped, if the well is artesian, and then the meter is lowered in the well. If the casing is not leaking no movement of the water will be recorded. If lowered to a point below a leak, movement of the water will be recorded as the water flows upward to the leak. If the meter has been rated, a fair estimate of the discharge through the leak can be made.

The results of these meter tests proved to be very valuable and many wells were either sealed or resealed on the basis of them. A description of the methods used in sealing and repairing wells appears on pages 328-340 of Bulletin 1.

*For a description of the meter, see Fiedler, A. G., The An deep-well current meter: U. S. Geol. Survey Water-Supply Paper 596, pp. 24-25, 1928.

Acknowledgments

The records herein were collected by many individuals and corporations and were on file in the office of the U. S. Geological Survey. The demand has been so great for these records that it was decided to publish them, thereby making them readily available. Further, manuscript records are often misplaced or inadvertently destroyed, hence they are permanently preserved only by printing.

The various plantations have generously furnished most of the records of the wells owned by them. Most of the observations and discharge records since 1929 on wells within the district of Honolulu have been made available by the Board of Water Supply. The pioneer work of locating the wells and making systematic observations until 1917 was carried out by T. F. Sedgwick, an employee of the territorial public works department. After 1917 the records were collected by the Division of Hydrography of the Office of the Commissioner of Public Lands. Because of lack of funds the collection of well data was much reduced between 1919 and 1921 and from 1921 until 1923 the work was dropped. In 1923 funds were again made available by the Legislature and John McCombs was assigned to the work. In 1920 Percus P. Livingston succeeded Mr. McCombs and in 1927 Kaitie N. Vaksvik succeeded Mr. Livingston. In 1928, the senior author arrived to make geologic and ground-water investigations of the Territory of Hawaii. One of the chief purposes of his work was to assemble and interpret these records. The interpretation of these records will be found in Bulletin 1. The work was carried on under the direction of O. E. Meinzer, geologist in charge of ground-water investigations in the U. S. Geological Survey.

Professor Harold S. Palmer, of the University of Hawaii, summarized in 1937 some of the data of the wells in Honolulu* and for a number of years made numerous chloride determinations gratis for the U. S. Geological Survey.

By far the majority of the wells have been drilled by James, John, and Lincoln McCandless and they have generously furnished logs of these wells. The recent book by James McCandless† is a valuable contribution to the history of well drilling on Oahu. Mr. A. B. Hobart has also cooperated in furnishing much data regarding the wells he drilled and has at times made special devices for obtaining samples. Kahaiku Plantation and Mr. W. H. Mullin have generously furnished samples from the wells they have drilled. A list of contributors is given on pages 7 to 11 of Bulletin 1. A recent test boring by the Honolulu Board of Water Supply at Liliuokalani School in Kaimuki shows that Maunaea Cone was the source of a lava flow at least 140 feet thick. Dr. C. K. Wentworth suggested that Maunaea basalt rather than Kaa basalt is probably present in wells 7, 9, 11, 21, 27, and 28. This alternative has been added to the logs.

Number of drilled wells in Honolulu

Within the district of Honolulu 186 wells had been drilled by March 1938. Of the 186 wells, 44 are now permanently sealed and 28 are not in use. No record exists of the exact location of 6 of the 28 wells not in use. The development of a municipal waterworks system has made the other 21 unused wells unnecessary. The remaining 134 wells supply practically all the water used in Honolulu. There are now 8 wells at the Kaimuki station, 9 at the Beretania station, and 8 at the Kalihi station. The 2 wells at Wilder Avenue station and 1 at the Makiki pumping station have not been in use for several years. Thus the Honolulu Board of Water Supply has 28 wells

*Palmer, H. S., The geology of the Honolulu artesian basin: Honolulu Sewer and Sanitation Suppl., 1937.
†McCandless, J. S., Artesian water in Hawaii: Advertiser Pub. Co., 79 pp., 1

RECORDS OF DRILLED WELLS ON OAHU

its jurisdiction. At the various industrial plants 18 wells are now in use. The remaining 68 wells are used mainly for domestic supply and to irrigate lawns, truck gardens, and rice. In this last group 12 wells are used by hotels, schools, army posts, and other institutions.

Number of drilled wells outside of Honolulu

By March 1938 there were 649 drilled wells on Oahu outside of the district of Honolulu. Of this total, the Honolulu Plantation Co. has 81 wells; the Oahu Sugar Co., 63; the Ewa Plantation Co., 72; the Waianae Plantation Co., 27; the Waiulua Agricultural Co., 106; the Kahuku Plantation Co., 72; and Waimanalo Sugar Co., 4. This makes a total of 425 wells on sugar plantations. Most of the wells are in closely spaced groups or batteries at the various plantation pumping stations. A few plantations are used for domestic supply, for stock, and for irrigating crops other than sugar cane. Also about 40 have been abandoned. The wells not on plantations are used for various purposes, such as domestic and municipal supply, watering stock, and irrigating truck gardens, rice, taro, and bananas. About 18 of these wells are not in use.

Numbering system for drilled wells

The old numbers for drilled wells on Oahu are so lacking in system that all wells have been renumbered starting on the east side of Kaimuki and proceeding clockwise around the island. The following tables show both the old numbers and the numbers used in the present report and shown on plate 2 of Bulletin 2. When new wells are drilled on Oahu and there are no new numbers specifically left for new wells in the area where the new well is drilled, the new well should be numbered with a "1" following the number of the nearest well. For example, a new well drilled near 62 would be numbered 62-1, and if that well is drilled nearby, the second should be numbered 62-2. New wells drilled at pumping stations where a well already exists should be designated by a letter. For example, a new well drilled at station 185 would be numbered 185R, since wells 185A to Q already exist.

Table giving old and new numbers of drilled wells

Old No.	New No.	Old No.	New No.	Old No.	New No.	Old No.	New No.
7	1A	24	79	45A	7A	67	65
1A	1B	24 1/2	81	46	7F	68	67
2	17	26	82	46A	6	70	66
3	17	26	83	47	6	71	69
4	22	26A	80	48	3	71 1/2	71
5	23	27	97	49	2	72	88A
5 1/2	23	28	106	50	22	73	88B
6	28	29	99	51	31	74	88C
7	29	29	108	51A	29	75	88D
8	40	31	109	52	34	76	88E
9	38	31A	111	52	35	77	88F
9 1/2	36A	32	112	52 1/2	37	77A	88G
10	36B	31	121	53	19	78	88
11	48	34	49	54	21	79	88H
11	51	35	78	54 1/2	23	80	88I
12	53	26	15	55	42	81	87
12 1/2	55	27	14	56	43	82	87
13	52	28	15	57	44	83	87
14	54	29	12	58	47	84	85
16	84	30	24	59	45	84A	89
16	57	40 1/2	11	60	46	85	92
17	70	41	25	61	41	86	95
18	70	41 1/2	9	62	39	87	94
19	72	42	26	62 1/2	37	87 1/2	93
20	73	43	8	63	36	88	94
21	74	44	7	64	35	88A	103
22	76	45	7H	65	34	88B	106
23 1/2	75	46	2	66	33	89	102

RECORDS OF DRILLED WELLS ON OAHU

Table giving old and new numbers of drilled wells

Old No.	New No.	Old No.	New No.	Old No.	New No.	Old No.	New No.
188	103	189	211-1	269	272	273	325
189	104	190	182	212	261	274	327
190	105	191	183	213	262	275	328
95	107	181	to F	214	to F	276	329
96	98	153A	185A	214A	257A	277A	330
97	103	to Q	to C	to C	to C	278A	331
98A	114	154A	186A	215	261	277A	331A
98B	116	to H	to H	216	to H	278	332
99	118	155	184	216-1	262	278 1/2	333
99A	119	156A	187A	217	263	280A	334A
99B	120	to C	to C	218	264	281	to O
92 1/2	117	157	188	219A	259A	to O	335
94	112	158A	189A	to L	to L	282	336
96A	122	to E	to C	220A	263A	283	337
97	124	159	190	to F	to F	284	338
98	125	160	191	221A	264A	285A	341A
98A	126	161	192	to T	to T	286A	342
99	127	162	193	222A	265A	287	343
100	128	163	194	223A	266A	288	344
100 1/2	128P	164	195	to H	to H	289	345
101A	128A	165A	196A	224-1	271	287-1	341
101B	128B	to T	to T	225	272	288A	342A
101C	128C	199A	197A	226	273A	to R	343A
101D	128D	to T	to T	227	to H	289-1	351
102	128E	167	198	to H	to H	290	347
102 1/2	128H	168	199	228	274	291	348
103	129	170	201	228A	276A	292A	353A
104	132	171A	202A	to K	to K	293	354
105	131	to C	to C	328-1	275	to C	351
106	133	172	205	229	277	294	355A
107	136	173	206	230	278	to D	to D
108	135	174	207	231	278B	295	356
109	138	175	208	232	279	296	357
110	140	176	209	233	281	297	361A
110A	137	177	212	234	282	298	362A
110B	134	178	217	236	284	to F	to F
111	139	179	219	237	285	299	368
112	141	180	215	237A	to H	300	369
113	142	181	214	238	to H	301	369
114	144	182	216	238	286	301	371
115	145	183	218	240	288	302	371
116	147	184	211	240	288	303	372
117	149	185A	202A	241	289	304	378
118	146	to D	to D	242	290	305	379
118	149	187A	209A	243	291	306	380
119	150	188	210	244	292	307	377A
120	151	189	212	245	293	308	378
121	152	190	213	246	294	309	379
122	153	191	214	247	295	310	380
123	154	192	215	248	296	311	381
124	155	193	216	249	297	312	382
125	156	194	217	250	298	313	383
126	157	195	218	251	299	314	384
127	158	196	219	252	300	315	385
128	159	197	220	253	301	316	386
129	160	198	221	254	302	317	387
130	161	199	222	255	303	318	388
131	162	199	222	256	304	319	389
132	163	200	223	257	305	320	390
133	164	201	224	258	306	321	391
134	165	202	225	259	307	322	392
135	166	203	226	260	308	323	393
136	167	204	227	261	309	324	394
137	168	205	228	262	310	325	395
138	169	206A	227A	263	311	326	396
139	170	207	229	264	312	327	397
140	171	208A	228A	265	313	328	398A
141	172	209A	229A	266	314	329	399
142	173	210	230	267	315	330	400
143	174	211	231	268	316	331	401
144	175	212	232	269	317	332	402
145	176	213	233	270	318	333	403
146	177	214	234	271	319	334	404
147	178	215	235	272	320	335	405
148	179	216	236	273	321	336	406
149	180	217	237	274	322	337	407
150	181	218	238	275	323	338	408

Table giving new and old numbers of drilled wells

New No.	Old No.	New No.	Old No.	New No.	Old No.	New No.	Old No.
1A	1A	74	21	136	107	206	178
and H	and H	74J		107A		207	174
1-1	...	75	22½	135	109	208	175
2	...	76	23	139	111	209	176
3	48	77	23	140	...	210	...
4	47	78	35	141	112	211	184
5	45	79	24	142	110	212	177
6	46A	80	26A	143	113	213	179
7A	81	81	24½	144	114	214	181
to F	to F	82	25	145	115	215	180
7G	44	83	26	146	116½	216	182
7H	45	84	27	147	117	217	183
8	86	85	84	148	117	218	183
9	86	86	85	149	118	218	183
10	...	87	81	150	...	219	134
11	40½	88A	72	151	115½	220	135
12	89	88B	73	152	116	221	136
13	38	88C	74	153	119	222	137
14	37	88D	75	154	120	223	138
15	36	88E	76	155	121	224	139
16	3	88F	77	156	122½	225	227
17	3	88G	77A	157	122	226	204
18	1	88H	79	158	120A	227	203
19	33	88I	80	159	122	228	204
20	53	89	80	160	...	229	...
21	54	90	...	161	124	230	201
22	4	91	4	162	125	231	200
23	54½	92	85	163	126	232	199
24	87	93	86	164	127	233	199-1
25	41	94	87½	165	128	234	198
26	42	95	86	166	129	235	188
27	52½	96	92	167	130	236	188-1
28	6	97	27	168	131	237	189
29	51A	98	94	169	132	238	190
30	*	99	36	170	133	239A	187A
31	51	100	...	171	140	...	to N
32	50	100-1	...	172	142	240	...
33	3	101	88	173	143	241	191
34	51½	102	89	174	144	242	192
35	85	103	90½	175	145	243	193
36A	95½	104	90	176	141	244	194
36B	95	105	91	177	146	245	195
37	62½	106	28	178	147	246A	196A
38	9	107	53	179	148	247	197
39	30	108	30	180	149	...	to H
40	8	109	8	181	152	...	to J
41	61	110	...	182	150	248A	205A
42	55	111	...	183	151	...	to J
43	56	112	96	184	155	249A	207A
44	57	113	85	185A	156	...	to L
45	59	114	95A	...	157	...	...
46	55	115	95B	186A	154A	250	215
47	58	116	95D	...	155	251	208
48	10	117	95½	187A	156A	252	197
49	14	118	95½	188	157	253	209A
50	*	119	95G	189	158	254	209A
51	H	120	...	190	159	255	and R
52	13	121	33	191	160	256	210
53	12	122	96A	190	159	257A	214A
54	14	123	100½	191	160	...	to C
55	12½	124	97	192	161	258	216
56	63	125	98	193	162	259A	219A
57	16	126	99	194	163	...	to L
58	64	127	100	195	164	260	...
59	5½	128A	101A	196A	165A	261	215
60	17	128B	101B	...	166	262	216-1
61	5	128C	101C	197A	166A	263A	220A
62	65	128D	101D	...	167	...	to F
63	66	128E	101E	197-1	...	264A	221A
64	13	128F	101F	198	168	265	to T
65	67	128G	102	199	168	264-1	...
66	70	128H	102½	200	169	265	217
67	60	128I	103	201	170	266	218
68	69	129	104	202A	171A	267	222
69	71	130	105	203	172	268A	223A
70	18	132	104	203A	183A	...	to H
71	71½	133	106	204	184	269	224-1
72	19	134	108	204A	186	270	224
73	20	135	108	205	172	271	224-1

* Left for new wells.

... No old number.

Table giving new and old numbers of drilled wells

New No.	Old No.	New No.	Old No.	New No.	Old No.	New No.	Old No.
272	226	314	262	353A	293A	395	325
273A	225A	315	264	to C	to C	396	326
to H	to H	316	263	354	294	397	327
273-1	224-2	317	265	355A	294½	398A	327-1
274	213A	317A	...	to D	to D	and B	...
...	...	318	266	356	295	399	...
274-1	...	319A	...	to E	to E	400	...
275	238-1	320	...	to I	to I	358	299
276A	238A	320	...	359	...	401	329
277	239	321A	268A	360	...	402	330
278A	239	to E	to E	361A	297	404	331
278B	231	to N	to N	362A	298A	405-1	...
279	232	323A	271A	...	to F	405-1	...
280	...	to L	to L	363	262-1	405-2	...
281	233	324A	270A	363	300	405-3	...
282	234	to E	to E	364	301	406	332
283	235	325	272	365	305	407	333
284	236	326	274	366	306	407-1	...
285A	237A	327	273	367	309	408	334
...	...	328	275	368	304	409	335
286	238	329A	276A	369	...	410	...
287	239	and B	and B	370	...	411	...
288	240	330	277A	371	302	412	...
289	241	...	331A	372	308	413	...
290	242	to T	to T	373A	307A	414	...
291	243	332	278	374	309	415	...
292	242	333	279	and B	and B	416	...
293	244	334A	280A	375	311	417	...
294	245	to O	to O	376	310	418	...
295	246	335	381	376	314	419	...
296A	247A	336	382	to F	to F	420	...
296B	and B	337	383	377A	317	421	...
297	248	338	284	...	...	422	...
298	249	339	...	378	317	423	...
299	250	340	...	379	...	423	...
300	...	341A	285A	380	...	424	...
301	251	and B	and B	381	314	424	...
302	252-1	342	286	382	315	425	...
303	253	343	287	383	316	426	...
304	254	344	287-1	384	317	427	...
305	255	345	288-1	385	319	428	...
306	256	346	289	386	320	429	...
307	256	347	290	387	321	430	...
308	257	348	290	388	322	431	...
309	258	349	...	389	323	432	...
310	259	350	...	390	...	433	...
311	259	351	...	391	321-1	434	...
312	260	352A	289-1	392	322	435	...
313	261	to K	to K	393	323	436	...
...	...	...	...	394	324	437	...

* Left for new wells.

... No old number.

1A and B (old 1A and 1B). Well A, 75 ft. east of pump-house on north side of Waialae Golf Links, Honolulu; well B, in pumphouse. Well A drilled in 1881; B, date unknown. Owner, Bishop estate. Altitude, 18 ft. Depth, A, 131 ft.; B, 120 ft. Diameter, A, 10 in.; B, 8 in. Well A not in use; B used for domestic purposes and irrigation. In May 1933 well A recessed to 4 in., well B to 8 in.

*Judge Lawrence McCully in the Hawaiian Almanac and Annual for 1882, Compiler and Publisher Thos. G. Thurston, p. 43, states: "There is a boring east of Diamond Head, at Waialae, where the ground may be 9 feet above sea level; the water-bearing rock was struck at 70 feet below the surface, and water rose 6 feet; and to within 5 feet of the surface. There it stands, although the boring has been run down 400 feet." He refers probably to one of three wells drilled by McCandless Bros in this area which have not yet been found.

Observations

Well 1A. Chloride (p.p.m.), May 21, 1934, 164; Dec. 10, 1934, 168.

Date	Head (ft.)	Date	Head (ft.)	Date	Head (ft.)	Date	Head (ft.)
*Apr. 17, 1933	8.61	Dec. 6, 1933	8.41	July 30, 1934	7.87	Oct. 29, 1934	8.27
May 11	8.64	15	8.40	Aug. 6	7.89	Nov. 5	8.23
18	8.56	May 14, 1934	8.19	18	7.92	18	8.27
26	8.54	21	8.08	20	7.95	19	8.16
June 3	8.54	26	8.03	27	7.72	26	8.26
Oct. 13	8.39	June 4, 1934	8.14	Sept. 1	7.84	Dec. 3	8.26
20	8.38	12	8.08	10	8.37	10	8.31
24	8.09	18	8.00	11	8.00	11	8.15
31	8.42	25	8.08	24	8.44	34	8.30
Nov. 6	8.28	July 2	8.00	Oct. 3	8.52	31	8.19
10	8.42	9	8.05	8	8.16		
17	8.32	16	8.00	15	8.17		
Dec. 1	8.39	23	7.86	22	8.17		

* Previous records reported lost.

Well 1B. Bench mark, top of spike at ground 18.12 ft.

Date	Head (ft.)	Chloride (p.p.m.)	Date	Head (ft.)	Chloride (p.p.m.)	Date	Head (ft.)	Chloride (p.p.m.)
..... 1919	..... 154	..... Apr. 9, 1930	..... 159	..... Sept. 28, 1933	..... 140			
Sept. 4, 1929	256		..... 188	Oct. 13	6.51			
11	256	May 14	..... 188	19	6.45			
18	256	July 15	..... 239	23	6.49			
Oct. 5	252	..... 239	31	6.51	142			
16	205	Aug. 24	..... 256	Nov. 6	6.56			
22	239	Sept. 8	..... 239	10	6.67			
30	239	Oct. 17	..... 255	17	6.53	140		
Nov. 6	239	Nov. 12	..... 255	28	..... 143			
13	205	Dec. 10	..... 222	Dec. 6	6.66			
29	202	Jan. 7, 1921	..... 232	Jan. 22	..... 140			
27	905	Sept. 15	..... 892	Jan. 29, 1934	..... 140			
Dec. 4	205	Sept. 25, 1932	..... 315	Feb. 7	..... 140			
11	205	Sept. 25	..... 236	Mar. 29	..... 133			
18	188	Oct. 21	..... 239	Apr. 28	..... 140			
26	171	..... 171	1	7.91	..... 140			
Jan. 2, 1930	171	Nov. 25	8.62	207	June 9	8.16		
8	169	Dec. 1	8.88	191	Jan. 19	..... 222		
15	171	Dec. 27	..... 239	Jan. 31	..... 222			
22	169	Jan. 27, 1933	..... 205	Aug. 30	..... 222			
Feb. 9	169	Feb. 25	..... 188	Sept. 26	8.17	188		
12	171	Mar. 29	..... 188	Oct. 17	..... 188			
19	171	Apr. 17	..... 188	22	8.16			
26	169	May 11	..... 205	Nov. 15	..... 171			
Mar. 5	205	24	8.60	Dec. 11	..... 171			
12	232	26	..... 205	Dec. 30	8.25	..... 222		
19	232	Jan. 26	..... 140	30	..... 222			
26	169	Aug. 31	..... 140	30	..... 222			

Meter test

Well B. Au 3-in. deep-well meter used. Pump running. Meter readings by K. N. Wakariki, Feb. 17, 1931.

Depth (ft.)	Revolutions per minute	Depth (ft.)	Revolutions per minute	Depth (ft.)	Revolutions per minute
10	107	70	75	90	10
20	116	80	71	100	10
30	116	90	16	105	10
40	76	80	.....	.....	2.07

Well 1 (Continued)

Year	Discharge in millions of gallons											Total		
	Jan.	Feb.	Mar.	April	May	June	July	Aug.	Sept.	Oct.	Nov.		Dec.	
1930		3.13	6.35	5.72	6.50	14.31	10.22	15.16	12.15	4.16	8.21	4.02	7.04	98.46
1931		8.17	10.29	12.76	12.32	12.26	16.34	15.07	15.46	8.45	11.46	4.07	7.50	138.55
1932		6.12	2.58	3.33	7.69	8.69	12.73	13.24	11.27	13.18	12.79	7.30	8.24	106.66
1933		5.33	3.20	4.87	9.51	14.09	15.39	15.80	16.79	13.05	13.16	8.59	5.71	133.16
1934		4.96	2.34	8.16	14.3	15.8	11.6	18.2	18.0	12.8	10.6	7.38	8.43	132.57

1-1 (no old number). In Kahala about 20 ft. south of Farmers Road and 0.6 mile west of Kealaolu Ave. Owner, Doris Duke Cromwell. Drilled, 1937, by A. H. Hobart. Altitude, 8 ft. Depth, 70 ft. Diameter, 6 in. and 2 in. No casing. Use, test for water supply for irrigation.

Log

		Depth (ft.)	Depth (ft.)
Sand (Pis)	0-6	Alternate layers of medium and soft sandstone (Pd)	24-61
Loose coral and sand (Pis)	6-15	Porous sandstone (Pd)	61-69
Medium coral rock with 1 streak or pocket of sand (Pis)	15-24	Soft material, no sample (Pd)	69-70
		Kaimuki basalt (Qhb)	70

2 (old 49). About 600 ft. north of Waialae Road and 10 ft. east of Manoa Stream, Honolulu. Owner, Bishop estate. Drilled, 1895. Altitude, 37 ft. Diameter, 8 in. Not in use. Recorder installed 1929.

Observations

Bench mark, top of open 8-in. well casing at ground; altitude, 37.28 ft.

Date	Head (ft.)	Date	Head (ft.)	Date	Head (ft.)	Date	Head (ft.)	
Oct. 31, 1916	18.59	May 22, 1920	34.74	Feb. 8, 1921	26.88	Nov. 16, 1931	25.69	
Nov. 14	24.22	29	24.48	15	26.81	23	25.42	
	20	June 1	24.04	22	26.69	30	25.30	
Feb. 28, 1919	22.30	8	24.39	28	26.62	Dec. 7	25.32	
Nov. 23, 1923	22.28	15	24.44	Mar. 1	26.65	14	25.29	
Mar. 12, 1926	24.68	22	24.71	8	26.68	21	25.30	
Oct. 26, 1929	24.68	29	25.01	15	26.44	28	25.57	
Oct. 1	24.33	July 1	25.07	23	26.44	Jan. 4, 1932	25.70	
	24.61	8	25.03	29	26.06	11	25.68	
	15	24.70	15	25.00	Apr. 1	26.05	18	25.50
	25	24.62	22	24.81	8	25.98	25	25.69
	29	24.60	29	24.57	15	25.78	Feb. 1	25.92
Nov. 1	24.63	Aug. 1	24.57	22	25.58	8	26.14	
	7	8	24.57	30	25.09	7	26.15	
	15	24.70	15	25.00	Apr. 1	26.25	18	25.50
	22	24.62	22	24.81	8	25.98	25	25.69
	29	24.60	29	24.57	15	25.78	Feb. 1	25.92
Dec. 1	24.49	Sept. 1	24.76	22	25.71	14	26.86	
	15	25.03	8	24.81	8	25.57	29	26.63
	22	24.89	15	24.85	6	25.67	Mar. 7	26.85
	29	24.90	22	24.46	May 1	25.71	22	26.64
Jan. 1, 1930	25.68	Oct. 1	25.23	22	25.08	18	27.05	
	8	26.05	8	26.05	28	24.87	25	26.94
	15	25.69	15	25.69	July 6	24.85	May 2	27.04
	22	25.43	22	26.04	13	24.82	9	27.31
	29	25.54	29	26.23	20	24.68	16	27.14
Feb. 9	25.36	Nov. 21	26.17	27	24.76	23	26.78	
	8	26.94	8	26.00	30	24.70	29	26.99
	15	25.26	15	26.11	Aug. 6	24.74	June 6	26.41
	22	25.20	22	26.46	17	24.69	13	26.23
	29	24.91	29	25.62	24	24.74	20	26.19
Mar. 8	25.10	Dec. 1	25.37	24	24.67	27	26.27	
	15	26.00	8	26.70	Sept. 7	24.84	July 4	26.69
	22	25.10	15	26.90	14	25.00	11	26.87
	29	24.81	22	27.12	18	25.07	18	27.14
	29	24.91	29	27.12	28	25.12	25	27.16
Apr. 1	24.88	Jan. 1, 1931	27.10	Oct. 5	25.13	Aug. 1	27.11	
	8	24.87	8	27.09	14	26.40	8	27.34
	27	25.04	15	27.31	19	25.37	15	27.21
May	15	25.36	22	27.29	26	25.36	22	27.36
	8	25.14	29	27.16	Nov. 9	26.58	26	27.15

Observations—Well 2 (Continued)

Date	Head (ft.)	Date	Head (ft.)	Date	Head (ft.)	Date	Head (ft.)
Sept. 12, 1932	27.17	Apr. 8, 1933	27.54	Nov. 4, 1933	23.80	June 18, 1934	23.16
19	27.14	15	27.39	11	23.98	July 27	22.95
see	27.03	28	27.18	18	23.50	31	22.75
Oct. 3	27.00	29	26.93	25	24.06	8	22.74
10	26.93	May 6	26.64	6	24.57	15	22.65
17	26.82	13	26.59	9	24.70	22	22.55
24	26.86	20	26.45	Jan. 3, 1934	25.51	Aug. 29	22.15
31	26.98	27	26.15	8	25.37	4	22.12
Nov. 7	26.87	June 3	26.02	15	25.22	11	21.86
14	26.95	10	25.94	20	24.99	18	21.66
21	27.33	17	25.93	27	24.18	25	22.08
28	27.21	24	25.78	Feb. 5	25.78	Sept. 1	22.59
Dec. 5	27.84	July 1	26.29	19	25.51	15	22.50
12	27.03	8	25.70	19	25.40	15	22.42
19	28.07	15	25.54	23	25.41	22	24.06
26	28.05	22	25.35	Mar. 5	25.00	29	24.78
31	28.20	29	25.25	12	24.92	Oct. 4	23.70
Jan. 7, 1933	28.44	Aug. 5	25.04	19	24.61	9	22.75
14	28.33	12	24.87	26	24.38	16	22.52
21	28.12	19	24.59	9	24.09	23	23.06
28	27.94	26	24.48	9	24.27	23	22.29
Feb. 4	27.98	Sept. 2	24.35	16	24.17	Nov. 6	22.73
11	27.98	9	24.03	23	23.94	13	23.54
18	28.04	16	24.00	29	24.13	20	24.24
25	27.95	23	23.88	May 4	24.18	28	24.65
Mar. 4	28.14	30	23.65	14	24.11	Dec. 2	23.39
11	28.05	Oct. 7	23.68	21	23.67	11	24.42
18	27.85	14	23.65	28	23.47	18	24.52
25	27.85	21	23.46	June 4	23.55	25	25.12
Apr. 1	27.61	28	23.48	11	23.45	31	26.55

3 (old 48). About 100 ft. north of Waiālae Road and 50 ft. east of Palolo Stream. Owner, Chas. Booth estate. Drilled, 1884. Altitude, 29 ft. Depth, 159 ft. Diameter, 10 in. Casing, 105 ft. Sealed, Sept. 1928. Head (ft.), Aug. 31, 1928, 22.50.

Meter test

Water being pumped from well during test. Flow slightly irregular. Static level of well normal for area. An 3-in. deep-well meter used. Readings by K. N. Vakavik, Aug. 31, 1928.

Depth (ft.)	Revolutions per minute	Depth (ft.)	Revolutions per minute	Depth (ft.)	Revolutions per minute
50	48	105	39	140	16
70	44	110	27	145	32
90	44	120	26	150 (meter at bottom)	
100 (probably end of casing)	44	130	26		
		135	26		

4 (old 47). About 75 ft. south of Waiālae Road and 50 ft. east of Manoa Stream. Owner, Territory of Hawaii. Drilled, 1883. Altitude, 28 ft. Depth, 286 ft. Diameter, 8 in. Depth to top of aquifer, 190 ft. Casing, 190 ft. Sealed, Mar. 1926. Chloride (p.p.m.), 30 in 1910. Head (ft.), Jan. 27, 1910, 25.14.

Log

Soil	Depth (ft.)	Depth (ft.)	Depth (ft.)
Boulders (Ra or Pa)	0-30	Boulders (Pa)	50-72
Clay (Pa)	30-35	Clay (Pa)	72-110
Clay (Pa)	35-60	Clay (Pa)	110-150
		Clay (Pa)	150-170
		Clay (Pa)	170-360

5 (old 46). About 500 ft. south of Waiālae Road and west of Palolo Stream. Owner, Bishop Trust Co. Drilled, 1884. Altitude, 22 ft. Depth, 162 ft. Diameter, 10 in. Former use, irrigation. Sealed, May 1930.

Observations

Date	Head (ft.)	Chloride (p.p.m.)	Date	Head (ft.)	Chloride (p.p.m.)	Date	Head (ft.)	Chloride (p.p.m.)
..... 1910	.....	34.0	Feb. 4, 1926	.....	28.4	Feb. 13, 1928	.....	27.0
Jan. 23, 1919	23.32	.....	Aug. 17	.....	29.0	Sept. 4	22.35	.....
Nov. 26, 1923	21.90	.....	Dec. 23	20.26	.....	Mar. 1, 1929	.....	25.7
Aug. 14, 1924	50.72	.....	Jan. 31, 1927	20.77	.....	Sept. 28	23.72	25.7

Meter test

Water flowing from top of well. Static level of well normal for area. An 3-in. deep-well meter used. Readings by K. N. Vakavik, May 2, 1930.

Depth (ft.)	Revolutions per minute	Depth (ft.)	Revolutions per minute	Depth (ft.)	Revolutions per minute
10	48	110	60	140	34
30	60	120	60	145	28
50	58	125 (end of casing)	150	150	24
70	60	see indented by	155	155	30
80	62	fishing tools)	160	160	20
90	60	130	160.5	160.5	0
100	58	135	160.7 (meter landed)		

Discharge in millions of gallons

1929: Jan., 5.9; Aug., 7.6; Sept., 11.1; Oct., 15.5; Nov., 10.2; Dec., 12.3; total, 62.6.
1930: Jan., 11.7; Feb., 6.2; Mar., 8.1; Apr., 7.5; May, 0; June, 0; total, 33.5.

6 (old 46A). Near Waiālae Road in Moiliili district, Honolulu. Owner, Territorial Hotel Co. Drilled, 1927, by McCandless Bros. Altitude, 21 ft. Depth, 276 ft. Diameter, 12 in. Depth to top of aquifer, 173 ft. Use, domestic. Casing, 150 ft.

Log

Depth (ft.)	Depth (ft.)	Depth (ft.)	Depth (ft.)
Clay (Ra and Pa)	0-70	Clay (Pa)	170-240
Gravel (Pa)	70-76	Coral (Pa) and clay	170-176
Clay (Pa)	76-112	(Pa)	In bedrock (Tkb)...
Coral (Pa)	112-130	Clay (Pa)	176-276

Observations

Date	Head (ft.)	Chloride (p.p.m.)	Date	Head (ft.)	Chloride (p.p.m.)	Date	Head (ft.)	Chloride (p.p.m.)
Feb. 21, 1929	24.0	Sept. 9, 1931	24.73	24.7	June 19, 1934	22.91	24.0
Mar.	24.0	Sept. 17	.....	25.6	Dec. 11	24.32	25.7
Sept.	22.9	Jan. 28, 1932	25.78	23.9			
Sept. .. 1930	24.0	Aug. 22	28.08	23.9			

Discharge in millions of gallons

Year	Jan.	Feb.	Mar.	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Total
1928	.....	.....	.....	.....	.....	.....	0.20	0.20	0.00	0.00	0.10	0.00	07.40
1930	9.42	10.1	11.0	8.00	7.74	7.89	5.60	7.91	6.92	6.52	7.30	8.42	101.42
1931	9.66	9.39	8.88	6.79	6.84	7.57	9.18	7.05	4.32	5.09	6.17	7.73	88.70
1932	9.71	8.46	8.63	3.04	2.51	2.38	2.85	5.30	7.42	7.50	7.51	6.50	71.21
1933	4.70	5.69	4.04	5.90	5.56	4.83	6.20	6.20	6.20	7.23	6.82	6.07	60.77
1934	9.46	8.96	11.1	9.61	10.5	11.5	13.0	11.4	9.58	9.54	7.33	8.56	120.24

Observations—Well 7 (Continued)

Table with columns: Date, Head (ft.), Chloride (p.p.m.), Date, Head (ft.), Chloride (p.p.m.), Date, Head (ft.), Chloride (p.p.m.). Contains data for Well E from Mar. 16, 1932 to Nov. 18, 1932.

Well F. Bench mark, top of manhole rim at ground; altitude, 29.79 ft. Head (ft.), Apr. 13, 1928, 25.0; Feb. 18, 1930, 25.26; Mar. 2, 1931, 26.61; Sept. 9, 1931, 24.88; Jan. 27, 1932, 25.74; Aug. 23, 1932, 27.36; June 19, 1934, 22.96.

Table with columns: Date, Head (ft.), Chloride (p.p.m.), Date, Head (ft.), Chloride (p.p.m.), Date, Head (ft.), Chloride (p.p.m.). Contains data for Well F from Oct. 5, 1928 to Nov. 27, 1932.

Well G. Bench mark, top of manhole rim at ground; altitude, 36.69 ft.

Table with columns: Date, Head (ft.), Chloride (p.p.m.), Date, Head (ft.), Chloride (p.p.m.), Date, Head (ft.), Chloride (p.p.m.). Contains data for Well G from Mar. 27, 1924 to Sept. 26, 1929.

Observations—Well 7 (Continued)

Table with columns: Date, Head (ft.), Chloride (p.p.m.), Date, Head (ft.), Chloride (p.p.m.), Date, Head (ft.), Chloride (p.p.m.). Contains data for Well H from Mar. 27, 1924 to Nov. 27, 1932.

Discharge in millions of gallons

Table with columns: Year, Jan., Feb., Mar., April, May, June, July, Aug., Sept., Oct., Nov., Dec., Total. Shows monthly discharge data from 1924 to 1934.

8 (old 43). About 50 ft. south of Kaimuki pump. Owner, Geo. Beckley estate. Drilled, 1931. Altitude, 19 ft. Diameter, 9 in. Use, irrigation.

Observations

Bench mark, top of plate on base, above casing clamp, directly above tap 2 ft. above ground; altitude, 29.68 ft.

Table with columns: Date, Head (ft.), Chloride (p.p.m.), Date, Head (ft.), Chloride (p.p.m.), Date, Head (ft.), Chloride (p.p.m.). Contains data for Well H from 1919 to 1934.

* Slight leak at top of casing.

Well 8 (Continued)

Discharge in millions of gallons

Table with 13 columns: Year, Jan, Feb, Mar, April, May, June, July, Aug, Sept, Oct, Nov, Dec, Total. Rows for years 1929-1934.

9 (old 41 1/2). On Kapahulu Road near Olu St., Honolulu. Owner, J. J. Gouveia. Drilled, 1921. Altitude, 16 ft. Depth, 270 ft. Diameter, 6 in. Depth to top of aquifer, 256 ft. Use, irrigation. Casing, 256 ft.

Log

Log table with columns: Depth (ft.), Description, Depth (ft.). Entries include soil, coral, lava rock, and boulders.

Observations

Bench mark, top of head on northeast branch of cross union on top of well casing 2 ft. above ground; altitude, 18.08 ft.

Large table with columns: Date, Head (ft.), Chloride (p.p.m.), Date, Head (ft.), Chloride (p.p.m.). Contains detailed hydrological data for Well 8.

Well 9 (Continued)

Discharge in millions of gallons

Table with 13 columns: Year, Jan, Feb, Mar, April, May, June, July, Aug, Sept, Oct, Nov, Dec, Total. Rows for years 1929-1934.

10 (no old number). In Kaimuki on tract of land at 11th Ave. and Mauna Loa Ave. Owner, E. J. Lord. Drilled by Jacob Waikaloa. Altitude, 185 ft. Depth, 196 ft. Diameter, 10 in. Casing, 24 ft. Use, none. Driller's log, soil, 0-20 ft.; lava rock (Qhb, Kaimuki and possibly some Maumaea), 20-196 ft.

11 (old 40 1/2). Kapahulu Road, west side of Kaimuki. Owner, U. S. Army. Drilled, 1911. Altitude, 8 ft. Diameter, 12 in. Depth to top of aquifer, 345 ft. Use, Army Post supply. Recused in 1935.

Log

Log table with columns: Depth (ft.), Description, Depth (ft.). Entries include loamy soil, boulders, and sticky clay.

Observations

Bench mark, cross cut in top of flange at tee above valve 3 ft. above ground; altitude, 10.75 ft.

Large table with columns: Date, Head (ft.), Chloride (p.p.m.), Date, Head (ft.), Chloride (p.p.m.). Contains detailed hydrological data for Well 9.

* Recorder installed.

Observations—Well 11 (Continued)

Chloride (p.p.m.), Mar. 3, 1931, 47.9; Sept. 18, 1931, 54.7; June 18, 1934, 65; Dec. 18, 1934, 51.

Date	Head (ft.)	Date	Head (ft.)	Date	Head (ft.)	Date	Head (ft.)
Jan. 14, 1928	24.25	July 28, 1929	23.84	Jan. 8, 1931	27.13	June 18, 1932	26.06
21	24.31	Aug. 5	23.72	22	27.21	27	26.06
4	24.39	10	23.78	25	27.19	30	26.45
11	24.43	18	23.79	29	26.66	35	26.68
18	24.43	25	24.05	Feb. 1	26.86	16	26.98
25	24.13	Sept. 7	24.06	8	26.75	23	27.03
Mar. 3	24.25	15	24.82	16	26.65	30	27.03
10	24.25	21	23.57	22	26.44	Aug. 6	27.02
17	24.36	28	24.06	Mar. 28	26.35	13	27.07
24	24.25	Oct. 5	24.06	30	26.45	20	27.07
31	24.25	13	24.65	10	26.34	26	27.25
Apr. 7	24.77	17	24.88	19	26.13	Sept. 3	27.19
14	24.84	Nov. 3	24.55	24	25.83	10	27.19
21	25.08	10	24.77	Apr. 31	25.58	17	27.09
28	25.14	16	24.70	8	25.50	24	26.84
May 5	25.14	23	24.64	15	25.28	Oct. 1	26.89
12	25.45	28	24.89	22	25.35	8	26.84
19	25.18	Dec. 7	24.94	29	25.27	15	26.71
June 2	25.08	14	24.76	May 1	25.48	22	26.76
9	25.83	21	25.30	8	25.35	29	26.79
16	24.71	Jan. 28	25.46	15	25.14	13	26.82
23	24.68	Feb. 12, 1930	25.29	22	25.19	19	26.87
30	24.62	19	25.56	29	25.45	26	27.45
July 7	24.48	26	25.42	June 5	25.26	Dec. 3	27.66
14	24.48	Feb. 2	25.36	12	25.14	19	27.80
21	24.35	8	25.22	19	24.90	17	27.66
28	22.85	15	25.22	26	24.94	24	27.90
Aug. 4	22.85	22	25.16	July 3	24.67	31	28.12
11	22.71	Mar. 1	25.07	10	24.71	Jan. 7, 1933	28.35
18	23.08	8	25.04	17	24.55	14	28.24
25	23.00	15	24.92	24	24.65	21	28.03
Sept. 1	22.25	23	24.77	31	24.60	Feb. 28	27.84
8	22.19	29	24.82	Aug. 7	24.63	4	27.90
15	21.42	Apr. 5	24.73	14	24.61	11	27.83
22	21.29	13	25.07	21	24.57	18	27.95
29	21.17	19	24.88	28	24.62	25	27.96
Oct. 6	21.25	26	24.87	Sept. 4	24.70	Mar. 4	28.02
13	21.25	Mar. 8	24.98	11	24.91	11	27.99
20	21.05	15	24.95	18	25.00	18	27.78
27	21.25	17	24.75	25	24.98	25	27.41
Nov. 3	21.14	Oct. 24	24.59	2	25.04	9	27.44
10	22.21	June 1	24.59	9	25.05	8	27.41
17	22.54	7	24.30	16	25.37	15	27.34
24	23.20	14	24.50	23	25.34	22	27.16
Dec. 1	23.29	21	24.55	30	25.40	29	26.90
8	24.29	Jan. 1	24.80	Nov. 6	25.41	May 6	26.56
15	24.17	7	24.97	13	25.49	13	26.54
Jan. 4, 1929	24.19	7	25.02	20	25.39	20	26.36
11	24.54	14	24.90	27	25.30	27	25.97
18	24.75	22	24.70	Dec. 4	25.14	June 3	25.91
Feb. 2	24.62	28	24.58	11	25.20	10	25.80
9	24.58	Aug. 1	24.87	18	25.22	17	25.85
16	24.87	8	24.35	25	25.44	24	25.70
23	25.21	15	24.40	July 1	25.74	1	25.74
Mar. 2	25.21	22	24.53	Jan. 15, 1933	25.63	8	25.63
9	25.25	29	24.98	14	25.43	15	25.43
16	25.25	Sept. 1	24.77	21	25.61	22	25.50
23	25.17	8	26.03	28	25.09	29	25.20
30	25.12	15	26.05	Feb. 4	25.97	Aug. 5	24.98
Apr. 6	25.20	22	25.20	11	26.33	13	24.87
13	25.08	28	25.48	Mar. 4	26.57	19	24.63
20	25.21	Oct. 1	25.61	11	26.72	26	24.64
May 4	24.42	15	26.05	25	26.77	Sept. 2	24.48
11	24.60	22	26.04	Apr. 1	26.88	15	24.09
18	23.46	18	26.05	8	26.95	22	24.02
24	23.83	Nov. 16	26.14	15	27.04	30	23.81
June 1	24.25	23	26.48	22	26.91	Oct. 9	23.82
8	24.29	8	26.89	29	26.83	16	23.85
15	24.42	Dec. 1	26.61	May 7	26.96	23	23.58
22	24.59	8	26.88	14	26.84	30	23.95
29	24.97	15	26.82	21	26.76	Nov. 7	23.95
July 5	24.11	22	27.00	28	26.53	14	23.97
12	24.25	29	26.97	June 5	26.31	21	24.04
19	23.90	Jan. 1, 1931	26.99	11	26.15	28	24.38

Observations—Well 11 (Continued)

Date	Head (ft.)	Date	Head (ft.)	Date	Head (ft.)	Date	Head (ft.)
Dec. 5, 1933	24.56	Mar. 26, 1934	24.44	July 1, 1934	22.78	Oct. 4, 1934	23.61
12	24.70	Apr. 2	24.21	18	22.69	10	22.47
19	24.94	9	24.32	15	22.64	16	22.57
26	25.29	16	24.27	22	22.32	23	23.09
Jan. 3, 1934	25.46	23	24.15	27	22.59	29	22.05
10	25.23	30	24.43	Aug. 5	22.15	6	23.77
17	25.02	May 4	24.53	11	21.92	13	23.60
24	25.37	14	24.16	18	22.08	21	24.42
Feb. 10	25.30	21	23.74	25	22.10	27	24.29
17	25.40	June 4	23.57	Sept. 1	22.61	11	23.45
Mar. 4	25.16	11	23.69	18	23.59	15	24.61
11	25.00	18	23.62	15	23.53	25	25.12
19	24.66	25	22.90	29	24.76	31	25.58

Meter test

No water flowing from top of well. An 3-in. deep-well meter used. Readings by K. N. Vakvis, May 28, 1935.

Depth (ft.)	Revolutions per minute	Depth (ft.)	Revolutions per minute	Depth (ft.)	Revolutions per minute
18-128	0	153	2.6	178	38
133	2.6	158	4	188	41
138	3	163	3	193	41
148	3.2	168	39	191.5 (landed)	

12 (old 39). Intersection of Hunter St. and Kapahu Road. Owner, Leah Home Dairy. Drilled, 1880. Altitude, 12 ft. Depth, 513 ft. Diameter, 6 in. Sealed, June 1928.

Observations

Date	Head (ft.)	Chloride (p.p.m.)	Date	Head (ft.)	Chloride (p.p.m.)	Date	Head (ft.)	Chloride (p.p.m.)
..... 1910		74.0	Feb. 15, 1924	*20.50	95.0	Feb. 13, 1928	*22.11	125
Feb. 3, 1918	*21.02	.....	Aug. 14	*19.00	25.0	Mar. 8	*23.51	.....
..... 1923	19.19	.....	Feb. 3, 1926	150	.....	.....	.....	.....
Nov. 27	*20.14	.....	July 6	*18.11	116.0	.....	.....	.....

* Leaking.

Meter tests

Test 1 made with no water flowing from top of well. Static level several ft. below normal for area. An 1-in. deep-well meter used. Readings by M. H. Carson and K. M. Kelley, June 14, 1928.

Depth (ft.)	Revolutions per minute	Depth (ft.)	Revolutions per minute	Depth (ft.)	Revolutions per minute
20-180	0	270	856	490	300
190	0	300	856	500	94
200	214	330	1099	504	0
210	200	400	923	505	0
220	214	445	856	510 (metherland)	0
230	400	450	1000	.....	.....
240	750	460	1000	.....	.....
250	706	470 (end of casing)	1090	.....	.....
260	856	480	353	.....	.....

Test 2 made during process of sealing well with a leaking casing. An 1-in. deep-well meter used. Readings by M. H. Carson, June 22, 1928.

Test made after a quantity of iron had been deposited at bottom of well	Head (ft.)	Test made after a quantity of iron had been deposited at bottom of well	Head (ft.)	Test made after iron	Head (ft.)	Test made after iron	Head (ft.)
.....	92	.....	62	.....	410	.....	0
.....	104	.....	300	.....	0	.....	0
.....	250	.....	210	.....	0	.....	0
.....	102	.....	410	.....	0	.....	0

13 (old 38). North side of Territorial Fair Grounds, Honolulu, about 200 ft. northeast of well 14. Owner, Leahi Home Dairy. Drilled, 1884. Altitude, 8 ft. Depth, 536 ft. Diameter, 8 in. at top and 7 in. at bottom. Casing, 448 ft. Sealed, July 1925.

Observations

Date	Head (ft.)	Chloride (p.p.m.)	Date	Head (ft.)	Chloride (p.p.m.)	Date	Head (ft.)	Chloride (p.p.m.)
..... 1910	.....	55.0	Aug. 13, 1924	19.91	163.0	Feb. 13, 1928	24.03	311
Aug. 20, 1923	20.16	.....	Feb. 2, 1926	21.10	330	.....	.....	.....
Feb. 15, 1924	.....	75.0	July 6	.....	18.07	384	.....	.....

Meter test

Water flowing from top of well. Static level of well normal for area. An 1-in. deep-well meter used. Readings by K. N. Vakavik, July 20, 1928.

Depth (ft.)	Revolutions per minute	Depth (ft.)	Revolutions per minute	Depth (ft.)	Revolutions per minute
350	293	480	333	520	231
400	300	500	333	540	143
420	316	510	316	560	125
437 (reduction in size of casing)	513	513	300	583	47
.....	353	516	293	583	0
440	353	517	245	584	0
448 (end of casing)	.....	518	.....	.....	.....
460	353	519	240	.....	.....

14 (old 37). North side of Territorial Fair Grounds about 200 ft. north of race track. Owner, Territory of Hawaii. Drilled, 1891. Altitude, 4 ft. Depth, 518 ft. Diameter, 6 in. Recased from 8 in. Sealed, August 1928.

Observations

Date	Head (ft.)	Chloride (p.p.m.)	Date	Head (ft.)	Chloride (p.p.m.)	Date	Head (ft.)	Chloride (p.p.m.)
..... 1910	.....	50.0	Dec. 10, 1920	20.00	.....	Feb. 2, 1920	.....	224
Nov. 12, 1916	23.00	.....	Nov. 4, 1919	11.11	79	.....	.....	508
Nov. 19	23.23	.....	Nov. 27, 1923	22.31	.....	Nov. 18	.....	100
Nov. 26	22.41	.....	Feb. 15, 1924	22.40	171	Feb. 13, 1928	24.30	81
Dec. 3	23.63	.....	Aug. 13	.....	73.0	Aug. 4	.....	159

* Leaking. Recased 1920.

Meter tests

Test 1. No water flowing from top of well. Test stopped owing to obstructions which damaged meter. Static level of well about 9 ft. below normal for area. Improvised Price meter used. Readings by J. E. Stewart and M. H. Carson, Dec. 16, 1919.

Depth (ft.)	Revolutions per minute	Depth (ft.)	Revolutions per minute
150	0	200	114

Test 2. Water flowing from top of well. Static level of well normal for area. An 3-inch deep-well meter used. Readings by K. N. Vakavik, Aug. 8, 1928.

Depth (ft.)	Revolutions per minute	Depth (ft.)	Revolutions per minute	Depth (ft.)	Revolutions per minute
50	940	400	100	500	140
100	231	450	150	507 (end of casing)	49
150	227	490	150	500	28
200	200	495	138	510	28
250	182	500	107	512	30
300	200	502	214	514	22
350	167	504	185	515.5 (meter landed)	17

15 (old 36). Territorial Fair Grounds about 50 yd. east of well 16. Owner, Territory of Hawaii. Drilled, 1883. Altitude, about 5 ft. Depth, 860 ft. Diameter, 4 in. Recased from 6 in. Sealed, Jan. 1926. Head (ft.), Jan. 31, 1919, 19.27 (leaking). Chloride (p.p.m.), 1918, 285; Feb. 15, 1924, 7,400.

16 (old 2). Near Territorial Fair Grounds office, about 200 ft. from Kapahulu Road, Honolulu. Owner, Campbell estate. Drilled, 1883. Altitude, 4 ft. Depth, 716 ft. Diameter, 6 in. Depth to top of aquifer, 630 ft. Sealed, Oct. 1925. Head (ft.), Nov. 27, 1923, 0.4 (leaking). Chloride (p.p.m.), Sept. 22, 1925, 3,000.

17 (old 3). Territorial Fair Grounds about 15 ft. northeast of well 16. Owner, Campbell estate. Drilled, 1883. Altitude, 4 ft. Depth, 825 ft. Diameter, 6 in. Depth to top of aquifer, 597 ft. Sealed, Oct. 1925. Head (ft.), Jan. 31, 1919, 7.47 (leaking); Nov. 27, 1923, 6.19 (leaking). Chloride (p.p.m.), Feb. 15, 1924, 3,400.

18 (old 1). Near Diamond Head. Owner, Campbell estate. Drilled, 1882 by Cooke & Peddler. Altitude, 15 ft. Depth, 1500 ft. Not in use. Exact location unknown. Depth to top of aquifer, 1,178 ft.

Log

Depth (ft.)	Depth (ft.)	Depth (ft.)	
Gravel and beach sand (Ra & Ra).....	0-50	Very red clay (Pa).....	925-1,020
Lava similar to that forming sides of adjoining crater; tufa in thin layers (probably Pa with some Qtz, Diamond Head at top).....	50-320	Soft white coral (Pa).....	1,020-1,048
Hard white coral like marble and without a break (Pa).....	320-825	Soft white rock, character of soapstone (Pa).....	1,048-1,068
Dark brown clay (Pa).....	825-900	Brown clay with broken coral (Pa and Pis).....	1,068-1,178
Washed gravel (Pa).....	900-925	Hard blue lava (Tkb).....	1,178-1,223
		Black clay (Tkb).....	1,223-1,233
		Red pipe clay (Tkb).....	1,233-1,251
		Porous lava rock (Tkb).....	1,251-1,500

19 (old 53). On Kaiulani Ave. about 20 ft. from Ala Wai Blvd., Honolulu. Owner, Hawaiian Dredging Co. Drilled, 1900, by C. K. Al. Altitude, 5 ft. Depth, 666 ft. Diameter, 8 in. Sealed, Sept. 1928.

Observations

Date	Head (ft.)	Chloride (p.p.m.)	Date	Head (ft.)	Chloride (p.p.m.)	Date	Head (ft.)	Chloride (p.p.m.)
..... 1910	.....	493	Feb. 15, 1924	20.40	.....	Oct. 30, 1928	18.07	675
Jan. 31, 1919	22.80	.....	Aug. 15	19.40	1840	Feb. 13, 1928	23.47	1510
Nov. 21, 1923	20.90	.....	July 8, 1926	18.07	.....	Sept. 10	.....	1510

Meter test

Water flowing from top of well during test. Static level normal for area. An 3-inch deep-well meter used. Readings by K. N. Vakavik, Sept. 10, 1928.

Depth (ft.)	Revolutions per minute	Depth (ft.)	Revolutions per minute	Depth (ft.)	Revolutions per minute
100	50	607.5 (end of casing)	640	.....	18
200	57	as indicated by fishing tools	650	.....	13
300	58	.....	658.5	.....	4
400	57	610	32	659.5 (meter landed)	.....
500	57	620	39	.....	.....

21 (old 54). Corner of Liliuokalani and Kaneloa Sts., near Kapiolani Park, Honolulu. Owner, Mrs. Geo. W. Lucas. Drilled, 1882. Altitude, 5 ft. Depth, 856 ft. Diameter, 8 in. Depth to top of aquifer, 730 ft. Sealed, Feb. 1927. Chloride (p.p.m.), 1886, 75.7; Feb. 1927, 14,600.

Log

	Log		Depth (ft.)	Description	Depth (ft.)
	Depth (ft.)	Depth (ft.)			
Sand and coral (Rv and Pls)	0-38	Tough clay and coral (Pa and Pls)	285-350	White coral (Pls)	525-625
White coral (Pls)	38-60	Blue clay (Pa)	350-380	Tough clay (Pa)	625-630
Yellow sand (Pls)	60-103	Hard coral (Pls)	380-420	Coral and clay (Pls and Pa)	630-700
Hard lava (Qhu Kani or Maunuaei)	103-150	Soft coral (Pls)	420-450	Tough clay (Pa)	700-728
White coral (Pls)	150-260	Tough clay (Pa)	450-455	Black sand (Pa or Tkb)	728-730
Blue clay (Pa)	260-285	Tough clay (Pa)	455-493	Lava and bedrock (Tkb)	730-850
			493-525		

Meter test

No water flowing from top of well. Static level more than 20 feet below normal for area. Au 1-in. deep-well meter used. Readings by M. H. Carson, Jan. 26, 1927.

Depth (ft.)	Revolutions per minute	Depth (ft.)	Revolutions per minute	Depth (ft.)	Revolutions per minute
130	3	330	80	120	
153	9	370.5	78	89	
161 (leak)	105	375.5 (leak)	105	491 (meter stopped by obstruction in well)	95
167	77	378	143		
180	80	380	128		
220	84	390	135		
280	82	400	78		

22 (old 4). Intersection of Liliuokalani Ave. and Kalakaua Ave., Honolulu. Owner, Territory of Hawaii. Drilled, 1892, by McCandless Bros. Altitude, 5 ft. Depth, 941 ft. Diameter, 10 in. Sealed in 1927.

23 (old 54½). Near of Moana Cottages, Waikiki, Honolulu. Owner, Territorial Hotel Co. Drilled, 1914. Altitude, 4 ft. Depth, 810 ft. Diameter, 12 in. at top and, 10 in. at bottom. Depth to top of aquifer, about 720 ft. Casing, 781 ft. Sealed, Oct. 1928.

Log

	Log		Depth (ft.)	Description	Depth (ft.)
	Depth (ft.)	Depth (ft.)			
Loose soil and sand	0-15	White coral mud (Pls)	390-402	Coral and lava sand (Pls and Pa)	625-648
Coral (Pls)	15-200	Brown mud (Pa)	402-435	Heavy adobe mud (Pa)	648-655
Coral mud (Pls)	250-260	Coral (Pls)	435-440	Lava sand (T) (Tkb)	670-693
Coral and coral mud (Pls)	290-307	Brown adobe mud (Pa)	440-492	Fine lava sand (Tkb)	693-710
Coral (Pls)	307-328	White coral (Pls)	492-590	Fine clear lava sand (Tkb)	710-720
Coral mud (Pls)	328-342	Brown mud and sand (Pa)	590-608		
Coral (Pls)	358-379	Coral mud (Pls)	608-628		
Coral (Pls)	370-390				

Observations

Date	Head (ft.)	Chloride (p.p.m.)	Date	Head (ft.)	Chloride (p.p.m.)	Date	Head (ft.)	Chloride (p.p.m.)
May 12, 1919	12.68		Dec. 17, 1923	12.30	11,000	Oct. 1, 1928	9.60	
Apr. 20, 1921	10,530		July 8, 1926	8.05	11,400	Oct. 2	9.60	13,300
Nov. 16, 1923	11.20		Feb. 13, 1928	12.44	12,250			

Well 23 (Continued)

Meter test

Water flowing from top of well. Static level normal for area. Au 3-in. deep-well meter used. Readings by K. N. Yakevich, Oct. 2, 1928.

Depth (ft.)	Revolutions per minute	Depth (ft.)	Revolutions per minute	Depth (ft.)	Revolutions per minute
10	92	terminated by well tools)	112	770	121
100	88	690	128	775	124
200	92	700	128	779 (end of casing as indicated by fishing tools)	
400	90	710	128	780	
500	92	720	128	780	82
600	90	730	128	790	96
675	98	740	126	800	68
680 (reduction in size of casing de-	100	750	126	805 (meter at bottom)	
		160	128		

24 (old 40). In Moiliili, about 300 ft. south of Kino Ave. on Lupekuane Ave., extended. Owner, Mrs. C. P. Hauka. Drilled, 1888. Altitude, 11 ft. Depth, 411 ft. Diameter, 4 in. Use, irrigation. Casing, 196 ft. Reased in 1928.

Observations

Bench mark, top at cross union 2 ft. above ground at top of casing; altitude, 12.94 ft.

Date	Head (ft.)	Chloride (p.p.m.)	Date	Head (ft.)	Chloride (p.p.m.)	Date	Head (ft.)	Chloride (p.p.m.)
..... 1910	51.0		Oct. 1, 1929	49.7		Mar. 12, 1930	49.7	
Nov. 26, 1923	30.14		Oct. 14	49.0		Mar. 15	48.0	
Feb. 15, 1924	20.50	49.2	Oct. 23	49.7		Mar. 26	48.0	
Aug. 13	18.30	49.0	Oct. 30	48.0		Apr. 9	48.0	
Feb. 2, 1926	19.63	49.6	Nov. 6	49.7		Apr. 30	48.0	
July 12	17.25	52.0	Nov. 15	49.7		May 14	48.0	
Feb. 13, 1928	21.58	54.0	Nov. 20	49.7		June 19	48.0	
Mar. 8	21.63		Dec. 27	49.7		July 15	48.0	
Mar. 8	21.33		Jan. 4	49.7		Aug. 23	48.0	
Apr. 3	21.53		Dec. 11	48.0		Sept. 6	48.0	
May 1	*22.63		Dec. 18	48.0		Oct. 7	48.0	
Feb. 28, 1929	48.0		Dec. 24	48.0		Nov. 24	48.0	
July 25	51.4	Jan. 8, 1930	48.0		Dec. 16	48.0		
Aug. 1	63.4	Jan. 15	48.0		Jan. 7, 1931	48.0		
Aug. 7	51.4	Jan. 22	48.0		Jan. 2	26.48	48.6	
Aug. 14	51.4	Jan. 29	48.0		Sept. 9	24.87		
Aug. 21	49.7	Feb. 5	48.0		Sept. 17	48.0		
Aug. 28	51.4	Feb. 12	48.0		Jan. 27, 1932	25.61	49.6	
Sept. 4	51.4	Feb. 18	25.28		Aug. 22	27.37	48.0	
Sept. 11	49.7	Feb. 26	48.0		June 19, 1934	22.94	51.3	
Sept. 18	49.7	Mar. 5	48.0		Dec. 11	34.20	53.0	
Sept. 26	†23.45							

* Leaking. † Recased.

Meter test

No water flowing from top of well. Static level 2.6 ft. below normal for area. Au 1-in. deep-well meter used. Readings by M. H. Carson, June 2, 1928.

Depth (ft.)	Revolutions per minute	Depth (ft.)	Revolutions per minute	Depth (ft.)	Revolutions per minute
40-100	0	210 (end of casing)	330	315	
110	0	indicated by fishing tools)	340	273	
120	38	350	273	273	
130	46	360	273	273	
140	124	370	273	273	
150	176	380	273	240	
160	273	390	273	214	
170	273	400	273	190	
180	273	410	273	105	
200	273	420 (meter at bottom)	90		

Well 24 (Continued)

Discharge in millions of gallons													
Year	Jan.	Feb.	Mar.	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Total
1929	.....	.....	.....	.....	.....	.....	7.8	5.8	3.0	1.7	4.0	2.1	25.0
1930	.. 3.2	2.3	4.0	3.2	2.4	1.4	3.2	1.3	1.4	1.4	1.3	1.3	26.3
1931	.. 1.5	2.6	4.4	3.0	5.0	3.3	2.8	1.3	1.2	1.6	1.4	0	28.1
1932	.. 0	0	0.8	0	0	0	2.1	1.1	2.1	2.5	1.2	0	11.26
1933	.. 2.2	3.1	3.4	3.3	3.4	3.3	3.1	3.7	3.6	3.1	3.0	1.6	31.1
1934	.. .16	8	5.4	.12	1.2	1.1	..85	..85	..22	..26	..42	..29	10.59

25 (old 41). Oloukele Ave. between Kimo and Leialoha Aves., Honolulu, Owner, Magoon estate. Drilled, 1885. Altitude, 13 ft. Diameter, 8 in. Use, irrigation.

Observations

Bench mark, top of flange at south end of well esp. 5 ft. above ground; altitude, 17.80 ft.

Date	Head (ft.)	Chloride (p.p.m.)	Date	Head (ft.)	Chloride (p.p.m.)	Date	Head (ft.)	Chloride (p.p.m.)
..... 1910	.....	56.0	Sept. 12, 1926	18.97	.....	Mar. 2, 1931	26.59	42.7
Sept. 17, 1911	25.00	.....	Nov. 18	.....	50.0	Sept. 11	24.95	.....
Oct. 31, 1916	22.32	.....	Feb. 15, 1928	23.55	.....	Sept. 17	.....	41.0
Nov. 25, 1923	22.48	.....	Feb. 7, 1929	.....	42.7	Jan. 27, 1932	26.80	42.7
Feb. 15, 1924	.....	51.2	Sept. 26	24.02	.....	Aug. 22	27.30	44.5
Aug. 14	.....	47.0	Feb. 18, 1930	25.59	.....	June 19, 1934	.....	47.9
July 9, 1926	.....	48.0	Sept. 1	.....	41.1	Dec 1	.....	47.9

Discharge in millions of gallons

Year	Jan.	Feb.	Mar.	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Total
1929	.....	.....	.....	.....	.....	.....	0.05	0.16	0.15	0.4	0.12	0.07	0.95
1930	.. .008	.. .03	.. .008	.. .012	.. .03	.....	.....	0.12	0.12	0.12	0.24	0.25	0.98
1931	.. .03	.. .03	.. .03	.. .03	.. .03	.. .03	.. .03	.. .03	.. .03	.. .06	.. .03	.....	.....
1932	.. .03	.. .03	.. .03	.. .03	.. .03	.. .03	.. .03	.. .03	.. .03	.. .06	.. .06	.....	42
1933	.. .06	.. .03	.. .03	.. .02	.. .03	.. .02	.....	0.09	0.09	0.09	0.03	.....	0.51
1934	.. .03	.. .03	.. .03	1.2	.. .03	1.2	5.7	2.0	4.4	2.9	1.7	24.02	.....

26 (old 42). About midway between Manoa and Palolo Streams, in line with Leialoha Ave., Honolulu. Owner, B. P. Bishop estate. Drilled, 1891. Altitude, 13 ft. Diameter, 8 in. Use, irrigation.

Observations

Bench mark, top of 1½-in. by 1½-in. by 1½-in. tee on service pipe topping beaded cross on east side of well 2 ft. above ground; altitude, 14.80 ft.

Date	Head (ft.)	Chloride (p.p.m.)	Date	Head (ft.)	Chloride (p.p.m.)	Date	Head (ft.)	Chloride (p.p.m.)
Apr. 1, 1910	24.79	.....	Nov. 1912	24.31	55.0	Aug. 14, 1929	.....	75.4
May 1	25.80	.....	Dec. 1913	25.71	55.0	Aug. 21	.....	77.1
June 1	25.80	.....	Jan. 1913	25.22	54.0	Aug. 28	.....	77.1
Oct. 1	24.12	.....	Feb. 1913	23.46	55.0	Sept. 4	.....	75.4
Nov. 1	25.05	.....	Sept. 1913	24.05	55.0	Sept. 11	.....	75.7
Jan. 1, 1911	25.89	.....	Apr. 1913	24.05	55.0	Sept. 18	.....	73.7
Feb. 1	25.09	.....	May 1913	23.87	54.0	Sept. 27	.....	73.7
Mar. 1	25.84	.....	June 1913	24.75	55.0	Oct. 2	24.08	.....
Apr. 1	25.00	.....	July 1913	23.70	55.0	Oct. 16	.....	73.7
July 1	25.09	.....	Aug. 1913	22.74	53.0	Oct. 23	.....	73.7
Sept. 1	25.24	.....	Sept. 1913	22.70	55.0	Oct. 30	.....	73.7
Aug. 1	24.50	.....	Nov. 1913	23.00	53.0	Nov. 6	.....	71.9
Nov. 1	25.00	.....	Dec. 1913	23.09	53.0	Nov. 13	.....	71.9
Oct. 1	25.10	.....	Jan. 1914	23.00	54.0	Nov. 20	.....	73.7
Jan. 1, 1912	26.20	56.0	Feb. 1914	24.00	54.0	Nov. 27	.....	73.7
Feb. 1	24.93	55.0	Feb. 1924	24.00	53.2	Dec. 4	.....	73.7
Mar. 1	25.38	56.0	Aug. 14	22.60	56.0	Dec. 11	.....	71.9
Apr. 1	25.14	54.0	Feb. 4, 1926	22.00	56.0	Dec. 18	.....	73.7
May 1	24.03	54.0	July 12	18.86	52.0	Jan. 15	.....	71.9
June 1	24.10	54.0	Feb. 14, 1928	.....	77.0	Jan. 22, 1930	.....	71.9
July 1	24.65	54.0	Mar. 1, 1929	.....	77.4	Jan. 28	.....	71.9
Aug. 1	23.47	54.0	July 25	.....	77.8	Aug. 1	.....	71.9
Sept. 1	22.60	55.0	Aug. 1	.....	78.8	Aug. 8	.....	71.9
Oct. 1	22.06	54.0	Aug. 7	.....	77.1	Aug. 15	.....	71.9

Observations—Well 26 (Continued)

Date	Head (ft.)	Chloride (p.p.m.)	Date	Head (ft.)	Chloride (p.p.m.)	Date	Head (ft.)	Chloride (p.p.m.)
Jan. 22, 1930	71.9	Apr. 9, 1930	.....	71.9	Dec. 16, 1930	.....	71.9
Jan. 29	71.9	Apr. 30	.....	71.9	Jan. 5, 1931	.....	63.3
Feb. 5	68.5	May 14	.....	71.9	Mar. 5	.....	26.52
Feb. 12	68.5	June 19	.....	73.7	Sept. 11	.....	24.77
Feb. 19	70.2	July 15	.....	73.7	Sept. 17	.....	35.0
Mar. 5	71.9	Aug. 29	.....	70.2	Apr. 27, 1932	.....	66.7
Mar. 12	73.7	Sept. 6	.....	70.2	Aug. 22	.....	27.32
Mar. 19	73.7	Sept. 7	.....	68.5	June 19, 1934	.....	15.2
Mar. 26	71.9	Nov. 12	.....	68.5	Dec. 11	.....	24.44

* Leak in ¾-in. broken line.

Discharge in millions of gallons

Year	Jan.	Feb.	Mar.	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Total
1929	.....	.....	.....	.....	.....	.....	19	20	20	11	17	17	104
1930	.. 13	18	20	22	23	11	17	34	17	0	0	0	177
1931	.. 0	13	15	19	12	14	12	6.5	6.3	7.1	0	0	104.9
1932	.. 13	12	6.5	8.0	4.3	4.2	3.8	11	16	17	6.6	0	103.1
1933	.. 13	19	14	16	16	6.9	7.1	8.4	8.1	11.5	11.7	0	131.7
1934	.. 13.3	11.8	6.5	6.3	6.5	0.0	8.7	8.7	8.7	4.2	8.4	3.6	93.7

27 (old 52½). Near Waiialea Road in Moiliili district, Honolulu. Owner, Goo Kim. Drilled, 1881. Altitude, 15 ft. Depth, 407 ft. Diameter, 6 in. Depth to top of aquifer, 375 ft. Use, irrigation.

Log

Depth (ft.)	Remarks	Depth (ft.)	Remarks	Depth (ft.)	Remarks
Clay (Pa)	6-37	umas or Kaimuki	72-80	Clay (Pa)	275-290
Coalders (Pa)	37-54	.....	80-106	Clay and sand (Pa)	290-375
Clay (Pa)	54-64	Lava rock (Qbb, Kaua or Maunaloa)	106-123	Clay (Pa)	370-375
Clay and coral (Pa and Fla)	64-72	.....	125-175	Lava or bedrock (TKB)	375-407
Coalders (Pa and Qbb, possibly some Mau-)	.....	.....	175-193	Clay (Pa)	.....
.....	.....	.....	195-275	Clay (Fla)	.....

Observations

Bench mark, top of head on elbow at ground; altitude, 15.22 ft.

Date	Head (ft.)	Chloride (p.p.m.)	Date	Head (ft.)	Chloride (p.p.m.)	Date	Head (ft.)	Chloride (p.p.m.)
..... 1910	.....	.....	34.2	.....	.....	Feb. 16, 1928	23.92	20.0
Nov. 26, 1923	21.73	.....	Mar. 26, 1929	23.95	27.4	Jan. 27, 1932	25.60	30.8
Feb. 19, 1924	23.73	.....	Feb. 18, 1930	25.27	30.8	Aug. 22, 1934	27.28	30.8
Aug. 15	20.63	28.5	.....	.....	.....	June 19, 1932	22.29	30.8
Sept. 1, 1925	23.73	.....	.....	.....	.....	Dec. 11	.....	24.25
Feb. 4, 1926	21.43	35.5	.....	.....	.....	.....	.....	30.8
July 12	18.87	30.8	.....	.....	.....	.....	.....	30.8

* Leaking around valve stem.

Discharge in millions of gallons

Year	Jan.	Feb.	Mar.	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Total
1929	.....	.....	.....	.....	.....	.....	4	2.8	4.0	29	15	4	5.1
1930	.. .45	.. .4	.. .3	.. .4	.. .3	.. .4	.....	.....	.....	.....	.....	.....	16.4
1931	.. .3	.. .3	.. .3	.. .3	.. .3	.. .3	.....	.....	.....	.....	.....	.....	8.42
1932	.. .6	.. .4	.. .6	.. .5	.. .3	.. .3	.....	.....	.....	.....	.....	.....	11.1
1933	.. 1.28	.. .75	.. 1.21	1.41	1.60	1.60	.....	.....	.....	.....	.....	.....	81.62
1934	.. .35	.. 11	1.2	1.2	1.2	1.29	1.34	1.83	1.85	1.16	.97	1.11	13.1

28 (old 6). Moiliili district, Honolulu. Owner, Goo Kim. Drilled, 1882 by Arnold. Altitude, 15 ft. Depth, 840 ft. Diameter, 6 in. Depth to top of aquifer, 475 ft. Lost.

Log

	Depth (ft.)		Depth (ft.)		Depth (ft.)
Soil	0-10	Coral (Pis)	124-150	Coral (Pis)	290-360
Gravel (Ra)	10-23	Hard lava (Qhb, Kaau or Maunaea)		Clay (Pa)	360-380
Lava (Qhb, possibly Kaimuki)	23-66	Coral (Pis)	150-176	Coral (Pis)	380-430
		Coral (Pis)	176-270	Clay (Pa)	430-475
		Clay (Pa)	270-299	Bedrock or lava (Tbb)	475-540

29 (old 51A). Near old Moiliili rice mill and 50 ft. north of Manoa Stream, Honolulu. Owner, Territorial Hotel Co. Drilled, 1916. Altitude, 11 ft. Diameter, 10 in. Use, domestic.

Observations

Bench mark, top of vertical range at tee, top of casing, 2 ft. below ground; altitude 12.59 ft.

Date	Head (ft.)	Chloride (p.p.m.)	Date	Head (ft.)	Chloride (p.p.m.)
Jan. 18, 1917	83		Dec. 26, 1929	274	
Jan. 19, 1925	208		Mar. 30, 1930	274	
Apr. 22	247		Apr. 27	257	
Apr. 25	220		May 27	239	
May 8	230		Jan. 22	257	
June 18	235		June 22	257	
Nov. 3	247		Aug. 22	27.16	232
Dec. 27	276		Oct. 27	239	
Feb. 4, 1926	244		Nov. 29	239	
July 13	211	24.92	Dec. 27	239	
Sept. 14	18.53	224	Jan. 27, 1933	239	
Oct. 29	277		Feb. 25	239	
Nov. 20	262		Mar. 29	239	
Feb. 14, 1928	372		May 11	232	
Sept. 10	310		May 26	232	
Mar. 1, 1929	274		June 30	232	
July 25	329		July 26	239	
Aug. 1	326		Aug. 31	232	
Aug. 7	326		Sept. 28	232	
Aug. 14	308		Oct. 31	232	
Aug. 21	326		Nov. 28	232	
Aug. 28	308		Dec. 22	232	
Sept. 4	308		Jan. 30, 1934	232	
Sept. 11	308		Feb. 27	239	
Sept. 17	308		Mar. 29	232	
Sept. 28	25.70		Apr. 28	232	
Oct. 2	308		May 31	232	
Oct. 16	308		June 19	22.55	232
Oct. 23	291		July 31	232	
Oct. 30	298		Aug. 30	232	
Nov. 6	291		Sept. 9	240	
Nov. 13	291		Oct. 17	239	
Nov. 20	308		Oct. 30	239	
Nov. 27	291		Nov. 15	239	
Dec. 4	291		Nov. 30	239	
Dec. 11	291		Dec. 11	24.11	239
Dec. 18	291				

Discharge in millions of gallons

Year	Jan.	Feb.	Mar.	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Total
1929							1.0	1.0	1.0	1.0	1.2	1.2	6.4
1930		.90	.60	1.44	1.32	2.53	2.32	2.19	2.06	1.21	.83	.74	16.83
1931		.81	.74	1.09	1.02	.98	1.06	1.23	1.74	.87	.74	.51	11.49

* No discharge 1932, 1933, 1934.

31 (old 51). Near old rice mill and about 20 ft. east of Manoa Stream. Owner, Yee Tim. Drilled, 1889. Altitude, 13 ft. Diameter, 10 in. Use, irrigation.

Observations

Bench mark, top of horizontal range 2 ft. above ground, on main well casing directly over horizontal discharge pipe; altitude, 15.29 ft.

Date	Head (ft.)	Chloride (p.p.m.)	Date	Head (ft.)	Chloride (p.p.m.)
..... 1910	.....	47.0	Jan. 28, 1921	21.82	30.6
Oct. 22, 1916	23.15		Feb. 18	21.97	25.0
Nov. 12	24.06		Mar. 15	21.47	26.0
Nov. 19	24.38		Apr. 15	21.47	26.0
Nov. 26	24.64		May 20	21.28	29.0
Dec. 3	24.66		May 20	21.02	30.0
Dec. 19	25.04		Sept. 1, 1923	21.20	
Feb. 6, 1917	25.06		Sept. 16	21.27	27.6
Mar. 2	25.06		Nov. 14	22.04	40.0
Apr. 23	25.23		Dec. 17	22.24	30.0
June 1	24.99		Jan. 3, 1924	22.29	
June 1	25.65		Feb. 3	22.29	
Aug. 1	25.56		Feb. 16	22.46	29.1
Aug. 1	21.44		Nov. 20	22.60	
Sept. 1	20.92		April	22.70	
Oct. 1	20.83		May	22.80	
Nov. 1	21.73		June	23.00	
Dec. 1	22.18		July 16	23.23	29.0
Jan. 1, 1918	24.16		Aug. 14	23.97	27.0
Feb. 1	23.85		Sept. 1	20.15	
Mar. 1	23.76		Oct. 1	20.55	
Apr. 1	23.77		Nov. 1, 1925	21.15	
May 1	22.85		Dec. 1	21.02	
June 1	22.09		Jan. 1	20.17	
July 1	21.77		Feb. 1	18.53	26.6
Aug. 1	21.92		Nov. 18	20.90	35.0
Sept. 1	20.93		Feb. 2, 1926	20.93	
Oct. 1	20.90		Mar. 1	20.74	
Nov. 1	21.04		July 13	18.99	49.0
Dec. 1	23.09		Aug. 17	18.29	46.0
Jan. 1, 1919	23.12		Jan. 18	18.78	44.0
Feb. 1	22.67		Feb. 20	19.26	41.0
Mar. 1	22.15		Nov. 29	20.60	34.0
Apr. 1	22.15		Dec. 23	20.41	30.0
May 1	21.19		Jan. 21, 1927	20.70	38.0
June 1	21.28		Feb. 28	20.70	38.0
July 1	20.76		Mar. 1	20.71	41.0
Aug. 1	20.20		Apr. 28	21.22	28.0
Sept. 1	21.83		June 14	21.03	22.0
Oct. 1	20.25		July 27	20.22	36.0
Nov. 1	20.10		Aug. 25	20.66	33.0
Dec. 1	20.77		Jan. 18, 1928	20.77	32.0
Jan. 1, 1929	19.89		Oct. 25	21.02	41.0
Feb. 1	19.15	36.0	Jan. 9, 1928	24.67	34.0
Mar. 1	19.45	36.0	Feb. 5	24.35	37.0
Apr. 1	18.96		July 24	23.80	
May 1	18.82		Mar. 1, 1929	24.3	
June 1	18.95		Aug. 21	41.2	
July 1	19.78	43.0	Aug. 1	41.2	
Aug. 1	19.76	29.0	Aug. 7	39.4	

* Slight leak around main valve stem.

† Pump could not be shut down.

Discharge in millions of gallons

Year	Jan.	Feb.	Mar.	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Total	
1929							1.6	1.6	1.6	2.1	1.4	1.3	9.0	
1930		1.2	1.3	1.3	1.2	1.0	1.1	1.0	1.3	1.3	1.3	1.3	14.6	
1931		1.5	1.6	2.2	1.8	1.8	2.0	0.9	1.8	2.4	2.7	1.1	22.7	
1932		0	0	0	0	0	2.9	1.5	2.6	2.7	2.7	2.8	17.4	
1933		1.9	1.7	1.9	1.8	1.9	1.8	1.98	3.05	2.22	2.76	2.07	3.8	20.78
1934		.81	.61	4.17	5.53	2.12	2.02	2.67	4.70	2.2	5.02	.54	.01	24.63

32 (old 50). Near old rice mill and about 10 ft. east of Manoa Stream. Owner, Mrs. Lann Young Shee. Drilled, 1889. Altitude, 14 ft. Diameter, 10 in. Use, irrigation.

Observations

Bench mark, top of tee on top of casing about 6 ft. above ground; altitude, 19.74 ft.

Date	Head (ft.)	Chloride (p.p.m.)	Date	Head (ft.)	Chloride (p.p.m.)	Date	Head (ft.)	Chloride (p.p.m.)
April .. 1910	24.00	.....	Jan. 1914	24.50	34.0	Nov. 20, 1916	24.34	.....
May ..	23.65	.....	Feb.	23.26	.....	Dec.	24.66	.....
July ..	24.85	47.0	Mar.	23.27	36.9	Mar. 14, 1918	29.76	.....
Nov. ..	24.85	.....	April ..	22.95	22.0	Feb. 6, 1910	29.76	.....
Dec. ..	24.85	.....	May ..	23.78	41.0	Feb. 16, 1924	29.76	.....
Jan. .. 1911	25.95	.....	June ..	24.35	39.0	Mar. 19	.....	41.2
Feb. ..	26.10	.....	July ..	23.65	.....	April 16	.....	42.0
Mar. ..	25.10	.....	Aug. ..	24.73	.....	May ..	.....	41.1
April ..	24.80	.....	Sept. ..	24.27	.....	Aug. 14	.....	40.5
May ..	24.90	.....	Oct. ..	24.55	35.0	Sept. 27	.....	41.5
June ..	24.90	.....	Nov. ..	24.55	35.0	Oct. ..	.....	41.0
July ..	25.00	.....	Dec. ..	24.60	39.0	Dec. 2	.....	38.0
Aug. ..	24.28	46.0	Jan. 1915	24.35	35.0	Jan. 16, 1928	.....	38.0
Sept. ..	24.87	.....	Feb.	25.09	39.0	April 25	.....	39.0
Oct. ..	24.90	.....	Mar.	23.68	35.0	May 8	.....	39.0
Nov. ..	24.90	.....	Apr.	22.59	32.0	June 11	.....	39.5
Dec. ..	24.65	37.0	May ..	22.88	38.0	Sept. 11	.....	45.5
Jan. .. 1912	25.20	39.0	June ..	23.69	37.0	Dec. 27	.....	46.0
Feb. ..	24.80	65.0	July ..	23.37	32.0	Feb. 4, 1926	.....	46.0
Mar. ..	23.85	41.0	Aug. ..	22.25	35.0	Feb. 14, 1928	.....	63.0
Apr. ..	23.92	45.0	Sept. ..	22.43	36.0	.....	.....	66.0
July ..	24.41	42.0	Oct. ..	22.95	35.0	Mar. 6	.....	44.2
Aug. ..	23.15	40.0	Nov. ..	24.59	34.0	April 11	.....	24.87
Sept. ..	22.70	40.0	Dec. ..	24.56	32.0	May 31	.....	24.84
Oct. ..	22.80	43.0	Jan. 1916	24.60	31.0	June 20	.....	24.51
Nov. ..	24.35	37.0	Feb.	24.60	34.0	July 24	.....	23.93
Dec. ..	25.65	35.0	Mar.	24.60	40.0	Aug. 22	.....	32.84
Jan. 1913	25.01	38.0	Apr.	24.55	35.0	Sept. 25	.....	21.43
Feb. ..	25.15	40.0	May ..	24.59	35.0	Jan. 9, 1926	.....	24.42
Mar. ..	23.18	42.0	June ..	25.00	35.0	Mar. ..	.....	48.0
Apr. ..	23.73	37.0	July 30	24.80	33.0	Sept. 28	.....	24.00
May ..	23.73	30.0	Aug. 25	24.35	35.0	Feb. 18, 1930	.....	25.31
June ..	24.65	33.0	Sept. 20	23.91	.....	Mar. 2, 1931	.....	26.54
July ..	23.45	39.0	Oct. 8	23.76	.....	Sept. 9	.....	24.65
Aug. ..	22.45	36.0	Nov. 18	23.37	.....	Sept. 17	.....	26.4
Sept. ..	22.40	40.0	Dec. 24	23.31	.....	Jan. 27, 1932	.....	58.1
Oct. ..	22.10	42.0	Jan. 25	23.29	.....	Aug. 22	.....	27.28
Nov. ..	24.22	35.0	Nov. 8	23.87	.....	June 19, 1934	.....	22.68
Dec. ..	25.30	34.0	Nov. 14	24.05	.....	Dec. 11	.....	24.26

Discharge in millions of gallons

Year	Jan.	Feb.	Mar.	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Total
1922	.....	.....	.....	.....	.....	1.9	3.6	9.3	11.0	6.6	4.6	4.3	82.3
1923	4.8	6.1	5.0	4.6	8.6	10.4	16.7	11.2	8.5	6.5	3.6	82.3	.....
1924	4.39	3.61	6.29	5.42	6.67	6.87	7.71	6.65	6.88	3.98	2.17	3.17	82.3

33 (old 7). Old rice mill near Moiliili Church, Honolulu. Owner, Yee Tim. Drilled, 1889. Altitude, 12 ft. Depth, 520 ft. Diameter, 6 in. Use, irrigation. Casing, 420 ft. Recased in 1926.

Observations

Bench mark, top of vertical valve range on main valve at ground, altitude, 12.00 ft.

Date	Head (ft.)	Chloride (p.p.m.)	Date	Head (ft.)	Chloride (p.p.m.)	Date	Head (ft.)	Chloride (p.p.m.)
..... 1910	.....	240	Sept. 1, 1925	.....	425	Mar. 2, 1931	26.23	274
Oct. 22, 1916	21.84	.....	Jan. 15, 1926	.....	454	April 16	.....	325
Nov. 12	22.70	.....	Feb. 4	.....	454	May 27	.....	274
Nov. 19	22.98	.....	July 18	18.04	8.6	June 26	.....	394
Nov. 26	23.21	.....	Nov. 20	.....	540	July 27	.....	308
Dec. 23	23.42	.....	April 19, 1927	.....	402	Aug. 25	.....	405
Oct. 22, 1923	19.92	.....	Feb. 14, 1928	23.06	810	Sept. 9	24.37	.....
Feb. 16, 1924	.....	346	Sept. 26, 1929	23.68	291	Sept. 18	.....	274
..... 15	.....	360	Feb. 18, 1930	25.74	508	Oct. 31	.....	256

Observations—Well 29 (Continued)

Date	Head (ft.)	Chloride (p.p.m.)	Date	Head (ft.)	Chloride (p.p.m.)	Date	Head (ft.)	Chloride (p.p.m.)
Dec. 5, 1931	274	Jan. 27, 1932	.....	250	Feb. 27, 1934	.....	342
Feb. 27, 1932	250	.....	.....	256	Mar. 29	.....	445
.....	205	Mar. 29	.....	274	April 28	.....	479
.....	205	May 11	.....	274	May 31	.....	445
.....	216	May 26	.....	208	June 19	.....	445
.....	239	June 30	.....	325	July 31	.....	462
.....	216	July 26	.....	325	Aug. 30	.....	496
.....	274	Aug. 31	.....	445	Sept. 26	.....	492
.....	256	Sept. 28	.....	445	Oct. 17	.....	496
.....	208	Nov. 23	.....	313	Oct. 31	.....	513
.....	208	Dec. 22	.....	480	Nov. 16	.....	490
.....	201	Dec. 25	.....	428	Nov. 30	.....	411
.....	274	Jan. 30, 1934	.....	358	Dec. 31	.....	411

Discharge in millions of gallons

Year	Jan.	Feb.	Mar.	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Total
1921	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
1922	0	0	0	0	0	0	.16	.03	.01	0	0	0	.21
1923	0	0	.60	2.3	3	3	3	3	3	3	3	2	6.66
1924	3	1	3	3	3	3	.09	3	6	6	3	6	4.09
1925	1	3	6	3	3	2.1	2.2	7.4	7.2	4.1	3.3	1.2	29.1
1926	6	6	3	3	3	3.2	1.2	1.2	1.2	1.4	2.1	1.1	9.64

34 (old 51½). About 100 ft. from old rice mill and 25 ft. from Manoa Stream. Owner, Yee Tim. Drilled, 1889. Altitude, 14 ft. Depth, 500 ft. Diameter, 8 in. Casing, 430 ft. Sealed, Oct. 1928.

Observations

Date	Head (ft.)	Chloride (p.p.m.)	Date	Head (ft.)	Chloride (p.p.m.)	Date	Head (ft.)	Chloride (p.p.m.)
..... 1910	216	Nov. 27, 1916	.....	24.62	Feb. 4, 1926	.....	92
Oct. 18, 1916	25.04	.....	Feb. 6, 1919	.....	22.93	July 9	.....	18.32
.....	211.1	Feb. 15, 1923	.....	21.42	Nov. 20	.....	270
Oct. 25	23.09	Aug. 15, 1924	.....	21.88	Feb. 14, 1928	.....	21.27
Nov. 8	23.74	Mar. 14	.....	26.2	Sept. 3	.....	20.82
Nov. 14	23.69	.....	.....	26.5	.....	.....	.....
Nov. 20	24.29	.....	.....	72	.....	.....	.....

^a Leaking.

Meter tests

^b Test 1. Water flowing from top of well. Static level 5.07 ft. below normal for area. Au 3 in deep well meter used. Readings by K. N. Vaksika, Oct. 12, 1928.

Inch	Revolutions per minute	Depth (ft.)	Revolutions per minute	Depth (ft.)	Revolutions per minute
10	36	250	.....	36
50	36	250	.....	36
100	30	300	.....	36
125	30	300	.....	36
150 (leak)	30	350	.....	36
175	36	375	.....	34
200	36	400	.....	36
225	37	425	.....	36

^c Test 2. No flow from top of well. Static level about 9 ft. below normal for area. Au 2 in. deep well meter used. Readings by K. N. Vaksika, Oct. 16, 1928.

Head (ft.)	Chloride (p.p.m.)	Head (ft.)	Chloride (p.p.m.)	Head (ft.)	Chloride (p.p.m.)	Head (ft.)	Chloride (p.p.m.)	
20.65	0	180	.....	208	140	.....	192
75	38	190	.....	204	445	.....	174
85	34	200	.....	204	560	.....	166
85	72	250	.....	205	460	.....	120
90	90	300	.....	208	470	.....	50
100 (leak)	94	342	.....	398	481 (meter at bottom)	.....	.....
100	94	400	.....	208	.....	.....	.....
100	308	450	.....	308	.....	.....	.....
150	124	430 (end of casing)	.....	208	.....	.....	.....
170	170	435	.....	194	.....	.....	.....

Meter tests—Well 34 (Continued)

Test 3. No water flowing from top of well. A 60-ft. fill of iron had been placed in bottom of well to reduce the flow, so cement could be deposited without being washed away. An 8-in. deep-well meter used. Readings by K. N. Vaksvik, Oct. 18, 1928.

Depth (ft.)	Revolutions per minute	Depth (ft.)	Revolutions per minute	Depth (ft.)	Revolutions per minute
350	32	430	28	441.5 (top of iron fill)	30
400	32	440	30		
420	30	441	45		

35 (old 52). Near Japanese cemetery in Meiliili. Owner, B. P. Bishop estate. Drilled, 1883. Altitude, 12 ft. Diameter, 6 in. Use, irrigation.

Observations

Bench mark, top of vertical bend on elbow on main casing, 1 ft. above ground; altitude, 13.47 ft.

Date	Head (ft.)	Chloride (p.p.m.)	Date	Head (ft.)	Chloride (p.p.m.)	Date	Head (ft.)	Chloride (p.p.m.)
April 1, 1910	24.80		Dec. 11, 1929	223		Jan. 27, 1933	25.69	232
May 1	24.42	37	Dec. 18	206		Feb. 26		140
Oct. 29, 1916	23.71		Dec. 29	188		Mar. 30		149
Nov. 5	24.23		Jan. 2, 1930	188		May 27		222
Nov. 19	24.31		Jan. 8	188		June 28		222
Nov. 19	24.50		Jan. 15	188		July 29		239
Nov. 26	24.73		Jan. 22	223		Aug. 22	27.44	205
Dec. 3	25.01		Jan. 29	223		Sept. 22		274
Dec. 10	25.29		Feb. 5	223		Oct. 27		239
Oct. 22, 1923	21.72		Feb. 12	206		Nov. 29		205
Feb. 16, 1924	117		Feb. 19	206	49-40	Dec. 27		189
Aug. 15	21.20	154	Feb. 26			Jan. 27, 1933		116
Sept. 1, 1925	152		Mar. 5	223		Feb. 22		84
Feb. 4, 1926	21.60	177	Mar. 12	206		Mar. 29		123
July 13	19.20	186	Mar. 19	206		May 11		184
Feb. 14, 1927	21.8		Mar. 26	206		May 30		154
Sept. 11	22.32		April 9	206		June 30		152
Mar. 1, 1929	206		April 30	206		July 26		152
July 25	206		May 14	206		Aug. 31		144
Aug. 1	206		June 19	206		Sept. 23		184
Aug. 7	206		July 6	206		Oct. 31		135
Aug. 14	206		Aug. 23	171		Nov. 28		164
Aug. 21	206		Sept. 6	171		Dec. 22		183
Aug. 28	206		Sept. 13	171		Jan. 30, 1934		222
Sept. 4	206		Nov. 12	171		Feb. 27		188
Sept. 11	206		Dec. 5	171		Mar. 29		188
Sept. 17-20	206		Jan. 7, 1931	171		April 28		188
Sept. 26	33.62		Jan. 2	26.59	188	May 31		205
Oct. 2	206		April 15	206		June 19		217
Oct. 16	206		May 27	222		July 31		188
Oct. 23	206		June 29	222		Aug. 30		205
Oct. 30	206		July 28	205		Sept. 26		239
Nov. 6	223		Aug. 8	205		Oct. 17		222
Nov. 13	223		Aug. 9	24.84		Oct. 30		274
Nov. 20	240		Sept. 17	239		Nov. 15		274
Nov. 27	223		Oct. 30	256		Nov. 30		274
Dec. 4	223		Dec. 5	274		Dec. 11	24.27	239

Discharge in millions of gallons

Year	Jan.	Feb.	Mar.	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Total
1929							4.0	3.1	3.4	2.7	2.4	2.5	18.1
1930	2.6	2.9	2.6	3.4	3.7	2.1	1.6	1.4	1.9	1.1	1.1	21.4	
1931	1.8	1.2	1.8	1.0	1.8	1.8	1.9	1.8	1.4	1.7	1.7	16.7	
1932	2.1	1.9	1.8	1.8	2.0	2.1	3.1	2.4	2.5	2.0	1.6	24.0	
1933	1.93	1.5	1.15	1.48	1.92	1.96	1.32	1.52	1.83	3.29	2.90	22.11	
1934	1.68	1.18	2.12	1.68	1.22	1.33	1.24	1.25	.83	.96	1.40	1.36	16.20

36A and B (A, old 9½; B, old 9½). A, inside pump on Wilder Ave., east of Punahou School grounds, Honolulu; B, a few ft. west of pump house. Owner, City and County of Honolulu. Drilled, 1912. Altitude, about 43 ft. Depth, A, 335 ft.; B, 430 ft. Diameter of both wells, 12 in. Not in use.

Observations

Bench mark, top of upper flange at floor fitting, below elbow and under 1-in. pipe to south well, about 10 ft. below ground, altitude, 32.85 ft.

Date	Head (ft.)	Chloride (p.p.m.)	Date	Head (ft.)	Chloride (p.p.m.)	Date	Head (ft.)	Chloride (p.p.m.)
Mar. 27, 1920	49.0		Oct. 10, 1929	25.78		Oct. 23, 1934	*27.96	....
April 3	47.0		Feb. 18, 1930	28.94		Oct. 30	*28.31	....
April 17	46.0		Feb. 2, 1931	29.69		Nov. 6	*28.39	....
May 15	50.3		Sept. 9	*27.02		Nov. 13	*28.28	....
May 22	49.3		Sept. 9	*28.00		Nov. 20	*28.17	....
May 29	44.0		Jan. 27, 1932	*28.29		Nov. 27	*28.26	....
June 5	45.0		Aug. 22	*31.74		Dec. 2	*28.43	....
June 12	50.0		Oct. 17	33.38		Dec. 11	*28.62	*106
June 19	45.0		June 19, 1934	23.68		Dec. 11	*28.62	*106
June 26	51.0		June 19	29.12		Dec. 18	*28.46	....
Mar. 24, 1924	29.7	32.0	Oct. 9	*27.78		Dec. 25	*28.47	....
Nov. 10, 1920	34.0		Oct. 10	*28.09		Dec. 31	*28.30	....
Dec. 1, 1928	51.0							

* Well A. † Well B.

Discharge in millions of gallons

Year	Jan.	Feb.	Mar.	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Total
1924	52.5	49.5	59.7	55.6	60.8	62.8	61.6	61.1	65.0	64.8	62.8	61.7	629.9
1925	45.1	45.9	37.5	43.5	43.8	52.3	57.2	65.6	66.4	64.8	53.2	45.8	659.1
1926	63.4	69.8	69.9	45.9	57.4	39.3	51.8	37.0	39.0	39.0	39.0	39.0	971.9
1927	42.5	37.8	32.4	37.6	24.9	31.1	25.5	28.8	31.0	34.2	26.8	22.3	368.9
1928	35.7	31.9	27.0	12.2	13.7	15.9	17.0	19.0	20.9	.70	1.73	.35	181.08
*1929	.64	1.55	.21	....	....	....	....	....	....	....	....	....	1.38

* No discharge after Mar. 1929.

37 (old 62½). Punahou School, Manoa Valley, Honolulu. Owner, Punahou School. Drilled, 1909. Altitude, 30 ft. Depth, 302 ft. Diameter, 10 in. Depth to top of aquifer, 170 ft. Use, domestic. Casing, 190 ft.

Log

Depth (ft.)	Depth (ft.)	Depth (ft.)	Depth (ft.)
Surface clay, soft....	0-5	Yellow sandy clay	Soft black rock (Tkb)
Volcanic clinders (Qhd)		(Pa)	Soft red rock (Tkb)
Rocky Hill).....	5-11	Black clay (Pa)....	73-80
Black sand (Qhd)		Blue clay (Pa).....	80-107
Rocky Hill)	11-25	Gravel (Pa).....	107-112
Black soft rock (Qhb, Rocky Hill)	25-60	Gray clay (Pa)....	112-170
		Hard black rock (Tkb).....	170-174

Observations

Bench mark, top of well casing 4 ft. below ground; altitude, 40.25 ft. Chloride (p.p.m.), July 5, 1910, 49.0.

Date	Head (ft.)	Date	Head (ft.)	Date	Head (ft.)	Date	Head (ft.)
July 5, 1910	29.95	Aug. 29, 1910	29.75	Oct. 25, 1910	30.40	Dec. 27, 1910	31.10
11	29.90	Sept. 6	29.80	30	30.40	Jan. 2, 1911	31.15
18	29.80	13	29.32	Nov. 1	30.25	9	31.20
25	29.68	29	30.10	10	30.50	7	31.50
Aug. 2	29.60	26	30.25	21	30.80	23	31.40
9	29.50	3	30.10	28	30.90	30	31.60
15	29.62	10	30.38	Dec. 12	31.10	Feb. 6	31.65
22	29.50	17	30.35	19	31.10	13	31.75

Observations--Well 37 (Continued)

Observations--Well 37 (Continued)

Table with columns: Date, Head (ft.), Chloride (p.p.m.), Date, Head (ft.), Chloride (p.p.m.). Contains multiple rows of data for Well 37 from August 1922 to March 1925.

Table with columns: Date, Head (ft.), Chloride (p.p.m.), Date, Head (ft.), Chloride (p.p.m.). Contains multiple rows of data for Well 37 from March 1928 to February 1931.

Observations—Well 37 (Continued)

Date	Head (ft.)	Chloride (p.p.m.)	Date	Head (ft.)	Chloride (p.p.m.)	Date	Head (ft.)	Chloride (p.p.m.)
Feb. 28, 1933	32.75	.....	Oct. 1, 1933	30.10	.....	July 31, 1934	27.80	.....
April 1	32.75	.....	30	29.50	.....	Aug. 31	27.00	.....
May 2	32.75	.....	Nov. 30	29.10	.....	Sept. 30	26.80	.....
31	32.20	.....	Jan. 3, 1934	29.50	.....	Oct. 20	28.20	.....
June 30	31.60	.....	Jan. 31	30.10	.....	Nov. 20	28.40	.....
July 31	31.00	.....	April 20	29.20	.....	Dec. 11	28.50	.....
Sept. 1	30.20	.....	June 20	28.78	.....	Dec. 31	28.50	.....

Discharge in millions of gallons

Year	Jan.	Feb.	Mar.	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Total
1911	1.0	1.0	.9	1.0	1.0	1.1	.9	1.1	1.3	1.2	1.5	1.2	13.2
1912	1.4	1.5	1.3	1.3	1.8	2.6	1.2	1.3	1.8	2.1	1.7	1.3	19.3
1913	1.5	1.7	1.5	1.5	1.2	1.4	1.0	1.3	1.5	.6	.3	.6	14.3
1914	.7	.7	1.0	.8	1.1	1.1	1.1	.9	.9	.9	.9	.6	10.7
1915	.9	.9	1.3	1.1	1.5	1.1	.9	1.3	1.2	.9	.7	.6	12.2
1916	.7	.7	1.1	1.1	1.0	.8	.....	.....	.....	.....	.....	.....	8.5
1929	.....	.....	.....	.....	.....	.....	1.15	1.06	2.08	1.61	1.72	1.50	9.15
1930	1.57	1.67	1.64	1.75	2.05	1.21	1.23	1.25	1.15	1.47	1.50	1.58	18.67
1931	1.70	.94	1.76	1.69	2.07	1.03	1.04	1.47	1.44	1.94	1.29	1.39	18.29
1932	1.58	1.35	1.46	1.45	1.56	1.38	1.22	.60	.84	1.70	1.74	1.41	16.23
1933	1.47	1.29	1.46	1.49	2.07	1.47	1.68	1.84	2.27	3.07	2.49	1.88	22.78
1934	1.81	1.67	2.28	2.28	1.93	1.25	1.98	2.21	2.03	1.87	1.84	1.51	22.96

38 (old 9). Corner of Wilder Ave. and Oliver St., Honolulu. Owner, Dr. A. Marques. Drilled, 1880, by A. D. Pierce. Altitude, 37 ft. Depth, 295 ft. Diameter, 3 in. Depth to top of aquifer, 273 ft. Use, none. Recharged twice from 6 in.

Log

	Depth (ft.)		Depth (ft.)
Clay (Ha)	0-10	Hard lava (Tkb; or possibly an early post-Koolau Manoa Valley)	100-250
Sand and soft coral (Pls)	10-30	More water under slight head.	265
Black lava and gravel (Qhb, Rocky Hill)	30-70	Water under artesian head.	272
Clay (Pa)	70-100	Alternating clay and rock (Tkb)	250-295
Clay (Pa)	230		

Observations

Date	Head (ft.)	Chloride (p.p.m.)	Date	Head (ft.)	Chloride (p.p.m.)	Date	Head (ft.)	Chloride (p.p.m.)
April .. 1880	43.5	.....	Mar. 1, 1899	35.8	.....	Sept. 9, 1931	*	.....
Aug. .. 1882	42.8	.....	May 1	35.3	.....	Oct. 14, 1932	29.90	.....
Nov. .. 1882	42.5	.....	June 1	35.2	.....	.....	15	29.50
Jan. 1883	42.3	.....	.....	1910	.....	June 19, 1934	27.14	.....
Mar. .. 1883	42.0	.....	Mar. 31, 1924	47.6	.....	Dec. 11	27.18	39.3
June .. 1883	41.9	.....	Mar. 7, 1929	41.0	.....	.....	.....	.....
July .. 1884	39.0	.....	Sept. 20	39.3	.....	.....	.....	.....

* Leaking.

Discharge in millions of gallons

Year	Jan.	Feb.	Mar.	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Total
1930	0.17
1930091	.001	.002	.003	.003	.003	.013

* No discharge after 1930.

39 (old 62). Wilder Ave. entrance to Punahou School grounds, Honolulu. Owner, Punahou School. Drilled, 1889. Altitude, 48 ft. Depth, 213 ft. Diameter, 6 in. Depth to top of aquifer, 170 ft. Casing, 172 ft. Sealed, Feb. 1929.

Log

	Depth (ft.)		Depth (ft.)	Depth (ft.)
Soil (Ba and probably some Qhb)	0-20	Light colored clay (Pa)	55-80	Clay (Pa)
Blue clay (Pa)	20-30	Boulders (Pa)	80-95	Brown clay (Pa)
.....	.....	Brown clay (Pa)	95-120	Sand and gravel (Pa)
.....	.....	and possibly some Qhb, Rocky Hill)	.....	Bedrock and water (Tkb)
.....
.....	.....	.....	120-135	.....

Observations

Chloride (p.p.m.), Jan. 1910, 55.

Date	Head (ft.)	Date	Head (ft.)	Date	Head (ft.)	Date	Head (ft.)
Feb. .. 1899	35.75	Sept. .. 1900	32.85	Apr. .. 1902	34.10	Sept. .. 1903	33.10
Apr. .. 1900	35.30	Oct. .. 1900	33.19	May .. 1902	33.85	Oct. .. 1903	33.30
May .. 1900	35.20	Nov. .. 1900	34.00	June .. 1902	33.50	Nov. .. 1903	33.34
June .. 1900	35.10	Dec. .. 1900	34.00	July .. 1902	33.40	Dec. .. 1903	33.40
July .. 1900	34.60	Jan. .. 1901	34.00	Aug. .. 1902	33.10	Jan. .. 1904	33.90
Aug. .. 1900	34.40	Feb. .. 1901	34.37	Sept. .. 1902	33.40	Feb. .. 1904	34.80
Sept. .. 1900	34.20	Mar. .. 1901	34.30	Oct. .. 1902	32.95	Mar. .. 1904	35.85
Oct. .. 1900	34.20	Apr. .. 1901	34.00	Nov. .. 1902	33.90	Apr. .. 1904	36.30
Nov. .. 1900	34.85	May .. 1901	34.85	Dec. .. 1902	34.57	May .. 1904	35.86
Dec. .. 1900	34.25	June .. 1901	33.40	Jan. .. 1903	35.06	June .. 1904	35.40
Jan. .. 1901	34.05	July .. 1901	33.20	Feb. .. 1903	35.25	Jan. .. 1905	31.20
Mar. .. 1901	33.75	Oct. .. 1901	33.10	Mar. .. 1903	34.85	Feb. .. 1910	31.30
Apr. .. 1901	34.50	Nov. .. 1901	33.56	Apr. .. 1903	34.75	Mar. .. 1910	30.85
May .. 1901	33.60	Dec. .. 1901	34.05	May .. 1903	34.65	Apr. .. 1910	30.59
June .. 1901	33.53	Jan. .. 1902	33.95	June .. 1903	34.18	May .. 1910	29.75
July .. 1901	33.28	Feb. .. 1902	33.80	July .. 1903	33.80	June .. 1910	29.70
Aug. .. 1901	32.90	Mar. .. 1902	34.05	Aug. .. 1903	33.20	Aug. 20, 1928	33.01

Discharge in millions of gallons

Year	Jan.	Feb.	Mar.	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Total
1908	.....	.....	.....	.....	.....	1.9	1.9	2.2	1.8	1.6	2.0	1.6	1.1
1909	1.2	1.0	.8	1.1	1.7	1.8	.9	1.8	1.6	1.5	1.6	.8	14.1
1910	.6	.7	1.0	.7	1.1	.9	1.0	1.0	.8	1.2	1.1	.6	10.7

40 (old 8). Near Honolulu Stadium; exact location unknown. Owner, Paaka. Drilled, 1882, by Cooke & Peddler. Altitude, 10 ft. Depth, 730 ft.

41 (old 61). 1827 Dole St., Honolulu. Owner, Lai Hwe Soon. Drilled, 1885. Altitude, 30 ft. Depth, 260 ft. Diameter, 6 in. Depth to top of aquifer, 250 ft. Casing, 181 ft. Sealed, June 1923.

Log

	Depth (ft.)		Depth (ft.)
Soil (Ba and probably some Qhb)	0-28	Soil (Pa)	38-250
Coral (Pls)	28-38	Water-bearing rocks (Tkb)	250-260

Well 41 (Continued) Observations

Chloride (p.p.m.), June 1910, 52.

Date	Head (ft.)	Date	Head (ft.)	Date	Head (ft.)	Date	Head (ft.)
June .. 1885	42	Oct. 8, 1916	29.98	Nov. 26, 1916	30.00	Jan. 31, 1929	28.91
Aug. 13, 1918	30.84	Oct. 18	29.94	Dec. 3	30.04	Feb. 7	28.95
Aug. 20	40.27	Oct. 22	29.83	Dec. 10	30.18	Feb. 14	28.85
Sept. 4	30.28	Oct. 26	30.75	Nov. 1, 1909	30.00	Feb. 21	30.80
Sept. 17	30.30	Nov. 5	29.84	Mar. 22, 1924	27.80	Feb. 27	29.60
Sept. 29	30.22	Nov. 10	29.93	July 19, 1926	24.18	Mar. 2	28.98
Oct. 1	30.04	Nov. 19	29.96	Jan. 23, 1929	28.92		

Meter test

Water pumped from well during test to produce flow. Static level of well normal for area. Au 3-in. deep-well meter used. Readings by K. N. Yakevic, June 4, 1929.

Depth (ft.)	Revolutions per minute	Depth (ft.)	Revolutions per minute	Depth (ft.)	Revolutions per minute
100	78	177	64	187	50
120	78	179	52	189	48
140	100	181	40	200	14
160 (end of casing)	109	183	42	242 (motor inoperative)	
175	94	185	40		

42 (old 55). 2011 Coyne Ave., Honolulu. Owner, Thomas Ching. Drilled, 1891. Altitude, 17 ft. Diameter, 8 in. Use, irrigation.

Observations

Bench mark, top of 1-in. tee on top of well about 6 in. below ground; altitude, 17.46 ft.

Date	Head (ft.)	Chloride (p.p.m.)	Date	Head (ft.)	Chloride (p.p.m.)	Date	Head (ft.)	Chloride (p.p.m.)
..... 1910	.....	54	Nov. 5, 1916	29.88	.....	Sept. 26, 1929	25.95	48.0
Aug. 25, 1916	30.47	.....	Nov. 12	29.89	.....	Feb. 18, 1930	29.12	48.0
Aug. 30	30.17	.....	Nov. 19	29.89	.....	Sept. ....	.....	.....
Sept. 5	30.29	.....	Nov. 26	29.94	.....	Mar. 2, 1931	29.88	51.3
Sept. 11	30.30	.....	Dec. 3	30.00	.....	Sept. 9	27.92	53.0
Sept. 18	30.37	.....	Dec. 10	30.14	.....	Sept. 17	.....	53.0
Sept. 25	30.17	.....	Jan. 1919	29.86	.....	Jan. 27, 1932	29.11	49.6
Oct. 2	29.96	.....	Jan. 6	29.96	.....	Aug. 22	31.79	51.3
Oct. 9	29.94	.....	Aug. 14, 1923	28.33	.....	June 19, 1934	28.72	54.7
Oct. 16	29.89	.....	Jan. 17, 1924	28.30	.....	Dec. 11	28.52	53.0
Oct. 22	29.82	.....	Aug.	61	.....	.....	.....	.....
Oct. 29	29.69	.....	July 10, 1926	24.14	53.5	.....	.....	.....

Discharge in millions of gallons

Year	Jan.	Feb.	Mar.	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Total
1929	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
1930	.. .03	.. .03	.. .03	.. .03	.. .03	.. .03	.. .03	.. .03	.. .03	.. .03	.. .03	.. .03	.. .47
1931	.. .06	.. .06	.. .06	.. .06	.. .06	.. .06	.. .06	.. .06	.. .06	.. .06	.. .06	.. .06	.. .44
1932	.. .02	.. .03	.. .03	.. .03	.. .01	.. .01	.. .01	.. .01	.. .02	.. .03	.. .03	.. .03	.. .21
1933	.. .02	.. .02	.. .03	.. .03	.. .03	.. .03	.. .03	.. .03	.. .03	.. .03	.. .03	.. .03	.. .34
1934	.. .03	.. .03	.. .03	.. .03	.. .03	.. .02	.. .02	.. .03	.. .03	.. .03	.. .03	.. .03	.. .33

43 (old 56). On east side of McCully St. between Coyne Ave. and Detetania St. Owner, Union Trust Co. Drilled, 1891. Altitude, 18 ft. Diameter, 8 in. Use, irrigation.

Observations

Bench mark, southeast corner on outside of railing of front porch, 1215 McCully St., $2\frac{1}{2}$ ft. above ground; altitude, 20.82 ft.

Date	Head (ft.)	Chloride (p.p.m.)	Date	Head (ft.)	Chloride (p.p.m.)	Date	Head (ft.)	Chloride (p.p.m.)
..... 1910	.....	55	Mar. 19, 1924	28.20	55.0	Mar. 2, 1931	29.79	53.0
Jan. 1919	29.95	.....	Mar. 9	28.90	.....	Sept. 9	27.24	.....
Feb. 1919	29.75	.....	Aug. 19	28.30	.....	Sept. 17	.....	49.6
Aug. 1923	28.29	.....	Dec.	25.90	.....	Jan. 27, 1932	29.34	51.3
Sept. 1923	27.72	.....	Jan. 29, 1925	26.80	.....	Aug. 29	31.76	53.0
Oct.	27.26	.....	July 19, 1926	24.17	37.5	June 19, 1934	.....	61.5
Sept.	27.40	.....	Sept. 26, 1929	25.80	49.7	Dec. 11	28.68	51.3
Dec.	27.50	.....	Feb. 18, 1930	29.20	.....	.....	.....	.....
Jan. 1924	29.08	.....	Sept. ....	.....	48.0	.....	.....	.....

Well 43 (Continued)

Discharge in millions of gallons

Year	Jan.	Feb.	Mar.	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Total
1929	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
1930	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
1931	.. .03	.. .03	.. .03	.. .03	.. .03	.. .02	.. .02	.. .02	.. .02	.. .02	.. .02	.. .02	.. .101
1932	.. .02	.. .02	.. .02	.. .02	.. .02	.. .02	.. .02	.. .02	.. .02	.. .02	.. .02	.. .02	.. .15
1933	.. .02	.. .01	.. .02	.. .02	.. .02	.. .02	.. .02	.. .02	.. .02	.....	.....	.....	.....

* No discharge 1934.

44 (old 57). McCully St. opposite well 43. Owner, Sing Loy. Drilled, 1894. Altitude, 20 ft. Diameter, 8 in. Not in use.

Observations

Bench mark, top of 1-in. plug south side of well 2 ft. above ground; altitude, 21.51 ft.

Date	Head (ft.)	Chloride (p.p.m.)	Date	Head (ft.)	Chloride (p.p.m.)	Date	Head (ft.)	Chloride (p.p.m.)
April .. 1910	30.77	.....	Oct. 1913	28.40	57	Oct. 1914	28.08	58
May ..	30.24	.....	Nov.	28.65	59	Nov.	28.11	60
June ..	29.90	56	Dec.	29.24	58	Dec.	29.49	60
Oct.	30.40	.....	Jan. 1913	29.24	58	Jan. 1915	29.50	60
Nov.	31.05	.....	Feb.	28.84	58	Feb.	29.62	60
Feb. 1911	32.40	.....	Mar.	28.60	54	Mar.	29.19	60
Mar.	32.64	.....	April ..	28.58	57	Apr. 14, 1923	28.06	.....
Apr.	31.45	.....	May ..	28.55	58	Nov. 9	27.40	.....
June ..	31.95	.....	June ..	28.93	58	Mar. 20, 1924	28.30	61.8
July ..	31.96	.....	July ..	28.52	58	Aug.	26.20	.....
Aug.	31.18	.....	Aug.	28.30	59	Dec.	26.20	.....
Sept.	31.20	.....	Sept.	28.01	59	Jan. 16, 1926	24.27	69.0
Oct.	31.28	.....	Oct.	28.07	60	Jan. 1929	28.61	61.7
Jan. 1912	31.85	60	Nov. 1914	28.78	58	Sept. 26	25.93	53.1
Feb.	31.45	55	Dec.	28.75	58	Feb. 18, 1930	28.87	.....
Mar.	31.60	57	Jan. 1914	28.60	58	Mar. 2, 1931	27.75	53.0
April ..	31.16	57	Feb.	28.54	58	Sept.	27.07	.....
May ..	30.61	59	Mar.	28.10	58	Sept. 9	.....	51.3
June ..	29.65	55	Apr.	28.78	59	Sept. 17, 1932	29.09	.....
July ..	29.25	57	May ..	28.51	59	Aug.	31.67	55.0
Aug.	28.98	57	June ..	28.00	.....	June 19, 1934	28.61	54.7
Sept.	28.58	58	July ..	27.88	.....	Dec. 11	28.50	54.7
	28.58	58	Aug.	28.19	59			
	28.58	58	Sept.	28.19	59			

Discharge in millions of gallons

Year	Jan.	Feb.	Mar.	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Total
1929	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
1930	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
1931	.. .06	.. .06	.. .06	.. .06	.. .06	.. .02	.. .02	.. .02	.. .02	.. .02	.. .02	.. .02	.. .41
1932	.. .02	.. .02	.. .02	.. .02	.. .03	.. .03	.. .03	.. .03	.. .03	.. .03	.. .03	.. .03	.. .32
1933	.. .02	.. .02	.. .03	.. .03	.. .03	.. .03	.. .03	.. .03	.. .03	.. .03	.. .03	.. .03	.. .32
1934	.. .03	.. .03	.. .03	.. .03	.. .03	.. .02	.. .02	.. .02	.. .03	.. .03	.. .03	.. .03	.. .32

45 (old 59). At service station west of 1931 S. King St., Honolulu. Owner, Waterhouse Trust Co. Drilled, 1890. Altitude, 8 ft. Diameter, 8 in. Use, irrigation.

Observations

Bench mark, cross on top of King St. side branch fitting top of casing 6 in. above ground; altitude, 8.64 ft.

Date	Head (ft.)	Chloride (p.p.m.)	Date	Head (ft.)	Chloride (p.p.m.)	Date	Head (ft.)	Chloride (p.p.m.)
..... 1910	.....	75	Mar. 1929	.....	51.4	Sept. 17, 1931	.....	46.2
Jan. 3, 1919	29.55	.....	Sept. 27	25.84	51.4	Jan. 25, 1932	30.82	51.0
Feb. 7, 1920	27.79	.....	Oct. 6, 1930	25.79	.....	Aug.	31.87	51.3
Mar. 20, 1924	27.94	54.9	Sept. ....	.....	51.4	June 19, 1934	28.80	54.7
Nov. 19, 1929	24.28	55.0	Mar. 2, 1931	29.86	53.0	Dec. 11	28.55	54.7
Feb. 27, 1928	28.94	55	Sept. 9	27.21	.....		

52 (old 13). Alexander St., near Bingham St., Honolulu. Owner, Hiram Bingham. Drilled, 1884. Altitude, 37 ft. Depth, 300 ft. Diameter, 6 in. Not in use.

Chloride (p.p.m.), 1910, 54.

Observations							
Date	Head (ft.)	Date	Head (ft.)	Date	Head (ft.)	Date	Head (ft.)
July .. 1882	42.92	Sept. 1, 1883	40.62	Jan. .. 1884	39.75	May .. 1884	39.10
Aug. ..	42.83	Sept. 26	40.29	Feb. ..	39.65	Feb. 3, 1919	24.03
Oct. ..	42.60	Oct. ..	40.17	Mar. ..	39.54	Sept. .. 1931	Buried
May .. 1883	41.94	Nov. ..	40.04	Apr. 1	39.54		
Nov. ..	40.81	Dec. ..	39.85	Apr. 11	39.67		

53 (old 12). Corner of Bingham and Alexander Sts., Honolulu. Owner, Dillingham estate. Drilled, 1883. Altitude, 36 ft. Depth, 290 ft. Diameter, 6 in. Depth to top of aquifer, 280 ft. Not in use. Head (ft.), Sept. 19, 1926, 24.14; Sept. 26, 1929, 25.83; Feb. 18, 1930, 29.18; Mar. 2, 1931, 29.97; Jan. 27, 1932, 29.22; Aug. 22, 1932, 31.71; June 19, 1934, 28.68; Dec. 11, 1934, 28.61. Bench mark, top of 2-in. pipe which extends 8 in. above ground; altitude, 36.99 ft.

Log

	Depth (ft.)		Depth (ft.)		Depth (ft.)
Soil	0-10	Clay (Pa)	175-180	Salt and pepper clay	
Sand clay (Pa)	10-30	Coral (Pa)	180-203	(Pa and possibly	
Black sand (Qtz)	30-50	Black clay (Pa)	205-230	some PIs)	260-270
Clay (Pa)	50-60	Coral (Pis)	230-240	Sand and gravel (Pa)	270-280
Coral (Pis)	60-70	Brown clay (Pa)	240-250	Black lava rock	280-290
Clay (Pa)	70-105	Blue clay (Pa)	250-260		
Coral (Pis)	105-175				

54 (old 14). 1726 Bingham St., Honolulu. Owner, J. M. Keanu. Drilled, 1884. Altitude, 40 ft. Depth, 213 ft. Diameter, 6 in. Not in use. Depth to top of aquifer, 170 ft.

Log

	Depth (ft.)		Depth (ft.)
Dug by hand and not exposed because of wood casing (probably Qtz)	0-20	Brown clay (Pa)	95-120
Blue clay (Pa)	20-30	Coral (Pis)	120-135
Boulders and clay (Pa)	30-55	Brown clay (Pa)	135-145
Light clay (Pa)	55-80	Sand and gravel (Pa)	160-170
Doubtful (Pa)	80-82	Dark rock and water rock (Tbh)	170-213

Observations

Bench mark, top of well casing 6 in. above ground; altitude, 40.29 ft.

Date	Head (ft.)	Date	Head (ft.)	Date	Head (ft.)	Date	Head (ft.)
Aug. 13, 1916	30.75	Oct. 1, 1916	30.06	Nov. 12, 1916	29.96	July 19, 1926	24.17
Aug. 27	30.57	Oct. 8	30.00	Nov. 26	30.00	Sept. 29, 1929	25.82
Sept. 3	30.41	Oct. 15	29.94	Dec. 3	30.04	Feb. 18, 1930	29.12
Sept. 19	30.37	Oct. 22	29.85	Dec. 10	30.39	Mar. 2, 1931	30.09
Sept. 17	30.34	Oct. 29	29.79	Nov. 16, 1932	27.29	Sept. 9	26.95
Sept. 24	30.24	Nov. 5	30.04	Mar. 24, 1934	27.83	Jan. 27, 1932	29.20
				Dec. 11, 1934	28.49		

55 (old 12½). Central Union Church grounds. Owner, R. F. Dillingham. Drilled, 1882 by Pierce. Altitude, about 36 ft. Depth, 300 ft. Diameter, 6 in. Depth to top of aquifer, about 250 ft. Sealed, Nov. 1933.

Log

	Depth (ft.)		Depth (ft.)
Loam, gravel, boulders, and clay (Ra and Pa)	0-90	Clay, black sand and lava rock (Pa and Tbh)	210-250
Coral (Pis)	90-130	Black basaltic rock; flowing water (Tbh)	250-300
Clay (Pa)	130-190		
Coral (Pis)	190-210		

Well 55 (Continued)

Meter tests

Test 1—Oct. 25, 1932. Au 1-in. deep-well meter used. Readings by Sam Wong.

Depth (ft.)	Revolutions per minute	Depth (ft.)	Revolutions per minute	Depth (ft.)	Revolutions per minute
0	0	170	165	193	167
131	45	179	162	229	69
131	42	180	69	233	62
155	46	185	80	239	66
140	39	189	72	250	66
145	40	194	96	260	66
150	38	200	87	275	39
130	46	204	70	280	54
160	51	210	86	285	0
175	78	214	93	287.4	0
178	72	219	98		

Test 2—Oct. 31, 1932.

139	0	170	75	230	90
133	33	179	87	240	84
135	46	180	56	245	54
149	42	185	94	250	63
144	45	190	90	255	72
144	42	195	78	260	35
143	0	200	86	265	68
146	50	205	60	270	45
150	78	210	81	275	39
155	75	215	75	278	21
160	69	220	88	275.5-290	0
165	80	225	88	295.1 (landed)	0

Test 3. Nov. 1, 1932. After bottom was filled with 10 ft. iron filings.

129-132	0	160	69	230	60
123	46	170	99	240	90
123	51	179	81	250	54
134	50	180	80	259	26
135	60	190	76	265	57
149	44	200	78	270	48
145	40	210	80	275	24
150	70	220	62	280	0

Test 4. Meter lowered to 255.1 ft. after well was filled with 40 ft. of iron filings. Well sealed, indicating that well is effectively sealed. Nov. 3, 1932. No velocity recorded.

56 (old 63). At 1621 S. Beretania St., Honolulu. Owner, F. W. Wood. Drilled, 1890. Altitude, 29 ft. Depth, 383 ft. Diameter, 8 in. Head (ft.), Sept. 29, 1923, 26.42; Mar. 24, 1924, 27.65; July 13, 1926, 24.07; Mar. 7, 1928, 29.50. Sealed, July 1928.

57 (old 16). South side of Beretania St., between Punahou St. and Kalakaua Ave. Owner, Miss M. F. Rawlins. Drilled, 1882, by Fessier. Altitude, 23 ft. Depth, 310 ft. Diameter, 5 in. Depth to top of aquifer, 300 ft. Casing, 237 ft. Chloride (p.p.m.), 1910, 61. Head (ft.), Jan. 24, 1919, 29.7; Aug. 23, 1923, 27.8; Mar. 25, 1924, 27.52; July 19, 1926, 24.1. Sealed, Nov. 1928.

Meter test

No flow from top of well during test. Head 0.66 ft. below normal for area. Au 3-in. deep-well meter used. Readings by E. N. Yaksivik, Nov. 19, 1928.

Depth (ft.)	Revolutions per minute	Depth (ft.)	Revolutions per minute	Depth (ft.)	Revolutions per minute
5-145	0	230	46	265	52
147 (leak)	0	235	21	275	48
148	18	237 (end of casing)	61	280	48
149	31	238	52	285	47
150	34	240	51	288	0
160	43	245	53	290	0
165	46	250	52	290.7	0
175	50	255	53	298.7 (meter landed)	0

58 (old 64). Under Kalakaua Ave., just north of King St., Honolulu. Owner, City and County of Honolulu. Drilled, 1893. Altitude, 18 ft. Diameter, 8 in. Use, domestic.

Observations

Bench mark, cross cut on top of flange at top of well casing 3 ft. above ground; altitude, 21.45 ft.

Date	Head (ft.)	Chloride (p.p.m.)	Date	Head (ft.)	Chloride (p.p.m.)	Date	Head (ft.)	Chloride (p.p.m.)
..... 1910	.....	62	Mar. 12, 1929	.....	58.2	Sept. 12, 1931	26.76	.....
Jan. 31, 1919	29.75	.....	Sept. 27	25.30	56.6	Sept. 17	.....	54.7
Aug. 23, 1929	28.03	.....	Oct. 20	4	56.4	Jan. 28, 1932	29.19	56.4
Mar. 20, 1924	28.55	62	Feb. 18, 1930	28.10	.....	Aug. 26	31.50	54.7
July 15, 1926	24.18	.....	May 8	29.54	58.1	June 19, 1934	28.97	58.1
Nov. 27, 1929	28.27	64	Oct. 7, 1934	29.84	58.1	Dec. 11	28.56	56.4

Discharge in millions of gallons

Year	Jan.	Feb.	Mar.	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Total
192909	.08	.09	.09	.09	.05	.....	.02	.02	.02	.02	.13
193025	.23	.23	.24	.25	.18	.19	.19	.18	.19	.18	1.91
193119	.03	.03	.03	.03	.03	.03	.03	.03	.03	.03	.52
193209	.08	.03	.03	.03	.03	.03	.03	.03	.03	.03	.47
193303	.03	.03	.03	.03	.03	.03	.03	.03	.03	.03	.36

59 (old 5½). Near corner of King St. and Kalakaua Ave., Honolulu. Owner, Hi estate. Drilled, 1883. Altitude, 15 ft. Depth, 450 ft. Diameter, 10 in. Depth to top of aquifer, 340 ft. Use, irrigation. Casing, 340 ft.

Log

	Depth (ft.)	Depth (ft.)	Depth (ft.)
Soil (Ra)	0-60	Brown clay which	Clay (Pa)
Coral (Pls)	60-97	changed to blue clay	Blue rock (Tkb)
Rock (Qh), probably	97-107	with decomposed	Flowing water
Rocky Hill)	107-200	wood (Pa)	200-240
Coral (Pls)	200-240	rock (Tkb)	240-300
			300-320
			323-340
			350
			340-450

Observations

Bench mark, top of flange about 1½ ft. above ground and west of west valve on well; altitude, 16.42 ft.

Date	Head (ft.)	Chloride (p.p.m.)	Date	Head (ft.)	Chloride (p.p.m.)	Date	Head (ft.)	Chloride (p.p.m.)
Apr. 20, 1916	30.51	.....	Nov. 5, 1916	29.80	.....	Sept. 26, 1929	25.74	59.1
Aug. 27	30.49	.....	Nov. 12	29.89	.....	Feb. 18, 1930	29.36	.....
Sept. 3	30.34	.....	Nov. 19	29.88	.....	Sept. 17	.....	56.0
Sept. 10	30.40	.....	Nov. 26	29.85	.....	Mar. 5, 1931	29.89	54.7
Sept. 17	30.23	.....	Dec. 3	29.91	.....	Sept. 9	26.70	.....
Sept. 24	30.17	.....	Dec. 10	30.04	.....	Sept. 17	.....	51.3
Oct. 1	30.01	.....	Mar. 22, 1924	27.70	57.4	Jan. 27, 1932	29.08	51.3
Oct. 8	29.91	.....	July 15, 1926	24.15	60.0	Aug. 22	31.81	56.4
Oct. 15	29.87	.....	Feb. 27, 1928	29.62	59.0	June 19, 1934	28.81	63.2
Oct. 22	29.77	.....	Oct. 15	28.92	.....	Dec. 11	28.76	65.2
Oct. 29	29.68	.....	Mar. 7, 1929	.....	53.1			

Discharge in millions of gallons

Year	Jan.	Feb.	Mar.	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Total
1929
1930	17.8	15.9	18	17	18	17	18	15	18	14	16.4	89.9
1931	16	11	18	17.7	17.8	18.4	19.2	17.5	18.0	20.3	23.2	214.0
1932	25	25	25	20.0	20.3	18.2	18.5	21.4	18.3	14.0	14.5	230.3
1933	19.2	12.4	14.7	14.9	15.6	13.4	11.6	14.0	13.3	12.9	14.4	164.9
1934	13.9	12.0	13.7	11.3	12.0	4.5	4.6	9.2	7.73	9.22	8.64	78.1

60 (old 17). On slope of Round Top. Exact location unknown. Drilled, 1882. Altitude, 200 ft. Depth, 980 ft. Abandoned after drilling.

61 (old 5). Kalakaua Ave., near King St., Honolulu, under manhole 285 ft. north-west of southern end of first parking strip. Owner, City and County of Honolulu. Drilled, 1881. Altitude, 14 ft. Depth, 475 ft. Diameter, 8 in. Use, domestic. Sealed, 1932.

Observations

Bench mark, cross on west edge of sidewalk at ground, 20 ft. toward King St. from well. Altitude, 14.79 ft.

Date	Head (ft.)	Chloride (p.p.m.)	Date	Head (ft.)	Chloride (p.p.m.)	Date	Head (ft.)	Chloride (p.p.m.)
Mar. 24, 1886	.....	.....	Mar. 7, 1929	.....	.....	Jan. 17, 1932	.....	63.3
Jan. 21, 1919	29.91	.....	Sept. 26	24.05	.....	Feb. 17	.....	63.3
Sept. 7, 1923	27.47	.....	Feb. 18, 1930	27.55	.....	Feb. 20	.....	61.6
Mar. 21, 1924	27.60	65.0	Mar. 2, 1931	30.49	65.0	Feb. 23	.....	29.23
July 15, 1926	24.15	.....	Sept. 11	26.14	.....		
Feb. 27, 1928	29.89	67.0	Sept. 17	.....	56.4			

Leaking.

Meter tests

Test 1. No flow from top of well during test. Head 0.7 ft. below normal for area. Au 3-in. deep-well meter used. Readings by K. N. Vaksvik, Feb. 23, 1932.

Depth (ft.)	Revolutions per minute	Depth (ft.)	Revolutions per minute	Depth (ft.)	Revolutions per minute
14	0	204	.....	29	364
51	0	214	.....	26	374
84 (leak)	0	224	.....	23	374
94	10	234	.....	27	384 (leak)
104	9	254	.....	24	389
114	9	264	.....	26	394
124	12	274	.....	28	399
130	21	284 (leak)	.....	32	404
134	24	294	.....	40	409
139	24	304	.....	35	414
144	28	314	.....	34	419
149	29	324	.....	32	429
154	26	334	.....	32	420.5
159	28	339	.....	34	420.5 (meter at bot.)
164	29	344	.....	42	low or obstruction
174	28	349 (leak)	.....	50	.....
184	26	354	.....	56	.....
194	25	359	.....	57	.....

Test 2. No flow from top of well during test. Test made after a 15-ft. iron fill had been deposited at bottom of well. Head 2.4 ft. below normal for area. Au 3-in. deep-well meter used. Readings by K. N. Vaksvik, Feb. 25, 1932.

Depth (ft.)	Revolutions per minute	Depth (ft.)	Revolutions per minute
245	12	385 (below end of casing)	10
265	15	405	2
275	15	390	2

Test 3. Test was made after a fill of 15 ft. of iron and 7 ft. of cement had been placed in bottom. Forty-five bags of cement used to make fill, which indicates most of it was washed away through leaks. Head 11 ft. below normal for area and no flow from top of well during test. Readings by K. N. Vaksvik, Mar. 1, 1932.

Depth (ft.)	Revolutions per minute	Depth (ft.)	Revolutions per minute
100-380 (leak; below end of casing)	0	387	80
386 (leak; below end of casing)	0	388	94
385 (leak; below end of casing)	0	389	110
386.5	73	390	120
386.7	84	395	76

Meter tests—Well 61 (Continued)

Test 4. No water flowing from top of well during test. Head 10 ft. below normal for area. Test made after 89 bags of cement had been deposited at bottom. Au 3-in. deep-well meter used. Readings by K. N. Vaksvik, Mar. 3, 1932.

Depth (ft.)	Revolutions per minute	Depth (ft.)	Revolutions per minute	Depth (ft.)	Revolutions per minute
97.4-377.4	0	387.4	114	396.4	44
382.4 (leak; below end of casing)	23	392.4	86	396.7 (top of fill)	
		394.4	63		

Test 5. No water flowing from top of well during test. Head 17 ft. below normal for area. Test made after 175 bags cement had been deposited at bottom. Au 3-in. deep-well meter used. Readings by K. N. Vaksvik, Mar. 4, 1932.

Depth (ft.)	Revolutions per minute	Depth (ft.)	Revolutions per minute	Depth (ft.)	Revolutions per minute
34	0	204	12	394	78
64	0	254	12	396	47
104	0	304	14	398	28
124	0	354	10	398.5	27
129	3	374	10	398.9	7
134	12	384 (leak; below end of casing)	10	399 (top of fill)	
144	11		10		
154	10	389	80		

Test 6. No water flowing from ten of well during test. Head about 28 ft. below normal for area. Test made after 219 bags cement had been deposited in well and artesian aquifer sealed off. Au 3-in. deep-well meter used. Readings by K. N. Vaksvik, Mar. 5, 1932.

Depth (ft.)	Revolutions per minute	Depth (ft.)	Revolutions per minute	Depth (ft.)	Revolutions per minute
25	0	95	0	165	1 1/2
30 (leak)	0	105	0	170	5
39	7	115	0	170	4
55	5	130	0	185	1 1/2
65	4	135 (leak)	3	205	7
75	4 1/2	140	9	225 (leak)	0
85	4	145	9	245-305	0
90 (leak)	2	155	9 1/2	300 (top of fill)	

Test 7. No flow from top of well during test. Head about 25 ft. below normal for area. Test made after cement fill had set for 3 days. Au 3-in. meter failed to record any velocity in entire depth of 273.3 ft. Readings by K. N. Vaksvik, Mar. 7, 1932.

Test 8. Second test made this date. Meter moved upward from bottom. During test a stream of water from a garden hose was poured into top of well. Leak at 165 ft. took about two-thirds of the flow from garden hose, other one-third overflowing from top of well casing, but when meter was moved upward to 65 ft. discharge ceased and the merely all discharge from hose now flowed from top of casing, leaving velocities in well too low to be detected by meter. Au 3-in. deep-well meter failed to record velocities to depth of 273.3 ft. Readings by K. N. Vaksvik, Mar. 7, 1932.

Discharge in millions of gallons

Year	Jan.	Feb.	Mar.	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Total
19293	.3	.3	.3	.3	.3	1.8
19303	.3	.3	.3	.3	.3	.3	.3	.3	.3	.3	3.6
19313	.3	.3	.3	.3	.3	.3	.3	.3	.3	.3	3.6
193203	.02	0	0	0	.3	.3	.3	.3	.3	.3	1.85

62 (old 65). 125 ft. south of S. King St., and 50 ft. west of Aloha Lane, Honolulu. Owner, Bishop estate. Drilled, 1894. Altitude, 15 ft. Depth, 517 ft. Diameter, 8 in. Use, domestic. Casing, 408 ft. Sealed, Nov. 1932.

Observations

Bench mark, top of flange above main valve, 1 1/2 ft. above ground; altitude, 15.73 ft.

Date	Head (ft.)	Chloride (p.p.m.)	Date	Head (ft.)	Chloride (p.p.m.)	Date	Head (ft.)	Chloride (p.p.m.)
..... 1910	61	.....	Oct. 15, 1928	27.56	.....	Dec. 10, 1930	28.88	.....
April 20, 1922	27.63	.....	Oct. 30	27.18	.....	Mar. 2, 1931	28.86	54.7
Mar. 22, 1924	27.0	62	Mar. 5, 1929	.....	54.8	Sept. 9	27.39	.....
July 19, 1926	23.26	61.5	Sept. 26	.....	53.1	Aug. 2	53.0	.....
Nov. 18, 1928	.....	60	Jan. 29, 1930	25.54	.....	Jan. 27, 1932	27.41	53.0
Feb. 16, 1928	28.53	60	Sept. ....	.....	51.4	Aug. 22	30.55	51.3

* Some draft.

Well 62 (Continued)

Meter tests

Test 1. No flow of water from top of well. Head of well 0.90 ft. below normal for area. Apparently casing is improperly seated. Au 3-in. deep-well meter used. Readings by K. N. Vaksvik, Oct. 30, 1928.

Depth (ft.)	Revolutions per minute	Depth (ft.)	Revolutions per minute	Depth (ft.)	Revolutions per minute
14-398	0	428	14	468	17
408 (end of casing)	13	448	9	517.5 (meter landed)	
418	18	458	10		
		468	20	458	

Test 2. Au 3-in. deep-well meter used. Readings by Sam Wong, Nov. 15, 1932.

Depth (ft.)	Revolutions per minute	Depth (ft.)	Revolutions per minute	Depth (ft.)	Revolutions per minute
50-445	0	470	20	520	14
445 1/2	21	475	15	530	21
446	21	500	20	535	9
450	18	510	15	536	0

Test 3. Nov. 16, 1932.

Depth (ft.)	Revolutions per minute	Depth (ft.)	Revolutions per minute	Depth (ft.)	Revolutions per minute
50-437	0	465	18	505	15
438	10	470	21	510	14
445 1/2	21	475	15	515	16
449	22	480	20	520	15
450	22	485	16	525	15
450	18	490	23	530	22
455	15	495	21	535	10
460	12	500	15	535 1/2	0

Test 4. Nov. 18, 1932. Affair well was filled with 66 ft. of iron filings.

Depth (ft.)	Revolutions per minute	Depth (ft.)	Revolutions per minute	Depth (ft.)	Revolutions per minute
4-3	0	442	16	462	9
4-3	0	445	15	465	10
4-3	0	447	15	467	10
4-3	7	450	10	469	10
4-3	0	452	10	469 1/2	9
4-3	0	455	8	470	8
4-3	9	467	9		
4-3	18	460	8		

Test 5. Test made after well filled with 106 ft. of cement. No velocity recorded, indicating that well is effectively sealed. Nov. 22, 1932.

Discharge in millions of gallons

Year	Jan.	Feb.	Mar.	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Total
19297	.7	.6	.6	.7	.7	4.0
19306	.6	.6	.6	.6	.6	.6	.6	.6	.6	.6	7.2
19316	.6	.6	.6	.6	.6	.6	.6	.6	.6	.6	7.5
19326	.6	.6	.6	.6	.6	.6	.6	.6	.6	.6	6.1

* Sealed by B. W. S. Nov. 7-23, 1932.

63 (old 66). 16 ft. south of King St., opposite Board of Agriculture and Forestry Bldg., Honolulu. Owner, Magoon estate. Drilled, 1895. Altitude, 16 ft. Diameter, 8 in. Use, irrigation.

Observations

Bench mark, top of square cap 2 1/2 ft. above ground; altitude, 18.28 ft.

Date	Head (ft.)	Chloride (p.p.m.)	Date	Head (ft.)	Chloride (p.p.m.)	Date	Head (ft.)	Chloride (p.p.m.)
April .. 1910	30.97	56	Oct. 29, 1916	29.70	.....	Nov. 18, 1926	.....	62
May .. 1910	30.27	.....	Nov. 4	29.89	.....	Mar. .. 1929	.....	51.4
Aug. 21, 1916	30.64	.....	Nov. 13	29.90	.....	Sept. 26	.....	51.4
Aug. 30	30.51	.....	Nov. 20	29.94	.....	Feb. 20, 1930	.....	29.29
Sept. 5	30.36	.....	Nov. 28	29.92	.....	Sept. ..	.....	49.7
Sept. 11	30.29	.....	Dec. 4	30.00	.....	Mar. 2, 1931	.....	55.0
Sept. 18	30.28	.....	Dec. 11	30.11	.....	Sept. 0	.....	27.51
Sept. 25	30.19	.....	Oct. .. 1919	28.80	.....	Sept. 18	.....	47.9
Oct. 2	30.01	.....	Aug. 24, 1923	28.08	.....	Jan. 28, 1933	.....	51.3
Oct. 9	29.93	.....	Mar. 21, 1924	.....	54.0	Aug. 22	.....	31.74
Oct. 16	29.93	.....	Mar. 31	.....	54.0	June 19, 1934	.....	28.64
Oct. 22	29.93	.....	July 19, 1926	24.09	58	Dec. 11	.....	28.70
Oct. 29	29.80	.....						53.0

Well 63 (Continued) Discharge in millions of gallons

Year	Jan.	Feb.	Mar.	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Total	
1929	10	11	13	5.5	9.6	11.5	69.6	
1930	..	25.8	12	12	12	14	12	11	12	12	10	14	124.2	
1931	..	19	17	19	13	14	12	11	9.6	13	13	15	172.3	
1932	..	15	14	23	21	15	15	22	16	16	13	8.4	10	188.4
1933	..	8.3	13.2	11.3	15.3	15.8	15.7	14.1	14.4	13.9	14.0	13.5	123.0	165.2
1934	..	13.5	12.4	14.0	13.4	12.8	13.4	12.0	11.9	10.8	12.2	12.3	13.1	151.9

64 (old 15) On grounds of Strainers' Hospital for Crippled Children on Funahou St., Honolulu. Owner, J. M. Dowsett. Drilled, 1882. Altitude, 47 ft. Depth, 419 ft. Diameter, 6 in. Depth to top of aquifer, 220 ft. Use, domestic. Reessed to 4 in. in 1924.

Observations

Bench mark, concrete floor east side of well, 6 ft. below ground; altitude, 37.85 ft.

Date	Head (ft.)	Chloride (p.p.m.)	Date	Head (ft.)	Chloride (p.p.m.)	Date	Head (ft.)	Chloride (p.p.m.)
Aug. 13, 1916	30.63	.....	Oct. 29, 1916	29.70	.....	Sept. 26, 1929	29.79	48.0
Aug. 27	30.49	.....	Nov. 5	30.15	.....	Feb. 16, 1930	29.25	.....
Sept. 3	30.23	.....	Nov. 12	29.90	.....	Sept. 1	29.0	48.0
Sept. 10	30.39	.....	Nov. 19	29.90	.....	Mar. 5, 1931	29.85	44.5
Sept. 17	30.28	.....	Nov. 29	29.93	.....	Sept. 9	29.84	.....
Sept. 24	29.74	.....	Dec. 8	29.86	.....	Sept. 17	29.81	47.9
Oct. 1	30.01	.....	Dec. 10	30.06	.....	Jan. 27, 1932	29.89	47.9
Oct. 8	29.91	.....	July 12, 1924	27.59	.....	Aug. 20	31.88	44.5
Oct. 15	29.94	.....	July 29, 1926	23.92	.....	June 19, 1934	28.79	47.9
Oct. 22	29.78	.....	Mar. 19, 1929	.....	48.0	Dec. 11	28.60	46.2

Discharge in millions of gallons

Year	Jan.	Feb.	Mar.	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Total	
1929	6	5	5	5	5	5	3.1	
1930	..	3	3	3	3	3	3	3	3	3	3	3	26.0	
1931	..	49	36	43	42	43	42	43	42	43	42	46	5.05	
1932	..	38	25	35	39	43	42	53	53	51	51	39	37	4.92
1933	..	22	49	47	31	45	50	53	50	42	44	37	37	4.13
1934	..	22	23	48	1.91	3.0	4.0	3.1	4.1	2.0	1.8	1.9	1.4	

65 (old 57). 1429 Makiki St., Honolulu. Owner, Makiki Hotel. Drilled, 1890. Altitude, 41 ft. Depth, 277 ft. Diameter, 10 in. Casing, 220 ft. Sealed, Nov. 1928.

Observations

Date	Head (ft.)	Date	Head (ft.)	Date	Head (ft.)	Date	Head (ft.)
Aug. 20, 1910	30.40	Sept. 10, 1910	30.33	Oct. 1, 1910	30.02	Sept. 10, 1923	27.20
Aug. 27	30.41	Sept. 17	30.27	Oct. 8	29.94	Mar. 24, 1924	27.84
Sept. 3	30.38	Sept. 24	30.13	Oct. 15	29.86	Aug. 29, 1926	23.59

Meter tests

Test 1. Flow during test induced by pumping. Head normal for area. An 3-in. deep-well meter used. Readings by R. N. Vaskivik, Oct. 26, 1928.

Depth (ft.)	Revolutions per minute	Depth (ft.)	Revolutions per minute	Depth (ft.)	Revolutions per minute
40	60	175	66	230	34
109	66	200	64	244	37
125	61	210	60		
150	64	215 (end of casing)	50		

Meter tests—Well 65 (Continued)

Test 2. Test made after well tools had been working in well for several days, causing number of small leaks to be made in old casing. No water flowing out of top of well. An 3-in. deep-well meter used. Readings by R. N. Vaskivik, Nov. 2, 1928.

Depth (ft.)	Revolutions per minute	Depth (ft.)	Revolutions per minute
50	0	150	20
60	0	160	20
70	6	170	20
80	6	180	18
90	9	185	18
100	11		
110	10		
120	12		
130	15		
140	19		

Test 3. Test made after fill of 43 ft. of iron and 50 bags of cement had been placed in bottom of well. No water flowing from top of well. An 3-in. deep-well meter used. No velocity recorded to depth of 150 ft. Readings by M. H. Carson, Nov. 5, 1928.

66 (old 70). Near upper end of Ualakoa St., Honolulu. Owner, Mrs. F. M. Swanyay. Drilled, 1901. Altitude, 153 ft. Depth, 206 ft. Diameter, 10 in. Use, domestic. Casing, 107 ft. Chloride (p.p.m.), 1910, 55.0; Mar. 1929, 17.1; Sept. 1929, 42.8; Mar. 3, 1931, 18.8; Sept. 18, 1931, 20.5; Jan. 28, 1932, 17.1; Aug. 24, 1932, 15.4.

Discharge in millions of gallons

Year	Jan.	Feb.	Mar.	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Total
1929	12	12	.06	.06	.06	.06	.18
1930	..	.06	.06	.06	.06	.06	.06	.06	.06	.06	.06	.06	.72
1931	..	.06	.06	.06	.06	.06	.06	.06	.06	.06	.06	.06	.72
1932	..	.06	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.06

No discharge 1933, 1934.

67 (old 68). On north side of Hastings St., opposite end of Anapuni St., Honolulu. Owner, Mrs. Florence Smith. Drilled, 1899. Altitude, 104 ft. Depth, 194 ft. Diameter, 10 in. Sealed, June 1928.

Log

	Depth (ft.)	Depth (ft.)
Lime stone and rubble (Probably Ita)	0-16	Soft, then clay followed by water rock with some water. Clay, hard rock, blue flint, and then water under pressure. (Ita resting on Tbb)....
Black sand (qtz)	16-45	45-181

Chloride (p.p.m.), 1910, 47.

Observations

Date	Head (ft.)	Date	Head (ft.)	Date	Head (ft.)	Date	Head (ft.)
Aug. 13, 1916	30.40	Sept. 24, 1916	30.19	Oct. 29, 1916	29.76	Dec. 3, 1916	30.02
Aug. 27	30.51	Oct. 1	30.09	Nov. 5	29.87	Dec. 10	29.11
Sept. 3	30.43	Oct. 8	29.97	Nov. 12	29.84	Oct. 2, 1923	27.32
Sept. 10	30.41	Oct. 15	29.91	Nov. 19	29.99	Mar. 24, 1924	27.83
Sept. 17	30.28	Oct. 22	29.84	Nov. 26	29.74	Aug. 24, 1926	23.55

68 (old 69). 1915 Keeaumoku St., Honolulu. Owner, S. M. Lowrey. Drilled, 1906. Altitude, 137 ft. Depth, 302 ft. Diameter, 10 in. Sealed, Oct. 1924. Chloride (p.p.m.), 1907, 20; 1910, 20; 1923, 20.5; 1924, 17.1; 1925, 15.4.

69 (old 71 $\frac{1}{2}$). 1790 Kewalo Dr., Honolulu. Owner, Mrs. Jaeger. Altitude, about 150 ft. Diameter, 12 in. Use, domestic. Chloride (p.p.m.), 1910, 65.

70 (old 18). Old pumpouse near Makiki Reservoir, Honolulu. Owner, City and County of Honolulu. Drilled, 1881. Altitude, 160 ft. Depth, 900 ft. Diameter, 12 in. Not in use.

Observations

Bench mark, top of floor plate on old pump at ground; altitude, 162.61 ft.

Date	Head (ft.)	Chloride (p.p.m.)	Date	Head (ft.)	Chloride (p.p.m.)	Date	Head (ft.)	Chloride (p.p.m.)
..... 1900	26.0		Feb. 19, 1930	28.59		April 18, 1932	31.42	
Mar. 15, 1920	41		Mar. 3, 1931	29.25		..... 24	31.49	
April 19	41.8		Dec. 17	28.51		May 13	31.42	
20	41		..... 24	28.70		..... 20	31.99	
24	42		..... 31	28.84		..... 25	.....
..... 24	42		Jan. 9, 1932	28.96		June 11	.....
May 15	40.1		..... 16	28.56		July 9	31.67	
22	40.5		..... 23	29.09		..... 16	31.66	
29	40.4		..... 30	29.10		..... 23	31.57	
June 5	41.3		Feb.	29.25		Aug. 30	31.54	
16	40.8		..... 12	29.26		..... 6	31.51	
21	41		..... 13	29.34		..... 13	31.47	
..... 21	41		Mar.	30.31		..... 30	31.45	
July 10	42		..... 25	30.51		..... 27	31.42	
17	44.2		..... 21	30.80		Sept. 3	31.46	
24	41		..... 26	31.13		..... 10	31.57	
..... 24	41		April 4	31.15		..... 17	31.52	
Sept. 28, 1929	25.59		..... 11	31.36		..... 24	31.45	

*Gage installed. †Gage moved. ‡Gage reinstalled. §Gage removed Oct. 18, 1932.

71 (old 71 $\frac{1}{2}$). Old Lunalilo Home in Makiki, Honolulu. Owner, Territory of Hawaii. Altitude, 144 ft. Casing, 7 in. Sealed, 1932.

72 (old 19). On property line between 1435 and 1441 Liboliho St., Honolulu. Owner, Capt. Babcock. Drilled, 1882 by Fessler. Altitude, 37 ft. Depth, 375 ft. Diameter, 7 in. Depth to top of aquifer, 340 ft. Head (ft.), Aug. 19, 1926, 21.67 (leaking). Sealed, Oct. 1926.

Log

	Depth (ft.)		Depth (ft.)
Soil (Ra and near top probably some <i>Qf</i> (alluvium))	0-20	Clay (Pa)	220-340
Pure white coral (Pls)	90-220	Rush and water (Tkb)	240-275

73 (old 20). Lunalilo St., opposite south end of Kewalo St., Honolulu. Drilled, 1882, by McCandless Bros. Altitude, 34 ft. Depth, 360 ft. Depth to top of aquifer, 340 ft. Sealed, 1932.

Log

	Depth (ft.)		Depth (ft.)		Depth (ft.)
Soil (Ra)	0-25	Coral (Pls)	125-195	Clay and coral (Pa)	
Black sand (Qf)	25-80	Blue clay (Pa)	195-207	and Pls)	300-330
Boulders (Pa)	80-100	White coral (Pls)	207-215	Black sand (Pa or	
Clay (Pa)	100-105	Coral and clay (Pls)	915-925	(Tkb)	330-340
Coral and clay (Pls)	105-125	Blue clay (Pa)	235-300	and Pls)	340-358

Well 73 (Continued)

Meter test

An 1-in. deep-well meter used. Readings by Sam Wong, Mar. 7, 1933.

Depth (ft.)	Revolutions per minute	Depth (ft.)	Revolutions per minute	Depth (ft.)	Revolutions per minute
55	0	150	360	240	483
58.0	20	140	447	245	465
58.3	48	150	405	250	470
58.8	72	160	415	255	458
65	86	170	450	260	462
75	106	180	465	265	450
80	192	190	440	270	405
90	114	200	398	275	345
100	152	210	453	277.4	207
110	201	.....	479	278.2 (landed)	351
120	282	230	492	.....	.....

74 (old 21). Intersection of Keeaumoku St. and Bermania St., Honolulu. Owner, City and County of Honolulu. Drilled, 1902. Altitude, 17 ft. Diameter, 6 in. Not in use.

Observations

Bench mark, top of plate, top of valve, beside 1 $\frac{1}{2}$ -in. tap 1 ft. below ground; altitude, 18.02 ft.

Date	Head (ft.)	Chloride (p.p.m.)	Date	Head (ft.)	Chloride (p.p.m.)	Date	Head (ft.)	Chloride (p.p.m.)
..... 1910	53.0		Sept. 26, 1920	25.72	44.5	Sept. 17, 1931	.....	46.2
Mar. 24, 1920	71.9		Feb. 18, 1930	28.96	.....	Jan. 27, 1932	28.76	48.0
Nov. 13, 1923	27.00		.....	.....	.....	Aug. 23	31.47	41.9
Mar. 24, 1924	27.89		Sept.	43.6	.....	Aug. 23	31.47	41.9
July 9, 1926	24.01		Mar. 2, 1931	29.02	48.0	July 19, 1934	27.40	47.9
.....	.....		Sept. 9	26.86	.....	Dec. 11	27.15	46.2

*Some draft.

Discharge in millions of gallons

Year	Jan.	Feb.	Mar.	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Total
1929	0.05	0.02	0.03	0.03	0.03	0.19
1930	0.03	0.03	0.03	0.03	0.03	0.01	0.01	0.01	0.03	0.03	0.03	0.19
1931	0.02	0.07	0.02	0.02	0.02	.....	.....	.....	.....	.....	.....	0.19
1932	0.19
1933	0.03	0.03	0.03	0.03	0.03	0.06	0.06	0.06	0.01	0.01	0.01	0.20
1934	0.01	0.01	0.01	0.01	0.01	0.06	0.06	0.03	0.03	0.03	0.03	0.80

74-1 (no old number). At plant of Honolulu Dairymen's Association, corner Bermania St. and Keeaumoku St., Owner, Honolulu Dairymen's Association. Drilled, 1938 by W. H. Mullin. Depth, 71 ft. Diameter, 6 in. Casing, 22 ft. Use, refrigeration.

Log

	Depth (ft.)		Depth (ft.)		Depth (ft.)
Yellow clay (Ra)	0-17	Black rock (probably	.....	Coral (Pls)	52-65
Cinders (Qf)	17-22	Pa)	29-32	Blue rock (Pa or	
Coral (Pls)	22-29	Coral (Pls)	32-49	Qf)	55-67
.....	.....	Clay (Pa)	49-52	Clay (Pa)	67-71

75 (old 22 $\frac{1}{2}$). Honolulu Dairymen's plant on Sheridan St., Honolulu. Owner, Honolulu Dairymen's Association. Drilled, 1914. Altitude, 8 ft. Depth, 650 ft. Diameter, 10 in. Use, industrial.

Observations

Bench mark, concrete floor 2 $\frac{1}{2}$ ft. above ground at north corner of plate covering well; altitude, 10.45 ft.

Date	Head (ft.)	Chloride (p.p.m.)	Date	Head (ft.)	Chloride (p.p.m.)	Date	Head (ft.)	Chloride (p.p.m.)
Sept. 6, 1933	27.08		Sept. 27, 1929	25.43	68.5	Jan. 28, 1932	26.79	68.4
Mar. 21, 1934	75.0		.....	.....	.....	Aug. 22	31.24	68.4
April 2	27.68		.....	.....	.....	.....	.....	.....
Jan. 25, 1926	.....		Sept. 6, 1931	66.8	.....	June 19, 1934	28.49	68.4
Nov. 18	75.0		Nov. 2	75.0	.....	Dec. 11	28.91	66.7
Mar. 1929	68.5		Sept. 11	25.32	.....	.....	.....	.....
.....	.....		.....	17	66.7	.....	.....	.....

*Some draft.

Well 75 (Continued)

Discharge in millions of gallons													
Year	Jan.	Feb.	Mar.	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Total
1929	2.5	2.5	2.9	2.6	2.5	2.6	15.6
1930	..	2.8	2.5	2.8	2.7	2.8	2.5	3.1	3.4	3.6	2.8	2.7	34.0
1931	..	2.8	2.4	2.6	2.6	2.7	2.5	2.8	2.7	2.6	2.8	2.7	31.6
1932	..	1.3	1.1	2.3	2.6	2.6	2.5	2.8	2.7	2.6	2.3	2.8	29.5
1933	..	3.4	3.0	3.5	3.7	3.9	3.8	3.8	3.8	3.8	3.7	3.7	46.0
1934	..	2.8	2.6	2.9	2.8	2.9	2.9	3.0	2.8	2.9	2.8	2.9	34.1

76 (old 22). Near corner of South King and Birch Sts., Honolulu. Owner, G. N. Wilcox. Drilled, 1884 by McCandless Bros. Altitude, 17 ft. Depth, 956 ft. Diameter, 6 in. at top, 4 in. at bottom. Depth to top of aquifer, probably 620 ft. Sealed, Jan. 1927. Chloride (p.p.m.), Dec. 3, 1926, 48 (leaking).

Log			
	Depth (ft.)		Depth (ft.)
Soil	0-4	Clay (Pa)	250-280
Black sand (Qf)	4-10	Coral (Pls)	280-350
Coral (Pls)	10-60	Clay (Pa)	350-450
Hard lava (Qhb, probably Rocky Hill)	60-100	Boulders (Pa)	450-474
Clay (Pa)	100-130	Clay and gravel (Pa)	475-535
Coral (Pls)	130-209	Lava and boulders (probably Tkb)	535-575

77 (old 23). On east side of McKinley High School grounds. Owner, Leon Gawke. Drilled, 1882 by Cooke & Peddler. Altitude, 6 ft. Diameter, 6 in. Depth to top of aquifer, 602 ft. Use, irrigation.

Observations							
Bench mark, top of upper flange on main valve 4 ft. below ground; altitude, 4.36 ft.							
Date	Head (ft.)	Chloride (p.p.m.)	Date	Head (ft.)	Chloride (p.p.m.)	Date	Head (ft.)
..... 1930	.....	62.0	July 29, 1926	22.65	43.0	Mar. 2, 1931	28.40
Jan. 30, 1919	29.57	.....	Feb. 28, 1928	29.45	41.0	Sept. 9	26.90
Sept. 6, 1923	27.45	.....	Mar. 7, 1929	.....	37.7	.....	33.9
Feb. 20, 1924	27.85	.....	Sept. 29	25.45	37.7	Jan. 27, 1932	29.05
Mar. 28	.....	43.0	Feb. 18, 1930	28.02	.....	Aug. 23	31.46
Feb. 28, 1926	29.45	.....	Sept. 6	37.7	.....	Dec. 11, 1934	28.60

Discharge in millions of gallons													
Year	Jan.	Feb.	Mar.	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Total
1929
1930
1931
1932

* No discharge, 1933, 1934.

78 (old 35). On Young St. in line with projection of Pensacola St., Honolulu. Owner, Hawaiian Electric Co. Drilled, 1857. Altitude, about 16 ft. Depth, 510 ft. Diameter, 8 in. Reamed from 9 in. Sealed, Oct. 1924.

Observations							
Chloride (p.p.m.), May 1909, 63; 1910, 62							
Date	Head (ft.)		Head (ft.)	Date	Head (ft.)	Date	Head (ft.)
Aug. 6, 1916	14.24	Sept. 17, 1916	14.02	Oct. 29, 1916	13.51	Nov. 26, 1916	13.51
Aug. 20	14.05	Oct. 1	13.79	Nov. 5	13.45	Dec. 3	13.47
Aug. 27	14.16	Oct. 1	13.87	Nov. 12	13.57	Jan. 25, 1919	13.49
Oct. 6	14.18	Oct. 22	13.57	Nov. 19	13.53	Sept. 4, 1923	9.09

* Leaking.

79 (old 24). Vida Villa Court on Young St., Honolulu. Owner, Vida Villa. Drilled, 1884. Altitude, 17 ft. Depth, 503 ft. Diameter, 6 in. Casing, 234 ft. Sealed, Feb. 1927. Depth to top of aquifer, 450 ft.

Log			
	Depth (ft.)		Depth (ft.)
Soil	0-4	Coral (Pls)	252-277
Black sand (Qf)	4-14	Clay (Pa)	277-317
Coral (Pls)	14-314	Coral (Pls)	317-397
Brown clay (Pa)	214-352	Clay (Pa)	397-450

Observations							
Date	Head (ft.)	Date	Head (ft.)	Date	Head (ft.)	Date	Head (ft.)
Sept. 17, 1916	19.25	Oct. 8, 1916	19.00	Nov. 6, 1916	18.87	Dec. 31, 1916	19.01
Sept. 29	19.29	Oct. 16	18.95	Nov. 13	18.87	Sept. 4, 1923	18.00
Sept. 27	19.12	Oct. 22	18.92	Nov. 21	19.00	.....	.....
Oct. 2	19.07	Oct. 29	18.87	Dec. 4	18.95	.....	.....

* Leaking.

Meter test			
Depth (ft.)	Revolutions per minute	Depth (ft.)	Revolutions per minute
49.1	0	121	4.3
119.1 (leak)	0	122	652

80 (old 26A). 95 ft. southwest of Hotel St. on Mamoa Way, Owner, Oahu Poi Factory. Drilled, 1936 by W. H. Mullin. Altitude, 25 ft. Depth, 700 ft. Diameter, 6 in. Casing, 603 ft. Use, industrial and domestic supply. Head (ft.), Nov. 27, 1936, 29.01.

Log
(Description in brackets based on cuttings examined by H. T. Stearns, but thickness of some beds obtained from graphical log in Sixth Ann. Report, Honolulu Board of Water Supply, p. 205, 1937.)

	Depth (ft.)
Soil	0-3
Coral (Qf, 5 ft.; Pls. 4 ft.; Pa (mud), 8 ft.; Pls. 30 ft.; Qht (Punchbowl), 5 ft.)	3-58
Marine mud and boulders (Pa)	58-69
Clay (Pa)	69-80
White coral (Pls)	80-188
Hard rock (cuttings indicate a bed of compact brown mud (Pa))	188-203
Clay (Cuttings contain about 90% limestone and indicate a thick coral reef (Pls) with one or more thin beds of basaltic gravel (Pa))	202-300
Coral (Pa)	300-315
Coral (Pls)	315-325
Coral (Pls)	325-335
Brown clay [Sample labelled -295 to -350 ft. contains mixture of about 50% reef limestone (Pls) and 50% basaltic material some fresh and some weathered derived probably from gravel (Pa)]	335-365
Brown cinders [Sample labelled -350 ft. is a very fine-grained friable brown material possibly a marine deposit as it is not typical subaerial tuff; sample labelled -395 ft. is a gray marly marine mud; sample labelled -420 ft. is similar to sample at -350 ft.; sample labelled of corals more readily identified cuttings. They are a mixture of reef limestone and partly weathered fine-grained basalt, indicating a layer of reef and a layer of gravel; sample labelled -470 ft. is a gray marly marine mud with some limestone present]	365-460
Medium hard brown rock [No cuttings, Pa (?)]	460-480
Boulders [Sample labelled -470 ft. is gray mud containing limestone fragments]	480-490
Brown clay with sharp grit [Sample labelled -487 ft. is gray mud containing rounded grains of partly weathered basalt indicating layers of gray marine mud and gravel; samples labelled -492 ft. are mixtures of limestone and basaltic fragments; sample labelled -506 ft. is a very fine-grained gray mud that does not effervesce in hydrochloric acid]	490-575

Log—Well 80 (Continued)

	Depth (ft.)
Blue clay [Samples labelled—523 ft. and—540 ft. are mixtures of basalt fragments and limestone and one labelled—545 ft. is very fine-grained marine clay that effervesces freely in acid mixed with fine grains of limestone and small amount of fine-grained black basalt probably derived from gravel].....	525-565
Layers of brown rock [Sample labelled—555 ft. is mixture of limestone and varied colored fragments of fine-grained basalt mostly weathered indicating limestone and gravel; sample labelled—560 ft. is mostly cuttings of brownish basalt probably weathered Koolau basalt].....	565-606
Layers of soft rock [Sample labelled—500 ft. is fine-grained basalt in various stages of weathering and grains of olivine probably Tkb].....	600-620
Clay and gravel [Sample labelled—622 ft. to—644 ft. similar to sample at—600 ft. and probably Tkb].....	620-626
Soft rock [Sample labelled—645 ft. contains fragments up to 1/2 in. across of vesicular and dense fine-grained basalt (Tkb)].....	650-670
Hard rock (Tkb).....	670-700

Meter test

Water flowing from top of well. An 8-in. deep-well meter used. With all flow stopped meter recorded no velocity between 600.35 ft. and 620.35 ft. End of casing reported at 604. Test indicates no leak in casing. Readings by K. N. Volkovik, Dec. 9, 1936.

Depth (ft.)	Revolutions per minute	Depth (ft.)	Revolutions per minute	Depth (ft.)	Revolutions per minute
11.25	106	632.35	0	614.35	60
118.25	106	630.35	0	613.35	102
225.35	108	628.35	0	610.35	114
332.55	110	626.35	10	608.35	120
439.35	108	625.35	14	606.35	118
546.35	106	624.35	46	604.35	116
573.10	120	622.35	52	604 (bottom of case)	
599.85	120	620.35	60	ing)	
626.60	6	618.35	60	ing)	120
632.85 (landed)	6	616.35	66	600.35	120

*After this reading, Mullin altered valve with which flow from top of well was regulated, changing velocity in well.

81 (old 24 1/2). South side of Young St., about 200 ft. east from Victoria St., Honolulu. Owner, Archie Young. Drilled, 1914. Altitude, 18 ft. Depth, 500 ft. Diameter, 10 in. Use, domestic.

Observations

Beach mark, top of flange at ground on vertical standpipe to which piezometer tube is attached; altitude, 18.04 ft.

Date	Head (ft.)	Chloride (p.p.m.)	Date	Head (ft.)	Chloride (p.p.m.)
Sept. 18, 1916	30.26	.....	Dec. 30, 1930	29.69	43.0
Sept. 25	30.15	.....	Jan. 27, 1931	30.24	43.0
Oct. 2	29.90	.....	Feb. 17, 1931	29.71	43.0
Oct. 16	29.85	.....	Mar. 28	29.34	43.0
Oct. 22	29.81	.....	Apr. 25	28.89	43.0
Oct. 29	29.70	.....	May 29	28.49	43.0
Nov. 6	29.87	.....	June 9	27.94	43.0
Nov. 12	29.91	.....	Aug. 5	26.82	44.0
Nov. 21	29.88	.....	Aug. 25	26.87	43.5
Nov. 28	29.92	.....	Sept. 9	27.24	44.0
Dec. 4	29.90	.....	Sept. 17	27.47	41.0
Sept. 4, 1923	27.57	.....	Oct. 6	26.69	42.5
Dec. 11	30.12	.....	Oct. 26	27.89	45.0
Mar. 24, 1924	29.84	.....	Dec. 8	28.73	43.5
July 20, 1926	24.02	.....	Jan. 14, 1932	29.07	42.0
Mar. 7, 1929	29.4	.....	Feb. 15	29.25	41.0
Sept. 26	25.78	39.4	Feb. 18	29.61	42.5
Feb. 18, 1930	28.97	.....	Mar. 17	30.92	41.5
Mar. 26	27.70	43.0	Apr. 15	31.23	43.0
Apr. 30	29.54	43.0	May 17	32.02	42.5
May 28	28.95	43.0	May 16	31.99	43
June 3	29.3	43.0	May 27	31.9	43
July 30	27.98	44.0	Aug. 13	31.72	42.5
Aug. 26	27.70	43.0	Aug. 23	31.88	41.0
Oct. 4	28.43	43.0	Sept. 19	31.30	42.5
Nov. 13	29.23	43.0	Oct. 18	31.47	42
Dec. 5	29.75	43.0	Nov. 15	31.34	42.5

Well 81 (Continued)

Discharge in millions of gallons

Year	Jan.	Feb.	Mar.	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Total
1929
1930
1931
1932
1933
1934

82 (old 25). Old Plantation on King St. near Ward St., Honolulu. Owner, C. P. Ward. Drilled, 1881. Altitude, 16 ft. Depth 539.5 ft. Diameter, 6 in. Depth to top of aquifer, 504 ft. Use, irrigation.

Log

	Depth (ft.)		Depth (ft.)		Depth (ft.)
Loam	0-5	Yellow clay (Pa) with		Quick sand (Pa)	500-504
Black sand (Qft)	5-11	8 ft. hard coral		Lava (Tkb)	504-505
White sand (Ra)	11-15	(Pla) at bottom.....	219-261	Hard gray rock	504-509.5
Hard coral (Pla) with		Yellow clay (Pa).....	261-370	(Tkb)	508-509.5
3 ft. white clay		Hard coral (Pla).....	370-373	Black rock with	
(Pa) at bottom.....	15-195	Soft coral (Pla).....	373-393	three hard	
Coral and shells (Pla)	195-210	Yellow clay (Pa).....	393-450	pieces and piezo-	
Hard coral (Pla).....	210-216	White clay (Pa).....	450-475	metry of water	
		Yellow clay (Pa)	475-500	(Tkb).....	500.5-539.5

Observations

Beach mark, top of well cap at 4-in. diameter measuring 2 ft above ground; altitude, 17.60 ft.

Date	Head (ft.)	Chloride (p.p.m.)	Date	Head (ft.)	Chloride (p.p.m.)
April .. 1910	30.84	65.0	Oct. 29, 1916	29.58	.....
May	30.24	.....	Nov. 6	29.72	.....
Aug. 30, 1916	30.38	.....	Nov. 19	29.76	.....
Sept. 5	30.38	.....	Nov. 21	29.77	.....
Sept. 11	30.24	.....	Nov. 28	29.79	.....
Sept. 18	30.13	.....	Dec. 4	29.87	.....
Sept. 25	30.03	.....	Dec. 11	29.97	.....
Oct. 2	29.86	.....	Sept. 4, 1923	27.58	.....
Oct. 9	29.75	.....	Mar. 24, 1924	27.56	47.0
Oct. 16	29.74	.....	July 20, 1926	27.87	47.0
Oct. 22	29.69	.....	Jan. 19, 1934	28.71	44.5
			Mar. 1, 1928	29.20	44.0
			Dec. 11	28.52	44.5

Discharge in millions of gallons

Year	Jan.	Feb.	Mar.	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Total
1929
1930
1931
1932
1933
1934

83 (old 26). Thomas Square, corner of Beretania and Kapiolani Sts., Honolulu. Owner, City and County of Honolulu. Drilled, 1882. Altitude, 27 ft. Depth, 500 ft. Diameter, 8 in. at top and 6 in. at bottom. Depth to top of aquifer, 460 ft. Not in use. Recased from 10 in. Recorder installed, 1925.

Log

	Depth (ft.)		Depth (ft.)		Depth (ft.)
Soil	0-6	White coral (Pla).....	16-216	White coral (Pla).....	330-380
Black sand (Qft)	6-12	Brown clay (Pa).....	216-240	Brown clay (Pa).....	380-460
Clay (Probably Qft		.....	240-270	Lava or basalt	
Panchoh)		.....	270-330	(Tkb).....	460-500

RECORDS OF DRILLED WELLS ON OAHU

84 (old 78). Bear of the Honolulu Art Academy. Owner, C. M. Cooke. Drilled, 1893. Altitude, about 30 ft. Depth, 486 ft. Diameter, 8 in. Depth to top of aquifer, 428 ft. Sealed, Dec. 1928.

Observations

Date	Head (ft.)	Date	Head (ft.)	Date	Head (ft.)	Date	Head (ft.)
Aug. 6, 1916	31.02	Sept. 24, 1916	30.28	Nov. 5, 1916	30.01	Sept. 25, 1923	27.62
Aug. 10	30.94	Oct. 1	30.16	Nov. 12	30.04	Mar. 24, 1924	31.77
Aug. 27	30.64	Oct. 8	30.10	Nov. 19	30.06	July 20, 1926	24.24
Sept. 3	30.51	Oct. 15	30.02	Nov. 26	30.08		
Sept. 10	30.54	Oct. 22	29.97	Dec. 3	30.15		
Sept. 17	30.40	Oct. 29	29.90	Dec. 10	30.18		

Meter test

Flow in well induced by pump. Head of well normal for area. Au 3-in. deep-well meter used. Readings by Sam Wong. Dec. 6, 1928.

Depth (ft.)	Revolutions per minute	Depth (ft.)	Revolutions per minute	Depth (ft.)	Revolutions per minute
50	48	100	350	150	84
100	88	200	400	200	430
150	92	250	410	250	435
200	94	300	420	300	450
250	86	350	422 (end of casing)	350	480 (meter landed)
300	90	400	425	400	0

85 (old 84). About 100 ft. south of Hawaiian Electric Co. pole yard, Honolulu. Owner, Honolulu Construction and Draying Co. Drilled, 1898. Altitude, 5 ft. Depth, 794 ft. Diameter, 8 in. Use, domestic. Casing, 602 ft. Reamed from 10 in.

Observations

Bench mark, top of 8-in. plug in tee above main valve 3 1/4 ft. above ground. Altitude, 8.64 ft.

Date	Head (ft.)	Chloride (p.p.m.)	Date	Head (ft.)	Chloride (p.p.m.)	Date	Head (ft.)	Chloride (p.p.m.)
1910	70.0		Feb. 27, 1928	29.64	50.0	Sept. 9, 1931	27.35	
Jan. 28, 1916	26.76		Mar. 27, 1929	28.27	36.0	Sept. 18		42.8
Aug. 28, 1923	26.04		Apr. 26	28.00	39.0	Sept. 18, 1932	26.99	41.0
Aug. 30	25.27		Nov. 18, 1930	28.26		Aug. 24	31.43	41.0
Feb. 19, 1924	28.30		Mar. 2	28.00	48.0	June 19, 1934	28.59	42.7
July 20, 1926	22.82		Sept. 12, 1931	29.63	44.5	Dec. 11	36.54	41.0

Discharge in millions of gallons

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Total
1929								3	3	2	2	2	1.4
1930	3	3	3	3	3	3	3	3	3	3	3	3	3.9
1931	3	3	3	27	28	3	3	3	3	3	3	3	3.55
1932	3	3	3	3	3	3	3	3	3	3	3	3	3.6
1933	3	3	3	3	3	3	3	3	3	3	3	3	3.6
1934	3	3	1	1	1	1	1	.02	0.4	1	1	1	2.157

86 (old 82). Bear of Fernhurst (Y.W.C.A.), Honolulu. Owner, Y.W.C.A. Drilled, 1880 by McCanless Bros. Altitude, 19 ft. Depth, 655 ft. Diameter, 8 in. Depth to top of aquifer, 595 ft. Use, irrigation.

Log

	Depth (ft.)	Description	Depth (ft.)	Description	Depth (ft.)
Soil					505-515
Coral, traces of clay (Pa. and Peck)	0-12	Brown clay; traces of coral (Pa and Pis)	230-290	Clay, sand, coral, and gravel (Pa and Pis)	230-290
some Qlf, Panch-haw)	12-190	Coral with traces of clay (Pa and Pis)	320-355	Bedrock or lava (Tbb)	515-595
Red clay (Pa)	100-200	Clay (Pa and Pis)	355-480		595-655
Coral (Pa)	200-230	Gravel and clay (Pa)	480-505		

RECORDS OF DRILLED WELLS ON OAHU

Well 88 (Continued)

Observations

Bench mark, top of reducer in 2-in. pipe about 8 in. above top 3 ft. above ground; altitude, 18.17 ft.

Date	Head (ft.)	Chloride (p.p.m.)	Date	Head (ft.)	Chloride (p.p.m.)	Date	Head (ft.)	Chloride (p.p.m.)
1910	56		Mar. 19, 1929	43.8		Jan. 27, 1932	29.99	42.8
Mar. 6, 1920	27.16		Sept. 26	26.18	42.8	Aug. 24	31.54	41.0
Sept. 8, 1920	27.15		Feb. 19, 1930	28.84	44.5	June 12, 1934	28.62	42.7
Mar. 31, 1924	27.15		Mar. 2, 1931	27.62	44.5	Dec. 11	35.43	41.0
Mar. 2	27.85		Sept. 9	27.54				
Aug. 20, 1926	24.06	50	Sept. 18	42.8				

Discharge in millions of gallons

Year	Jan.	Feb.	Mar.	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Total
1929								3	2	3	3	3	1.6
1930	3	3	3	3	3	3	3	3	3	3	3	3	3.9
1931	3	3	3	3	3	3	3	3	3	3	3	3	3.6
1932	3	3	3	3	3	3	3	3	3	3	3	3	3.5
1933	3	3	3	3	3	3	3	3	3	3	3	3	3.5
1934	3	3	3	3	3	3	3	3	3	3	3	3	3.2

87 (old 81). At the Honolulu Rapid Transit Co., Honolulu. Owner, Honolulu Rapid Transit Co. Drilled, 1900. Altitude, 19 ft. Diameter, 12 in. Use, industrial.

Observations

Bench mark, top of plate gauge on standpipe at ground; altitude, 19.15 ft. Chloride (p.p.m.), June 23, 1910, 75; Apr. 25, 1921, 66; Apr. 1, 1926, 53; June 14, 1926, 51; July 21, 1928, 53; Sept. 21, 1929, 55; Oct. 18, 1929, 59; Nov. 16, 1929, 54; Dec. 16, 1929, 53; Jan. 28, 1921, 54; Feb. 18, 1921, 51; Mar. 15, 1921, 54; Apr. 15, 1921, 52; May 20, 1921, 56; June 17, 1921, 56; June 29, 1921, 67.

Date	Head (ft.)	Date	Head (ft.)	Date	Head (ft.)	Date	Head (ft.)
1910	31.29	Mar. 1915	29.16	Dec. 10, 1916	30.08	Sept. 16, 1917	29.92
Jan. 28, 1910	26.76	Apr. 1915	29.25	17	30.17	23	29.58
Mar. 1915	30.25	May 1915	29.28	24	30.45	7	29.15
Apr. 1915	29.75	June 1915	28.80	31	30.50	10	29.75
May 23	29.70	July 1915	28.67	Jan. 1, 1917	30.58	14	29.42
July 1915	29.75	Aug. 1915	28.17	14	30.83	19	29.42
Aug. 1915	29.29	Sept. 1915	28.00	15	30.83	28	29.16
Sept. 1915	29.29	Oct. 1915	27.98	31	31.70	Nov. 4	29.16
Nov. 1915	30.40	Dec. 1915	28.53	1	31.42	11	29.16
Jan. 1916	30.60	1916	29.50	11	31.67	18	29.16
Feb. 1916	31.25	Jan. 1916	31.17	15	31.67	25	29.16
Mar. 1916	32.40	Feb. 1916	31.82	25	31.82	Dec. 2	29.16
Apr. 1916	32.80	Mar. 1916	32.47	1	31.83	10	29.33
May 1916	32.68	Apr. 1916	32.25	11	32.00	18	29.50
June 1916	32.12	May 1916	32.25	15	32.16	Jan. 6, 1918	29.50
July 1916	29.88	June 1916	32.21	25	32.35	30	29.50
Aug. 1916	29.64	July 1916	32.00	32	32.42	37	29.72
Sept. 1916	30.94	31	32.42	8	32.42	44	30.08
Oct. 1916	28.58	32	31.67	15	32.42	51	29.60
Nov. 1916	28.54	33	31.50	22	32.42	Feb. 3	30.33
Dec. 1916	28.00	34	31.42	May 1	32.33	10	30.33
Jan. 1917	28.45	35	31.83	6	32.32	17	30.30
Feb. 1917	28.75	36	31.17	15	32.25	24	30.65
Mar. 1917	28.83	37	31.00	Mar. 27	32.17	Mar. 5	30.65
Apr. 1917	28.83	38	30.50	Apr. 1	32.16	10	30.64
May 1917	29.00	39	30.50	10	32.08	17	30.66
June 1917	29.04	40	30.20	15	32.00	24	30.75
July 1917	29.00	41	30.25	24	31.95	April 7	30.66
Aug. 1917	28.75	42	30.16	July 1	31.78	14	30.66
Sept. 1917	28.42	43	30.25	8	31.53	21	30.66
Oct. 1917	27.83	44	30.16	22	31.38	May 5	30.83
Nov. 1917	28.08	45	30.00	Nov. 21	31.22	12	30.86
Dec. 1917	28.00	46	30.00	5	31.08	19	30.90
Jan. 1918	28.16	47	29.83	30	30.70	June 2	30.81
Feb. 1918	28.50	48	29.80	19	30.50	9	30.41
Mar. 1918	29.50	49	30.00	26	30.42	9	30.33
Apr. 1918	29.42	50	30.00	Sept. 2	30.33	16	30.25

Observations—Well 87 (Continued)

Table with columns: Date, Head (ft.), Date, Head (ft.), Date, Head (ft.), Date, Head (ft.). Contains observation data for Well 87 from July 1910 to March 1920.

Observations—Well 87 (Continued)

Table with columns: Date, Head (ft.), Date, Head (ft.), Date, Head (ft.), Date, Head (ft.). Contains observation data for Well 87 from April 1920 to July 1925.

Observations—Well 87 (Continued)—Including chloride record

Table with columns: Date, Head (ft.), Chloride (p.p.m.), Date, Head (ft.), Chloride (p.p.m.), Date, Head (ft.), Chloride (p.p.m.). Includes chloride records for Well 87 from 1920 to 1934.

Discharge in millions of gallons

Table with columns: Year, Jan., Feb., Mar., April, May, June, July, Aug., Sept., Oct., Nov., Dec., Total. Shows discharge data from 1920 to 1934.

88A to I (old A=72; B=73; C=74; D=75; E=76; F=77; G=77A; H=79; I=80). Beretania Pumping Station at Beretania and Alapai Sts., Honolulu. Owner, City and County of Honolulu. Drilled, A and B, 1909; C and D, 1924; E, F, and G, 1926, by G. B. Primmer; H and I, 1895. Altitude, A, C, and D, 20 ft.; B, 17 ft.; E and F, 14 ft.; G, 15 ft.; H, 21 ft.; I, 22 ft. Depth, A, 608 ft.; B, 617 ft.; C and D, 600 ft.; E, 533 ft.; F, 636 ft.; G, 566 ft.; H, 580 ft.; I, 616 ft. Diameter, A to G, 12 in.; H and I, 10 in. Depth to top of aquifer, A, 470 ft.; B, 490 ft.; C and D, 485 ft.; E, 455 ft.; F and G, 457 ft.; H, 560 ft.; I, 500 ft. Use, municipal. Casing, A, 487 ft.; B, 495 ft.; C and D, 480 ft.; E, 479 ft.; F, 484 ft.; G, 488 ft.

Logs

Depth (ft.)	Log	Depth (ft.)	Log	Depth (ft.)	Log
Well A		Well D		Well F	
Black sand (Qtz)	0-16	Clay (Qbt, Punchbowl) (Pa) (Pls)	35-45	Black sticky clay (Pa) (Pls)	43-44
Boulders (Qbb, Punchbowl)	10-20	Coral (Pls)	45-50	Coral (Pls)	44-45
Boulder rock, red (Qbb, Punchbowl)	20-30	Clay (Pa)	220-295	Dark sandy clay on bed rock (Pa)	460-485
Boulders (Qbb, Punchbowl)	30-35	Clay (Pa)	320-350	Water-bearing rock, lava (Tkb)	485-600
Punchbowl rock (Qbt, Punchbowl)	35-72	Coral (Pls)	350-380	Well E	
Coral (Pls)	72-216	Clay (Pa)	380-405	Black sand (Qtz)	0-10
Coral (Pls)	216-290	Coral and clay (Pls and Pa)	405-450	Boulders (Qbb, Punchbowl)	10-25
Coral (Pls)	370-405	Black sand (Pa or Cor)	450-480	Boulder rock (Qbt, Punchbowl)	25-80
Clay and gravel (Pa)	405-418	Blue rock lava (Tkb)	480-490	Coral (Pls)	80-215
Clay (Pa)	418-456	Red rock, water (Tkb)	490-513	Dark clay (Pa)	215-256
Sand and gravel (Pa)	460-474	Blue rock (Tkb)	515-555	Coral (Pls)	280-300
Blue rock (Tkb)	470-510	Well C		Dark clay (Pa)	300-350
Red rock, water (Tkb)	510-540	Black sand (Qtz)	0-10	Gravel, clay and coral boulders (Qbb, Punchbowl)	350-400
Blue rock, water (Tkb)	540-586	Boulders (Qbb, Punchbowl)	10-25	Brown clay (Pa)	400-435
Red rock, water (Tkb)	586-596	Brown rock (Qbb, Punchbowl)	25-80	Black sticky clay (Pa) (Pls)	445-460
Well B		Coral (Pls)	80-215	Coral (Pls)	460-485
Ashes and sand (Qtz)	0-16	Dark clay (Pa)	215-256	Water-bearing rock, lava (Tkb)	485-600
Coral (Pls)	10-13	Gravel, clay and coral boulders (Qbb, Punchbowl)	350-400		

Detailed description of samples following driller's log by T. F. Harris.

Well E	Depth (ft.)
Black sand (Qtz)	0-14
Coral (Pls). Sample shows many angular fragments of cream-colored limestone and numerous angular blue-gray vesicular basalt containing abundant olivine phenocrysts.	14-26
Blue rock boulder (Qbb, Punchbowl). Sample shows dark blue-gray hard slightly vesicular basalt containing abundant olivine phenocrysts.	26-30
Yellow rotten rock (Qbt, Punchbowl). Sample shows yellow-brown basaltic tuff together with some angular fragments of white limestone and blue-gray basalt.	30-36
Brown rock streaked with coral (Qbt, Punchbowl). Sample at 32 feet shows brown basaltic tuff together with fragments of white limestone.	36-52
Brown rotten rock (Qbt, Punchbowl). Sample shows white limestone containing coral foraminifera, small gastropods, and large chione-like pelecypods.	52-77
Coral and gray clay (Pa and Pls). Sample at 105 ft. shows light brownish-gray clay and white limestone.	105-122
White coral (Pls). Sample shows white limestone.	122-168
Clay (Pa). Sample shows light brown silty sand containing white limestone fragments.	168-178
Clay and Coral (Pa and Pls). Sample shows light brown clay and white limestone. Clay contains two echinoid spines.	178-211
Brown clay (Pa). Sample shows brown silty sand containing white limestone fragments.	211-295
Clay and coral (Pa and Pls). Sample shows light brown clay and white limestone.	295-310
Brown clay (Pa). Sample shows brown, readily friable fine sandy silt.	310-347
Gray clay (Pa). Sample shows brownish gray to cream colored firm well-sorted, streakily bedded, marly claystone with conchoidal fracture containing a few white decomposed foraminifera (f).	347-352

Well E Continued

Logs—Well 88 (Continued)

Well E	Depth (ft.)
Clay and coral (Pa and Pls). Sample at 352 ft. shows sand containing many fragments of white limestone, numerous fragments of dark blue-gray basalt, and very few fragments of brown claystone.	352-390
Brown clay (Pa). Sample shows brown slightly clayey sandy silt containing fragments of white limestone.	390-430
Clay and coral (Pa and Pls). Sample at 430 ft. shows light brown clay and white limestone.	430-446
Lava rock with shales (Pa and Tkb). Sample shows brown, loosely subangular to sub-rounded poorly sorted, very coarse sand, containing rounded fragments of basalt up to 12 mm. in diameter.	445-448
Brown sandy clay (Pa or Tkb). Sample shows light brown to lilac-colored sandy sand grains of white limestone.	448-455
Porous lava, water rock (Tkb). Sample from 520 ft. to 520 ft. shows dark blue-gray to red-brown, hard, very vesicular in part amygdaloidal basalt.	455-533
Well F	
Black sand (Qtz)	0-10
Clay and coral (Pa and Pls). Sample shows fragments of white limestone and blue-gray basalt.	10-16
Blue rock, boulders (Qbb, Punchbowl). Samples show dark blue-gray to very dark brown hard moderately vesicular basalt, together with fragments of white limestone, corals, gastropods, including well-preserved Cypraea and Unus.	15-33
Brown rotten rock (Qbt, Punchbowl)	33-80
Coral and clay (Pls and Pa). Samples show brown clay with abundant fragments of white limestone and blue-gray basalt.	80-95
White coral (Pls). Sample at 95 ft. shows white limestone.	95-170
Coral and clay (Pls and Pa). Sample shows dark-brown clay and white limestone.	170-210
Coral (Pls)	210-268
Clay and coral (Pa and Pls)	268-280
Brown clay (Pa). Sample shows lilac-gray to yellow-brown friable fairly well-sorted sandy silt.	280-290
Coral and clay (Pls and Pa). Sample shows light-brown clay and white limestone.	290-300
Pink clay (Pa). Sample shows brown clay containing many small fragments of white limestone.	300-303
Brown clay (Pa). Sample at 303 ft. shows dark-brown fine sandy claystone.	303-318
Clay and coral (Pa and Pls). Sample shows light-brown sandy clay containing fragments of white limestone and two subangular fragments of brown, friable well-sorted silty calciferous and a few pink echinoid spines.	318-330
Light brown clay (Pa). Sample shows gray brown fairly well-sorted clayey silty fine sand.	330-400
Dark brown clay (Pa). Sample shows dark brown silty limestone brown fairly well-sorted clay.	400-420
Clay and coral (Pa and Pls)	420-412
Brown sticky clay (Pa). Sample shows dark-brown clay containing few fragments of white limestone.	412-457
Porous lava (Tkb). Samples from 457 to 520 ft. show dark green-gray to dark blue-gray hard strongly vesicular basalt, in part containing numerous olivine phenocrysts. Sample at 525 ft. shows gray brown hard strongly vesicular basalt containing abundant olivine phenocrysts. Sample from 605 to 625 ft. shows dark gray basalt containing abundant olivine phenocrysts.	457-623
Hard rock (Tkb)	623-626
Well G	
Black sand (Qtz)	0-5
Blue rock, crevices (Qbb, Punchbowl)	5-19
Blue rock, with seams of brown rotten rock (Qbb, Punchbowl)	19-25
Blue rotten rock (Qbt, Punchbowl)	25-65
Clay and coral (Pa and Pls)	65-75
Coral (Pls)	75-100
Clay and coral (Pa and Pls)	100-110
White coral (Pls). Samples show cream colored limestone and fragments of pelecypod shells.	110-152
Clay and coral, light brown color (Pa and Pls). Sample shows light brown clay and white limestone.	150-199
Clay and coral, dark brown color (Pa and Pls). Sample shows brown clay and white limestone.	212-218
Dark brown clay (Pa). Sample shows dark brown clay containing a few fragments of white limestone.	218-280
Clay and coral (Pa and Pls). Sample shows light brown clay and white limestone.	280-300
Brown clay (Pa). Samples show brown clayey silt and gravel containing rounded pebbles up to 38 mm. in diameter of blue-gray, red-brown, and green-gray basalt.	300-340
Clay and coral (Pa and Pls). Sample shows light brown clay and white limestone.	340-370
Gray clay (Pa). Sample shows clay and dark brown plastic clayey silt containing fragments of basalt. Sample shows white conchoidal fracture containing fragments of white limestone.	370-405
Brown clay (Pa). Sample at 410 ft. shows dark red-brown clay containing many fragments of blue-gray lava and a few fragments of white limestone.	405-457
Porous lava, water rock (Tkb). Sample shows dark blue-gray to red-brown, hard, very vesicular in part amygdaloidal basalt.	457-506

RECORDS OF DRILLED WELLS ON OAHU

92 (old 85). Between Marmon Lane and Kawaiahae St., Honolulu. Owner, American Sanitary Laundry. Drilled, 2000. Altitude, 4 ft. Diameter, 10 in. Use, industrial. Recased to 8 in. in 1931.

Observations

Bench mark, top of horizontal 4-in. nipple in which $\frac{1}{2}$ -in. plug is set at ground; altitude, 3.67 ft.

Date	Head (ft.)	Chloride (p.p.m.)	Date	Head (ft.)	Chloride (p.p.m.)	Date	Head (ft.)	Chloride (p.p.m.)
..... 1916	.....	90.0	Mar. 2, 1931	27.64	61.6	Oct. 28, 1931	27.84	.....
Jan. 30, 1919	29.12	.....	Sept. 12	47.9	.....	Oct. 2	47.9	.....
Sept. 4, 1923	27.34	.....	Oct. 9	26.8	.....	Oct. 31	27.86	.....
July 30, 1926	22.57	71.0	Oct. 10	27.50	.....	Nov. 2	27.86	.....
Feb. 28, 1928	28.67	67.0	Oct. 11	27.40	.....	Nov. 3	27.80	.....
Mar. 1929	.....	61.7	Oct. 19	27.45	.....	Nov. 7	27.87	.....
Sept. 26	23.94	60.0	Oct. 20	27.47	.....	Jan. 28, 1932	28.73	64.7
Feb. 18, 1930	36.15	.....	Oct. 22	27.79	.....	Aug. 25	31.48	54.7
Sept. 1	.....	56.6	Oct. 24	27.59	.....	June 19, 1934	28.55	53.0
Feb. 10, 1931	27.73	.....	Oct. 27	27.71	.....	Dec. 11	28.35	53.0

*Well casing leaking. †Some draft.

Meter tests

Test 1. No water flowing from top of well during test. Head 2.4 ft. below normal for area. An 8-in. deep-water meter failed to record velocity to depth of 211 ft. Readings by K. N. Vaksvik, Mar. 7, 1931.

Test 2. Water discharging from top of well during test. Head 2.3 ft. below normal for area. An 8-in. deep-water meter used. Readings by K. N. Vaksvik, June 15, 1931.

Depth (ft.)	Revolutions per minute	Depth (ft.)	Revolutions per minute	Depth (ft.)	Revolutions per minute
50	214	629	460	740	312
100	208	670	490	750	256
150 (leak)	212	680	400	760	320
300	328	700	400	770	276
400	354	700	400	780	170
500	336	710	384	785	126
600 (leak)	320	720	344	789 (meter landed)	.....
600 (leak)	320	730	328	789	.....

Discharge in millions of gallons

Year	Jan.	Feb.	Mar.	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Total
1929	.....	.....	.....	.....	.....	.....	2.78	3.00	2.55	2.61	2.40	2.50	15.50
1930	2.33	2.50	2.02	2.71	3.61	2.45	3.02	2.84	2.72	2.83	2.70	2.11	32.57
1931	2.91	2.64	3.10	3.01	2.63	2.92	2.65	3.06	2.80	2.78	2.81	2.86	32.80
1932	2.84	2.56	3.47	2.70	2.59	3.07	3.05	2.48	3.10	3.10	2.58	2.48	32.92
1933	2.70	2.51	2.71	2.62	3.00	2.77	2.76	2.95	2.75	2.63	2.56	2.10	32.60
1934	2.19	2.32	3.15	2.83	3.08	2.95	2.94	2.76	2.66	2.63	2.51	2.71	34.22

93 (old 87½). South end of Kakaako St., near Wharf 3, Honolulu. Owner, Inter-Island Steam Navigation Co. Drilled, 1913. Altitude, 7 ft. Depth, 1,015 ft. Diameter, 12 in. top and 10 in. bottom. Depth to top of aquifer, 900 ft. Use, industrial. Casing, 900 ft.

Log

Depth (ft.)	Depth (ft.)	Depth (ft.)
Coral and sand (Pla and Fa)	Sticky clay (Pa).....	625-680
Hard coral (Pla)	Sticky clay (Pla and Fa).....	680-840
Brown clay (Pa)	Sticky clay (Pa).....	840-805
Coral (Pla)	Clay and coral (Pa and Pla)	865-891
Brown clay (Pa)	.....	.....
Coral (Pla)	.....	.....
Hard coral (Pla)	.....	.....

Soft rock and sand (1939).....
Hard blue rocks; water (Tbk).....
Soft red rocks (Tbk).....
Blue rock (Tbk).....

RECORDS OF DRILLED WELLS ON OAHU

Well #3 (Continued)

Observations

Bench mark, top of vertical flange on well casing 1 ft. below ground above valve at discharge pipe; altitude, 6.04 ft.

Date	Head (ft.)	Chloride (p.p.m.)	Date	Head (ft.)	Chloride (p.p.m.)	Date	Head (ft.)	Chloride (p.p.m.)
..... 1914	.....	103	Jan. 2, 1930	.....	223	April 27, 1932	.....	340
Oct. 22, 1916	30.23	.....	Jan. 8	.....	206	May 27	.....	240
Oct. 30	29.55	.....	Jan. 13	.....	206	June 28	.....	277
Nov. 6	29.79	.....	Jan. 22	.....	240	July 28	.....	240
Nov. 21	29.42	.....	Jan. 29	.....	240	Aug. 23	.....	31.05
Dec. 11	29.12	.....	Feb. 5	.....	240	Sept. 23	.....	277
..... 1920	.....	120	Feb. 12	.....	240	Oct. 27	.....	257
Aug. 31, 1923	27.29	.....	Feb. 16	.....	206	Nov. 20	.....	240
Mar. 27, 1924	37.20	140	Mar. 5	.....	240	Dec. 27	.....	257
Sept. 11, 1925	.....	176	Mar. 12	.....	240	Jan. 27, 1933	.....	257
Feb. 16, 1926	.....	184	Mar. 19	.....	240	Mar. 29	.....	257
July 20	22.69	200	Mar. 26	.....	240	May 11	.....	257
April 17, 1928	29.41	216	April 9	.....	240	May 31	.....	240
Mar. 1, 1929	.....	223	April 30	.....	223	June 30	.....	240
July 25	.....	240	May 14	.....	223	July 26	.....	240
Aug. 1	.....	257	June 25	.....	240	Aug. 31	.....	240
Aug. 7	.....	257	July 15	.....	223	Sept. 28	.....	240
Aug. 14	.....	240	Aug. 23	.....	240	Oct. 21	.....	240
Aug. 21	.....	240	Sept. 5	.....	240	Nov. 28	.....	223
Aug. 28	.....	240	Oct. 7	.....	240	Dec. 22	.....	240
Sept. 4	.....	240	Nov. 12	.....	240	Jan. 30, 1934	.....	240
Sept. 11	.....	240	Dec. 10	.....	240	Feb. 27	.....	239
Sept. 20	.....	240	Jan. 7, 1931	.....	240	Mar. 29	.....	239
Sept. 26	.....	240	Jan. 20	.....	240	April 28	.....	240
Oct. 2	.....	223	April 16	.....	240	May 31	.....	240
Oct. 16	.....	223	May 27	.....	222	June 19	.....	28.60
Oct. 23	.....	240	June 26	.....	257	July 31	.....	239
Oct. 30	.....	240	July 28	.....	240	Aug. 30	.....	232
Nov. 6	.....	240	Aug. 6	.....	240	Sept. 26	.....	239
Nov. 13	.....	240	Sept. 9	27.45	.....	Oct. 17	.....	239
Nov. 20	.....	240	Sept. 18	.....	240	Nov. 30	.....	239
Nov. 27	.....	240	Sept. 24	.....	240	Dec. 15	.....	239
Dec. 4	.....	240	Oct. 5	.....	222	Nov. 30	.....	239
Dec. 11	.....	223	Jan. 29, 1932	29.68	240	Dec. 11	.....	28.35
Dec. 18	.....	223	Feb. 28	.....	240	.....	.....	.....
.....	.....	223	Mar. 30	.....	223	.....	.....	.....

Discharge in millions of gallons

Year	Jan.	Feb.	Mar.	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Total
1929	1.0	1.0	1.0	1.0	1.0	1.0	1.0	12.0
1930	1.0	1.0	1.0	1.0	1.0	1.0	1.0	12.0
1931	1.0	1.0	1.0	1.0	1.0	1.0	1.0	12.0
1932	1.0	1.0	1.0	1.0	1.0	1.0	1.0	12.0
1933	1.0	1.0	1.0	1.0	1.0	1.0	1.0	12.0
1934	1.0	1.0	1.0	1.0	1.0	1.0	1.0	12.0

94 (old 87). At Honolulu Iron Works, Honolulu. Owner, Honolulu Iron Works Co. Drilled, 1904. Altitude, 4 ft. Diameter, 8 in. Use, industrial. Recased from 10 in. in 1920.

Observations

Bench mark, top of flange at top of casing 1 ft. above ground; altitude, 5.25 ft.

Date	Head (ft.)	Chloride (p.p.m.)	Date	Head (ft.)	Chloride (p.p.m.)	Date	Head (ft.)	Chloride (p.p.m.)
..... 1910	.....	98	Oct. 15, 1916	116.20	.....	Dec. 10, 1916	.....	114.30
Aug. 23, 1916	115.80	.....	Oct. 29	.....	115.80	Dec. 17	.....	114.00
Sept. 8	116.20	.....	Nov. 29	116.00	.....	Sept. 4, 1923	.....	27.50
Nov. 5	115.80	.....	Oct. 5	114.70	.....	Mar. 27, 1924	.....	27.50
Sept. 17	115.60	.....	Nov. 9	114.90	.....	Feb. 16, 1926	.....	176
Oct. 4	116.10	.....	Nov. 19	114.90	.....	July 20	.....	22.60
Sept. 21	116.00	.....	Nov. 26	115.30	.....	Oct. 1	.....	180
.....	.....	115.00	Dec. 3	115.60	.....	Mar. 1, 1928	.....	29.71

*Leaking

Observations—Well 94 (Continued)

Date	Head (ft.)	Chloride (p.p.m.)	Date	Head (ft.)	Chloride (p.p.m.)	Date	Head (ft.)	Chloride (p.p.m.)
Mar. 1, 1929	171	.....	June 19, 1930	171	.....	Nov. 29, 1932	152	147
Sept. 10	171	.....	July 15	171	.....	Dec. 27	147	144
Sept. 28	171	.....	Aug. 23	171	.....	Jan. 27, 1933	144	144
Oct. 30	161	.....	Sept. 6	171	.....	Feb. 24	144	135
Nov. 6	171	.....	Oct. 7	171	.....	Mar. 29	135	132
Nov. 13	171	.....	Nov. 12	171	.....	May 31	132	128
Nov. 20	158	.....	Dec. 16	171	.....	June 30	128	128
Nov. 27	158	.....	Jan. 1	168	.....	July 26	128	133
Dec. 4	188	.....	Mar. 2	29.58	171	July 26	128	133
Dec. 11	171	.....	April 16	.....	171	Aug. 31	133	129
Dec. 18	171	.....	May 27	.....	171	Sept. 9	129	120
Dec. 26	171	.....	June 26	.....	171	Oct. 31	120	120
Jan. 2, 1930	171	.....	July 28	.....	161	Nov. 25	120	115
Jan. 8	168	.....	Aug. 8	.....	161	Dec. 22	120	109
Jan. 15	171	.....	Sept. 11	27.14	.....	Jan. 30, 1934	115	108
Jan. 22	171	.....	Oct. 18	.....	169	Feb. 27	109	108
Jan. 29	171	.....	Oct. 30	.....	169	Mar. 9	108	111
Feb. 5	171	.....	Dec. 5	.....	169	April 28	111	109
Feb. 12	171	.....	Jan. 28, 1932	29.02	161	May 31	109	108
Feb. 18	28.88	.....	Feb. 16	.....	161	June 19	28.71	109
Feb. 26	188	.....	Mar. 20	.....	161	July 31	108	108
Mar. 5	171	.....	April 27	.....	161	Aug. 30	108	116
Mar. 12	188	.....	May 27	.....	169	Sept. 26	116	106
Mar. 19	188	.....	June 28	.....	164	Oct. 30	104	90
Mar. 26	171	.....	July 28	.....	169	Oct. 17	106	90
April 9	171	.....	Aug. 23	31.65	152	Nov. 15	90	90
April 30	171	.....	Sept. 22	.....	156	Nov. 30	94	92
May 14	171	.....	Oct. 27	.....	154	Dec. 11	28.50	92

Discharge in millions of gallons

Year	Jan.	Feb.	Mar.	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Total
1929	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	3.62
1930	.6	.6	.6	.6	.6	.6	.6	.6	.6	.6	.6	.6	7.2
1931	.3	.3	.3	.3	.3	.3	.3	.3	.3	.3	.3	.3	3.6
1932	.3	.3	.3	.3	.3	.3	.3	.3	.3	.3	.3	.3	3.6
1933	.3	.3	.3	.3	.3	.3	.3	.3	.3	.3	.3	.3	3.6
1934	.3	.3	.3	.3	.3	.3	.3	.3	.3	.3	.3	.3	3.6

95 (old 86). Near large red brick bldg. on opposite side of Queen St. from Kawaiahao Church graveyard, Honolulu. Owner, C. Y. Yee Hop and Co. Drilled, 1904. Altitude, 10 ft. Diameter, 10 in. Not in use.

Observations

Bench mark, flange on seaward end of tee on well casing 2 1/2 ft. below ground; altitude, 7.56 ft.

Date	Head (ft.)	Chloride (p.p.m.)	Date	Head (ft.)	Chloride (p.p.m.)	Date	Head (ft.)	Chloride (p.p.m.)
Dec. 30, 1907	89.0	.....	Nov. 12, 1926	23.51	74.0	Mar. 3, 1931	29.89	68.4
..... 1910	88.0	.....	Mar. 1, 1928	29.86	70.0	Sept. 10	26.74	65.0
Aug. 31, 1923	87.66	.....	Mar. 1, 1929	.....	68.5	Sept. 18	.....	63.9
Feb. 19, 1924	28.40	.....	July 19	.....	68.4	Jan. 29, 1932	29.33	63.9
Mar. 13	27.40	60.0	Sept. 28	.....	68.5	Aug. 24	31.65	60.7
Mar. 31	27.40	.....	Feb. 20, 1930	29.17	68.5	June 19, 1934	28.58	63.2
Feb. 16, 1926	77.0	.....	Sept. 6	.....	68.4	Dec. 11	28.27	61.5

Discharge in millions of gallons

Year	Jan.	Feb.	Mar.	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Total
1929	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	1.76
1930	.03	.03	.03	.03	.03	.03	.03	.03	.03	.03	.03	.03	.20
1931	.05	.05	.05	.05	.05	.05	.05	.05	.05	.05	.05	.05	.59
1932	.09	.09	.09	.09	.09	.09	.09	.09	.09	.09	.09	.09	.48
1933	.06	.06	.06	.06	.06	.06	.06	.06	.06	.06	.06	.06	.59
1934	1.20	1.10	1.20	1.20	1.25	1.24	1.48	1.23	1.05	1.07	1.18	1.40	14.40

96 (old 92). On grounds of Kawaiahao Church, Honolulu. Owner, Kawaiahao Church. Drilled, 1893 by L. E. Pinkham. Altitude, 14 ft. Depth, 765 ft. Diameter, 8 in. Use, irrigation. Casing, 715 ft. Recased from 10 in. in 1925.

Observations

Bench mark, south corner top of fountain 2 1/2 ft. above ground near pump; altitude, 16.50 ft.

Date	Head (ft.)	Chloride (p.p.m.)	Date	Head (ft.)	Chloride (p.p.m.)	Date	Head (ft.)	Chloride (p.p.m.)
..... 1910	.....	52.0	Oct. 16, 1929	.....	37.4	Mar. 12, 1930	.....	39.4
Feb. 3, 1919	26.07	.....	Oct. 23	.....	37.7	Mar. 19	.....	37.7
Aug. 18, 1923	25.59	.....	Oct. 30	.....	36.0	Mar. 26	.....	36.0
Nov. 6	.....	.....	Nov. 6	.....	37.7	April 9	.....	36.0
Feb. 19, 1924	26.10	.....	Nov. 13	.....	37.7	April 30	.....	36.0
Mar. 31	26.40	46.0	Nov. 20	.....	37.7	May 14	.....	36.0
July 30, 1926	25.57	46.0	Nov. 27	.....	37.7	July 19	.....	37.7
May 21, 1927	26.07	.....	Dec. 4	.....	37.7	July 15	.....	36.0
Feb. 17, 1928	29.13	43.0	Dec. 11	.....	37.7	Aug. 23	.....	36.0
Mar. 1, 1929	.....	.....	Dec. 18	.....	37.7	Sept. 9	.....	36.0
July 25	.....	37.7	Jan. 2, 1930	.....	37.7	Nov. 12	.....	36.0
Aug. 1	.....	39.4	Jan. 8	.....	37.7	Dec. 16	.....	35.9
Aug. 7	.....	37.7	Jan. 15	.....	37.7	Jan. 7, 1931	.....	35.9
Aug. 14	.....	37.7	Jan. 22	.....	37.7	Mar. 2	29.39	35.9
Aug. 28	.....	37.7	Jan. 29	.....	37.7	Sept. 18	.....	27.41
Sept. 4	.....	37.7	Feb. 5	.....	37.7	Feb. 5	.....	34.2
Sept. 11	.....	37.7	Feb. 12	.....	37.7	Jan. 29, 1932	28.54	37.6
Sept. 17-20	.....	37.7	Feb. 18	28.60	.....	Feb. 18	.....	37.6
Sept. 26	.....	39.4	Feb. 26	.....	37.7	June 19, 1934	.....	37.6
Oct. 2	.....	39.4	Mar. 5	.....	37.7	Dec. 11, 1934	.....	37.6

*Leaking

Meter test

No water discharging from top of well during test. Static level of well 3.5 ft. below normal for area. Improved Price meter used. Readings by G. K. Larrison and John Kahesku, July 12, 1920.

Depth (ft.)	Revolutions per minute	Depth (ft.)	Revolutions per minute	Depth (ft.)	Revolutions per minute
10	65	100	64	200	67
25	65	125	63	225	76
50	65	150 (leak)	63	250	67
75	73 (T)	175	73	.....	.....

Discharge in millions of gallons

Year	Jan.	Feb.	Mar.	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Total
1927	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	5.58
1928	.86	.50	.32	.24	.24	.49	.65	.59	.88	.59	.50	1.01	6.57
1929	.46	.42	.46	.46	.49	.71	.54	.25	.28	.21	.09	.34	4.65
1930	.39	.39	.31	.42	.43	.42	.43	.43	.42	.43	.42	.39	4.79
1931	.34	.33	.40	.26	.32	.46	.34	.39	.52	.42	.39	.26	4.33
1932	.37	.63	.07	.13	.08	.18	.28	.29	.15	.10	.05	.06	1.67
1933	.05	.04	.07	.08	.10	.11	.08	.07	.07	.11	.07	.06	.63
1934	.05	.03	.10	.10	.07	.14	.12	.11	.08	.07	.07	.06	1.22

97 (old 27). Under manhole in lawn in front of Territorial Office Bldg., Honolulu. Owner, Territory of Hawaii. Drilled, 1882. Altitude, 14 ft. Depth, 767 ft. Diameter, 5 in. at top and 4 in. at bottom. Not in use. Casing, 711 ft. Recased Dec. 18, 1926.

Observations

Bench mark, top of hexagonal flange on valve 3 ft. below ground; altitude, 11.20 ft.

Date	Head (ft.)	Chloride (p.p.m.)	Date	Head (ft.)	Chloride (p.p.m.)	Date	Head (ft.)	Chloride (p.p.m.)
April 1, 1910	30.77	.....	Mar. 1, 1911	32.18	.....	Jan. 1, 1912	31.20	51.0
June	29.90	91.0	June	31.70	.....	Mar. 1	31.00	50.9
Oct.	29.90	.....	July	31.45	.....	April	30.60	50.0
Jan. 1911	31.00	.....	Sept.	31.10	.....	May	30.10	53.0
Feb.	31.20	.....	Oct.	31.10	.....	June	29.45	52.0
			Nov.	30.85	.....	July	28.80	52.0

Observations—Well 97 (Continued)

Date	Head (ft.)	Chloride (p.p.m.)	Date	Head (ft.)	Chloride (p.p.m.)	Date	Head (ft.)	Chloride (p.p.m.)
Aug. 20, 1912	28.65	51.0	Sept. 1, 1914	27.70	50.0	Oct. 29, 1916	28.02	44.5
Sept. 1, 1912	28.17	59.0	Oct. 1, 1914	27.75	50.0	Nov. 5, 1916	28.11	44.5
Oct. 1, 1912	28.10	51.0	Nov. 1, 1914	28.00	49.0	Nov. 12, 1916	28.12	44.5
Nov. 1, 1912	28.22	50.0	Dec. 1, 1914	28.80	48.0	Nov. 19, 1916	28.30	44.5
Dec. 1, 1912	28.50	51.0	Jan. 1, 1915	28.80	49.0	Nov. 26, 1916	28.19	44.5
Jan. 1, 1913	28.66	51.0	Feb. 1, 1915	28.70	49.0	Dec. 3, 1916	28.24	44.5
Feb. 1, 1913	28.35	51.0	Mar. 1, 1915	28.23	48.0	Dec. 10, 1916	28.32	44.5
Mar. 1, 1913	28.10	50.0	April 1, 1915	28.41	48.0	Jan. 30, 1917	27.97	44.5
April 1, 1913	27.95	51.0	May 1, 1915	28.70	48.0	Oct. 11, 1923	28.38	44.5
May 1, 1913	28.22	51.0	June 1, 1915	28.20	49.0	Mar. 26, 1924	28.80	44.5
June 1, 1913	28.65	51.0	July 1, 1915	27.40	49.0	June 16, 1926	27.99	44.5
July 1, 1913	27.85	51.0	Aug. 1, 1915	27.60	51.0	Dec. 1, 1926	27.50	44.5
Aug. 1, 1913	27.75	51.0	Sept. 1, 1915	27.20	50.0	Sept. 28, 1929	28.35	44.5
Nov. 1, 1913	27.70	50.0	Oct. 1, 1915	27.50	50.0	Feb. 18, 1930	29.10	44.5
Dec. 1, 1913	28.10	51.0	Sept. 3, 1916	28.58	52.0	Mar. 5, 1931	29.40	80.0
Jan. 1, 1914	28.35	49.0	Sept. 10, 1916	28.56	50.0	Sept. 10, 1931	27.12	44.5
Feb. 1, 1914	28.15	51.0	Sept. 17, 1916	28.34	49.0	Jan. 28, 1932	29.07	38.0
Mar. 1, 1914	28.36	52.0	Sept. 22, 1916	28.34	49.0	Aug. 24, 1934	31.48	39.0
April 1, 1914	28.09	50.0	Oct. 1, 1916	28.69	49.0	June 19, 1934	28.64	51.0
May 1, 1914	28.00	50.0	Oct. 8, 1916	28.10	49.0	Dec. 11, 1934	28.54	41.0
June 1, 1914	27.55	51.0	Oct. 15, 1916	28.10	49.0			
July 1, 1914	27.55	51.0	Oct. 17, 1916	28.09	49.0			
Aug. 1, 1914	27.20	50.0	Oct. 22, 1916	27.97	49.0			

*Looking. †After recasing well.

98 (old 91). Near nurses' quarters at Queen's Hospital, Honolulu. Owner, Queen's Hospital. Drilled, 1902 by McCandless Bros. Altitude, 24 ft. Depth, 490 ft. Diameter, 8 in. Depth to top of aquifer, 420 ft. Not in use.

Log

Depth (ft.)	Description	Depth (ft.)	Description	Depth (ft.)	Description
0-10	Black sand (Qtz)	10-23	Coral (Pls)	100-110	Streaks of tough clay and 70 ft. of lava
10-23	Coral (Pls)	110-145	Clay (Pa)	145-150	rock (TKs) tough
10-23	Punchbowl tuff (Qtz)	150-200	Coral (Pls)	150-200	clay probably clink
23-70	Coral (Pls)	200-420	Clay (Pa)	420-490	er beds

Observations

Bench mark, top of cross union on well casing 1½ ft. above ground; altitude, 25.38 ft.

Date	Head (ft.)	Chloride (p.p.m.)	Date	Head (ft.)	Chloride (p.p.m.)	Date	Head (ft.)	Chloride (p.p.m.)
Aug. 20, 1910	30.48	49.0	Oct. 29, 1916	29.70	49.0	Sept. 27, 1929	25.59	44.5
Aug. 27, 1910	30.45	49.0	Nov. 1, 1916	29.82	49.0	Feb. 18, 1930	29.05	44.5
Sept. 1, 1910	30.32	49.0	Nov. 12, 1916	29.89	49.0	Sept. 1, 1931	29.87	46.0
Sept. 10, 1910	30.43	49.0	Nov. 19, 1916	29.89	49.0	Mar. 5, 1931	29.87	46.0
Sept. 17, 1910	30.19	49.0	Dec. 3, 1916	29.98	49.0	Sept. 18, 1931	29.29	46.0
Sept. 24, 1910	30.08	49.0	Dec. 19, 1916	29.08	49.0	Jan. 28, 1932	29.29	46.0
Oct. 1, 1910	29.95	49.0	Sept. 12, 1923	27.45	49.0	Aug. 24, 1934	31.53	44.5
Oct. 8, 1910	29.77	49.0	Mar. 31, 1924	28.50	48.5	June 19, 1934	28.69	46.2
Oct. 15, 1910	29.79	49.0	Aug. 25, 1926	27.38	49.0	Dec. 11, 1934	28.68	44.5
Oct. 22, 1910	29.58	49.0	Mar. 1, 1929	48.0	49.0			

Discharge in millions of gallons

Year	Jan.	Feb.	Mar.	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Total
1929	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	36.0
1930	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	36.0
1931	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	36.0
1932	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	36.0
1933	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	36.0
1934	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	36.0

99 (old 29). Palaeae Grounds, Honolulu. Owner, Territory of Hawaii. Drilled, 1882. Altitude, 18 ft. Depth, 762 ft. Diameter, 4 in. Depth to top of aquifer, 707 ft. Use, irrigation. Recased twice from 8 in.

Log

Depth (ft.)	Description	Depth (ft.)	Description	Depth (ft.)	Description
0-4	Hard lava (Qlb, probably Nuanu)	4-8	White coral (Pa)	75-78	Coral (Pls)
4-8	Black sand (Qtz)	75-78	Clay and gravel (Pa)	78-138	Clay and gravel (Pa)
75-78	Coral (Pls)	138-378	Lava or bedrock		
			Clay (Pa)		(TKs)

Observations

Bench mark, top of ½-in. nipple 4 ft. below ground in pipe connection to pump; altitude, 14.32 ft.

Date	Head (ft.)	Chloride (p.p.m.)	Date	Head (ft.)	Chloride (p.p.m.)	Date	Head (ft.)	Chloride (p.p.m.)
Mar. 24, 1886	43.3	43.3	Aug. 15, 1923	23.03	44.5	Feb. 18, 1930	28.95	44.5
June 1, 1889	42.75	44.5	Dec. 2, 1926	19.52	44.5	Mar. 4, 1931	29.59	35.9
June 1, 1890	42.75	44.5	May 25, 1927	21.22	44.5	Sept. 12, 1931	27.39	44.5
June 1, 1900	44.0	44.0	Feb. 17, 1928	120.13	44.5	Jan. 29, 1932	29.42	42.8
June 1, 1910	54.0	54.0	Mar. 19, 1929	56.0	44.5	Aug. 24, 1934	31.88	42.8
Nov. 1, 1919	25.20	44.5	Sept. 26, 1929	25.19	42.8			

*Looking. †Increased. ‡No readings 1934, inaccessible.

Meter test

A few days before test was made head 4.75 ft. below normal. No flow from top of well during test. An 3-in. deep-well meter used. Readings by M. H. Carson and John Kulevka, June 10, 1927.

Depth (ft.)	Revolutions per minute	Depth (ft.)	Revolutions per minute	Depth (ft.)	Revolutions per minute
150 (break)	9	234	133	499	217
189	73	459	150	569	205
204 (break)	70	309	150	569	188
209	93	319	150	569	210
214	106	329	150	569	205
219	110	334	150	569 (probably end of casing)	195
224	108	108	108	108	152
229	108	108	108	108	195
234	112	334	112	334	709
239	112	334	290	759 (meter loaded)	0
244	88	339	205		
249 (break)	98	359	195		

Discharge in millions of gallons

Year	Jan.	Feb.	Mar.	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Total
1929	1.1	1.0	1.1	1.0	1.1	1.0	1.1	1.0	1.1	1.0	1.1	1.0	12.8
1930	.64	.29	.72	.60	.51	.45	.25	0	.06	0	0	.33	3.210
1931	.648	0	0	.003	0	0	0	0	0	0	0	0	.051
1932	0	0	0	0	0	0	.112	0	0	.126	0	0	.238

*No discharge 1933, 1934.

100 (no old number). At Hawaii Theater. Owner, Consolidated Amusement Co. Drilled, 1937 by W. H. Mullin. Depth, 60 ft. Diameter, 6 in. Casing, 20 ft. Use, air conditioning. Coral (Pls), 0-60 ft.

100-1 (no old number). At Liberty Theater. Owner, Consolidated Amusement Co. Drilled, 1936 by A. H. Hobart. Depth, 52.5 ft. Diameter, 8 in. Casing, 40 ft. Use, air conditioning. Driller's log: fill, 0-5 ft.; black sand (Qtz), 5-6 ft.; coral (Pls), 6-52.5 ft.

101 (old 88). Northeast corner of Richards St. and Ala Moana, Honolulu. Owner U. S. Army. Drilled, 1901. Altitude, 4 ft. Depth, 1,152 ft. Diameter, 8 in. Depth to top of aquifer, 986 ft. Not in use. Recased from 10 in. in 1920. Only discharge for the period July 1929 to Dec. 31, 1934 as follows (gals.): Oct. 1929, 770,000; Dec. 1930, 790,000; Oct. 1934, 3,380,600; Nov. 1934, 730,000.

Log

	Depth (ft.)		Depth (ft.)
Rubbish and clay fill (12a).....	0-9	Black mud (Pa).....	836-882
Coral (Pa).....	6-18	Brown mud (Pa).....	882-896
Boulders imbedded in coral (Pa and possibly some Qbb, Nuanu).....	118-153	Tough dark brown clay (Pa).....	896-924
Coral and clay (Pa and Pa).....	153-590	Sand (Pa).....	958-968
Hard coral (Pa).....	590-603	Sand (Pa).....	968-984
Soft coral (Pa).....	603-645	Mud (Pa).....	981-980
Yellow clay (Pa).....	645-756	Lava (Tkb).....	981-1,006
Brown clay (Pa).....	756-771	6 1/2 strata red sandstone.....	1,006-1,074
Coast (Pa).....	776-876	Lava rock (Tkb).....	1,074-1,078 1/2
Brown clay (Pa).....	786-876	2nd water-bearing rock (Tkb).....	1,078 1/2-1,151 3/4

Observations

Bench mark, top of flange at top of casing, below petcock, 1 ft. below ground; altitude, 3.72 ft.		Bench mark, top of flange at top of casing, below petcock, 1 ft. below ground; altitude, 3.72 ft.			
Date	Head (ft.)	Chloride (p.p.m.)	Date	Head (ft.)	Chloride (p.p.m.)
..... 1910	194	194	April 30, 1930	294.0	296.6
Aug. 7, 1929	22.49	.....	.....	42.80	256.5
Sept. 4, 1929	25.27	.....	.....	42.80	1231
Mar. 17, 1927	24.00	.....	.....	39.40	1231
April 18	1068	.....	.....	39.40	29.26
Jan. 9, 1926	98.87	.....	.....	39.40	.....
Sept. 26	24.07	3944	Oct. 7	3269	1248
Oct. 29	24.37	3940	Nov. 12	3260	1231
Nov. 5	19.28	4070	Dec. 16	3260	1234
Nov. 12	.....	4001	Mar. 2, 1931	2997	1331
Nov. 19	.....	4001	April 10	2565	1231
Nov. 26	.....	4164	May 27	1710	1231
Dec. 3	.....	4104	June 26	2907	Jan. 30, 1934
Dec. 10	.....	4104	July 28	1710	Feb. 27
Dec. 19	28.60	4091	Aug. 8	1891	Mar. 14
Dec. 26	.....	4091	Sept. 9	20.14	29.04
Jan. 2, 1930	28.35	4091	Sept. 18	.....	1211
Jan. 15	.....	3940	Oct. 30	1681	April 28
Jan. 22	.....	3940	Dec. 5	1710	June 19
Jan. 29	.....	3940	Jan. 29, 1932	26.45	23.38
Feb. 5	.....	3940	Feb. 26	2736	Aug. 16
Feb. 12	.....	3940	Mar. 20	2736	Sept. 27
Feb. 18	.....	3940	Apr. 27	2736	Oct. 17
Feb. 26	.....	3770	June 28	2565	Oct. 30
Mar. 5	.....	3940	July 25	2565	Nov. 29
Mar. 12	.....	4120	Aug. 22	2565	Nov. 13
Mar. 19	.....	4120	Sept. 22	2565	Nov. 30
Mar. 26	.....	3940	Oct. 27	2565	Dec. 11
April 9	.....	3940	.....	2940	23.05

* 1st stage. † Measurement low due to high salt content.

Meter tests

Test 1. No water flowing from top of well during test. Static level about 20 ft. below normal for area. Improved flow meter used. Readings by J. E. Steward and R. D. Kliss, Oct. 4, 1918.

Depth (ft.)	Revolutions per minute	Depth (ft.)	Revolutions per minute	Depth (ft.)	Revolutions per minute
150 (test)	10	240	100	410	110
200	80	350	100	400	110

Test 2. Water discharging from top of well during test. Static level normal for area. An 8-in. deep-well meter used. Readings by Sam Wong, Jan. 4, 1929.

Depth (ft.)	Revolutions per minute	Depth (ft.)	Revolutions per minute	Depth (ft.)	Revolutions per minute
17	146	777	146	1087	158
77	156	977	146	1097	166
177	154	977	144	1097	162
277	164	907	144	1107	142
377	138	1017	144	1117	144
477	142	1037	148	1116	146
577	144	1057	152	1117	140
677	146	1077	152	1118	136

Meter tests—Well 101 (Continued)

Depth (ft.)	Revolutions per minute	Depth (ft.)	Revolutions per minute	Depth (ft.)	Revolutions per minute
1119	120	1127	80	1142	0
1120	26	1132	2	1145	0
1122	128	1137	2	1146 (bottom)	0

102 (old 89). Seamen's Institute, Honolulu. Owner, Hawaiian Electric Co. Drilled, 1897. Altitude, 4 ft. Diameter, 10 in. Use, industrial. Casing, 900 ft. Recased from 12 in.

Observations

Bench mark, corner of concrete base of pump 4 ft. above ground inside Hawaiian Elec. plant, near manhole entrance to tap on well; altitude, 8.02 ft.

Date	Head (ft.)	Chloride (p.p.m.)	Date	Head (ft.)	Chloride (p.p.m.)
Aug. 3, 1908	67	Jan. 2, 1930	754	Mar. 30, 1932	257
..... 1910	72	Jan. 8	754	April 27	598
June 1	82	Jan. 15	771	May 27	257
Sept. 26, 1923	27.18	Jan. 22	771	June 28	376
Dec. 27	244	Jan. 29	788	July 28	171
Jan. 21, 1924	27.88	Feb. 5	788	Aug. 23	31.26
Jan. 22	28.28	Feb. 12	788	Sept. 22	205
Mar. 27	248	Feb. 19	28.69	Oct. 27	205
May 8, 1925	757	Apr. 9	771	Nov. 26	205
May 27	410	Mar. 5	788	Dec. 27	188
June 9	144	Mar. 12	788	Jan. 27, 1933	171
Sept. 11	25.11	Mar. 19	737	Feb. 24	171
Feb. 8, 1926	280	Mar. 26	788	Mar. 29	205
Mar. 1, 1929	771	April 9	771	May 11	171
July 9	903	Apr. 16	771	May 26	109
Aug. 1	708	May 14	788	June 30	144
Aug. 7	903	May 19	490	July 26	140
Aug. 21	925	Aug. 23	514	Aug. 31	164
Aug. 28	960	Sept. 6	394	Sept. 28	222
Sept. 11	977	Nov. 12	257	Oct. 31	684
Sept. 19	994	Dec. 16	257	Dec. 31	684
Oct. 3	1100	Mar. 2	30.13	Jan. 30, 1934	615
Oct. 19	1205	Apr. 16	30.13	Feb. 27	701
Oct. 22	1400	May 27	547	Mar. 29	291
Oct. 30	1610	June 26	564	Apr. 29	222
Nov. 6	239	July 28	564	May 31	664
Nov. 13	25.11	July 28	299	Aug. 30	325
Nov. 20	771	Sept. 11	27.06	Sept. 26	496
Nov. 27	788	Sept. 11	27.06	Oct. 17	684
Dec. 4	771	Oct. 30	339	Oct. 30	684
Dec. 11	771	Dec. 5	257	Nov. 15	667
Dec. 18	856	Jan. 20, 1932	257	Nov. 29	667
Dec. 26	754	Feb. 26	257	Dec. 11	697

Discharge in millions of gallons

Year	Jan.	Feb.	Mar.	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Total
1929	.....	.....	.....	.....	.....	31.0	31.8	31.5	31.5	29.9	31.0	186.7	
1930	.....	.....	31.0	30.0	30.0	0	1.1	0	0	1.2	188.7		
1931	1.8	3.2	0	0	1	1.0	1	1	1	1.0	1.3	8.3	
1932	9.7	10.3	13.5	7.8	0	3.2	0	0	0	6.4	5	61	92.3
1933	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	119.7
1934	17.29	57.10	10.50	49	1.92	31.29	60.60	13.20	17.90	20.20	19.50	20.20	272.0

103 (old 89 1/2). Rear of Seamen's Institute, Honolulu. Owner, Hawaiian Electric Co. Drilled, 1910. Altitude, 2 ft. Depth, 1,150 ft. Diameter, 12 in. Depth to top of aquifer, 810 ft. Use, industrial.

Log

	Depth (ft.)		Depth (ft.)
Clay (Pa).....	0-5	Boulders (Pa or possibly Qbb, Nuanu)	145-150
Coral (Pa).....	5-110		
Clay (Pa).....	110-145		

Log—Well 103 (Continued)

	Depth (ft.)		Depth (ft.)
Clay and boulders (Pa or possibly Qbb, Nuanuan)	150-160	Coral (Pis)	520-550
Boulders (Pa or possibly Qbb, Nuanuan)	160-165	Clay (Pa)	560-660
Boulders and clay (Pa or possibly Qbb, Nuanuan)	165-180	Clay and gravel (Pa)	660-670
Clay and coral (Pa and Pis)	190-210	Clay (Pa)	670-730
Coral (Pis)	210-250	Black mud (Pa)	730-750
Coral and clay (Pis and Pa)	250-275	Clay (Pa)	750-760
Clay and coral (Pa and Pis)	275-330	Hard blue rock; flowing water (Tb)	810-840
Sticky clay (Pa)	330-445	Soft blue rock (Tb)	840-845
Sandy clay (Pa)	445-465	Hard blue rock; flowing water (Tb)	945-960
Sticky clay (Pa)	465-480	Streaks of hard and soft blue rock (Tb)	960-960
Coral (Pis)	480-490	Medium hard blue rock (Tb)	1,080-1,150
Clay (Pa)	490-520		

Observations

Bench mark, top of manhole cover 4 ft. above ground beside $\frac{3}{4}$ -in nipple in line from well, inside ice plant; altitude, 6.19 ft.

Date	Head (ft.)	Chloride (p.p.m.)	Date	Head (ft.)	Chloride (p.p.m.)	Date	Head (ft.)	Chloride (p.p.m.)
June 9, 1911	.....	.....	.....	.....	.....	.....	.....	.....
Sept. 25, 1923	55.0	.....	Oct. 16, 1929	77.1	.....	Mar. 12, 1930	73.7	.....
Dec. 27	84.0	.....	Oct. 20	78.8	.....	Mar. 20	75.4	.....
Jan. 22, 1924	28.19	.....	Nov. 6	75.8	.....	April 9	71.9	.....
Jan. 24	27.79	.....	Nov. 13	75.4	.....	April 30	71.9	.....
Mar. 27	82.0	.....	Nov. 20	75.4	.....	May 14	71.9	.....
2887 8, 1923	82.0	.....	Nov. 27	75.4	.....	June 19	71.9	.....
June 9	121.0	.....	Dec. 4	75.4	.....	July 15	71.9	.....
Sept. 11	124.1	.....	Dec. 11	75.4	.....	Aug. 23	71.9	.....
Mar. 1, 1929	75.8	.....	Dec. 18	75.4	.....	Sept. 8	80.5	.....
July 25	75.4	.....	Dec. 26	73.7	.....	Oct. 7	82.2	.....
Aug. 3	75.4	.....	Jan. 2, 1930	75.4	.....	Jan. 12	71.9	.....
Aug. 7	75.4	.....	Jan. 9	75.4	.....	Feb. 16	80.5	.....
Aug. 14	75.4	.....	Jan. 15	75.4	.....	Jan. 7, 1931	95.8	.....
Aug. 21	75.4	.....	Jan. 22	75.4	.....	Feb. 2	73.2	.....
Aug. 28	75.4	.....	Jan. 29	75.4	.....	Sept. 18	91.0	.....
Sept. 4	75.4	.....	Feb. 5	75.4	.....	Oct. 24, 1929	71.4	.....
Sept. 11	77.1	.....	Feb. 12	75.4	.....	Aug. 2, 1930	70.1	.....
Sept. 18	75.4	.....	Feb. 19	75.4	.....	June 19, 1934	65.0	.....
Sept. 19	73.7	.....	Mar. 5	73.7	.....	Dec. 11	24.2	65.0
Oct. 2	77.1	.....	Mar. 8	73.7	.....		

Discharge in millions of gallons

Year	Jan.	Feb.	Mar.	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Total
1929	112
1930	222
1931	262
1932	282
1933	186
1934	188

104 (old 90). In Young Hotel engine room. Owner, Young Hotel Co. Drilled, 1901 by McCandless Bros. Diameter, 12 in. Altitude, 11 ft. Use, industrial.

Observations

Bench mark, top of $\frac{3}{4}$ -in nipple 2 ft. below ground in test valve; altitude, 9.47 ft. Head (ft.)

Date	Chloride (p.p.m.)	Date	Chloride (p.p.m.)	Date	Chloride (p.p.m.)	Date	Chloride (p.p.m.)
..... 1910	67.0	July 25, 1929	75.4	Sept. 4, 1929	75.4	Oct. 30, 1929	73.7
June 18, 1917	62.0	Aug. 1	75.4	Sept. 11	73.7	Nov. 6	71.9
June 8, 1924	70.0	Aug. 7	73.7	Sept. 19	71.9	Nov. 13	75.7
Feb. 18, 1926	70.0	Aug. 14	75.4	Oct. 2	71.9	Nov. 20	73.7
Oct. 8	81.0	Aug. 21	73.7	Oct. 16	71.9	Nov. 27	75.4
Mar. 1, 1929	51.9	Aug. 28	75.4	Nov. 3	73.7	Dec. 4	75.4

Observations—Well 104 (Continued)

Date	Chloride (p.p.m.)	Date	Chloride (p.p.m.)	Date	Chloride (p.p.m.)	Date	Chloride (p.p.m.)
Dec. 11, 1929	73.7	Feb. 5, 1930	73.7	April 30, 1930	71.9	Dec. 16, 1930	71.9
Dec. 18	71.9	Feb. 12	73.7	May 14	71.9	Jan. 7, 1931	71.9
Dec. 26	71.9	Feb. 26	73.7	June 19	71.9	Mar. 3	73.5
Jan. 2, 1930	71.9	Mar. 5	73.7	July 15	70.2	Sept. 5	75.2
Jan. 9	71.9	Mar. 12	75.4	Aug. 23	66.8	Jan. 28, 1932	73.5
Jan. 15	73.7	Mar. 19	75.4	Sept. 6	71.9	Aug. 24	73.5
Jan. 22	73.7	Mar. 26	73.7	Oct. 7	71.9	June 19, 1934	75.9
Jan. 29	73.7	April 9	71.9	Nov. 12	71.0	Dec. 11	84.4

Discharge in millions of gallons

Year	Jan.	Feb.	Mar.	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Total
1929	.....	.....	.....	.....	.....	.....	34.0	34.0	33.3	34.1	33.0	34.0	292.4
1930	30.3	27.7	30.7	29.7	30.7	29.7	30.7	30.7	29.7	30.7	29.7	30.7	339.6
1931	30.7	27.7	30.7	29.7	30.7	29.7	30.7	30.7	29.7	31.6	5.7	5.9	287.8
1932	5.3	4.9	5.3	5.1	5.3	5.1	5.3	2.5	2.2	2.1	2.2	2.2	47.1
1933	4.34	4.03	3.92	3.70	3.83	3.82	4.00	4.41	4.01	4.13	4.14	4.21	39.10
1934	4.53	4.19	4.51	4.09	4.56	4.70	5.64	5.75	4.85	5.22	5.48	5.93	59.35

105 (old 88A). Central Y.M.C.A., Honolulu. Owner, Y.M.C.A. Drilled, 1915. Altitude, 18 ft. Diameter, 10 in. Use, domestic.

Observations

Bench mark, top of $\frac{3}{4}$ -in nipple 3 ft. below ground in discharge line in pump room; altitude, 15.26 ft.

Date	Head (ft.)	Chloride (p.p.m.)	Date	Head (ft.)	Chloride (p.p.m.)	Date	Head (ft.)	Chloride (p.p.m.)
Nov. .. 1915	28.45	44.0	Dec. 26, 1923	27.56	.....	Feb. 18, 1926	35.40	44.0
Dec. .. 1915	29.07	43.0	Dec. 31	27.78	.....	July 30	.....	47.0
Jan. .. 1916	31.20	43.0	Jan. 1, 1924	28.06	.....	Aug. 20	23.26	48.0
Feb. .. 1916	38.60	43.0	Mar. 16	28.06	.....	Sept. .. 1929	.....	49.4
Mar. .. 1916	32.53	42.0	Feb. 4	28.80	.....	Sept. ..	24.61	97.7
Apr. .. 1916	32.29	44.0	Feb. 28	28.30	.....	Oct. 10	27.06	.....
May .. 1916	32.40	43.0	Feb. 26	28.10	.....	Feb. 19, 1930	28.69	.....
June .. 1916	31.80	43.0	Mar. 18	27.50	.....	Sept. ..	37.7	.....
July 30	31.05	43.0	Mar. 29	.....	47.5	Mar. 3, 1931	29.33	37.6
Aug. .. 1916	30.60	44.0	April 10	27.49	44.0	Sept. ..	50.00	.....
Sept. .. 1916	27.90	.....	April 28	27.60	.....	Sept. ..	35.6	.....
Oct. 11	27.41	.....	May 29	27.41	.....	May 29, 1932	28.80	34.2
Oct. 16	27.01	.....	May 15	28.30	.....	Aug. 25	31.03	37.6
Oct. 14	27.40	.....	Oct. 40	28.40	.....	June 19, 1934	28.51	37.6
Nov. 17	27.26	48.0	Jan. 16, 1925	.....	44.0	Dec. 11	28.40	37.6
Dec. 24	27.56	.....	Feb. 18	.....	44.5			

Discharge in millions of gallons

Year	Jan.	Feb.	Mar.	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Total
1929	.....	.....	.....	.....	.....	.....	4.4	5.7	5.4	3.9	4.9	4.5	28.8
1930	5.4	4.5	5.0	4.2	5.7	6.0	4.6	4.1	4.8	4.9	4.8	4.9	56.9
1931	5.2	4.8	5.3	5.3	5.3	4.9	4.9	4.9	5.2	4.4	4.7	4.4	63.1
1932	4.4	5.0	5.2	5.2	5.3	5.2	5.8	4.9	4.7	4.9	4.7	4.4	53.3
1933	5.3	4.8	5.4	5.1	5.4	4.7	4.9	4.4	4.3	4.4	5.3	5.3	58.3
1934	6.5	5.9	6.3	6.2	6.4	4.3	4.2	4.3	4.0	4.0	3.7	4.2	60.0

106 (old 28). Alakea St. near Army Y.M.C.A. Owner, Mrs. B. C. Cooper. Drilled, 1882. Altitude, about 20 ft. Depth, 636 ft. Diameter, 6 in. Depth to top of sniffer, 600 ft. Head (ft.), Sept. 11, 1923, 255.95; Sept. 12, 1923, 255.7; Mar. 31, 1924, 226.54. Chloride (p.p.m.), 1910, 48; Mar. 31, 1924, 42.7. Sealed, Sept. 1925.

*Leaking.

107 (old 93). On grounds of Central Grammar School, Honolulu. Owner, City and County of Honolulu. Drilled, 1889 by McCandless Bros. Altitude, about 28 ft. Diameter, 4 in. Not in use.

115 (old 95E). Rear of Hawaiian Pineapple Cannery, Honolulu. Owner, Hawaiian Pineapple Co. Drilled, 1927 by McCandless Bros. Altitude, 5 ft. Depth, 510 ft. Diameter, 10 in. Depth to top of aquifer, 480 ft. Use, industrial. Casing, 48 ft. Wells 115 to 118 are now connected to one pumping station.

Log			
Depth (ft.)		Depth (ft.)	Depth (ft.)
Coral (Pis)	0-10	Red rock and clay (Pa or Qbb, Nuuanu)	145-152
Clay (Pa)	10-50	Brown soft clay (Pa)	153-196
Coral (Pis)	50-84	Clay and gravel (Pa)	196-230
Hard rock (Qbb, Nuuanu)	84-109	Sticky clay (Pa)	230-240
auau)	109-115	Brown soft clay (Pa)	240-258
Hard rock (Qbb, Nuuanu)	115-190	Sticky clay (Pa)	258-261
auau)	190-210	Sticky clay (Pa)	261-285
Boulders and clay (Pa and possibly some Qbb, Nuuanu)	210-245	Sticky clay (Pa)	285-306
		(Pa and Pis)	306-350
		Hard rock (Tbk)	350-400
		Soft rock (Tbk)	400-510
		Hard rock (Tbk)	510-520
		Soft rock (Tbk)	520-540

Observations

Bench mark, top of concrete near ring 6 in. above ground, towards building; altitude, 5.18 ft.

Date	Head (ft.)	Chloride (p.p.m.)	Date	Head (ft.)	Chloride (p.p.m.)	Date	Head (ft.)	Chloride (p.p.m.)
Sept. 18, 1929	65.4	68.4	Mar. 3, 1931	30.29	75.2	Aug. 22, 1932	30.72	73.3
Sept. 26	66.6	68.6	Sept. 10	37.44	85.5	Oct. 29	37.0	75.0
Oct. 2	66.7	68.7	Sept. 18	38.5	85.5	June 19, 1934	27.80	75.2
Feb. 20, 1930	29.88	68.8	Jan. 28, 1932	29.44	77.0	Dec. 11	27.98	76.5

116 (old 95D). Rear of Hawaiian Pineapple Cannery, Honolulu. Owner, Hawaiian Pineapple Co. Drilled, 1927 by McCandless Bros. Altitude, 5 ft. Depth, 612 ft. Diameter, 10 in. Depth to top of aquifer, 527 ft. Use, industrial. Casing, 486 ft.

Log			
Depth (ft.)		Depth (ft.)	Depth (ft.)
Coral (Pis)	0-10	Brown soft clay (Pa)	153-196
Clay (Pa)	10-50	Clay and gravel (Pa)	196-230
Coral (Pis)	50-84	Sticky clay (Pa)	230-240
Hard rock (Qbb, Nuuanu)	84-109	Sticky clay (Pa)	240-258
auau)	109-115	Soft clay (Pa)	258-261
Hard rock (Qbb, Nuuanu)	115-120	Sticky clay (Pa)	261-285
auau)	120-145	Sticky clay (Pa)	285-306
Boulders and clay (Pa or Qbb, Nuuanu)	145-152	Sticky clay (Pa)	306-350
		Hard rock (Tbk)	350-400
		Soft rock (Tbk)	400-510
		Hard rock (Tbk)	510-520
		Soft rock (Tbk)	520-540

Observations

Bench mark, top of concrete near ring 6 in. above ground, towards building; altitude, 4.81 ft. For additional observations see well 115.

Date	Head (ft.)	Chloride (p.p.m.)	Date	Head (ft.)	Chloride (p.p.m.)	Date	Head (ft.)	Chloride (p.p.m.)
April 22, 1927	76.0	68.0	Feb. 20, 1930	29.55	75.2	Aug. 22, 1932	30.70	71.8
May 5	27.38	68.0	Mar. 3, 1931	29.63	71.8	Dec. 22	30.70	71.8
Apr. 9, 1928	71.0	68.0	Sept. 10	27.38	71.8	June 16, 1934	26.99	76.9
Aug. 25	94.0	68.0	Sept. 18	27.7	71.8	Aug. 10	26.65	75.2
Sept. 26, 1929	26.29	78.8	Jan. 28, 1932	28.96	71.8	Dec. 11	28.03	75.2

117 (old 95J). Rear of Hawaiian Pineapple Cannery, Honolulu. Owner, Hawaiian Pineapple Co. Drilled, 1913. Altitude, 5 ft. Diameter, 10 in. Use, industrial.

Observations

Bench mark, top of 1½-in. plate 2 ft. above ground between 10-in. and 8-in. trees on well; altitude, 0.69 ft. For additional observations see well 115.

Date	Head (ft.)	Chloride (p.p.m.)	Date	Head (ft.)	Chloride (p.p.m.)	Date	Head (ft.)	Chloride (p.p.m.)
April 28, 1914	31.01	200	Oct. 14, 1917	30.22	...	June 16, 1918	31.24	...
Sept. 4, 1916	30.89	...	21	30.24	...	30	31.1	...
10	30.89	...	28	30.06	...	Dec. 21, 1923	28.63	126
17	30.89	...	Nov. 4	30.12	...	Apr. 4, 1924	30.6	117
30	30.89	...	11	30.09	...	May 21	30.6	117
Oct. 1	30.89	...	Jan. 14, 1918	31.14	...	Aug. 21	30.6	117
8	30.89	...	20	31.36	...	Dec. 11	30.6	117
15	30.86	...	Feb. 3	31.36	...	Aug. 31, 1925	30.6	118
21	30.86	...	10	31.44	...	Oct. 5, 1926	30.6	99
Nov. 8	30.69	...	17	31.44	...	Dec. 2	30.6	99
15	30.86	...	24	31.59	...	Sept. 18, 1929	30.6	84
Dec. 30	30.84	...	Mar. 3	31.59	...	Oct. 2	30.6	84
19	31.04	...	10	31.59	...	Feb. 20, 1930	29.83	...
Jan. 2, 1917	31.34	...	17	31.71	...	Mar. 3, 1931	29.42	...
9	31.46	...	24	31.71	...	Apr. 1	29.42	...
18	31.34	...	Mar. 7	31.59	...	Sept. 18	29.42	...
26	31.24	...	14	31.71	...	Jan. 28, 1932	28.66	91
Feb. 5	32.04	...	21	31.84	...	Aug. 23	30.06	94
12	32.24	...	28	31.92	...	Dec. 23	30.06	91
19	32.24	...	May 12	31.93	...	June 19, 1934	26.63	99
Sept. 23	30.43	...	19	32.69	...	Aug. 10	26.72	...
30	30.43	...	25	31.89	...	Dec. 11	28.03	98
			June 2	31.92	...			
			8	31.29	...			

118 (old 95B). Rear of Hawaiian Pineapple Cannery, Honolulu. Owner, Hawaiian Pineapple Co. Drilled, 1923 by McCandless Bros. Altitude, 4 ft. Depth, 650 ft. Diameter, 12 in. Depth to top of aquifer, 600 ft. Use, industrial.

Log

Depth (ft.)		Depth (ft.)	Depth (ft.)
Soft dirt and coral (Pa and Pis)	0-20	Sticky dark clay (Pa)	245-245
Coral (Pis)	20-35	Brown clay (Pa)	245-280
Hard rock (Qbb, Nuuanu)	35-84	Dark sticky clay (Pa)	280-270
auau)	84-120	Gravel with clay (Pa)	270-290
Hard rock (Qbb, Nuuanu)	120-125	Sticky clay (Pa)	290-310
auau)	125-125	Brown sticky clay (Pa)	310-320
Coral (Pis)	125-130	Gravel (Pa)	320-330
Light clay (Pa)	130-222	Brown clay (Pa)	330-355
		Blue clay (Pa)	350-420
		Reddish sandy clay (Pa)	420-550
		Dark sticky clay (Pa)	550-540
		tallow streaks (Pa)	450-530
		Red to dark clay	530-540
		Rock; water flowed 2 in. above casing at 600 ft. (Tbk)	549-650

Observations

Bench mark, top of blind flange on top of well 3 ft. below ground; altitude, 0.82 ft. For additional observations see well 115.

Date	Head (ft.)	Chloride (p.p.m.)	Date	Head (ft.)	Chloride (p.p.m.)	Date	Head (ft.)	Chloride (p.p.m.)
Dec. 21, 1923	38.42	...	Dec. 2, 1926	110.0	...	Sept. 10, 1931	27.30	...
Jan. 10, 1924	29.42	...	April 9, 1928	29.31	...	Sept. 18	29.22	90.5
Feb. 18	29.00	...	Aug. 25	30.0	...	Jan. 28, 1932	29.22	73.3
April 4	29.00	...	Sept. 18, 1929	29.0	...	Aug. 22	31.39	73.5
May 9	26.75	...	Sept. 26	26.52	90.8	Dec. 22	28.03	75.2
Aug. 21	26.75	...	Oct. 1	26.52	122.0	Feb. 20, 1930	29.87	...
Dec. 11	26.82	122.0	Mar. 3, 1931	29.91	71.8	Dec. 11	28.03	75.2
Aug. 31, 1925	110.0	...						

Observations—Well 121 (Continued)

Date	Head (ft.)	Chloride (p.p.m.)	Date	Head (ft.)	Chloride (p.p.m.)	Date	Head (ft.)	Chloride (p.p.m.)
Aug. 29, 1926	24.88	128	Mar. 27, 1929	29.80	124	Sept. 10, 1931	27.46	...
Mar. 1, 1928	30.60	122	Apr. 23	29.42	126	Sept. 17	...	...
Aug. 25	...	116	May 22	25.68	116	Jan. 29, 1932	29.25	109
Oct. 27	28.30	121	Sept. 26	26.32	110	Aug. 25	31.14	166
Nov. 26	29.20	120	Feb. 18, 1930	29.66	...	June 19, 1934	27.91	131
Jan. 3, 1929	29.90	117	Sept. 6	...	110	Dec. 11	27.30	70
Feb. 1	29.80	119	Mar. 3, 1931	30.44	...	...	...	...
Feb. 27	29.80	122	June 4	...	119	...	...	...

Discharge in millions of gallons

Year	Jan.	Feb.	Mar.	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Total
1929	...	...	...	...	...	...	.001	.005	.006	.009	.002	.023	...
1930	.04	.01	.02	.02	.02	.02	.02	.02	.02	.02	.02	.02	1.26
1931	.63	.63	.62	.62	.62	.62	.61	.61	.61	.61	.61	.61	9.9
1932	.64	.64	.64	.64	.64	.64	.65	.65	.65	.65	.64	.61	20
1933	.004	.004	.004	.004	.004	.004	.004	.004	.004	.004	.004	.004	.059
1934	.004	.004	.004	.004	.004	.004	.004	.004	.004	.004	.004	.004	.028

122 (old 96A). Palama Settlement, Vineyard St., Honolulu. Owner, Palama Settlement. Drilled, 1924 by McCandless Bros. Altitude, 25 ft. Depth, 335 ft. Diameter, 12 in. Depth to top of aquifer, 310 ft. Use, swimming tank. Casing, 20 in.

Log

Depth (ft.)	Log	Depth (ft.)	Depth (ft.)
0-2	Clay and gravel (Pa)	129-165	Head rock (Tkb)
3-13	Brown clay (Pa)	168-230	Good water rock;
13-42	Black sticky clay (Pa)	230-250	struck water at 310
42-139	Sand and gravel (Pa); possibly Tkb	250-255	ft. (Tkb)

Observations

Bench mark, center line of cock 4 ft. below ground, just below pressure gage of pump; altitude, 29.01 ft.

Date	Head (ft.)	Chloride (p.p.m.)	Date	Head (ft.)	Chloride (p.p.m.)	Date	Head (ft.)	Chloride (p.p.m.)
Dec. 2, 1925	27.76	...	Sept. 20, 1929	28.87	110.0	Sept. 18, 1931	...	69.2
Aug. 25, 1926	26.25	126.0	Feb. 19, 1930	30.41	...	Jan. 29, 1932	29.08	94.6
Mar. 27, 1928	30.41	107.0	Sept. ...	...	110.0	Aug. 24	31.92	97.4
Aug. 25	...	123.0	Mar. 3, 1931	29.58	87.5	June 19, 1934	27.87	95.8
Mar. ... 1929	...	97.7	Sept. 10	27.49	99.1	Dec. 11	27.56	97.5

Discharge in millions of gallons

Year	Jan.	Feb.	Mar.	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Total
1929	...	...	...	...	...	...	2.5	2.8	2.7	2.5	2.8	2.7	16.0
1930	3.0	2.4	3.0	2.4	3.0	2.7	2.5	2.1	3.0	2.7	2.4	2.7	33.4
1931	2.3	3.0	2.7	2.7	2.4	3.0	2.4	2.7	2.7	2.7	2.7	2.8	33.8
1932	2.7	3.0	2.5	2.7	3.0	2.7	2.4	2.0	2.7	2.4	2.7	2.4	32.4
1933	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	3.0	2.4	2.7	33.2
1934	3.0	2.7	2.8	2.6	2.4	2.6	2.7	2.7	2.1	2.7	2.7	3.0	31.8

123 (old 100%). On grounds of old insane asylum on School St., Honolulu. Owner, Territory of Hawaii. Drilled, 1895 by McCandless Bros. Altitude, 50 ft. Depth, 120 ft. Diameter, 8 in. Casing, 90 ft. Sealed, Jan. 1929.

124 (old 97). Between School St. and end of Auld Lane, Honolulu. Owner, Ah Yin. Drilled, 1900 by McCandless Bros. Altitude, 16 ft. Depth, 150 ft. Diameter, 8 in. Use, domestic.

Observations

Bench mark, top of hexagonal head on 2 in. valve 2 1/2 ft. above ground directly over well; altitude, 17.49 ft.

Date	Head (ft.)	Chloride (p.p.m.)	Date	Head (ft.)	Chloride (p.p.m.)	Date	Head (ft.)	Chloride (p.p.m.)
..... 1910	...	118.0	Oct. 22, 1916	30.61	...	April 9, 1928	31.64	157.0
July 16, 1916	31.93	...	Oct. 29	30.63	...	Aug. 9	...	118.0
July 23	31.82	...	Nov. 6	30.65	...	Feb. 21, 1929	...	99.4
July 30	31.54	...	Nov. 12	30.77	...	Aug. 20	...	99.4
Aug. 6	30.75	...	Nov. 19	30.77	...	Sept. 29	...	131.0
Aug. 13	31.48	...	Nov. 26	30.78	...	Feb. 12, 1930	...	20.3
Aug. 20	31.18	...	Dec. 3	30.88	...	Sept. 6	...	63.4
Aug. 27	31.02	...	Dec. 10	31.01	...	Mar. 5, 1931	...	95.8
Sept. 3	31.17	...	Jan. 10, 1924	30.88	...	Sept. 9	...	27.38
Sept. 10	31.01	...	Mar. 14	30.48	...	Sept. 16	...	94.6
Sept. 17	31.03	...	Jan. 16, 1925	28.20	97.0	Jan. 16, 1925	...	39.96
Sept. 24	30.95	...	Sept. 12	...	126.0	Aug. 24	...	31.30
Oct. 1	30.83	...	June ... 1926	...	96.0	June 19, 1934	...	28.67
Oct. 8	30.76	...	July 16	...	96.0	Dec. 11	...	27.48
Oct. 15	30.67	...	Aug. 27	24.83	...	...	...	86.9

Discharge in millions of gallons

Year	Jan.	Feb.	Mar.	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Total
1929	...	...	...	...	...	...	1.2	1.3	1.2	1.2	1.2	1.2	7.2
1930	1.2	.9	.8	.5	...	...	1.2	.6	.6	.6	.6	.6	8.23
1931	.6	.6	.2	.601	.25	.7	1.1	.3	.2	.6	.6	.6	5.93
1932	.6	.6	.6	.4	.3	.3	.3	.3	.3	.3	.3	.3	4.6
1933	.67	.74	.49	.4	.49	.52	.79	.52	.99	.63	.44	.49	11.1
1934	.87	.80	.65	.55	.10	.22	1.00	.95	1.61	.46	0	1.5	7.78

125 (old 98). Between School St. and end of Auld Lane, Honolulu. Owner, B. P. Bishop Estate. Drilled, 1900 by McCandless Bros. Altitude, 21 ft. Depth, 138 ft. Diameter, 7 in. Use, irrigation.

Observations

Bench mark, top of flange on well 126 at top of casing, below valve 5 ft. above ground; altitude, 23.93 ft.

Date	Head (ft.)	Chloride (p.p.m.)	Date	Head (ft.)	Chloride (p.p.m.)	Date	Head (ft.)	Chloride (p.p.m.)
..... 1910	...	138	Oct. 10, 1917	30.72	...	Sept. 20, 1920	25.42	123
July 16, 1916	31.93	...	Nov. 6	30.65	...	Nov. 6	...	121
July 23	31.85	...	Dec. 7	30.50	...	Dec. 18	...	27.23
July 30	31.55	...	Feb. 11, 1918	31.34	...	Jan. 28, 1921	...	29.13
Aug. 6	31.52	...	Feb. 18	31.52	...	Feb. 18	...	29.82
Aug. 13	31.31	...	Mar. 11	31.90	...	Mar. 18	...	30.31
Aug. 20	31.21	...	April 8	31.92	...	April 15	...	30.33
Aug. 27	31.25	...	May 17	31.61	...	May 20	...	30.17
Sept. 3	31.91	...	June 16	31.18	...	June 17	...	40.67
Sept. 10	31.03	...	July 11	31.05	...	July 23, 1923	...	28.06
Sept. 17	31.07	...	Aug. 20	31.03	...	Oct. 16	...	28.61
Sept. 24	30.98	...	Sept. 26	30.61	...	Nov. 14	...	27.98
Oct. 1	30.82	...	Oct. 11	30.41	...	Dec. 17	...	28.58
Oct. 8	30.80	...	Nov. 1	30.28	...	Jan. 10, 1924	...	30.08
Oct. 15	30.69	...	Dec. 14	31.14	...	Jan. 16	...	30.63
Oct. 22	30.64	...	Feb. 14, 1919	31.35	...	Feb. 15	...	29.78
Oct. 29	30.62	...	Feb. 17	31.00	...	Mar. 14	...	29.48
Nov. 5	30.64	...	Mar. 17	30.29	...	Mar. 18	...	29.56
Nov. 12	30.78	...	April 4	30.06	...	Aug. 27, 1926	...	24.78
Nov. 19	30.75	...	May 9	29.79	...	Mar. 13, 1928	...	30.12
Nov. 26	30.80	...	May 11	28.77	...	July 11, 1929	...	28.50
Dec. 3	31.01	...	Aug. 5	28.41	...	Oct. 10	...	26.38
Dec. 10	31.04	...	Oct. 21	28.05	...	Feb. 18, 1930	...	27.78
Feb. ... 1917	85.23	...	Nov. 9, 1920	28.19	...	Apr. 9	...	28.58
Mar. ...	32.83	...	Feb. 24	28.69	...	Mar. 3, 1931	...	29.09
April ...	33.31	...	Mar. 15	28.9	...	Apr. 9	...	28.9
May 7	33.24	...	April 14	28.62	133	Sept. 18	...	...
June 6	32.95	...	May 21	27.73	...	Jan. 28, 1932	...	28.55
June 13	32.49	...	June 15	27.49	106	Aug. 24	...	30.2
Aug. 6	31.75	...	July 23	27.18	138	June 19, 1934	...	27.95
Sept. 7	31.19	...	Aug. 16	26.32	113	Dec. 11	...	27.72

Year	Jan.	Feb.	Mar.	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Total
1929	...	...	...	...	...	...	.006	.006	.006	.006	.006	.006	.026
1930	.02	.02	.02	.02	.02	.02	.02	.02	.02	.02	.02	.02	.26
1931	.03	.03	.03	.03	.03	.03	.03	.03	.03	.03	.03	.03	.36
1932	.03	.03	.03	.03	.03	.03	.03	.03	.03	.03	.03	.03	.36
1933	.03	.03	.03	.03	.03	.03	.03	.03	.03	.03	.03	.03	.36
1934	.03	.03	.03	.03	.03	.03	.03	.03	.03	.03	.03	.03	.36

126 (old 99). Between School St. and end of Auld Lane, Honolulu. Owner, B. P. Bishop estate. Drilled, 1901 by McCandless Bros. Altitude, 21 ft. Depth, 135 ft. Diameter, 9 in. Use, irrigation.

Observations

Bench mark, top of flange at top of casing, below valve 5 ft. above ground; altitude, 25.93 ft.

Date	Head (ft.)	Chloride (p.p.m.)	Date	Head (ft.)	Chloride (p.p.m.)	Date	Head (ft.)	Chloride (p.p.m.)
..... 1910	.....	.....	Oct. 8, 1916	30.80	.....	Mar. 13, 1928	.....	121
July 16, 1916	31.92	.....	Oct. 15	30.71	.....	Mar. 19	30.62	.....
July 23	31.84	.....	Oct. 22	30.65	.....	Mar. 26, 1929	.....	110
July 30	31.55	.....	Oct. 29	30.64	.....	Sept. 26	26.16	110
Aug. 6	31.57	.....	Nov. 5	30.66	.....	Oct. 10	26.41	110
Aug. 13	31.24	.....	Nov. 12	30.63	.....	Oct. 17, 1929	.....	109
Aug. 20	31.24	.....	Nov. 19	30.81	.....	Mar. 3, 1931	.....	109
Aug. 27	31.27	.....	Nov. 26	30.83	.....	Sept. 9	27.29	109
Sept. 3	31.21	.....	Dec. 3	30.93	.....	Sept. 18	.....	109
Sept. 10	31.06	.....	Dec. 10	31.05	.....	April 27, 1932	.....	92
Sept. 17	31.94	.....	July 23, 1923	29.90	.....	Aug. 24	.....	101
Sept. 24	30.99	.....	Oct. 15	.....	114	June 10, 1934	.....	95
Oct. 1	30.86	.....	Aug. 27, 1926	24.77	.....	Dec. 11	27.83	101

* No head measurement; well overflowing.

Discharge in millions of gallons

Year	Jan.	Feb.	Mar.	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Total
1929	.....	.....	.....	.....	.....	.....	0.3	0.1	0.1	0.3	1.8	1.2	4.4
1930	2.1	2.1	1.9	2.3	2.1	2.2	2.7	2.8	2.4	2.5	2.4	2.5	28.4
1931	1.6	1.4	1.6	3.6	3.7	2.1	2.2	2.1	1.6	1.6	1.9	1.9	25.6
1932	2.2	1.8	3.4	2.7	1.9	1.8	3.1	2.2	2.1	2.2	1.8	1.9	27.1
1933	1.3	1.7	2.4	3.0	3.1	1.8	1.9	1.2	1.4	1.5	1.9	1.9	25.7
1934	1.9	1.7	1.6	1.5	1.6	1.2	1.2	1.2	1.3	1.3	1.8	1.4	14.5

127 (old 100). Between School St. and end of Auld Lane, Honolulu. Owner, Ah Yin. Drilled, 1901 by McCandless Bros. Altitude, 22 ft. Depth, 250 ft. Diameter, 12 in. Not in use.

Observations

Bench mark, top of head on 10-in. elbow above toe on main well casing ½ ft. above ground; altitude, 22.49 ft.

Date	Head (ft.)	Chloride (p.p.m.)	Date	Head (ft.)	Chloride (p.p.m.)	Date	Head (ft.)	Chloride (p.p.m.)
April .. 1910	29.31	112	Oct. .. 1913	31.43	.....	Feb. .. 1913	27.95	124
May ..	28.51	112	Nov. .. 1913	31.89	113	Mar. ..	27.99	124
June ..	.....	120	Dec. ..	31.77	113	April ..	27.91	120
July ..	29.44	.....	Jan. ..	31.73	119	May ..	28.36	120
Aug. ..	29.65	.....	Feb. ..	31.50	116	June ..	28.61	114
Sept. ..	29.21	.....	March ..	30.82	120	July ..	28.31	116
Oct. .. 1911	31.39	.....	April ..	29.11	118	Aug. ..	27.96	116
Nov. ..	31.70	.....	May ..	28.81	118	Sept. ..	27.80	105
Dec. ..	31.11	.....	June ..	28.55	116	Oct. ..	.....	122
Jan. .. 1912	31.00	.....	July ..	28.41	108	Nov. ..	27.96	106
Feb. ..	30.16	.....	Aug. ..	27.70	110	Dec. ..	.....	114
Mar. ..	31.82	112	Sept. ..	28.16	108	Jan. .. 1914	.....	110
Apr. ..	31.52	112	Oct. ..	28.51	110	Feb. .. 1915	.....	114
May ..	31.29	.....	Nov. ..	28.51	110	March ..	.....	112
June ..	31.29	.....	Dec. .. 1913	27.61	128 (7)	April .. 1916	31.31	110

Observations—Well 127 (Continued)

Date	Head (ft.)	Chloride (p.p.m.)	Date	Head (ft.)	Chloride (p.p.m.)	Date	Head (ft.)	Chloride (p.p.m.)
Feb. .. 1916	31.68	...	Sept. 17, 1916	31.05	...	Mar. 22, 1918	31.95	...
Mar. ..	32.96	...	Oct. 1	30.87	...	Jan. 10, 1924	29.26	...
April ..	32.56	...	Sept. 5	30.82	...	Aug. 27, 1926	24.90	...
May ..	31.79	...	Oct. 8	30.98	...	Mar. 19, 1928	30.49	117
June ..	31.71	108	Oct. 15	30.69	...	Oct. 10, 1929	26.47	...
July 16	31.65	...	Oct. 22	30.65	...	Feb. 18, 1930	29.76	...
July 23	31.88	...	Oct. 29	30.64	...	Mar. 3, 1931	29.77	101
July 30	31.58	...	Nov. 5	30.65	...	Sept. 9	27.32	...
Aug. 6	31.67	...	Nov. 12	30.80	...	Sept. 18	.....	109
Aug. 13	31.48	...	Nov. 19	30.80	...	Jan. 28, 1932	29.09	99
Aug. 20	31.38	...	Nov. 26	30.82	...	Aug. 24	31.24	191
Aug. 27	31.31	...	Dec. 3	30.99	...	June 10, 1934	27.64	104
Sept. 3	31.19	...	Dec. 10	31.05	...	Dec. 11	27.88	103
Sept. 10	31.65	...	Dec. 17	31.25	...			

Discharge in millions of gallons

Year	Jan.	Feb.	Mar.	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Total
1932	.12	.12	.12	.12	.12	.12	.12	.12	.12	.12	.12	.12	1.44
1933	.12	.12	.12	.12	.12	.12	.12	.12	.12	.12	.12	.12	1.44
1934	.12	.11	.12	.12	.12	.12	.12	.12	.12	.12	.12	.12	1.43

125A to H (A to E=old 101A to F; F=101; G=102; H=102½). Kolihi Pumping Station at North King and Houghtaling Sts., Honolulu. Owner, City and County of Honolulu. In municipal records—A=7; B=8; C=4; D=5; E=3. Drilled, A, B, C, in 1926; D, E in 1927 by G. B. Primmer; F, G, and H in 1900. Altitude, A and F, 21 ft.; B, 19 ft.; C and E, 23 ft.; D, 24 ft.; G and H, 20 ft. Depth, A, 430 ft.; B, 401 ft.; C, 442 ft.; D, 360 ft.; E, 414 ft.; F, 460 ft.; G, 475 ft.; H, 490 ft. Diameter, A to H, 12 in. Depth to top of aquifer, A, D, and E, 258 ft.; B, 310 ft.; C, 320 ft. Use, municipal. Casing, A, 240 ft.; B, 303 ft.; C, 265 ft.; D, 251 ft.; E, 271 ft. Detailed description of samples following driller's log by T. F. Harris.

Logs

Well	Depth (ft.)
Well A	
Brown clay (Pa). Samples from 17 to 75 ft. show brown clay, silt, and gravel. Pebbles of greenish-gray basalt attain a size of 44 mm in diameter.	0-90
Clay and coral (Pa and Pls). Sample at 90 ft. shows clay containing abundant fragments of white limestone and thick, pelecypod shells.	90-101
Clay and pebbles (Pa). Sample at 101 ft. shows dark-brown clay containing subangular to subrounded fragments up to 25 mm in diameter of light green-gray basalt. Samples at 107 ft. and 112 ft. show dark-brown clay containing angular to rounded fragments up to 68 mm in diameter of blue-gray basalt, and subrounded fragments of white limestone. Sample at 120 ft. shows brown mud containing abundant small subangular to subrounded fragments of white limestone.	101-125
Clay and coral (Pa and Pls)	125-139
White coral (Pls). Sample at 132 ft. shows white limestone.	139-149
Clay and coral (Pa and Pls). Sample at 141 ft. shows brown mud containing abundant small subangular to subrounded fragments of white limestone. Sample at 142 ft. shows white limestone.	140-142
Yellow clay (Pa). Samples at 145 ft. and 152 ft. show brown clay containing grains and fragments of white limestone.	142-156
Blue clay (Pa). Sample at 150 ft. shows clay similar to above.	152-162
Brown clay (Pa). Sample at 165 ft. shows dark brown sandy clay containing subrounded fragments of white limestone and angular to subangular fragments of blue-gray basalt.	162-190
Brown sand (Pa). Sample at 192 ft. shows brown medium-grained sand.	190-195
Gravel (Pa). Sample at 196 ft. shows subangular to subrounded pebbles up to 20 mm in diameter.	195-198
Brown clay (Pa). Sample at 200 ft. shows brown clay containing angular fragments of blue-gray basalt.	198-212
Sandy green clay (Pa). Sample at 214 ft. shows green clay containing angular to subangular fragments of blue-gray basalt.	212-216

Well A—Continued Logs—Well 128 (Continued)

	Depth (ft.)
Hard blue rock (Tkb). Sample at 218 ft. shows dark blue-gray hard dense basalt.	216-221
Red rotten rock (Tkb). Sample at 218 ft. shows reddish-brown, hard to friable, moderately vesicular basalt containing many olivine phenocrysts.	221-210
Blue rock (Tkb). Sample at 246 ft. shows dark-gray basalt containing abundant olivine phenocrysts. Sample at 247 ft. shows dark blue-gray basalt containing many olivine phenocrysts.	245-258
Porous lava, purple and blue in color, with olivines (Tkb). Sample at 258 ft. shows red-brown friable very vesicular to amygdaloidal basalt. Sample at 266 ft. shows blue-gray basalt containing abundant olivine phenocrysts. Sample at 298 ft. shows dark-gray, hard, moderately vesicular basalt containing abundant phenocrysts of olivine and feldspar. Samples from 302 ft. to 317 ft. show blue-gray basalt, moderately vesicular to dense basalt containing abundant olivine phenocrysts. Samples at 340 to 418 ft. show dark blue-gray to greenish-gray hard, very amygdaloidal basalt.	258-430
Well B	
Brown clay (Ra and Pa). Sample at 70 ft. shows brown silt.	0-110
Coral (Pls). Sample at 120 ft. shows white limestone.	110-144
Brown clay (Pa). Sample at 140 ft. shows white limestone.	144-192
Blue clay (Pa). Sample shows dark-brown-gray clayey sandy siltstone showing a few carbonized remains and grass-like imprints of plants.	162-178
Brown clay (Pa). Sample shows brown mud containing rounded pebbles, up to 22 mm. in diameter, of blue-gray basalt.	178-228
Gray clay (Pa). Sample shows dark-brown clay containing many angular fragments of blue-gray basalt, and a few subangular fragments of white limestone.	228-230
Blue rock (Tkb). Sample at 234 ft. shows blue-gray dense basalt.	230-236
Mixed rotten rock, soft shales similar to rotten gray rock, mixed colors (Tkb).	236-244
Rotten gray rock, mixed colors (Tkb). Sample shows dark blue-gray, hard, slightly to moderately vesicular basalt containing abundant phenocrysts of olivine and feldspar. Rotten rock (Tkb). Samples from 256 to 280 ft. shows dark-gray, blue-gray, green-gray and red-brown, hard to friable, slightly to very vesicular basalt, in part containing many olivine phenocrysts.	244-280
Porous lava with olivines, hard streaks (Tkb). Samples show brown, hard, moderately vesicular basalt containing abundant olivine phenocrysts.	280-335
Red rock (Tkb). Sample shows basalt same as above.	335-340
Porous lava, water rock (Tkb). Sample at 218 ft. shows basalt same as above. Sample at 382 ft. shows dark-gray to red-brown very vesicular and amygdaloidal basalt.	340-401
Well C	
Gravel and boulders (Ra)	0-20
Clay and gravel (Ra). Sample shows rounded pebbles of greenish-gray, blue-gray and red-brown, slightly to very vesicular basalt.	20-40
Brown clay (Pa). Sample shows dark sandy clay containing angular fragments of white limestone.	40-80
Clay and coral (Pa and Pls). Sample shows dark sticky clay containing fragments of white limestone, thick pelecypod shells, and green basalt.	80-110
Coral (Pls). Sample shows white limestone containing clay up to 18 mm thick.	110-130
Brown clay (Pa). Sample at 140 ft. shows dark sticky clay containing fragments of white limestone.	130-152
Yellow clay (Pa). Sample shows brown mud containing fragments of white limestone and dark bluish-gray basalt.	152-166
Blue rock (Tkb). Sample shows dark blue-gray, hard, slightly vesicular basalt containing phenocrysts of feldspar and olivine.	166-175
Porous rock (Tkb). Sample at 175 ft. shows same rock as above, plus red-brown, hard, slightly vesicular basalt.	175-177
Rotten red rock (Tkb). Sample at 178 ft. shows purplish-brown to brick-red, hard to friable, moderately vesicular basalt containing phenocrysts of feldspar and olivine.	177-181
Hard lava (Tkb). Sample shows dark gray to greenish-gray, hard, slightly vesicular basalt.	181-187
Dense rotten rock (Tkb). Samples at 187 ft. and 210 ft. show dark bluish-gray, hard to friable, slightly to very vesicular basalt, in part containing few phenocrysts of feldspar and olivine; plus red-brown friable to hard, moderately vesicular basalt containing few phenocrysts of feldspar and olivine.	187-252
Hard lava (Tkb). Sample shows dark bluish-gray, hard, moderately vesicular basalt containing phenocrysts of olivine and feldspar.	252-266
Porous lava (Tkb). Sample at 240 ft. shows dark blue-gray, hard, moderately to very vesicular, olivine-rich basalt.	266-320
Hard porous lava (Tkb). Sample shows rock similar to above, containing abundant olivine phenocrysts 1-2 mm in diameter.	320-338
Porous lava (Tkb). Sample at 338 ft. shows basalt as above, plus red-brown friable basalt containing abundant spherical vesicles, some of which are filled with cream-colored aragonite.	338-438
Hard rock (Tkb)	438-442
Well D	
Gravelly rock (Ra)	0-22
Rotten red rock (Possibly Qhb, Kaananiki). Sample shows vesicular red friable clay containing angular to subrounded fragments up to 18 mm in diameter of dark bluish-gray, hard dense basalt. This sample probably represents a thin, lightly decomposed lava flow.	22-23

Well D—Continued Logs—Well 128 (Continued)

	Depth (ft.)
Brown clay (Pa). Sample shows red-brown mud containing subangular to subrounded pebbles, up to 31 mm in diameter of greenish-gray, slightly vesicular basalt. Clay and coral (Pa and Pls). Sample shows brownish-gray mud containing angular fragments of dark blue-gray hard dense basalt, and subrounded fragments of white limestone.	98-100
Brown clay (Pa). Sample shows dark-brown mud containing many angular fragments of dark blue-gray hard dense basalt, and few subangular fragments of white limestone.	100-105
Brown clay (Pa). Sample shows dark-brown mud containing many angular fragments of white coral (Pls). Sample shows fragments of white limestone containing corals, small gastropods and pelecypods.	105-115
Brown clay (Pa). Sample shows brown mud containing many angular fragments of dark blue-gray hard dense basalt, and few subangular fragments of white limestone.	115-135
Yellow clay (Pa). Sample shows dark brown clay containing angular fragments of dark bluish-gray hard dense basalt.	135-160
Brown and gray clay (Pa). Sample same as above.	160-170
Rotten rock and clay (Pa). Sample shows brown sandy clay containing subrounded pebbles up to 36 mm in diameter, of brown and blue dense to vesicular basalt. Probably clay and gravel.	170-173
Brown clay (Pa). Sample shows brown friable mud containing angular fragments of dark blue-gray hard dense basalt. Probably clay and gravel.	173-180
Porous rotten rock with clay streaks (Tkb). Sample from 190 ft. to 205 ft. shows 50 percent fragments of purple-brown hard moderately vesicular basalt, 45 percent green percent fragments of purple-brown hard moderately vesicular basalt, and 5 percent fragments of white limestone. Sample at 220 ft. shows 80 percent fragments of blue-gray hard slightly vesicular basalt, and 20 percent purple-brown hard moderately vesicular basalt.	180-230
Porous lava with olivines (Tkb)	230-235
Hard lava, with slight porous stratum of about 6 in. at 232 ft. (Tkb)	235-314
Porous lava (Tkb)	314-360
Well E	
Gravel and boulders (Ra)	0-25
Red rotten rock (Possibly Qhb, Kaananiki). Sample shows vesicular red, friable clay, with very fine small angular fragments of blue-gray basalt.	25-30
Brown clay (Pa). Sample shows brown clayey sandy silt.	30-100
Coral and coral (Pa and Pls). Sample shows greenish-brown plastic blue sandy clay containing few fragments of white limestone.	100-120
Brown clay (Pa). Sample shows dark-brown clay containing many angular fragments of blue-gray basalt and a few subangular fragments of white limestone.	120-142
Brown sandy clay (Pa). Sample shows brown sandy clay containing angular fragments of blue-gray basalt, and subrounded fragments of white limestone.	142-172
Gray clay and boulders (Pa). Sample shows brown mud containing abundant angular fragments of blue-gray basalt.	172-210
Porous rock (Tkb). Sample shows dark gray, hard, moderately vesicular basalt, containing rotten gray rock, hard streaks (Tkb). Sample shows dark gray-brown mud, containing few fragments of blue-gray basalt.	210-254
Porous lava (Tkb). Sample at 275 ft. shows dark-gray firm very vesicular basalt containing many olivine phenocrysts.	254-310
Hard lava (Tkb). Sample shows dark gray, hard, moderately vesicular basalt containing abundant olivine phenocrysts.	310-315
Porous lava (Tkb). Sample same as above.	315-338
Hard lava (Tkb). Sample shows amber dark gray basalt containing many olivine phenocrysts.	338-345
Porous lava (Tkb)	345-410
Hard lava (Tkb)	410-414

Observations

Wells 128A to E.						Date	Tide	Culvert (p.p.m.)
Date	Culvert (p.p.m.)	Date	Culvert (p.p.m.)	Date	Culvert (p.p.m.)			
1900	80.0	May 28, 1920	67.8	Aug. 21, 1920	69.3	Nov. 13, 1920	66.8	
June 1, 1910	73.0	June 5	68.0	Sept. 4	61.0	Dec. 6	67.0	
Aug. 1, 1912	72.5	12	68.0	11	65.0	69.0	69.0	
Feb. 1, 1913	73.5	19	68.3	11	65.0	11	70.0	
Mar. 26, 1920	67.7	July 8	69.0	25	67.6	18	70.0	
April 10	68.7	10	64.0	Oct. 9	67.0	Jan. 1, 1921	70.2	
17	70.0	17	64.9	17	64.9	Feb. 25, 1926	69.5	
24	66.0	24	66.0	16	66.3	Feb. 25, 1926	69.5	
24	66.0	24	66.0	16	66.3	Feb. 25, 1926	69.5	
May 8	66.2	31	67.0	7	67.0	Dec. 1, 1928	69.0	
22	66.0	Aug. 14	67.9	Nov. 7	68.0			

RECORDS OF DRILLED WELLS ON OAHU

Well H—Continued

Observations—Well 128 (Continued)

Date	Head (ft.)	Chloride (p.p.m.)	Date	Head (ft.)	Chloride (p.p.m.)	Date	Head (ft.)	Chloride (p.p.m.)
Sept. 30, 1934	26.52	....	Oct. 30, 1934	26.52	56.4	Dec. 7, 1934	27.10	....
Sept. 6	27.12	....	Nov. 2	26.92	....	Dec. 11	27.57	53.9
13	26.94	....	9	26.97	....	14	27.84	....
17	26.4	56.4	16	26.82	....	21	27.92	....
20	26.85	....	23	26.48	....	27	28.12	....
27	27.38	....	30	27.79	....		

Discharge in millions of gallons

Year	Jan.	Feb.	Mar.	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Total
1934	165	154	164	164	163	165	172	174	168	171	159	166	1915
1925	189	188	167	167	168	158	163	163	158	162	156	165	1927
1927	163	147	147	147	157	209	227	209	225	242	246	174	2354
1928	232	230	191	185	189	184	196	182	200	186	240	230	3406
1928	157	150	148	158	134	113	181	198	169	179	378	409	2474
1929	167	173	190	206	202	214	233	202	234	238	296	241	3514
1931	197	198	221	229	245	214	245	236	212	190	227	187	2630
1932	197	186	183	183	186	184	214	246	237	235	179	171	2739
1933	197	156	155	173	191	181	202	177	127	200	318	198	2287
1934	168	159	165	173	197	193	197	210	197	211	203	199	2281

* During Sept. 1927 wells A to E were put in use. Discharge prior to this date was for wells F, G and H only.

129 (old 103). About 10 ft. west of Houghtailing Road about midway between Vineyard St. and King Ct. Owner, B. P. Bishop estate. Drilled, 1895 by McCandless Bros. Altitude, 28 ft. Depth, 346 ft. Diameter, 8 in. Scaled, April 22, 1927.

Observations

Chloride (p.p.m.). 1900, 86; July 6, 1908, 77; 1910, 76.

Date	Head (ft.)	Date	Head (ft.)	Date	Head (ft.)	Date	Head (ft.)	
Sept. 17, 1916	30.79	Dec. 3, 1916	30.76	Nov. 13, 1926	24.85	Jan. 22, 1927	25.83	
Sept. 24	30.21	Dec. 10	30.87	Nov. 29	24.94	Jan. 29	25.09	
Oct. 1	30.70	Jan. 9, 1924	29.70	Nov. 27	25.00	Feb. 12	25.15	
Oct. 8	30.60	Mar. 14	28.77	Dec. 7	4	24.59	Feb. 19	26.37
Oct. 15	30.56	June 10, 1926	24.81	Dec. 11	25.14	Feb. 26	26.49	
Oct. 22	30.49	Oct. 2	24.82	Dec. 18	25.48	Mar. 5	26.57	
Oct. 29	30.48	Oct. 9	24.81	Dec. 25	25.25	Mar. 8	26.65	
Nov. 5	30.50	Oct. 16	24.73	Dec. 31	25.35			
Nov. 12	30.64	Oct. 23	24.72	Jan. 5, 1927	25.48			
Nov. 19	30.63	Oct. 30	24.80	Jan. 8	25.61			
Nov. 26	30.68	Nov. 6	24.88	Jan. 15	25.75			

* Leaking.

131 (old 105). About 100 ft. east of Houghtailing Road and about 200 ft. north of Vineyard St., Honolulu. Owner, Chinese Y.W.C.A. Drilled, 1894. Altitude, 29 ft. Diameter, 8 in. Use, irrigation.

Observations

Bench mark, top of tee above valve at ground; altitude, 28.71 ft.

Date	Head (ft.)	Chloride (p.p.m.)	Date	Head (ft.)	Chloride (p.p.m.)	Date	Head (ft.)	Chloride (p.p.m.)
... 1900(?)	...	114.0	Nov. 19, 1916	30.71	....	Mar. ... 1929	26.43	80.5
Sept. 10, 1916	31.15	....	Nov. 20	30.88	....	Feb. 19, 1930	29.40	....
Sept. 24	30.89	....	Dec. 10	31.06	....	Mar. 4, 1931	29.64	....
Oct. 8	30.78	....	Nov. 3	30.46	....	April 16	....	80.4
Oct. 22	30.56	....	Dec. ...	30.55	....	May 27	....	83.8
Oct. 29	30.58	....	Jan. 11, 1918	31.24	....	June 26	....	82.1
Nov. 5	30.58	....	June ...	31.45	....	Oct. 30	....	80.4
Nov. 12	30.72	....					

RECORDS OF DRILLED WELLS ON OAHU

Observations—Well 131 (Continued)

Date	Head (ft.)	Chloride (p.p.m.)	Date	Head (ft.)	Chloride (p.p.m.)	Date	Head (ft.)	Chloride (p.p.m.)
Dec. 5, 1931	80.4	....	Dec. 27, 1932	87.2	....	Nov. 28, 1933	87.2	....
Feb. 25, 1932	109.35	....	Jan. 27, 1933	87.3	....	Dec. 23	87.2	....
Mar. 30	85.5	....	Feb. 24	87.2	....	Jan. 20, 1934	87.2	....
Apr. 27	80.4	....	Mar. 30	85.5	....	Feb. 27	87.3	....
May 27	82.1	....	May 11	87.2	....	Mar. 29	87.2	....
June 28	83.8	....	May 29	87.3	....	April 28	87.2	....
July 28	85.5	....	June 30	87.2	....	June 19	87.2	....
Aug. 26	83.8	....	July 26	87.3	....	Oct. 17	87.2	....
Sept. 23	87.2	....	Aug. 31	87.2	....	Nov. 15	27.19	....
Oct. 17	87.2	....	Sept. 28	88.4	....	Nov. 17	87.2	....
Nov. 26	88.9	....	Oct. 31	88.9	....	Dec. 11	27.55	87.2

* Possibly contaminated by surface water.

Discharge in millions of gallons

Year	Jan.	Feb.	Mar.	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Total
1932	0	0	5.9	5.7	5.0	4.8	2.5	2.5	0	1	0	0	28.6
1933	3.4	8.4	4.3	2.1	2.2	0	0	0	0	0	0	0	24.06
1934	3.4	2.5	1.0	1.0	1.0	0	0	0	0	0	0	0	12.37

132 (old 104). At old Kamehameha School pump house. Owner, B. P. Bishop estate. Drilled, 1911 by McCandless Bros. Altitude, 43 ft. Depth, 346 ft. Diameter, 12 in. top and 10 in. bottom. Not in use. Casing, 12 in. to 200 ft., 10 in. to 265 ft. Recorder installed Mar. 1929.

Log

	Depth (ft.)		Depth (ft.)
Surface clay (Ra)	0-15	Clay (Pa)	43-64
Black red and yellow clay (Pa)	15-80	Coral (Pls)	84-85
Volcanic gravel (Pa)	80-81	Rest of log not available.	
Coral with oyster shells (Pls)	81-83		

Observations

Bench mark, top of vertical flange on elbow of well casing 6 ft. below ground; altitude, 37.14 ft. Chloride (p.p.m.). 1905, 65; Sept. 2, 1926, 84.

Date	Head (ft.)	Date	Head (ft.)	Date	Head (ft.)	Date	Head (ft.)
Jan. 14, 1924	28.70	Aug. 31, 1929	26.61	Mar. 29, 1930	29.95	Oct. 25, 1930	29.75
Sept. 30, 1924	24.84	Sept. ...	27.57	April ...	20.07	Nov. ...	29.74
Jan. 14, 1928	28.79	14	26.52	12	30.10	8	29.70
Mar. 29	30.61	21	26.48	19	30.12	15	29.64
Mar. 5, 1929	30.14	28	26.48	26	30.05	22	29.80
	30.13	Oct. 5	26.54	May 3	29.88	29	29.98
	30.14	12	26.75	10	29.75	Dec. 6	30.18
	30.04	19	26.85	13	29.62	13	30.33
	29.93	20	26.84	23	29.58	20	30.44
April 8	29.71	Nov. ...	26.84	31	29.29	27	30.52
	29.71	9	27.05	June 7	29.19	Jan. 3, 1931	30.53
	29.57	15	27.24	14	29.10	10	30.48
	29.29	27	27.52	21	29.09	17	30.50
	29.27	30	27.77	28	28.95	24	30.40
May 4	29.11	Dec. 7	27.84	July 5	28.80	31	30.30
	28.96	14	28.00	12	28.60	Feb. 7	30.24
	28.58	21	28.09	19	28.49	14	30.10
June 1	28.41	Jan. 28	28.26	26	28.36	21	30.00
	28.25	8	28.35	Aug. 2	28.13	28	29.90
	28.02	11	28.84	9	28.05	Mar. 7	29.87
	27.85	18	29.17	16	28.10	14	29.72
	27.65	25	29.45	23	28.05	21	29.62
July 6	27.30	Feb. 1	29.52	30	28.09	28	29.48
	27.05	8	29.85	Sept. ...	28.23	April ...	29.45
	26.95	15	29.99	13	28.40	11	29.23
	26.82	22	29.94	20	28.60	18	29.15
Aug. 27	26.60	Mar. 1	29.99	27	28.87	25	29.03
	26.65	8	30.02	Oct. 4	29.20	May 2	28.90
	26.58	15	29.93	11	29.47	9	28.74
	26.57	22	29.84	18	29.66	16	28.63

Observations—Well 132 (Continued)

Date	Head (ft.)	Date	Head (ft.)	Date	Head (ft.)	Date	Head (ft.)
May 23, 1931	28.74	April 16, 1932	*31.56	Mar. 18, 1933	32.70	Feb. 12, 1934	29.52
26	28.32	19	31.14	21	32.18	19	29.59
June 5	28.89	30	31.73	31	32.15	26	29.65
12	28.62	May 7	31.82	April 7	32.04	Mar. 5	29.54
19	28.48	14	31.91	14	32.05	12	29.48
26	28.23	21	31.08	21	32.04	19	29.46
July 3	27.66	28	32.04	28	31.92	26	29.32
10	27.78	June 5	32.05	5	31.77	Apr. 2	29.19
17	27.53	11	32.08	13	31.64	9	29.04
24	27.69	18	32.01	20	31.42	16	28.79
31	27.04	25	31.90	27	31.33	23	28.54
Aug. 7	27.01	July 2	31.86	June 3	31.19	30	28.47
8	27.64	9	31.99	10	31.68	7	28.45
15	27.02	16	31.60	17	30.89	14	28.40
22	27.12	23	31.49	24	30.73	21	28.31
29	27.23	30	31.43	30	30.61	28	28.25
Sept. 5	27.29	Aug. 6	31.32	July 7	30.54	June 4	28.18
12	27.46	13	31.31	14	30.38	11	28.20
19	27.71	20	31.23	21	30.28	18	28.07
26	27.76	27	31.30	28	30.05	25	27.90
Oct. 3	27.86	Sept. 3	31.20	Aug. 4	29.89	July 2	27.74
10	27.89	10	31.25	11	29.79	9	27.53
17	28.04	17	31.27	18	29.57	16	27.47
24	28.17	24	31.18	25	29.45	23	27.30
Nov. 7	28.20	30	31.07	31	29.49	30	27.19
14	28.34	Oct. 7	31.05	Sept. 7	29.43	Aug. 5	27.08
21	28.44	14	30.97	14	29.30	12	26.95
28	28.50	21	30.87	21	29.20	19	26.81
Dec. 5	28.58	30	30.91	28	29.17	26	26.78
12	28.78	Nov. 4	30.85	Oct. 3	29.07	Sept. 1	26.72
19	28.91	11	30.85	12	28.96	8	26.57
26	29.06	18	31.01	15	28.80	15	26.72
Jan. 2, 1932	29.24	Dec. 3	31.13	26	28.70	22	26.74
9	29.10	10	31.42	Nov. 4	28.64	Oct. 20	26.70
16	29.21	17	31.44	18	28.55	13	26.57
23	29.23	24	31.43	Dec. 2	28.45	30	26.17
30	29.39	31	31.49	Jan. 2	28.55	27	26.11
Feb. 6	29.56	Jan. 7, 1933	31.57	10	28.56	Nov. 2	26.20
13	29.75	14	31.57	17	28.60	9	27.15
20	29.69	21	31.63	24	28.65	16	26.95
27	30.15	Feb. 28	31.61	31	28.68	23	27.05
Mar. 6	30.32	Feb. 4	31.75	Jan. 1, 1934	28.84	30	27.81
12	30.77	11	31.75	8	28.85	7	27.81
19	31.13	18	31.81	15	29.29	14	28.00
26	31.31	25	31.95	22	29.36	21	28.01
April 2	31.41	Mar. 4	32.04	20	29.40	27	28.25
9	31.54	11	32.13	Feb. 5	29.46		

*Reading at 9:55 a.m. †Reading at 10:16 a.m. ‡Reading at 9:10 a.m.

Discharge in millions of gallons													
Year	Jan.	Feb.	Mar.	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Total
1929	...	...	...	...	...	...	...	...	...	...	...	...	...
1930	3.10	3.52	4.16	4.07	5.72	3.75	4.38	5.04	4.38	4.65	3.03	3.52	50.22
1931	4.08	3.80	4.32	3.23	4.85	4.00	6.29	3.88	3.67	3.42	3.26	3.53	46.24
1932	3.88	2.26	2.81	3.41	3.47	3.26	3.21	5.09	3.16	7.34	5.50	4.02	47.23
1934	3.29	3.31	3.69	4.63	4.30	4.31	4.29	3.29	3.74	3.20	4.19	4.53	52.74

No discharges after 1927.

133 (old 106). About 20 ft. west of Kapulama Ave. and 150 ft. north of School St., Honolulu. Owner, B. P. Bishop estate. Drilled, 1927 by McCandless Bros. Altitude, 89 ft. Depth, 321 ft. Diameter, 12 in. Use domestic. Casing, 1 1/2 ft.

Log

Depth (ft.)	Description
0-14	Basalt, boulders, talus and stream wash (Ba)
14-26	Boulders of basalt and fragments of volcanic ash, much decomposed (probably stream-laid Qd, Kahala)
26-25	Acidic basalt masses, probably boulders, along cracks (TKb)
25-68	Basalt flow weathered by ground water, into rounded chunks, the more completely decomposed parts forming loose cement (TKb)

Log—Well 133 (Continued)

Date	Head (ft.)	Date	Head (ft.)	Date	Head (ft.)	Depth (ft.)	
Feb. 8, 1927	26.01	July 9, 1927	29.10	Dec. 3, 1927	27.51	Apr. 7, 1928	31.03
16	26.09	16	30.19	10	27.73	14	31.11
23	26.20	23	28.19	23	28.11	21	31.10
30	26.21	24	28.72	24	28.72	28	31.17
Apr. 6	26.30	Aug. 6	26.19	31	29.09	May 5	31.13
13	26.52	13	26.21	Jan. 7, 1928	29.42	12	31.13
20	26.68	20	26.19	11	29.81	19	31.15
Sept. 3	26.77	27	26.21	21	30.02	26	30.99
10	26.80	10	26.24	30	30.12	June 2	30.90
17	26.86	17	26.40	Feb. 27	30.78	Apr. 15	30.89
24	26.92	24	26.36	11	30.87	Sept. 26, 1929	125.35
Oct. 1	26.99	1	26.38	10	30.95	Feb. 19, 1930	4
7	27.04	7	26.44	17	30.91	Mar. 5, 1931	28.60
14	27.09	14	26.51	24	31.02	Sept. 10, 1931	4.9-3.00
21	27.14	21	26.57	31	31.01	Jan. 29, 1932	32.10
Nov. 28	27.20	28	26.63	8	30.61	Mar. 3	31.02
Dec. 5	27.25	5	26.64	15	30.64	10	31.02
12	27.30	12	26.69	22	30.67	17	30.93
19	27.35	19	26.74	29	30.68	Jan. 24, 1934	26.50
26	27.40	26	26.79	Nov. 19	30.66	24	30.88
Jan. 2, 1931	27.45	2	26.84	26	30.75	Dec. 11	28.70
9	27.50	9	26.89	31	30.80		

Bench mark, top of manhole rim at ground surface north of building; altitude, 80.12 ft. Chloride (p.p.m.), Mar. 1929, 83.9; Sept. 26, 1929, 83.9; Mar. 1931, 83.8; Aug. 24, 1932, 86.5; June 29, 1934, 82.1; Dec. 11, 1934, 82.1.

Observations

Bench mark, top of manhole rim at ground surface north of building; altitude, 80.12 ft. Chloride (p.p.m.), Mar. 1929, 83.9; Sept. 26, 1929, 83.9; Mar. 1931, 83.8; Aug. 24, 1932, 86.5; June 29, 1934, 82.1; Dec. 11, 1934, 82.1.

Date	Head (ft.)	Date	Head (ft.)	Date	Head (ft.)	Date	Head (ft.)
Feb. 8, 1927	26.01	July 9, 1927	29.10	Dec. 3, 1927	27.51	Apr. 7, 1928	31.03
16	26.09	16	30.19	10	27.73	14	31.11
23	26.20	23	28.19	23	28.11	21	31.10
30	26.21	24	28.72	24	28.72	28	31.17
Apr. 6	26.30	Aug. 6	26.19	31	29.09	May 5	31.13
13	26.52	13	26.21	Jan. 7, 1928	29.42	12	31.13
20	26.68	20	26.19	11	29.81	19	31.15
Sept. 3	26.77	27	26.21	21	30.02	26	30.99
10	26.80	10	26.24	30	30.12	June 2	30.90
17	26.86	17	26.40	Feb. 27	30.78	Apr. 15	30.89
24	26.92	24	26.36	11	30.87	Sept. 26, 1929	125.35
Oct. 1	26.99	1	26.38	10	30.95	Feb. 19, 1930	4
7	27.04	7	26.44	17	30.91	Mar. 5, 1931	28.60
14	27.09	14	26.51	24	31.02	Sept. 10, 1931	4.9-3.00
21	27.14	21	26.57	31	31.01	Jan. 29, 1932	32.10
Nov. 28	27.20	28	26.63	8	30.61	Mar. 3	31.02
Dec. 5	27.25	5	26.64	15	30.64	10	31.02
12	27.30	12	26.69	22	30.67	17	30.93
19	27.35	19	26.74	29	30.68	Jan. 24, 1934	26.50
26	27.40	26	26.79	Nov. 19	30.66	24	30.88
Jan. 2, 1931	27.45	2	26.84	26	30.75	Dec. 11	28.70
9	27.50	9	26.89	31	30.80		

*Inaccessible. †Read by Bishop estate. ‡Reading doubtful.

Discharge in millions of gallons

Year	Jan.	Feb.	Mar.	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Total
1929	...	...	...	...	...	...	...	...	...	...	...	...	...
1930	3.10	3.52	4.16	4.07	5.72	3.75	4.38	5.04	4.38	4.65	3.03	3.52	50.22
1931	4.08	3.80	4.32	3.23	4.85	4.00	6.29	3.88	3.67	3.42	3.26	3.53	46.24
1932	3.88	2.26	2.81	3.41	3.47	3.26	3.21	5.09	3.16	7.34	5.50	4.02	47.23
1934	3.29	3.31	3.69	4.63	4.30	4.31	4.29	3.29	3.74	3.20	4.19	4.53	52.74

134 (old 110B). At northeast corner of Kalani Ave. and Libby St., Honolulu. Owner, B. P. Bishop estate. Drilled, 1909. Altitude, 15 ft. Diameter, 10 in. Use industrial.

Observations

Bench mark, top of 3/8-in. by 1/2-in. bushing at base of piezometer tube 2 ft. above ground; altitude, 17.33 ft.

Date	Head (ft.)	Chloride (p.p.m.)	Date	Head (ft.)	Chloride (p.p.m.)	Date	Head (ft.)	Chloride (p.p.m.)
1910	...	124	Oct. 8, 1916	30.82	...	Nov. 12, 1916	30.85	...
1914	...	130	Oct. 22	30.64	...	Nov. 15	30.90	...
1917	31.63	...	Oct. 22	30.64	...	Nov. 26	30.85	...
1924	30.85	...	Oct. 29	30.65	...	Dec. 3	30.95	...
1927	30.89	...	Nov. 5	30.68	...	Dec. 19	31.58	...

Observations—Well 134 (Continued)									
Date	Head (ft.)	Chloride (p.p.m.)	Date	Head (ft.)	Chloride (p.p.m.)	Date	Head (ft.)	Chloride (p.p.m.)	Date
July 5, 1917	32.47	...	Jan. 29, 1930	...	161	May 27, 1932	...	161	...
Aug. 9	31.64	...	Feb. 12	...	140	June 28	...	159	...
Sept. 7	31.16	...	Feb. 18	...	161	July 28	...	171	...
Oct. 10	30.68	...	Feb. 26	29.69	...	Aug. 26	31.02	164	...
Nov. 9	30.40	...	Mar. 5	...	151	Sept. 23	...	137	...
Dec. 7	30.57	...	Mar. 12	...	161	Oct. 27	...	156	...
Dec. 8, 1923	29.03	...	Mar. 19	...	161	Nov. 26	...	159	...
Jan. 18, 1926	...	...	Mar. 26	...	161	Dec. 27	...	156	...
Nov. 16	24.89	172	Mar. 26	...	161	Jan. 27, 1933	...	159	...
Mar. 31, 1928	30.19	163	Apr. 9	...	151	Mar. 30	...	156	...
Aug. 7	168	...	Apr. 30	...	151	Feb. 24	...	159	...
July 25, 1929	...	170	May 14	...	151	Mar. 30	...	159	...
Aug. 1	...	171	Sept. 6	...	161	May 11	...	159	...
Aug. 7	...	161	July 15	...	161	May 29	...	159	...
Aug. 24	...	161	Aug. 23	...	170	June 30	...	164	...
Aug. 28	...	171	Oct. 7	...	170	July 26	...	164	...
Sept. 4	...	161	Nov. 12	...	158	Nov. 28	...	162	...
Sept. 11	...	161	Dec. 16	...	150	Dec. 22	...	159	...
Sept. 18	...	161	Jan. 7, 1931	...	150	Dec. 22	...	159	...
Sept. 27	...	161	Mar. 4	...	161	Jan. 30, 1934	...	159	...
Oct. 23	20.13	...	Mar. 16	29.57	161	Jan. 30, 1934	...	159	...
Oct. 30	...	140	Apr. 16	...	150	Feb. 27	...	159	...
Nov. 6	...	151	May 27	...	150	Mar. 29	...	159	...
Nov. 13	...	161	June 26	...	171	Apr. 28	...	159	...
Nov. 20	...	161	July 28	...	161	May 21	...	159	...
Dec. 4	...	161	Aug. 8	...	161	June 19	27.85	164	...
Dec. 11	...	161	Sept. 11	26.99	161	July 31	...	159	...
Dec. 11	...	161	Sept. 18	...	169	Aug. 30	...	171	...
Dec. 18	...	161	Oct. 30	...	161	Sept. 26	...	158	...
Dec. 26	...	161	Dec. 5	...	161	Oct. 17	...	8	98
Jan. 9, 1930	...	161	Jan. 30, 1930	50.00	161	Oct. 30	...	79	...
Jan. 8	...	161	Mar. 30	...	161	Nov. 15	...	157	...
Jan. 15	...	161	Apr. 27	...	161	Nov. 30	...	156	...
Jan. 22	...	161	Apr. 27	...	161	Dec. 11	27.79	168	...

* Probably city water.

Discharge in millions of gallons

Year	Jan.	Feb.	Mar.	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Total	
1929	...	...	...	...	...	19.0	6.2	2.4	1.8	2.4	2.5	34.3	...
1930	2.5	2.4	2.5	2.3	34.1	11.8	2.4	2.5	2.4	2.5	70.1	...		
1931	7.0	2.1	1.5	2	5	29	2	1	1	1	163.7	...		
1932	7.6	4.2	3.4	7	3	12	78	5.6	0	0	111.8	...		
1933	61	61	61	61	1.90	7.40	5.52	1.35	18	24	62	14.95	...	
1934	71	1.56	2.12	1.54	2.7	5.7	8.5	9.1	3.34	2.04	1.33	1.65	39.68	...

135 (old 108). 1804 Kahanu St., Honolulu. Owner, Frank Felix. Drilled, 1883. Altitude, about 30 ft. Depth, 600 ft. Diameter, 8 in. Depth to top of aquifer, 382 ft. Sealed, Oct. 1926.

Log

	Depth (ft.)		Depth (ft.)
Soil	0-4	Clay (Pa)	268-328
Coral (Pa)	4-12	Lava (Possibly a boulder; but perhaps Qbb, Kaihi)	328-332
Lava (Qbb, Kamauniki)	12-38	Clay (Pa)	332-382
Clay (Pa)	38-188	Lava or bedrock (Tkb)	382-600
Coral (Pa)	188-206		

Observations

Well was leaking during all observations.

Date	Head (ft.)	Date	Head (ft.)	Date	Head (ft.)	Date	Head (ft.)
Sept. 10, 1916	13.25	Oct. 8, 1916	13.36	Oct. 29, 1916	13.20	Nov. 19, 1916	13.34
Oct. 1	13.32	Oct. 15	13.31	Nov. 5	13.23	Nov. 26	13.53
Oct. 1	13.33	Oct. 22	13.30	Nov. 19	13.33	Dec. 3	13.22

136 (old 107). 734 Mokuaua Road, Honolulu. Owner, Mrs. Taylor. Drilled, 1883. Altitude, 29 ft. Depth, 505 ft. Diameter, 6 in. Casing, 316.9 ft. Sealed, Dec. 12, 1932.

Log

	Depth (ft.)		Depth (ft.)
Soil	0-6	Coral (Pa)	194-224
Clay (Pa)	6-18	Clay and gravel (Tkb)	224-309
Lava (Qbb, Kamauniki)	18-14	Lava or bedrock (Tkb)	330-505
Clay (Pa)	44-194		

Observations

Bench mark, top of coupling on casing 6 in. below ground; altitude, 59.40 ft.

Date	Head (ft.)	Date	Head (ft.)	Date	Head (ft.)	Date	Head (ft.)
Sept. 17, 1916	31.03	Nov. 12, 1916	30.93	Feb. 20, 1930	29.80	Dec. 1, 1932	28.00
Sept. 24	31.08	Nov. 19	30.91	Feb. 26, 1931	29.82	Dec. 2	29.84
Oct. 1	31.11	Nov. 26	30.97	Mar. 3	29.08	Dec. 5	31.21
Oct. 8	30.94	Dec. 3	31.03	Sept. 10	27.34	Dec. 6	31.12
Oct. 15	30.83	Dec. 10	31.12	Jan. 29, 1932	29.30	Dec. 7	31.01
Oct. 22	31.21	Jan. 8, 1924	29.40	Aug. 25	31.18	Dec. 8	28.67
Oct. 29	...	...	...	Nov. 29	31.09		
Nov. 5	...	...	...	Oct. 11, 1929	26.69	Nov. 30	31.10

Meter Test

Test made after well was cleaned with swedge. Au 3-in. deep-well meter used. Readings by Sam Wang, Dec. 1, 1932.

Depth (ft.)	Revolutions per minute	Depth (ft.)	Revolutions per minute	Depth (ft.)	Revolutions per minute
5-275	0	320	6	406	9
28	0	330	8	415	0
26	4	340	6	425	0
20	10	350	9	430	10
25	9	360-400	0	475	6
30	0	405	0	467	1
310	6	410	15		

137 (old 110A). Oahu Prison, Honolulu. Owner, Territory of Hawaii. Drilled, 1915. Altitude, 36 ft. Depth, 692 ft. Diameter, 12 in. Depth to top of aquifer, 628 ft. Use, irrigation. Casing, 544 ft.

Log

	Depth (ft.)		Depth (ft.)
Coral (Pa)	0-30	Gravel (Pa)	195-215
Clay (Pa)	30-52	Clay (Pa)	215-415
Boulders (Pa; possibly Qbb, Kamauniki)	52-65	Broken rock (Tkb or Pa)	415-497
Clay (Pa; possibly Qbb, Kamauniki)	65-85	Clay (Pa or Tkb)	427-522
Boulders (Pa; possibly Qbb, Kamauniki)	85-97	Rotten rock. Struck water at 628 ft. (Tkb or Pa)	522-544
Clay (Pa)	97-195	Rock (Tkb)	544-692

Observations

Bench mark, top of upper flange on main valve on well at ground; altitude, 15.70 ft.

Date	Head (ft.)	Chloride (p.p.m.)	Date	Head (ft.)	Chloride (p.p.m.)	Date	Head (ft.)	Chloride (p.p.m.)
Nov. ... 1915	30.43	165	July 30, 1918	32.25	170	Oct. 29, 1916	30.84	...
...	...	...	Aug. 9	32.07	166	...	30.42	...
Jan. ... 1916	32.15	197	Sept. 17	31.37	...	Nov. 12	31.17	...
Feb. ...	33.50	168	Sept. 24	31.23	...	Nov. 19	31.15	...
Mar. ...	34.24	162	Oct. 1	31.14	...	Nov. 26	31.19	...
Apr. ...	33.75	165	Oct. 8	31.06	...	Dec. 3	31.28	...
May ...	32.65	166	Oct. 15	31.01	...	Dec. 10	31.10	...
June 29	33.20	168	Oct. 22	30.87	...	Feb. ... 1917	32.97	...

Observations—Well 137 (Continued)

Date	Head (ft.)	Chloride (p.p.m.)	Date	Head (ft.)	Chloride (p.p.m.)	Date	Head (ft.)	Chloride (p.p.m.)
Mar. . . . 1917	33.55	...	May 20, 1921	29.97	196	Mar. 30, 1932	.....	205
Apr. . . .	33.89	...	June 17	29.81	183	Apr. 27	.....	202
May	33.54	...	Sept. 14	28.91	184	June 28	.....	205
June 4	33.39	...	Oct. 17	28.56	...	July 28	.....	205
Jan. 11, 1918	31.43	...	Nov. 14	28.83	...	Aug. 26	30.97	205
Feb. 13	31.79	...	Dec. 17	28.47	...	Sept. 4	.....	205
Mar. 11	31.80	...	Feb. 4, 1924	29.68	...	Oct. 27	.....	205
Apr. 15	31.98	...	Feb. 15	29.56	...	Nov. 26	.....	205
May	31.31	...	Mar. 19	29.03	...	Dec. 27	.....	205
June	31.20	...	Apr. 16	29.00	...	Jan. 27, 1933	.....	188
July	31.10	...	May 15	29.44	...	Feb. 24	.....	205
Aug. . . .	30.56	...	June 10	28.85	...	Mar. 30	.....	203
Jan. 24, 1919	31.79	...	July 10	28.27	...	May 11	.....	205
Feb. 19	31.21	...	Oct. 25	27.63	...	May 29	.....	188
Mar. 17	30.76	...	Dec. 11	27.35	...	June 30	.....	205
Apr. 4	30.42	...	Jan. 16, 1925	28.43	...	July 26	.....	205
July 11	29.69	...	Mar. 3	27.65	...	Aug. 31	.....	205
Aug. 4	29.01	...	Apr. 27	27.35	...	Sept. 28	.....	158
Oct. 21	28.94	...	Aug. 25, 1926	24.97	226	Oct. 31	.....	205
Jan. 8, 1920	28.90	...	Mar. 29, 1928	30.37	216	Nov. 28	.....	205
Feb. 24	29.68	...	Mar. . . . 1929	171	Dec. 22	.....	205	
Mar. 15	28.93	...	Sept. 26	26.59	206	Jan. 30, 1934	.....	205
Apr. 14	28.01	180	Feb. 19, 1930	28.99	...	Feb. 27	.....	205
May 17	28.76	...	Sept. 6	206	Mar. 29	.....	168	
June 15	28.08	170	Mar. 3, 1931	28.96	205	Apr. 28	.....	205
July 23	27.70	177	Apr. 25	205	May 31	189	.....	205
Aug. 19	27.95	176	June 26	205	June 19	27.82	.....	205
Sept. 29	27.65	174	July 24	205	July 31	.....	205	
Oct. 18	27.09	176	Aug. 8	205	Aug. 30	.....	168	
Nov. 17	27.02	182	Sept. 19	27.23	...	Sept. 26	.....	205
Dec. 16	27.51	182	Sept. 18	205	Oct. 17	.....	205	
Jan. 27, 1921	29.43	183	Oct. 30	205	Oct. 30	.....	205	
Feb. 18	29.59	177	Dec. 5	205	Nov. 15	.....	222	
Mar. 18	30.13	173	Jan. 29, 1932	205	Nov. 29	.....	205	
Apr. 15	30.37	178	Feb. 26	203	Dec. 11	27.86	.....	205

Discharge in millions of gallons

Year	Jan.	Feb.	Mar.	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Total
1925	.....	.....	.....	.....	.....	.....	06	04	04	.....	10	15	68
1930	.. 19	.. 84	.. 23	.. 27	.. 31	.. 24	.. 38	.. 28	.. 27	.. 28	.. 33	.. 34	298.83
1931	.. 4.9	.. 4.3	.. 4.6	.. 4.8	.. 4.4	.. 3.5	.. 3.9	.. 4.7	.. 4.2	.. 4.7	.. 3.6	.. 3.7	49.9
1932	.. 3.7	.. 3.5	.. 3.7	.. 3.6	.. 3.7	.. 3.6	.. 2.3	.. 1.3	.. 1.2	.. 1.3	.. 1.3	.. 1.9	31.6
1933	.. 4.0	.. 1.4	.. 4.5	.. 2.8	.. 3.2	.. 3.4	.. 3.8	.. 3.4	.. 3.4	.. 3.4	.. 3.1	.. 3.1	35.25
1934	.. 3.1	.. 3.2	.. 3.4	.. 3.9	.. 3.8	.. 3.5	.. 3.7	.. 3.8	.. 3.4	.. 3.4	.. 3.5	.. 1.6	40.7

Meter test

Flow from top of well induced by pump during test. Static level normal for area. Au 3-in. deep-meter was used. Readings by K. N. Vakvik, Nov. 23, 1928.

Depth (ft.)	Revolutions per minute	Depth (ft.)	Revolutions per minute	Depth (ft.)	Revolutions per minute
25	400	400	33	450	11
100	37	420 (end of casing)	34	450	8
200	42	430	.....	.....	.....
300	38	440	.....	.....	.....

139 (old 111). 2021 Waterhouse St., Honolulu. Owner, City and County of Honolulu. Drilled, 1888. Altitude, 31 ft. Diameter, 8 in. Sealed, Feb. 1927.

Observations

Chloride (p.p.m.), 1900, 81.08.

Date	Head (ft.)	Date	Head (ft.)	Date	Head (ft.)	Date	Head (ft.)
Sept. 17, 1916	31.16	Oct. 22, 1916	30.82	Nov. 26, 1916	30.99	Nov. 14, 1917	30.62
Sept. 24	31.16	Oct. 29	30.80	Dec. 2	31.11	June 26, 1918	31.67
Oct. 1	31.05	Nov. 5	30.86	Dec. 10	31.16	Jan. 24, 1919	32.00
Oct. 8	30.98	Nov. 12	31.06	Jan. . . . 1917	32.18	.....	.....
Oct. 15	30.96	Nov. 19	30.95	Apr. . . .	33.71	.....	.....

141 (old 112). About 200 ft. south of King St., opposite Kalihi Union Church. Owner, G. N. Wilcox. Drilled, 1886. Altitude, 27 ft. Depth, 542 ft. Diameter, 6 in. Use, irrigation. Casing, 340 ft. Recased from 8 in.

Observations

Bench mark, highest point on boulder (3 ft. by 5 ft.), 1 ft. above ground south of well; altitude, 28.38 ft.

Date	Head (ft.)	Chloride (p.p.m.)	Date	Head (ft.)	Chloride (p.p.m.)	Date	Head (ft.)	Chloride (p.p.m.)
..... 19001	.....	89.0	Sept. 26, 1929	25.45	68.5	Jan. 29, 1932	26.78	70.1
..... 1916	.....	80.0	Feb. 19, 1929	27.80	.....	Aug. 25	.....	71.8
Feb. 26, 1919	28.53	.....	Sept. . . .	17.1	.....	June 19, 1934	25.48	73.5
Dec. 12, 1923	26.29	.....	Mar. 2, 1931	27.07	73.5	Dec. 11	.....	73.5
Oct. 18, 1926	23.24	.....	Sept. 10	25.46	.....	.....	.....	.....
Aug. 1, 1927	24.59	.....	Sept. 18	.....	73.5	.....	.....	.....

Discharge in millions of gallons

Year	Jan.	Feb.	Mar.	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Total
1929	.....	.....	.....	.....	.....	.....	1.8	1.4	0.3	1.7	2.2	2.4	9.8
1930	.. 3.4	.. 2.1	.. 4.1	.. 1.0	.. 3.5	.. 2.1	.. 2.6	.. 3.3	.. 2.9	.. 3.0	.. 2.9	.. 3.0	31.1
1931	.. 3.4	.. 1.6	.. 2.4	.. 4.5	.. 2.6	.. 3.2	.. 2.4	.. 2.2	.. 2.1	.. 2.1	.. 1.8	.. 1.5	39.5
1932	.. 1.8	.. 2.5	.. 4.6	.. 5.2	.. 6.8	.. 6.6	.. 5.6	.. 7.4	.. 7.2	.. 6.2	.. 7.5	.. 6.2	67.9
1933	.. 1.92	.. 72	.. 84	.. 1.59	.. 69	.. 1.22	.. 2.25	.. 2.81	.. 2.80	.. 2.52	.. 2.30	.. 2.27	32.47
1934	.. 2.67	.. 2.63	.. 2.96	.. 3.33	.. 2.42	.. 75	.. 1.30	.. 72	.. 64	.. 1.03	.. 9	.. 91	29.18

142 (old 110). In northern portion of Oahu Prison rice fields, Honolulu. Owner, Territory of Hawaii. Drilled, 1903 by McCandless Bros. Altitude, 7 ft. Depth, 670 ft. Diameter, 10 in. Use, irrigation.

Observations

Bench mark, top of head on south branch cross-union on top of well casing, 1 ft. above ground; altitude, 7.94 ft.

Date	Head (ft.)	Chloride (p.p.m.)	Date	Head (ft.)	Chloride (p.p.m.)	Date	Head (ft.)	Chloride (p.p.m.)
Apr. . . . 1910	28.00	107	Jan. . . . 1912	29.68	196	Apr. . . . 1913	27.08	118
May	27.53	.....	Feb. . . . 1912	28.95	196	May	27.27	104
June	27.53	.....	Mar. . . . 1913	28.73	165	June	27.53	104
Sept. . . .	28.90	.....	Apr. . . . 1913	28.48	163	July	27.69	104
Oct. . . .	28.30	.....	May 1913	28.78	103	Aug. . . .	27.63	104
Nov. . . .	28.05	.....	June 1913	28.29	104	Sept. . . .	27.03	104
Jan. . . . 1911	29.50	.....	July 1913	27.38	104	Oct. . . .	27.58	104
Feb. . . .	31.23	.....	Aug. . . . 1913	27.39	104	Nov. . . .	27.85	106
Mar. . . .	31.43	.....	Sept. . . . 1913	27.13	104	Dec. . . .	27.83	105
Apr. . . .	30.43	.....	Oct. . . . 1913	27.13	102	Jan. . . . 1914	27.93	102
June	30.13	.....	Nov. . . . 1913	27.53	102	Feb. . . .	28.11	108
July	29.03	.....	Dec. . . . 1913	28.27	106	Mar. . . .	28.40	104
Aug. . . .	28.83	105	Jan. . . . 1913	28.03	104	Apr. . . .	28.13	108
Sept. . . .	28.69	.....	Feb. . . . 1913	27.69	104	May	27.95	106
Oct. . . .	29.33	.....	Mar. . . . 1913	27.07	106	June	27.13	.....

Observations—Well 142 (Continued)

Date	Head (ft.)	Chloride (p.p.m.)	Date	Head (ft.)	Chloride (p.p.m.)	Date	Head (ft.)	Chloride (p.p.m.)
Aug. 1914	27.20	...	Aug. 7, 1929	110	...	Feb. 26, 1930	101	...
Sept. ...	27.98	...	Aug. 14	110	...	Mar. 5	101	...
Oct. ...	27.98	1800	Aug. 14	110	...	Mar. 12	110	...
Nov. ...	27.48	...	Aug. 28	110	...	Mar. 19	110	...
Dec. ...	25.13	104	Sept. 4	110	...	Mar. 26	101	...
Jan. 1915	24.00	104	Sept. 11	110	...	Apr. 6	101	...
Feb. ...	27.00	104	Sept. 17	110	...	Apr. 20	110	...
Mar. ...	28.03	108	Sept. 27	110	24.59	May 14	110	...
Apr. ...	28.18	2	Oct. 4	110	...	May 14	110	...
May ...	28.03	114	Oct. 16	110	...	July 15	120	...
June ...	27.73	108	Oct. 23	120	...	Aug. 23	110	...
July ...	27.04	107	Oct. 30	110	...	Sept. 6	110	...
Aug. ...	27.08	109	Nov. 6	110	...	Oct. 7	110	...
Sept. ...	26.94	106	Nov. 13	120	...	Nov. 12	110	...
Oct. ...	26.93	108	Nov. 20	120	...	Dec. 16	110	...
Feb. 27, 1919	28.66	...	Nov. 27	110	...	Jan. 7, 1931	94	...
Jan. 10, 1924	28.16	102	Dec. 4	110	...	Mar. 5	27.15	109
Mar. 91	...	102	Dec. 18	110	...	Sept. 10	25.67	99
Feb. 18, 1926	...	107	Dec. 26	101	...	Sept. 18	120	...
Aug. 27	27.83	115	Jan. 22, 1930	101	...	Jan. 29, 1932	26.80	99
Mar. 29, 1928	27.15	113	Jan. 29	101	...	Aug. 26	28.06	116
Feb. 19, 1929	...	110	Feb. 5	101	...	June 19, 1934	25.60	118
July 25	...	120	Feb. 12	101	...	Dec. 11	26.12	111
Aug. 1	...	120	Feb. 19	101	28.09	...	...	...

Discharge in millions of gallons

Year	Jan.	Feb.	Mar.	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Total	
1929	35	35	22	25	10.18	.37	107.5	
1930	28.0	28.0	29.0	37.1	42.2	15.6	...	
1931	...	19	17.7	18.6	28.0	31.4	6.7	3.8	11.0	19.0	9.4	4.7	258.98	
1932	...	4.1	14.2	31.0	29.1	35.3	29.9	18.3	19.2	30.3	25.2	14.2	14.3	336.69
1933	...	15.1	8.89	11.2	15.6	23.5	22.8	23.0	38.1	32.9	19.0	22.3	32.4	254.9
1934	...	22.4	78.9	25.8	24.4	25.6	21.3	27.0	24.8	21.5	27.2	25.6	22.5	287.9

143 (old 113). At Hawaii Meat Co. slaughter house, Honolulu, Hawaii Meat Co. Drilled, 1905. Altitude, 22 ft. Diameter, 10 in. Use, industrial.

Observations

Date	Head (ft.)	Chloride (p.p.m.)	Date	Head (ft.)	Chloride (p.p.m.)	Date	Head (ft.)	Chloride (p.p.m.)
1907	...	89.0	Nov. 6, 1929	...	97.7	Apr. 9, 1930	110.0	...
1910	...	119.7	Nov. 13	...	101.0	Apr. 30	101.0	...
Jan. 15, 1924	27.95	134.0	Nov. 20	...	101.0	May 14	101.0	...
Oct. 29, 1925	131.0	...	Dec. 27	...	101.0	June 19	101.0	...
Nov. 9, 1927	25.27	125.0	Dec. 4	...	101.0	July 16	101.0	...
Feb. 16, 1929	27.23	108.9	Dec. 11	...	101.0	Aug. 23	92.5	...
Mar. 1	...	99.4	Dec. 18	...	101.0	Sept. 6	101.0	...
July 25	...	101.0	Dec. 26	...	101.0	Oct. 7	101.0	...
Aug. 1	...	101.0	Jan. 2, 1930	...	104.0	Nov. 12	90.4	...
Aug. 7	...	101.0	Jan. 8	...	101.0	Dec. 16	95.4	...
Aug. 14	...	101.0	Jan. 15	...	110.0	Jan. 7, 1931	98.8	...
Aug. 21	...	101.0	Jan. 22	...	110.0	Feb. 26	96.67	97.4
Aug. 28	...	101.0	Jan. 29	...	110.0	June 26	94.0	...
Sept. 4	...	101.0	Feb. 5	...	110.0	Sept. 9	25.40	...
Sept. 11	...	99.4	Feb. 12	...	110.0	Sept. 18	92.3	...
Sept. 18	...	97.7	Feb. 18	27.00	110.0	Jan. 29, 1932	84.0	...
Sept. 26	24.49	...	Feb. 26	...	101.0	Aug. 23	28.25	88.8
Oct. 2	...	97.7	Mar. 5	...	110.0	June 19, 1934	25.59	83.8
Oct. 16	...	97.7	Mar. 12	...	110.0	Dec. 11	26.14	87.2
Oct. 23	...	101.0	Mar. 19	...	101.0	...	...	...
Oct. 30	...	97.7	Mar. 26	...	110.0	...	...	...

Discharge in millions of gallons

Year	Jan.	Feb.	Mar.	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Total
1930	4.3	4.0	4.0	3.6	3.2	3.1	3.8	3.7	3.9	3.9	4.0	4.0	45.5
1931	3.6	3.6	3.6	3.2	3.2	3.1	3.2	3.5	2.8	2.9	3.0	29.1	...
1932	3.1	3.2	4.9	3.7	3.9	4.4	4.4	4.4	4.1	3.9	4.4	4.1	48.4
1933	4.0	3.4	3.5	3.8	4.0	4.1	4.0	4.0	3.8	3.6	3.7	3.8	46.1
1934	4.1	4.1	4.1	3.8	4.0	4.1	3.8	3.8	3.7	3.9	4.1	4.1	47.6

144 (old 114). About 400 ft. south of King St. and in line with Middle St. extension, Honolulu. Owner, Pacific Guano and Fertilizer Co. Drilled, 1894. Altitude, 26 ft. Diameter, 8 in. Recorder installed, Mar. 1927. Not in use.

Observations

Bench mark, top of tree 1 ft. above ground on well; altitude, 27.17 ft. Chloride (p.p.m.), 1900(1), 96; April 27, 1909, 85; 1910, 80.

Date	Head (ft.)	Date	Head (ft.)	Date	Head (ft.)	Date	Head (ft.)
Sept. 3, 1916	29.98	July 22, 1917	30.14	May 25, 1918	30.10	Mar. 30, 1919	28.44
17	29.87	29	29.82	June 2	30.03	Apr. 6	28.40
24	29.73	Aug. 5	29.82	29.96	13	28.43	...
Oct. 1	29.70	12	29.64	16	29.82	20	28.20
8	29.70	19	29.53	29	29.71	27	28.20
15	29.53	26	29.36	July 3	29.67	May 4	28.60
22	29.44	Sept. 2	29.26	10	29.48	11	27.90
29	29.27	17	29.06	17	29.60	18	27.85
Nov. 5	29.94	24	29.00	24	29.32	23	27.90
12	29.72	Oct. 30	28.90	17	29.34	June 1	27.70
19	29.65	7	28.84	11	29.24	8	27.60
26	29.79	14	28.74	21	29.34	15	27.65
Dec. 3	30.10	21	28.50	28	29.43	22	27.65
10	30.24	28	28.39	Sept. 4	29.53	25	27.65
Jan. 3, 1917	30.54	Nov. 4	28.61	11	29.17	July 6	27.47
15	30	11	28.79	19	29.12	14	27.41
22	30.26	18	28.34	25	29.04	20	27.30
Feb. 5	31.01	Dec. 25	28.71	Oct. 2	28.91	27	27.20
12	31.11	30	28.69	9	28.86	3	27.19
19	31.32	16	28.53	16	28.76	10	27.13
Mar. 1	31.26	Jan. 6, 1918	30.01	23	28.77	17	27.07
8	31.22	20	30.11	30	28.74	24	26.90
15	31.15	27	30.18	27	28.60	14	27.03
Apr. 1	31.49	27	30.20	Dec. 4	29.46	21	26.93
8	31.83	Feb. 3	30.30	11	29.80	28	26.85
16	31.73	17	30.37	18	30.19	Oct. 5	26.73
23	31.60	24	30.38	Jan. 25, 1919	30.10	19	27.03
May 3	31.58	Mar. 3	30.36	12	29.90	16	26.88
9	31.85	10	30.27	19	29.70	28	26.88
16	31.94	17	30.44	27	29.71	Nov. 4	26.86
24	31.05	24	30.44	Feb. 2	29.67	11	26.91
Apr. 1	31.01	31	30.42	9	29.46	18	26.85
8	31.00	7	30.47	16	29.36	25	26.81
11	30.98	14	30.54	23	29.60	Dec. 2	26.79
18	30.87	21	30.65	Mar. 2	28.92	9	26.77
25	30.73	5	30.83	9	28.76	16	26.72
May 2	30.60	12	30.54	16	28.71	23	26.69
8	30.50	19	30.31	23	28.60	30	26.72

*Chloride (p.p.m.), 89.

Observations—Well 144 (Continued)—with chloride record

Date	Head (ft.)	Chloride (p.p.m.)	Date	Head (ft.)	Chloride (p.p.m.)	Date	Head (ft.)	Chloride (p.p.m.)
Jan. 6, 1920	26.81	...	May 25, 1920	26.33	73.3	Oct. 12, 1920	25.14	72.0
13	27.00	...	June 7	26.24	71.0	19	25.17	73.0
20	27.28	...	15	26.15	72.6	26	25.12	72.0
Feb. 27	27.58	...	22	26.05	...	Nov. 3	25.08	72.0
6	27.76	...	29	26.00	73.0	10	25.07	72.0
13	27.85	...	29	26.00	...	16	25.07	...
17	27.91	...	July 6	25.95	73.0	23	25.18	72.0
24	27.96	...	13	25.90	73.0	30	25.25	71.6
Mar. 2	27.85	...	20	25.85	73.5	Dec. 7	25.50	72.0
9	27.45	...	27	25.78	73.0	15	25.75	72.0
16	27.27	...	Aug. 3	25.68	74.0	21	25.03	71.0
23	27.25	...	10	25.57	74.0	28	26.56	73.0
Apr. 6	27.39	...	17	25.49	...	Jan. 4, 1921	26.87	73.0
13	27.41	...	24	25.43	74.0	11	27.04	73.0
20	27.29	75.6	31	25.43	74.0	18	27.67	73.1
May 4	27.12	...	7	25.32	73.0	25	27.87	73.0
11	27.07	...	14	25.32	74.0	Feb. 1	28.15	74.0
18	26.82	73.3	21	25.28	74.0	8	28.32	...
25	26.62	75.2	28	25.25	75.0	15	28.42	74.0
1	26.45	72.9	Oct. 5	25.20	75.0	12	28.50	74.0

Observations—Well 144 (Continued)

Date	Head (ft.)	Chloride (p.p.m.)	Date	Head (ft.)	Chloride (p.p.m.)	Date	Head (ft.)	Chloride (p.p.m.)
Mar. 1, 1921	28.71		Sept. 5, 1922	25.93		Aug. 23, 1924	25.75	73.0
8	28.75	74.0	11	25.64		30	26.12	
15	28.68		19	25.68		Sept. 6	25.67	
22	28.57	70.0	25	25.71		13	25.53	
29	28.47		3	25.73		20	25.79	
Apr. 5	28.67	60.0	Oct. 2	25.78		27	25.37	
12	28.33		9	25.85		Oct. 4	25.31	
19	28.39		16	25.40		11	25.35	
26	28.23	80.0	31	25.95		18	25.35	
May 3	28.15	75.0	Nov. 7	25.90		25	25.58	70.0
10	28.00		14	25.69		32	25.76	
17	28.05		21	26.02		Nov. 8	25.79	
24	27.96	76.0	27	26.32		15	25.92	
31	27.83		Dec. 5	26.45		22	25.91	
June 7	27.72	75.0	10	26.56		29	25.97	
14			17	26.59		Dec. 6	25.87	
July 5	27.33		20	26.79		11	26.00	69.0
12	27.25		25	26.87		13	26.08	
19	27.12		30	26.93		20	26.31	
26	27.03		Jan. 6, 1923	26.91		27	26.83	
Aug. 2	26.94		10	27.31		Jan. 19, 1923	26.80	
9	26.80		15	27.37		19	27.39	
16	26.67		20	27.33		16	27.34	73.0
23	26.57		25	27.43		27	27.26	
30	26.47		30	27.70		24	27.27	
Sept. 6	26.39		Feb. 5	27.66		Feb. 7	26.91	
13	26.32		10	27.63		12	26.91	73.0
20	26.26		15	27.99		Mar. 7	26.91	
27	26.24		20	28.05		14	26.16	
Oct. 4	26.33		25	28.23		27	26.00	
11	26.68		Aug. 18	27.66		27	26.00	
18	26.82		25	27.31		30	26.12	
25	26.73		Sept. 1	27.21		Apr. 6	26.39	
Nov. 1	26.67		8	27.09		12	26.39	
8	26.60		15	27.12	72.8	18	26.39	
15	26.32		22	27.01		25	26.22	
22	26.49		29	26.91		30	26.10	
29	26.53		Oct. 6	26.79		May 2	26.10	
Dec. 6	26.75		13	26.70	73.3	13	25.89	
14	26.75		20	26.60		20	25.68	
20	27.10		27	26.61		23	25.68	
Jan. 28, 1922	27.55		Nov. 3	26.70		26	25.60	
18	27.60		10	26.87		30	25.45	
24	27.75		17	26.82	73.5	13	25.39	
Feb. 8	27.87		24	26.70		20	25.27	
14	27.90		1	26.73		Jul. 13	25.07	
22	27.91		8	26.86	73.0	19	24.98	
29	27.88		15	27.13		26	24.95	
Mar. 7	27.70		22	27.66		Aug. 1	24.96	
14	27.84		29	27.83		8	24.84	
22	27.91		Jan. 5, 1924	28.22		15	24.96	75.0
29	27.88		12	28.22		22	24.66	
Apr. 7	27.62		19	28.23		29	24.66	
14	27.87		26	28.11		Oct. 6	24.49	
21	27.86		Feb. 2	27.97		13	24.49	
Apr. 11	27.37		9	27.79		20	24.47	73.0
18	27.47		16	27.64		27	24.52	
25	27.05		Mar. 5	27.52		Nov. 2	24.87	
May 1	26.94		12	27.34		9	24.87	
8	26.87		19	27.47	73.0	16	24.87	
15	26.79		26	27.20		Jan. 2, 1926	24.84	
22	26.69		Apr. 5	27.27		9	26.14	
29	26.64		12	27.20		16	26.01	
June 5	26.81		19	27.55	72.0	23	25.87	
12	26.57		May 3	27.38		30	25.87	
19	26.53		10	27.28		Jun. 15	25.84	
July 27	26.53		17	27.99	72.0	Mar. 3	25.03	
Aug. 3	26.38		24	27.83		10	24.86	
10	26.29		31	27.67		17	24.78	
17	26.22		Apr. 7	27.58		Apr. 7	24.66	
24	26.17		14	27.53		Apr. 8	24.73	
Oct. 1	26.00		21	27.08	73.0	Apr. 16	24.85	72.0
8	25.90		28	26.87		July 15	24.08	
15	25.82		Nov. 4	26.64		Sept. 30	24.08	75.0
22	25.72		July 5	26.64		Mar. 9, 1927	25.14	
29	25.72		12	26.48	73.5	12	25.20	

Observations—Well 144 (Continued)

Date	Head (ft.)	Chloride (p.p.m.)	Date	Head (ft.)	Chloride (p.p.m.)	Date	Head (ft.)	Chloride (p.p.m.)
Mar. 19, 1927	25.19		Mar. 30, 1929	27.46		Sept. 28, 1930	27.21	
Apr. 23	25.24		Apr. 6	27.29		Oct. 5	27.49	
May 7	25.08		13	27.05		12	27.74	
14	25.56		20	27.11		19	27.78	
21	25.78		27	26.92		26	27.64	
June 4	25.89		May 2	26.79		Nov. 6	27.49	
11	25.73		9	26.55		13	27.45	
18	25.60		16	26.24		20	27.90	
25	25.40		June 1	26.23		27	28.32	
July 2	25.40		8	26.45		Oct. 4	28.40	
9	25.49		15	25.98		14	28.34	
16	25.42		22	25.82		21	28.30	
23	25.42		29	25.68		28	28.19	
30	25.35		July 6	25.61		Jan. 4, 1931	28.25	
Aug. 6	25.23		13	25.26		11	28.11	
13	25.22		20	25.09		18	27.59	
20	25.20		27	25.09		25	27.94	
Sept. 27	25.21		Aug. 3	25.02		Feb. 1	27.84	
Oct. 4	25.22		10	24.90		8	27.73	
11	25.40		17	24.94		15	27.54	
18	25.40		24	25.02		22	27.44	
25	25.42		Oct. 1	24.85		Mar. 1	27.38	75.0
28	25.36		8	24.74		8	27.31	
Apr. 14, 1928	25.36		15	24.69		15	27.20	
21	25.26		22	24.69		22	27.07	
28	25.18		Nov. 2	24.72		29	26.98	
May 5	25.03		Oct. 5	25.24		Apr. 5	25.95	
12	24.98		12	25.24		12	26.80	
19	24.83		19	25.10		19	26.71	
26	24.83		Nov. 2	25.05		26	26.56	
June 2	24.83		9	25.09		May 3	26.53	
9	24.83		16	25.07		10	26.43	
16	24.83		23	25.00		17	26.33	
23	24.83		Dec. 7	24.97		24	26.77	
July 30	24.83		14	24.96		31	26.97	
Aug. 6	24.83		21	24.96		June 1	26.79	
13	24.83		28	24.96		7	26.60	
20	24.83		Jan. 5, 1930	24.96		14	26.36	
27	24.83		12	24.96		21	26.60	
Aug. 4	24.83		19	24.96		28	26.14	
11	24.83		26	24.96		Feb. 1	26.09	
18	24.83		Mar. 6	24.96		8	25.87	
25	24.83		13	24.96		15	25.74	
Sept. 1	24.83		20	24.96		22	25.61	
8	24.83		27	24.96		24	25.47	
15	24.83		Oct. 4	24.96		Aug. 7	25.66	
22	24.83		11	24.96		14	25.52	
29	24.83		18	24.96		25	25.49	
Oct. 6	24.83		25	24.96		Mar. 1	25.49	
13	24.83		Nov. 2	24.96		8	25.66	
20	24.83		9	24.96		15	25.52	
27	24.83		16	24.96		22	25.82	
Nov. 3	24.83		23	24.96		Apr. 6	25.99	
10	24.83		30	24.96		13	26.12	
17	24.83		Dec. 7	24.96		20	26.00	
24	24.83		Jan. 14, 1931	24.96		27	25.94	
Jan. 1, 1931	24.83		21	24.96		Feb. 4	25.96	
8	24.83		28	24.96		11	25.87	
15	24.83		Jan. 5, 1932	24.96		18	25.99	
22	24.83		12	24.96		25	26.12	
29	24.83		19	24.96		Feb. 1	26.00	
Feb. 5	24.83		26	24.96		8	25.94	
12	24.83		Mar. 6	24.96		15	26.04	
19	24.83		13	24.96		22	26.00	
26	24.83		20	24.96		29	26.00	
Mar. 5	24.83		27	24.96		Apr. 5	26.00	
12	24.83		Apr. 3	24.96		12	26.00	
19	24.83		10	24.96		19	26.00	
26	24.83		17					

Observations—Well 144 (Continued)					
Date	Head (ft.)	Chloride (p.p.m.)	Date	Head (ft.)	Chloride (p.p.m.)
Mar. 10, 1932	28.70	.....	Feb. 16, 1933	28.93	.....
17	28.91	.....	27	29.05	.....
24	28.99	.....	Mar. 6	28.65	.....
31	28.87	.....	13	28.91	.....
Apr. 7	28.88	.....	20	28.91	.....
14	28.79	.....	27	28.73	.....
21	28.82	.....	Apr. 3	28.87	.....
28	28.88	.....	10	28.63	.....
May 5	28.94	.....	22	28.40	.....
12	29.02	.....	29	28.59	.....
19	28.97	.....	May 6	28.14	.....
26	28.97	.....	13	28.03	.....
31	28.89	.....	20	27.94	.....
June 2	28.86	.....	27	27.88	.....
16	28.78	.....	June 3	27.70	.....
23	28.74	.....	10	27.59	.....
30	28.71	.....	17	27.53	.....
July 7	28.67	.....	24	27.42	.....
14	28.65	.....	July 1	27.35	.....
21	28.48	.....	8	27.40	.....
28	28.43	.....	15	27.25	.....
Aug. 4	28.33	.....	22	27.14	.....
11	28.37	.....	29	27.02	.....
18	28.33	.....	Aug. 5	26.89	.....
25	28.45	.....	12	26.81	.....
Sept. 1	28.27	.....	19	26.71	.....
8	28.24	.....	26	26.53	.....
15	28.21	.....	Sept. 2	26.44	.....
22	28.14	.....	9	26.41	.....
29	28.05	.....	16	26.35	.....
Oct. 6	28.04	.....	23	26.28	.....
13	28.01	.....	Oct. 30	26.18	.....
20	27.93	.....	7	26.09	.....
27	27.94	.....	14	26.03	.....
Nov. 3	27.88	.....	21	25.96	.....
10	27.96	.....	28	25.90	.....
17	28.17	.....	Nov. 4	25.95	.....
24	28.24	.....	11	25.92	.....
Dec. 1	28.88	.....	18	25.96	.....
8	28.85	.....	25	25.92	.....
15	28.76	.....	Dec. 2	25.10	.....
22	28.65	.....	9	26.06	.....
29	28.69	.....	16	25.93	.....
Jan. 5, 1933	28.82	.....	23	26.25	.....
12	28.88	.....	30	26.72	.....
19	28.93	.....	Jan. 6, 1934	26.78	.....
26	28.61	.....	13	27.06	.....
Feb. 2	28.72	.....	15	26.99	.....
9	28.73	.....	22	26.84	.....

145 (old 115). Near pump-house at Fort Shafter, Honolulu. Owner, U. S. Army. Drilled, 1889. Altitude, 20 ft. Depth, 212 ft. Diameter, 6 in. Casing, 167 ft. Head (ft.), Oct. 21, 1919, 25.45; Jan. 11, 1927, 28.84; Apr. 7, 1928, 29.54. Chloride (p.p.m.), 1910, 68. Scaled, Dec. 1928.

Meter test

Water flowing from well during test. Static level normal for area. A 3-in. deep-well meter used. Readings by Sam Wong, Dec. 12, 1928.

Depth (ft.)	Revolutions per minute	Depth (ft.)	Revolutions per minute	Depth (ft.)	Revolutions per minute
3	56	101	54	170	29
25	56	102 (end of casing)	54	175	29
50	56	163	56	190	19
75	56	164	50	185	9
100	56	165	46	200	0
125	56	166	42	208	0
150	54	167	35	209 (meter landed)	0
155	54	168	30		
160	54	169	27		

146 (old 116½). Fort Shafter, Honolulu. Owner, U. S. Army. Drilled, 1914 by McCandless Bros. Altitude, 20 ft. Depth, 279 ft. Diameter, 12 in. Depth to top of aquifer, 169 ft. Use, Post supply. Casing, 169 ft.

Log		
	Depth (ft.)	Depth (ft.)
soil	0-5	111-175
binders (Ka)	5-33	155-169
sand and clay (Pa)	33-111	169-279

Observations

Bench mark, top of vertical flange 2 ft. below ground on 12-in. pipe about 1½ ft. from point where pipe enters building; altitude, 17.98 ft.

Date	Head (ft.)	Chloride (p.p.m.)	Date	Head (ft.)	Chloride (p.p.m.)	Date	Head (ft.)	Chloride (p.p.m.)
Dec. 1915	28.00	82.0	Sept. 7, 1917	29.12	.....	Aug. 16, 1920	25.35	72.0
Jan. 1916	29.92	81.0	Oct. 10	28.63	.....	Sept. 20	25.27	71.0
Feb.	30.78	81.0	Nov. 9	28.66	.....	Oct. 18	25.18	68.8
Mar.	31.81	80.0	Dec. 7	29.08	.....	Nov. 17	25.02	68.6
Apr.	29.78	81.0	Jan. 11, 1918	30.36	.....	Dec. 16	26.15	69.2
May	29.88	82.0	Feb. 11	30.36	.....	Jan. 27, 1921	28.31	69.6
June	29.48	83.0	Mar. 11	30.15	.....	Feb. 18	28.29	66.6
July	28.98	82.0	Apr. 10	30.51	.....	Mar. 18	28.39	66.0
Aug.	28.92	82.0	May 17	30.42	.....	Apr. 13	29.49	69.0
Sept. 3	28.82	.....	June	29.58	.....	May 20	27.78	73.0
Sept. 17	28.81	.....	July	29.55	.....	June 17	27.45	73.0
Sept. 24	28.71	.....	Aug. 8	29.19	.....	Sept. 17, 1923	27.26	73.0
Oct. 1	28.70	.....	Sept.	29.00	.....	Oct. 17	.....	73.0
Oct. 8	28.69	.....	Oct. 11	28.80	.....	Nov. 14	.....	71.2
Oct. 15	28.23	.....	Dec. 14	28.83	.....	Sept. 30, 1926	23.48	73.0
Oct. 22	28.44	.....	Jan. 24, 1919	29.13	.....	Jan. 11, 1927	24.66	.....
Oct. 29	28.49	.....	Feb. 19	29.13	.....	Apr. 7, 1928	29.73	71.0
Nov. 5	28.61	.....	Mar. 17	28.89	.....	Oct. 15	25.88	66.8
Nov. 12	28.82	.....	Apr. 4	28.31	.....	Mar. 1929	29.24	68.5
Nov. 19	28.72	.....	May 16	27.73	.....	Sept. 26	24.34	68.5
Nov. 26	28.76	.....	Aug. 4	27.11	.....	Feb. 19, 1930	27.92	.....
Dec. 3	28.95	.....	Aug. 11	26.94	.....	Jan. 1, 1931	27.34	70.1
Dec. 10	29.20	.....	Oct. 21	27.80	.....	Sept. 10	25.55	.....
Dec. 1917	31.10	.....	Jan. 1920	27.89	.....	Sept. 18	26.98	.....
Jan.	31.14	.....	Feb. 24	27.85	.....	Jan. 29, 1932	26.98	.....
Apr.	31.82	.....	Mar. 15	27.25	.....	Apr. 27	.....	66.7
May 7	31.15	.....	Apr. 14	27.23	72.7	Aug. 25	28.14	73.4
June 5	31.00	.....	May 15	26.67	70.0	June 19, 1934	25.73	73.0
July 5	30.85	.....	June 15	26.07	70.0	Nov. 11	26.25	71.7
Aug. 6	29.77	.....	July 23	25.82	71.0			

Discharge in millions of gallons

Year	Jan.	Feb.	Mar.	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Total	
1915	18	20	22	23	16	20	18	39.5
1916	187
1928	25.8	27.8	30.3	25.6	25	25.4	32.2	34.1	32.3	36.0	35.8	31.9	302.3	
1929	31.0	35.0	38.2	27.8	31.0	30.4	34.7	31.7	31.3	31.1	34.0	30.5	314.8	
1930	26.0	25.9	27.2	29.0	31.9	31.4	35.3	36.2	29.6	30.5	28.1	27.7	329.7	
1931	29.5	28.3	32.5	33.8	35.8	31.2	34.6	31.5	30.6	31.5	29.6	30.5	376.7	
1932	25.9	12.8	17.2	17.0	17.6	15.9	19.6	18.4	16.8	17.7	16.6	15.3	214.8	
1933	15.4	12.3	15.3	15.2	16.4	19.1	17.3	19.8	17.7	22.2	21.9	15.7	208.3	
1934	15.9	18.1	17.2	17.9	16.4	17.5	20.3	21.8	16.4	17.1	15.4	16.4	205.7	

147 (old 32). Fort Shafter, Honolulu. Owner, C. J. Gulick. Drilled, 1883 by McCandless Bros. Altitude about 12 ft. Depth, 331 ft. Diameter, 8 in. Depth to top of aquifer, 142 ft. Well defective, 1910. Chloride (p.p.m.), 1900, 72; 1910, 68. Scaled, June 1929.

		*Log	
	Depth (ft.)		Depth (ft.)
Top of floor to top of concrete	0-1.9	Compact mud rock, clay and occasional boulders. Flow = 43,000 gals. per day. (Pa; probably some Tkb).	
Solid concrete	1.9-7.0		
Loose concrete, mostly crushed rock	7.0-11.4		
Soft mud, clay, etc. (Pa)	11.4-21.8		90.0-145.0
Soft coral rock (Pis)	21.8-24.6	Alternate streaks of disintegrated lava, mud rock (Tkb)	142.1-144.0
Soft mud rock and clay (Pa)	24.6-26.6		
Bealder (Pa)	26.6-27.6	Compact mud rock and clay (Tkb)	145.9-139.5
Compact clay (Pa)	27.6-32.0	Alternate streaks of disintegrated lava (Tkb)	159.5-165.0
Soft lava rock (Pa)	32.0-33.8		
Soft sand and gravel (Pa)	33.8-39.3	Compact mud rock and clay (Tkb)	165.0-239.0
Compact sand and gravel (Pa)	39.3-40.8	Hard lava rock. Flow = 54,000 gals. per day. (Tkb)	239.0-259.8
Compact clay (Pa)	40.8-47.7		
Compact mud rock and thin clay (Pa)	47.7-88.2	Alternate streaks of disintegrated lava (Tkb)	259.8-299.8
Medium coral rock, almost rotten (Pis)	88.2-90.0	Hard lava rock. Flow = 72,000 gals. per day. (Tkb)	290.0-296.5

* Log is of test hole 2 ft. from well.

Meter tests

Test hole A. Test made in 2-in. test hole drilled about 280 ft. deep and about 2 ft. from main well. Water flowing from top of well. Apparently test not satisfactory in that it shows no inflow into well below 102 ft. while driller reported flows when he had reached various depths as 43,000 gals. per day at 142 ft.; 54,000 gals. per day at 269 ft.; and 72,000 gals. per day at 290.5 ft. Au 1-in. deep-well meter used. Readings by Sam Wong, May 15, 1929.

Depth (ft.)	Revolutions per minute	Depth (ft.)	Revolutions per minute
16	370	60	100
20	166	68	92
30	108	70	2
40 (end of casing)	174	80	103-280 (bottom)
45	92	90	0

Test hole B. This hole drilled about 2 ft. from main well and on opposite side from test hole A. Water flowing from top of well. This test is unsatisfactory in same manner as one on test hole A. Au 1-in. deep-well meter used. Readings by Sam Wong, May 15, 1929.

Depth (ft.)	Revolutions per minute	Depth (ft.)	Revolutions per minute
10	70	155 (end of casing)	78
20	62	151	82
30	65	152	78
50	62	153	80
100	76	154	140

148 (old 117). About 100 ft. south of highway and near pump house at foot of hill west of Fort Shafter, Honolulu. Owner, Sam Damon estate. Drilled, 1895. Diameter, 8 in. Altitude, 8 ft. Depth, about 300 ft. Use, irrigation. Recased from 10 in.

Observations

Bench mark, top of 8-in. tee 5 ft. above valve and 1 ft. above ground on main casing; altitude, 9.21 ft.

Date	Open (p.p.m.)	Close (p.p.m.)	Head (ft.)	Chloride (p.p.m.)	Date	Head (ft.)	Chloride (p.p.m.)
..... 1910	65.0		Oct. 16, 1929	63.4	Dec. 18, 1929	.....	66.8
Dec. 26, 1923	27.2		Oct. 23	63.4	Dec. 26	.....	65.2
Mar. 17, 1927	23.88	70.0	Oct. 30	63.4	Jan. 2, 1930	.....	65.2
Apr. 4, 1928	70.0		Nov. 6	63.4	Jan. 6	.....	65.2
Aug. 14	26.51		Nov. 13	65.2	Jan. 15	.....	65.2
Feb. 19, 1929	63.4		Nov. 20	65.2	Jan. 22	.....	66.8
Sept. 17	63.4		Nov. 27	66.8	Nov. 27	.....	65.9
Sept. 20	24.08		Dec. 4	65.2	Feb. 5	.....	63.4
Oct. 2	65.4		Dec. 11	66.8	Feb. 12	.....	63.4

Observations—Well 148 (Continued)

Date	Head (ft.)	Chloride (p.p.m.)	Date	Head (ft.)	Chloride (p.p.m.)	Date	Head (ft.)	Chloride (p.p.m.)
Feb. 18, 1930	27.66	.....	June 19, 1930	.....	66.8	Sept. 9, 1931	24.50	.....
Feb. 26	63.4	July 15	.....	63.4	Sept. 18	.....	56.4
Mar. 5	63.5	Aug. 23	.....	61.7	Jan. 29, 1932	26.13	66.7
Mar. 12	68.5	Sept. 6	.....	66.8	Aug. 25	27.92	68.3
Mar. 19	66.8	Oct. 7	.....	66.8	June 19, 1934	24.84	63.8
Mar. 26	65.2	Nov. 12	.....	66.8	Aug. 10	22.73	.....
Apr. 9	65.2	Dec. 16	.....	68.5	Dec. 11	25.90	65.0
Apr. 30	63.4	Jan. 7, 1931	.....	63.3			
May 14	63.4	Mar. 4	26.75	65.0			

* Well leaking.

Discharge in millions of gallons

Year	Jan.	Feb.	Mar.	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Total
1929	.....	.....	.....	.....	.....	.....	7.4	7.1	6.7	18.0	11.6	10.9	59.7
1930	16.7	14.0	13.9	13.2	12.0	11.1	12.3	12.3	12.0	18.0	18.4	18.4	172.3
1931	18.4	16.3	17.5	18.0	18.4	16.0	17.1	16.7	15.5	16.8	15.2	13.6	199.5
1932	20.9	19.3	16.1	18.4	17.4	16.3	16.3	16.7	17.9	15.7	14.1	14.7	203.8
1933	15.9	16.6	17.4	19.2	17.3	17.4	18.4	17.7	16.6	16.6	19.8	15.7	202.6
1934	10.6	11.4	13.2	13.2	15.9	13.3	15.8	17.7	15.3	16.0	14.8	18.8	177.2

149 (old 118). About 200 ft. west of well 148, near Fort Shafter, Honolulu. Owner, Damon estate. Drilled, 1885. Altitude, 10 ft. Diameter, 8 in. Recased from 10 in. in 1906.

Observations

Bench mark, top of vertical flange of main valve and 2 ft. above ground; altitude, 11.92 ft.

Date	Head (ft.)	Chloride (p.p.m.)	Date	Head (ft.)	Chloride (p.p.m.)	Date	Head (ft.)	Chloride (p.p.m.)
Apr. 1898	*28.80	.....	Nov. 27, 1929	.....	54.8	Apr. 9, 1930	.....	54.8
..... 1910	60.0	.....	Dec. 4	.....	53.1	Apr. 30	.....	51.4
Dec. 20, 1923	27.40	.....	Dec. 11	.....	54.8	May 14	.....	51.4
Mar. 17, 1927	24.37	59.0	Dec. 18	.....	54.8	June 19	.....	53.1
Apr. 4, 1928	27.82	56.0	Dec. 26	.....	54.8	July 15	.....	51.4
Aug. 14	25.62	.....	Jan. 2, 1930	.....	54.8	Aug. 23	.....	49.7
Sept. 11	24.82	.....	Jan. 8	.....	54.8	Sept. 6	.....	49.7
Sept. 13	25.52	.....	Jan. 15	.....	54.8	Nov. 12	.....	54.8
Feb. 19, 1929	51.4	.....	Jan. 22	.....	54.8	Dec. 16	.....	53.1
Sept. 17	51.4	.....	Jan. 29	.....	54.8	Jan. 7, 1931	.....	49.6
Sept. 26	24.33	.....	Feb. 5	.....	54.8	Mar. 3	.....	47.08
Oct. 2	.....	51.4	Feb. 12	.....	54.8	Sept. 9	.....	25.68
Oct. 16	.....	51.4	Feb. 19	.....	54.8	Jan. 7, 1931	.....	49.6
Oct. 23	.....	53.1	Feb. 26	.....	54.8	Mar. 3	.....	47.08
Oct. 30	.....	53.1	Mar. 5	.....	51.4	Aug. 25	.....	28.25
Nov. 6	.....	53.1	Mar. 12	.....	54.8	Jan. 19, 1934	.....	51.3
Nov. 13	.....	54.8	Mar. 19	.....	55.1	Dec. 11	.....	26.93
Nov. 20	.....	54.8	Mar. 26	.....	54.8			

* Measurement by D. MacIntyre.

Discharge in millions of gallons

Year	Jan.	Feb.	Mar.	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Total
1929	.....	.....	.....	.....	.....	.....	15.17	17.7	16.9	19.7	17.1	17.1	149.6
1930	17.4	16.6	18.2	18.0	19.0	17.1	18.2	17.5	6.9	14.4	6.4	8.1	181.2
1931	17.4	16.0	17.8	18.8	16.6	16.3	17.1	15.5	15.5	15.4	12.6	16.5	181.2
1932	13.8	11.3	13.5	13.6	14.8	14.8	15.4	15.2	14.5	13.8	11.4	13.1	165.2
1933	18.	15.2	17.	18.	18.4	18.3	16.7	17.4	16.4	16.6	15.0	14.8	201.8
1934	13.7	15.8	17.3	15.2	16.7	15.9	16.1	14.6	15.3	16.1	15.6	15.8	189.1

151 (old 115½). Fort Shafter, Honolulu; exact location unknown. Owner, U. S. Army. Drilled, 1898 by McCandless Bros. Not in use.

RECORDS OF DRILLED WELLS ON OAHU

152 (old 116). At Wireless School, Fort Shafter, Honolulu. Owner, U. S. Army. Drilled, 1906. Altitude, 60 ft. Depth, 302 ft. Diameter, 12 in. Depth to top of aquifer, 157 ft. Casing, 227 ft. Head (ft.), Oct. 17, 1928, 26.06. Chloride (p.p.m.), Mar. 2, 1909, 64; 1910, 69. Sealed, Jan. 1929.

Log

Table with columns: Depth (ft.), Log, Depth (ft.), and Depth (ft.). Includes descriptions like 'Sand loam and loess (1a)', 'Yellow clay (1a)', 'Gravel (Pa)', 'Soft reddish rock (TKB)', 'Hard rock (TKB)', 'Water rock (TKB)', 'Water rock; harder (TKB)'. Depth ranges from 0-13 to 119-120 ft.

153 (old 110). About 25 ft. east of Manukii Stream in Moanala at junction of two private roads, Honolulu. Owner, Sam Damon estate. Drilled, 1889. Altitude, 20 ft. Diameter, 10 in. Use, domestic and irrigation.

Observations

Bench mark, top of vertical flange on elbow 2 ft. above ground at well; altitude, 23.38 ft.

Large table with columns: Date, Head (ft.), Chloride (p.p.m.), Date, Head (ft.), Chloride (p.p.m.), Date, Head (ft.), Chloride (p.p.m.). Contains data for wells 152 and 153 from 1910 to 1929.

Observations—Well 153 (Continued)

Table with columns: Date, Head (ft.), Chloride (p.p.m.), Date, Head (ft.), Chloride (p.p.m.), Date, Head (ft.), Chloride (p.p.m.). Contains data for Well 153 from 1929 to 1934.

* A. M. P. M.

Discharge in millions of gallons

Table with columns: Year, Jan., Feb., Mar., April, May, June, July, Aug., Sept., Oct., Nov., Dec., Total. Shows discharge data from 1929 to 1931.

154 (old 120). In Moanala about 400 ft. northwest of well 153, Honolulu. Owner, Sam Damon estate. Altitude, 25 ft. Diameter, 8 in. Use, irrigation.

Observations

Bench mark, top of well casing, 3 ft. above ground; altitude, 28.01 ft.

Table with columns: Date, Head (ft.), Chloride (p.p.m.), Date, Head (ft.), Chloride (p.p.m.), Date, Head (ft.), Chloride (p.p.m.). Contains data for Well 154 from 1929 to 1934.

Well 154 (Continued)

Discharge in millions of gallons													Total	
Year	Jan.	Feb.	Mar.	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Total	
1929	1.3	.68	1.2	.8	.07	1.4	5.25	
1930	6.0	2.5	3.1	3.0	.....	1.2	0.5	0.5	2.1	2.0	.....	26.3	
1931	2.2	1.5	2.2	1.4	2.0	4.2	5.2	1.7	0.3	0.2	1.4	23.2	
1932	1.2	0	5.6	6.3	.....	1.1	6.9	5.6	4.7	6.8	.....	62.4	
1933	8.7	6.4	8.1	6.9	7.1	6.0	6.2	3.1	3.3	.9	.....	58.1	
1934	1.4	2.2	4.9	4.7	.28	3.4	1.01	1.13	6.2	.71	.37	29	21.4

155 (old 121). At pump house about 400 ft. west of junction of main highway and Puuloa Road in Moanalua, Honolulu. Owner, Mary M. Damon. Drilled, 1909 by McCandless Bros. Altitude, 24 ft. Depth, about 300 ft. Diameter, 10 in. Use, domestic.

Observations

Date	Chloride (p.p.m.)	Date	Chloride (p.p.m.)	Date	Chloride (p.p.m.)	Date	Chloride (p.p.m.)
Dec. 13, 1909	85.0	Aug. 10, 1929	66.7	Mar. 4, 1931	66.7	Aug. 25, 1932	58.1
..... 1910	68.0	Sept. 17	63.4	Sept. 18	61.6	June 19, 1934	63.6
21st	.....	Sept. 6, 1909	61.7	Apr. 27, 1929	58.1	Dec. 11	62.0

Discharge in millions of gallons

Year	Jan.	Feb.	Mar.	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Total	
1929	5.3	6.0	6.0	4.2	5.9	4.0	31.9	
1930	4.1	4.3	5.0	5.0	5.1	5.0	7.9	6.6	6.1	3.9	4.0	63.4	
1931	5.0	5.4	4.7	4.4	4.6	4.2	5.1	4.4	4.1	5.0	3.1	4.0	53.6
1932	5.6	3.8	3.8	5.1	5.4	5.1	5.2	5.0	4.7	4.3	4.2	3.5	55.1
1933	3.6	2.9	4.2	4.2	4.5	4.6	4.5	4.6	4.9	4.7	3.7	3.8	56.2
1934	3.4	2.9	3.5	3.9	4.1	3.9	4.5	4.2	3.3	3.5	4.8	3.1	43.8

156 (old 122½). About 150 ft. north of well 155, Honolulu. Owner, U. S. Navy. Drilled, 1912. Altitude, 23 ft. Depth, 726 ft. Diameter, 12 in. Use, industrial.

Observations

Bench mark, top of elbow 2 ft. above ground on well between tap and vertical flange; altitude, 23.15 ft.

Date	Head (ft.)	Chloride (p.p.m.)	Date	Head (ft.)	Chloride (p.p.m.)	Date	Head (ft.)	Chloride (p.p.m.)
Feb. 13, 1914	79.0	Nov. 6, 1929	.....	61.7	Apr. 9, 1930	.....	63.4
Oct. 15, 1915	56.0	Nov. 13	.....	63.4	Apr. 30	.....	60.0
Apr. 1, 1920	79.0	Nov. 20	25.70	63.4	May 14	.....	59.8
Nov. 26, 1926	70.0	Nov. 27	.....	63.4	June 19	.....	63.2
Jan. 10, 1928	28.61	71.0	Dec. 4	.....	63.4	July 15	.....	66.7
Aug. 10	26.51	66.0	Dec. 11	.....	63.4	Aug. 7	23.73	65.0
Apr. 2	61.8	Dec. 26	.....	63.4	Sept. 6	.....	63.3
Mar. 1, 1929	61.7	Dec. 26	.....	63.4	Sept. 6	.....	63.2
Apr. 2	61.8	Dec. 26	.....	63.4	Oct. 7	.....	63.2
Aug. 25	61.7	Jan. 8	.....	63.4	Nov. 12	.....	65.0
Aug. 1	61.5	Jan. 15	.....	63.4	Dec. 10	.....	63.3
Aug. 7	61.4	Nov. 29	.....	63.4	Dec. 7, 1931	.....	66.7
Aug. 14	61.3	Jan. 29	.....	65.2	Feb. 7	27.23	59.0
Sept. 6	61.8	Feb. 12	.....	65.2	Mar. 3	26.85	61.4
Sept. 11	63.4	Feb. 12	.....	66.8	Sept. 10	26.47	.....
Sept. 17	63.4	Feb. 20	27.70	.....	Dec. 23	26.15	61.0
Sept. 27	63.4	Mar. 5	.....	65.2	Sept. 18, 1932	.....	58.1
Oct. 2	62.4	Mar. 5	.....	63.4	Jan. 29, 1932	26.63	70.1
Oct. 16	63.4	Mar. 12	.....	63.4	Aug. 25	27.96	58.1
Oct. 23	63.4	Mar. 19	.....	63.4	June 19, 1934	26.36	59.8
Oct. 30	61.7	Mar. 26	.....	65.2	Dec. 11	25.92	61.5

Discharge in millions of gallons

Year	Jan.	Feb.	Mar.	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Total	
1927	16.8	8.58	8.95	9.91	6.46	8.11	50.31	
1928	1.50	1.16	0.28	0.61	0.22	11.1	11.3	9.78	9.75	8.67	6.73	82.3	
1929	1.69	5.67	9.75	5.31	6.56	6.62	5.72	4.48	4.37	4.00	2.61	2.18	61.19
1930	2.54	5.41	1.39	1.12	9.04	8.92	9.25	9.76	7.77	4.22	2.66	0	62.69
1931	0	0	0	0	1.33	4.7	0	.69	0	.66	0	0	3.68

*No discharges 1931, 1932, 1933.

157 (old 122). Near north shore of lake in Salt Lake Crater, Honolulu. Owner, Sam Damon estate. Drilled, 1919. Altitude, about 2 ft. Depth, about 300 ft. Diameter, 10 in. Use, fish pond. Inaccessible.

Observations

Date	Head (ft.)	Chloride (p.p.m.)	Date	Head (ft.)	Chloride (p.p.m.)	Date	Head (ft.)	Chloride (p.p.m.)
Feb. 11, 1910	67.0	Dec. 11, 1929	.....	65.2	July 15, 1930	.....	70.2
Mar. 1, 1929	63.4	Dec. 18	.....	66.8	Aug. 23	.....	65.2
Aug. 4	63.5	Dec. 29	.....	66.8	Sept. 6-9	.....	65.2
Sept. 4	66.8	Jan. 2, 1930	.....	66.8	Oct. 7	.....	68.5
Sept. 11	63.4	Jan. 22	.....	66.8	Nov. 13	.....	68.3
Sept. 17	63.4	Jan. 22	.....	66.8	Dec. 16	.....	68.5
Oct. 2	63.4	Jan. 29	.....	66.8	Jan. 7, 1931	.....	63.2
Oct. 10	24.04	.....	Feb. 5	.....	66.8	Jan. 7	.....	65.0
Oct. 16	63.4	Feb. 12	.....	66.8	Sept. 18	.....	59.1
Oct. 23	66.8	Mar. 5	.....	66.8	Jan. 29, 1932	.....	129.0
Oct. 30	66.8	Mar. 12	.....	66.8	Aug. 25	28.73	63.3
Nov. 6	61.7	Mar. 19	.....	65.2	Nov. 8, 1933	26.53	.....
Nov. 13	66.8	Mar. 26	.....	66.8	June 19, 1934	26.09	65.0	.....
Nov. 20	66.8	Apr. 9	.....	65.5	Dec. 11	25.86	65.0
Nov. 27	66.8	Apr. 30	.....	101.0	.....	.....	.....
Dec. 4	66.8	June 19	.....	65.2	.....	.....	.....

Discharge in millions of gallons

Year	Jan.	Feb.	Mar.	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Total	
1929	2	2	1.0	0	0	0	6.0	
1930	6	6	6	6	6	6	6	6	6	6	6	71	
1931	27	24	27	25	27	29	29	27	26	27	20	27	319
1932	27	25	27	26	27	34	36	34	31	24	21	24	362
1933	24	22	20	20	20	20	20	20	20	20	20	20	246
1934	20	18	20	20	20	20	20	20	20	20	20	20	238

158 (old 120A). Near junction of Kamehameha Highway and Puuloa Road, Honolulu. Owner, Sam Damon estate. Drilled, 1929. Altitude, 18 ft. Depth, 282 ft. Diameter, 12 in. Depth to top of aquifer, 137 ft. Use, irrigation. Casing, 143 ft. Detailed description of samples following driller's log by T. F. Harris.

Log

Log	Depth (ft.)
Dark clay (Ra). Samples from 26 to 109 ft. show dark-brown sandy, pebbly clay. Pebbles are abundant of greenish-gray basalt, seldom exceeding 10 mm in diameter. Gravel (De). Decrease from 196 to 154 ft. show dark-brown slightly clayey, pebbly sand. Samples from 134 to 135 ft. show dark-brown to yellow-brown sandy clayey, sandy pebbles up to 26 mm in diameter.	118-135
Blue and red rock (Tkb). Samples from 135 to 136 ft. show dark bluish-gray hard slightly vesicular basalt containing a few olivine phenocrysts. Samples from 136 to 140 ft. show moderately vesicular basalt containing few olivine phenocrysts. Sample from 137 to 140 ft. shows purplish-brown to brick-red friable nodules.	135-138
Black rock (Tkb). See above sample from 137 to 140 ft. Samples from 140 to 143 ft. show similar basalt. Samples at 146 and 148 ft. show dark greenish-gray hard slightly vesicular basalt. Samples from 158 to 165 ft. show dark-gray hard moderately vesicular basalt, containing a few olivine phenocrysts.	138-160
Red water rock (Tkb). Samples from 160 to 171 ft. show dark gray hard moderately vesicular basalt, containing a few olivine phenocrysts. Sample from 174 to 178 ft. Blue-black rock (Tkb). See above sample from 174 to 178 ft. Samples from 190 to 195 ft. show brown to brick-red hard to friable moderately vesicular basalt.	160-175
Red water rock (Tkb). See above sample from 190 to 195 ft. Sample from 195 to 200 ft. Red water rock (Tkb). See above sample from 190 to 195 ft. Sample from 195 to 200 ft. Black rock (Tkb). Samples from 204 to 207 ft. are similar to above.	176-194
Blue-black rock (Tkb). Samples from 207 to 210 ft. show dark bluish-gray hard slightly vesicular basalt, containing a few olivine phenocrysts. Sample from 210 to 217 ft. shows brick-red hard to friable moderately vesicular basalt. Sample from 217 to 220 ft. shows dark-gray hard slightly vesicular basalt.	194-202
.....	202-207
.....	207-219

162 (old 125). South side of Salt Lake Crater near Puuloa R. R. station, Honolulu. Owner, Honolulu Plantation Co. Driller, W. S. Lowe. Altitude, about 20 ft. Depth, 1,125 ft. Depth to top of aquifer, probably about 702 ft. Not in use. Casing, 671 ft.

Log				
	Depth (ft.)		Depth (ft.)	Depth (ft.)
Coral slab (Pls with probably some Qht at top)	0-240	Coral (Pls)	605-637	Blue rock (Tkb.)
Clay (Pa)	240-305	Clay (Pa)	637-652	Clay (Tkb.)
Coral (Pls)	305-340	Coral (Pls)	652-677	Blue rock (Tkb.)
Clay (Pa)	340-361	Clay (Tkb.)	677-702	Clay (Tkb.)
Coral (Pls)	361-379	Blue rock (Tkb.)	702-720	Blue rock (Tkb.)
Clay (Pa)	379-429	Clay (Tkb.)	720-772	Clay (Tkb.)
Coral (Pls)	429-457	Blue rock (Tkb.)	772-837	Blue rock (Tkb.)
Clay (Pa)	457-469	Clay (Tkb.)	837-855	Water rock (Tkb.)
Coral (Pls)	469-481	Blue rock (Tkb.)	855-852	Grey rock (Tkb.)
Clay (Pa)	481-587	Clay (Tkb.)	852-872	Red rock (Tkb.)
Coral (Pls)	587-595	Blue rock (Tkb.)	872-879	Blue rock (Tkb.)
Clay (Pa)	595-605	Clay (Tkb.)	879-890	Red rock (Tkb.)

163 (old 126). Near Puuloa R. R. station, Honolulu. Owner, Honolulu Plantation Co. Drilled, 1903 by Ellsworth. Altitude, 17 ft. Depth, 970 ft. Depth to top of aquifer, 835 ft. Not in use. Casing, 774 ft. Chloride (p.p.m.), July 26, 1910, 1,250; Sept. 30, 1918, 1,620; Sept. 13, 1919, 1,630; Nov. 15, 1920, 1,550.

Log				
	Depth (ft.)		Depth (ft.)	Depth (ft.)
Coral (Pls with probably some Qht at top)	0-250	Caving clay (Pa)	450-490	Water rock (Tkb.)
Sticky clay (Pa)	250-290	Clay (Pa)	490-519	Hard rock (Tkb.)
Coral (Pls)	290-320	Soft gray clay (Pa or Tkb.)	519-564	Hard lava (Tkb.)
Clay (Pa)	320-400	Clay (Pa or Tkb.)	764-772	Water rock (Tkb.)
Coral (Pls)	400-420	Loose red rock (Tkb.)	772-810	Hard lava (Tkb.)
Sticky clay (Pa)	420-450	Hard rock (Tkb.)	810-822	Water rock (Tkb.)
			822-835	

164 (old 127). Near Puuloa R. R. station, Honolulu. Owner, Honolulu Plantation Co. Driller, W. S. Lowe. Altitude, 12 ft. Depth, 800 ft. Depth to top of aquifer, about 767 ft. Use, domestic. Casing, 520 ft. Head (ft.), Dec. 29, 1934, 17.53. Chloride (p.p.m.), 1902, 843; 1910, 968; Sept. 30, 1918, 1,510; Sept. 13, 1919, 1,530; Nov. 15, 1920, 1,770. Sealed, June 1937.

Log				
	Depth (ft.)		Depth (ft.)	Depth (ft.)
Coral (Pls with probably some Qht at top)	0-245	Clay (Pa)	365-386	Gray rock (Pa or Tkb.)
Brown clay (Pa)	245-290	Coral (Pls)	386-440	Blue clay (Pa or Tkb.)
Coral (Pls)	290-320	Clay (Pa)	440-495	Brown lava (Tkb.)
Clay (Pa)	320-330	Coral (Pls)	495-515	Clay (Tkb.)
Coral (Pls)	330-365	Clay (Pa or Tkb.)	515-550	Red lava (Tkb.)
		White clay (Pa)	550-615	Hard blue lava (Tkb.)
		Clay (Pa)	615-695	

Meter tests

An 8-in. deep-well meter used with rubber gasket. Readings by K. N. Vaksvik.

Depth (ft.)	Revolutions per minute	Depth (ft.)	Revolutions per minute	Depth (ft.)	Revolutions per minute
100	7	400	4	650	4
200	6	500	5	661 (landed)	
300	6	600	6		

Meter tests—Well 164 (Continued)

Test 2. June 1, 1937.

Depth (ft.)	Revolutions per minute	Depth (ft.)	Revolutions per minute	Depth (ft.)	Revolutions per minute
100	0	394		13	487
200	15	470		9	488 (landed)
300	14	440		0	

Test 3. June 1, 1937.

Depth (ft.)	Revolutions per minute	Depth (ft.)	Revolutions per minute	Depth (ft.)	Revolutions per minute
100	6	395		0	472 (landed)
200	18	425		18	
300	14	450		18	
394	12	465		18	

Test 4. After powder charge detonated. June 2, 1937.

Depth (ft.)	Revolutions per minute	Depth (ft.)	Revolutions per minute	Depth (ft.)	Revolutions per minute
100	6	250		17	450
190	11	300		8	465
200	28	394		18	467
300	32	400		11	470
220	17	425		6	

Test 5. June 4, 1937.

Depth (ft.)	Revolutions per minute	Depth (ft.)	Revolutions per minute	Depth (ft.)	Revolutions per minute
100	0	400		6	415
200	19	402.5		6	420
300	12	405		5	425 (landed)
394	7	410		8	

165 (old 128). Near Puuloa R. R. station, Honolulu. Owner, Honolulu Plantation Co. Driller, Ellsworth. Altitude, 12 ft. Depth, 900 ft. Depth to top of aquifer, about 758 ft. Use, domestic. Casing, 538 ft. Chloride (p.p.m.), July 1902, 811; Mar. 10, 1913, 2,640; Aug. 15, 1914, 3,060; Sept. 30, 1918, 3,780; Sept. 13, 1919, 3,710; Nov. 15, 1920, 3,990. Sealed, May 1937.

Log

	Depth (ft.)		Depth (ft.)		Depth (ft.)
Soil	0-10	Coral (Pls)	387-400	Hard rock (Tkb.)	758-785
Coral reef (Pls)	10-42	Sticky clay (Pa)	400-425	Sticky clay (Tkb.)	785-820
Loose coral (Pls)	42-150	Dry caving clay (Pa)	425-470	Hard rock (Tkb.)	820-838
Black sand (Pa or Qht)	150-136	Loose coral (Pls)	470-500	Water rock (Tkb.)	838-840
Loose coral (Pls)	136-233	Caving clay (Pa)	500-522	Hard rock (Tkb.)	840-852
Dark gray clay (Pa)	233-306	Sticky clay (Pa)	522-538	Water rock (Tkb.)	852-864
Loose coral (Pls)	306-323	Sandy clay (Pa)	538-600	Hard rock (Tkb.)	864-890
Sticky clay (Pa)	323-387	Sandy clay (Pa)	600-720	Water rock (Tkb.)	890-891
			720-758	Hard pan (Tkb.)	891-900

Meter tests

An 8-in. deep-well meter used. Readings by K. N. Vaksvik.

Test 1. May 12, 1937.

Depth (ft.)	Revolutions per minute	Depth (ft.)	Revolutions per minute	Depth (ft.)	Revolutions per minute
5	11	100		42	354.5 (landed)
10	11	150		71	386 (meter went out of order and was withdrawn)
20	20	200		61	
30	30	250		69	
40	34	300		61	
50	61	350		76	

Test 2. With rubber gasket. May 15, 1937.

Depth (ft.)	Revolutions per minute	Depth (ft.)	Revolutions per minute	Depth (ft.)	Revolutions per minute
20	4	100		32	150
30	32	130		30	190 (landed)
50	32	140		83	

Meter tests—Well 165 (Continued)

Test 3. Without rubber gasket. May 15, 1937.

Depth (ft.)	Revolutions per minute	Depth (ft.)	Revolutions per minute	Depth (ft.)	Revolutions per minute
20	4	750	109	340	78
50	5	350	112	540	43
100	0	400	94	600	55
130	4	500	87	700	42
140		500	106	740	30
130	85	510	98	750	28
140	84	515	90	800	27
200	88	520	84	800	28
250	92	525	96	825	3
300	92	530	100	825.5	2
				824.5 (landed)	

Test 4. Without rubber gasket. May 18, 1937.

Depth (ft.)	Revolutions per minute	Depth (ft.)	Revolutions per minute	Depth (ft.)	Revolutions per minute
50	2	500	34	718	1
100	3	550	31	750	1
200	34	600	4	723 (landed)	
400	35	710	6		
			8		

Test 5. May 20, 1937.

Depth (ft.)	Revolutions per minute	Depth (ft.)	Revolutions per minute	Depth (ft.)	Revolutions per minute
100	23	547	104	570	79
200	124	548	112	580	34
650 (landed)		549	66	530	4
660	0	555	6	530 (pulling meter out)	
245	65	560	70		

Test 6. With rubber gasket. May 24, 1937.

Depth (ft.)	Revolutions per minute	Depth (ft.)	Revolutions per minute	Depth (ft.)	Revolutions per minute
100	0	510	5	recorded at 530	
200	9	520	9	ft. and 532 ft.	
400	9	540 (With water being pumped from well no discharge)		542.5 (landed)	
400	12				
500	16				

166 (old 129). Near Paula R. R. station, Honolulu. Owner, Honolulu Plantation Co. Driller, W. S. Lowe. Altitude, 15 ft. Depth, 951 ft. Depth to top of aquifer, about 888 ft. Not in use. Casing, 590 ft. Sealed, June 1937.

Log					
Depth (ft.)	Depth (ft.)	Depth (ft.)	Depth (ft.)	Depth (ft.)	Depth (ft.)
Soil	0-5	Coral (Pls)	395-455	Hard blue rock (Tkb)	798-888
Coral sand (Pls with perhaps some Qht)	3-23	Clay (Pa)	453-538	Water rock (Tkb)	888-903
Clay (Pa)	233-248	Coral (Pls)	538-568	Hard blue rock (Tkb)	903-921
Coral (Pls)	248-258	White clay (Pa)	568-618	Red water rock (Tkb)	921-928
Clay (Pa)	258-318	Coral (Pls)	618-629	Hard blue rock (Tkb)	928-943
Clay (Pa)	318-353	Clay (Pa)	629-668	Water rock (Tkb)	943-948
Clay (Pa)	353-393	Soft blue rock (Tkb)	708-778	Red clay (Tkb)	948-951
		Clay (Tkb)	778-788		

Meter tests

As 3-in. deep-well meter used with rubber gasket. Readings by K. N. Vaksvik.

Test 1. June 15, 1937.

Depth (ft.)	Revolutions per minute	Depth (ft.)	Revolutions per minute	Depth (ft.)	Revolutions per minute
100	4	570	11	670	6
300	4	600	11	675	6
500	4	620	8	684 (landed)	6

Test 2. June 18, 1937.

Depth (ft.)	Revolutions per minute	Depth (ft.)	Revolutions per minute	Depth (ft.)	Revolutions per minute
110	0	400	2	612 (landed)	
200	2	500	3		
300	2	570-605	0		

167 (old 130). Near Pearl Harbor Navy Yard. Owner, Honolulu Plantation Co. Drilled, 1902 by Ellsworth. Altitude, 15 ft. Depth, 1,045 ft. Depth to top of aquifer, about 660 ft. Not in use. Casing, 672 ft.

Log					
Depth (ft.)	Depth (ft.)	Depth (ft.)	Depth (ft.)	Depth (ft.)	Depth (ft.)
Soil	0-2	Dry clay (Pa)	330-516	Water rock (Tkb)	557-906
Lava (Qht. Salt Lake)	24-34	Loose coral (Pls)	536-610	Black sand and coral (Tkb and Pls)	603-904
Loose coral (Pls)	34-134	Sticky clay (Pa)	610-650	Water rock (Tkb)	904-974
Sticky clay (Pa)	134-143	Caving clay (Pa)	650-900	Blue lava (Tkb)	673-692
Loose coral (Pls)	143-250	Hard blue rock (Tkb)	660-672	Black sand and coral (Pls)	904-985
Sticky clay (Pa)	250-280	Sticky clay (Tkb)	673-692	Hard blue lava (Tkb)	692-740
Loose coral (Pls)	280-283	Grey clay rock (Tkb)	692-740	Black sand and coral (Pls)	904-985
Sticky clay (Pa)	283-323	Hard blue rock (Tkb)	740-764	Hard blue lava (Tkb)	985-995
Loose coral (Pls)	323-333	Red rock and gravel (Tkb)	764-797	Water rock (Tkb)	1,005-1,020
Caving and sticky clay (Pa)	333-403	Sticky clay (Tkb)	797-807	Water rock (Tkb)	1,020-1,032
Loose coral (Pls)	403-430	Red rock (Tkb)	807-821	Water rock (Tkb)	1,032-1,032
Sticky clay (Pa)	433-463	Hard blue rock (Tkb)	821-873	Hard blue lava (Tkb)	1,032-1,032
Red rock (Pa)	463-474	Red rock (Tkb)	873-903	Red water rock (Tkb)	1,030-1,045
Sticky caving clay (Pa)	473-493	Hard blue lava (Tkb)	903-950		
Red rock (Pa)	493-508	Black sand and coral (Tkb and Pls)	950-957		
Sticky clay (Pa)	508-530				

168 (old 131). Near Pearl Harbor Navy Yard. Owner, Honolulu Plantation Co. Driller, W. S. Lowe. Altitude, 15 ft. Depth, 638 ft. Not in use. Casing, 495 ft. Chloride (p.p.m.), July 1902, 1,930.

Log					
Depth (ft.)	Depth (ft.)	Depth (ft.)	Depth (ft.)	Depth (ft.)	Depth (ft.)
Soil	0-2	Clay (Pa)	202-412	Clay (Pa or Tkb)	718-733
Coral sand (Pls probably some Qht)	2-100	Hard blue rock (Tkb)	412-482	Soft rock (Tkb)	733-754
Sticky clay (Pa)	100-112	Dry sandy clay (Pa)	482-482	Clay (Tkb)	754-758
Coral (Pls)	112-172	Coral (Pls)	482-502	Gray rock (Tkb)	758-778
Clay (Pa)	172-187	Clay (Pa)	502-572	Clay (Tkb)	778-783
Coral (Pls)	187-207	Clay (Pa)	572-608	Hard blue lava (Tkb)	783-863
Coral (Pls)	207-272	Clay (Pa)	608-703	Soft red and gray rock (Tkb)	863-938
Coral (Pls)	272-302	Gray white rock (Pa or Tkb)	703-718		

169 (old 132). In rear of officers' quarters "B" at Pearl Harbor Navy Yard. Owner, U. S. Navy. Altitude, 19 ft. Diameter, 6 in. Use, swimming pool.

Observations

Bench mark, top of valve stem 9 in. above ground; altitude, 19.77 ft.

Date	Head (ft.)	Chloride (p.p.m.)	Date	Head (ft.)	Chloride (p.p.m.)	Date	Head (ft.)	Chloride (p.p.m.)
July . . . 1902	385		Aug. 16, 1928	20.13	1,690	Feb. . . 3, 1931	21.07	1,630
Oct. . . 3, 1908	582		Apr. . . 2, 1929	20.62	1,750	Dec. . . 23, 1931	20.00	1,630
Jan. 1910	603		Nov. . . 20, 1929	20.54	1,820	Dec. . . 29, 1933	21.01	1,630
Aug. 10, 1927	2,450		Aug. . . 7, 1930	19.46	1,630			
Jan. 10, 1928	23.90	1,680	Jan. . . 22, 1931	21.03	1,630			

High chloride for Aug. 10, 1927, possibly due to error in computation; probably should be 1,720.

170 (old 133). Pearl Harbor Navy Yard. Owner, U. S. Navy. Altitude, 18 ft. Depth, 640 ft. Diameter, 12 in. Depth to top of aquifer, 581 ft. Use, industrial. Casing, 583 ft.

Log

	Depth (ft.)		Depth (ft.)		Depth (ft.)
Coral slab (Qht and probably some Tbb)	0-100	Sandy clay (Pa)	250-310	Clay (Pa or Tkb)	563-581
Clay material (Pa)	100-130	Sticky clay (Pa)	310-390	Hard rock (Tkb)	581-640
Coral reef (Pls)	130-150	Sandy clay (Pa)	390-472	Water rock (Tkb)	635-640
Sticky clay (Pa)	150-250	Clay (Pa)	472-542		
		Coral (Pls)	542-563		

Observations

Bench mark, top of 12-in. tee 1 ft. above ground; altitude, 19.36 ft.

Date	Head (ft.)	Chloride (p.p.m.)	Date	Head (ft.)	Chloride (p.p.m.)	Date	Head (ft.)	Chloride (p.p.m.)
..... 1902	..... 395	.....	Jan. 10, 1928	23.71	1,950	Aug. 7, 1930	19.51	2,150
Oct. 3, 1908	..... 852	.....	Aug. 16	20.23	2,000	Feb. 3, 1931	20.45	2,180
..... 1910	..... 824	.....	Apr. 2, 1929	20.73	2,050	Dec. 25	19.65	2,290
Aug. 16, 1927	..... 9,016	.....	Nov. 30	20.00	2,100			

171 (old 140). Near Makalapa Crater and near Puuloa R. R. station. Owner, Honolulu Plantation Co. Altitude, about 25 ft. Depth, 608 ft. Depth to top of aquifer, about 520 ft. Use, irrigation. Casing, 520 ft.

Log

	Depth (ft.)		Depth (ft.)		Depth (ft.)
Coral slab (Qht. Salt Lake and Makalapa)	0-20	Coral (Pls)	100-180	Water rock (Tkb)	551-566
Brown clay (Pa)	20-50	Brown clay (Pa)	180-320	Blue rock (Tkb)	566-582
Coral (Pls)	30-60	Brown rock (Tkb)	320-505	Water rock (Tkb)	582-600
Clay, brown (Pa)	60-100	Blue rock (Tkb)	528-543	Blue rock (Tkb)	600-608
		Red rock (Tkb)	543-551		

Observations

Bench mark, top of horizontal nipple leading south from well 3 ft. below ground; altitude, 21.70 ft. Head (ft.), Dec. 2, 1933, 21.70.

Date	Chloride (p.p.m.)	Date	Chloride (p.p.m.)	Date	Chloride (p.p.m.)	Date	Chloride (p.p.m.)
July 1, 1905	104	July 16, 1910	979	Aug. 15, 1914	942	Nov. 15, 1920	409
Oct. 3, 1908	291	May 29, 1911	251	Sept. 5, 1916	447		
Sept. 1, 1909	270	Oct. 29, 1912	301	Sept. 30, 1918	436		
..... 1910	284	Sept. 23, 1913	312	Sept. 15, 1919	326		

172 (old 142). In ditch midway between wells 171 and 173. Owner, Honolulu Plantation Co. Altitude, about 40 ft. Use, irrigation. Flows continuously about 20,000 gals. a day.

Observations

Bench mark, top of flange on well casing 12 ft. below ground; altitude, 20.93 ft. Head (ft.), Nov. 2, 1933, 23.04.

Date	Chloride (p.p.m.)	Date	Chloride (p.p.m.)	Date	Chloride (p.p.m.)	Date	Chloride (p.p.m.)
Oct. 3, 1908	343	May 20, 1911	322	Aug. 15, 1914	374	Nov. 15, 1920	700
Sept. 1, 1909	322	Oct. 29, 1912	343	Sept. 30, 1918	478	Nov. 2, 1933	581
July 16, 1910	333	Sept. 23, 1913	353	Sept. 15, 1919	440		

173 (old 143). In Makalapa Crater near Puuloa R. R. station. Owner, Honolulu Plantation Co. Altitude, about 21 ft. Depth, 740 ft. Depth to top of aquifer, about 522 ft. Use, irrigation. Casing, 500 ft. Flows continuously about 70,000 gals. a day.

Log

	Depth (ft.)		Depth (ft.)		Depth (ft.)
Coral slab (Qht. Salt Lake and Makalapa)	0-40	Brown rock (Tkb)	498-515	Red rock (Tkb)	627-654
Clay (Pa)	40-115	Clay (Pa or Tkb)	515-522	Blue lava (Tkb)	654-658
Coral (Pls)	115-125	Blue lava (Tkb)	522-565	Water rock (Tkb)	658-667
Clay (Pa)	125-420	Red rock (Tkb)	565-572	Brown rock (Tkb)	667-689
Small boulders (Pa or Tkb)	420-450	Water rock (Tkb)	572-577	Water rock (Tkb)	689-697
		Blue lava (Tkb)	577-600	Blue lava (Tkb)	697-722
		Red rock (Tkb)	600-615	Red rock (Tkb)	722-732
		Blue lava (Tkb)	615-627	Blue lava (Tkb)	732-740

Observations

Bench mark, top of flange on well casing 4 ft. below ground; altitude, 20.96 ft.

Date	Head (ft.)	Chloride (p.p.m.)	Date	Head (ft.)	Chloride (p.p.m.)	Date	Head (ft.)	Chloride (p.p.m.)
Oct. 3, 1908	..... 499	.....	Sept. 23, 1913	..... 603	.....	Oct. 31, 1933	..... 845	.....
Sept. 1, 1909	..... 551	.....	Aug. 15, 1914	..... 624	.....	Nov. 2	..... 23.27	842
July 16, 1910	..... 603	.....	Sept. 30, 1918	..... 634	.....	Nov. 2	..... 23.30	842
May 20, 1911	..... 551	.....	Sept. 13, 1919	..... 341	.....	Nov. 21	..... 23.38	842
Oct. 29, 1912	..... 572	.....	Nov. 15, 1920	..... 537	.....	Dec. 29	..... 24.46	842

174 (old 144). In Makalapa Crater near Puuloa R. R. station. Owner, Honolulu Plantation Co. Altitude, about 22 ft. Depth, 800 ft. Depth to top of aquifer, probably about 421 ft. Use, irrigation.

Log

	Depth (ft.)		Depth (ft.)		Depth (ft.)
Slab (Qht. Salt Lake and Makalapa)	0-50	Blue rock (Tkb)	448-452	Soft blue rock (Tkb)	615-645
Clay (Pa)	50-75	Clay (Tkb)	454-462	Hard blue rock (Tkb)	645-652
Slab (Probably Qht. Alimau)	75-105	Soft blue rock (Tkb)	462-465	Soft blue rock (Tkb)	652-663
Clay (Pa)	105-108	Hard blue rock (Tkb)	465-473	Hard blue rock (Tkb)	663-713
Soft rock (Pa)	115-150	Soft red rock (Tkb)	473-523	Soft blue rock (Tkb)	713-726
Coral (Pls)	150-168	Hard blue rock (Tkb)	523-528	Hard blue rock (Tkb)	726-732
Soft rock (Pa)	172-177	Soft red rock (Tkb)	533-539	Soft red rock (Tkb)	732-742
Clay (Pa)	177-312	Hard blue rock (Tkb)	539-558	Hard blue rock (Tkb)	742-759
Blue rock (Tkb)	312-327	Soft red rock (Tkb)	558-561	Soft red rock (Tkb)	759-769
Clay (Tkb)	327-334	Hard blue rock (Tkb)	561-588	Hard blue rock (Tkb)	769-780
		Soft blue rock (Tkb)	588-592	Soft blue rock (Tkb)	780-787
		Hard blue rock (Tkb)	592-609	Hard blue rock (Tkb)	787-792
		Soft blue rock (Tkb)	609-615	Soft blue rock (Tkb)	792-800

Observations

Bench mark, top of flange on well casing 4 ft. below ground; altitude, 21.57 ft.

Date	Head (ft.)	Chloride (p.p.m.)	Date	Head (ft.)	Chloride (p.p.m.)	Date	Head (ft.)	Chloride (p.p.m.)
Oct. 3, 1908	..... 270	.....	Oct. 29, 1912	..... 322	.....	Sept. 15, 1919	..... 312	.....
Sept. 1, 1909	..... 302	.....	Sept. 23, 1913	..... 349	.....	Nov. 15, 1920	..... 405	.....
July 16, 1910	..... 312	.....	Aug. 15, 1914	..... 364	.....	Nov. 21, 1933	..... 23.65	.....
May 20, 1911	..... 312	.....	Sept. 30, 1918	..... 374	.....	Nov. 21	..... 23.66	.....

175 (old 145). At end of ditch and about 300 ft. northeast of well 174. Owner, Honolulu Plantation Co. Altitude, about 23 ft. Not in use. Chloride (p.p.m.), Oct. 8, 1908, 1,250; Sept. 1, 1909, 946; July 16, 1910, 1,560; May 20, 1911, 888; Oct. 9, 1912, 1,170.

176 (old 141). In sugar cane field about 150 ft. southwest of southwest sandy beach in Makalapa Crater. Owner, Honolulu Plantation Co. Altitude, about 10 ft. Use, irrigation. Flows continuously about 20,000 gals. a day.

Observations

Date	Head (ft.)	Chloride (p.p.m.)	Date	Head (ft.)	Chloride (p.p.m.)	Date	Head (ft.)	Chloride (p.p.m.)
Oct. 3, 1908	495	Aug. 15, 1914	.....	447	Nov. 20, 1933	20.08	....
July 16, 1910	416	Sept. 30, 1918	.....	509	Nov. 21	19.98	....
May 29, 1911	318	Sept. 13, 1919	.....	540	Dec. 29	22.93	....
Oct. 29, 1912	384	Nov. 15, 1920	.....	567			
Sept. 25, 1913	416	Nov. 2, 1933	19.87	1,800			

177 (old 146). At end of flume near road at foot of hill between Hialawa and Punaloa. Owner, Honolulu Plantation Co. Altitude, about 15 ft. Diameter, 6 in. Use, irrigation.

Observations

Bench mark, top of flange on casing below main valve, 6 in. above ground; altitude, 15.63 ft.

Date	Head (ft.)	Chloride (p.p.m.)	Date	Head (ft.)	Chloride (p.p.m.)	Date	Head (ft.)	Chloride (p.p.m.)
July 10, 1902	146	Aug. 15, 1914	.....	395	Feb. 15, 1933	421.62	...
Dec. 10, 1908	364	Sept. 30, 1918	.....	489	Nov. 2	19.85	744
July 8, 1910	291	Sept. 13, 1919	.....	509	Nov. 20	20.03	....
Dec. 1	323	Nov. 15, 1920	.....	356	Nov. 21	19.88	....
Oct. 29, 1912	406	Feb. 7, 1932	23.08	...	Dec. 29	22.39	....
Sept. 23, 1913	416	Feb. 15, 1933	20.90	...			

* A. M. P. M.

178 (old 147). In sugar cane field about 500 yd. east of Hialawa Road and 500 yd. south of Hialawa camp. Owner, Honolulu Plantation Co. Drilled, 1900. Altitude, about 25 ft. Depth, 545 ft. Depth to top of aquifer, about 292 ft. Not in use. Casing, 250 ft. Chloride (p.p.m.), Dec. 10, 1908, 125; July 8, 1910, 125; Dec. 1, 1910, 125; Sept. 30, 1918, 156; Sept. 13, 1919, 170.

Log

	Depth (ft.)		Depth (ft.)	Depth (ft.)
Clay (Pa)	0-250	Boulders (Tchb)	288-303	Started to flow at 392
Boulders (Pa or Tch)	250-278	Clay (Pa or Tch)	303-343	ft.; 7 water strata.
Clay (Pa or Tch)	278-298	Rock (Tchb)	343-545	

179 (old 148). About 160 ft. west of well 178. Owner, Honolulu Plantation Co. Drilled, 1900. Altitude, about 25 ft. Not in use.

Observations

Date	Chloride (p.p.m.)	Date	Chloride (p.p.m.)	Date	Chloride (p.p.m.)	Date	Chloride (p.p.m.)
Dec. 10, 1908	187	Oct. 1, 1910	177	Sept. 23, 1913	177	Sept. 30, 1918	312
July 8, 1910	177	Oct. 29, 1912	177	Aug. 15, 1914	198	Sept. 13, 1919	254

180 (old 149). On east side of Hialawa Road and about 500 yd. from Hialawa camp, Honolulu. Owner, Honolulu Plantation Co. Altitude, about 18 ft. Use, irrigation.

Observations

Date	Chloride (p.p.m.)	Date	Chloride (p.p.m.)	Date	Chloride (p.p.m.)	Date	Chloride (p.p.m.)
July 10, 1902	104	Oct. 29, 1912	259	Aug. 15, 1914	250	Sept. 13, 1919	241
Dec. 10, 1908	208	Sept. 23, 1913	218	Sept. 30, 1918	281	Nov. 15, 1920	264
July 8, 1910	198						

181 (old 152). At Hialawa camp; exact location not known. Owner, Honolulu Plantation Co. Altitude, about 29 ft. Not in use.

Observations

Date	Chloride (p.p.m.)	Date	Chloride (p.p.m.)	Date	Chloride (p.p.m.)	Date	Chloride (p.p.m.)
July 10, 1902	208	Dec. 1, 1910	270	Aug. 15, 1914	218	Nov. 15, 1920	185
Dec. 10, 1908	250	Oct. 29, 1912	250	Sept. 30, 1918	218		
July 8, 1910	270	Sept. 23, 1913	230	Sept. 13, 1919	206		

182 (old 150). Southwest of bridge at Hialawa camp. Owner, Honolulu Plantation Co. Altitude, about 17 ft. Use, domestic.

Observations

Bench mark, top of horizontal flange on valve, at ground; altitude, 17.24 ft. Head (ft.), Jan. 23, 1931, 21.64; Feb. 7, 1932, 22.89.

Date	Chloride (p.p.m.)	Date	Chloride (p.p.m.)	Date	Chloride (p.p.m.)	Date	Chloride (p.p.m.)
Dec. 10, 1908	156	Oct. 29, 1912	146	Aug. 15, 1914	146	Sept. 13, 1919	106
July 8, 1910	156	Sept. 23, 1913	146	Sept. 30, 1918	114		

183 (old 151). About 100 yd. west of well 182 and in same ditch. Owner, Honolulu Plantation Co. Altitude, about 17 ft. Not in use.

Observations

Bench mark, top of cross-section on well 5 ft. above ground; altitude, 21.45 ft. Head (ft.), Dec. 29, 1933, 22.82.

Date	Chloride (p.p.m.)	Date	Chloride (p.p.m.)	Date	Chloride (p.p.m.)	Date	Chloride (p.p.m.)
July 10, 1902	146	Oct. 29, 1912	104	Aug. 15, 1914	94	Sept. 13, 1919	106
Dec. 10, 1908	104	Sept. 23, 1913	94	Sept. 30, 1918	114	Nov. 15, 1920	106
July 8, 1910	114						

184 (old 155). Near last row of houses on road from which Hialawa Road branches off. Owner, Honolulu Plantation Co. Altitude, about 23 ft. Diameter, 8 in. Not in use. Chloride (p.p.m.), Dec. 10, 1908, 146; Sept. 30, 1918, 208. Bench mark, top of vertical flange on valve at ground surface. Altitude, 23.24 ft.

185A to Q (old 153A to Q). Pumping station 1, near Aiea in Hialawa Gulch. Owner, Honolulu Plantation Co. Drilled, A to X, 1900; O to Q, 1930 by McCandless Bros. Depth, A to N, 500 ft.; O, 428 ft.; P, 433 ft.; Q, 437 ft. Diameter, A to Q, 12 in. Depth to top of aquifer, P, 360 ft.; Q, 250 ft. Use, irrigation. Casing, O, 172 ft.; P, 263 ft.; Q, 211 ft. Altitude of all wells, 25 ft.

Logs

	Depth (ft.)		Depth (ft.)		Depth (ft.)
Well O					
Black rock (Tchb)	0-115	Black rock (Tchb)	330-339	Red rock (Tchb)	265-270
Clay (Pa)	115-140	Red rock, soft (Tchb)	339-353	Blue rock (Tchb)	270-285
Gravel and clay (Pa or Tch)	140-195	Black rock (Tchb)	353-397	Red rock (Tchb)	285-293
Red rock, water (Tchb)	195-215	Red rock, water (Tchb)	397-406	Dark blue hard rock (Tchb)	293-308
Soft rock, act casing (Tchb)	215-220	Black rock (Tchb)	406-428	Blue rock (Tchb)	308-315
Blue rock, act casing (Tchb)	220-242	hard at bottom	406-428	Red rock (Tchb)	315-318
Red water rock (Tchb)	242-250	Well P		Blue rock (Tchb)	318-325
Blue rock (Tchb)	250-282	Clay (Pa)	0-110	Red rock (Tchb)	325-360
Red brown rock (Tchb)	282-285	Gravel (Pa)	110-120	Blue rock (Tchb)	360-380
Red water rock (Tchb)	285-290	Sticky mud (Pa)	120-130	Blue, very hard rock (Tchb)	380-385
Blue rock (Tchb)	290-292	Soft brown rock (Pa)	130-142	Blue rock (Tchb)	385-399
Red brown rock (Tchb)	292-295	Blue clay (Tchb)	142-185	Blue rock (Tchb)	399-399
Red water rock (Tchb)	295-298	Black rock (Tchb)	185-195	Red rock (Tchb)	399-399
Blue rock (Tchb)	298-299	Hard rock (Tchb)	195-200	Black rock (Tchb)	399-400
Red rock (Tchb)	299-300	Hard blue rock (Tchb)	200-203	Dark brown rock (Tchb)	400-425
Black hard rock (Tchb)	300-310	Red rock (Tchb)	203-220	Red rock (Tchb)	425-424
Soft rock (Tchb)	310-320	Blue rock (Tchb)	220-240	Black rock (Tchb)	424-424
		Black rock (Tchb)	240-265	Black rock (Tchb)	424-423

176 (old 141). In sugar cane field about 150 ft. southwest of southwest sandy beach in Makalapa Crater. Owner, Honolulu Plantation Co. Altitude, about 10 ft. Use, irrigation. Flows continuously about 20,000 gals. a day.

Observations

Date	Head (ft.)	Chloride (p.p.m.)	Date	Head (ft.)	Chloride (p.p.m.)	Date	Head (ft.)	Chloride (p.p.m.)
Oct. 3, 1908	405	Aug. 15, 1914	.....	447	Nov. 20, 1933	20.04	....
July 16, 1910	416	Sept. 30, 1918	.....	509	Nov. 21	19.98	....
May 29, 1911	343	Sept. 13, 1919	.....	540	Dec. 29	22.03	....
Oct. 29, 1912	384	Nov. 15, 1920	.....	567			
Sept. 23, 1913	416	Nov. 2, 1933	19.87	1,000			

177 (old 146). At end of flume near road at foot of hill between Halawa and Puuloa. Owner, Honolulu Plantation Co. Altitude, about 15 ft. Diameter, 6 in. Use, irrigation.

Observations

Bench mark, top of flange on casing below main valve, 6 in. above ground; altitude, 15.63 ft.

Date	Head (ft.)	Chloride (p.p.m.)	Date	Head (ft.)	Chloride (p.p.m.)	Date	Head (ft.)	Chloride (p.p.m.)
July .. 1902	140	Aug. 15, 1914	.....	895	Feb. 15, 1933	121.62	..
Dec. 10, 1908	364	Sept. 30, 1918	.....	489	Nov. 2	19.85	744
July 8, 1910	291	Sept. 13, 1919	.....	429	Nov. 29	20.03	....
Dec. 1	333	Nov. 15, 1920	.....	456	Nov. 21	19.88	....
Oct. 29, 1912	406	Feb. 7, 1932	23.68	...	Dec. 29	22.39	....
Sept. 23, 1913	416	Feb. 15, 1933	*20.96	...			

* A. M. † P. M.

178 (old 147). In sugar cane field about 500 yd. east of Halawa Road and 500 yd. south of Halawa camp. Owner, Honolulu Plantation Co. Drilled, 1900. Altitude, about 25 ft. Depth, 345 ft. Depth to top of aquifer, about 392 ft. Not in use. Casing, 250 ft. Chloride (p.p.m.), Dec. 10, 1908, 125; July 8, 1910, 125; Dec. 1, 1910, 125; Sept. 30, 1918, 156; Sept. 13, 1919, 170.

Log

	Depth (ft.)		Depth (ft.)		Depth (ft.)
Clay (Pa)	0-250	Boulders (Tkb)	.....	388-393
Boulders (Pa or Tkb)	250-288	Clay (Pa or Tkb)	.....	393-343
Clay (Pa or Tkb)	258-288	Rock (Tkb)	.....	343-343

Started to flow at 392 ft.; 7 water strata.

179 (old 148). About 100 ft. west of well 178. Owner, Honolulu Plantation Co. Drilled, 1900. Altitude, about 25 ft. Not in use.

Observations

Date	Chloride (p.p.m.)	Date	Chloride (p.p.m.)	Date	Chloride (p.p.m.)
Dec. 10, 1908	187	Dec. 1, 1910	177	Sept. 30, 1918	312
July 8, 1910	177	Oct. 29, 1912	177	Aug. 15, 1914	198
				Sept. 13, 1919	284

180 (old 149). On east side of Halawa Road and about 500 yd. from Halawa camp, Honolulu. Owner, Honolulu Plantation Co. Altitude, about 18 ft. Use, irrigation.

Observations

Date	Chloride (p.p.m.)	Date	Chloride (p.p.m.)	Date	Chloride (p.p.m.)
July .. 1902	104	Oct. 29, 1912	239	Aug. 15, 1914	250
Dec. 10, 1908	208	Sept. 23, 1913	218	Sept. 30, 1918	281
July 8, 1910	198			Sept. 13, 1919	241
				Nov. 15, 1920	264

181 (old 152). At Halawa camp; exact location not known. Owner, Honolulu Plantation Co. Altitude, about 20 ft. Not in use.

Observations

Date	Chloride (p.p.m.)	Date	Chloride (p.p.m.)	Date	Chloride (p.p.m.)	Date	Chloride (p.p.m.)
July .. 1902	208	Dec. 1, 1910	270	Aug. 15, 1914	218	Nov. 15, 1920	185
Dec. 10, 1908	250	Sept. 30, 1918	250	Sept. 30, 1918	218		
July 8, 1910	270	Sept. 23, 1913	230	Sept. 13, 1919	206		

182 (old 150). Southwest of bridge at Halawa camp. Owner, Honolulu Plantation Co. Altitude, about 17 ft. Use, domestic.

Observations

Bench mark, top of horizontal flange on valve, at ground; altitude, 17.24 ft. Head (ft.), Jan. 23, 1931, 21.64; Feb. 7, 1932, 22.89.

Date	Chloride (p.p.m.)	Date	Chloride (p.p.m.)	Date	Chloride (p.p.m.)	Date	Chloride (p.p.m.)
Dec. 10, 1908	156	Oct. 29, 1912	146	Aug. 15, 1914	146	Sept. 13, 1919	196
July 8, 1910	156	Sept. 23, 1913	146	Sept. 30, 1918	114		

183 (old 151). About 100 yd. west of well 182 and in same ditch. Owner, Honolulu Plantation Co. Altitude, about 17 ft. Not in use.

Observations

Bench mark, top of cross-union on well 5 ft. above ground; altitude, 21.45 ft. Head (ft.), Dec. 29, 1933, 22.82.

Date	Chloride (p.p.m.)	Date	Chloride (p.p.m.)	Date	Chloride (p.p.m.)	Date	Chloride (p.p.m.)
July .. 1902	146	Oct. 29, 1912	104	Aug. 15, 1914	94	Sept. 13, 1919	106
July 8, 1910	114	Sept. 23, 1913	94	Sept. 30, 1918	114	Nov. 15, 1920	106

184 (old 155). Near last row of houses on road from which Halawa Road branches off. Owner, Honolulu Plantation Co. Altitude, about 23 ft. Diameter, 8 in. Not in use. Chloride (p.p.m.), Dec. 10, 1908, 146; Sept. 30, 1918, 208. Bench mark, top of vertical flange on valve at ground surface. Altitude, 23.24 ft.

185A to Q (old 153A to Q). Pumping station I, near Aiea in Halawa Gulch. Owner, Honolulu Plantation Co. Drilled, A to N, 1900; O to Q, 1930 by McCandless Bros. Depth, A to N, 500 ft.; O, 428 ft.; P, 433 ft.; Q, 437 ft. Diameter, A to Q, 12 in. Depth to top of aquifer, P, 360 ft.; Q, 250 ft. Use, irrigation. Casing, O, 172 ft.; P, 202 ft.; Q, 211 ft. Altitude of all wells, 25 ft.

Logs

	Depth (ft.)		Depth (ft.)		Depth (ft.)	
Well O		Black rock (Tkb)	330-339	Red rock (Tkb)	265-270	
Clay (Pa)	0-115	Red rock, soft (Tkb)	339-353	Blue rock (Tkb)	270-285
Gravel and clay (Pa or Tkb)	115-140	Red rock, water (Tkb)	355-357	Red rock (Tkb)	285-293
Soft red rock (Tkb)	140-195	Black rock (Tkb)	397-405	Dark blue hard rock	.....
Blue rock, set casing (Tkb)	195-215	hard at bottom	405-428	Blue rock (Tkb)	293-338
Red rock (Tkb)	215-230	Clay (Pa)	6-110	Red rock (Tkb)	338-345
Blue rock (Tkb)	230-242	Gravel (Pa)	110-120	Blue rock (Tkb)	345-360
Red water rock (Tkb)	242-250	Sticky mud (Pa)	120-130	Blue, very hard rock	.....
Blue rock (Tkb)	250-260	Soft brown rock	130-185	Blue rock (Tkb)	360-380
Red brown rock (Tkb)	265-260	Blue clay (Tkb)	188-195	Blue rock (Tkb)	380-386
Red water rock (Tkb)	260-268	Blue rock (Tkb)	195-200	Red rock (Tkb)	390-395
Blue rock (Tkb)	268-320	Hard rock (Tkb)	200-202	Black rock (Tkb)	395-409
Red rock (Tkb)	290-300	Hard blue rock (Tkb)	202-232	Dark brown rock (Tkb)	400-425
Red rock (Tkb)	300-318	Red rock (Tkb)	232-240	Red rock (Tkb)	425-428
Red rock (Tkb)	318-320	Blue rock (Tkb)	240-265	Black rock (Tkb)	428-433

RECORDS OF DRILLED WELLS ON OAHU

Observations—Well 186 (Continued)							
Date	Head (ft.)	Chloride (p.p.m.)		Date	Head (ft.)	Chloride (p.p.m.)	
		Wells A-D	Wells E-H			Wells A-D	Wells E-H
Nov. 1928	23.1	...	...	Dec. 1931	22.1	...	...
Dec. 1928	23.5	...	...	Jan. 1932	22.0	...	...
Jan. 1929	23.3	106	121	Feb. 1932	22.9	...	...
Feb. 1929	23.7	...	...	Mar. 1932	24.6	...	...
Mar. 1929	22.9	...	...	Apr. 1932	24.4	112	108
Apr. 1929	22.4	107	121	May 1932	24.5	116	121
May 1929	22.2	107	121	June 1932	23.6	108	116
Jun. 1929	20.9	104	125	July 1932	23.9	110	127
July 1929	20.1	102	129	Aug. 1932	23.4	110	118
Aug. 1929	19.7	104	121	Sept. 1932	23.9	114	123
Sept. 1929	19.7	104	122	Oct. 1932	23.1	112	127
Oct. 1929	20.4	104	145	Nov. 1932	23.4	...	...
Nov. 1929	21.7	...	...	Dec. 1932	24.0	108	109
Dec. 1929	23.2	...	...	Jan. 1933	24.2	106	112
Jan. 1930	24.0	108	...	Feb. 1933	24.5	125	98
Feb. 1930	24.1	...	...	Mar. 1933	24.6	114	127
Mar. 1930	24.3	104	116	Apr. 1933	24.4	107	142
Apr. 1930	24.1	...	...	May 1933	23.2	112	148
May 1930	...	108	129	June 1933	22.4	135	114
June 1930	...	112	118	July 1933	22.5	110	139
July 1930	21.0	106	133	Aug. 1933	22.3	108	146
Aug. 1930	21.2	104	123	Sept. 1933	21.4	168	154
Sept. 1930	23.4	104	125	Oct. 1933	...	102	104
Oct. 1930	23.4	104	121	Nov. 1933	21.2	112	135
Nov. 1930	22.6	...	...	Dec. 1933	22.6	...	...
Dec. 1930	24.0	...	...	Jan. 1934	22.6	...	...
Jan. 1931	23.8	...	...	Feb. 1934	22.6	...	...
Feb. 1931	23.0	...	...	Mar. 1934	21.3	104	110
Mar. 1931	22.1	102	123	Apr. 1934	21.2	106	135
Apr. 1931	21.3	108	118	May 1934	21.2	106	129
May 1931	20.9	112	127	June 1934	20.6	104	137
June 1931	20.6	106	120	July 1934	19.2	112	156
July 1931	20.1	114	114	Aug. 1934	19.6	114	141
Aug. 1931	20.2	112	143	Sept. 1934	19.9	106	150
Sept. 1931	20.9	110	130	Oct. 1934	20.0	106	156
Oct. 1931	21.2	104	139	Nov. 1934	...	110	152
Nov. 1931	21.4	...	...	Dec. 1934	22.2	...	...

187A to C (old 156A to C). U. S. Navy pump near the Aiea R. R. station, Oahu. Owner, U. S. Navy. Drilled, 1923 by McCandless Bros. Altitude, A, 13 ft.; B, 10 ft.; C, 9 ft. Depth, A, 210 ft.; B, 173 ft.; C, 182 ft. Diameter, 12 in. Use, Navy Yard supply. Casing, A, 144 ft.; B, 143 ft.; C, 139 ft.

Logs

Well B	Depth (ft.)	Well C	Depth (ft.)
Soft and soft lava shale (Pa with some Qht, Alamamu)	0-95.7	Dark red adobe soil (Pa with some Qht, Alamamu)	0-101
Small flow of water	93.7	Lava shale (Tkb)	101-137
Granulated lava shale and soft porous rock (Tkb)	95.7-115.7	Shale and chalky porous rock (Tkb)	127-135
Chalky and soft porous rock (Tkb)	115.7-138.7	Hard dense blue lava rock (Tkb)	135-137
Hard dense rock (Tkb)	138.7-143.7	Soft and somewhat porous rock (Tkb)	137-166
Hard "pohakapa" blue rock, porous blue rock, and soft porous rock with lumps of clay (Tkb)	143.7-165.7	Hard rock (Tkb)	166-171
More water	165.7	Soft porous rock (Tkb)	171-182
Hard and soft rock (Tkb)	165.7-169.7	Small flow of water	182
Good flow of water	169.7	Grouted outside of casing to hold steady	153
Soft porous rock (Tkb)	169.7-172.7	More water	153
		Est. 400 gal./min. of water	150
		Flow more than 1.0 m.g.d.	179

Observations

187A. Bench mark, top of west corner of concrete box 1 ft. above ground; altitude, 14.18 ft.								
Date	Head (ft.)	Chloride (p.p.m.)	Date	Head (ft.)	Chloride (p.p.m.)	Date	Head (ft.)	Chloride (p.p.m.)
Jan. 16, 1928	26.00	98	Nov. 29, 1929	23.98	75	Feb. 15, 1933	25.46	...
Apr. 12	24.42	70	Aug. 7	20.98	72	Aug. 12, 1934	19.11	...
Apr. 2, 1929	22.48	62	Feb. 3, 1931	...	95	...	...	...

RECORDS OF DRILLED WELLS ON OAHU

Observations—Well 187 (Continued)

187B. Bench mark, top of west corner of concrete box 3 ft. above ground; altitude, 12.93 ft.								
Date	Head (ft.)	Chloride (p.p.m.)	Date	Head (ft.)	Chloride (p.p.m.)	Date	Head (ft.)	Chloride (p.p.m.)
Feb. 27, 1928	...	138	Apr. 2, 1929	22.33	63	Sept. 17, 1934	20.04	...
Jan. 16, 1928	25.00	...	Nov. 20	21.93	92	Oct. 16	19.85	80
Aug. 16	24.13	76	Aug. 7, 1930	20.83	65	Nov. 27	20.06	80
Oct. 16	20.37	...	Feb. 8, 1931	22.26	...	Dec. 20	21.16	80
187C. Bench mark, top of west corner of concrete box 4 ft. above ground; altitude, 12.59 ft.								
Date	Head (ft.)	Chloride (p.p.m.)	Date	Head (ft.)	Chloride (p.p.m.)	Date	Head (ft.)	Chloride (p.p.m.)
Jan. 16, 1928	26.07	99	Nov. 20, 1929	21.69	93	Dec. 23, 1931	21.40	95
Aug. 16	23.70	97	Aug. 7, 1930	20.80	97	Aug. 27, 1934	18.98	89
Apr. 2, 1929	22.20	101	Feb. 8, 1931	22.56	...	...	...	...

188 (old 157). 10 ft. north of Aiea Stream and about 200 yd. southwest of highway through Aiea. Owner, Honolulu Plantation Co. Altitude, about 10 ft. Depth, 275 ft. Use, domestic. Chloride (p.p.m.), July, 1902, 73; Sept. 30, 1918, 125; Sept. 13, 1919, 106.

189A to E (old 158A to E). Pumping station 5 in Aiea. Owner, Honolulu Plantation Co. Drilled, 1908. Altitude, about 38 ft. Use, irrigation.

Head (ft.), Jan. 1928, 24.3.

Date	Chloride (p.p.m.)	Date	Chloride (p.p.m.)	Date	Chloride (p.p.m.)	Date	Chloride (p.p.m.)
Sept. 5, 1916	104	July 7, 1926	86	May - 1929	92	Apr. - 1932	98
Sept. 30, 1918	104	Aug. 7	73	June	81	May	95
Sept. 15, 1919	100	Sept. 7	100	July	81	July	102
Nov. 15, 1920	82	Oct. 7	72	Aug.	89	Aug.	89
Apr. 8, 1921	109	Dec. 7, 1921	114	Sept.	89	Sept.	96
June 15	78	Mar. 1927	86	Oct.	89	Oct.	86
July 15	73	Apr. 7, 1927	78	Nov.	87	Nov.	84
Aug. 15	73	May	78	Dec.	87	Dec.	94
Oct. 15	79	June	78	Jan.	85	Jan.	89
Nov. 15	73	July	92	Feb.	83	Feb.	89
May - 1922	79	Aug.	78	Mar.	83	Mar.	73
June	86	Sept.	78	Apr.	75	Apr.	89
July	86	Oct.	78	May	83	May	73
Dec. 1922	70	Nov.	85	June	85	June	89
Aug. 1923	70	Dec.	75	July	85	July	91
Sept.	89	Jan. 1928	85	Aug.	75	Aug.	123
Oct.	75	Feb. 1928	92	Sept.	83	Sept.	103
Nov. 1924	82	Mar. 1928	85	Oct.	73	Oct.	103
Mar.	80	Apr. 1928	86	Nov.	85	Nov.	123
Aug.	79	May	85	Dec.	83	Dec.	85
Aug. 27	79	June	85	Jan.	75	Jan.	87
Oct. 25	73	July	85	Feb.	89	Feb.	83
Feb. 1926	79	Aug.	85	Mar.	85	Mar.	81
Apr.	82	Sept.	85	Apr.	89	Apr.	81
June 8	89	Oct.	85	May	85	May	81
		Nov.	82	June	85	June	81
		Dec.	82	July	85	July	81
		Jan.	85	Aug.	85	Aug.	81
		Feb.	85	Sept.	85	Sept.	81
		Mar.	85	Oct.	85	Oct.	81
		Apr.	82	Nov.	85	Nov.	84
		May	82	Dec.	85	Dec.	84
		June	85	Jan. 1932	85	Jan.	94

190 (old 159). At pump house on estate of Mrs. Cooper at McGraw Peninsula, Honolulu. Owner, Mrs. C. B. Cooper. Drilled, before 1880. Altitude, 23 ft. Depth, 300 ft. Diameter, 6 in. Use, domestic. Casing, 200 ft. Recased from 8 in. into 20.

Observations

Bench mark, top of flange 3 ft. below ground on well casing; altitude, 19.73 ft.								
Date	Head (ft.)	Chloride (p.p.m.)	Date	Head (ft.)	Chloride (p.p.m.)	Date	Head (ft.)	Chloride (p.p.m.)
..... 1910	.....	88	Apr. 23, 1929	21.05	...	Dec. 24, 1929	22.41	76
Sept. 30, 1918	.....	73	May 23	20.24	...	Jan. 29, 1930	24.12	68
Apr. 5, 1919	23.46	...	June 28	19.73	67	Feb. 28	23.16	66
July 9	22.46	...	Aug. 6	19.18	69	Mar. 26	23.43	66
Sept. 13	22.48	...	Sept. 6	18.68	68	Apr. 30	20.57	68
Nov. 13	23.32	...	Oct. 23	19.35	69	May 27	23.19	98
Feb. 26, 1929	23.32	...	Nov. 9	21.56	64	June 30	21.04	68
Mar. 27	21.63	...	Nov. 30	21.56	64	July 30	20.52	69

Observations—Well 201 (Continued)

Date	Head (ft.)	Chloride (p.p.m.)	Date	Head (ft.)	Chloride (p.p.m.)	Date	Head (ft.)	Chloride (p.p.m.)
Aug. 21, 1931	18.07	390	Aug. 12, 1932	21.01	480	Nov. 10, 1933	18.76	383
Aug. 29	18.27	395	Sept. 16	20.60	463	Dec. 21	19.21	
Sept. 5	17.47	363	Oct. 18	20.59	449	Jan. 29, 1934	20.02	450
Sept. 12	18.77	423	Sept. 15	20.56	465	Feb. 19	21.07	465
Oct. 6	19.02	418	Dec. 15	21.02	530	Mar. 20	19.85	449
Oct. 26	19.25	438	Jan. 17, 1933	21.57	555	May 1	19.44	412
Dec. 17	20.09	388	Feb. 13	22.27	600	May 16	19.05	436
Jan. 14, 1932	19.89	480	Mar. 16	22.69	610	June 15	18.79	441
Feb. 7	20.93	400	Apr. 18	21.07	578	July 12	17.82	377
Feb. 16	21.21	535	May 26	20.78	508	Aug. 14	17.43	338
Mar. 17	22.82	644	June 16	20.43	505	Sept. 12	18.29	360
Apr. 15	21.83	580	July 24	19.89	490	Oct. 16	18.49	400
May 17	22.15	590	Aug. 21	19.69	410	Nov. 22	18.50	415
June 15	21.84	400	Sept. 19	19.13	405	Dec. 20	19.82	475
July 15	21.72	500	Oct. 18	19.03	392			

202a to C (old 171a to C). Pearl City pump near intersection of Pearl City Road and main highway. Owner, City and County of Honolulu. Drilled, B, 1905; C, 1923, by McCandless Bros. Altitude, all wells about 28 ft. Depth, A, 165 ft; B, 197 ft.; C, 140 ft. Diameter, A, 10 in.; B and C, 12 in. Depth to top of aquifer, C, 53 ft. Use, A, none; B, none; C, municipal. Casing, C, 54 ft. Sealed, B, Dec. 1923. Bench mark, top of flange on casing of unused well at Oahu Railway and Land Co. pump 3 ft. above ground; altitude, 31.82 ft. Head (ft.), Feb. 8, 1926, 21.15. Chloride (p.p.m.), Jan. 29, 1969, 187; 1910, 178; Nov. 17, 1910, 180; May 18, 1926, 192; June 1926, 213; July 1926, 208; Oct. 1926, 218; Nov. 1926, 228. Well A: Apr. 20, 1925, 350; Nov. 20, 1925, 163; Nov. 23, 1925, *171. Well B: Oct. 28, 1925, 177; Sept. 29, 1925, 131; Sept. 29, 1925, 1134.

* After pumping $\frac{1}{2}$ hour.
† After pumping $\frac{1}{2}$ hour.

Log

	Depth (ft.)		Depth (ft.)
Well C			
Clay (Pa)	0-30	Clay and gravel (Pa)	47-53
Boulders (Pa)	30-47	Bed rock (Tbk)	53-140

203a to D (old 185a to D). Pumping station 7 at Waiawa at end of road which goes south of highway about 400 yd. west of Pearl City Road. Owner, Honolulu Plantation Co. Drilled, 1926 by McCandless Bros. Altitude, 15 ft. Depth, A, 175 ft.; R, 180 ft.; C and D, 176 ft. Diameter, all wells 12 in. Use, irrigation. Casing, D, 100 ft.; C, 53 ft.; D, 63 ft.

Logs

Depth (ft.)		Depth (ft.)		Depth (ft.)	
	Well A		Well B		
	Mud, muck, cocoanuts, logs, etc. (Ra)	88-99	Clay, muck, cocoanuts, logs, etc. (Ra)	0-20	
0-42	Gravel (Pa)	99-101	Boulders and clay (Pa and probably Tbk)	20-60	
42-50	Hard rock (Tbk)	101-107	Hard rock (Tbk)	60-62	
50-62	Soft rock (Tbk), more water (Tbk)	107-126	Soft rock (Tbk)	62-94	
62-94	Medium soft rock (Tbk)	126-142	Hard rock (Tbk)	94-102	
94-102	Soft rock (Tbk)	142-144	Soft rock (Tbk)	102-113	
102-113	Hard rock (Tbk)	144-147	Hard rock (Tbk)	113-126	
113-126	Soft red rock (Tbk)	147-162	First water flow at 150 ft.		
126-142	Soft red rock (Tbk)	162-172	Soft rock (Tbk)	136-140	
142-144	Very hard rock (Tbk)				

Logs—Well 203 (Continued)

	Depth (ft.)		Depth (ft.)		Depth (ft.)
		Well D			
Well G		Soft rock (Tbk)	91-108	Boulder and clay (Pa and probably Tbk)	22-46
Clay, muck, cocoanuts, logs, etc. (Ra)	0-13	Hard rock (Tbk)	108-110	Hard rock (Tbk)	46-52
Hard rock (Tbk)	13-15	Soft rock (Tbk)	110-145	Soft rock (Tbk)	52-58
Soft rock (Tbk)	15-48	Hard rock (Tbk)	115-142	Soft rock (Tbk)	63-74
Hard rock (Tbk)	48-56	Soft rock (Tbk)	142-160	Hard rock (Tbk)	74-82
Soft rock (Tbk)	56-69	Hard rock (Tbk)	160-176	Hard rock (Tbk)	82-92
Hard rock (Tbk)	69-73	Well D		Soft rock (Tbk)	92-104
Soft rock (Tbk)	73-83	Clay, muck, cocoanuts, logs, etc. (Ra)	0-22	Hard rock (Tbk)	104-128
Hard rock (Tbk)	83-91			Soft rock (Tbk)	128-176

Observations

Bench mark, top of corner with chiseled mark of concrete box at well nearest gate 1 ft. above ground; altitude, 15.77 ft. Head (ft.), Feb. 1932, 21.3.

Date	Chloride (p.p.m.)	Date	Chloride (p.p.m.)	Date	Chloride (p.p.m.)
Dec. 29, 1926	483	Mar. 1929	178	Apr. 1931	154
Apr. 1927	234	Apr. 1930	146	May 1932	152
May 1928	206	May 1931	217	June 1933	177
June 1929	206	June 1932	172	July 1934	166
July 1930	206	July 1933	170	Aug. 1935	164
Aug. 1931	248	Aug. 1934	172	Sept. 1936	172
Oct. 1932	220	Sept. 1935	176	Oct. 1937	175
Nov. 1933	248	Oct. 1936	187	Nov. 1938	177
Dec. 1934	241	Nov. 1937	210	Dec. 1939	174
Jan. 1935	241	Dec. 1938	187	Jan. 1940	171
Feb. 1936	241	Jan. 1939	183	Feb. 1941	166
Mar. 1937	254	Feb. 1940	205	Mar. 1942	153
Apr. 1938	252	Mar. 1941	181	Apr. 1943	160
May 1939	276	Apr. 1942	172	May 1944	158
June 1940	263	May 1943	179	June 1945	164
July 1941	241	June 1944	187	July 1946	168
Aug. 1942	241	July 1945	187	Aug. 1947	164
Sept. 1943	213	Aug. 1946	182	Sept. 1948	168
Oct. 1944	198	Sept. 1947	160	Oct. 1949	164
		Oct. 1948	152	Nov. 1950	164
		Nov. 1949	166	Dec. 1951	165
		Dec. 1950	166	Jan. 1952	164

* Well A.

204 (old 186). In Waiawa about 600 yd. west of Pearl City R. R. station and 300 yd. north of R. R. tracks. Owner, Honolulu Plantation Co. Drilled, 1906. Altitude, 10 ft. Depth, 220 ft. Diameter, 10 in. Use, irrigation.

Observations

Bench mark, top of concrete floor where $\frac{3}{4}$ -in pipe comes up at engine, towards door, 1 ft. above ground; altitude, 14.68 ft.

Date	Head (ft.)	Chloride (p.p.m.)	Date	Head (ft.)	Chloride (p.p.m.)	
. 1916	. . . . . 170	Feb. 8, 1925	20.63	116	Jan. 19, 1931	20.56
May 10, 1912	. . . . . 146	Mar. 28, 1926	. . . . .	150	Feb. 7, 1932	20.85

205 (old 172). 50 ft. west of Pearl City Road and about 400 yd. south of Oahu Railway and Land Co. tracks. Owner, James Armstrong. Drilled, 1897. Altitude, about 15 ft. Depth, 161 ft. Diameter, 12 in. Use, irrigation. Head (ft.), Feb. 8, 1926, 20.19. Chloride (p.p.m.), 1910, 216; May 15, 1923, 264; May 11, 1924, 300; Feb. 8, 1926, 247; Nov. 2, 1933, 531.

206 (old 173). 200 ft. west of Pearl City Road and about 400 yd. south of Oahu Railway and Land Co. tracks on Pearl City peninsula. Owner, Bishop estate. Altitude, about 10 ft. Depth, 172 ft. Diameter, 10 in. Use, irrigation.

207 (old 174). In pump house 10 ft. from well 208. Owner, Geo. Carnavaro. Altitude, 5 ft. Diameter, 7 in. Not in use. Chloride (p.p.m.), May 11, 1924, 415; Dec. 2, 1924, 438; Jan. 1, 1925, 374; Apr. 1, 1925, 425; May 7, 1925, 430; June 16, 1925, 355.

208 (old 175). Pearl City Peninsula, Honolulu. Owner, Geo. Carnavaro. Drilled, 1922 by A. H. Hobart. Altitude, 5 ft. Depth, 97 ft. Diameter, 2 in. Depth to top of aquifer, 81 ft. Not in use. Casing, 77 ft. Head (ft.), Jan. 23, 1931, 19.79; Feb. 7, 1932, 19.52.

Log

	Depth (ft.)		Depth (ft.)
Soil and mud	0-3	Loose sand and clay, lost water (Pa or Tkb)	69-77.5
Clay, grit, sand, and gravel (Pa)	3-16	Cemented gravel, a little water (Tkb)	77.6-81.3
Loose and cemented sand and gravel (Pa)	16-24	Soft red rotten water rock, 3/4 in. pipe full water (Tkb)	81.3-92.5
Clay, grit, sand, and gravel (Pa)	24-39	Hard medium, and soft water rock (Tkb)	92.5-96.3
Very compact clay, sand, and grit (Pa)	39-46	Hard blue lava (Tkb)	96.3-97.0
Quick sand (Pa)	46-51		
Cemented and loose gravel (Pa or Tkb)	51-57		
Compact clay and sand (Pa or Tkb)	57-63		
Compact clay and grit (Pa or Tkb)	63-69		

209 (old 176). 20 ft. from Pearl City Road and about 550 yd. south of Oahu Railway and Land Co. tracks. Owner, Geo. Carnavaro. Altitude, about 6 ft. Depth, 230 ft. Sealed, July 1924. Chloride (p.p.m.), July 27, 1912, 1,970; Mar. 21, 1913, 1,110; Aug. 15, 1914, 1,150; Dec. 20, 1923, 1,330; May 11, 1924, 1,440; June 13, 1924, 770.

211 (old 184). Pearl City Peninsula, Honolulu. Owner, Geo. Carnavaro. Drilled, 1922 by A. H. Hobart. Altitude, about 11 ft. Depth, 126 ft. Diameter, 2 in. Depth to top of aquifer, 92 ft. Use, stock. Chloride (p.p.m.), 1910, 1,780; May 11, 1921, 855; Sept. 18, 1924, 840.

Log

	Depth (ft.)		Depth (ft.)
Soil	0-5	Soft rotten rock (Tkb)	96-92
Clay, sand, and gravel (Pa)	5-23	Gray clay with sand, grit, and rotten rock, some water (Tkb)	92-110
Pukapuka rock, boulder (Pa)	23-25.5	Gray rotten rock, 1/2 in. pipe at 120 ft., chloride 520 p.p.m. (Tkb)	110-125.5
Clay, sand, and gravel, lots of soft sand (Pa)	25.5-74	Gray rock, getting harder (Tkb)	125.5-126.4
Cemented gravel, occasional trickle of water (Pa or Tkb)	74-83	Hard blue lava (Tkb)	
Clay and sand (Pa or Tkb)	83-88.7		
Hard cemented gravel (Pa or Tkb)	88.7-90		

212 (old 177). 50 yd. west of Pearl City Road and about 900 yd. south of Oahu Railway and Land tracks. Owner, Sumida Dairy. Altitude, 13 ft. Depth, 438 ft. Diameter, 4 in. Use, industrial. Casing, 104 ft. Recased from 10 in.

Observations

Bench mark, top of northeast corner of flat rock at ground under corner of porch nearest well; altitude, 12.76 ft.

Date	Head (ft.)	Chloride (p.p.m.)	Date	Head (ft.)	Chloride (p.p.m.)
..... 1910	1,270	Aug. 15, 1914	.....	2,080
July 27, 1912	9,046	May 11, 1921	.....	9,490
Mar. 21, 1913	1,980	Mar. 18, 1930	.....	455

213 (old 179). At the Albert Waterhouse home on Kirkbride Ave., Pearl City. Owner, Albert Waterhouse. Drilled, 1928 by A. H. Hobart. Altitude, about 10 ft. Depth, 126 ft. Diameter, 2 in. Depth to top of aquifer, 84 ft. Use, swimming pool. Casing, 81 ft. Head (ft.), Feb. 8, 1932, 10.92. Chloride (p.p.m.), Mar. 18, 1930, 1,300

Log

	Depth (ft.)		Depth (ft.)
Adobe top soil	0-7	Lava clay with streaks of gravel, cemented gravel, and water rock (Tkb)	80-126
Clay, sand, gravel and coral (Pa and Pa)	7-8		
Loose clay, with sand or grit and streaks of mud rock (Pa and probably some Tkb at bottom)	8-80		

214 (old 181). At Herbert Dowsett home on Kirkbride Ave., Pearl City. Owner, Herbert Dowsett. Drilled by A. H. Hobart. Altitude, 15 ft. Diameter, 2 in. Depth to top of aquifer, 85 ft. Use, swimming pool. Casing, 91 ft. Head (ft.) (both 214 and 215 combined), Jan. 19, 1931, 20.40; Feb. 7, 1932, 20.17. Bench mark for well 215, top of 2-in. elbow on well 1 1/2 ft. above ground; altitude, 15.88 ft. Bench mark for well 214, top of 2-in. tee on well 1 1/2 ft. above ground; altitude, 15.55 ft.

215 (old 180). Pearl City Peninsula. Owner, Herbert Dowsett. Drilled, 1921 by A. H. Hobart. Altitude, 15 ft. Depth, 134 ft. Diameter, 2 in. Depth to top of aquifer, 86 ft. Use, swimming pool. Casing, 103 ft. Chloride (p.p.m.), Mar. 18, 1930, 1,100.

Log

	Depth (ft.)		Depth (ft.)
Soil and clay	0-18	Compact lava mud or clay with sand and gravel. Previous water shut off by casing at about 96 ft. but well started to flow a little in this material (Tkb)	102.1-103
Clay with some small soft lava rock (Pa)	18-22	Compact lava mud or clay, but more clay than sand (Tkb)	103-104
Soft coral rock and sand (Pa)	22-30	Compact lava mud or clay, but more clay than sand. Water increasing in flow and head (Tkb)	104-124
Compact lava mud or clay (Pa or Tkb)	30-80	Almost all clay. About 3/4 of a 2-in. pipe level flow and a head of 7.5 ft. or 22.5 ft. above sea level (Tkb)	124-134
Compact lava mud and clay with grit (Tkb)	80-85		
Gravel and some water (Pa or Tkb)	85-86		
Gravel and cemented gravel. Water rose 7 ft. above ground. A level 2-in. pipe 3/4 full, chloride 812 p.p.m. (Probably Tkb)	86-93.3		
Compact lava mud or clay (Tkb)	93.3-102.1		

216 (old 182). At Herbert Dowsett home on Kirkbride Ave., Pearl City. Owner, Herbert Dowsett. Drilled by A. H. Hobart. Altitude, 4 ft. Diameter, 2 in. Depth to top of aquifer, 85 ft. Use, irrigation. Casing, 77 ft.

217 (old 178). In Pearl City 100 ft. south of Ashley Ave. and 75 ft. west of Lehua Ave. Owner, United Chinese Trust Co. Altitude, 14 ft. Depth, 310 ft. Diameter, 8 in. Casing, 218 ft. Chloride (p.p.m.), 1910, 1,040; May 13, 1924, 2,600. Sealed, June 1928.

218 (old 183). At Robt. Atkinson home on Lanilua Ave., Pearl City. Owner, Robt. Atkinson. Drilled, 1906. Altitude, 12 ft. Depth, 270 ft. Diameter, 10 in. Not in use. Chloride (p.p.m.), 1910, 860. Bench mark, top of tee on well 8 in. above ground; altitude, 12.34 ft.

218-1 (no old number). Pearl City Peninsula. Owner, W. K. Titeomb. Drilled, 1934 by A. H. Hobart. Altitude, 3 ft. Diameter, 2 in. Depth, 150 ft. Use, irrigation. Head (ft.), Dec. 28, 1934, 16.56; Jan. 25, 1935, 16.06. Chloride (p.p.m.), July 1934, 852. Bench mark, top of 2-in. tee on well 7 in. above ground; altitude, 12.84 ft.

Log

	Depth (ft.)		Depth (ft.)
Adobe, soil, small coral, sand, shell, gravel, etc. (R ₁ and P ₂)	0-24	Hard cemented gravel and sand (Probably Tkb)	84-86
Pine sand mixed with clayey mud (P ₂)	24-30	Cemented sand (Probably Tkb)	86-101
Clay, sand, and gravel (P ₂)	30-34	Sand with clayey mud, some thick, clay cemented streaks (Probably Tkb)	101-148
Clay with grit and some sand (P ₂)	34-44		
Fine sand and some mud (P ₂)	44-47	Gravel and cemented gravel (Probably Tkb)	148-149
Clay and grit (P ₂ or Tkb)	47-61	Hard cemented gravel (Probably Tkb)	149-150
Very compact sand and clay (Tkb)	61-84		

219 (old 134). Near northern end of Ford Island. Owner, U. S. Navy. Diameter, 12 in. Not in use. Altitude, 21 ft.

Observations

Bench mark, top of 12-in. tee at ground; altitude, 21.48 ft.

Date	Head (ft.)	Chloride (p.p.m.)	Date	Head (ft.)	Chloride (p.p.m.)	Date	Head (ft.)	Chloride (p.p.m.)
Jan. 10, 1928	25.63	390	Aug. 7, 1930	21.08	235	June 6, 1931	21.23	297
Aug. 16	21.63	330	Feb. 3, 1931	22.59	251	Aug. 15	20.06	840
Apr. 2, 1929	22.24	330	Mar. 7	21.85	267	Oct. 1	20.81	268
Nov. 20	21.78	411	Apr. 3	21.85	261	Dec. 23	21.42	417

220 (old 135). About 150 ft. south of well 219 on Ford Island. Owner, U. S. Navy. Altitude, 21 ft. Diameter, 12 in. Not in use.

Observations

Bench mark, top of 12-in. tee at ground; altitude, 21.02 ft.

Date	Head (ft.)	Chloride (p.p.m.)	Date	Head (ft.)	Chloride (p.p.m.)	Date	Head (ft.)	Chloride (p.p.m.)
Jan. 10, 1928	25.60	390	Feb. 3, 1931	22.56	240	Oct. 1, 1931	20.69	288
Aug. 16	21.63	327	Mar. 7	21.81	240	Dec. 23	21.39	...
Apr. 2, 1929	22.30	330	Apr. 3	21.79	255	Dec. 20, 1933	22.55	...
Nov. 20	21.72	393	June 6	20.90	256			
Aug. 7, 1930	21.07	241	Aug. 15	20.02	304			

Combined records for 219 and 220 (old 134 and 135). Formerly pumping station 11 owned by Oahu Sugar Co.

Date	Chloride (p.p.m.)	Date	Chloride (p.p.m.)	Date	Chloride (p.p.m.)	Date	Chloride (p.p.m.)
July 26, 1899	652	May 2, 1911	382	Aug. 23, 1912	425	Dec. 1, 1913	475
Nov. 22	945	June 1	404	Nov. 15	447	Dec. 15	452
Nov. 25	620	July 5	397	Dec. 1	425	Jan. 1, 1914	468
Feb. 12, 1902	732	Aug. 3	425	Jan. 1, 1913	425	Mar. 5	475
Oct. 14	771	Sept. 7	397	Feb. 1	453	May 1	470
Oct. 14	531	Oct. 7	397	Mar. 1	468	Aug. 27	495
Oct. 12, 1904	624	Nov. 4	414	Mar. 13	400	Sept. 5	403
Oct. 23, 1905	372	Dec. 1	412	May 1	461	Nov. 1	453
Oct. 26	372	Jan. 5, 1912	397	June 1	447	Feb. 1, 1915	521
Oct. 22, 1908	382	Feb. 8	390	July 1	461	Mar. 3	475
May 10, 1909	393	Mar. 1	341	Aug. 1	482	Apr. 1	495
Nov. 8	485	Apr. 1	410	Sept. 1	482	May 1	492
Jan. 5, 1911	397	Apr. 15	410	Oct. 1	495	June 1	503
Apr. 11	412	June 1	425	Nov. 1	482	July 1	500

Observations—Well 220 (Continued)

Date	Chloride (p.p.m.)	Date	Chloride (p.p.m.)	Date	Chloride (p.p.m.)	Date	Chloride (p.p.m.)
Aug. 9, 1915	508	Apr. 6, 1916	453	Nov. 8, 1916	468	June 1, 1917	453
Sept. 4	520	June 1	422	Dec. 6	488	Aug. 3	521
Oct. 6	518	July 1	443	Jan. 6, 1917	440	Sept. 6	475
Nov. 1	518	Aug. 5	460	Apr. 22	482	Oct. 6	482
Dec. 1	400	Sept. 6	478	May 4	432	Nov. 16	475

221 to 223 (old 136, 137, 138). 221, about 400 ft. southwest of 220 on Ford Island; 222, about 200 ft. south of 221; 223, under wind direction indicator on flying field at Ford Island. Owner, U. S. Army. Altitude, 221 and 222, about 18 ft.; 223, about 20 ft. Diameter, 12 in. Not in use.

Observations

Composite samples from 3 wells.

Date	Chloride (p.p.m.)	Date	Chloride (p.p.m.)	Date	Chloride (p.p.m.)	Date	Chloride (p.p.m.)
Apr. 3, 1900	142	July 14, 1902	198	Oct. 25, 1905	294	Nov. 8, 1909	401
Apr. 16	148	Oct. 14	209	Mar. 7, 1906	216	Oct. 12, 1910	394
May 21	148	Oct. 16, 1904	216	Oct. 22, 1908	365	Mar. 10, 1911	347
May 22	148	May 10, 1905	212	Dec. 9	372		
Oct. 9, 1901	156	Oct. 23	260	May 10, 1909	372		

224 (old 139). Near the Army fire station at Luke Field. Owner, U. S. Army. Altitude, about 12 ft. Diameter, 8 in. Not in use.

Observations

Date	Chloride (p.p.m.)	Date	Chloride (p.p.m.)	Date	Chloride (p.p.m.)	Date	Chloride (p.p.m.)
Sept. 10, 1905	1,020	Dec. 1, 1910	1,180	Aug. 3, 1911	751	Mar. 1, 1912	369
Feb. 28, 1906	1,040	Mar. 16, 1911	372	Oct. 7	868	Apr. 1	410
May 16	1,010	Apr. 11	1,030	Nov. 4	840	Apr. 15	354
Apr. 4, 1907	784	May 2	340	Dec. 1	595	June 1	410
Nov. 8, 1909	346	June 1	334	Jan. 5, 1912	326	Mar. 15, 1913	355
Oct. 19, 1910	1,170	July 5	1,070	Feb. 8	340		

225 (old 227). On southeast side of salt works in Puuloa near Fort Weaver. Owner, Herbert Dowsott. Altitude, about 5 ft. Diameter, 12 in. Used for making salt. Chlorine (p.p.m.), Mar. 17, 1950, 14,050.

226 (old 204). At end of flume on Waipio Peninsula 200 yards south of camp opposite Ford Island. Owner, Oahu Sugar Co. Altitude, 15 ft. Use, domestic. Head (ft.), Jan. 21, 1931, 22.18; Feb. 7, 1932, 22.48. Chloride (p.p.m.), Mar. 18, 1930, 1,150. Bench mark, top of westerly head on tee on well 1½ ft. above ground; altitude, 16.82 ft.

227 (old 203). In sugar cane field on Waipio Peninsula 150 yd. south of camp opposite Ford Island. Owner, Oahu Sugar Co. Altitude, 15 ft. Not in use.

228 (old 202). On Waipio Peninsula on north shore of Hanaloa fish pond. Owner, John H. estate. Altitude, 4 ft. Diameter, 12 in. Use, fish pond. Head (ft.), Jan. 21, 1931, 20.12; Feb. 7, 1932, 20.53. Chloride (p.p.m.), 1910, 748; Mar. 18, 1930, 2,340. Bench mark, top of blind flange at ¾-in. top, 3 ft. above ground; altitude, 4.75 ft.

230 (old 201). On Waipio Peninsula at road intersection about midway between Eu and Hanalea fish ponds. Owner, Oahu Sugar Co. Altitude, 17 ft. Use, irrigation. Chloride (p.p.m.), 1910, 896; Mar. 18, 1930, 1,920.

231 (old 200). On Waipio Peninsula 700 yd. south and 800 yd. east of Waipahu R. R. station. Owner, John H. estate. Altitude, about 10 ft. Diameter, 12 in. Use, domestic. Chloride (p.p.m.), 1910, 892; Mar. 18, 1930, 1,315.

232 and 233 (old 199 and 199-1). 800 yd. south of Waipahu R. R. station. Altitude, about 20 ft. Not in use. Chloride (p.p.m.), Mar. 18, 1930, 2,000. Bench mark, top of concrete foundation under corner of rice mill nearest well, at ground; altitude, 9.40 ft.

234 (old 198). Near rice mill about 800 yd. south of Waipahu R. R. station. Altitude, about 20 ft. Use, fish pond.

235 (old 188). Near Waipio station in pump house near entrance to John H. country estate or near Waipio experiment station. Owner, John H. estate. Drilled, 1899. Altitude, about 30 ft. Depth, 510 ft. Diameter, 8 in. Not in use. Chloride (p.p.m.), 1910, 708.

236 (old 188-1). In sugar cane field at west edge of Waipahu rice fields and about 1,000 yd. south of highway. Owner, John H. estate. Altitude, about 14 ft. Depth, 850 ft. Diameter, 8 in. Not in use. Chloride (p.p.m.), 1910, 460. Bench mark, top of casing on well 6 ft. above ground; altitude, 20.07 ft.

237 (old 189). At end of small flume on east edge of Waipahu rice fields and about 800 yd. south of highway. Owner, John H. estate. Altitude, 10 ft. Use, irrigation. Chloride (p.p.m.), Mar. 18, 1930, 870. Bench mark, top of vertical flange on valve 2 ft. above ground; altitude, 12.30 ft.

238 (old 100). Near August Ahrens school about 150 yd. south of highway. Owner, John H. estate. Altitude, about 15 ft. Diameter, 12 in. Use, irrigation. Chloride (p.p.m.), 1910, 200; Mar. 18, 1930, 210.

239A to N (old 187A to N). Pumps 6 and 6B in Waiawa Gulch about 1 mile northeast of Ewa Junction. Owner, Oahu Sugar Co. Altitude, 40 ft. Depth, A, 704 ft.; B, 582 ft.; C, 739 ft.; D, 706 ft.; E, 600 ft.; F, 700 ft.; G, 590 ft.; H, 577 ft.; I, 707 ft.; J, 700 ft.; M, 700 ft.; N, 700 ft. Diameter, 12 in. Use, irrigation.

Observations

Bench mark, 25-ft. mark on water level gauge, 17 ft. below ground; altitude, 24.06 ft.

Date	Chloride (p.p.m.)		Date	Chloride (p.p.m.)	
	Pump 6	Pump 6B		Pump 6	Pump 6B
Oct. 24, 1898	46	...	Apr. 6, 1906	323	448
Oct. 12, 1903	133	...	June 15, 1906	422	462
Sept. 24, 1903	157	...	Sept. 5	506	488
Oct. 10, 1904	174	...	Oct. 28	508	500
Oct. 13, 1905	251	...	Mar. 20, 1907	138	...
Dec. 1	212	...	Apr. 14	315	340
			May 26, 1907	397	429
			Feb. 21	492	500
			Apr. 25, 1908	291	218
			June 22	450	440
			Oct. 21	532	532

Observations—Well 239 (Continued)

Date	Chloride (p.p.m.)		Date	Chloride (p.p.m.)	
	Pump 6	Pump 6B		Pump 6	Pump 6B
Nov. 4, 1908	303	...	June 15, 1913	284	354
Dec. 9	520	550	July 15	313	549
July 30, 1909	506	542	Aug. 15	677	640
Oct. 27	514	642	Sept. 15	400	...
Feb. 7, 1910	344	379	Oct. 15	247	862
July 7	571	620	Nov. 15	251	...
Aug. 23	653	631	Dec. 15	348	294
Sept. 15	625	658	Jan. .. 1914	334	297
Oct. 15	615	652	Feb. ..	304	269
Nov. 15	550	578	Mar. ..	173	231
Dec. 15	631	631	Apr. ..	269	262
Jan. 15, 1911	390	401	May ..	223	297
Apr. 16	450	472	June ..	173	226
June 15	550	530	Aug. ..	254	344
Aug. 15	596	570	Sept. ..	251	337
Sept. 18	613	575	Oct. ..	244	322
Dec. 15	652	609	Nov. 15	387	415
Jan. 15, 1912	493	492	Jan. .. 1913	262	340
Feb. 16	598	551	Feb. ..	209	400
Mar. 15	325	503	Mar. ..	304	435
Apr. 15	713	581	Apr. ..	301	418
May 18	666	628	May ..	248	337
June 15	600	536	June ..	309	434
July 15	691	649	July ..	234	...
Aug. 15	699	616	Aug. ..	239	372
Sept. 15	688	663	Sept. ..	312	440
Oct. 15	716	699	Oct. ..	394	436
Nov. 15	623	588	Nov. ..	215	...
Dec. 15	500	...	Mar. .. 1916	163	...
Feb. 15, 1913	645	656	Apr. ..	163	216
Mar. 15	700	699	May ..	184	226
Apr. 15	700	656	June ..	163	213

Observations—Well 239 (Continued)—with head record

Date	Head (ft.)	Chloride (p.p.m.)		Date	Head (ft.)	Chloride (p.p.m.)	
		Pump 6	Pump 6B			Pump 6	Pump 6B
Feb. .. 1926	...	206	...	Sept. .. 1929	21.0	352	536
Apr. ..	...	245	...	Oct. ..	21.3	367	546
May ..	...	320	...	Nov. ..	22.9	369	582
June ..	...	328	...	Dec. ..	23.8	...	...
July ..	...	340	...	Jan. .. 1930	26.4	...	...
Aug. ..	...	372	...	Feb. ..	25.9	...	...
Oct. ..	...	387	...	Mar. ..	25.5	...	...
Nov. ..	...	392	...	Apr. ..	25.8	...	...
Dec. ..	...	392	...	May ..	...	156	170
Jan. .. 1927	23.0	228	...	June ..	21.9	226	312
Feb. ..	19.5	297	...	July ..	23.4	238	340
March ..	22.0	228	...	Aug. ..	23.2	281	395
April ..	22.0	253	...	Sept. ..	23.2	...	...
May ..	20.1	291	...	Oct. ..	25.5	...	...
June ..	27.7	313	476	Nov. ..	25.4	...	...
July .. 1928	27.8	...	...	Dec. ..	25.8	...	...
Aug. ..	27.5	144	...	Jan. .. 1931	25.7	...	...
Sept. ..	26.7	172	...	Feb. ..	25.0	203	278
Oct. ..	26.1	163	...	Mar. ..	24.2	242	352
Nov. ..	26.5	159	205	Apr. ..	23.5	271	398
Dec. ..	25.0	207	280	May ..	23.3	299	457
Jan. .. 1929	23.9	259	332	June ..	22.6	329	478
Feb. ..	23.9	303	383	July ..	21.9	332	503
March ..	24.1	397	428	Aug. ..	22.6	319	531
April ..	24.0	...	...	Sept. ..	23.0	...	...
May ..	25.0	...	...	Nov. ..	23.0	...	...
June ..	25.0	160	160	Dec. ..	23.2	...	...
July ..	25.2	177	231	Jan. .. 1932	23.6	...	...
Aug. ..	23.9	206	248	Feb. ..	24.7	...	...
Sept. ..	22.8	223	355	Mar. ..	27.1	...	...
Oct. ..	22.8	274	395	Apr. ..	26.9	193	...
Nov. ..	22.0	299	453	May ..	26.2	136	173
Dec. ..	22.0	299	453	June ..	26.9	...	...
				July ..	26.0	184	239

RECORDS OF DRILLED WELLS ON OAHU

Observations—Well 244 (Continued)

Date	Head (ft.)	Chloride (p.p.m.)	Date	Head (ft.)	Chloride (p.p.m.)	Date	Head (ft.)	Chloride (p.p.m.)
May 22, 1929	19.67	151	Apr. 28, 1931	19.22	138	Mar. 15, 1933	25.30	133
June 26	19.17	150	May 29	21.39	137	Apr. 18	22.97	143
Aug. 6	18.57	147	June 25	19.37	136	Apr. 26	22.23	132
Aug. 27	18.77	146	Aug. 5	19.82	136	June 16	21.83	136
Sept. 25	18.27	148	Aug. 25	19.70	135	July 24	21.05	139
Oct. 23	18.84	169	Oct. 6	19.05	135	Aug. 15	20.71	135
Nov. 26	21.57	146	Oct. 26	20.47	134	Sept. 20	20.18	135
Dec. 24	22.77	146	Dec. 17	21.37	136	Oct. 18	19.90	138
Jan. 29, 1930	24.17	140	Jan. 14, 1932	20.17	135	Nov. 10	19.88	134
Feb. 27	23.37	145	Feb. 7	22.50	...	Dec. 19	19.47	132
Mar. 25	23.47	146	Feb. 18	23.55	135	Jan. 25, 1934	21.71	133
Apr. 30	20.07	145	Mar. 17	20.19	139	Feb. 27	22.97	133
May 27	20.87	144	Apr. 15	22.75	135	Mar. 20	21.55	135
June 30	20.89	143	May 17	20.57	134	May 1	20.74	134
July 29	19.87	142	June 16	22.62	135	May 16	20.48	136
Aug. 26	20.92	139	July 15	21.82	133	June 16	20.29	136
Sept. 24	23.07	137	Aug. 12	21.97	131	July 12	18.72	136
Nov. 5	22.45	137	Sept. 15	22.00	130	Aug. 15	18.39	134
Dec. 5	23.27	140	Oct. 18	21.46	130	Sept. 12	19.44	140
Dec. 30	23.32	138	Nov. 14	22.56	132	Oct. 16	19.89	140
Jan. 27, 1931	22.67	137	Dec. 15	23.32	132	Nov. 22	19.90	140
Feb. 26	21.47	138	Jan. 25, 1933	23.18	131	Dec. 20	21.85	142
Mar. 26	20.57	137	Feb. 15	23.27	132			

245 (old 105). At Waipahu about 75 yd. west of well 244. Owner, S. Kate. Altitude, about 14 ft. Use, domestic. Head (ft.), Jan. 23, 1931, 22.07. Chloride (p.p.m.), Mar. 18, 1930, 140. Bench mark, top of cross-union, at ground; altitude, 13.77 ft.

246A to H (old 196A to H). Pump 7 at the sugar mill in Waipahu. Owner, Oahu Sugar Co. Drilled, A to C, about 1900; D to F, 1917; G and H, 1924. Altitude, about 60 ft. Depth, A to C, unknown; D and E, 400 ft.; F, 402 ft.; G, 412 ft.; H, 450 ft. Diameter, A to H, 12 in. Depth to top of aquifer, D, 92 ft.; E, 102 ft.; F, 128 ft.; G, 98 ft.; H, 92 ft. Use, irrigation and industrial. Casing, D, 92 ft.; E, 102 ft.; F, 128 ft.; G, 98 ft.; H, 92 ft.

Logs

Well D	Depth (ft.)	Well F	Depth (ft.)	Well H	Depth (ft.)
Clay (Pa with probably some Tbk at bottom)	0-92	Clay (Pa with probably some Tbk at bottom)	0-128	Clay (Pa with probably some Tbk at bottom)	0-92
Bed rock (Tbk).....	92-400	Bed rock (Tbk).....	128-402	Bed rock (Tbk).....	92-430
Well G		Well G			
Clay (Pa with probably some Tbk at bottom)	0-102	Clay (Pa with probably some Tbk at bottom)	0-98		
Bed rock (Tbk).....	102-400	Bed rock (Tbk).....	98-412		

Observations

Date	Chloride (p.p.m.)	Date	Chloride (p.p.m.)	Date	Chloride (p.p.m.)
Nov. 25, 1899	126	June 15, 1911	206	Dec. 15, 1912	181
Apr. 14, 1907	251	June 15, 1911	195	Jan. 25, 1913	181
June 22, 1908	255	Sept. 18	191	Feb. 15	188
Oct. 21	239	May 15	188	Apr. 15	184
Oct. 27, 1909	231	Jan. 15, 1912	184	Apr. 15	188
Feb. 7, 1910	237	Feb. 16	191	June 15	199
Aug. 27	209	Mar. 5	194	July 15	191
Sept. 15	216	Apr. 15	188	Aug. 15	184
Oct. 15	216	May 15	181	Sept. 15	186
Nov. 15	209	June 15	191	Oct. 15	186
Dec. 15	205	July 15	184	Nov. 15	191
Mar. 15, 1911	206	Aug. 15	184	Dec. 15	194
Apr. 15	202	Oct. 16	198	Jan. 15, 1914	194
May 16	209	Nov. 16	198	Feb. 15	189

RECORDS OF DRILLED WELLS ON OAHU

Observations—Well 246 (Continued)

Date	Chloride (p.p.m.)	Date	Chloride (p.p.m.)	Date	Chloride (p.p.m.)
June .. 1915	177	Dec. .. 1918	166	July .. 1916	177
	181	Mar. .. 1916	174	Aug. .. 1917	174
	189	Apr. .. 1917	170	Sept. .. 1917	177
	184	Oct. .. 1917	184	Oct. .. 1917	170
	188	June ..	177	Nov. ..	141

247A to J (old 205A to J). Pumping station 1 in Waikole Gulch, about 75 mile north of main highway. Owner, Oahu Sugar Co. Altitude, about 40 ft. Diameter, 12 in. Use, irrigation.

Observations

Date	Chloride (p.p.m.)	Date	Chloride (p.p.m.)	Date	Chloride (p.p.m.)
Oct. 24, 1898	88	Apr. .. 1912	106	May 2, 1916	99
Dec. 12	78	May ..	113	June 2	85
Oct. 10, 1901	84	June ..	116	July 2	106
Nov. 25	183	July ..	113	Aug. 2	141
Oct. 12, 1902	295	Sept. ..	117	Sept. 1	196
Sept. 24, 1903	242	Oct. ..	117	Oct. 2	113
July 14, 1905	192	Nov. ..	117	Nov. 2	85
Oct. 19, 1906	194	Dec. ..	116	Dec. 2	139
Nov. 28	183	Jan. ..	116	Jan. 2, 1917	91
Dec. 1	183	Feb. .. 1913	103	Feb. 2	120
Jan. 16, 1906	159	Mar. ..	110	Mar. 2	113
Feb. 5	159	Apr. ..	110	Apr. 2	106
Oct. 28	169	May ..	108	May 2	106
Mar. 20, 1907	131	June ..	98	June 2	143
Apr. 14	136	July ..	110	July 2	138
May 26	145	Aug. ..	112	Aug. 2, 1918	104
Nov. 1	109	Sept. ..	128	Mar. 2, 1919	104
Feb. 27, 1908	135	Oct. ..	128	Apr. 2, 1920	120
Apr. 25	131	Nov. ..	99	May 2	120
May 22	128	Dec. ..	99	June 2	136
Aug. 21	128	Jan. ..	100	July 2	136
Dec. 9	135	Feb. ..	100	Aug. 2	128
Jan. 20, 1909	120	Mar. ..	100	Sept. 2	128
Feb. 7, 1910	124	Apr. ..	117	Oct. 2	128
Mar. 7	113	May ..	124	Nov. 2	113
Apr. 23	113	June ..	110	Dec. 2	113
May 15	124	July ..	110	Jan. 2, 1921	113
Oct. 15	116	Aug. ..	103	Feb. 2	134
Nov. 15	128	Sept. ..	110	Mar. 2	137
Apr. 15, 1911	131	Oct. ..	103	Apr. 2	137
May 15	146	Nov. ..	103	May 2	137
Apr. 16	106	Dec. ..	103	June 2	134
June 15	124	Jan. .. 1915	122	July 2	137
Aug. 15	124	Feb. ..	122	Aug. 2	137
Sept. 18	116	Mar. ..	120	Sept. 2	137
Dec. 15	110	Apr. ..	119	Oct. 2	134
Feb. .. 1912	109	May ..	119	Nov. 2	135
Mar. .. 1912	116	June ..	116	Dec. 2	109
		July ..	116	Jan. 2, 1923	120
		Aug. ..	116	Feb. 2	109
		Sept. ..	116	Mar. 2	109
		Oct. ..	116	Apr. 2	109
		Nov. ..	116	May 2	109
		Dec. ..	116	June 2	109

* Head 20.3 ft.

Observations—Well 247 (Continued)—with head record

Date	Head (ft.)	Chloride (p.p.m.)	Date	Head (ft.)	Chloride (p.p.m.)
May .. 1927	...	99	June .. 1928	22.6	106
June ..	...	115	July ..	22.8	100
July ..	...	219	Aug. ..	21.9	106
Aug. ..	...	113	Sept. ..	20.9	99
Sept. ..	...	111	Oct. ..	20.3	109
Oct. ..	...	116	Nov. ..	22.8	116
Nov. ..	...	27.8	Dec. ..	23.7	...
Dec. .. 1928	26.9	...	Jan. .. 1929	23.7	107
Jan. .. 1929	24.5	91	Feb. ..	24.2	109
Mar. ..	24.9	95	Mar. ..	23.5	106
Apr. ..	24.5	91	Apr. ..	24.5	107
May ..	24.5	91	May ..	20.4	113

Observations—Well 247 (Continued)

Table with columns: Date, Head (ft.), Chloride (p.p.m.), Date, Head (ft.), Chloride (p.p.m.), Date, Head (ft.), Chloride (p.p.m.). Rows include dates from 1930 to 1932 and various head and chloride measurements.

248A to J (old 206A to J). Pumping station 4 in Waikole Gulch, about .75 mile north of highway. Owner, Oahu Sugar Co. Altitude, about 35 ft. Depth, D to J, 500 ft. Diameter, 12 in. Use, irrigation.

Observations

Table with columns: Date, Chloride (p.p.m.), Date, Chloride (p.p.m.), Date, Chloride (p.p.m.), Date, Chloride (p.p.m.). Rows include dates from 1901 to 1932 and various chloride measurements.

Observations—Well 248 (Continued)

Table with columns: Date, Chloride (p.p.m.), Date, Chloride (p.p.m.), Date, Chloride (p.p.m.), Date, Chloride (p.p.m.). Rows include dates from 1924 to 1927 and various head and chloride measurements.

* Head 20.1 ft.

Observations—Well 248 (Continued) with head record

Table with columns: Date, Head (ft.), Chloride (p.p.m.), Date, Head (ft.), Chloride (p.p.m.), Date, Head (ft.), Chloride (p.p.m.). Rows include dates from 1928 to 1930 and various head and chloride measurements.

Observations—Well 248 (Continued) with pump 4B record

Table with columns: Date, Head (ft.), Chloride (p.p.m.), Date, Head (ft.), Chloride (p.p.m.), Date, Head (ft.), Chloride (p.p.m.). Rows include dates from 1933 to 1934 and various head and chloride measurements.

251 (old 212). About 1 mile south of Oahu Railway and Land quarry, Waikalanui Gulch. Owner, Oahu Railway and Land Co. Altitude, about 243 ft. Not in use. Head (ft.), Aug. 16, 1926, 19.93; Sept. 15, 1930, 23.16; Dec. 15, 1930, 23.86. Bench mark, top of iron base of pump at ground; altitude, 243.06 ft., and top of concrete at well, at ground; altitude, 249.40 ft.

252 (old 208). At Waipahu, about 200 yd. southeast of Waipahu School. Altitude, about 18 ft. Diameter, 10 in. Use, irrigation. Chloride (p.p.m.), 1910, 270; Mar. 18, 1930, 910.

253 (old 197). In truck garden 700 yd. west of Waipahu R. R. station. Owner, James Robinson estate. Drilled, 1898. Altitude, about 15 ft. Diameter, 10 in. Use, irrigation and domestic. Chloride (p.p.m.), 1010, 830; Mar. 10, 1930, 300.

254A and B (old 209A and B). Apokaa pump about 700 yd. east of Honoaia R. R. station and 100 yd. north of tracks. Owner, Ewa Plantation Co. Drilled, B, 1923, by McCandless Bros. Altitude, about 10 ft. Depth, A, 175 ft.; B, 154 ft. Diameter, A, 10 in.; B, 12 in. Depth to top of aquifer, B, about 55 ft. Casing, 60 ft. Use, irrigation.

Log

	Depth (ft.)	Log	Depth (ft.)	Depth (ft.)
Well B		Water rock, poor		135-145
Brown clay (Fa).....	0-40	(Tbk).....	55-110	Hard blue rock (Tbk)
Red clay (Pa or Tbk)	40-50	Hard blue rock (Tbk)	110-115	Hard blue rock (Tbk)
Dark clay and gravel (Fa or Tbk).....	50-55	Water rock (Tbk).....	115-135	150-154

Observations

Date	Head (ft.)	Chloride (p.p.m.)	Date	Head (ft.)	Chloride (p.p.m.)	Date	Head (ft.)	Chloride (p.p.m.)
Aug. 1905	204	Mar. 1926	.....	201	Dec. 1928	23.5	194
Oct. 1907	264	Apr.	214	Jan. 1929	.....	22.2	205
Feb. 1909	228	May	212	Feb. ....	.....	22.8	198
Oct.	279	June	208	Mar. ....	.....	23.6	195
Sept. 1910	280	July	215	Apr. ....	.....	21.1	216
Nov.	287	Aug.	218	May ....	.....	20.4	204
Aug. 1912	286	Sept.	218	June ....	.....	18.7	204
Oct. 1913	293	Oct.	215	July ....	.....	19.9	204
Oct. 1914	284	Nov.	215	Aug. ....	.....	.....	210
Aug. 1915	307	Dec.	213	Sept. ....	.....	18.7	215
Feb. 1916	279	.....	210	.....	.....	19.6	211
Mar.	272	.....	210	.....	.....	21.9	200
June	279	.....	20.7	.....	.....	22.7	204
Dec.	271	.....	20.7	.....	.....	24.0	.....
June 1917	251	.....	212	.....	.....	23.8	195
Nov.	267	.....	210	.....	.....	23.2	173
May 1918	203	.....	214	.....	.....	22.1	169
Oct. 1919	264	.....	218	.....	.....	21.5	178
Jan. 1920	269	.....	220	.....	.....	19.6	186
Oct.	262	.....	220	.....	.....	20.7	188
May 1921	235	.....	21.1	.....	.....	.....	192
Nov.	239	.....	24.1	.....	.....	.....	194
June 1922	263	.....	25.7	.....	.....	.....	182
Dec.	267	.....	24.1	.....	.....	.....	188
May 1923	219	.....	208	.....	.....	.....	196
Dec.	247	.....	23.9	.....	.....	.....	188
May 1924	227	.....	212	.....	.....	.....	202
Oct.	227	.....	21.8	.....	.....	.....	184
Aug. 1925	219	.....	22.1	.....	.....	.....	180
Sept.	222	.....	22.2	.....	.....	.....	191
Nov.	207	.....	22.0	.....	.....	.....	195
Dec.	226	.....	20.4	.....	.....	.....	193
Feb. 1926	206	.....	22.1	.....	.....	.....	192

Observations—Well 254 (Continued)

Date	Head (ft.)	Chloride (p.p.m.)	Date	Head (ft.)	Chloride (p.p.m.)	Date	Head (ft.)	Chloride (p.p.m.)
Sept. 1931	19.7	193	Nov. 1932	22.9	168	Jan. 1934	22.82	157
Oct.	20.7	200	Dec.	22.6	173	Feb.	22.90	154
Nov.	20.5	188	Jan. 1933	23.56	170	Mar.	21.85	155
Dec.	21.1	174	Feb.	24.39	139	Apr.	20.27	164
Jan. 1932	21.0	176	Mar.	24.71	164	May	20.58	165
Feb.	23.0	168	Apr.	23.77	178	June	20.10	162
Mar.	25.0	168	May	22.41	170	July	19.54	165
Apr.	23.7	174	June	21.75	178	Aug.	18.28	165
May	23.7	179	July	21.74	171	Sept.	19.71	155
June	22.6	175	Aug.	20.66	173	Oct.	19.53	169
July	22.4	175	Sept.	20.39	174	Nov.	20.16	166
Aug.	22.0	175	Oct.	19.90	173	Dec.	21.93	156
Sept.	22.0	170	Nov.	20.27	167			
Oct.	21.9	166	Dec.	21.36	162			

255 (old 210). About 200 yd. north of Honoaia R. R. station. Owner, Mary E. Foster. Altitude, about 20 ft. Diameter, 12 in. Use, irrigation. Chloride (p.p.m.), Mar. 17, 1930, 135.

256 (old 211). At Honoaia Ranch near Honoaia R. R. station. Owner, James Robinson estate. Altitude, 25 ft. Depth, 436 ft. Diameter, 10 in. Use, domestic. Casing, 400 ft. Chloride (p.p.m.), Mar. 17, 1930, 360. Head (ft.), Jan. 20, 1931, 22.34; Feb. 7, 1932, 22.67. Bench mark, top of casing, 1 ft. above ground; altitude, 26.37 ft.

257A to C (old 214A to C). Pump 2 about 300 yd. southeast of highway where large flame passes over road between Waipahu and Ewa. Owner, Ewa Plantation Co. Drilled, A and B, 1890; C, 1921 by McCandless Bros. Altitude, about 40 ft. Depth, A, 230 ft.; B, 226 ft.; C, 282 ft. Diameter, A and B, 10 in.; C, 12 in. Depth to top of aquifer, C, about 65 ft. Casing, A and B, 50 ft.; C, 62 ft.

Log

	Depth (ft.)	Log	Depth (ft.)	Depth (ft.)
Well C		Blue rock, no water		Blue rock, no water
Red clay (Fa).....	0-25	(Tbk).....	85-100	(Tbk).....
Gravel and boulders (Pa).....	25-35	Hard blue rock (Tbk)	100-110	Hard blue rock (Tbk)
Gravel and boulders (Pa).....	35-50	Red water rock (Tbk)	110-120	Blue water rock
Hard blue rock (Tbk)	50-60	Blue rock, some water	.....	(Tbk).....
Blue water rock	60-65	Hard blue rock (Tbk)	120-145	Hard blue rock (Tbk)
Hard blue rock (Tbk)	65-76	Blue rock, no water	145-160	Blue rock, no water
Hard blue rock (Tbk)	75-85	Blue rock, some water	160-195	Hard blue rock (Tbk)
		(Tbk).....	195-200	Blue water rock
				(Tbk).....

Observations

Date	Head (ft.)	Chloride (p.p.m.)	Date	Head (ft.)	Chloride (p.p.m.)	Date	Head (ft.)	Chloride (p.p.m.)
Aug. 1905	.....	218	Sept. 1911	16.4	302	Oct. 1913	.....	300
Oct. 1907	.....	268	Dec.	19.8	...	Nov.	17.3	...
Dec. 1908	.....	271	Jan. 1912	20.5	...	Jan. 1914	17.8	...
Feb. 1909	.....	260	Feb.	19.5	...	Feb.	18.2	...
June 1910	23.1	...	July	16.0	...	Apr.	17.9	...
Sept.	20.4	294	Aug.	302	...	July	18.3	...
Nov.	19.4	...	Sept.	19.2	...	Sept.	17.4	...
Jan. 1911	22.0	...	Oct.	21.1	...	Oct. ....	.....	292
Feb.	22.2	...	Nov.	16.5	...	Nov.	17.9	...
Mar.	22.8	...	Dec.	16.0	...	Dec.	21.2	...
July	18.5	...	Jan. 1913	17.8	...	Jan. 1915	20.9	...
			Feb.	16.8	...	Feb.	18.5	...

RECORDS OF DRILLED WELLS ON OAHU

Observations—Well 263 (Continued)

Date	Head (ft.)	Chloride (p.p.m.)	Date	Head (ft.)	Chloride (p.p.m.)	Date	Head (ft.)	Chloride (p.p.m.)
May, 1924	308		July, 1920	30.9	322	Oct., 1951	20.0	287
Dec.	308		Nov.	23.6	320	Nov.	21.0	287
Jan., 1925	23.4		Sept.	19.6	330	Dec.	20.1	287
Mar.	19.8		Nov.	19.5	322	Jan., 1932	23.3	281
Aug.	22.7		Feb.	21.7	312	May	25.9	308
Sept.	303		Dec.	23.3	313	Mar.	25.9	308
Nov.	18.8		Jan.	22.7	303	Apr.	25.5	275
Dec.	21.7		Feb.	22.7	307	May	25.4	249
Jan., 1926	22.0		Mar.	23.2	307	June	23.6	278
Feb.	18.6		Apr.	23.0	299	July	23.5	274
Mar.	18.6		May	23.3	303	Aug.	23.6	274
Apr.	19.0		June	23.8	298	Sept.	21.9	278
May			July	19.0	298	Oct.	21.6	250
June			Aug.	20.7	297	Nov.	21.6	250
July			Sept.	21.8	320	Dec.	23.0	274
Aug.			Oct.	19.8	313	Jan., 1933	23.21	263
Sept.			Nov.	21.3	308	Feb.	23.88	226
Oct.			Dec.	22.6	297	Mar.	24.41	237
Nov.			Jan., 1930	24.2	305	Apr.	23.53	268
Dec.			Feb.	24.6	285	May	25.59	268
Jan., 1927			Mar.	25.2	278	June	25.61	260
Feb.			Apr.	26.7	287	July	25.60	260
Mar.	21.4		May	27.8	288	Aug.	25.60	260
Apr.	22.0		June	27.8	288	Sept.	19.52	267
May	30.8		July	28.1	283	Oct.	19.54	268
June			Aug.	28.1	283	Nov.	22.59	237
July			Sept.	28.2	291	Dec.	23.02	250
Aug.			Oct.	28.2	271	Jan., 1934	23.01	222
Sept.			Nov.	22.7	286	Feb.	23.01	222
Oct.			Dec.	22.8	290	Mar.	21.39	251
Nov.			Jan., 1931	22.5	277	Apr.	26.9	268
Dec.			Feb.	26.6	283	May	25.4	268
Jan., 1928			Mar.	29.3	291	June	26.8	268
Feb.			Apr.	21.9	277	July	26.8	268
Mar.	23.4		May	21.3	278	Aug.	26.8	268
Apr.	31.3		June	28.0	281	Sept.	19.46	277
May			July	28.7	287	Oct.	19.46	277
June			Aug.	28.7	287	Nov.	23.30	253
July			Sept.	29.0	290	Dec.	22.11	219

264A to T (old 231A to T). Pumping stations 3 and 4 near plantation road and about 400 yd. south of main gate to Ewa Plantation. Owner, Ewa Plantation Co. Drilled, A, 1890; B to L, 1891; M to P, 1892; Q to T, 1921. Altitude, 44 ft. Depth, A, 332 ft.; B, 326 ft.; C, 369 ft.; D, 407 ft.; E, F, and G, 410 ft.; H, 413 ft.; I, 433 ft.; J, 432 ft.; K, 436 ft.; L, 430 ft.; M, 441 ft.; N, 435 ft.; O, 441 ft.; P, 443 ft.; Q, 415 ft.; R, 419 ft.; S, 425 ft.; T, 420 ft. Diameter, A to L, 10 in.; M to T, 12 in. Depth to top of aquifer, D, 250 ft.; E, 240 ft.; M, 376 ft.; N, 365 ft.; O, 381 ft.; P, 355 ft.; Q, 380 ft.; R, 385 ft.; T, 265 ft. Use, irrigation. Casing, D, 208 ft.; E, 214 ft.; M, 218 ft.; N and P, 223 ft.; O and Q, 212 ft.; R, 222 ft.; S, 217 ft.; T, 240 ft.

Logs

Depth (ft.)	Description	Depth (ft.)	Description	Depth (ft.)	Description
	Well D				
	Red rock (Pa and probably some Tkb at bottom)		Very hard black lava (Tkb)		at bottom
	Hard black lava (Tkb)	335-341	Soft black lava water (Tkb)	341-355	Hard lava (Tkb)
	Soft red lava (Tkb)	208-220	Hard black lava (Tkb)	355-361	Soft lava, water (Tkb)
	Hard grey lava (Tkb)	220-231	Soft black lava, water (Tkb)	361-370	Hard lava (Tkb)
	Soft black lava, water (Tkb)	231-250	Very hard black lava (Tkb)	370-376	Soft red lava, water (Tkb)
	Very hard black lava (Tkb)	250-267	Soft black lava, water (Tkb)	376-402	Hard black lava (Tkb)
	Soft black lava, water (Tkb)	267-298	Hard black lava, with sediment (Tkb)	402-407	Hard lava (Tkb)
	Hard black lava (Tkb)	298-316	Well E		
	Soft black lava (Tkb)	316-320	Red rock (Pa and probably some Tkb)		

RECORDS OF DRILLED WELLS ON OAHU

Logs—Well 264 (Continued)

Depth (ft.)	Description	Depth (ft.)	Description	Depth (ft.)	Description
	Well M				
	Soil (Pa)	0-95	Hard blue rock (Tkb)	350-360	Red clay (Pa and probably some Tkb at bottom)
	Gravel (Pa)	110-145	Blue water rock (Tkb)	360-420	Blue rock (Tkb)
	Red clay (Pa and probably some Tkb at bottom)	145-210	Blue rock (Tkb)	425-441	Blue rock (Tkb)
	Hard blue rock (Tkb)	220-230	Red clay (Pa)	0-95	Hard blue rock (Tkb)
	Red rock (Tkb)	230-250	Gravel (Pa)	95-125	Red rock (Tkb)
	Red rock (Tkb)	250-305	probably some Tkb at bottom	120-210	Blue water rock (Tkb)
	Red rock (Tkb)	305-325	Hard blue rock (Tkb)	210-220	Clay (Pa and probably some Tkb at bottom)
	Blue rock (Tkb)	325-355	Red rock (Tkb)	220-235	Clay (Pa)
	Hard blue rock (Tkb)	355-360	Blue rock (Tkb)	235-245	Clay (Pa)
	Soft water rock (Tkb)	360-425	Hard blue rock (Tkb)	245-300	ably some Tkb at bottom)
	Red rock (Tkb)	425-435	Red rock (Tkb)	300-315	Blue rock (Tkb)
	Hard blue rock (Tkb)	435-441	Blue rock (Tkb)	315-330	Blue rock (Tkb)
	Well N				
	Soil (Pa)	0-90	Hard blue rock (Tkb)	350-355	Red rock (Tkb)
	Gravel (Pa)	120-150	Blue water rock (Tkb)	355-370	Blue rock (Tkb)
	Red clay (Pa and probably some Tkb at bottom)	150-215	Red rock (Tkb)	370-375	Red rock, some water (Tkb)
	Red rock (Tkb)	225-230	probably some Tkb at bottom	375-420	(Tkb)
	Red rock (Tkb)	230-240	Blue rock (Tkb)	425-442	Red rock, some water (Tkb)
	Hard blue rock (Tkb)	240-300	Blue rock (Tkb)	0-208	Blue water rock (Tkb)
	Red rock (Tkb)	300-320	Red rock (Tkb)	208-240	Well T
	Blue rock (Tkb)	320-355	Blue rock (Tkb)	240-250	Blue clay (Pa)
	Blue water rock (Tkb)	360-420	Blue rock (Tkb)	250-275	Red clay (Pa)
	Red rock (Tkb)	420-435	Red rock (Tkb)	275-295	Gravel (Pa)
	Well O				
	Soil (Pa)	0-90	Red clay (Pa and probably some Tkb at bottom)	90-120	Red clay (Pa)
	Gravel (Pa)	120-140	Blue rock, some water (Tkb)	120-140	Red clay (Pa)
	Red clay (Pa and probably some Tkb at bottom)	140-200	Red clay (Pa and probably some Tkb at bottom)	300-323	Gravel (Pa)
	Red rock (Tkb)	200-210	Blue rock, some water (Tkb)	325-330	Red clay (Pa and probably some Tkb at bottom)
	Blue rock (Tkb)	210-225	Blue rock, some water (Tkb)	330-345	Boulders and gravel (Pa or Tkb)
	Red rock (Tkb)	225-230	Hard blue rock (Tkb)	345-350	Red rock (Tkb)
	Red rock (Tkb)	235-235	Blue rock (Tkb)	350-375	Hard blue rock (Tkb)
	Red rock (Tkb)	245-280	Hard blue rock (Tkb)	375-385	Blue water rock (Tkb)
	Blue rock (Tkb)	260-305	Blue rock (Tkb)	385-395	Hard water rock (Tkb)
	Blue rock (Tkb)	320-350	Well E	395-415	Blue water rock (Tkb)
				415-125	Blue water rock (Tkb)

Observations

Bench mark, brass plate on wall of pit marked 20.87 ft., 20 ft. below ground; altitude, 20.75 ft.

Date	Head (ft.)	Chloride (p.p.m.)	Date	Head (ft.)	Chloride (p.p.m.)	Date	Head (ft.)	Chloride (p.p.m.)
	Pump 3	Pump 4	Pump 3	Pump 4	Pump 3	Pump 4	Pump 3	Pump 4
1903			1908			1912		
May			Apr.	26.5		Jan.	26.5	
1902			Dec.		367	340	Feb.	25.5
Feb.	25.7		July				23.9	
Mar.	25.7		Feb.	25.4		376	341	177
1904			Mar.	25.6		362	341	177
Apr.	31.2		Apr.	25.8		412	360	312
Dec.	31.7		1910			May	23.1	
1905			Jan.	26.0		May	24.7	
Aug.			Feb.	26.0		July	24.0	
Nov.			Apr.	25.5		Sept.	29.4	
1906			Aug.	24.6		Oct.	26.8	
Nov.	17.3		Nov.	24.6		Nov.	24.2	468
1907			1911			1914		
Dec.	23.5		Feb.	27.1		Feb.	24.3	
1908			Mar.	26.6		Mar.	24.3	
Jan.	26.5		Apr.	26.6		Apr.	23.4	
Mar.	27.2		May	25.2		July	24.5	
1909			Sept.	25.1		Sept.	23.4	
Oct.			1912			Oct.	22.2	

Observations—Well 264 (Continued)

Date	Head (ft.)			Date	Head (ft.)			Date	Head (ft.)		
	Pump 1	Pump 2	Pump 3		Pump 1	Pump 2	Pump 3		Pump 1	Pump 2	Pump 3
1914 Nov. 23.7	1929 Jan. 24.3	....	....	....	1900 Jan. 24.4	24.5	....	....
Dec. 26.0	Jan. 408 358	....	....	....	Feb. 24.7	24.7	379 322	....
1915 Jan. 26.3	Dec. 285 223	....	....	....	Mar. 23.5	23.2	392 323	....
Feb. 24.1	Apr. 330	....	....	....	Apr. 23.8	23.4	363 307	....
July 23.2	May 387 354	....	....	....	May 400 317	....	....	....
Aug. 23.2	June 342 308	....	....	....	June 412 368	....	....	....
Nov. 25.1	Aug. 405 395	....	....	....	July 417 380	....	....	....
Dec. 27.4	Sept. 405 397	....	....	....	Aug. 411 387	....	....	....
1916 Jan. 24.6	Oct. 413 401	....	....	....	Sept. 432 408	....	....	....
Feb. 27.0	Nov. 403 384	....	....	....	Oct. 404 355	....	....	....
Mar. 29.1	Dec. 413 401	....	....	....	Nov. 425 383	....	....	....
Apr. 29.7	Jan. 403 384	....	....	....	Dec. 408 359	....	....	....
June 26.5	Feb. 411 396	....	....	....	Jan. 436 400	....	....	....
Sept. 24.8	Mar. 411 396	....	....	....	Mar. 21.8	21.2	430 380	....
Nov. 24.4	Apr. 416 395	....	....	....	Apr. 21.1	21.2	424 383	....
Dec. 27.5	May 451 425	....	....	....	May 22.0	21.7	414 393	....
1917 Jan. 29.1	June 426 410	....	....	....	June 427 397	....	....	....
Feb. 29.4	July 426 410	....	....	....	July 444 410	....	....	....
Mar. 30.5	Aug. 435 413	....	....	....	Aug. 448 417	....	....	....
May 28.3	Sept. 437 423	....	....	....	Sept. 448 417	....	....	....
June 26.9	Oct. 437 423	....	....	....	Oct. 448 417	....	....	....
July 26.9	Nov. 436 395	....	....	....	Nov. 21.5	21.6	417 376	....
Sept. 23.6	Dec. 433 411	....	....	....	1932 Jan. 21.7	21.9	429 386	....
Nov. 25.2	1927 Jan. 432 419	....	....	....	Feb. 23.1	23.5	392 408	....
Dec. 27.2	Feb. 457 419	....	....	....	Mar. 22.8	22.9	394 359	....
1918 Jan. 28.9	Mar. 416 411	....	....	....	Apr. 401 354	....	....	....
Feb. 28.9	Apr. 395 357	....	....	....	May 23.1	23.3	411 370	....
Mar. 29.0	May 430 408	....	....	....	June 22.3	22.1	409 370	....
Apr. 29.6	June 430 417	....	....	....	July 22.6	22.7	407 375	....
May 27.5	July 426 424	....	....	....	Aug. 422 402	....	....	....
July 29.5	Aug. 426 437	....	....	....	Sept. 407 397	....	....	....
Sept. 24.2	Sept. 469 447	....	....	....	Oct. 21.9	21.8	406 378	....
Nov. 24.3	Oct. 478 439	....	....	....	Nov. 23.7	23.8	399 403	....
Dec. 29.0	Nov. 425 400	....	....	....	Dec. 22.8	24.0	408 373	....
1919 Jan. 28.0	Dec. 409 444	....	....	....	1933 Jan. 23.87	23.44	399 349	....
Feb. 21.3	1928 Feb. 26.5	26.5	410 855	....	Feb. 24.2	24.34	321 288	....
July 22.9	Mar. 435 381	....	....	....	Mar. 24.81	24.52	316 255	....
Sept. 22.7	Apr. 24.0	34.2	409 398	....	Apr. 23.84	23.09	403 356	....
Oct. 21.6	May 23.8	410 391	....	....	May 24.9	24.18	387 362	....
Nov. 17.5	June 448 428	....	....	....	June 422 393	....	....	....
Dec. 19.2	July 461 445	....	....	....	July 417 392	....	....	....
1920 Jan. 22.7	Aug. 20.4	19.6	461 445	....	Aug. 416 395	....	....	....
Feb. 24.2	Sept. 482 446	....	....	....	Sept. 416 400	....	....	....
July 20.2	Oct. 457 445	....	....	....	Oct. 412 391	....	....	....
Oct. 21.6	Nov. 453 429	....	....	....	Nov. 415 385	....	....	....
Dec. 24.5	Dec. 449 436	....	....	....	Dec. 23.22	22.45	323 307	....
1921 Jan. 24.0	1934 Jan. 22.0	22.1	426 384	....	Jan. 22.96	22.84	987 959	....
Feb. 25.1	Feb. 440 420	....	....	....	Feb. 23.29	23.27	243 184	....
Mar. 24.3	Mar. 439 407	....	....	....	Mar. 23.1	21.62	350 298	....
Apr. 23.1	Apr. 424 382	....	....	....	Apr. 19.76	....	382 322	....
Nov. 23.4	May 440 420	....	....	....	May 382 325	....	....	....
Dec. 23.2	June 439 407	....	....	....	June 408 387	....	....	....
Jan. 24.8	July 436 408	....	....	....	July 402 395	....	....	....
Feb. 25.2	Aug. 449 428	....	....	....	Aug. 413 400	....	....	....
....	Sept. 454 439	....	....	....	Sept. 432 398	....	....	....
....	Oct. 451 430	....	....	....	Oct. 415 395	....	....	....
....	Nov. 21.8	22.1	447 419	....	Nov. 23.54	23.54	314 254	....
....	Dec. 22.9	23.0	448 378	....	Dec. 22.36	22.57	312 213	....

264-1 (no old map). On Ewa Plantation. Exact location unknown but according to an old map in files of Oahu Railway and Land Co. it is about 1,200 ft. northwest of well 267 and about 350 ft. east of well 264. Abandoned for many years. Thought to have been drilled about 1880 by James Ashley.

265 (old 217). At windmill in Honouliuli about 600 yd. southeast of main gate to Ewa Plantation at north corner of corral at Honouliuli Ranch. Owner, Honouliuli Ranch Co. Altitude, 18 ft. Use, irrigation. Chloride (p.p.m.), 1910, 340; Mar. 17, 1920, 200.

266 (old 218). At north corner of corral at Honouliuli Ranch. Owner, Honouliuli Ranch Co. Altitude, 13 ft. Diameter, 12 in. Use, irrigation.

Date	Head (ft.)			Date	Head (ft.)			Date	Head (ft.)		
	Pump 1	Pump 2	Pump 3		Pump 1	Pump 2	Pump 3		Pump 1	Pump 2	Pump 3
Apr. ... 1910	19.77	280	...	Jan. ... 1916	28.91	300	...	Dec. 2, 1924	19.38	321	...
May ...	19.67	...	...	Mar. ...	28.81	304	...	Jan. 22, 1925	22.26	216	...
Nov ...	13.07	...	...	Apr. ...	30.06	304	...	Feb. 28	19.48	...	...
Sept. ...	20.67	...	...	May ...	24.71	304	...	Mar. 5	19.66	225	...
Oct. ...	24.47	...	...	June ...	24.71	304	...	Apr. 1	19.96	225	...
Nov. ...	21.16	...	...	July ...	24.66	300	...	Apr. 21	19.47	236	...
Jan. ... 1911	23.96	...	...	Aug. ...	22.71	312	...	May 7	...	226	...
Feb. ...	25.37	...	...	Sept. ...	22.37	312	...	June 16	...	17.96	...
Mar. ...	23.86	...	...	Oct. ...	21.71	...	...	Sept. 15	...	243	...
Apr. ...	22.36	...	...	Nov. ...	23.61	...	...	Oct. 27	...	228	...
May ...	22.36	...	...	Dec. ...	27.55	...	...	Nov. 29	...	225	...
June ...	22.36	...	...	1917 Jan. ...	27.06	...	...	Dec. 29	...	17.62	...
July ...	22.36	...	...	Feb. ...	27.21	...	...	Jan. 15	...	18.54	...
Aug. ...	20.47	296	...	Mar. ...	25.54	...	...	Jan. 28	...	16.65	...
Sept. ...	21.41	...	...	Apr. ...	23.68	...	...	July 27	...	16.65	...
Oct. ...	20.97	...	...	May ...	23.03	...	...	Aug. 18	...	15.95	...
Jan. ... 1912	21.74	299	...	June ...	22.39	...	...	Sept. 20	...	16.25	...
Feb. ...	21.77	296	...	July ...	22.74	...	...	Oct. 20	...	15.75	...
Mar. ...	21.36	308	...	Aug. ...	26.91	...	...	Nov. 09	...	17.00	...
Apr. ...	20.91	308	...	Sept. ...	26.91	...	...	Dec. 29	...	18.36	...
May ...	19.25	310	...	Oct. ...	27.86	...	...	Jan. 31, 1927	19.08	225	...
June ...	18.83	312	...	Nov. ...	24.56	...	...	Mar. 1	...	19.36	...
July ...	18.46	310	...	Dec. ...	24.76	...	...	Mar. 29	...	21.13	...
Aug. ...	18.36	308	...	1918 Jan. ...	22.99	...	...	Apr. 27	...	17.86	...
Sept. ...	19.12	306	...	Feb. ...	20.34	...	...	May 29	...	18.01	...
Oct. ...	20.36	304	...	Mar. ...	23.51	...	...	June 27	...	17.29	...
Nov. ...	20.31	302	...	Apr. ...	22.99	...	...	July 29	...	18.16	...
Jan. ... 1913	19.31	306	...	May ...	23.41	...	...	Aug. 25	...	17.51	...
Feb. ...	19.02	302	...	June ...	22.08	...	...	Sept. 26	...	20.34	...
Mar. ...	19.15	308	...	July ...	21.54	...	...	Oct. 30	...	23.68	...
Apr. ...	20.76	300	...	Aug. ...	21.06	...	...	Jan. 9, 1928	...	23.71	...
May ...	20.26	300	...	Sept. ...	20.76	...	...	Mar. 6	...	23.36	...
June ...	19.66	304	...	Oct. ...	20.76	...	...	Mar. 21	...	23.16	...
July ...	19.47	304	...	Nov. ...	19.71	...	...	Apr. 20	...	22.76	...
Aug. ...	19.17	302	...	Dec. ...	20.91	...	...	Apr. 24	...	22.36	...
Sept. ...	18.91	304	...	1919 Jan. ...	20.31	...	...	May 16	...	23.76	...
Oct. ...	18.83	308	...	Feb. ...	22.41	...	...	June 26	...	23.26	...
Nov. ...	20.46	312	...	Mar. ...	22.08	...	...	July 29	...	23.26	...
Dec. ...	21.36	304	...	Apr. ...	21.54	...	...	Aug. 21	...	19.40	...
1914 Jan. ...	21.06	820	...	May ...	21.27	...	...	Sept. 25	...	18.73	...
Feb. ...	21.06	820	...	June ...	21.27	...	...	Oct. 31	...	18.08	...
Mar. ...	20.62	804	...	July ...	19.73	...	...	Nov. 20	...	21.03	...
Apr. ...	20.26	810	...	Aug. ...	18.97	258	...	Dec. 16	...	22.16	...
May ...	20.26	810	...	Sept. ...	17.95	264	...	Jan. 2, 1929	...	20.91	...
June ...	18.66	...	...	Oct. ...	17.95	264	...	Feb. 26	...	22.09	...
July ...	18.31	...	...	Nov. ...	20.66	244	...	Mar. 20	...	20.61	...
Aug. ...	18.31	...	...	Dec. ...	20.62	310	...	Apr. 23	...	19.32	...
Sept. ...	18.66	...	...	1920 Jan. ...	20.26	300	...	Apr. 26	...	18.14	...
Oct. ...	18.31	...	...	Feb. ...	19.66	304	...	May 22	...	17.55	...
Nov. ...	18.66	...	...	Mar. ...	19.47	304	...	June 26	...	17.55	...
Dec. ...	18.93	308	...	Apr. ...	18.91	304	...	July 26	...	16.81	...
1921 Jan. ...	20.46	312	...	May ...	18.30	308	...	Aug. 6	...	16.81	...
Feb. ...	21.36	304	...	June ...	18.66	308	...	Aug. 21	...	16.00	...
Mar. ...	20.62	310	...	July ...	18.93	308	...	Sept. 25	...	16.61	...
Apr. ...	20.26	300	...	Aug. ...	18.93	308	...	Oct. 23	...	17.47	...
May ...	18.66	...	...	Sept. ...	18.93	308	...	Nov. 23	...	20.95	...

Observations—Well 266 (Continued)

Date	Head (ft.)	Chloride (p.p.m.)	Date	Head (ft.)	Chloride (p.p.m.)	Date	Head (ft.)	Chloride (p.p.m.)
Dec. 5, 1930	21.87	201	Mar. 17, 1932	25.36	194	Apr. 15, 1933	30.07	200
Dec. 29	22.06	199	Apr. 16	22.19	200	Sept. 20	18.52	200
Jan. 27, 1931	21.70	198	May 17	21.97	200	Oct. 18	18.23	198
Feb. 26	20.13	200	June 16	21.10	201	Nov. 10	18.23	213
Mar. 26	19.41	200	July 15	20.50	202	Dec. 19	18.68	188
Apr. 28	18.91	202	Aug. 12	21.10	200	Jan. 11, 1934	20.41	179
May 29	20.55	199	Sept. 15	21.18	200	Feb. 14	22.01	179
June 28	18.02	200	Oct. 18	21.15	200	Mar. 20	20.28	183
July 29	17.64	202	Nov. 14	22.06	196	Apr. 1	19.69	202
Aug. 26	18.11	204	Dec. 15	21.80	196	May 16	18.89	200
Oct. 6	18.90	203	Jan. 17, 1933	22.37	196	June 15	18.63	202
Oct. 26	19.05	202	Feb. 15	22.31	194	July 12	17.19	202
Dec. 17	21.47	200	Mar. 15	26.44	189	Aug. 14	16.72	204
Jan. 14, 1932	19.45	200	Apr. 18	22.26	203	Sept. 12	18.91	180
Feb. 7	22.37	...	May 26	20.64	200	Oct. 19	18.94	220
Feb. 8	22.17	...	June 16	20.97	97	Nov. 22	10.06	220
Feb. 18	22.17	260	July 29	18.59	222	Dec. 28	22.65	189

* Pump 3 operating; started at 6:30 a.m.

267 (old 222). Under road near Honolulu village. Owner, Ewa Plantation Co. Bored, 1879 by James Ashley. Altitude, about 15 ft. Depth, 273 ft. Depth to top of aquifer, 290 ft. Casing, 950 ft.

268A to H (old 223A to H). Pumping station 1 about 1,200 yd. south of main gate to Ewa Plantation. Owner, Ewa Plantation Co. Drilled, A to F, 1890; G and H, 1899 by McCandless Bros. Altitude, about 30 ft. Depth, A and G, 464 ft.; B, 479 ft.; C, D, E and F, 460 ft.; H, 496 ft. Diameter, A to F, 10 in. G and H, 19 in. Depth to top of aquifer, G, 420 ft.; H, 425 ft. Use, irrigation. Casing, G, 304 ft.; H, 313 ft.

Logs

Well G	Depth (ft.)	Well H	Depth (ft.)	Well I	Depth (ft.)		
Soil (Pa)	0-100	Red rock (Tbk)	295-325	Red clay (Pa and sand)	220-300		
Brown clay (Pa)	100-150	Soft water rock (Tbk)	325-420	Blue clay (Pa)	300-330		
Blue clay (Pa)	150-210	Blue clay (Pa)	420-494	Red water rock (Tbk)	210-300		
Gravel (Pa)	210-215	0-110	Blue rock (Tbk)	300-320	
Red clay (Pa and probably some Tbk at bottom)	219-290	Brown clay (Pa)	110-160	Red water rock (Tbk)	425-496
		Blue clay (Pa)	160-200				
		Gravel (Pa)	200-210				

Observations

Bench mark, top of valve on 2-in. vertical pipe about 20 ft. east of pump house, 9 ft. above ground; altitude, 33.41 ft.

Date	Head (ft.)	Chloride (p.p.m.)	Date	Head (ft.)	Chloride (p.p.m.)	Date	Head (ft.)	Chloride (p.p.m.)
May ... 1890	31.5	...	Oct. ... 1909	24.8	591	May ... 1913	21.9	...
June ... 1891	...	...	Jan. ... 1910	23.9	...	Sept. ...	22.3	...
May ... 1901	302	...	Feb. ...	23.9	...	May ...	22.3	...
Feb. ... 1902	24.6	...	...	24.7	603	Nov. ...	22.3	687
Mar. ... 1904	30.9	...	...	25.3	...	Jan. ... 1914	22.8	...
Apr. ...	31.6	...	Jan. ... 1911	26.8	...	...	23.2	...
Dec. ... 1905	26.8	...	Feb. ...	27.9	...	Apr. ...	21.9	...
Aug. ... 1905	18.1	437	July ...	27.7	...	July ...	31.8	...
Nov. ... 1905	...	...	...	24.8	...	Sept. ...	21.1	...
Dec. ...	22.3	...	Sept. ...	25.6	589	Oct. ...	...	727
Jan. ... 1907	26.7	...	Nov. ...	25.2	...	Nov. ...	21.9	...
Mar. ...	26.7	...	Jan. ... 1912	25.2	...	Dec. ...	25.2	...
Apr. ...	25.2	...	Feb. ...	25.2	...	Jan. ... 1915	25.4	...
Oct. ...	488	...	July ...	22.7	...	Feb. ...	22.4	...
Apr. ... 1908	26.0	465	Aug. ...	...	672	July ...	22.4	...
Dec. ...	25.6	510	Sept. ...	21.1	...	Aug. ...	20.2	787
Feb. ... 1909	23.5	602	Oct. ...	24.6	...	Nov. ...	24.6	...
Mar. ...	24.0	515	Feb. ... 1913	21.9	...	Dec. ...	24.2	...

Observations—Well 268 (Continued)

Date	Head (ft.)	Chloride (p.p.m.)	Date	Head (ft.)	Chloride (p.p.m.)	Date	Head (ft.)	Chloride (p.p.m.)
Jan. ... 1916	27.2	...	Oct. ... 1924	26.5	963	Mar. ... 1930	22.3	682
Feb. ...	30.1	619	Dec. ...	24.7	...	Apr. ...	22.3	374
Mar. ...	27.0	...	Jan. ... 1925	23.0	...	May ...	19.9	841
Apr. ...	27.1	...	Feb. ...	21.9	...	June ...	19.8	1,091
June ...	...	724	Mar. ...	21.9	...	July ...	20.9	1,164
July ...	...	...	Apr. ...	25.7	907	Aug. ...	19.3	1,205
Sept. ...	24.5	...	Sept. ...	...	1,033	Sept. ...	21.1	1,257
Nov. 3	24.4	...	Nov. ...	20.9	...	Oct. ...	22.5	748
Dec. ...	22.4	720	Dec. ...	22.4	...	Nov. ...	22.0	1,195
Jan. ... 1917	28.9	...	Jan. ... 1926	25.1	...	Dec. ...	22.3	987
Feb. ...	29.4	...	Feb. ...	20.6	561	Jan. ... 1931	21.7	800
Mar. ...	30.3	...	Mar. ...	19.6	697	Feb. ...	20.7	987
May ...	28.8	...	Apr. ...	21.1	979	Mar. ...	20.0	1,080
June ...	26.7	648	May ...	20.6	805	Apr. ...	19.2	1,193
Sept. ...	25.5	...	June ...	19.7	899	May ...	19.9	923
Nov. ...	25.3	715	July ...	...	1,056	June ...	10.4	926
Dec. ...	28.9	...	Aug. ...	...	1,142	July ...	20.3	1,269
Jan. ... 1918	28.8	...	Sept. ...	...	1,195	Aug. ...	...	1,287
Feb. ...	28.7	...	Oct. ...	20.1	1,247	Sept. ...	19.1	1,030
Mar. ...	26.7	...	Nov. ...	20.8	400	Oct. ...	19.7	1,307
Apr. ...	29.4	...	Dec. ...	21.1	987	Nov. ...	19.7	1,326
May ...	...	554	Jan. ... 1927	21.9	...	Dec. ...	20.3	1,095
June ...	27.1	...	Feb. ...	21.9	...	Jan. ... 1932	20.5	1,144
July ...	26.0	...	Mar. ...	22.8	706	Feb. ...	22.3	628
Sept. ...	26.0	...	Apr. ...	21.5	544	Mar. ...	24.6	600
Oct. ... 1919	28.8	...	May ...	20.9	776	Apr. ...	21.0	649
Nov. ...	27.6	...	June ...	...	1,070	May ...	22.6	1,020
Dec. ...	25.5	...	July ...	...	1,101	June ...	21.8	1,253
Jan. ...	23.6	...	Aug. ...	...	1,226	July ...	21.6	1,281
Feb. ...	23.6	...	Sept. ...	18.7	1,299	Aug. ...	...	1,324
Mar. ...	22.2	...	Oct. ...	17.1	1,567	Sept. ...	20.3	1,328
Apr. ...	24.0	...	Nov. ...	19.3	1,039	Oct. ...	20.9	1,250
Sept. ...	23.6	...	Dec. ...	24.7	904	Nov. ...	22.7	1,080
Oct. ... 1920	23.6	...	Jan. ... 1928	27.4	654	Dec. ...	22.90	853
Nov. ...	23.6	...	Feb. ...	24.3	748	Jan. ... 1933	22.54	741
Dec. ...	24.7	...	Mar. ...	24.2	822	Feb. ...	22.4	822
Jan. ...	24.7	...	Apr. ...	24.2	852	Mar. ...	24.00	836
Feb. ...	21.2	...	May ...	21.0	831	Apr. ...	22.43	612
Mar. ...	22.7	765	June ...	21.0	1,122	May ...	20.59	906
Apr. ... 1921	24.9	...	July ...	19.1	1,205	June ...	20.20	1,120
May ...	26.1	...	Aug. ...	...	1,236	July ...	21.07	1,250
June ...	26.2	...	Sept. ...	20.3	1,278	Aug. ...	18.50	1,240
July ...	29.4	602	Oct. ...	...	1,248	Sept. ...	17.27	1,350
Aug. ...	22.5	...	Nov. ...	21.6	1,039	Oct. ...	18.50	1,240
Sept. ...	22.5	...	Dec. ...	22.3	1,112	Nov. ...	17.88	1,240
Oct. ... 1922	24.1	617	Jan. ... 1929	22.4	748	Dec. ...	19.19	785
Nov. ...	24.1	...	Feb. ...	...	...	Jan. ... 1934	22.03	856
Dec. ...	...	825	Mar. ...	22.8	706	Feb. ...	22.34	430
Jan. ...	...	871	Apr. ...	18.9	1,353	Mar. ...	20.91	627
Feb. ... 1923	21.8	871	May ...	...	1,205	Apr. ...	18.33	1,012
Mar. ...	25.7	...	June ...	...	1,207	May ...	18.64	840
Apr. ...	25.3	...	July ...	18.5	1,101	June ...	18.49	944
May ...	...	683	Aug. ...	...	1,351	July ...	17.44	1,210
June ...	...	635	Sept. ...	...	1,288	Aug. ...	17.21	1,260
July ... 1924	26.4	...	Oct. ...	19.6	1,354	Sept. ...	18.37	1,080
Aug. ...	25.4	...	Nov. ...	21.0	1,319	Oct. ...	18.76	1,320
Sept. ...	27.2	...	Dec. ...	23.7	810	Nov. ...	18.87	1,110
Oct. ...	28.5	...	Jan. ... 1930	23.7	...	Dec. ...	21.88	444
Nov. ...	...	516	Feb. ...	23.5	551			

269 (old 211). Pearl Harbor on Lanai Island. Owner, Herbert Dowsett. Drilled, 1928 by A. H. Hobart. Altitude, 0 ft. Depth, 233 ft. Diameter, 2 in. Depth to top of aquifer, 233 ft. Use, fish pond. Casing, 130 ft. Head (ft.), Feb. 2, 1931, 21.0. Chloride (p.p.m.), Mar. 17, 1930, 385.

Log

	Depth (ft.)		Depth (ft.)
Sand, loose coral, etc. (Rs)	0-1	Compact mudrock (Pa)	37.2-87.0
Compact clay (Pa)	1.5-4	Compact mudrock, clay, and soil (Pa)	87.0-104.1
Compact mudrock, clay, and soil (Pa)	5.4-37.2	Soft, rotten coral (Rb)	104.1-105.0

Observations—Well 273 (Continued)

Date	Chloride (p.p.m.)							Date	Chloride (p.p.m.)									
	Well A	Well B	Wells C, D	Wells E, F, G	Wells H	Wells D	Well A		Well B	Wells C, D	Wells E, F, G	Wells H	Well A	Well B	Well C	Well D	Well E	
																		Well A	Well B	Well C	Well D	Well E	Well F	Well G	Well H
May 1927	593	...	1,112	1,330	...	...	...	...	...	...	...	...	...	...	...	...	...	...
June	596	...	1,112	1,319	...	...	...	...	...	...	...	...	...	...	...	...	...	...
July	595	1,184	1,164	1,579	1,683	...	...	...	...	...	...	...	...	...	...	...	...	...
Aug.	596	...	1,226	1,649	1,787	...	...	...	...	...	...	...	...	...	...	...	...	...
Sept.	603	1,226	1,247	1,602	1,797	...	...	...	...	...	...	...	...	...	...	...	...	...
Oct.	613	1,351	1,382	...	1,756	...	...	...	...	...	...	...	...	...	...	...	...	...
Nov.	613	...	1,403	...	1,786	...	...	...	...	...	...	...	...	...	...	...	...	...
Dec.	582	1,184	1,195	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Jan. 1928	603	1,226	1,060	...	1,123	...	...	...	...	...	...	...	...	...	...	...	...	...
Feb.	592	1,101	1,060	...	1,174	...	...	...	...	...	...	...	...	...	...	...	...	...
Mar.	592	1,091	...	1,174	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Apr.	603	1,112	...	1,216	...	...	...	...	...	...	...	...	...	...	...	...	...	...
May	603	1,143	...	1,267	1,548	...	...	...	...	...	...	...	...	...	...	...	...	...
June	623	1,184	...	1,330	1,486	...	...	...	...	...	...	...	...	...	...	...	...	...
July	603	1,070	...	1,102	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Aug.	613	1,132	...	1,299	1,392	...	...	...	...	...	...	...	...	...	...	...	...	...
Sept.	613	1,226	1,444	1,465	1,736	...	...	...	...	...	...	...	...	...	...	...	...	...
Oct.	592	...	1,361	...	1,630	...	...	...	...	...	...	...	...	...	...	...	...	...
Nov.	592	1,101	1,239	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Dec.	582	...	1,174	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Jan. 1929	571	997	...	1,332	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Feb.	592	1,101	...	1,267	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Mar.	582	1,101	...	1,227	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Apr.	592	1,143	...	1,309	...	...	...	...	...	...	...	...	...	...	...	...	...	...
May	582	1,205	...	1,496	1,735	...	...	...	...	...	...	...	...	...	...	...	...	...
June	582	1,236	...	1,569	1,796	...	...	...	...	...	...	...	...	...	...	...	...	...
July	571	1,029	...	1,236	1,465	...	...	...	...	...	...	...	...	...	...	...	...	...
Aug.	582	1,195	1,392	1,475	1,745	...	...	...	...	...	...	...	...	...	...	...	...	...
Sept.	603	...	1,435	...	1,901	...	...	...	...	...	...	...	...	...	...	...	...	...
Oct.	592	...	1,434	...	1,839	...	...	...	...	...	...	...	...	...	...	...	...	...
Nov.	592	...	1,382	...	1,839	...	...	...	...	...	...	...	...	...	...	...	...	...
Dec.	582	...	1,382	...	1,839	...	...	...	...	...	...	...	...	...	...	...	...	...
Jan. 1930	561	1,039	...	1,205	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Feb.	582	...	1,382	...	1,839	...	...	...	...	...	...	...	...	...	...	...	...	...
Mar.	551	1,060	...	1,247	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Apr.	551	1,192	...	1,267	1,330	...	...	...	...	...	...	...	...	...	...	...	...	...
May	561	1,153	...	1,258	...	...	...	...	...	...	...	...	...	...	...	...	...	...
June	561	1,143	...	1,361	1,610	...	...	...	...	...	...	...	...	...	...	...	...	...
July	561	1,205	...	1,465	1,735	...	...	...	...	...	...	...	...	...	...	...	...	...
Aug.	571	1,278	...	1,548	1,818	...	...	...	...	...	...	...	...	...	...	...	...	...
Sept.	561	...	1,174	...	1,662	...	...	...	...	...	...	...	...	...	...	...	...	...
Oct.	561	...	1,240	...	1,735	...	...	...	...	...	...	...	...	...	...	...	...	...
Nov.	561	...	1,070	...	1,267	1,735	...	...	...	...	...	...	...	...	...	...	...	...
Dec.	561	1,184	...	1,392	1,465	...	...	...	...	...	...	...	...	...	...	...	...	...
Jan. 1931	561	1,060	...	1,247	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Feb.	561	1,184	...	1,392	1,465	...	...	...	...	...	...	...	...	...	...	...	...	...
Mar.	571	1,184	...	1,392	1,662	...	...	...	...	...	...	...	...	...	...	...	...	...
Apr.	571	1,257	...	1,475	1,725	...	...	...	...	...	...	...	...	...	...	...	...	...

273-1 (old 224-2). Near the old site of the plantation manager's residence, about 1 mile north of Ewa Plantation mill. Exact location unknown. Owner, Ewa Plantation Company. Probably drilled about 1891. Well has been abandoned for many years.

274A to F (old 213A to F). Pumping station 5 (pumps 5 and 5B) near Pun Kapuni, Honolulu. Owner, Oahu Sugar Co. Altitude, 284 ft. Diameter, 12 in. Use, irrigation.

Observations

Date	Chloride (p.p.m.)	Date	Chloride (p.p.m.)	Date	Chloride (p.p.m.)	Date	Chloride (p.p.m.)
Aug. 12, 1901	91	Jan. 1, 1906	194	Mar. 20, 1907	194	Apr. 25, 1908	219
Oct. 12, 1902	117	Apr. 6, 1906	189	Apr. 16, 1907	201	Apr. 16, 1907	219
Sept. 24, 1903	168	June 16, 1904	201	Oct. 21, 1907	219	Oct. 21, 1907	219
Oct. 19, 1904	158	Sept. 2, 1904	219	Nov. 27, 1908	209	Nov. 27, 1908	209
Oct. 20, 1904	241	Oct. 28, 1904	219	Nov. 27, 1908	209	Nov. 27, 1908	209

Observations—Well 274 (Continued)

Date	Chloride (p.p.m.)	Date		Chloride (p.p.m.)	Date	Chloride (p.p.m.)	Date	Chloride (p.p.m.)
		Date	Date					
Oct. 27, 1909	198	Apr. 15, 1913	206	Mar. 3, 1916	219	Apr. ... 1925	177	
Feb. 7, 1910	209	June 15	201	Apr. 6	206	May ... 1925	179	
July 7	201	July 15	202	May 15	209	June ... 1925	177	
Aug. 23	194	Aug. 15	208	June 15	209	July ... 1925	177	
Sept. 15	206	Oct. 15	219	July 1	213	Aug. ... 1925	177	
Oct. 15	207	Nov. 15	209	Aug. 15	213	Sept. ... 1925	179	
Nov. 15	206	Dec. 15, 1909	216	Oct. 17	216	Oct. ... 1925	183	
Dec. 15	206	Jan. 15, 1910	216	Nov. 15	209	Nov. ... 1925	179	
Jan. 15, 1911	206	Feb. 15	224	Dec. 15	216	Dec. ... 1925	180	
Apr. 15	213	Mar. 15	219	Apr. 30, 1917	212	Jan. ... 1926	219	
June 15	209	Apr. 15	216	Apr. 3	214	Feb. ... 1926	181	
Aug. 15	206	May 15	209	Apr. 10	206	Mar. ... 1926	180	
Sept. 15	202	June 15	213	Mar. 5, 1919	164	May ... 1926	180	
Dec. 15	191	July 15	206	June 6	174	June ... 1926	163	
Jan. 15, 1912	202	Aug. 15	206	July 18	198	July ... 1926	180	
Feb. 16	198	Sept. 15	202	Aug. 16	191	Aug. ... 1926	177	
Mar. 15	206	Oct. 15	206	June ... 1923	193	Sept. ... 1926	179	
Apr. 15	209	Nov. 15	209	July ... 1923	193	Oct. ... 1926	182	
May 18	198	Jan. 15, 1915	234	Aug. ... 1923	194	Nov. ... 1926	177	
June 15	198	Feb. 1	209	Sept. ... 1923	194	Dec. ... 1926	177	
July 15	202	Mar. 15	209	May ... 1924	177	Jan. ... 1927	177	
Aug. 15	202	Apr. 15	209	June ... 1924	177	Feb. ... 1927	179	
Sept. 15	198	May 15	209	Aug. ... 1924	177	Mar. ... 1927	179	
Oct. 15	202	June 15	213	Sept. ... 1924	177	Apr. ... 1927	177	
Nov. 15	206	July 15	213	Oct. ... 1924	177	May ... 1927	177	
Dec. 15	202	Aug. 17	213	Nov. ... 1924	177	June ... 1927	177	
Jan. 15, 1913	199	Sept. 17	206	Dec. ... 1924	177	July ... 1927	177	
Feb. 15	197	Oct. 18	209	Jan. ... 1925	177	Aug. ... 1927	177	
Mar. 15	202	Dec. 15	206	Mar. ... 1925	179	Sept. ... 1927	177	

* Head (ft.) Dec. 1926, 17.5; Dec. 1927-19.9.

Observations—Well 247 (Continued)—with head record

Date	Head (ft.)	Chloride (p.p.m.)	Date		Head (ft.)	Chloride (p.p.m.)	Date	Head (ft.)	Chloride (p.p.m.)
			Date	Date					
Jan. ... 1928	19.6	...	June ... 1931	18.6	177	June 4, 1933	19.3	170	
Feb. ... 1928	19.5	...	July ... 1931	19.1	177	June 12, 1933	19.2	170	
Mar. ... 1928	19.5	175	Aug. ... 1931	17.8	180	June 19, 1933	...	177	
Apr. ... 1928	19.5	176	Sept. ... 1931	18.0	...	June 25, 1933	19.0	...	
May ... 1928	19.5	177	Oct. ... 1931	18.3	...	July 3, 1933	18.9	...	
June ... 1928	19.5	177	Nov. ... 1931	18.5	177	July 10, 1933	...	170	
July ... 1928	18.7	182	Dec. ... 1931	18.6	177	July 17, 1933	17.0	...	
Aug. ... 1928	18.7	182	Jan. ... 1932	18.7	184	July 23, 1933	18.9	177	
Sept. ... 1928	18.2	184	Feb. ... 1932	18.8	...	Aug. 15, 1933	...	177	
Oct. ... 1928	18.0	186	Mar. ... 1932	18.5	...	Aug. 21, 1933	...	179	
Nov. ... 1928	18.6	...	Apr. ... 1932	19.3	170	Aug. 28, 1933	...	177	
Dec. ... 1928	19.0	...	May ... 1932	19.4	179	Sept. 4, 1933	18.3	177	
Jan. ... 1929	19.0	...	June ... 1932	19.0	181	Sept. 12, 1933	...	177	
Feb. ... 1929	19.0	177	July ... 1932	19.4	177	Sept. 16, 1933	18.4	...	
Mar. ... 1929	18.9	177	Aug. ... 1932	19.4	177	Sept. 19, 1933	18.4	177	
Apr. ... 1929	18.8	179	Sept. ... 1932	19.4	177	Sept. 24, 1933	18.4	...	
May ... 1929	18.8	177	Oct. ... 1932	19.4	177	Oct. 1, 1933	18.6	...	
June ... 1929	18.5	177	Nov. ... 1932	19.3	...	Oct. 8, 1933	18.5	...	
July ... 1929	18.5	177	Dec. ... 1932	19.3	...	Oct. 15, 1933	18.5	...	
Aug. ... 1929	18.2	...	Jan. 1, 1933	19.3	...	Oct. 15, 1933	18.5	...	
Sept. ... 1929	18.2	...	Jan. 8, 1933	19.3	...	Oct. 22, 1933	18.5	...	
Oct. ... 1929	17.7	177	Jan. 15, 1933	19.6	...	Oct. 29, 1933	18.5	...	
Nov. ... 1929	18.2	...	Jan. 22, 1933	19.6	...	Nov. 1, 1933	18.6	...	
Dec. ... 1929	18.2	...	Jan. 29, 1933	19.6	...	Nov. 1, 1933	18.6	...	
Jan. ... 1930	19.2	...	Feb. 5, 1933	19.6	...	Nov. 19, 1933	18.6	...	
Feb. ... 1930	19.6	...	Feb. 12, 1933						

Observations—Well 274 (Continued)

Date	Head (ft.)	Chloride (p.p.m.)	Date	Head (ft.)	Chloride (p.p.m.)	Date	Head (ft.)	Chloride (p.p.m.)
Feb. 25, 1934	19.6	...	June 16, 1934	...	170	Oct. 7, 1934	18.5	...
Mar. 4	19.6	...	June 25	...	177	Oct. 12	...	177
Mar. 11	19.5	...	July 2	...	170	Oct. 21	18.5	...
Mar. 18	19.5	...	July 4	18.4	170	Oct. 28	18.6	...
Mar. 26	...	170	July 9	...	176	Oct. 31	18.7	...
Mar. 30	19.3	...	July 13	...	170	Nov. 4	18.7	...
Apr. 2	19.3	...	July 27	...	177	Nov. 9	...	170
Apr. 7	...	170	Aug. 5	18.3	177	Nov. 11	18.6	...
Apr. 14	...	170	Aug. 8	18.3	177	Nov. 18	18.7	...
Apr. 22	18.9	170	Aug. 17	...	170	Nov. 25	18.8	...
Apr. 29	19.0	...	Aug. 19	18.2	170	Nov. 29	18.8	...
May 6	19.0	...	Aug. 31	...	170	Dec. 2	18.9	...
May 13	19.1	...	Sept. 7	...	170	Dec. 10	19.0	...
May 27	18.8	170	Sept. 16	18.4	170	Dec. 17	19.1	...
June 3	18.7	170	Sept. 23	18.4	...	Dec. 24	19.2	...
June 10	18.8	...	Oct. 1	18.7	...	Dec. 31	19.2	...

274-1 (no old number). 700 yd. north of gate to Fort Barretta. Owner, U. S. Army. Drilled, 1937 by W. H. Mullin. Diameter, 6 in. Depth, 200 ft. Casing, 166.8 ft. Use, domestic supply. Chloride (p.p.m.), May 6, 1937, 245; June 2, 1937, 244.

Log

	Depth (ft.)		Depth (ft.)
Fill and boulders (Ra)	0-7	Hard blue rock (Twb)	112-113
Brown rock (Twb)	7-30	Clinker (Twb)	113-117
Hard brown rock (Twb)	30-32	Medium brown rock (Twb)	117-132
Brown clay (Twb)	32-55	Hard brown rock (Twb)	132-138
Soft brown rock (Twb)	55-58	Clinker (Twb)	138-141
Hard brown rock (Twb)	58-62	Hard brown rock (Twb)	141-149
Cinders (Twb)	62-68	Clinker (Twb)	149-160
Hard brown rock (Twb)	68-88	Cinders, water (Twb)	160-168
Clinker (Twb)	88-97	Brown rock (Twb)	168-169
Hard brown rock (Twb)	97-101	Hard brown rock (Twb)	169-175
Clinker (Twb)	101-103	Clinker (Twb)	175-181
Hard brown rock (Twb)	103-103	Hard rock (Twb)	181-185
Clinker (Twb)	105-107	Cinders (Twb)	185-191
Hard brown rock (Twb)	107-109	Clinker (Twb)	191-200
Clinker (Twb)	109-112		

275 (old 294-1). On Pua Kapolei, southeast end of the Waianae Range. Owner, U. S. Army. Drilled, 1933 by McCandless Bros. Altitude, 89.3 ft. Depth, 147 ft. Diameter, 12 in. Use, Post supply. Casing, 102 ft. Lower 20 ft. 4 in. perforated with 2 1/2-in. holes. Head (ft.), Jan. 6, 1935, 19.5. Drawdown, 0 in. when pumped at the rate of 465 gal. per minute. Salt content increased with depth. Chloride (p.p.m.), 467 before pumping and 509 after pumping 8 hours.

Log

	Depth (ft.)		Depth (ft.)
Ash, probably cinders (Twb)	0-9	Hard red rock (Twb)	96-98
Medium hard clinker (Twb)	9-39	Hard hard clinker (Twb)	98-105.6
Hard blue rock (Twb)	39-46	Red water rock (Twb)	105.6-117
Soft red rock (Twb)	46-61	Hard blue water-bearing rock (Twb)	117-147
Hard blue rock (Twb)	61-78		
Soft red rock (Twb)	78-90		

276A to K (old 228A to K). Pumping stations 10, 11, and 19 about 1,100 yd. northwest of Gilbert R. B. station. Owner, Ewa Plantation Co. Drilled, A, C to H, 1908; B and I, 1923; J and K, 1913. Altitude, about 40 ft. Depth, B and I, 160 ft.; E, 155 ft.; F and G, 165 ft. Diameter, 12 in. Depth to top of aquifer, B and I, 54 ft.; E to G, 58 ft. Use, irrigation. Casing, B, 60 ft.; I, 57 ft.

Well 276 (Continued)

Well B	Logs		Depth (ft.)
	Depth (ft.)	Depth (ft.)	
Red earth, some gravel (Pa)	0-35	Rock (Twb) Wells E and G	58-155
Gravel (Pa)	35-40	Clay (Ra)	0-11
Red earth (Pa or Twb)	40-54	Boulders, gravel, and clay (Pa)	31-20
Hard blue rock (Twb)	54-72	Earth and clay (Pa or Twb)	20-68
Blue water rock, poor (Twb)	72-105	Rock (Twb)	58-103
Blue water rock, good (Twb)	105-112	Well I	
Blue water rock, good (Twb)	112-140	Red earth with some gravel (Pa and probably some Twb at bottom)	0-54
Blue water rock, poor (Twb)	140-155	Hard blue rock (Twb)	54-72
Blue water rock, good (Twb)	155-160	Blue water rock (Twb)	75-130
Red rock, do not believe any water in well (Twb)	155-160	Red rock (Twb)	130-136
Soil	0-11	Blue water rock (Twb)	136-154
Boulders, gravel, and clay (Pa)	11-20	Rotten lava, believed to contain no water (Twb)	154-160
Earth and clay (Pa or Twb)	20-58		

Observations

Date	Head (ft.)			Chloride (p.p.m.)			Date	Head (ft.)			Chloride (p.p.m.)		
	Pump 10	Pump 11	Pump 12	Pump 10	Pump 11	Pump 12		Pump 10	Pump 11	Pump 12	Pump 10	Pump 11	Pump 12
1905	1916	...	...	...	...	...	...
Aug. 1908	476	...	...	Feb. 16.3	...	...	...	453	380	404
Dec. 1908	470	...	...	Mar. 16.4	...	...	...	651	504	432
1909	Apr. 15.5	...	...	...	649	512	408
Feb. 16.7	June 15.0	...	...	...	...	...	...
Mar. 16.1	Sept. 15.2	...	...	...	...	...	...
Dec. 16.3	463	...	...	Nov. 15.6	...	...	...	...	...	...
1910	Dec. 15.3	...	...	...	554	388	400
Jan. 15.8	1917	...	...	...	...	...	...
Feb. 15.8	Jan. 15.7	...	...	...	...	...	...
June 15.8	Feb. 15.8	...	...	...	...	...	...
Sept. 16.1	513	400	...	Mar. 15.7	...	...	...	...	...	...
Nov. 15.8	May 15.6	...	...	...	...	...	...
Jan. 16.2	June 15.4	...	...	...	667	526	432
Feb. 16.0	Sept. 15.1	...	...	...	...	...	...
Mar. 16.2	Nov. 15.1	...	...	...	667	514	424
July 15.2	Dec. 15.9	...	...	...	...	...	...
Sept. 14.7	1918	...	...	...	...	...	...
Dec. 14.7	Jan. 15.8	...	...	...	...	...	...
1912	Feb. 15.9	...	...	...	...	...	...
Jan. 15.2	Apr. 15.7	...	...	...	...	...	...
Feb. 15.2	Apr. 16.0	...	...	...	754	628	503
July 14.7	May 15.9	...	...	...	...	...	...
Sept. 14.8	July 15.8	...	...	...	...	...	...
Dec. 15.3	Sept. 15.9	...	...	...	...	...	...
1913	Nov. 15.9	...	...	...	...	...	...
Feb. 15.0	Dec. 15.9	...	...	...	...	...	...
Mar. 15.5	1919	...	...	...	...	...	...
July 15.3	Jan. 15.9	...	...	...	...	...	...
Sept. 15.2	Mar. 15.5	...	...	...	...	...	...
Oct. 15.3	Feb. 15.5	...	...	...	...	...	...
Nov. 15.3	June 15.5	...	...	...	...	...	...
1914	July 15.4	...	...	...	...	...	...
Jan. 15.0	Oct. 15.2	...	...	...	651	487	368
Feb. 15.3	Sept. 15.2	...	...	...	...	...	...
July 15.2	Nov. 15.1	...	...	...	...	...	...
Sept. 15.2	Dec. 15.1	...	...	...	...	...	...
Oct. 15.2	609	458	...	1920	...	...	...	...	...	...
Nov. 15.2	604	472	387	Jan. 15.3	...	...	...	670	503	440
Dec. 15.2	Feb. 15.2	...	...	...	...	...	...
1915	July 15.2	...	...	...	...	...	...
Jan. 15.2	Nov. 15.2	...	...	...	...	...	...
Feb. 15.0	Dec. 15.2	...	...	...	...	...	...
July 14.5	1921	...	...	...	...	...	...
Aug. 15.2	623	496	408	Jan. 15.2	...	...	...	662	532	412
Nov. 15.3	Feb. 15.0	...	...	...	...	...	...
Dec. 15.2	Apr. 15.0	...	...	...	...	...	...
1916	Oct. 15.0	...	...	...	...	...	...
Jan. 15.7	Nov. 15.3	...	...	...	638	510	430

Observations—Well 276 (Continued)

Date	Head (ft.)			Chloride (p.p.m.)			Date	Head (ft.)			Chloride (p.p.m.)		
	Pump 10	Pump 11	Pump 12	Pump 10	Pump 11	Pump 12		Pump 10	Pump 11	Pump 12	Pump 10	Pump 11	Pump 12
1922							1929						
Mar. 15.0	July 13.2	14.1	634	530	488	
June 681	545	454	.....	.....	.....	Aug. ....	.....	.....	623	540	478	
Dec. 920	516	448	.....	.....	.....	Sept. ....	.....	.....	603	530	475	
1923							Oct.	613	540	499	
Jan. 15.0	.....	.....	.....	.....	.....	Nov. 13.5	14.2	13.0	634	531	499	
Mar. 13.5	.....	.....	.....	.....	.....	Dec.	14.0	14.5	623	546	467	
Apr. 11.0	.....	.....	.....	.....	.....	1930						
May 11.0	.....	.....	.....	.....	.....	Jan. 14.4	14.9	14.7	.....	.....	.....
July 14.6	.....	.....	.....	.....	.....	Feb. 14.6	14.9	14.5	665	571	519	
Dec. 15.2	.....	.....	.....	.....	.....	Mar. 14.0	14.8	13.9	604	551	509	
1924							Apr. 13.9	14.8	13.5	603	540	467	
Jan. 15.0	.....	.....	.....	.....	.....	May ....	.....	.....	613	536	457	
Mar. 14.5	.....	.....	.....	.....	.....	June ....	.....	.....	613	519	492	
Apr. 15.0	.....	.....	.....	.....	.....	July 13.0	.....	13.0	603	519	509	
May 631	533	358	.....	.....	.....	Aug. ....	.....	.....	613	519	492	
Oct. 621	498	453	.....	.....	.....	Sept. 13.4	.....	13.8	603	540	509	
Dec. 611	.....	.....	.....	.....	.....	Oct. 13.7	.....	13.7	603	530	509	
1925							Nov. 13.9	14.5	14.1	613	540	509	
Jan. 15.2	.....	.....	.....	.....	.....	Dec. 13.8	.....	13.9	634	561	530	
Mar. 14.8	.....	.....	.....	.....	.....	1931						
Aug. 620	564	434	.....	.....	.....	Jan. 13.7	.....	13.4	634	551	519	
Sept. 620	503	494	.....	.....	.....	Mar. 13.4	.....	13.3	634	551	519	
Nov. 14.9	.....	.....	.....	.....	.....	Apr. 13.1	.....	12.9	605	539	499	
Dec. 14.9	.....	.....	.....	.....	.....	June ....	.....	12.9	618	542	503	
1926							July 14.8	13.5	609	543	515	
Jan. 15.0	.....	.....	.....	.....	.....	Aug. ....	.....	.....	616	542	497	
Feb. 14.6	.....	.....	.....	.....	.....	Sept. 13.0	.....	12.7	610	552	512	
Mar. 636	508	510	.....	.....	.....	Oct. 13.2	.....	13.4	611	552	516	
Apr. 13.8	.....	.....	.....	.....	.....	Nov. 13.3	.....	13.4	611	552	516	
May 690	513	505	.....	.....	.....	Dec. 13.4	13.7	13.2	556	519	496	
June 14.4	.....	.....	.....	.....	.....	1932						
July 671	525	520	.....	.....	.....	Jan. 13.4	13.5	13.2	610	558	505	
Aug. 660	527	529	.....	.....	.....	Feb. 13.3	13.9	13.9	701	449	509	
Sept. 647	523	509	.....	.....	.....	Mar. 14.5	14.6	14.6	511	598	489	
Oct. 14.1	.....	.....	.....	.....	.....	Apr. ....	.....	13.4	618	561	519	
Nov. 14.2	.....	.....	.....	.....	.....	May 13.8	.....	13.1	577	538	491	
Dec. 14.5	.....	.....	.....	.....	.....	June ....	.....	13.2	596	537	564	
1927							July 13.4	13.2	13.6	604	539	502	
Jan. 14.5	.....	.....	.....	.....	.....	Aug. ....	.....	12.8	592	540	504	
Feb. 14.9	.....	.....	.....	.....	.....	Sept. 13.1	13.0	13.1	619	535	495	
Mar. 14.8	.....	.....	.....	.....	.....	Oct. 13.3	13.6	13.5	590	524	484	
Apr. 13.9	15.0	.....	.....	.....	.....	Nov. 13.8	13.9	13.5	530	497	487	
May 661	568	571	.....	.....	.....	Dec. 13.8	14.1	13.6	519	546	499	
June 654	641	499	.....	.....	.....	1933						
July 642	546	511	.....	.....	.....	Jan. 13.83	14.01	13.74	589	546	475	
Aug. 631	526	516	.....	.....	.....	Feb. 14.14	14.53	14.12	544	496	445	
Sept. 634	561	519	.....	.....	.....	Mar. 13.66	13.87	14.16	578	514	465	
Oct. 634	561	519	.....	.....	.....	Apr. 13.31	14.05	14.16	608	540	465	
Nov. 13.2	14.1	.....	.....	.....	.....	May 13.39	13.74	13.15	614	546	498	
Dec. 14.6	13.0	.....	.....	.....	.....	June 13.07	13.11	12.79	623	537	492	
1928							July 13.10	13.20	608	545	492	
Jan. 14.9	15.4	.....	.....	.....	.....	Aug. ....	.....	.....	612	541	546	904
Feb. 14.9	14.6	.....	.....	.....	.....	Sept. 13.13	12.89	12.73	598	542	496	
Mar. 14.4	14.9	.....	.....	.....	.....	Oct. 13.05	13.23	13.16	594	528	509	
Apr. 14.2	14.5	.....	.....	.....	.....	Nov. 13.39	13.23	13.28	598	542	494	
May 644	540	478	.....	.....	.....	Dec. 13.61	13.67	13.74	556	526	490	
June 12.7	.....	.....	.....	.....	.....	1934						
July 12.4	.....	.....	.....	.....	.....	Jan. 13.97	14.00	13.95	567	547	502	
Aug. 654	561	540	.....	.....	.....	Feb. 14.08	14.43	14.15	568	497	500	
Sept. 13.4	.....	.....	.....	.....	.....	Mar. 13.07	13.84	13.70	611	538	496	
Oct. 634	551	539	.....	.....	.....	Apr. 13.05	13.35	13.08	608	551	513	
Nov. 13.6	14.2	.....	.....	.....	.....	May 13.04	13.14	12.83	600	542	500	
Dec. 14.0	14.4	.....	.....	.....	.....	June 12.69	12.90	12.67	611	553	513	
1929							July 12.39	12.43	596	543	499	
Jan. 13.9	14.3	Aug.	12.32	12.61	596	537	504	
Feb. 14.2	14.8	.....	.....	.....	.....	Sept. 13.16	13.19	13.35	602	540	493	
Mar. 644	540	478	.....	.....	.....	Oct. 13.15	13.20	13.41	600	539	521	
Apr. 613	540	478	.....	.....	.....	Nov. 13.29	13.22	13.32	591	540	493	
May 634	531	530	.....	.....	.....	Dec. 13.90	14.23	14.16	512	504	485	
June 634	531	530	.....	.....	.....					

277 (old 280). Kamaile Pump 9, 134 miles northwest of Waianae R. R. station. Owner, Waianae Plantation Co. Altitude, about 30 ft. Diameter, 12 in. Use, irrigation. Data furnished by Waianae Plantation Co. A record of the depth of each of the 27 wells in this battery in feet and the length of casing in feet is given on page 176.

Observations

Date	Head (ft.)	Chloride (p.p.m.)	Date	Head (ft.)	Chloride (p.p.m.)	Date	Head (ft.)	Chloride (p.p.m.)
Feb. 1928	519	Apr. 1931	.....	789	Dec. 2	1,032	2.09
May 584	749	Dec. 2	.....	793	.....	.....	2.15
June 390	601	Dec. 3	.....	801	.....	.....	2.37
July 618	873	Dec. 4	.....	873	.....	.....	2.40
Aug. 682	863	Dec. ....	.....	863	.....	.....	6.14
Sept. 747	842	Jan. 3, 1933	.....	842	.....	.....	2.49
Oct. 868	808	.....	.....	855	.....	.....	2.54
Nov. 834	697	Feb. 27	.....	697	.....	.....	5.07
Dec. 832	665	Mar. 27	.....	665	.....	.....	6.82
1932			Apr. ....	.....	658	.....	.....	4.78
Jan. 624	665	May ....	.....	665	.....	.....	5.72
Feb. 697	874	June ....	.....	874	.....	.....	6.34
Mar. 1929			July ....	.....	873	.....	.....	6.66
Apr. 3	-5.75	Aug. ....	.....	874	.....	.....	6.66
May 3	-5.33	Sept. ....	.....	874	.....	.....	6.66
June 5	-3.92	Oct. ....	.....	874	.....	.....	6.66
July 5	-6.00	Nov. ....	.....	874	.....	.....	6.66
Aug.	593	Dec. ....	.....	874	.....	.....	6.66
Sept.	605	1933					
Oct.	615	Jan. ....	.....	615	.....	.....	7.78
Nov.	615	Feb. ....	.....	615	.....	.....	7.49
Dec.	615	Mar. ....	.....	615	.....	.....	7.49
1934			Apr. ....	.....	615	.....	.....	7.49
Jan.	593	May ....	.....	593	.....	.....	7.18
Mar.	645	June ....	.....	645	.....	.....	7.38
Apr.	645	July ....	.....	645	.....	.....	7.38
May	645	Aug. ....	.....	645	.....	.....	7.38
June	645	Sept. ....	.....	645	.....	.....	7.38
July	645	Oct. ....	.....	645	.....	.....	7.38
Aug.	645	Nov. ....	.....	645	.....	.....	7.38
Sept.	645	Dec. ....	.....	645	.....	.....	7.38
Oct.	645	1934					
Nov.	645	Jan. ....	.....	645	.....	.....	7.38
Dec.	645	Feb. ....	.....	645	.....	.....	7.38
1935			Mar. ....	.....	645	.....	.....	7.38
Jan.	645	Apr. ....	.....	645	.....	.....	7.38
Feb.	645	May ....	.....	645	.....	.....	7.38
Mar.	645	June ....	.....	645	.....	.....	7.38
Apr.	645	July ....	.....	645	.....	.....	7.38
May	645	Aug. ....	.....	645	.....	

Chloride (p.p.m.) of individual wells—Well 277 (Continued)

Well No.	1931 Oct. 7	1931 Oct. 10	1931 Oct. 14	1931 Oct. 24	1931 Oct. 29	1931 Nov. 7	1931 Nov. 14	1931 Nov. 23
4	1,260	1,190	1,050	1,270	1,320	1,340	1,350	1,370
5	1,120	1,120	1,000	1,210	1,220	1,240	1,270	1,300
6	1,970	1,400	1,800	1,500	1,500	1,500	1,520	1,550
7	1,120	1,120	1,160	1,890	1,320	1,350	1,370	1,380
8	4,590	4,080	3,250	3,640	3,740	3,820	3,840	3,960
14	2,770	3,040	3,100	2,900	2,740	2,760	2,410	2,290
22	223	295	1,340	4,290	4,330	4,370	4,350	4,330
23	329	329	387	387	370	400	403	420
24	320	312	312	303	320	430	433	445
25	345	345	216	357	379	379	383	387
26	306	306	306	303	303	303	303	303
27	403	391	366	403	425	428	324	329
28	303	295	291	308	325	325	445	437
29	303	291	291	308	325	325	325	329

Depths and casings of wells

Well No.	Depth of well in casing 1919	Length of casing 1919	Depth after filling 1920	Length of new casing 1920	Date of reasing 1920	Well No.	Depth of well in casing 1919	Length of casing 1919	Depth after filling 1920	Length of new casing 1920	Date of reasing 1920
1	180	100	77	Oct. 16	14	112	249	99	Aug. 23		
2	128	110	79	Oct. 23	15	124	236	106	Aug. 16		
3	242	100	77	Nov. 1	16	281	124	236	106	Aug. 16	
4	144	75	July 10	18	239	85	300	109	Aug. 9		
5	135	77	July 3	17	120	124	190	113	July 29		
6	145	142	142	July 16	19	245	90	188	78	Sept. 20	
7	145	85	85	July 23	20	200	90	188	78	Sept. 20	
8	155	85	85	Nov. 9	21	200	75	190	91	Sept. 20	
9	158	108	155	82	Sept. 3	22	155	155	155	Jan. 8	
10	295	114	235	96	Aug. 29	24	155	155	155	Jan. 8	
11	300	120	200	99	Sept. 9	25	150	150	150	Jan. 8	
12	305	120	210	97	Sept. 15	27	150	150	150	Jan. 8	

278A and B (A=old 230 and B=231). At pump house 1 mile southwest of Kawaihapi R. R. station. Owner, Look Hop Sing Co. Drilled, A, 1894; B, 1920 by McCandless Bros. Altitude, about 18 ft. Diameter, A, 9 in.; B, 10 in. Use, irrigation.

279 (old 232). 5 ft. north of plantation tracks and half a mile south of Kawaihapi R. R. station. Owner, Kaimoku Kakulu. Drilled, 1894, by McCandless Bros. Altitude, about 15 ft. Depth, 325 ft. Diameter, 6 in. Not in use. Casing, 132 ft. Recased in 1926. Chloride (p.p.m.), Sept 20, 1926, 240.

281 (old 233). In sugar cane field half a mile southeast of Kawaihapi R. R. station. Owner, Waiialua Agricultural Co. Altitude, about 10 ft. Diameter, 8 in. Use, irrigation. Flowing at rate of 190,000 gal. a day in Jan. 1934.

282 (old 234). About a third of a mile southeast of Kawaihapi R. R. station. Owner, Waiialua Agricultural Co. Drilled by McCandless Bros. Altitude, about 10 ft. Diameter, 8 in. Recased to 6 in. Use, irrigation. Estimated discharge, 200,000 gal. a day in Jan. 1934.

283 (old 235). Near road about three-quarters of a mile west of Waiialua Agricultural Co. pump 5. Owner, Waiialua Agricultural Co. Altitude, about 10 ft. Diameter, 8 in. Use, irrigation. Flowing at rate of 280,000 gal. a day in Jan. 1934.

284 (old 236). Near road about half a mile west of Waiialua Agricultural Co. pump 5. Owner, Waiialua Agricultural Co. Altitude, about 18 ft. Diameter, 8 in. Use, irrigation. Flowing at rate of 580,000 gal. a day in Jan. 1934.

285A to H (old 237A to H). Pump 5 at plantation tracks and about a mile west of Dillingham Ranch in Mokuieia. Owner, Waiialua Agricultural Co. Diameter, A to C and F to H, 12 in.; D, 10 in.; E, 6 in. Depth, 487 to 550 ft. Use, irrigation. Well D recased from 12 in. in 1916; E, recased from 8 in. Drilled, B, 1899; C to G, 1900; H, 1916. About 400 ft. of casing in each well.

Observations

Bench mark, triangle on concrete wall division between 2 pump pits. Altitude, 19.14 ft. Head can be read on well E from bench on top of blind range on top. Altitude, 13.79 ft.

Date	Head (ft.)	Chloride (p.p.m.)	Date	Head (ft.)	Chloride (p.p.m.)	Date	Head (ft.)	Chloride (p.p.m.)
Oct. ... 1920	228	...	Sept. ... 1920	160	...	Mar. ... 1932	17.3	...
May ... 1923	118	...	...	224	...	...	...	173
...	225	...	Apr. 9, 1930	17.3	...	...	...	194
June ... 1924	249	...	May ...	130	...	Jan. ... 1933	17.0	...
July 1925	163	...	...	183	...	...	...	165
May ... 1926	271	...	...	190	...	...	...	195
Sept. ...	338	...	...	297	...	...	...	198
Oct. ...	303	...	Oct. 8	17.4	...	...	...	232
Mar. ... 1928	193	...	Nov. 20	17.3	...	...	...	262
Apr. ...	147	...	Jan. ... 1931	...	...	...	...	268
...	234	...	Feb. ...	130	...	...	...	180
...	239	...	Nov. 20	17.2	...	...	...	17.0
...	249	...	Apr. ...	153	...	Jan. ... 1934	...	110
...	249	...	Apr. ...	187	...	...	...	80
...	176	...	June ...	194	...	...	...	146
...	109	...	July ...	228	...	...	...	172
...	127	...	Aug. ...	218	...	...	...	180
...	166	...	Sept. ...	177	...	...	...	224
...	182	...	Oct. ...	16.8	...	...	...	233
...	211	...	Jan. ... 1932	16.3	...	...	...	235

286 (old 238). On plantation road a quarter of a mile south of highway and 500 yd. southwest of Mokuieia R. R. station. Owner, Waiialua Agricultural Co. Altitude, 12 ft. Diameter, 6 in. Use, irrigation. Recased to 6 in. in 1918. Flowing at rate of 90,000 gal. a day in Jan. 1934.

Observations

Bench mark, top of 6-in. tee on well 6 in. above ground; altitude, 12.04 ft.

Date	Head (ft.)	Chloride (p.p.m.)	Date	Head (ft.)	Chloride (p.p.m.)	Date	Head (ft.)	Chloride (p.p.m.)
Jan. 30, 1929	17.24	147	Jan. 26, 1931	17.65	127	Feb. 15, 1933	17.64	126
Feb. 26	17.28	150	Feb. 25	17.38	116	Mar. 15	17.64	127
Mar. 20	16.62	149	Mar. 29	17.65	196	Apr. 14	17.90	118
Apr. 22	17.14	144	Apr. 27	17.37	110	May 25	16.95	121
May 21	16.38	137	May 28	17.11	110	June 15	16.95	119
June 24	16.24	132	June 24	16.90	118	July 20	16.82	139
Aug. 6	16.08	142	Aug. 5	17.13	126	Aug. 15	16.76	130
Aug. 27	16.62	142	Aug. 24	17.21	129	Sept. 18	16.89	122
Sept. 24	16.41	145	Oct. 5	17.22	129	Oct. 17	16.68	134
Oct. 23	16.44	147	Oct. 27	17.40	130	Nov. 9	17.10	146
Nov. 26	17.40	146	Dec. 16	17.70	137	Dec. 19	17.35	131
Dec. 23	17.52	152	Jan. 13, 1932	16.55	127	Jan. 11, 1934	17.27	129
Jan. 28, 1930	17.14	144	Feb. 16	17.83	128	Feb. 19	17.48	135
Feb. 27	18.00	141	Mar. 15	18.04	128	Mar. 22	16.83	122
Mar. 25	18.03	151	Apr. 14	17.85	113	Apr. 30	16.51	130
Apr. 29	17.41	138	May 16	17.09	119	May 15	16.95	132
May 27	17.90	132	June 15	16.96	119	June 14	16.85	133
June 30	17.16	132	July 14	17.24	116	July 15	16.49	130
July 28	17.11	133	Aug. 11	16.85	119	Aug. 15	16.46	126
Aug. 25	17.02	134	Sept. 14	16.81	122	Sept. 14	16.76	160
Oct. 3	17.98	136	Oct. 17	16.79	122	Oct. 12	16.58	160
Nov. 5	17.34	132	Nov. 14	16.97	125	Nov. 21	16.92	160
Dec. 5	18.08	131	Dec. 14	17.70	122	Dec. 21	17.35	140
Dec. 29	17.91	130	Jan. 16, 1933	17.72	136	...	...	...

287 (old 239). In sugar cane field 350 yd. south of Mokuieia R. R. station. Owner, Dillingham Ranch. Altitude, 11 ft. Diameter, 6 in. Use, irrigation. Recased in 1918. Bench mark, top of 6-in. tee on well 6 in. above ground; altitude, 11.39 ft.

288 (old 240). In banana plantation 700 yd. southeast of Mokuieia R. R. station. Owner, Dillingham Ranch. Diameter, 8 in. Use, irrigation. Flowing at rate of 830,000 gal. a day in Jan. 1934. Bench mark, lower horizontal flange of gate valve; altitude, 8.65 ft.

289 (old 241). In a banana plantation about 1000 yd. southeast of Mokuieia R. R. station, at windmill. Owner, Dillingham Ranch. Diameter, 8 in. Use, irrigation. Flowing at rate of 350,000 gal. a day on Jan. 9, 1934. Bench mark, top of collar top of tee; altitude, 14.50 ft.

291 (old 243). In Mokuieia at intersection of road to Dillingham Ranch and plantation tracks. Owner, Dillingham Ranch. Diameter, 10 in. Use, irrigation. Pump discharge, 1,250,000 gal. on Jan. 10, 1934. Bench mark is cross on concrete sump about 15 ft. east of pump house; altitude, 29.92 ft.

292 (old 242). At pump in a banana plantation in Mokuieia about 30 ft. east of road to Dillingham Ranch and about 900 yd. south of highway. Owner, Dillingham Ranch. Diameter, 8 in. Use, irrigation. Pump discharge, 710,000 gal. a day on Jan. 10, 1934. Bench mark, on horizontal flange of elbow on well casing; altitude, 21.78 ft.

293 (old 244). In Mokuieia on east side of road to Dillingham Ranch and 300 yd. south of highway. Owner, Dillingham Ranch. Diameter, 6 in. Use, irrigation. Pump discharge, 410,000 gal. a day on Jan. 10, 1934. Bench mark, top of blind flange on well casing; altitude, 14.60 ft.

294 (old 245). In sugar cane field in Mokuieia 150 yd. south of highway and about 50 yd. east of road to Dillingham Ranch. Owner, Waialua Agricultural Co. Diameter, 10 in. Use, irrigation. Flowing at estimated rate of 300,000 gal. a day in Jan. 1934. Bench mark, northeast corner of concrete box outlet; altitude, 16.67 ft.

295 (old 246). West of Waialua Agricultural Co. pump 11. On west side of road south of banana camp halfway between windmill and R. R. tracks. Owner, Dillingham Ranch. Diameter, 8 in. Equipped with pump but also flows. Flowing at rate of 120,000 gal. a day on Jan. 10, 1934. Some water boils up around pump house as if well were leaking. Use, irrigation. Bench mark, top of tee on well; altitude, 13.45 ft.

296A and B (old 247A and B). Pump 11A and 11B in Mokuieia, 150 yd. south of highway and 100 yd. east of road to Dillingham Ranch. Owner, Waialua Agricultural Co. Well B drilled 1915. Depth, 960 ft. Diameter, well A, 6 in.; B, 12 in. Use, A, domestic supply only; B, irrigation. Well A recased from 8 in.

Observations—Well 296 (Continued)

Bench mark, triangle cut in concrete floor under piezometer tube; altitude, 10.02 ft.

Date	Head (ft.)	Chloride (p.p.m.)	Date	Head (ft.)	Chloride (p.p.m.)	
					Pump A	Pump B
July .. 1923	....	114	Aug. .. 1931	....	162	74
June .. 1924	....	86	Sept. .. 1931	....	102	88
May .. 1926	....	89	Oct. .. 1931	18.0	...	...
Sept. ..	....	85	Jan. .. 1932	18.1	...	75
Oct. ..	....	84	Mar. ..	18.3	...	...
July .. 1927	....	93	Apr. ..	...	31	76
Aug. .. 1928	....	114	Sept. ..	...	99	67
June ..	....	89	Jan. .. 1933	18.0	...	...
Oct. ..	....	99	May ..	...	99	...
May .. 1929	....	99	June ..	...	100	...
June ..	....	93	July ..	...	101	...
July ..	....	120	Aug. ..	...	117	...
Aug. ..	....	145	Sept. ..	...	114	...
June ..	....	130	Oct. ..	...	124	...
Oct. ..	....	130	Nov. ..	...	129	...
Nov. ..	....	112	Dec. ..	...	110	104
Apr. 9, 1930	18.3	...	Jan. .. 1934	...	110	96
Apr. ..	17.9	...	Mar. ..	...	104	96
June ..	17.5	...	Apr. ..	...	104	96
Aug. ..	...	88	May ..	...	100	96
Oct. 8	18.4	...	June ..	...	104	100
Nov. 20	18.6	...	July ..	...	104	104
Jan. .. 1931	...	109	Aug. ..	...	104	95
Mar. 31	17.9	...	Sept. ..	17.1	116	97
Apr. ..	...	96	Oct. ..	...	112	...
May ..	...	95	Nov. ..	...	108	...
June ..	...	102				

297 (old 248). In Mokuieia, 150 yd. south of highway and 300 yd. east of road to Dillingham ranch. Owner, Waialua Agricultural Co. Diameter, 6 in. Use, irrigation. Bench mark, on northwest corner of concrete curb; altitude, 15.96 ft.

298 (old 249). Hesper Farm pump 14A leased by Waialua Agricultural Co., 20 ft. north of highway and 1 mile east of Mokuieia R. R. station. Owner, J. F. Mendonca. Diameter, 6 in. Use, irrigation. Recased from 8 in. Pumped at rate of 800,000 gal. a day.

Observations

Bench mark, top of tee; altitude, 13.19 ft.

Date	Chloride (p.p.m.)	Date	Chloride (p.p.m.)	Date	Chloride (p.p.m.)	Date	Chloride (p.p.m.)
Dec. 19, 1924	385	May .. 1934	262	Aug. .. 1934	466	Nov. .. 1934	548
Mar. .. 1934	514	June ..	474	Sept. ..	*624		
Apr. ..	382	July ..	440	Oct. ..	708		

*Head, 3.67 ft.

299 (old 250). Hesper Farm pump 14B, leased by Waialua Agricultural Co., 20 ft. north of highway and about 100 ft. east of well 298. Owner, J. P. Mendonca. Drilled, 1918. Diameter, 10 in. Use, irrigation. Pumped at rate of 670,000 gal. a day.

Observations

Bench mark, top of concrete at distribution box over discharge, at ground; altitude, 17.02 ft.

Date	Chloride (p.p.m.)	Date	Chloride (p.p.m.)	Date	Chloride (p.p.m.)	Date	Chloride (p.p.m.)
Dec. 19, 1924	218	May .. 1934	158	Aug. .. 1934	292	Nov. .. 1934	228
Mar. .. 1934	252	June ..	250	Sept. ..	*303		
Apr. ..	280	July ..	248	Oct. ..	353		

180

RECORDS OF DRILLED WELLS ON OAHU

300 (no old number). In Mokuleia, about 20 ft. north of paved road to Kawaihapai and 150 ft. west of paved road to Mokuleia Bench lots; 2.1 miles west of Waiialua mill. Owner, Waiialua Agricultural Co. Drilled, 1937 by McCandless Bros. Diameter, 12 in. Use, irrigation of sugar cane. Depth, 587 ft. Casing, 515.6 ft.

Log

	Depth (ft.)		Depth (ft.)
Mod (Pis and Pa)	0-85	Black sand (Possibly partly weathered Twb)	490-500
Coral and clay (Pis and Pa) (Sample labelled 90 ft. is well water-worn basaltic gravel up to 2 in. across)	85-105	Brown dirt (Possibly weathered Twb) Caprock (Twb)	500-508
Coral and gravel (Pis and Pa)	105-110	"Ekapuaka" rock (Twb)	508-520
Coral and clay (Pis and Pa)	110-490		520-587

301 (old 251). Hesper Farm pump 14C leased by Waiialua Agricultural Co., 20 ft. north of highway and about 200 ft. east of well 299. Owner, J. F. Mendonca. Diameter, 6 in. Use, irrigation. Pumped at rate of 1,070,000 gal. a day.

Observations

Bench mark, top of head on 8-in. tee on discharge pipe, at ground; altitude, 15.92 ft.

Date	Chloride (p.p.m.)	Date	Chloride (p.p.m.)	Date	Chloride (p.p.m.)	Date	Chloride (p.p.m.)
Mar. 1934	288	May 1934	300	July 1934	356	Sept. 1934	355
Apr.	320	June	336	Aug.	345	Oct.	411
						Nov.	348

*Head, 5.50 ft.

Meter test

No flow from top of well. Au 3-in. deep-well meter used. Readings by K. N. Vaksvik, Sept. 26, 1935.

Depth (ft.)	Revolutions per minute	Depth (ft.)	Revolutions per minute	Depth (ft.)	Revolutions per minute
10	0	130	84	190	362
30	22	140	68	200	320
50	89	150	138	210	320
70	78	160	308	220	266
90	80	170	302	225 (landed)	
110	86	180	380		

302 (old 252-1). About 200 yd. north of well 303. Owner, J. F. Mendonca. Diameter, 10 in. Not in use. Chloride (p.p.m.), Dec. 10, 1924, 2,450. Flowing at rate of 50,000 gal. a day in Jan. 1934. Bench mark, top of well casing close to ground; altitude, 10.92 ft. Sealed 1937.

Meter tests

Au 3-in. deep-well meter used. No flow from top of well. Readings by K. N. Vaksvik.

Test 1. Aug. 5, 1937. After iron fill deposited.

Depth (ft.)	Revolutions per minute	Depth (ft.)	Revolutions per minute	Depth (ft.)	Revolutions per minute
520	47	560	47	578.5 (landed)	
540	34	575	14		

Test 2. Aug. 9, 1937. After first cement fill had been deposited. Well still leaking.

Depth (ft.)	Revolutions per minute	Depth (ft.)	Revolutions per minute	Depth (ft.)	Revolutions per minute
100	6	300	14	453	15
200	11	380	11	470	9
300	17	490	15	490	16
320	8	430	24	494 (landed)	
340	12	440	18		

303 (old 252). About 75 ft. north of highway and 150 ft. east of road which is 1.2 miles east of Mokuleia R. R. station. Owner, J. F. Mendonca. Altitude, about 16 ft. Diameter, 8 in. Not in use. Sealed 1937.

Meter tests

Au 3-in. deep-well meter used. No flow from top of well. Readings by K. N. Vaksvik. Test 1. Aug. 16, 1937. After some iron had been deposited.

Depth (ft.)	Revolutions per minute	Depth (ft.)	Revolutions per minute	Depth (ft.)	Revolutions per minute
100	136	340	234	400	246
200	244	360	238	410	244
300	236	380	280	415	254
320	234	400	238	430	276

Test 2. Aug. 18, 1937. After first cement fill had been deposited.

Depth (ft.)	Revolutions per minute	Depth (ft.)	Revolutions per minute
200	24	400	22
300	22	410	20

422 (top of cement plug)

Test 3. Oct. 16, 1933.

Depth (ft.)	Revolutions per minute	Depth (ft.)	Revolutions per minute	Depth (ft.)	Revolutions per minute
15	10	70	138	150	166
20	18	80	138	160	180
30	16	90	146	170	174
35	16	100	148	180	168
40	40	110	168	190	310
45	138	120	174	195 (landed)	
50	136	130	45	166	
60	134	140	168		

304 (old 254). 30 ft. north of well 305. Owner, J. F. Mendonca. Diameter, 8 in. Use, irrigation. Chloride (p.p.m.), Dec. 19, 1924, 156. Flowing at rate of 270,000 gal. a day in Jan. 1934. Bench mark, top of horizontal flange of elbow; altitude, 13.08 ft.

305 (old 253). About 100 yd. south of highway and about 1.2 miles east of Mokuleia R. R. station. Owner, J. F. Mendonca. Drilled, 1917 by McCandless Bros. Altitude, 13 ft. Use, irrigation. Chloride (p.p.m.), Dec. 19, 1924, 184. Flowing at rate of 320,000 gal. a day in Jan. 1934. Bench mark, cross on top of tee on well; altitude, 13.0 ft.

306 (old 255). At end of flume 100 yd. north of highway and 1.5 miles east of Mokuleia R. R. station. Owner, J. F. Mendonca. Altitude, 8 ft. Diameter, 8 in. Use, irrigation. Chloride (p.p.m.), Dec. 19, 1924, 285. Flowing at rate of 270,000 gal. a day in Jan. 1934. Bench mark, top of vertical flange on elbow, on standpipe, 9 ft. above ground; altitude, 16.80 ft.

307 (old 256). About 50 ft. west of high water tank 1.6 miles east of Mokuleia R. R. station. Owner, J. F. Mendonca. Altitude, 7 ft. Depth, 528 ft. Diameter, 4 in. Use, domestic. Casing, 243 ft. Recased in 1926. Pumped to supply Mokuleia beach lots. Head (ft.), Feb. 24, 1927, 13.68. Chloride (p.p.m.), Dec. 10, 1924, 297; Jan. 30, 1925, 423; Dec. 22, 1926, 218; Mar. 30, 1927, 239; May 2, 1927, 239; Aug. 24, 1927, 125. Bench mark, top of flange on 8-in. well casing, at ground; altitude, 7.43 ft.

308 (old 257). About 10 ft. west of high water tank 1.6 miles east of Mokuieia R. R. station. Owner, J. F. Mendonca. Drilled, 1924 by McCandless Bros. Altitude, 8 ft. Depth, 548 ft. Diameter, 10 in. top and 8 in. bottom. Depth to top of aquifer, about 450 ft. Use, irrigation. Casing, 10 in. to 396 ft., 8 in. to 440 ft. Flowing at rate of 149,000 gal. a day in Jan. 1934.

Log		Depth (ft.)	Depth (ft.)
Alternating layers of coral, sand, and alluvial deposits (Pis and Pa)	0-396	Flow 5 million gal. a day; chloride, 208 p.p.m.	530
Hard rock (possibly Tab)	396-412	Flow more than 1.0 million gal. a day; chloride, 250 p.p.m.	540
Alluvial deposit (Pa)	412-432	Flow about 1.4 million gal. a day; chloride, 333 p.p.m.	548
First flow of water; chloride, 155 p.p.m.	450	Hard solidified lava rock (Tab)	499-548

Observations
Bench mark, top of 3/4-in. plate at ground on 12-in. tee; altitude, 8.46 ft.

Date	Head (ft.)	Chloride (p.p.m.)	Date	Head (ft.)	Chloride (p.p.m.)	Date	Head (ft.)	Chloride (p.p.m.)
Dec. 19, 1924	19.26	485	Nov. 19, 1928	18.46	170	Feb. 18, 1932	18.89	117
Feb. 17, 1925	19.10	520	Jan. 2, 1929	18.34	...	Mar. 15	19.34	92
Mar. 25	19.20	525	Jan. 30	18.03	180	Apr. 14	18.52	106
Apr. 14	18.60	550	Feb. 26	17.89	185	May 16	18.57	114
June 15	18.20	600	Mar. 26	17.26	186	June 15	18.32	115
Sept. 21	18.50	465	Apr. 23	17.36	188	July 14	18.39	111
Oct. 22	18.40	507	May 31	17.30	195	Aug. 11	18.30	114
Jan. 29, 1926	18.85	524	June 24	16.75	200	Sept. 14	18.20	112
Feb. 17	18.50	525	Aug. 6	16.75	205	Oct. 17	17.87	111
Mar. 26	17.72	610	Aug. 27	17.83	210	Nov. 14	18.23	114
June 11	17.75	568	Sept. 24	17.24	219	Dec. 14	19.02	135
July 28	17.53	575	Oct. 23	16.96	206	Jan. 16, 1933	18.78	143
Aug. 31	17.06	522	Nov. 26	18.56	254	Feb. 14	17.96	142
Sept. 29	17.75	...	Dec. 23	18.31	183	Mar. 15	18.81	155
Sept. 30	...	164	Jan. 28, 1930	19.26	107	Apr. 18	18.26	126
Nov. 22	18.45	108	Feb. 27	19.07	107	May 25	18.62	75
Dec. 22	18.60	120	Mar. 25	19.16	107	June 15	18.85	82
Jan. 26, 1927	18.50	107	Apr. 29	17.46	163	July 20	18.02	99
Feb. 24	...	238	May 27	17.46	174	Aug. 14	18.30	96
Mar. 29	18.50	239	June 30	18.03	174	Sept. 18	18.44	93
May 2	18.61	239	July 28	17.96	177	Oct. 17	18.35	92
June 27	18.29	...	Aug. 25	17.57	174	Nov. 9	18.97	80
July 25	16.81	286	Oct. 3	19.55	204	Dec. 19	18.82	92
Aug. 24	17.11	125	Nov. 5	18.29	168	Jan. 11, 1934	18.88	69
Sept. 26	17.81	126	Dec. 5	18.96	201	Feb. 19	18.80	88
Oct. 26	17.16	135	Dec. 29	19.26	203	Mar. 22	17.88	78
Nov. 22	18.08	172	Jan. 26, 1931	18.26	165	Apr. 26	18.59	91
Jan. 5, 1928	18.41	150	Feb. 25	18.26	201	May 15	17.85	78
Feb. 7	16.21	153	Mar. 25	17.76	166	June 14	18.40	99
Mar. 5	17.46	138	Apr. 27	18.31	185	July 10	18.55	90
Apr. 10	18.26	133	May 28	18.00	155	Aug. 15	17.89	91
May 20	17.91	125	June 24	18.17	175	Sept. 14	18.83	100
June 21	17.06	157	Aug. 5	18.55	186	Oct. 12	18.37	100
July 23	17.34	153	Aug. 24	18.68	111	Nov. 21	18.43	100
Aug. 21	17.06	178	Oct. 5	18.58	114	Dec. 21	18.89	63
Sept. 24	17.18	170	Oct. 27	18.79	112			
Oct. 24	17.36	177	Dec. 16	18.96	130			

* In August 1926 depth of well was reduced to 518 ft. to reduce salt content of water.

309 (old 258). At end of flume 100 yd. south of highway and 1.6 miles east of Mokuieia R. R. station. Owner, J. F. Mendonca. Altitude, about 10 ft. Diameter, 6 in. Use, irrigation. Chloride (p.p.m.), Dec. 19, 1924, 67. Flowing at rate of 180,000 gal. a day in Jan. 1934. Bench mark, on top of horizontal flange of elbow; altitude, 12.37 ft.

311 (old 259). Former pump 10 in village north of plantation tracks 0.6 mile west of R. R. crossing over highway 2.4 miles east of Mokuieia R. R. station. Owner, Waiaina Agricultural Co. Altitude, about 18 ft. Diameter, 7 in. Abandoned.

Observations
Bench mark, top of sleeve at ground on well; altitude, 14.78.

Date	Chloride (p.p.m.)	Date	Chloride (p.p.m.)	Date	Chloride (p.p.m.)	Date	Chloride (p.p.m.)
Apr. ... 1928	83	Mar. ... 1929	70	June ... 1929	123	Sept. ... 1929	140
Oct. ...	63	Apr. ...	85	July ...	125	Oct. ...	148
Sept. ...	83	May ...	110	Aug. ...	145	Nov. ...	117

312 (old 260). About 200 yd. east of high water tank 1.7 miles east of Mokuieia R. R. station. Owner, J. P. Mendonca. Altitude, about 10 ft. Depth, 560 ft. Diameter, 4 in. Use, irrigation. Casing, 472 ft. Reamed in 1926. Chloride (p.p.m.), Dec. 19, 1924, 84; Aug. 31, 1926, 155. Flowing at rate of 80,000 gal. a day in Jan. 1934. Bench mark, top of blind flange; altitude, 12.48 ft.

313 (old 261). At end of flume 100 yd. north of highway and 1.8 miles east of Mokuieia R. R. station. Owner, J. P. Mendonca. Diameter, 10 in. Use, none. Chloride (p.p.m.), Dec. 19, 1924, 122. Flowing at rate of 190,000 gal. a day in Jan. 1934. Bench mark, on top of well casing about 8 ft. above ground; altitude, 13.42 ft. Sealed 1937

Meter tests
No flow from top of well. Au 3-in. deep-well meter used. Readings by K. N. Yakavik. Test 1. Before any fill deposited. Aug. 24, 1937.

Depth (ft.)	Revolutions per minute	Depth (ft.)	Revolutions per minute	Revolutions per minute
50	80	250	200	199
100	85	400	254	152
150	190	430	206	116
200	214	450	203	82
250	190	450	192	46
300	188	460	186	529 (landed)

Test 2. After iron fill deposited. Aug. 27, 1937: Depth, 400 ft. r.p.m., 58; 440 ft., r.p.m., 38.

Test 3. After first cement fill deposited. Aug. 30, 1937.

100	200	300	360-376	0
0	13	350	30	394 (landed)

314 (old 262). At Chinese camp 200 yd. north of highway and 2 miles east of Mokuieia R. R. station. Owner, J. P. Mendonca. Diameter, 10 in. Use, irrigation. Chloride (p.p.m.), Dec. 19, 1924, 114. Flowing at rate of 540,000 gal. a day in Jan. 1924. Bench mark, top of plug in tee on well; altitude, 8.51 ft.

Meter test
Small flow from top of well. Au 3-in. deep-well meter used. Readings by K. N. Yakavik, Oct. 2, 1925.

Depth (ft.)	Revolutions per minute	Depth (ft.)	Revolutions per minute	Revolutions per minute
2	9	40	94	156
10	48	50	94	184
20	60	60	94	184
30	60	70	102	184
35	60	80	115	179

Meter test—Well 314 (Continued)

Depth (ft.)	Revolutions per minute	Depth (ft.)	Revolutions per minute	Depth (ft.)	Revolutions per minute
140	184	250	234	400	266
160	184	260	240	420	286
170	200	260	240	420	286
180	208	260	240	420	286
190	210	310	252	460	294
200	210	320	258	470	296
220	210	340	272	475	290
230	214	360	268	480	222
240	222	360	260	485	216
			260	495	182

315 (old 264). About 250 yd. north of highway and 2 miles east of Mokuieia R. R. station. Owner, J. P. Mendonca. Diameter, 8 in. Use, irrigation. Chloride (p.p.m.), Dec. 19, 1924, 100. Flowing at rate of 850,000 gal. a day in Jan. 1934. Bench mark, top of flange on casing 10 ft. above; altitude, 16.62 ft.

316 (old 263). At pump house 25 ft. north of highway and 2 miles east of Mokuieia R. R. station. Owner, J. P. Mendonca. Diameter, 10 in. Use, irrigation. Chloride (p.p.m.), Dec. 19, 1924, 116. Flowing at rate of 1,000,000 gal. a day in Jan. 1934. Bench mark, top of tee on well; altitude, 16.13 ft.

317 (old 265). At high flume beside highway 2.1 miles east of Mokuieia R. R. station. Owner, J. P. Mendonca. Diameter, 8 in. Use, irrigation. Chloride (p.p.m.), Mar. 26, 1926, 116. Flowing at rate of 820,000 gal. a day in Jan. 1934. Bench mark, top of cross union; altitude, 16.43 ft.

317-1 (no old number). In Waialua about 200 yd. north of highway to Kawaihapai about 1 mile west of Andrew Cox School. In large depression in cane field. Owner, Waialua Agricultural Co. Drilled, 1891 by McCandless Bros. Depth, 700 ft. Drillers did not strike solid rock, and as there was no flow of water, casing withdrawn and well abandoned.

318 (old 266). 2,000 ft. southeast of Puuiki R. R. station. Owner, Waialua Agricultural Co. Drilled, 1891. Altitude, about 8 ft. Depth, 400 ft. Abandoned.

Meter test

No flow from top of well. Readings by K. N. Vaksvik, Oct. 16, 1935.

Depth (ft.)	Revolutions per minute	Depth (ft.)	Revolutions per minute	Depth (ft.)	Revolutions per minute
10	36	60	42	110	39
20	36	70	43	120	38
30	36	80	43	130	38
40	37	90	38	140	38
50	37	90	38	152 (obstruction)	38
	43	100	34		

319A to I (old 267A to I). Waialua sugar mill. Owner, Waialua Agricultural Co. Drilled, A, 1920 by McCandless Bros.; B, C, and D, 1896 by L. E. Pihkam; E, 1900; F and G, 1923; H and I, 1933 by McCandless Bros. Altitude, about 20 ft. Depth, A, 250 ft.; B, 274 ft.; C, 292 ft.; D, 294 ft.; E and F, 296 ft.; G, 297 ft.; H, 271 ft.; I, 270 ft. Diameter, A, C, F to I, 12 in.; B, D, and E, 10 in. Use, irrigation. Casing, A, 234 ft.; B, D, and E, recased in 1925; F, 233 ft.; G and I, 231 ft.; H, 230 ft. Depth of well A reduced in 1926 to reduce salt content of water.

Well 319 (Continued)

Logs		Depth (ft.)	Depth (ft.)	Depth (ft.)	Depth (ft.)
Well A					
Gravel and boulders				Red rock (Tkb)	240-282
Clay (Ra)	0-12		170-140	Blue hard rock (Tkb)	249-292
Soft coral (Pla)	12-32		148-155	Red rock (Tkb)	292-297
Hard coral (Pla)	32-49			Well H	
Clay (Pa)	49-65		155-165	Dirr (Ra)	0-15
Hard coral (Pla)	65-84		165-205	Coral and dirt (Pa	
Clay (Pa)	84-140		205-215	and Pa)	15-20
False rock (Pa)	140-143		215-222	Coral (Pa)	20-85
Clay (Pa)	143-152			Clay (Pa)	85-134
Clay (Pa)	152-169			Boulders (Pa)	134-145
Gravel (Pa)	169-179		233-240	Clay (Pa)	145-155
Clay (Pa)	179-190			Boulders (Pa)	155-165
Gravel (Pa)	190-207		240-250	Coral and clay (Pa	
Clay (Pa)	207-215			and Pa)	165-208
Gravel, false rock (Pa			250-285	(Tkb)	208-232
Soft sandy rock (Pa	215-234		250-285	Caprock (blue) (Tkb)	232-250
or Tkb)			250-295	(Tkb)	250-265
Lava rock (Tkb)	234-251			Water rock (blue	
Hard rock, water	251-266		0-4	brown) (Tkb)	265-270
(Tkb)			4-7	Caprock (blue) (Tkb)	270-271
Soft water rock (Tkb)	266-270		75-135	Well I	
Hard rock (Tkb)	270-282			Gravel and boulders	0-15
Hard rock (Tkb)	282-285			Dirr (Ra)	15-85
Soft water rock, hard	285-297		135-175	Coral (Pa)	165-85
on bottom (Tkb)				Clay (Pa)	85-155
Well P				Boulders (Pa)	155-165
Clay (Ra)	0-10		205-215	Clay and coral (Pa and	
Coral (Pla)	10-75			Pla)	165-223
Clay (Pa)	75-138		215-235	Caprock (blue) (Tkb)	228-240
			235-240	Water rock (Tkb)	240-270

Observations

Date	Chloride (p.p.m.)	Date	Chloride (p.p.m.)	Date	Chloride (p.p.m.)	Date	Chloride (p.p.m.)
Dec. . . 1925	338	May . . 1927	509	Nov. . . 1932	181	Feb. . . 1934	362
Jan. . . 1926	385	June . .	460	Apr. . . 1933	191	Mar. . .	244
Feb. . .	410	July . .	490	May . .	225	Apr. . .	276
Apr. . .	437	Aug. . .	504	June . .	232	May . .	312
Apr. . .	458	Feb. . . 1928	368	July . .	240	June . .	304
Aug. . .	472	Mar. . .	368	Aug. . .	289	July . .	400
Sept. . .	473	Sept. . .	323	Sept. . .	256	Aug. . .	487
Oct. . .	513	June . . 1929	361	Oct. . .	219	Sept. . .	518
Dec. . .	374	July . .	395	Nov. . .	264	Oct. . .	385
Jan. . . 1927	501	Aug. . .	409	Dec. . .	268	Nov. . .	336
Apr. . .	470	Oct. . .	465	Jan. . . 1934	306		

321A to E (old 268A to E). Pump I, 200 yd. south of highway bridge over Kaukaeha Stream on Mokuieia Road. Owner, Waialua Agricultural Co. Drilled, A, B, C, and D, 1920 by T. E. Pihkam; E, 1920 by McCandless Bros. Altitude, about 12 ft. Depth, A, 300 ft.; B and C, 280 ft.; D and E, 320 ft. Diameter of all wells, 12 in. Use, irrigation. Casing, D, 139 ft.

Observations

Bench mark, top of priming plug on small cent. pump; altitude, 9.71 ft.

Date	Head (ft.)	Chloride (p.p.m.)	Date	Head (ft.)	Chloride (p.p.m.)	Date	Head (ft.)	Chloride (p.p.m.)
Oct. . . 1920	203	366	Aug. . . 1928	218	Oct. . . 1930	12.9	...	
June . . 1925	203	325	May . . 1929	203	Nov. . .	12.5	...	
June . . 1924	185	July . .	384	Jan. . . 1931	...	204	...	
May . . 1926	250	Aug. . .	442	Feb. . .	...	190	...
Oct. . .	418	Sept. . .	397	Mar. . .	...	118.3	397
Nov. . .	332	Oct. . .	504	Apr. . .	...	237	...
Dec. . .	221	Nov. . . 1930	11.7	May . .	...	26.5	...
Nov. . .	208	Aug. . .	11.2	June . .	...	34.0	...
July . .	301	July . .	10.9	July . .	...	4.0	...
Aug. . . 1928	166	Aug. . .	249	Aug. . .	...	10.1	463

RECORDS OF DRILLED WELLS ON OAHU

Observations—Well 321 (Continued)

Date	Head (ft.)	Chloride (p.p.m.)	Date	Head (ft.)	Chloride (p.p.m.)	Date	Head (ft.)	Chloride (p.p.m.)
Sept. . . . 1931	...	324	June . . . 1933	....	204	Mar. . . . 1934	....	244
Oct. . . . 11.9	...	...	July . . . . .	....	232	Apr. . . . .	....	168
Jan. . . . 1932	...	...	Aug. . . . .	....	348	May . . . . .	....	372
Mar.	12.6	...	Sept. . . . .	....	398	June . . . . .	....	376
Aug. . . . .	...	157	Oct. . . . .	....	448	July	11.05	400
Sept. . . . .	...	212	Nov. . . . .	....	476	Aug. . . . .	...	511
Jan. . . . 1933	12.3	...	Dec.	12.0	...	Sept.	11.05	529
May . . . . .	...	225	Jan. . . . 1934	....	266	...	...	...

322A to N (old 269A to N). Pump 2, 2A and 2B, about half a mile south of highway bridge over Kauhakua Stream on Mokuia Road. Owner, Waialua Agricultural Co. Altitude, about 27 ft. Drilled, A, B, and C, 1915; J, 1924; and K, L, M, 1917 by McCandless Bros.; D to I, and N, 1899 by L. E. Pinkham. Depth, A to C, and J, 330 ft.; D, 333 ft.; E, F, H, I, and N, 320 ft.; G, 295 ft.; K, L, M, 324 ft. Diameter, 12 in. Use, irrigation. Casing, A to C, and J, 125 ft.; K, 112 ft. Consists of two separate batteries with detached pump houses. Wells A to I pump 2, and J to N pump 2A and B.

Logs

Wells A, B, and C	Depth (ft.)
Clay (Ra)	0-49
Boulders (Pa)	49-51
Porous rock (Either Twb or Tkb, but probably Tkb)	51-60
Clay (Possibly Pa but may be Twb or Tkb, but probably Tkb)	60-112
Lava rock (Either Twb or Tkb, but probably Tkb)	112-132
Hard rock (Either Twb or Tkb, but probably Tkb)	132-165
Water rock, water (Either Twb or Tkb, but probably Tkb)	165-179
Hard blue rock (Either Twb or Tkb, but probably Tkb)	179-194
Water rock (Either Twb or Tkb, but probably Tkb)	194-206
Hard rock (Either Twb or Tkb, but probably Tkb)	206-216
Water rock (Either Twb or Tkb, but probably Tkb)	216-231
Red rock (Either Twb or Tkb, but probably Tkb)	231-249
Hard rock (Either Twb or Tkb, but probably Tkb)	249-264
Water rock (Either Twb or Tkb, but probably Tkb)	264-285
Hard rock (Either Twb or Tkb, but probably Tkb)	285-307
Soft rock (Either Twb or Tkb, but probably Tkb)	307-324
Hard rock (Either Twb or Tkb, but probably Tkb)	324-325
Soft rock (Either Twb or Tkb, but probably Tkb)	325-330

Observations

Bench mark, triangle on top of ¾-in. valve top of blind flange on well H; altitude, 18.45 ft.

Date	Head (ft.)	Chloride (p.p.m.)	Date	Head (ft.)	Chloride (p.p.m.)
Oct. . . . 1920	...	136	July 1928	...	135
July 1923	...	127	Aug. . . . .	...	109
Feb. . . . 1924	...	109	Sept. . . . .	...	109
Mar.	96	Oct. . . . .	...	140
June	118	89	Nov. . . . .	...	106
May 1926	...	140	Feb. . . . 1929	...	119
Sept.	152	151	Mar. . . . .	...	114
Oct.	145	145	Apr. . . . .	...	93
Nov.	152	154	May	117	184
Dec.	176	154	June . . . . .	...	182
Jan.	187	...	July . . . . .	...	127
Feb.	166	...	Aug. . . . .	...	202
Mar.	187	...	Sept. . . . .	...	151
Apr.	166	...	Oct. . . . .	...	106
May 1927	...	216	Nov. . . . .	...	218
June	145	Dec. . . . .	...	183
July	167	Jan. 1930	11.8	275
Aug.	109	Feb. . . . .	...	239
Sept.	153	Mar. . . . .	...	106
Oct.	92	Apr. . . . .	...	106
Nov.	116	May . . . . .	...	140
Dec.	99	June . . . . .	...	140
Jan.	99	July . . . . .	...	125
Feb.	Aug. . . . .	...	101
Mar.	Sept.	12.9	126
Apr.	Oct. . . . .	...	...
May
June
July
Aug.
Sept.
Oct.
Nov.
Dec.
Jan.
Feb.
Mar.
Apr.
May
June
July
Aug.
Sept.
Oct.
Nov.
Dec.

RECORDS OF DRILLED WELLS ON OAHU

Observations—Well 322 (Continued)

Date	Head (ft.)	Chloride (p.p.m.)		Date	Head (ft.)	Chloride (p.p.m.)	
		Wells A-I	Wells J-N			Wells A-I	Wells J-N
Nov. . . . 1920	12.6	...	...	June . . . 1933	....	144	109
Jan. . . . 1931	...	47	60	July . . . . .	....	159	119
Feb. . . . .	...	104	104	Aug. . . . .	....	208	148
Mar.	11.4	169	126	Sept. . . . .	....	224	164
Apr. . . . .	...	169	130	Oct. . . . .	....	244	176
May . . . . .	...	199	163	Nov. . . . .	....	180	208
June . . . . .	...	235	178	Dec.	12.0	284	208
July . . . . .	...	275	391	Jan. . . . 1934	....	320	298
Aug. . . . .	...	314	314	Feb. . . . .	....	184	180
Sept.	11.4	224	197	Apr. . . . .	....	200	193
Oct.	12.0	...	...	May . . . . .	....	240	176
Jan. . . . 1932	12.1	...	119	June . . . . .	....	236	168
Mar.	12.6	...	...	July . . . . .	....	228	184
Apr. . . . .	...	112	99	Aug. . . . .	....	232	167
May . . . . .	...	146	88	Sept. . . . .	....	288	217
Jan. . . . 1933	12.4	...	...	Oct. . . . .	....	311	...
May . . . . .	...	165	132	Nov. . . . .	....	340	...

322A to L (old 271A to L). Pumps 10 and 10A, known as pump 13 for a few months, in Poamoho Gulch about 0.7 mile east of Mokuia Malicua intersection on Kamehameha Highway. Owner, Waialua Agricultural Co. Five pumps in building. Drilled, 1927 by McCandless Bros. Depth, A and E, 380 ft.; B and L, 377 ft.; C and G, 376 ft.; D, 400 ft.; F, 381 ft.; H and I, 375 ft.; J, 379 ft.; K, 378 ft. Diameter, 12 in. Depth to top of aquifer, A, 163 ft.; B and E, 164 ft.; C, 160 ft.; D, 163 ft.; F and H, 150 ft.; G, 169 ft.; I, 147 ft.; J, 155 ft.; K and L, 165 ft. Use, irrigation. Casing, A, C, and G, 163 ft.; D, B, D and L, 166 ft.; F, 154 ft.; H, 155 ft.; I, 153 ft.; J, 100 ft.; K, 168 ft.

Logs

Well A	Depth (ft.)	Well B	Depth (ft.)	Well I	Depth (ft.)
Boulders and clay (Ra)	0-15	Boulders and clay (Ra)	0-15	Boulders and clay (Ra)	0-20
Rotton rock (Tkb)	15-164	Rotton rock (Tkb)	15-164	Rotton rock (Tkb)	20-147
Bed rock (Tkb)	163-380	Bed rock (Tkb)	164-380	Bed rock (Tkb)	147-375
Well B		Well F		Well J	
Boulders and clay (Ra)	0-10	Boulders and clay (Ra)	0-20	Boulders and clay (Ra)	0-20
Rotton rock (Tkb)	15-161	Rotton rock (Tkb)	25-150	Rotton rock (Tkb)	20-155
Bed rock (Tkb)	164-377	Bed rock (Tkb)	150-381	Bed rock (Tkb)	155-375
Well C		Well G		Well K	
Boulders and clay (Ra)	0-15	Boulders and clay (Ra)	0-25	Boulders and clay (Ra)	0-20
Rotton rock (Tkb)	15-160	Rotton rock (Tkb)	26-169	Rotton rock (Tkb)	20-165
Bed rock (Tkb)	160-376	Bed rock (Tkb)	169-376	Bed rock (Tkb)	165-378
Well D		Well H		Well L	
Boulders and clay (Ra)	0-15	Boulders and clay (Ra)	0-25	Boulders and clay (Ra)	0-15
Rotton rock (Tkb)	15-162	Rotton rock (Tkb)	25-150	Rotton rock (Tkb)	15-165
Bed rock (Tkb)	162-400	Bed rock (Tkb)	150-375	Bed rock (Tkb)	165-377

Observations

Bench mark, top of priming plug on any pump; altitude, 4.61 ft.

Date	Head (ft.)	Chloride (p.p.m.)	Date	Head (ft.)	Chloride (p.p.m.)
Wells A to D			Jan. 18, 1933	12.26	...
Apr. 12, 1930	11.75	...	Apr. 15, 1933	76	...
Oct. 8, 1927	12.27	...	May 17, 1933	86	...
Nov. 22, 1927	12.30	...	June 15, 1933	86	...
Mar. 31, 1921	11.99	...	Apr. 16, 1934	116	...
Oct. 13, 1921	12.01	...	May 15, 1934	116	...
Jan. 9, 1922	12.05	...	June 15, 1934	112	...
Mar. 4, 1927	12.27	...	Sept. 18, 1934	124	...
			July 16, 1934	112	...

Observations—Well 323 (Continued)

Date	Head (ft.)	Chloride (p.p.m.)	Date	Head (ft.)	Chloride (p.p.m.)	Date	Head (ft.)	Chloride (p.p.m.)
Aug. 15, 1934	166		Dec. 18, 1933	300		July 17, 1933	81	
Sept. 18	164		Mar. 16, 1934	162		Aug. 15	128	
Sept. 22	117		Apr. 15	218		Sept. 17	140	
Oct. 15	174		May 15	192		Oct. 17	132	
Nov. 15	152		June 15	152		Nov. 16	144	
Wells E to H								
Apr. 15, 1933	92		Aug. 15	300		Mar. 16, 1934	160	
May 7	145		Oct. 15	333		Apr. 16	132	
June 15	165		Sept. 18	368		May 15	113	
July 17	159		Nov. 15	320		June 15	110	
Aug. 15	224		Wells I to L			July 16	140	
Sept. 18	185		Aug. 15, 1933	54		Aug. 15	193	
Oct. 17	276		Apr. 15	96		Sept. 18	187	
Nov. 16	276		June 15	94		Oct. 15	188	
						Nov. 15	182	

324A to E (old 270A to E). Pump 7 about 200 yd. west of highway over Poamoho Stream on Schofield-Haleiwa road. Owner, Waiaina Agricultural Co. Drilled, B and C, 1913; D and E, 1923 by McCandless Bros. Depth, B and E, 318 ft.; C, 317 ft.; D, 313 ft. Diameter, A, 8 in.; B to E, 12 in. Depth to top of aquifer, D, 110 ft. Use, irrigation. Casing, D, 69 ft.

Log

Class	Depth (ft.)	Remarks	Depth (ft.)	Remarks	Depth (ft.)	Remarks
Clay, some boulders (Pa and P)	0-25	Red rock (Tbk.)	150-165	Blue hard rock (Tbk)	200-220	
Boulders (Pa or Tbk)	25-68	Blue hard rock (Tbk)	160-180	Red rock, water (Tbk)	250-280	
Blue rock (Tbk.)	68-100	Blue rock, water (Tbk)	180-215	Red rock, water (Tbk)	280-280	
Red rock, little water (Tbk)	100-110	Red rock (Tbk.)	215-225	Blue rock, water (Tbk)	282-310	
Blue rock, little water (Tbk)	110-150	Blue rock, water (Tbk)	225-240	Red rock (Tbk.)	310-313	
		Red rock, water (Tbk)	232-240			

Observations

Bench mark, triangle northeast corner transformer station concrete foundation; altitude, 17.18 ft.

Date	Head (ft.)	Chloride (p.p.m.)	Date	Head (ft.)	Chloride (p.p.m.)
July .. 1923	104		July .. 1931	339	
June .. 1924	104		Aug.	205	
May .. 1927	102		Oct.	119	
July ..	123		Jan. .. 1932	12.0	
Aug.	88		Mar.	12.5	
Aug.	114		Sept. ...	106	
Aug.	102		Jan. 1933	16.5	
Oct.	97				
Apr. 1929	99				
May ..	131				
June ..	127				
July ..	182				
Aug.	182				
Sept. ...	162				
Oct.	145				
Nov.	223				
Apr. 9, 1930	11.7				
June ..	247				
July ..	216				
Aug.	168				
Sept. ...	138				
Oct.	12.9				
Nov.	12.9				
Feb. .. 1931	68				
Mar.	119				
Apr.	139				
May ..	178				
June ..	179				

325 (old 272). About 600 yd. north of well 324 and between Opauala and Poamoho Streams. Owner, Lopez estate. Chloride (p.p.m.), Aug. 12, 1924, 79. Flowing at rate of about 750,000 gal. a day in Jan. 1934.

326 (old 274). In sugar cane field near camp about 700 yd. west of Two Bridges, Waiaina. Owner, Waiaina Agricultural Co. Altitude, 6 ft. Diameter, 8 in. Use, irrigation. Flowing at rate of 250,000 gal. a day in Jan. 1934. Recused in 1924.

Observations

Bench mark, top of blind flange on well 1½ ft. below ground; altitude, 4.69 ft.

Date	Head (ft.)	Chloride (p.p.m.)	Date	Head (ft.)	Chloride (p.p.m.)	Date	Head (ft.)	Chloride (p.p.m.)
Mar. .. 1911	11.27		Nov. .. 1916	12.99		Mar. 5, 1928	11.73	50
Apr. ..	11.40		Dec. ..	12.54		Apr. 10	11.69	50
June ..	11.40		Feb. .. 1917	13.17		May 20	11.94	50
July ..	11.42		Mar. ..	12.87		June 21	10.24	51
Aug. ..	11.86		Apr. ..	12.79		July 23	11.23	51
Sept. ..	11.68		May ..	13.12		Aug. 21	11.29	51
Oct. ..	11.93		June ..	13.22		Sept. 24	11.31	52
Jan. .. 1912	11.94	76	July ..	12.97		Oct. 24	11.05	51
Feb. ..	11.89	73	Aug. ..	12.96		Nov. 19	12.23	48
Mar. ..	11.84	74	Sept. ..	12.54		Jan. 2, 1929	12.11	48
Apr. ..	11.66	76	Oct. ..	12.54		Jan. 29	11.74	48
May ..	11.44	73	Nov. ..	12.67		Feb. 25	11.75	48
June ..	11.39	74	Dec. ..	12.68		Mar. 25	11.22	48
July ..	11.14	77	Jan. .. 1918	13.12		Apr. 22	11.42	48
Aug. ..	11.04	78	Feb. ..	12.84		May 21	10.75	48
Sept. ..	10.88	78	Mar. ..	12.80		June 25	10.60	49
Oct. ..	10.87	83	Apr. ..	12.94		Aug. 9	10.92	50
Nov. ..	11.09	79	May ..	12.72		Aug. 26	10.58	52
Dec. ..	11.54	78	June ..	12.69		Sept. 24	10.49	52
Jan. .. 1913	11.58	77	July ..	12.22		Oct. 22	10.72	51
Feb. ..	11.37	76	Aug. ..	12.42		Nov. 25	11.76	49
Mar. ..	11.14	78	Sept. ..	12.64		Dec. 30	11.92	49
Apr. ..	11.04	79	Oct. ..	12.84		Jan. 27, 1930	12.00	47
May ..	11.10	77	Nov. .. 1919	12.44		Feb. 26	11.74	46
June ..	11.05	76	Dec. ..	11.12		Mar. 24	11.68	48
July ..	11.00	79	Jan. .. 1921	11.77	50	Apr. 28	11.48	50
Aug. ..	11.62	78	Feb. .. 1924	11.77	50	May 29	11.09	50
Sept. ..	11.94	79	Mar. ..	11.60	61	June 24	10.98	51
Oct. ..	11.33	76	Apr. ..	11.92		July 28	11.32	53
Nov. ..	11.87	76	May ..	11.87	52	Aug. 25	11.36	52
Dec. ..	11.22	83	June ..	11.22	54	Oct. 9	12.04	50
Jan. .. 1914	11.24	74	July ..	10.52	56	Nov. 5	11.90	50
Feb. ..	11.57	74	Aug. ..	11.12	57	Dec. 4	12.23	50
Mar. ..	11.40	79	Sept. ..	12.12	58	Dec. 29	12.28	50
Apr. ..	11.38	72	Oct. 14	8.0		Jan. 26, 1931	11.68	49
May ..	11.37	74	Nov. ..	12.19	55	Feb. 25	10.88	49
June ..	11.60	69	Dec. 12	12.19	55	Mar. 25	11.25	50
July ..	11.44		Jan. 20, 1925	11.14	48	Apr. 27	11.00	50
Aug.	12.49		Feb. 11	11.67	51	May 28	10.50	50
Sept. ...	11.09		June 16	11.69	53	June 24	10.71	54
Oct.	11.06		Sept. 9	11.60	48	Aug. 4	10.52	52
Nov.	12.35		Oct. 23	12.35	53	Aug. 24	11.11	54
Dec.	11.64		Jan. 29, 1926	11.54	53	Oct. 5	11.63	54
Jan. 1915	11.74	69	Feb. 17	10.50	51	Oct. 27	11.92	54
Feb. ..	11.83	64	Mar. 26	10.82	54	Dec. 16	12.08	52
Mar. ..	11.87		June 11	10.65	55	Jan. 13, 1932	11.62	53
Apr.	11.24		July 28	10.46	56	Feb. 16	11.75	54
May ..	11.16	70	Aug. 31	10.34	59	Mar. 19	12.82	53
June ..	11.48	70	Sept. 29	10.76	58	Apr. 14	12.00	54
July ..	11.40	70	Oct. 22	10.69	62	May 16	11.94	56
Aug.	11.27		Nov. 22	10.78	51	June 15	11.96	56
Sept. ...	11.27	71	Dec. 22	10.78	51	July 14	11.86	58
Oct.	11.27	71	Jan. 26, 1927	10.52	52	July 14	11.86	58
Nov.	11.04		Feb. 24	11.02	50	Aug. 12	11.99	59
Dec.	12.89	67	Mar. 30	11.32	49	Sept. 14	11.91	57
Jan. 1916	12.98	69	Apr. 2	11.06	50	Oct. 17	11.64	58
Feb. ..	12.98	69	May 2	11.06	50	Oct. 17	11.74	59
Mar. ..	12.44	66	June 25	10.97	53	Dec. 14	12.51	57
Apr.	12.44	73	July 28	10.91	54	Jan. 16, 1933	12.67	56
May ..	12.04	68	Aug. 24	11.85	52	Feb. 16	12.21	57
June ..	12.44	65	Sept. 26	11.85	52	Mar. 15	12.74	59
July ..	12.39	68	Oct. 26	11.92	50	Apr. 18	12.11	60
Aug.	12.54	66	Nov. 22	11.81	60	May 25	12.11	60
Sept. ...	12.54	66	Jan. 5, 1928	12.26	46	May 25	11.50	62
Oct.	12.60		Feb. 7	11.80	48	June 15	11.42	60

Observations—Well 326 (Continued)

Date	Head (ft.)	Chloride (p.p.m.)	Date	Head (ft.)	Chloride (p.p.m.)	Date	Head (ft.)	Chloride (p.p.m.)
July 20, 1933	11.26	63	Jan. 11, 1934	11.18	54	July 13, 1934	10.53	63
Aug. 14	11.18	64	Feb. 19	11.48	55	Aug. 15	10.34	64
Sept. 18	11.52	60	Mar. 23	10.71	62	Sept. 14	10.65	64
Oct. 17	11.20	61	Apr. 30	10.64	62	Oct. 12	10.71	64
Nov. 9	11.30	62	May 15	10.85	63	Nov. 27	10.92	..
Dec. 18	11.60	55	June 14	10.46	62	Dec. 21	11.50	58

327 (old 273). Pump 9 at pump house about 20 ft. south of road and 600 yd. west of Two Bridges, Waiialua. Owner, Waiialua Agricultural Co. Drilled about 1898. Diameter, 10 in. Use, irrigation.

Observations

Bench mark, triangle on floor under test plug; altitude, 8.64 ft.

Date	Head (ft.)	Chloride (p.p.m.)	Date	Head (ft.)	Chloride (p.p.m.)	Date	Head (ft.)	Chloride (p.p.m.)
May .. 1923	..	49	Apr. 9, 1930	11.6	..	May .. 1933	..	56
June .. 1924	..	46	May ..	..	42	June ..	..	56
Mar. .. 1925	..	85	June ..	..	42	July ..	..	55
May .. 1926	..	48	July ..	..	42	Aug. ..	..	69
..	..	48	Aug. ..	..	38	Sept. ..	..	66
Oct.	44	Oct. ..	12.8	..	Oct. ..	..	60
June .. 1927	..	44	Nov. 20	12.9	..	Nov. ..	..	68
Aug.	44	Jan. .. 1931	..	36	Dec. ..	12.0	78
Feb. .. 1928	..	42	Mar. ..	11.5	..	Jan. .. 1934	..	72
Mar.	42	Apr. ..	..	72	Mar. ..	..	72
May	36	May ..	..	68	Apr. ..	..	68
June	42	June ..	..	48	May ..	..	71
Oct.	42	July ..	..	94	June ..	..	70
May .. 1929	..	34	Sept. ..	..	84	July ..	..	68
June	34	Oct. ..	12.6	..	Aug. ..	..	70
July	37	Jan. .. 1932	11.9	51	Sept. ..	..	68
Aug.	39	Mar. ..	12.4	..	Sept. ..	11.1	75
Sept.	33	Aug. ..	11.9	..	Oct. ..	..	76
Oct.	40	Sept. ..	..	66	Nov. ..	..	80
Nov.	36	Jan. .. 1933	12.1	..			

328 (old 275). Pump 13 since 1928; about 500 yd. south of Waiialua Court House and 200 yd. west of highway. Owner, Waiialua Agricultural Co. Drilled, 1884. Altitude, about 20 ft. Diameter, 8 in. Use, irrigation. Since 1928 equipped with pump but well can flow when pump is not used.

Observations

Bench mark, triangle on concrete base of pump; altitude, 6.59 ft.

Date	Head (ft.)	Chloride (p.p.m.)	Date	Head (ft.)	Chloride (p.p.m.)	Date	Head (ft.)	Chloride (p.p.m.)
Apr. 11, 1930	11.04	..	Oct. 13, 1931	11.44	..	Nov. 16, 1933	..	84
May 1	..	78	Jan. 15, 1932	..	75	Dec. 18	..	88
June 1	..	68	Jan. 22	11.16	..	Dec. 27	..	11.39
June 16	..	71	Mar. 14	11.80	..	Mar. 16, 1934	..	90
July 16	..	71	June 15	..	66	Apr. 16	..	84
Aug. 1	11.86	..	Aug. 10	..	66	May 15	..	88
Oct. 9	..	12.20	Jan. 18, 1933	11.57	..	June 15	..	92
Nov. 21	..	82	Apr. 15	12.05	..	July 16	..	92
Feb. 2, 1931	..	65	Apr. 15	..	64	Aug. 15	..	87
Mar. 21	10.66	..	May 15	..	75	Sept. 18	..	90
Apr. 15	..	68	June 15	..	69	Sept. 22	10.56	..
May 13	..	68	July 17	..	68	Oct. 15	..	106
June 16	..	65	Aug. 15	..	75	Nov. 15	..	104
Aug. 16	..	75	Sept. 18	..	78			
Sept. 14	..	75	Oct. 17	..	80			

329A and B (old 276A and B). Pump 8 about ¼ mile north and ¼ mile east of Two Bridges, Waiialua. Owner, Waiialua Agricultural Co. Drilled, A, 1900 by L. E. Pinkham; B, 1923 by McCandless Bros. Depth, A, 145 ft.; B, 123 ft. Diameter, B, 12 in. Depth to top of aquifer, B, 55 ft. Use, irrigation. Casing, 48 ft. Cannot measure without losing suction.

Log

Well	Depth (ft.)	Material	Depth (ft.)
Well A	0-10	Blue rock, very dark (Tbh)	62-67
Well B	0-10	Red rock, water (Tbh)	67-75
	10-45	Hard blue rock, water (Tbh)	75-110
	45-55	Sand, gravel, and boulders (Fa or Tbh)	110-123
	45-55	Very hard red rock (Tbh)	110-123

Observations

Bench mark, top of tee over well in pump room; altitude, 12.14 ft.

Date	Head (ft.)	Chloride (p.p.m.)	Date	Head (ft.)	Chloride (p.p.m.)	Date	Head (ft.)	Chloride (p.p.m.)
July .. 1923	..	78	Oct. .. 1929	..	68	Jan. .. 1933	11.7	55
June .. 1924	..	70	Nov. ..	..	69	May ..	..	59
May .. 1926	..	68	Mar. 2, 1930	11.0	..	June ..	..	56
..	..	80	Apr. ..	..	61	July ..	..	56
Oct.	73	June ..	..	61	Aug. ..	..	68
May .. 1927	..	73	Aug. ..	..	57	Oct. ..	..	72
Sept.	62	Aug. 26	12.2	..	Nov. ..	..	72
July	68	Oct. 28	11.6	..	Dec. ..	11.5	80
Aug.	68	Nov. 20	..	..	Jan. .. 1934	..	74
Mar. .. 1928	..	77	Jan. .. 1931	..	64	Mar. ..	..	75
Apr.	72	Feb. 31	11.6	..	Apr. ..	..	68
Feb. .. 1929	..	67	Apr. ..	..	50	May ..	..	78
Apr.	60	May ..	..	68	June ..	..	78
May	65	June ..	..	61	July ..	..	75
June	62	Aug. ..	..	61	Aug. ..	..	66
July	61	Sept. ..	..	64	Sept. ..	10.9	75
Aug.	65	Aug. .. 1932	..	54	Oct. ..	..	71
Sept.	65	Sept. ..	..	55	Nov. ..	..	76

331A to T (old 277A to T). Pumps 3A, B, C, about ¼ mile north and ¾ mile east of Two Bridges, Waiialua. Owner, Waiialua Agricultural Co. Drilled, A to E, 1899, F to K, 1900 by L. E. Pinkham; L to Q, 1902, R to T, 1913 by McCandless Bros. Depth, A, 428 ft.; B, 345 ft.; C to E, and H to K, 350 ft.; F, 343 ft.; G, 338 ft.; L to T, 400 ft. Diameter of all wells, 12 in. Use, irrigation.

Observations

Bench mark, transit mark cut in steel pad in southeast corner of pump house; altitude, 17.32 ft.

Date	Head (ft.)	Chloride (p.p.m.)	Date	Head (ft.)	Chloride (p.p.m.)
Oct. .. 1920	..	256	July .. 1929	..	330
July .. 1920	..	210	Aug. ..	..	319
June .. 1924	..	213	Sept. ..	..	351
May .. 1926	..	294	Oct. ..	..	407
Sept.	374	Nov. ..	..	376
Nov.	343	June .. 1930	..	278
..	..	286	July ..	..	161
Nov.	295	Aug. ..	..	119
July .. 1927	..	331	Oct. 8	12.1	..
Aug.	225	Nov. 20	11.7	..
Mar. .. 1928	..	167	Jan. .. 1931	..	85
Apr.	280	Feb. ..	..	253
July	166	Mar. ..	10.8	258
Aug.	166	Apr. ..	..	239
Sept.	218	May ..	..	317
Oct.	218	June ..	..	271
Nov.	239	July ..	..	327
..	..	312	Aug. ..	11.1	317
..	..	301	Sept. ..	..	112

Observations—Well 331 (Continued)

Date	Head (ft.)	Chloride (p.p.m.)	Date	Head (ft.)	Chloride (p.p.m.)
Oct. 1931	11.3	...	Mar. 1934	...	268
Jan. 1932	11.2	...	Apr. . . . .	...	340
Mar.	11.8	...	May . . . . .	...	136
Aug.	11.3	...	June . . . . .	...	236
Jan. 1933	11.5	...	July . . . . .	...	134
Dec. . . . .	...	360	Aug. . . . .	...	299
Jan. 1934	...	220	Sept. . . . .	...	142

* Wells B, F, G, L, M, Q, R, S, T. † Wells A, D, E, H, I, J, K, N, O, P.

332 (old 278). Pump 12, 300 yd. south and 300 yd. west of Waiialua Court House. Owner, Waiialua Agricultural Co. Drilled about 1883. Diameter, 8 in. Use, irrigation.

Observations

Bench mark, triangle on floor side of measuring pipe; altitude, 4.95 ft.

Date	Head (ft.)	Chloride (p.p.m.)	Date	Head (ft.)	Chloride (p.p.m.)
Apr. 1923	...	92	June 1930	...	115
Dec. 1926	...	194	July . . . . .	...	109
May 1927	...	114	Aug. . . . .	...	109
Aug.	111	Oct. 8	11.2	...
Feb. 1928	...	104	Nov. 29	11.0	...
June	104	Jan. 1931	...	91
Sept.	93	Feb. . . . .	...	102
Oct.	93	Mar. 31	10.2	...
Feb. 1929	...	93	Apr. . . . .	...	91
Mar.	93	May . . . . .	...	95
Apr.	97	June . . . . .	...	95
May	94	Aug. . . . .	...	105
June	96	Oct. . . . .	...	102
July	98	Sept.	10.6	...
Aug.	94	Jan. 1932	10.5	...
Sept.	102	Mar.	10.9	...
Oct.	109	Aug. . . . .	...	85
Nov.	112	Sept. . . . .	...	101
May 1930	...	101	Jan. 1933	10.8	...

333 (old 279). Rear of Waiialua Court House. Owner, City and County of Honolulu. Drilled, 1925 by McCandless Bros. Altitude, about 20 ft. Depth, 163 ft. Diameter, 12 in. Depth to top of aquifer, 45 ft. Use, municipal. Casing, 68 ft. Head (ft.), Dec. 16, 1931, 16.03. Chloride (p.p.m.), Dec. 3, 1925, 117; Apr. 25, 1927, 149; May 2, 1927, 149.

Log

	Depth (ft.)		Depth (ft.)		Depth (ft.)
Clay (Ra)	0-5	Soft water rock (Tkb)	86-88	Soft water rock (Tkb)	109-120
Boulders and clay (Pa or Tkb)	5-40	Hard blue rock (Tkb)	88-92	Hard blue rock (Tkb)	120-122
Hard blue rock (Tkb)	40-43	Very hard blue rock	92-100	Soft water rock (Tkb)	122-134
Soft water rock (Tkb)	45-68	(Tkb)	100-101	Hard blue rock (Tkb)	134-136
Hard blue rock (Tkb)	68-78	Soft water rock (Tkb)	101-108	Soft water rock (Tkb)	136-140
Soft water rock (Tkb)	78-84	Very hard blue rock	108-109	Soft water rock (Tkb)	140-141
Hard blue rock (Tkb)	84-86	rock (Tkb)	108-109	Hard rock (Tkb)	141-160

334A to O (old 280A to O). Pump 4 about 0.3 mile east of Kawailoa R. R. station. Owner, Waiialua Agricultural Co. Drilled, 1900 by L. E. Pinkham. Depth, B, 22 ft. C, 47 ft.; D, 54 ft.; F, 44 ft.; G, 41 ft.; H, 40 ft.; L, 42 ft.; M, 45 ft. A, E, K, N and O, abandoned; B, C, D, F, G, H, I, J, L, and M, used for irrigation. One of the abandoned wells had been drilled to a depth of 400 ft.

Well 334 (Continued)

Observations

Bench mark, X on concrete wall northeast corner of pump 4 in doorway; altitude, 11.62 ft.

Date	Head (ft.)	Chloride (p.p.m.)	Date	Head (ft.)	Chloride (p.p.m.)
Oct. 1920	...	498	Oct. 1928	...	603
July 1923	...	608	Apr. 1929	...	457
June 1924	...	540	June . . . . .	...	577
Mar. 1925	...	509	July . . . . .	...	559
Apr.	446	Aug. . . . .	...	559
June	618	Sept. . . . .	...	535
May	405	Oct. . . . .	...	557
Feb. 1926	...	499	Nov. . . . .	...	532
Mar.	457	Apr. 5, 1900	3.4	...
Apr.	689	June . . . . .	...	541
Sept.	618	July . . . . .	...	582
Oct.	682	Aug. . . . .	...	468
Nov.	405	Oct. 8	4.2	...
Dec.	580	Jan. 1931	...	299
July 1927	...	317	Mar.	3.6	351
Aug.	478	Apr. . . . .	...	426
Mar. 1928	...	540	May . . . . .	...	571
Apr.	530	June . . . . .	...	592
June	530	July . . . . .	...	592
Aug.	587	Aug.	3.5	592
Sept.	457	Jan. 1932	3.7	...
Sept.	582	Mar.	3.5	...

335 (old 281). Waialea Industrial School. Owner, Territory of Hawaii. Drilled, 1921 by A. H. Hobart. Altitude, 22 ft. Depth, 83 ft. Diameter, 8 in. Depth to top of aquifer, about 62 ft. Use, domestic. Casing, 34 ft. Bench mark, top of flange on 8-in. casing 2 ft. below ground; altitude, 19.53 ft.

Log

	Depth (ft.)		Depth (ft.)
Soil	0-4	Medium lava rock, contains water	62-72
Sand, boulders, and clay (Pa or Tkb)	4-25	(Tkb)	72-83
Medium and soft lava rock (Tkb)	25-40	Hard blue sandy lava rock, contains water (Tkb)	72-83
Hard blue lava rock (Tkb)	40-62		

336 (old 282). Waialea Industrial School. Owner, Territory of Hawaii. Drilled, 1921 by A. H. Hobart. Altitude, 21 ft. Depth, about 83 ft. Diameter, 8 in. Depth to top of aquifer, about 71 ft. Use, domestic. Bench mark, top of flange on 8-in. casing 2 ft. below ground; altitude, 19.45 ft.

Log

	Depth (ft.)		Depth (ft.)
Soil, fill, boulders, etc. (Ra)	0-13	Hard blue lava rock (Tkb)	52-71
Soft lava rock with medium and hard streaks (Tkb)	13-52	Water rock (Tkb)	71-83

337 (old 283). Waialea Industrial School. Owner, Territory of Hawaii. Drilled, 1921 by A. H. Hobart. Altitude, 22 ft. Depth, 63 ft. Diameter, 8 in. Depth to top of aquifer, about 48 ft. Use, emergency. Casing, 36 ft.

Log

	Depth (ft.)		Depth (ft.)
Soil, fill, boulders, etc. (Ra)	0-14	Water rock with hard streaks in it (Tkb)	48-61
Clay and soft lava rock (Tkb)	14-48	Hard blue lava rock (Tkb)	61-63

RECORDS OF DRILLED WELLS ON OAHU

Well 337 (Continued)		Observations		Bench mark, top of 4-in. tee 1 ft. below ground; altitude, 20.45 ft.	
Date	Head (ft.)	Chloride (p.p.m.)	Date	Head (ft.)	Chloride (p.p.m.)
Feb. 4, 1929	14.52	175	Jan. 26, 1931	14.77	171
Feb. 25	14.47	177	Feb. 25	14.38	170
Mar. 25	14.45	172	Mar. 25	13.85	170
Apr. 22	14.15	176	Apr. 27	14.34	170
May 21	14.95	164	May 28	14.20	146
June 25	14.01	164	June 24	15.12	146
Aug. 5	13.17	164	Aug. 4	14.00	146
Aug. 26	14.17	171	Aug. 2	12.92	146
Sept. 24	14.09	168	Oct. 5	14.06	144
Oct. 22	14.35	167	Oct. 27	14.09	143
Nov. 23	14.22	168	Dec. 16	14.04	144
Dec. 23	14.20	165	Jan. 13, 1932	14.00	144
Jan. 27, 1930	12.96	168	Feb. 16	13.98	147
Feb. 26	14.09	168	Mar. 15	14.33	146
Mar. 24	13.94	166	Apr. 14	14.32	146
Apr. 28	13.95	169	May 16	14.58	174
May 26	12.88	168	June 15	14.97	177
June 24	13.20	169	July 14	15.12	176
July 29	14.47	171	Aug. 14	15.44	177
Aug. 25	14.29	148	Sept. 14	15.34	176
Oct. 3	14.72	171	Oct. 17	15.52	176
Nov. 5	14.63	174	Nov. 14	15.60	179
Dec. 4	14.52	172	Dec. 14	14.37	180
Dec. 29	14.60	175	Jan. 16, 1933	14.11	180

338 (old 284). Pump 14 at water tank south of highway 0.7 mile east of Kawela Bay R. R. station. Owner, Kahuku Plantation Co. Altitude, 15 ft. Use, domestic.

Bench mark, top of flange on well casing 1 1/2 ft. below ground; altitude, 16.64 ft. Head (ft.), Feb. 5, 1930, 10.0.

Date	Chloride (p.p.m.)	Date	Chloride (p.p.m.)	Date	Chloride (p.p.m.)
July 9, 1929	65	Aug. . . 1931	77	June . . 1932	72
Sept. 26	63	Sept. . .	69	July . .	181
June 4, 1930	71	Oct. . .	66	Aug. . .	74
Sept. 16	74	Nov. . .	76	Sept. . .	74
Feb. . . 1931	72	Dec. . .	112	Nov. . .	144
May . .	77	Feb. . . 1932	67	Feb. 7, 1933	70
July . .	84	May . .	70	Mar. 30	64

341A and B (old 985A and B). Pump 2 north of highway and 0.6 mile west of highway entrance to R. C. A. radio station. Owner, Kahuku Plantation Co. Altitude, 6 ft. Diameter, 12 in. Use, irrigation.

Bench mark, same as U.S.G.S. bench mark tablet at south door of pump house at ground; altitude, 7.24 ft. Head (ft.), Feb. 4, 1930, 10.46.

Date	Chloride (p.p.m.)	Date	Chloride (p.p.m.)	Date	Chloride (p.p.m.)
July 12, 1925	167	May . . 1931	238	Feb. . . 1932	181
Apr. 4, 1929	175	June . .	338	May . .	333
July 11	219	July . .	388	June . .	284
Sept. 25	292	Aug. . .	292	June 26	325
Feb. 17, 1930	115	Sept. . .	171	Aug. . .	366
June	270	Oct. . .	370	Sept. . .	407
Sept. 16	165	Nov. . .	139	Nov. . .	376
Feb. 7, 1931	353	Dec. . .	225	Feb. 7, 1933	130

342 (old 286). 200 yd. south of R. R. tracks and half a mile west of Marconi R. R. station. Owner, Kahuku Ranch Co. Altitude, 4 ft. Use, irrigation. Bench mark, top of east corner of northeast concrete anchorage of pole nearest well 5 ft. above ground; 9.29 ft.

RECORDS OF DRILLED WELLS ON OAHU

343 (old 287). 50 yd. east of well 342. Owner, Kahuku Ranch Co. Altitude, 4 ft. Use, irrigation. Bench mark, top of east corner of northeast concrete anchorage of pole nearest well 5 ft. above ground; altitude, 9.29 ft.

344 (old 287-1). 50 yd. west of well 342. Owner, Kahuku Ranch Co. Altitude, 5 ft. Use, irrigation.

345 (old 286-1). Marconi radio station, near Kahuku Point. Owner, Marconi radio station. Altitude, about 10 ft. Depth, 234 ft. Diameter, 19 in. Drilled, August 1933 by Kahuku Plantation Co. Use, domestic. Casing, 170 ft. Chloride between 156 and 187 p.p.m. when completed. Water reported to have stood at sea level until casing was set, then came up gradually until it stood at approximately 10 ft. when completed. About 100 gal. a minute struck between 202 and 234 ft.

Log			
	Depth (ft.)	Depth (ft.)	
Hard and soft coral rock (Pls)	0-135	Hard rock (Tkb)	150-193
Mud with red and blue rock (Tkb)	135-139	Gravel mixed with sticky mud (Tkb)	193-202
Gravel (Tkb)	139-142	Hard rock (Tkb)	202-208
Hard blue rock (Tkb)	142-176	Hard blue rock mixed with red rock (Tkb)	208-234
Sticky mud with blue and brown rock (Tkb)	176-190		

346 (old 291). About 150 yd. northwest of well 347. Owner, Kahuku Plantation Co. Altitude, 5 ft. Use, irrigation. Bench mark, top of concrete flume at corner near well 2 1/2 ft. above ground; altitude, 7.11 ft.

347 (old 290). About 200 yd. southwest of R. R. and 1.8 miles northwest of Kahuku R. R. station. Owner, Kahuku Plantation Co. Altitude, 5 ft. Use, irrigation. Head (ft.), Feb. 18, 1930, 12.09. Bench mark, top of flange on valve 1 ft. above ground; altitude, 5.79 ft.

348 (old 289). At old pump 15 about 0.1 mile northwest of road junction on highway which is about 0.9 mile northwest of Kahuku Store. Owner, Kahuku Plantation Co. Altitude, 10 ft. Depth, 361 ft. Diameter, 6 in. Use, irrigation. Casing, 66 ft.

Bench mark, chiseled "O" on upper concrete doorstep, 1 ft. above ground; altitude, 10.67 ft. Head (ft.), Feb. 4, 1930, 14.85.

Date	Chloride (p.p.m.)	Date	Chloride (p.p.m.)	Date	Chloride (p.p.m.)
July 9, 1929	105	Sept. 16, 1930	119	July . . 1931	137
Sept. 26	122	Feb. 7, 1931	125	Aug. . .	135
Feb. 12, 1930	81	May . .	156	Sept. . .	113
June 4	191	June . .	135	Oct. . .	120

351 (old 289-1). Pump 15, 0.9 mile northwest of Kahuku Store. Owner, Kahuku Plantation Co. Altitude, about 10 ft. Drilled, June 1932 by Kahuku Plantation Co. Depth, 326 ft. Diameter, 12 in. Use, irrigation. Casing, 136 ft.

Log			
	Depth (ft.)	Depth (ft.)	
Reddish-brown dirt up to 105 ft. (Tb)	0-103	Hard rock (Tkb)	136-137
Brown clay (Pa) at		Soft blue rock (Tkb)	136-145
		Hard blue rock (Tkb)	145-152

Log—Well 351 (Continued)

Depth (ft.)	Depth (ft.)	Depth (ft.)	Depth (ft.)
Soft red and brown rock (Tkb) 186-210	Soft red and brown rock (Tkb) 234-253	Soft blue rock (Tkb) 304-300	
Hard blue rock (Tkb) 210-217	Hard blue rock (Tkb) 262-266	Hard blue rock (Tkb) 309-317	
Soft brown rock (Tkb) 217-223	Soft blue rock (Tkb) 260-277	Soft blue rock (Tkb) 317-326	
Hard blue rock (Tkb) 223-224	Hard blue rock (Tkb) 277-284		

Observations

Date	Chloride (p.p.m.)	Date	Chloride (p.p.m.)	Date	Chloride (p.p.m.)	Date	Chloride (p.p.m.)
Aug. 1, 1932	78	Mar. 30, 1933	61	June 1, 1933	80	Nov. 19, 1934	92
Feb. 7, 1933	77	Apr. 28	84	Sept. 20	88		

352A to K (old 288A to K). At pump 5, about 1 mile northwest of Kahuku Store. Owner, Kahuku Plantation Co. Altitude, 41 ft. Drilled, A to F, 1900; G and H, 1901; I and J, 1936; K, 1937. Diameter, I, J, and K, 12 in. Depth, I, 447 ft.; J, 439 ft.; K, 440 ft. Use, irrigation. Casing, I, 178.7 ft.; J, 326 ft.; K, 151 ft. Wells A to H recased 1936.

Well I.

Logs

Depth (ft.)	Depth (ft.)	Depth (ft.)
Sticky brown clay (Pa) 61-63	Medium hard and soft water rocks (Tkb) 280-285	
Medium hard blue rock (Pa or Tkb) 61-64	Medium hard red and blue gravel (Tkb) 285-288	
Sticky brown clay mixed with small rocks (Tkb) 64-68	Very hard and very fine blue and red gravel (Tkb) 288-293	
Soft blue and brown gravel (Tkb) 68-84	Medium hard red and blue gravel (Tkb) 293-301	
Sticky brown clay mixed with blue and brown gravel (Tkb) 84-91	Soft water rock mixed with blue gravel (Tkb) 301-306	
Sticky mud mixed with blue gravel (Tkb) 91-127	Soft red and blue gravel with soft white water rock (Tkb) 306-314	
Medium hard blue gravel (Tkb) 127-144	Medium hard and soft red water rock and blue gravel (Tkb) 314-357	
Medium hard and soft blue and brown gravel (Tkb) 144-168	Medium hard and soft glassy red and blue gravel (Tkb) 357-363	
Medium hard red rock with blue gravel (Tkb) 168-223	Hard glassy blue rocks (Tkb) 363-369	
Soft red rock mixed with blue gravel (Tkb) 223-245	Medium hard and soft red and brown gravel (Tkb) 369-388	
Medium hard blue rock with red gravel (Tkb) 245-251	Medium hard gravel (Tkb) 388-397	
Medium hard and soft water rock (Tkb) 251-256	Hard fine gravel (Tkb) 397-412	
Medium hard blue rock with red gravel (Tkb) 256-277	Medium hard gravel (Tkb) 412-414	
Medium hard blue rock with red gravel (Tkb) 277-280	Hard fine gravel (Tkb) 414-437	

Well J.

Depth (ft.)	Depth (ft.)	Depth (ft.)
Sticky brown clay (Pa) 0-41	Soft blue gravel (Tkb) 314-322	
Hard loose stone and brown sticky clay (Pa and Pab) (some Pis.) 41-46	Hard blue rock (Tkb) 322-327	
Hard loose stone and light red soil (Pa and Pis) 46-52	Hard fine gravel (Tkb) 327-329	
Medium hard rock (Pa or Tkb) 52-57	Hard fine gravel (Tkb) 329-331	
Soft purple soil (Pa or Tkb) 57-68	Red water rocks (Tkb) 331-334	
Medium hard purple clay (Tkb) 68-82	Soft red and brown water rocks (Tkb) 334-359	
Sticky gray clay (Tkb) 82-87	Fine gravel, hard (Tkb) 359-365	
Sticky brown clay (Tkb) 87-151	Hard fine glassy blue rock (Tkb) 365-370	
Sticky gray clay (Tkb) 151-191	Soft red water rock (Tkb) 370-375	
Purple clay (Tkb) 191-223	Medium hard water rock (Tkb) 375-385	
Soft blue stone (Tkb) 223-225	Medium hard red and brown rock (Tkb) 385-386	
Gray sticky clay (Tkb) 225-226	Medium hard red and brown rock (Tkb) 386-410	
Hard blue rock (Tkb) 226-283	Hard fine gravel with red water rock (Tkb) 410-415	
Sticky gray clay (Tkb) 283-312	Very hard rock (Tkb) 415-425	
Hard blue stone (Tkb) 312-314	Red and brown water rock (Tkb) 425-429.5	

Well K.

Logs—Well 352 (Continued)

Depth (ft.)	Depth (ft.)	Depth (ft.)
Sticky brown clay (Pa) 1-20	Soft blue and red gravel (Tkb) 174-187	
Sticky gray mud (Pa and Pis) 20-47	Soft and hard red and blue gravel (Tkb) 187-211	
Hard and soft red gravel (Pa and Pis; limestone present in cuttings) 47-68	Soft red and blue gravel (Tkb) 211-218	
Medium hard light blue rock (Tkb) 68-72	Soft and hard red and blue gravel (Tkb) 218-223	
Soft gray mud mixed with red gravel (Tkb) 72-99	Hard blue rock (Tkb) 223-240	
Soft red gravel mixed with soft blue gravel (Tkb) 99-108	Very hard blue rock (Tkb) 240-246	
Sticky gray mud mixed with soft red and blue gravel (Tkb) 108-110	Soft and hard blue and red gravel (Tkb) 246-254	
Medium hard light blue stone (Tkb) 110-113	Medium hard gravel (Tkb) 254-257	
Medium hard blue rock mixed with red gravel (Tkb) 113-138	(Tkb) 257-299	
Soft red mud mixed with red and blue gravel (Tkb) 138-144	Soft and hard blue gravel (Tkb) 299-303	
Soft red water rock (Tkb) 144-149	Soft and hard blue gravel mixed with red gravel (Tkb) 303-312	
Medium hard blue rock (Tkb) 149-151	Soft and red blue gravel mixed with red gravel (Tkb) 312-331	
Medium hard blue rock mixed with red gravel (Tkb) 151-164	Hard red and blue gravel (Tkb) 331-334	
Soft gray mud mixed with blue and red gravel (Tkb) 164-169	Hard blue gravel (Tkb) 334-337	
Medium hard blue rock mixed with red gravel (Tkb) 169-174	Hard red and blue gravel (Tkb) 338-352	
	Hard glassy blue rock (Tkb) 352-362	
	Very hard fine gravel (Tkb) 362-364	
	Hard glassy blue stone (Tkb) 364-440	

Observations

Bench mark, same as U.S.G.S. bench mark tablet south of smoke stack, at ground; altitude, 43.55 ft. Head (ft.), Feb. 4, 1930, well A, 14.7.

Date	Chloride (p.p.m.)	Date	Chloride (p.p.m.)	Date	Chloride (p.p.m.)	Date	Chloride (p.p.m.)
Apr. 20, 1926	107	Sept. 16, 1930	146	Nov. 1, 1931	130	Sept. 1, 1932	266
July 12	152	Feb. 7, 1931	166	Dec. 1, 1931	141	Nov. 1, 1932	228
Apr. 4, 1929	116	May 1	264	Feb. 1, 1932	135	Feb. 7, 1933	119
July 9	181	June 1	191	May 1	141	Apr. 28	238
Sept. 26	224	July 1	263	June 1	188	June 1	198
Feb. 12, 1930	110	Sept. 1	103	July 1	179	Sept. 20	296
June 4	102	Oct. 1	212	Aug. 1	173	Nov. 19, 1934	160

353A to C (old 292A to C). Pump 1 on plantation road 0.4 mile west of Kahuku Store. Owner, Kahuku Plantation Co. Drilled, C, 1928 by McCandless Bros. Depth, C, 265 ft. Altitude, 17 ft. Diameter, B, 8 in.; C, 12 in. Well to top of aquifer, C, 172 ft. Use, irrigation. Casing, B, 287 ft.; C, 91 ft. Depth B recased in 1928.

Log

Well C	Depth (ft.)	Depth (ft.)	Depth (ft.)
Mud, soft coral (Pa and Pis) 0-15	Soft rock (Tkb) 110-114	Soft water rock (Tkb) 163-172	
Clay (Pa) 15-26	Hard rock (Tkb) 114-128	Hard rock (Tkb) 172-193	
Sticky clay (Pa or Tkb) 26-70	Soft rock (Tkb) 128-133	Soft red rock (Tkb) 193-202	
Hard rock (Tkb) 70-88	Hard rock (Tkb) 133-139	Very hard rock (Tkb) 202-222	
Soft red rock (Tkb) 88-96	Soft rock (Tkb) 139-142	Soft red rock (Tkb) 222-240	
Hard rock (Tkb) 96-102	Hard rock (Tkb) 142-155	Hard rock (Tkb) 240-245	
Hard rock (Tkb) 102-110	Hard rock (Tkb) 155-160	Soft red rock (Tkb) 245-260	
		Hard rock (Tkb) 260-265	

Observations

Bench mark, same as U.S.G.S. bench mark tablet near easterly corner of pump house, at ground; altitude, 16.21 ft. Head (ft.), Feb. 4, 1930, 15.65.

Date	Chloride (p.p.m.)	Date	Chloride (p.p.m.)	Date	Chloride (p.p.m.)	Date	Chloride (p.p.m.)
Apr. 20, 1926	74	Feb. 12, 1930	74	June 1, 1931	101	Nov. 1, 1931	70
July 12	78	June 4	96	July 1	109	Dec. 1	104
Apr. 4, 1929	74	Sept. 16	90	Aug. 1	92	Feb. 7, 1932	89
July 9	82	Feb. 7, 1931	82	Sept. 20	89	Apr. 28	89
Sept. 26	93	May 1	101	Oct. 1	70	June 1	95

Observation—Well 353 (Continued)

Date	Chloride (p.p.m.)	Date	(p.p.m.) Chloride	Date	Chloride (p.p.m.)	Date	Chloride (p.p.m.)
July . . . 1932	99	Nov. . . 1932	74	Apr. 28, 1933	87	Nov. 19, 1934	96
Aug. 91		Feb. 7, 1933	76	June 92			
Sept. 98		Mar. 30	69	Sept. 20	71		

354 (old 293). At Kahuku sugar mill. Owner, Kahuku Plantation Co.

355A to D (old 294A to D). At Kahuku sugar mill. Owner, Kahuku Plantation Co. Drilled, R, 1936; C and D, 1937. Diameter, 12 in. Depth, B, 313 ft.; C, 323 ft.; D, 320 ft. Use, industrial. Casing, B, 209 ft.; C, 179.8 ft.; D, 187 ft. B is north side of mill near boiler room; C, about 55 ft. east of B; D, about 80 ft. southeast of C, east side of mill. Altitude, 5 ft. Chloride (p.p.m.), A, Aug. 31, 1908, 84. Head (ft.), A, Feb. 9, 1930, 15.00. Bench mark, chiseled "O" on concrete sill of door near pump room at mill, 6 in. above ground; altitude, 5.66 ft.

Logs

	Depth (ft.)		Depth (ft.)
Well B		Well C	
Sand mixed soft coral rock (Rs and PIs)	0-6	White coral mixed with white sand (Cuttings indicate Rs and Ra)	0-5
Medium hard coral rock (Pis and PIs, probably Pd as shown by cuttings)	6-39	White sand (Cuttings indicate Pa, Pis, and probably Pd)	
Hard rock (Pis)	39-43	Coral rock (Pis)	36-41
Sticky brown clay (Pa and Pis)	43-52	Sticky brown clay (Pa)	41-49
Medium hard coral rock (Pis)	52-55	Hard coral rock (Pis)	48-51
Sticky brown clay (Pis and Pis)	55-83	Medium hard coral rock (Pis)	51-57
Sticky grey mud (Pa)	82-109	Hard coral rock (Pis)	57-62
Sticky brown clay (Pa)	109-122	Soft coral rock (Pis)	62-94
Sticky mud (Pis)	122-137	Sticky brown clay (Pa)	94-129
Soft coral rock (Pis)	137-157	Medium hard coral mixed with sticky brown clay (Pis and Pa)	129-159
Medium hard coral (Pis)	150-155	Medium hard coral (Pis)	159-162
Hard coral (Pis)	155-157	Medium hard coral mixed with soft blue rock (Pis and Tkb)	162-184
Medium hard coral (Pis)	157-162	Hard blue rock (Tkb)	164-174
Hard blue rock (Tkb)	162-165	Medium soft red water rock mixed with blue gravel (Tkb)	174-183
Blue rock mixed with gravel (Tkb)	165-173	Hard blue rock (Tkb)	183-185
Hard blue rock (Tkb)	173-177	Medium hard blue rock (Tkb)	185-190
Gravel (Tkb)	177-183	Red and blue gravel (Tkb)	190-201
Medium hard rock (Tkb)	183-192	Red and blue gravel (Tkb)	201-204
Hard blue rock (Tkb)	192-194	Glassy blue and red gravel (Tkb)	204-211
Medium hard rock (Tkb)	194-198	Medium hard red and blue rock (Tkb)	211-214
Fine gravel (Tkb)	198-208	Soft water rock (Tkb)	214-222
Hard brown rock (Tkb)	208-219	Hard glassy blue and red rock (Tkb)	222-226
Gravel (Tkb)	219-213	Very hard glassy blue and red rock (Tkb)	226-229
Gravel mixed with brown rock (Tkb)	213-217	Soft water rock (Tkb)	229-232
Hard blue rock (Tkb)	217-225	Soft red and blue water rock (Tkb)	232-238
(Tkb) mixed with blue rock	225-230	Medium hard rock (Tkb)	238-248
Hard blue rock (Tkb)	230-236	Hard blue rock (Tkb)	248-255
(Tkb) mixed with brown rock	236-242	Soft water rock (Tkb)	255-263
Medium hard rock (Tkb)	242-245	Medium hard and soft red and blue gravel (Tkb)	263-267
Hard blue rock (Tkb)	245-250	Hard blue rock (Tkb)	267-295
Medium hard blue rock (Tkb)	250-252	Soft water rock (Tkb)	295-296
Hard blue rock (Tkb)	252-259	Medium hard and soft red and blue gravel (Tkb)	296-301
Red gravel (Tkb)	259-266	Hard blue rock (Tkb)	301-304
Medium hard rock (Tkb)	266-269	Hard blue rock (Tkb)	304-316
Hard blue rock (Tkb)	269-271	Medium hard glassy blue rock mixed with water rock (Tkb)	316-320
Medium hard blue rock (Tkb)	271-280	Hard glassy blue rock (Tkb)	320-323
Hard blue rock (Tkb)	280-280		
Medium hard rock (Tkb)	280-292		
Hard blue rock (Tkb)	292-295		
Medium hard brown rock (Tkb)	295-297		
Very fine gravel (Tkb)	297-313		

Logs—Well 355 (Continued)

	Depth (ft.)		Depth (ft.)
Well D		Well E	
White sand (Rs and Ra)	0-12	Very hard blue rock mixed with lava (Tkb)	215-219
Medium hard blue lava mixed with Sticky brown clay (Pa)	12-41	Medium hard blue lava mixed with red water rock (Tkb)	219-225
Medium hard coral (Pis)	41-49	Medium hard and soft blue rock mixed with red water rock (Tkb)	225-233
Sticky brown clay mixed with coral (Pa and Pis)	55-57	Medium hard blue rock mixed with water rock (Tkb)	232-242
Sticky brown clay (Pa)	57-69	Hard blue rock (Tkb)	242-257
Medium hard coral (Pis)	69-72	Medium hard blue rock (Tkb)	257-266
Soft coral mixed with sand (Pis)	72-93	Hard blue rock mixed with brown rock (Tkb)	266-269
Sticky brown clay (Pa) and possible limestone (Pa, Tkb) and possible (Tkb)	93-145	Hard and soft red water rock and lava rock (Tkb)	269-282
Hard blue rock (Tkb)	145-186	Hard and soft red and blue lava rock (Tkb)	282-287
Red water rock mixed with blue gravel (Tkb)	186-198	Hard glassy blue rock (Tkb)	287-298
Hard blue rock (Tkb)	198-201	Medium hard and soft lava rock and red water rock (Tkb)	298-319
Medium hard red and blue water rock (Tkb)	201-215	Hard blue rock (Tkb)	319-329

356 (old 295). Emergency pump near the Kahuku sugar mill. Owner, Kahuku Plantation Co. Altitude, 0 ft. Use, irrigation.

Observations

Bench mark, top of vertical flange 1 ft. above ground on valve on fire hydrant; altitude, 9.33 ft.

Date	Head (ft.)	Chloride (p.p.m.)	Date	Head (ft.)	Chloride (p.p.m.)
Aug. 31, 1908	78	74	Feb. 9, 1915	15.39	71
Mar. 1911	14.78	87	Mar. 1915	14.93	70
Apr. 1912	14.75	87	Apr. 1915	15.27	81
May 1912	14.82	67	Dec. 13	15.09	67
July 1912	14.79	69	June 1915	14.85	69
Aug. 1912	14.77	67	Apr. 17, 1925	14.57	64
Sept. 1912	14.82	67	June 15	14.68	75
Oct. 1912	15.14	67	Feb. 22	14.72	72
Jan. 1912	15.13	62	Sept. 21	14.67	85
Feb. 1912	15.13	62	Nov. 11	15.02	76
Mar. 1912	14.75	72	Jan. 29, 1926	16.02	76
Apr. 1912	14.99	67	Feb. 12	17.12	74
May 1912	14.93	65	Mar. 26	17.02	73
June 1912	14.14	65	June 11	16.26	74
July 1912	14.12	68	July 29	16.02	70
Aug. 1912	14.08	67	Aug. 31	15.52	72
Sept. 1912	13.81	66	Sept. 23	14.75	74
Oct. 1912	14.12	68	Oct. 22	14.82	74
Nov. 1912	14.48	75	Dec. 22	14.52	78
Dec. 1912	14.52	68	Jan. 26, 1927	14.45	80
Jan. 1913	15.52	67	Feb. 24	15.00	86
Feb. 1913	15.68	65	Mar. 30	14.95	86
Mar. 1913	14.99	67	Apr. 2	14.73	89
Apr. 1913	14.04	68	May	15.00	87
May 1913	14.12	68	June 25	14.26	87
June 1913	14.42	68	July 25	15.39	85
July 1913	13.90	68	Aug. 24	14.15	86
Aug. 1913	15.94	69	Sept. 26	13.52	89
Sept. 1913	14.23	79	Oct. 26	14.84	81
Oct. 1913	15.18	68	Nov. 22	15.06	81
Nov. 1913	15.12	67	Jan. 5, 1928	16.65	84
Dec. 1913	14.29	70	Feb. 24	14.26	92
Jan. 1914	14.81	70	Mar. 5	15.48	78
Apr. 1914	14.22	71	Apr.	14.93	87
Apr. 1914	14.77	71	May 21	14.91	89
May 1914	14.96	69	June 21	13.37	87
June 1914	14.14	70	July 23	13.52	85
July 1914	14.28	70	Aug. 21	13.46	85
Aug. 1914	14.28	70	Sept. 24	12.91	87
Sept. 1914	14.28	70	Oct. 10	14.00	87
Oct. 1914	16.02	72	Nov. 19	15.61	87
Nov. 1914	16.30	72	Dec. 19, 1929	15.49	95
Dec. 1914	16.02	72	Mar. 9	14.53	93
Jan. 1915	16.72	71	Apr. 25	14.51	89
Feb. 1915	16.12	72	May 8	13.94	90

Observations—Well 356 (Continued)

Date	Head (ft.)	Chloride (p.p.m.)	Date	Head (ft.)	Chloride (p.p.m.)	Date	Head (ft.)	Chloride (p.p.m.)
Apr. 22, 1929	13.33	90	Mar. 25, 1931	12.91	95	Mar. 15, 1938	15.21	103
May 21	12.42	89	Apr. 27	12.85	94	Apr. 17	14.36	106
June 24	12.76	91	May 28	14.08	97	Apr. 26	11.46	106
Aug. 5	12.08	81	June 24	12.09	97	May 15	13.01	108
Sept. 24	12.05	81	Aug. 4	12.06	101	July 20	15.31	109
Oct. 22	12.53	90	Aug. 24	12.87	97	Aug. 14	12.39	109
Nov. 25	14.52	93	Oct. 5	12.86	98	Sept. 18	12.56	104
Jan. 27, 1930	14.77	90	Oct. 27	14.54	96	Nov. 9	12.39	109
Feb. 18	14.78	91	Dec. 16	14.08	98	Oct. 17	13.07	103
Mar. 23	15.43	91	Jan. 13, 1932	12.32	99	Dec. 11	15.00	102
Apr. 24	15.26	92	Feb. 16	15.29	100	Jan. 11, 1934	14.85	98
May 26	15.48	91	Mar. 15	14.83	101	Mar. 15	15.00	99
June 24	14.30	92	Apr. 14	14.57	102	Apr. 30	13.35	110
July 26	12.81	93	May 16	13.16	102	May 15	12.59	111
Aug. 25	12.82	94	June 15	13.16	102	June 14	13.02	110
Oct. 2	15.08	91	Aug. 11	13.04	98	July 13	13.02	109
Nov. 4	14.97	93	Sept. 14	12.80	100	Aug. 26	11.71	119
Dec. 4	14.19	91	Oct. 17	12.62	101	Sept. 14	11.79	139
Dec. 20	14.63	92	Dec. 14	13.00	100	Oct. 12	12.55	105
Jan. 26, 1931	15.19	91	Nov. 16	15.46	96	Nov. 11	11.79	100
Feb. 25	15.13	95	Feb. 14, 1933	14.17	99	Dec. 21	13.44	100
			Feb. 14	15.28	102		14.58	115

357 (old 296). Pump 8 about 0.4 mile southeast of Kahuku Store, and 0.3 mile southwest of highway. Owner, Kahuku Plantation Co. Altitude, 15 ft. Diameter, 12 in. Use, irrigation.

Observations

Bench mark, chiseled "O" on concrete doorstep, at ground; altitude, 15.14 ft. Head (ft.), Feb. 4, 1930, 16.74.

Date	Chloride (p.p.m.)	Date	Chloride (p.p.m.)	Date	Chloride (p.p.m.)	Date	Chloride (p.p.m.)
Apr. 4, 1929	85	May ... 1931	161	Feb. ... 1932	132	Feb. 7, 1933	150
July 9	101	June ...	139	May ...	93	Mar. 30	119
Sept. 26	146	July ...	139	June ...	115	Apr. 28	135
Feb. 12, 1930	91	Aug ...	161	July ...	129	Apr. 28	135
June 4	140	Sept ...	167	Aug ...	141	Sept. 20	131
Sept. 16	135	Oct ...	147	Nov ...	158	Nov. 19, 1934	135
Feb. 7, 1931	125	Nov ...	117		152		

358 (old 299). At pump house 1.1 miles southeast of Kahuku Store and 100 yd. southwest of highway. Owner, J. B. Castle. Altitude, 11 ft. Use, domestic. Head (ft.), Feb. 18, 1930, 16.68. Bench mark, chiseled "O" on concrete outlet, 6 in. above ground; altitude, 11.53 ft.

361A and B (old 297). Pump 12 about 0.7 mile southeast of Kahuku Store and 0.7 mile southwest of highway. Owner, Kahuku Plantation Co. Drilled, B, 1937. Altitude, A and B, 16 ft. Diameter, A and B, 12 in. Depth, B, 378 ft. Casing, B, 118 ft. Use, irrigation.

Log

	Depth (ft.)		Depth (ft.)
Well B			
Silty brown clay (P ₁ and probably P ₂)		Red and blue gravel (T ₁ k)	65-71
Silty gray clay (P ₃ and probably P ₄)	0-46	Medium hard blue rock (T ₂ k)	71-75
Hard blue rock (T ₃ k)	46-53	Red and blue gravel (T ₄ k)	75-80
Blue and brown gravel (T ₅ k)	53-65	Medium hard red and blue glassy rock (T ₆ k)	80-97
		(T ₇ k)	97-115
		Medium hard glassy blue rock (T ₈ k)	115-129

Log—Well 361 (Continued)

	Depth (ft.)		Depth (ft.)
Hard and soft blue and brown rock, bit water at 149 ft. (T ₉ k), chloride, 76 p.p.m.	100-176	Hard and soft blue lava mixed with red water rock (T ₁₀ k), chloride, 35 p.p.m.	350-399
Hard glassy blue rock (T ₁₀ k)	176-181	Hard blue rock (T ₁₁ k)	380-390
Soft red water rock mixed with blue gravel (T ₁₁ k)	181-186	Soft water rock (T ₁₂ k)	392-406
Very hard blue rock (T ₁₂ k), chloride, 56 p.p.m.	186-197	Very hard and medium hard lava mixed with water rock (T ₁₃ k), chloride, 51 p.p.m.	306-311
Very hard blue rock (T ₁₃ k), chloride, 58 p.p.m.	197-211	Medium hard and soft red and blue lava (T ₁₄ k)	311-323
Hard blue rock (T ₁₄ k), chloride, 60 p.p.m.	211-218	Very hard blue lava (T ₁₅ k)	326-340
Very hard and medium hard blue rock (T ₁₅ k), chloride, 48 p.p.m.	218-231	Very hard red and blue lava (T ₁₆ k), chloride, 58 p.p.m.	340-355
Very hard and medium hard glassy rock (T ₁₆ k), chloride, 51 p.p.m.	231-247	Hard and soft red and blue rock (T ₁₇ k), chloride, 52 p.p.m.	355-370
Very hard and medium hard blue lava (T ₁₇ k), chloride, 45 p.p.m.	247-262	Hard blue lava (T ₁₈ k)	370-374

Observations

Bench mark, chiseled "O" on concrete doorstep, at ground; altitude, 15.85 ft. Head (ft.), well A, Jan. 21, 1930, 16.95; Feb. 4, 1930, 17.20.

Date	Chloride (p.p.m.)	Date	Chloride (p.p.m.)	Date	Chloride (p.p.m.)
July 12, 1925	49	June ... 1931	66	May ... 1932	114
Apr. 4, 1929	45	July ...	60	Mar. 30, 1933	54
July 9	48	Aug. ...	61	Apr. 28	56
July 4, 1930	48	Sept. ...	61	June ...	57
Sept. 16	62	Nov. ...	45	Sept. 9	62
Feb. 7, 1931	59	Dec. ...	44	Nov. 19, 1934	62
May ...	91	Feb. ... 1932	53	Feb. 7, 1933	64

362A to F (old 298A to F). Pumps 3 and 17 about a mile southeast of Kahuku Store and a mile southwest of highway. Owner, Kahuku Plantation Co. Drilled, E and F, 1930 by McCandless Bros. Depth, E, 373 ft. Altitude, 32 ft. Diameter, A, B, E, and F, 12 in.; C and D, 8 in. Depth to top of aquifer, E, 115 ft. Use, irrigation. Casing, E, 118 ft. Head (ft.), Jan. 21, 1930, 16.96. Chloride (p.p.m.), A, Apr. 20, 1925, 62.

Logs

	Depth (ft.)		Depth (ft.)		Depth (ft.)
Well E					
Clay (K ₁ and P ₁)	0-31	Red rock (T ₁ k)	165-172	Hard rock (T ₁ k)	247-258
Clay with gravel (P ₂)	31-44	Hard rock (T ₂ k)	172-175	Red rock (T ₂ k)	258-268
Brown clay (T ₃ k)	41-51	Hard rock (T ₃ k)	175-180	Red rock (T ₃ k)	268-295
Soft rotten rock with hard streaks (T ₄ k)	51-113	Hard rock (T ₄ k)	180-189	Hard rock (T ₄ k)	295-302
Hard rock (T ₅ k)	115-134	Hard rock (T ₅ k)	190-205	Red rock (T ₅ k)	305-330
Red rock (T ₆ k)	134-145	Hard rock (T ₆ k)	205-214	Hard rock, black (T ₆ k)	330-352
Hard rock (T ₇ k)	145-155	Hard rock (T ₇ k)	214-224	Hard rock (T ₇ k)	352-367
Red rock (T ₈ k)	155-160	Hard rock (T ₈ k)	224-232	Red rock, soft (T ₈ k)	367-374
Hard rock (T ₉ k)	160-165	Hard rock (T ₉ k)	232-237	Hard rock, black (T ₉ k)	374-383

Observations

Bench mark, same as U.S.G.S. bench-mark tablet near south wall of pump house, at ground; altitude, 32.93 ft.

Date	Chloride (p.p.m.)	Date	Chloride (p.p.m.)	Date	Chloride (p.p.m.)
July 13, 1925	50	Pump 3	Pump 17	Sept. 26, 1929	79
Apr. 4, 1929	65	June 4, 1930	87	Feb. 7, 1931	91
July 9	74	Sept. 16	84	May ...	98
				June ...	80
					78

Observations—Well 362 (Continued)

Date	Chloride (p.p.m.)		Date		Uranium (p.p.m.)		Date		Chloride (p.p.m.)	
	Pump 3	Pump 17	May	June	Pump 3	Pump 17	Mar. 30, 1933	Apr. 28	Pump 3	Pump 17
July .. 1931	102	79	84	76	84	76	Mar. 30, 1933	83	83	71
Aug. . . .	95	81	84	76	84	76	Apr. 28	104	135	135
Sept. . . .	87	74	88	82	78	82	June	89	89	77
Oct. . . .	56	74	88	82	78	82	Sept. 20	85	69	69
Nov. . . .	92	82	92	71	92	71	Nov. 19, 1934	92	..	..
Dec. . . .	92	82	92	71	92	71	..	..	..	..
Feb. . 1932	66	..	91	85	91	85	..	..	..	..

362-1 (no old number). Pump 6, Kahuku Plantation, 1.3 miles south of Kanuku mill and 800 ft. southeast of well 362 near plantation tracks. Owner, Kahuku Plantation Co. Drilled, 1937 by Kahuku Plantation Co. Altitude, 29 ft. Diameter, 12 in. Depth, 397 ft. Casing, 103.8 ft. Use, irrigation of sugar cane.

Log

Depth (ft.)	Depth (ft.)	Depth (ft.)
Sticky brown clay (Tks).....	0-10	Hard and medium hard glassy blue and brown rock (Tkb).....
Soft brown stone (Tps).....	16-27	Very hard blue rock (Tkb).....
Sticky brown clay (Pa).....	27-44	Soft brown water rock (Tkb).....
Soft red gravel mixed with mud (Pa or Tkb).....	44-55	Hard and medium hard glassy blue rock (Tkb), chloride, 77 p.p.m.....
Soft gray rock (Tkb).....	55-81	Hard and soft blue lava rock (Tkb), chloride, 94 p.p.m.....
Medium hard light blue rock (Tkb), (Tks).....	81-87	Hard and soft blue lava rock (Tkb), chloride, 94 p.p.m.....
Hard and soft red and blue lava (Tkb).....	87-100	Soft water rock (Tkb), chloride, 68 p.p.m.....
Hard and soft blue lava (Tkb).....	100-106	Medium hard blue rock (Tkb), chloride, 56 p.p.m.....
Soft red and blue lava (Tkb).....	106-126	Hard and medium hard blue and brown rock (Tkb), chloride, 71 p.p.m.....
Hard and medium hard blue rock (Tkb).....	126-141	Very hard blue rock (Tkb), chloride, 71 p.p.m.....
Soft red water rock (Tkb).....	141-148	Very hard blue rock (Tkb), chloride, 89 p.p.m.....
Very hard blue rock (Tkb).....	148-157	Medium hard blue rock mixed with medium hard red and blue rock (Tkb), chloride, 56 p.p.m.....
Medium hard blue rock (Tkb).....	157-161	
Soft red and blue lava rock (Tkb).....	161-165	
Medium hard blue rock (Tkb).....	165-169	
Very hard blue rock (Tkb).....	169-178	
Soft water rock mixed with soft blue lava (Tkb).....	178-183	

363 (old 300). Pump 7 about 1½ miles southeast of Kahuku Store, 0.1 mile southwest of highway. Owner, Kahuku Plantation Co. Altitude, 18 ft. Use, irrigation.

Observations

Bench mark, chiseled "O" on concrete doorstep, ½ ft. above ground; altitude, 18.81 ft. Head (ft.), Feb. 5, 1930, 17.47.

Date	Chloride (p.p.m.)		Date		Chloride (p.p.m.)	
	May	June	May	June	Mar. 30, 1933	Apr. 28
Apr. 20, 1925	66	105	97	93	83	83
July 12	79	108	97	93	83	83
July 11, 1929	75	108	94	94	91	91
Sept. 26	100	123	106	106	103	103
Feb. 13, 1930	71	135	114	114	100	100
June 4	110	105	106	106	103	103
Sept. 18	100	115	106	106	100	100
Feb. 7, 1931	91	113	98	98	98	98

364 (old 301). About 1.7 miles southeast of Kahuku Store and 200 yd. northeast of highway. Owner, Kahuku Plantation Co. Altitude, 10 ft. Use, irrigation. Head (ft.), Feb. 5, 1930, 17.43. Bench mark, chiseled "O" on concrete wall at head of long concrete flume, ½ ft. above ground; altitude, 10.25 ft.

365 (old 305). About 150 yd. northwest of well 367 and at flume. Owner, Kahuku Plantation Co. Altitude, about 10 ft. Use, irrigation.

366 (old 306). In small pond about 100 yd. north of well 367. Depth, 340 ft. Diameter, 10 in. Altitude, about 10 ft. Use, irrigation. Chloride (p.p.m.), Mar. 25, 1929, 52; Apr. 22, 1929, 51; June 24, 1929, 51.

367 (old 303). In valley on northwest side of Laie village at end of flume nearest Laie village half a mile west of Laie village. Owner, Kahuku Plantation Co. Depth, 216 ft. Diameter, 10 in. Altitude, about 10 ft. Use, irrigation.

368 (old 304). About 200 ft. west of well 367. Owner, Kahuku Plantation Co. Altitude, about 10 ft. Use, irrigation. Kahuku Plantation Co. pump 25 boosts water from wells 365, 367, and 368.

371 (old 302). On south side of road 400 ft. west of Laie Store. Altitude, about 8 ft. Use, domestic supply.

372 (old 308). At hydraulic ram in Laie village, about 400 yd. southeast of Laie Store. Altitude, about 7 ft. Use, irrigation.

373A and B (old 307A and B). Pump 24, 0.3 mile southeast of well 367. Owner, Kahuku Plantation Co. Altitude, about 10 ft. Drilled, D. May, 1939 by Kahuku Plantation. Depth, 306 ft. Use, irrigation. Casing, 121 ft.

Log

Depth (ft.)	Depth (ft.)	Depth (ft.)	Depth (ft.)
Well B			
Brown and blue soil.....	0-16	Hard rock (Tkb).....	121-126
Sticky brown soil (Pa).....	16-33	Soft water rock (Tkb).....	126-131
Gravel mixed with mud (Pa).....	33-48	Hard rock (Tkb).....	131-149
Sticky mud (Pa).....	48-63	Water rock (Tkb).....	149-180
Soft water rock (Tkb).....	63-75	Hard blue rock (Tkb).....	180-198
Hard blue rock (Tkb).....	75-92	Hard blue rock (Tkb).....	198-207
Hard rock (Tkb).....	92-94	Soft water rock (Tkb).....	207-215
Hard rock (Tkb).....	94-102	Hard blue rock (Tkb).....	215-222
Hard rock (Tkb).....	102-105	Hard blue lava (Tkb).....	222-227
Hard rock (Tkb).....	105-108	Hard blue rock (Tkb).....	227-230
Hard rock (Tkb).....	108-109	Hard blue lava (Tkb).....	230-234
Hard rock (Tkb).....	109-121	Hard blue rock (Tkb).....	234-236
		Hard blue rock (Tkb).....	236-241
		Hard blue rock (Tkb).....	244-252
		Red lava (Tkb).....	252-255

Observations

Date	Chloride (p.p.m.)		Date	Chloride (p.p.m.)		Date	Chloride (p.p.m.)	
	May	June		May	June		Apr. 28, 1933	June
Aug. 12, 1931	58	66	Aug. . . 1932	54	Apr. 28, 1933	52		
Oct. 15	52	61	Feb. . . 1931	57	Feb. 7, 1933	61	June . .	
Nov. . .	47	55	May 27	55	Mar. 30	50	Sept 20	
							Nov. 19, 1934	

374 (old 309). On east side of R. R. tracks and 0.4 mile south of Laie Store. Owner, Kahuku Plantation Co. Altitude, 8 ft. Use, irrigation. Bench mark, top of upper horizontal flange on valve ½ ft. above ground; altitude, 9.51 ft.

375 (old 311). At camp about 0.5 mile south of Laie Temple. Owner, Kahuku Plantation Co. Altitude, about 15 ft. Use, domestic.

376 (old 310). Near R. P switch about 0.6 mile south of Laie Store. Owner, Kahuku Plantation Co. Altitude, 12 ft. Use, irrigation. Bench mark, top of large 4-pronged plug, 2 ft. above ground; altitude, 14.38 ft.

377A to F (old 312A to F). At pump 20, 0.6 mile south and 0.4 mile west of Laie Store. Owner, Kahuku Plantation Co. Altitude, 32 ft. Drilled, D, E, F, by Kahuku Plantation Co., 1931. Depth, D, 360 ft.; E, 370 ft.; F, 300 ft. Use, irrigation. Bench mark, chiseled cross on concrete doorstep of pump-house, ½ ft. above ground; altitude, 32.44 ft.

Log

All wells penetrated 30 ft. of soil and decomposed noncalcareous sediments (Pa) and then entered Koolau basalt (Tbk), which consisted of beds of aa and pahoehoe, partly decomposed near the top and containing much white soapy secondary mineral probably montmorillonite.

Depth (ft.)	Depth (ft.)	Depth (ft.)
Well D	Well F	
Red mud and clay... 0-33	Soft blue rock... 110-112	Clay... 0-33
Sandy clay and brown clay... 33-109	Red lava... 124-143	Blue clay and fine gravel... 33-36
Blue lava... 109-111	Blue rock (casing down to this level)... 113-124	
Brown lava... 111-124	Black small pebbles... 149-153	
Hard rock (casing down to this level)... 124-150	Hard rock... 153-154	
Dark brown lava... 130-145	Water rock... 154-165	
Red lava... 145-159	Hard rock... 168-179	
Blue lava... 159-191	Blue lava... 179-184	
Brown lava... 191-335	Water rock... 184-201	
Blue lava... 238-247	Hard rock... 201-209	
Brown lava... 247-275	Soft brown rock... 209-211	
Hard blue lava... 275-288	Hard rock... 211-223	
Water rock... 288-293	Soft brown rock... 223-224	
Brown lava... 293-302	Hard rock... 224-232	
Blue lava... 298-312	Hard rock... 232-233	
Hard blue lava... 312-332	Soft blue rock... 238-257	
Brown lava... 332-341	Water rock... 257-265	
Hard blue lava... 341-355	Medium hard blue rock... 268-266	
Soft rock and sand... 355-360	Brown soft rock... 266-282	
	Hard blue rock... 282-284	
	Brown rock... 284-300	
	Blue rock... 300-311	
	Soft rock... 311-317	
	Blue rock... 317-328	
	Water rock... 328-334	
	Hard rock... 334-345	
	Hard lava... 345-353	
	Water rock... 353-355	
	Very soft rock... 355-376	
	Soft water rock... 290-300	

Observations

Date	Chloride (p.p.m.)	Date	Chloride (p.p.m.)	Date	Chloride (p.p.m.)
Feb. ... 1932	49	July 14, 1932	82	Mar. 30, 1933	56
May ...	48	Aug. ...	52	Apr. 28	56
June 20	76	Feb. 7, 1933	52	June ...	65
				Sept. 20, 1933	85
				Nov. 19, 1934	52

378 (old 317). About ¾ mile southeast of Laie Store. Owner, Kahuku Plantation Co. Altitude, about 10 ft. Diameter, 8 in. Use, irrigation. Chloride (p.p.m.), Jan. 29, 1929, 303; Feb. 25, 1929, 309.

381 (old 314). About 0.8 mile south of Laie Store and about 100 yd. west of hill with concrete tank on top. Owner, Pacific Trust Co. Drilled, 1927 by McCandless Bros. Altitude, about 25 ft. Depth, 447 ft. Diameter, 12 in. Depth to top of aquifer, 120 ft. Use, domestic. Casing, 116 ft.

Log

Depth (ft.)	Depth (ft.)	Depth (ft.)
Clay (Pa) ... 0-12	Clay (Pa or Tbk) ... 77-97	Hard bed rock (Tbk) ... 107-120
Gravel (Ra or Pa) ... 12-17	Clay and gravel (Pa or Tbk) ... 97-107	In bed rock (Tbk) ... 120-447
Clay (Pa) ... 17-27		
Hard rock (Pa or Tbk) ... 27-27		

382 (old 315). About 1 mile south of Laie Store and 100 yd. east of R. R. tracks. Owner, Kahuku Plantation Co. Altitude, about 18 ft. Use, irrigation.

383 (old 316). South bank of Waieale Stream near highway about 1 mile south of Laie Store. Owner, Kahuku Plantation Co. Altitude, about 12 ft. Use, irrigation.

384 (old 318). On east side of R. R. track about 1,200 ft. south of well 382. Owner, Kahuku Plantation Co. Altitude, about 20 ft. Use, irrigation.

385 (old 319). At country home west of highway 2 miles towards Kahuku from Hauula. Owner, Mrs. H. M. von Holt. Altitude, about 12 ft. Use, domestic.

386 (old 320). 200 yd. west of highway and 1.8 mile northwest of Hauula. Owner, Kahuku Plantation Co. Altitude, about 22 ft. Not in use.

387 (old 320-1). 100 ft. east of well 386. Owner, Kahuku Plantation Co. Drilled, 1932 by Kahuku Plantation Co. Depth, 315 ft. Diameter, 12 in. Altitude, about 20 ft. Use, irrigation. Casing, 146 ft.

Log

Depth (ft.)	Depth (ft.)	Depth (ft.)
Red clay and small rocks (Pa) ... 0-6	Soft rock (Tbk) ... 98-131	Soft rock (Tbk) ... 226-238
Blue clay (Pa) ... 6-20	Soft blue rock (Tbk) ... 131-134	Hard blue rock (Tbk) ... 238-248
Hard blue rock (Tbk) ... 20-24	Hard rock (Tbk) ... 134-141	Soft blue rock (Tbk) ... 248-265
Clay (Tbk) ... 24-28	Soft blue rock (Tbk) ... 141-140	Hard red rock (Tbk) ... 265-272
Hard blue rock (Tbk) ... 28-30	Soft blue rock (Tbk) ... 140-170	Hard blue rock (Tbk) ... 272-283
Red clay (Tbk) ... 30-41	Hard blue rock (Tbk) ... 170-195	Soft blue rock (Tbk) ... 283-298
Clay and gravel (Tbk) ... 44-78	Soft blue rock (Tbk) ... 193-203	Hard blue rock (Tbk) ... 298-298
Blue clay (Tbk) ... 78-80	Hard blue rock (Tbk) ... 203-218	Soft blue rock (Tbk) ... 298-313
Clay and gravel (Tbk) ... 80-98	Soft blue rock (Tbk) ... 218-220	Hard blue rock (Tbk) ... 313-315
	Hard blue rock (Tbk) ... 220-226	

Observations

Date	Chloride (p.p.m.)	Date	Chloride (p.p.m.)	Date	Chloride (p.p.m.)
June 20, 1932	37	Feb. 7, 1933	51	Apr. 28, 1933	35
July 14	42	Mar. 30	38	June ...	41
Aug. ...	37			Sept. 20, 1933	41
				Nov. 19, 1934	56

388 (old 321). 100 yd. southwest of highway and 1½ miles northwest of Hauula. Owner, Kahuku Plantation Co. Altitude, about 15 ft. Use, irrigation. Chloride (p.p.m.), Aug. 12, 1931, 48; Oct. 15, 1931, 37; Nov., 1931, 35; Feb., 1932, 38.

RECORDS OF DRILLED WELLS ON OAHU

391 (old 321-1). 800 ft. east of well 388. Owner, J. N. Castle estate. Altitude, about 10 ft. Use, domestic and irrigation.

392 (old 322). Pump 26 (formerly pump 6) on R. R. spur 0.2 mile from highway and 1.1 miles northwest of Hauula. Owner, Kahuku Plantation Co. Drilled, 1903. Altitude, 16 ft. Use, irrigation.

Observations

Bench mark, U.S.G.S. tablet at door of pump house 1 ft. above ground; altitude, 16.83 ft. Head (ft.), Feb. 5, 1930, 21.15.

Date	Chloride (p.p.m.)	Date	Chloride (p.p.m.)	Date	Chloride (p.p.m.)	Date	Chloride (p.p.m.)
July 9, 1929	35.3	Sept. 16, 1930	47.8	Aug. 7, 1932	50	June 11, 1933	41
Sept. 26	35.3	Feb. 7, 1931	85.3	Feb. 7, 1933	49	Sept. 20	42
Feb. 12, 1930	39.3	May 27, 1932	46	Mar. 30	40	Nov. 19, 1934	42
June 4	58.2	June 29	41	Apr. 28	45		

393 (old 323). At end of flume 0.9 mile northwest of Hauula and 100 yd. southwest of highway. Owner, Kahuku Plantation Co. Altitude, about 15 ft. Use, irrigation.

394 (old 324). At small pump house ½ mile northwest of Hauula and 500 yd. southwest of highway. Owner, City and County of Honolulu. Altitude, about 20 ft. Use, domestic.

395 (old 325). At west corner of school yard at Hauula. Altitude, about 8 ft. Use, domestic.

396 (old 326). 100 yd. south of R. R. shop at Hauula. Owner, Kahuku Plantation Co. Altitude, 10 ft. Diameter, 8 in. Use, domestic and irrigation.

Observations

Bench mark, top of large cap 6 ft. above ground in cross-union on main casing; altitude, 16.36 ft.

Date	Head (ft.)	Chloride (p.p.m.)	Date	Head (ft.)	Chloride (p.p.m.)	Date	Head (ft.)	Chloride (p.p.m.)
Mar. 1911	21.05	..	Aug. 1913	19.00	41	Sept. 1915	20.80	40
Apr. ..	21.26	..	Sept. ..	20.01	40	Oct. ..	21.26	..
June ..	21.06	..	Oct. ..	21.06	41	Nov. ..	22.47	41
July ..	20.98	..	Nov. ..	20.69	39	Dec. ..	22.01	40
Aug. ..	20.86	..	Dec. ..	21.00	40	Jan. 1916	23.70	40
Sept. ..	20.98	..	Jan. 1914	20.64	41	Feb. ..	23.74	41
Oct. ..	21.19	..	Feb. ..	20.54	40	Mar. ..	23.20	42
Nov. ..	21.65	41	Mar. ..	21.28	41	Apr. ..	22.14	42
Dec. ..	21.52	41	Apr. ..	21.52	39	May ..	22.06	42
Jan. 1912	21.18	42	May ..	21.98	40	June ..	21.64	42
Feb. ..	21.34	41	June ..	21.94	40	July ..	21.59	41
Mar. ..	20.75	40	July ..	22.01	41	Aug. ..	21.14	42
Apr. ..	20.94	39	Aug. ..	22.01	41	Sept. ..	20.99	..
May ..	19.75	41	Sept. ..	22.64	..	Oct. ..	21.23	..
June ..	20.56	40	Oct. ..	22.89	40	Nov. ..	22.45	..
Aug. ..	19.95	41	Nov. ..	22.89	40	Dec. ..	22.45	..
Sept. ..	20.14	39	Dec. ..	22.80	40	Jan. 1917	22.31	..
Oct. ..	20.64	40	Jan. 1915	22.80	41	Feb. ..	22.31	..
Nov. ..	20.64	38	Feb. ..	22.80	41	Mar. ..	22.31	..
Dec. 1915	21.14	38	Mar. ..	22.47	42	Apr. ..	22.22	..
Jan. ..	21.34	40	Apr. ..	22.47	42	May ..	22.23	..
Feb. ..	20.78	39	May ..	22.14	41	June ..	22.23	..
Mar. ..	20.41	41	June ..	22.06	40	July ..	21.96	40
Apr. ..	20.20	39	July ..	21.69	40	Aug. ..	21.38	..
May ..	20.24	40	Aug. ..	22.14	43	Sept. ..	21.03	..
June ..	19.62	41	Aug. ..	21.54	42	Oct. ..	20.98	..
July ..	19.86	41	Aug. ..	21.54	42	Nov. ..	..	..

RECORDS OF DRILLED WELLS ON OAHU

Observations—Well 396 (Continued)

Date	Head (ft.)	Chloride (p.p.m.)	Date	Head (ft.)	Chloride (p.p.m.)	Date	Head (ft.)	Chloride (p.p.m.)
Dec. 1917	21.78	..	Sept. 26, 1927	21.01	55	June 24, 1931	19.25	54
Jan. 1918	22.32	..	Oct. 26	20.90	56	Aug. 4	19.49	56
Feb. ..	21.64	..	Nov. 22	21.54	54	Aug. 24	19.41	56
Mar. ..	23.53	..	Jan. 5, 1928	22.82	52	Oct. 5	19.88	56
Apr. ..	24.53	..	Feb. 7	22.81	52	Oct. 27	20.32	57
May ..	24.98	..	May 5	21.65	53	Dec. 10	20.59	54
June ..	24.98	..	Apr. 10	21.41	54	Jan. 15, 1932	20.97	52
July ..	23.46	..	May 20	21.36	54	Feb. 16	22.04	52
Aug. 1919	22.94	..	June 11	21.19	54	Mar. 15	20.85	40
Sept. 1921	25.29	..	July 25	20.09	54	Apr. 14	21.90	52
Feb. 1924	20.6	54	Aug. 21	20.24	55	May 16	21.94	53
Mar. ..	20.6	55	Sept. 24	20.11	56	June 15	21.33	52
Apr. ..	21.1	..	Oct. 24	20.07	55	July 14	21.07	55
May ..	21.9	55	Nov. 19	20.95	56	Aug. 11	22.60	54
June ..	20.5	54	Dec. 31, 1929	20.91	53	Sept. 14	20.57	54
July ..	19.9	54	Jan. 29	19.69	54	Oct. 17	19.62	54
Aug. ..	19.6	58	Feb. 25	20.39	53	Nov. 14	19.81	54
Sept. ..	19.7	58	Mar. 25	20.41	54	Dec. 14	21.00	53
Oct. ..	20.76	54	Apr. 21	20.16	54	Jan. 16, 1933	21.98	52
Nov. ..	20.86	55	Apr. 21	19.42	55	Feb. 14	19.76	52
Dec. 17	21.16	54	June 24	19.24	55	Mar. 15	21.98	50
Jan. 14	21.16	55	Aug. 5	19.21	55	Apr. 17	21.46	52
Feb. 17	20.36	61	Sept. 26	19.02	57	May 25	20.77	54
Mar. 16	20.36	61	Sept. 24	18.77	57	June 16	19.59	55
Apr. 27	20.26	57	Oct. 22	18.89	59	July 26	19.84	55
May 21	20.06	57	Nov. 25	19.69	59	Aug. 14	19.73	54
June 22	21.96	60	Dec. 23	20.41	57	Sept. 18	19.47	55
July 11	..	59	Jan. 27, 1930	21.75	53	Oct. 17	18.83	55
Aug. 29, 1926	20.38	57	Feb. 26	21.57	53	Nov. 9	19.28	53
Sept. 17	18.78	56	Mar. 24	21.90	54	Dec. 18	16.64	51
Oct. 26	19.67	58	Apr. 23	21.09	53	Jan. 11, 1934	20.64	50
Nov. 11	19.01	58	May 26	20.64	54	Feb. 19	19.75	50
Dec. 28	19.15	57	June 24	20.38	55	Mar. 22	19.15	55
Jan. 20	19.00	58	July 29	20.10	55	Apr. 29	19.76	50
Feb. 29	19.05	64	Aug. 25	19.97	57	May 15	19.62	59
Mar. 20	19.37	60	Sept. 2	21.22	58	June 15	19.46	56
Apr. 22	19.25	59	Nov. 4	20.82	54	July 13	19.16	54
May 26, 1927	19.82	58	Dec. 4	22.15	53	Aug. ..	19.06	56
June 26	19.61	57	Jan. 28	20.88	54	Sept. ..	16.44	60
July 30	20.70	45	Feb. 26, 1931	20.57	54	Oct. 12	19.18	60
Aug. 30	22.02	61	Mar. 25	19.92	58	Nov. 21	19.88	60
Sept. 28	20.12	58	Apr. 25	19.48	56	Dec. 14	19.74	50
Oct. 23	21.52	57	May 27	19.91	54			
Nov. 24	21.08	54	May 28	19.96	55			

397 (old 327). In cane field about 500 yd. southeast of R. R. shop at Hauula. Owner, Kahuku Plantation Co. Altitude, about 30 ft. Use, irrigation.

398A and B (old 327-1). Pump 27 on R. R. track north side of Kalanui Stream. Owner, Kahuku Plantation Co. Altitude, about 25 ft. Drilled, 1932 by Kahuku Plantation Co. Well A penetrated hard rock and took 40 days. Well B penetrated soft rock and took 10 days. Depth, A, 291 ft.; B, 264 ft. Diameter, both 12 in. Use, irrigation. Casing, A, 78 ft.; B, 125 ft.

Logs

Depth (ft.)	Head (ft.)	Description	Depth (ft.)	Head (ft.)	Description
Well A	0-15	Very hard black rock (Tbb)	90-94	Hard blue rock (Tbb)	245-271
Black sticky clay (Ra)	15-28	Hard blue rock (Tbb)	94-105	Hard red rock (Tbb)	271-280
Brown clay and boulders (Ta)	28-40	Hard blue rock (Tbb)	105-156	Hard blue rock (Tbb)	280-291
Jan. 1915	20-64	Hard blue rock (Tbb)	156-179	Black sticky clay (Ra)	0-8
Feb. ..	21.34	Hard blue rock (Tbb)	179-207	Brown clay (Ra) and Fe	8-28
Mar. ..	20.20	Soft brown rock (Tbb)	207-209	Blue clay (Tbb)	89-90
Apr. ..	20.24	Hard blue rock (Tbb)	209-215	Soft brown rock (Tbb)	58-91
May ..	19.86	Soft brown rock (Tbb)	215-218	Hard blue rock (Tbb)	93-96
June ..	19.86	Hard blue rock (Tbb)	218-219	Soft red rock (Tbb)	96-111
July ..	19.86	Soft brown rock (Tbb)	219-215		
Aug. ..	19.86	Hard blue rock (Tbb)			

Logs—Well 398 (Continued)

Depth (ft.)		Depth (ft.)		Depth (ft.)	
Soft brown rock (Tkb)	155-157	Hard blue rock (Tkb)	201-210	Hard blue rock (Tkb)	235-248
Hard blue rock (Tkb)	157-160	Hard brown rock (Tkb)	210-217	Soft blue rock (Tkb)	248-260
Soft blue rock (Tkb)	160-197	Soft blue rock (Tkb)	217-235	Hard blue rock (Tkb)	260-264
Hard brown rock (Tkb)	197-201				

Observations

Date	Chloride (p.p.m.)	Date	Chloride (p.p.m.)	Date	Chloride (p.p.m.)	Date	Chloride (p.p.m.)
Aug. 1932	59	Mar. 30, 1933	57	June 19, 1933	67	Nov. 19, 1934	69
Feb. 7, 1933	71	Mar. 28	65	Sept. 20	71		

401 (old 328). In same field about 900 yd. southeast of R. K. shop at Hauula. Owner, Kahuku Plantation Co. Altitude, about 15 ft. Use, irrigation.

402 (old 329). At camp 1.7 miles southeast of Hauula and 100 yd. southwest of highway. Owner, Kahuku Plantation Co. Altitude, about 6 ft. Use, irrigation.

403 (old 330). About 100 yd. northwest of highway bridge over Panalua Stream. Owner, Chung Yun Quong. Drilled, 1925 by Chang Yun Quong. Altitude, about 4 ft. Depth, 236½ ft. Diameter, 2 in. Depth to top of aquifer, about 218 ft. Use, domestic. Casing, 98 ft.

Log

Depth (ft.)	Depth (ft.)	Depth (ft.)	
Sand (Rs)	0-12	Yellow dirt (Pa or Tkb)	97-137
Coral (Pls)	12-29	Rough yellow or brown dirt (Pa or Tkb)	197-312.6
Black dirt (Pa)	29-54	Rock with holes (Tkb)	218.6-236.6
Rough yellow dirt (Pa or Tkb)	54-93		
Hard stone (Pa or Tkb)	93-97		

404 (old 331). In pond 200 yd. southeast of highway bridge over Panalua Stream. Owner, David Kaapu. Drilled, 1926 by A. H. Hobart. Altitude, about 4 ft. Depth, 103 ft. Diameter, 2 in. Depth to top of aquifer, 87 ft. Use, fish pond.

Log

Depth (ft.)	Depth (ft.)	Depth (ft.)	
Coarse sand, sand clay (Rs)	0-32	Cemented and loose sand and gravel (Pa)	87-103
Soft clayey mud, sand, and streaks cemented sand and gravel, rotten wood (Pa)	32-87		

404-1 (no old number). At end of road leading southwest from main highway at point 1,100 yd. southeast of Panalua bridge. Owner, Kahuku Plantation Co. Drilled, 1937. Diameter, 12 in. Depth, 183 ft. Use, domestic supply. Casing, 50 ft.

Log

Depth (ft.)	Depth (ft.)	Depth (ft.)	
Sticky brown clay (Ra)	0-5	Hard blue rock (Tkb)	27-30
Medium hard and soft lime coral (Pls)	5-15	Medium hard blue rock (Tkb)	30-32
Medium hard blue and brown lava (Tkb)	15-25	Medium hard and soft red lava mixed with red water rock (Tkb), struck water	32-37
Very hard blue rock (Tkb)	25-27		

Log—Well 404-1 (Continued)

Depth (ft.)	Depth (ft.)	Depth (ft.)	
Medium hard and soft red and blue lava mixed with red water rock (Tkb)	37-43	Very hard blue lava (Tkb)	101-118
Hard blue and brown rock (Tkb)	43-50	Hard and soft lava rock mixed with chloride, 38 p.p.m.	118-133
Hard blue and brown rock (Tkb)		Hard blue lava (Tkb), chloride, 18 p.p.m.	133-143
Hard and soft blue and brown lava rock mixed with red water rock (Tkb)	50-58	Very hard blue lava (Tkb), chloride, 35 p.p.m.	143-152
Hard blue and brown lava (Tkb)	58-68	Hard and soft blue and brown lava mixed with water rock (Tkb)	152-159
Very hard blue and brown lava, chloride, 14 p.p.m.	68-88	Hard blue rock (Tkb), chloride, p.p.m.	159-165
Hard and soft blue and brown rock mixed with red water rock (Tkb)	88-101		

405 (old 331-1). In Kahana Valley about 700 ft. southeast of the highway and about 1,000 ft. south of the old Mary E. Foster home. Owner, Mary E. Foster estate. Drilled, 1932 by Kahuku Plantation Co. Altitude, 6 ft. Diameter, 10 in. Depth, 441 ft. Use, domestic. Casing, 177 ft. Bench mark, top of blind flange on top of casing; altitude, 5.76 ft.

Log

Depth (ft.)	Depth (ft.)	Depth (ft.)	
Blue beach sand (Rs)	0-10	Soft brown rock (Tkb)	288-292
Black silt with shells and pebbles (Ra and Pa)	10-80	Hard blue rock (Tkb)	292-292
Brown soil with pebbles (Pa)	80-124.5	Soft brown rock (Tkb)	292-305
Brown and black soil (Pa)	124.5-165	Hard blue rock (Tkb)	305-354
Blue rock (Tkb)	165-177	Soft water rock (Tkb)	354-371
Soft blue and brown rock (Tkb)	177-187	Hard blue rock (Tkb)	371-375
Hard blue rock (Tkb)	187-210.5	Soft water rock (Tkb)	375-379
Soft blue rock (Tkb)	210.5-222	Hard blue rock (Tkb)	379-393
Hard blue rock (Tkb)	222-254	Soft red and brown water rock (Tkb)	393-412
Soft brown water rock (Tkb)	254-270		
Hard blue rock (Tkb)	270-288		

405-1 (no old number). In Kasawa on lot 11 of the Makaua Beach lots about 30 ft. from main highway and 0.5 mile southeast of Puu O Mahie. Owner, E. K. Allen. Drilled, 1937 by W. H. Mullin. Altitude, 6 ft. Depth, 98.5 ft. Diameter, 6 in. Use, domestic supply. Casing, 82 ft. Chloride (p.p.m.), Oct. 23, 1937, 57.

Log

Depth (ft.)	Depth (ft.)	Depth (ft.)	Depth (ft.)
Fill (Ra)	0-4	Hard rock (Tkb)	52-55
Coral (Pls)	4-22	Hard blue rock (Tkb)	55-62
Decomposed rock (Tkb)	22-47	Rock (Tkb)	62-65
Soft blue rock (Tkb)	47-52	Soft rock (Tkb)	65-73
		Hard rock (Tkb)	73-75
		Hard rock (Tkb)	75-79
		Water rock (Tkb)	79-85
		Hard rock (Tkb)	85-91
		Soft rock (Tkb)	91-97
		Hard rock (Tkb)	97-98.5

Meter test

No flow from top of well. An 3-in. deep-well meter used. Readings by K. N. Vakovic, Aug. 25, 1937.

Depth (ft.)	Revolutions per minute	Depth (ft.)	Revolutions per minute	Depth (ft.)	Revolutions per minute
0	0	40	6	70	4
20	88	50	42	80	3
30	81	60	23		

RECORDS OF DRILLED WELLS ON OAHU

405-2 (no old number). In Kaaawa near school. Owner, Henry H. Williams. Drilled, 1925 by Harry Papke. Depth, 126 ft. Casing, 77 ft. Water very brackish and never used.

Log			
Depth (ft.)		Depth (ft.)	Depth (ft.)
White sand with small coral (Ra).....	0-28	Red cinders (Pa).....	46-51
Hard coral (Pis).....	28-46	Soft coral (Tsk).....	51-63
		Hard coral (Pis).....	63-77
		Spongy lava (Tkb).....	77-111
		Black agate rock (Tkb).....	111-126

405-3 (no old number). In rear of Kaaawa School. Owner, Department of Public Instruction. Drilled, 1937 by W. H. Mullin. Altitude, 6 ft. Depth, 226 ft. Diameter, 6 in. Casing withdrawn. Well abandoned.

Log			
Depth (ft.)		Depth (ft.)	Depth (ft.)
Soil (Ra).....	0-1	Hard rock (Tkb).....	87-120
Coral (Pis).....	1-2	Hard blue rock (Tkb).....	120-151
Coral sand (Pis).....	2-27	Heddish rock (Tkb).....	151-155
Black clay (Pa).....	27-32	Hard blue rock (Tkb).....	155-180
Ancient alluvium (Pa).....	32-57	"Pakapuka" rock (Tkb).....	205-208
Brown clay (Pa).....	57-59	Hard blue rock (Tkb).....	208-217
Coral (Pis).....	59-77	Hard blue rock (Tkb).....	217-218
Brown clay (Pa or Tkb).....	77-85	"Pakapuka" sand rock (Tkb).....	218-223
		Hard grey rock (Tkb).....	223-226
		Hard grey rock (Tkb).....	184-201

406 (old 332). In Kaaawa about 400 yd. south of highway bridge over Kaaawa Stream. Owner, Mrs. F. M. Swany. Altitude, 10 ft. Diameter, 9 in. Use, irrigation. Drilled in 1896 by McCandless.

Observations

Bench mark, highest point on well casing at ground; altitude, 10.27 ft.

Date	Head (ft.)	Chloride (p.p.m.)	Date	Head (ft.)	Chloride (p.p.m.)	Date	Head (ft.)	Chloride (p.p.m.)
June 25, 1929	14.40	212	Aug. 24, 1931	14.18	212	June 15, 1933	16.10	226
Aug. 5	14.14	210	Oct. 5	14.17	213	July 24	15.07	241
Aug. 26	14.21	211	Oct. 27	14.31	220	Aug. 24	15.51	213
Sept. 24	13.94	211	Dec. 10	14.27	213	Sept. 18	15.08	216
Oct. 22	13.90	212	Jan. 13, 1932	14.35	218	Oct. 17	14.05	214
Nov. 25	13.83	212	Feb. 16	14.82	217	Nov. 9	14.41	197
Dec. 23	14.03	215	Mar. 15	15.71	225	Dec. 18	14.77	218
Jan. 27, 1930	15.03	217	Apr. 14	16.46	227	Jan. 31, 1934	14.31	198
Feb. 26	15.57	226	May 16	16.46	227	Feb. 22	14.57	209
Mar. 28	15.83	222	June 15	16.58	220	Apr. 30	15.72	216
Apr. 28	16.37	232	July 17	15.99	214	May 15	13.52	222
May 26	16.05	227	Aug. 11	16.48	226	June 14	13.43	223
June 24	16.34	225	Sept. 14	16.32	215	June 14	13.43	223
July 25	15.74	211	Oct. 17	15.99	214	Oct. 12	13.92	220
Aug. 25	15.79	210	Nov. 14	15.71	210	Nov. 21	14.05	223
Oct. 9	15.99	216	Dec. 14	15.56	210	Dec. 21	14.15	230
Nov. 11	15.98	219	Jan. 16, 1933	15.40	212			
Dec. 4	15.86	218	Feb. 14	15.51	211			
Dec. 29	15.76	219	Mar. 15	15.92	213			
Jan. 26, 1931	15.79	217	Apr. 17	16.24	222			
Aug. 4	14.23	213	May 27	16.17	227			

407 (old 333). About 50 ft. north of highway bridge over Kahaolu Stream. Owner, K. Kanemura. Drilled, 1924 by A. H. Hobart. Altitude, about 3 ft. Depth, Diameter, 2 in. Depth to top of aquifer, 68 ft. Use, domestic. Casing, 77.5 ft. Chloride (p.p.m.), Apr. 14, 1925, 26.

RECORDS OF DRILLED WELLS ON OAHU

Well 407 (Continued)

Log

	Depth (ft.)		Depth (ft.)
Soil, grit and clay with occasional streaks of soft mud (Ra).....	0-56	Water rock (Tkb).....	68-78
Compact sand and gravel (Pa).....	56-68	Gravelly water rock (Tkb).....	73-80

407-1 (no old number). In Kahaluu about 75 ft. southeast of Kahaluu highway bridge. Owner, Kahaluu Store. Drilled, 1937 by W. H. Mullin. Altitude, 4 ft. Depth, 66 ft. Use, domestic supply. Diameter, 6 in. Casing, 48.5 ft.

Log

	Depth (ft.)		Depth (ft.)	Depth (ft.)	
Black loam (Ra).....	0-4	Silt and gravel (Pa).....	30-47	Hard blue rock (Tkb).....	58-61
Gravel (Pa).....	4-8	Hard rock (Tkb).....	47-55	Blue clay (Tkb).....	61-63
Althuvium silt with coral (Pa and Pis).....	8-30	Hard blue rock (Tkb).....	55-58	Hard blue rock (Tkb).....	61-63
		Blue clay (Tkb).....	58-59		

408 (old 334). At Waimanalo mill. Owner, Waimanalo Sugar Co. Drilled, about 1891 by McCandless Bros. to reported depth of 999 ft. Redrilled, 1937 by W. H. Mullin to 730 ft. Altitude, 26 ft. Diameter, 6 in. Use, mill supply. Casing, 253 ft., but parted at depth of about 150 ft. when casing was pulled up. Chloride (p.p.m.), Feb. 16, 1933, 58.

Log

(Driller lost notebook containing records below 315 ft.)

	Depth (ft.)		Depth (ft.)
Open pit	0-18	Clay (Pa).....	285-295
Lumber and broken concrete.....	18-20	Opua hole, no sample.....	295-315
Sand (Pa or Pis).....	20-22	Sample at 325 ft. is water-worn basalt gravel. Samples at 350, 360, 370, 380, 390 ft. contain feldspar, olivine, basalt, and secondary minerals, indicating either gravel or a post-Koolau lava flow. Sample at 390 ft. contains charred wood. Samples at 405, 430, 450, 540, 650 ft. probably derived from basalt gravel although some limy material possibly concrete is present. Sample at 730 ft. contains pebbles up to 1 1/2 in. across some of which are definitely water worn, indicating clearly that Koolau basalt was not reached.	
Very soft material, some blue mud and soft coral (Pa and Pis).....	22-65		
Soft mud and loose coral (Pa and Pis).....	65-82		
Hard coral (Pis).....	82-90		
Layers of coral, some finger coral and some ledge coral (Pis).....	90-140		
Soft coral (Pis).....	140-170		
Sand mixed with volcanic ash (Pa).....	170-180		
Clay (Pa).....	180-240		
Clay (Pa).....	240-253		
Clay (Pa).....	250-260		
Yellow clay (Pa).....	260-270		
Soft rock (Pa).....	270-285		
Loose stone (Pa).....	280-285		

Meter tests

No water flowing from top of well. A 9-in. deep-well meter used. Readings by K. N. Yaksik. June 16, 1935.

Test 1. Pumps running.

Depth (ft.)	Revolutions per minute	Depth (ft.)	Revolutions per minute	Depth (ft.)	Revolutions per minute
22	0	98	15	52	41
24	6	40	19	54	40
26	8	42	13	46	41
30	13	44	14	38	41
32	11	46	11	40	42
	13				

Meter tests—Well 408 (Continued)

Test 2. Pumps shut down.

Depth (ft.)	Revolutions per minute	Depth (ft.)	Revolutions per minute	Depth (ft.)	Revolutions per minute
20-30	0	45	10	60	13
35	5	50	10	65	14
40	7	55	12	70 (handed)	

409 (old 335). 1½ miles southwest of Waimanalo, near reservoir. Owner, Waimanalo Sugar Co. Drilled, Jan. 1933 by Kahuku Plantation Co. Altitude, 310 ft. Depth, 399.6 ft. Diameter, 16 in. at top and 12 in. at bottom. Use, test hole to determine quality, quantity, and height of water. Casing, none. Head (ft.), Feb. 16, 1933, 308. Chloride (p.p.m.), 46, before and after air lift pumping test. Shallow ground water enters in top layer of gravel but water level can be lowered to 370 ft. by bailing. Samples in office of Waimanalo Sugar Co.

Log

Depth (ft.)		Depth (ft.)		Depth (ft.)	
	curried below this depth	98-130	Soft water rock (Tkb)	270-280	
Fine gravel and boulders (Ra)	0-25	Hard blue rock (Tkb)	130-135	Hard blue rock (Tkb)	280-289
Hard rock (Pa)	25-28	Gravel mixed with clay (Tkb)	135-140	Hard blue lava (Tkb)	299-304
Brown dirt mixed with gravel (Pa)	28-38	Hard blue rock (Tkb)	140-144	Hard blue rock (Tkb)	304-307
Gravel (Pa)	38-48	Gravel (Tkb)	144-151	Hard blue lava (Tkb)	307-310
Hard rock, boulder (Pa)	48-51	Hard blue rock (Tkb)	151-150	Soft rock (Tkb)	310-319
Gravel mixed with brown soil (Pa)	51-77	Hard blue rock mixed with red lava (Tkb)	165-170	Soft rock (Tkb)	319-324
Hard rock, boulder (Pa)	77-82	Soft water rock (Tkb)	170-185	Hard blue lava (Tkb)	324-327
Gravel mixed with brown soil (Pa)	82-98	Hard blue rock (Tkb)	185-190	Hard blue lava (Tkb)	327-330
Gravel mixed with clay (Pa and Tkb)		Gravel mixed with clay (Tkb)	190-200	Soft rock (Tkb)	330-335
Gravel mixed with clay (Tkb)		Hard blue rock (Tkb)	200-205	Hard rock (Tkb)	335-337
Bed rock was encountered at about 115 ft. and that no more gravel occurred		Gravel mixed with clay (Tkb)	205-234	Soft rock (Tkb)	337-341
		Hard blue rock (Tkb)	234-250	Hard rock (Tkb)	343-375
		Blue rock mixed with red rock (Tkb)	250-260	Soft rock (Tkb)	375-380
		Hard blue rock (Tkb)	260-270	Hard rock (Tkb)	380-386
				Soft red rock (Tkb)	386-391
				Hard rock (Tkb)	391-395
				Hard rock (Tkb)	395-400

415 (no old number). Near Kawainui Swamp. Drilled by McCandless Bros. in 1892 for Mrs. Harris Rice for watering cattle.

421 (no old number). Near lagoon pump, Waimanalo Sugar Co. Drilled by McCandless Bros. in 1891. Reported unused. Exact location unknown.

423 (no old number). In Waimanalo 1.4 miles from mill and about 0.5 mile north of upper reservoir. Owner, Waimanalo Sugar Co. Drilled, 1937 by W. H. Mullin. Altitude, about 150 ft. Depth, 270 ft. Diameter, 6 in. Casing, 237.6 ft. Casing collapsed and well abandoned.

Log

Depth (ft.)		Depth (ft.)		Depth (ft.)	
Blue clay (Pa)	0-20	Reddish clay (Pa)	140-155	Hard rock with soft streaks (Tkd)	220-240
Decomposed rock (Pa)	20-22	Decomposed river gravel (Pa)	155-196	Rock, hard (Tkd)	240-250
Red clay (Pa)	22-42	Red water at 200 ft. (Tkd)	196-202	Change from blue to purple rock (Tkd)	250-270
Decomposed rock (Pa)	42-52	Rock, hard (Tkd)	202-217		
Slipky red clay (Pa)	52-60	Rock (Tkd)	217-220		
Red clay (Pa)	60-124				
Hard rock (Pa)	124				

430 (no old number). Near Koko Head near upper end of Kaupu Pond at main gate to Tyson Farms. Owner, Homer Tyson. Drilled, 1937 by W. H. Mullin. Drilled to 260 ft. and filled back to 29 ft. Altitude, 14 ft. Diameter, 5 in. Use, irrigation and domestic supply. Casing, 36.5 ft., cemented into place; lower 10 ft. perforated. Maximum head during drilling 3.31 ft. with about 416 p.p.m. of chlorides. When drilling reached cinders below 45 ft., water in well dropped to 1.90 ft. and remained about there until well was completed. When drilling progressed deeper, very brackish water came in. Well was backfilled to the formation with fresher water. Bench mark, top of iron rail at edge of pit. Altitude, 14.33 ft. Head, Dec. 21, 1937, 1.67 ft.

Log

Depth (ft.)		Depth (ft.)		Depth (ft.)	
Flowed (Qkt)	0-60	Flowed with fresh water		Soft rock (Pa)	232-237
Hard rock (Qkt)	40-45	100-105 ft. (Pls)	90-110	Yellow clay (Pa)	237-253
Cinders (Qkt)	45-52	Sand (Pa)	110-115	Blue rock (Pa)	253-256
Coral salt water at 72 ft. (Pls)	52-80	Coral (Pls)	110-200	Blue mud (Pa)	256-260
Mud (Pa)	80-90	Mud (Pa)	200-228		
		Coral (Pls)	225-235		

431 (no old number). Near Koko Head near upper end of Kaupu Pond on bank of ravine through Tyson Farms. Owner, Homer Tyson. Drilled, 1938 by W. H. Mullin. Drilled to 79 ft. and cemented back to 70 ft. Altitude, 55 ft. Diameter, 6 in. Use, irrigation and domestic supply. Casing 70 ft., lower 10 ft. perforated. Casing cemented into place. Water could not be nailed down. Reported to be of good quality. Head (ft.), Dec. 21, 1937, 1.52; Jan 4, 1938, 1.54.

Log

Depth (ft.)		Depth (ft.)		Depth (ft.)	
Soil (Qkt)	0-32	Yellow material (Qkt)	52-58	Black cinders (Qkt)	63-79
Cinders (Qkt)	32-52	Gray material (Qkt)	58-63		

437 (no old number). In Niu at toe of small ridge in middle of valley, 400 yd. from Niu Dairy building and 600 yd. from Niu bridge. Owner, Niu Dairy. Drilled, 1938 by W. H. Mullin. Depth, 102 ft. Diameter, 6 in. Use, dairy supply. Casing, 60 ft. and cemented into place. Bench mark, top of 6-in. coupling about 2 ft. above ground; altitude, 15.27 ft. Head (ft.), Feb. 11, 1938, 2.21. Chloride (p.p.m.), Feb. 11, 1938, 222.

Log

Depth (ft.)		Depth (ft.)		Depth (ft.)	
Soil (Ra)	0-6	Blue black clay (Pa)	40-52	Hard blue rock (Tkb)	71-74
Clay (Pa)	6-21	Reddish rotten clinker (Tkb)	52-62	Blue rock (Tkb)	74-79
Red rock (Pa)	21-24	Soft blue rock (Tkb)	62-64	Yellow clay (Tkb)	79-82
Clay (Pa)	24-28	Blue rock (Tkb)	64-71	Blue rock (Tkb)	82-90
Yellow clay (Pa)	28-46			Blue rock (Tkb)	90-102