



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 on prolonged dry weather causes the zone of mixture to rise, wells near the land edge of the coastal plain, such as No. 98 at Queen's Hospital, are in less danger of going salty than those farther seaward, such as No. 35 at pier 3. A Maui-type well (labelled "shaft") 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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Bulletin 4

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

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

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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, coralline 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 tuff 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 spurs in the Koolau Range potable water can be found in them.
		10-90	Rd	Unconsolidated fine-grained cross-bedded cream-colored calcareous sand blows inasmuch 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 bottom 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 also 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 lavalike deposits because of the torrential 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.	tain deposits of Tantalus and Sugar Loaf.	20-100	Qtb	The basalt consists of dense as flows of gray nephelitic-mollitic basalt erupted from Tantalus and Sugar Loaf enters 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 lavalike deposits because of the torrential 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 breccias.	25±	Qtf	The breccia deposits are friable, black and bedded and in places cemented by secondary calcite. Near the vents they contain coarse magmatic ejecta but elsewhere consist of glassy mineral a quarter of an inch in diameter or less, mostly fragments of ribbon 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 Maiki Valley carries perched water.
	Black ash of Back Point.	6±	Qbf	Cross-bedded, fine, friable, black glassy volcanic ash, in some places drifted by the wind and in other places containing thin siliceous layers.	Permeable but contains no water because of its small areal extent.
		2-50	Qkb	Thin vesicular black ash and pumiceous 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 breccia deposits consisting chiefly of cinders and spatter, forming spatter heap and cinder cones around the vents from which the basalt issued.	Extremely permeable but too small an areal extent to form an important aquifer. In Kahuna Valley the deposits will probably yield fresh water in small amounts.
Sedimentary rocks contemporaneous with the late Pleistocene and middle (P) 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 raised by phreatic-spring explosions.	The tuff beds vary in permeability according to their coarseness and induration but all occur in a semiarid 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±	Pls	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 and cross-bedded calcareous sands made up of pale yellow uniform calcareous grains of sandblown inland from ancient beaches chiefly during the recession of the sea from Kneia to Waipaho 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 sorted lenticular conglomerate, but along the coast, where marine they are brown stratified silts with scattered lenses of gravel. They form valley fills, fans, and deltas and are usually terraced.	Usually poorly permeable in the wet areas and permit 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)

Local Unconformity Punchbowl volcanics. Castle volcanics. Kamamiki basalt. Black Point basalt. Maunaloa volcanics. Kaimuki volcanics. Diamond Head tuff. Training School volcanics. Maunawili volcanics. Alaohi volcanics. Salt Lake tuff. Kauai volcanics. Maui volcanics. Many volcanics. Makawao breccia. Pali volcanics. Quartzite volcanics. Kaneohe volcanics. Alaohi tuff. Haleiwa volcanics. Kalihi volcanics. Rocky Hill volcanics. Mokapu basalt. Mokapu basalt. Hawaii volcanics.	10-130	Qhb	Basalt member consists of dense and vesicular, jointed aa and pahoehoe flows of olivine, nephelitic, and nephelitic-meltilite basalt, generally filling valleys in the Koolau Range and covered on numerous vents. They are interstratified with and cap the consolidated calcareous and noncalcareous sediments. Soils developed on them range from yellow to red. Firefountain member consists of friable red to black bedded ciners, spatter, pumice and bombs; coarse, thick, and forming cones near the vents but inter-grained elsewhere. 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 blazed in a Koolau basalt. 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 hyaloclasts, forming cones near the vents but thin elsewhere, and caused by phreatomagmatic explosions.	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 undrained by fairly impermeable deposit of alluvium, and there usually in the lower part of the flow only. Extremely permeable but too small in arid extent to form an important aquifer. Mostly impermeable on the surface but may carry water in unconsolidated streaks. 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.
Great Erosional Unconformity Koolau volcanic series.	3000±	Tbb Tkt Tdc Ttd Tkb	Gray, blue, red, and black jointed, dense to very vesicular, holocrystalline and microcrystalline, aphanitic and porphyritic effusive basalt poured out of theaters of vents in rapid succession as short and long pahoehoe and aa 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 from the crest of the Koolau Range. The flows at the surface are deeply weathered to red and black soils (Tbb); bed of red and yellow and vitric tuff from a few inches to 10 feet thick intercalated with Tkb (Tkt); dike complex consisting of Tkb injected with numerous nearly vertical dikes a few inches to 15 feet thick, generally microcrystalline a few with olivine and feldspar phenocrysts, some platy and vesicular (Tkt) and some similar to those in Tdc but not so close together and mostly intruded near the end of Koolau activity (Tkd); and mottled firmly cemented breccia consisting of fragments of basalt cemented by calcite, quartz, and zeolites (Tky).	The basalt is extremely permeable and yields large quantities of fresh water near sea level except in some of the 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 mist places except in narrow ridges with low recharge or near the center of the dike complex, where only almost impermeable intrusive rocks exist. The breccia is virtually impermeable, and wells drilled into it will be failures.
Kalihi volcanic series.	500±	Tkb Tkb Tkb	Amygdales basalt, consisting of brown, gray, greenish-gray, and black jointed coarse to very vesicular massive basalt flows dipping southward. The vesicles and crevices are filled with calcite, quartz, and zeolites, indicating that the lavae have been subjected to hydrothermal alteration. The clinker phases of the aa flows are firmly cemented breccias (Tkb); single and multiple, usually vesicular dikes a few inches to 6 feet wide, usually microcrystalline, a few with olivine phenocrysts, chiefly cross-jointed, some platy and amygdales, intruding into the amygdales basalt and filling fissures 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 (Tkb); and dikes similar to those in Tdc but not so close together (Tkd). The entire Kalihi series appears to be part of the caldera complex of the Koolau Volcano.	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, and the cost of the water may be prohibitive. It is 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.
Erosional Unconformity Waianae volcanic series.	500+	Twb Twb Twb Twb	Basalt consisting of black to gray lava flows ranging in thickness from 10 to 400 feet, poured out from fissures and cinder cones. The flows range in composition from hornblende-biotite trachytes to nephelitic-meltilite 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 breccia. The upper basalt member consists of light gray, relatively short massive aa flows, many of which issued from large cinder cones. The middle basalt member is thinner and darker than the upper lavae. The lower basalt member consists mostly of basalt pahoehoe in thin flows except near the bottom, where thick flows occur. It is separated in some places from the middle lavae by talus breccia 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 a erosional unconformity (Twb); dike complex consisting of Tkb injected with numerous dikes a few inches to 15 feet wide and a few sills (Tdc); dikes and other intrusives similar to those in Tkb but not so close together (Twd); firefountain deposit consisting of ciners, bombs, and pumice forming cones and intercalated with vitric tuff beds and red soil several inches to 2 feet thick (Twp); gray talus breccia consisting of angular blocks derived from the lower basalt truly cemented together (Tkb).	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.

RECORDS OF DRILLED WELLS ON OAHU

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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. 24-32, 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 Penn T. Livingston succeeded Mr. McCombs and in 1927 Knute N. Vaksvik succeeded Mr. Livingston. In 1930, 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 1927 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. H. Hobart has also cooperated in furnishing much data regarding the wells he drilled and has at times made special devices for obtaining samples. Kahuku 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., 1927.
†McCandless, J. S., Artesian water in Hawaii: Advertiser Pub. Co., 79 pp., 1931.

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 549 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 Waiwala 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 plantation wells 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 2 wells are 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 185H, 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.
1	1A	23	77	45A	7A	67	65
2	1B	24	78	46	8	68	66
3	1C	25	79	47	9	69	67
4	1D	26	80	48A	10	70	68
5	1E	27	81	49	11	71	69
6	1F	28	82	50	12	72	70
7	1G	29	83	51	13	73	71
8	1H	30	84	52	14	74	72
9	1I	31	85	53	15	75	73
10	1J	32	86	54	16	76	74
11	1K	33	87	55	17	77	75
12	1L	34	88	56	18	78	76
13	1M	35	89	57	19	79	77
14	1N	36	90	58	20	80	78
15	1O	37	91	59	21	81	79
16	1P	38	92	60	22	82	80
17	1Q	39	93	61	23	83	81
18	2	40	94	62	24	84	82
19	3	41	95	63	25	85	83
20	4	42	96	64	26	86	84
21	5	43	97	65	27	87	85
22	6	44	98	66	28	88	86
23	7	45	99	67	29	89	87
24	8	46	100	68	30	90	88
25	9	47	101	69	31	91	89
26	10	48	102	70	32	92	90
27	11	49	103	71	33	93	91
28	12	50	104	72	34	94	92
29	13	51	105	73	35	95	93
30	14	52	106	74	36	96	94
31	15	53	107	75	37	97	95
32	16	54	108	76	38	98	96
33	17	55	109	77	39	99	97
34	18	56	110	78	40	100	98
35	19	57	111	79	41	101	99
36	20	58	112	80	42	102	100
37	21	59	113	81	43	103	101
38	22	60	114	82	44	104	102
39	23	61	115	83	45	105	103
40	24	62	116	84	46	106	104
41	25	63	117	85	47	107	105
42	26	64	118	86	48	108	106
43	27	65	119	87	49	109	107
44	28	66	120	88	50	110	108
45	29	67	121	89	51	111	109
46	30	68	122	90	52	112	110
47	31	69	123	91	53	113	111
48	32	70	124	92	54	114	112
49	33	71	125	93	55	115	113
50	34	72	126	94	56	116	114
51	35	73	127	95	57	117	115
52	36	74	128	96	58	118	116
53	37	75	129	97	59	119	117
54	38	76	130	98	60	120	118
55	39	77	131	99	61	121	119
56	40	78	132	100	62	122	120
57	41	79	133	101	63	123	121
58	42	80	134	102	64	124	122
59	43	81	135	103	65	125	123
60	44	82	136	104	66	126	124
61	45	83	137	105	67	127	125
62	46	84	138	106	68	128	126
63	47	85	139	107	69	129	127
64	48	86	140	108	70	130	128
65	49	87	141	109	71	131	129
66	50	88	142	110	72	132	130
67	51	89	143	111	73	133	131
68	52	90	144	112	74	134	132
69	53	91	145	113	75	135	133
70	54	92	146	114	76	136	134
71	55	93	147	115	77	137	135
72	56	94	148	116	78	138	136
73	57	95	149	117	79	139	137
74	58	96	150	118	80	140	138
75	59	97	151	119	81	141	139
76	60	98	152	120	82	142	140
77	61	99	153	121	83	143	141
78	62	100	154	122	84	144	142
79	63	101	155	123	85	145	143
80	64	102	156	124	86	146	144
81	65	103	157	125	87	147	145
82	66	104	158	126	88	148	146
83	67	105	159	127	89	149	147
84	68	106	160	128	90	150	148
85	69	107	161	129	91	151	149
86	70	108	162	130	92	152	150
87	71	109	163	131	93	153	151
88	72	110	164	132	94	154	152
89	73	111	165	133	95	155	153
90	74	112	166	134	96	156	154
91	75	113	167	135	97	157	155
92	76	114	168	136	98	158	156
93	77	115	169	137	99	159	157
94	78	116	170	138	100	160	158
95	79	117	171	139	101	161	159
96	80	118	172	140	102	162	160
97	81	119	173	141	103	163	161
98	82	120	174	142	104	164	162
99	83	121	175	143	105	165	163
100	84	122	176	144	106	166	164
101	85	123	177	145	107	167	165
102	86	124	178	146	108	168	166
103	87	125	179	147	109	169	167
104	88	126	180	148	110	170	168
105	89	127	181	149	111	171	169
106	90	128	182	150	112	172	170
107	91	129	183	151	113	173	171
108	92	130	184	152	114	174	172
109	93	131	185	153	115	175	173
110	94	132	186	154	116	176	174
111	95	133	187	155	117	177	175
112	96	134	188	156	118	178	176
113	97	135	189	157	119	179	177
114	98	136	190	158	120	180	178
115	99	137	191	159	121	181	179
116	100	138	192	160	122	182	180
117	101	139	193	161	123	183	181
118	102	140	194	162	124	184	182
119	103	141	195	163	125	185	183
120	104	142	196	164	126	186	184
121	105	143	197	165	127	187	185
122	106	144	198	166	128	188	186
123	107	145	199	167	129	189	187
124	108	146	200	168	130	190	188
125	109	147	201	169	131	191	189
126	110	148	202	170	132	192	190
127	111	149	203	171	133	193	191
128	112	150	204	172	134	194	192
129	113	151	205	173	135	195	193
130	114	152	206	174	136	196	194
131	115	153	207	175	137	197	195
132	116	154	208	176	138	198	196
133	117	155	209	177	139	199	197
134	118	156	210	178	140	200	198
135	119	157	211	179	141	201	199
136	120	158	212	180	142	202	200
137	121	159	213	181	143	203	201
138	122	160	214	182	144	204	202
139	123	161	215	183	145	205	203
140	124	162	216	184	146	206	204
141	125	163	217	185	147	207	205
142	126	164	218	186	148	208	206
143	127	165	219	187	149	209	207
144	128	166	220	188	150	210	208
145	129	167	221	189	151	211	209
146	130	168	222	190	152	212	210
147	131	169	223	191	153	213	211
148	132	170	224	192	154	214	212
149	133	171	225	193	155	215	213
150	134	172	226	194	156	216	214
151	135	173	227	195	157	217	215
152	136	174	228	196	158	218	216
153	137	175	229	197	159	219	217
154	138	176	230	198	160	220	218
155	139	177	231	199	161	221	219
156	140	178	232	200	162	222	220
157	141	179	233	201	163	223	221
158	142	180	234	202	164	224	222
159	143	181	235	203	165	225	223
160	144	182	236	204	166	226	224
161	145	183	237	205	167	227	225
162	146	184	238	206	168	228	226
163	147	185	239	207	169	229	227
164	148	186	240	208	170	230	228
165	149	187	241	209	171	231	229
166	150	188	242	210	172	232	230
167	151	189	243	211	173	233	231
168	152	190	244	212	174	234	232
169	153	191	245	213	175	235	233
170	154	192	246	214	176	236	234
171	155	193	247	215	177	237	235
172	156	194	248	216	178	238	236
173	157	195	249	217	179	239	237
174	158	196	250	218	180	240	238
175	159	197	251	219	181	241	239
176	160	198	252	220	182	242	240
177	161	199	253	221	183	243	241
178	162	200	254	222	184	244	242
179	163	201	255	223	185	245	243
180	164	202	256	224	186	246	244
181	165	203	257	225	187	247	245
182	166	204	258	226	188	248	246
183	167	205	259	227	189	249	247
184	168	206	260	228	190	250	248
185	169	207	261	229	191	251	249
186	170	208	262	230	192	252	250
187	171	209	263	231	193	253	251
188	172	210	264	232	194	254	252
189	173	211	265	233	195	255	253
190	174	2					

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	173
and B	and B	117	112	137	112A	207	174
1-1	...	138	22½	138	109	208	175
2	...	139	111	139	111	209	176
3	...	140	23	140	112	210	177
4	...	141	77	141	112	211	184
5	...	142	78	142	113	212	177
6	...	143	113	143	113	213	179
7A	45A	81	26A	144	114	214	181
to F	to F	82	115	145	115	215	180
7G	44	83	26	146	116½	216	182
7H	44½	84	147	147	117	217	178
8	43	85	84	148	117	218	183
9	41½	86	82	149	118	219	184
10	...	87	81	150	119	220	185
11	40½	88A	72	151	115½	220	135
12	39	88B	73	152	116	221	186
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	53	88I	80	159	121	228	202
20	53	89	84A	160	...	229	202
21	54	90	...	161	124	230	201
22	4	91	81	162	125	231	200
23	54½	92	85	163	126	232	199
24	40	93	87½	164	127	233	199-1
25	41	94	87	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	28	170	133	239A	187A
31	51	100	...	171	140	240	to N
32	50	100-1	...	172	142	240	to N
33	7	101	88	173	143	241	191
34	51½	102	89	174	144	242	192
35	52	103	89½	175	145	243	192
36A	9½	104	90	176	141	244	194
36B	9½	105	90A	177	146	245	195
37	62½	106	28	178	147	246A	196A
38	9	107	93	179	148	247	to H
39	62	108	30	180	149	247A	205A
40	8	109	31	181	152	248	to J
41	61	110	...	182	150	248A	208A
42	55	111	21A	183	151	249	to J
43	56	112	96	184	155	249A	207A
44	57	113	95	185A	155A	250	to L
45	59	114	95A	186A	156A	250	to Q
46	95B	115	96	187	157	251	to H
47	58	116	95D	188	158	252	to H
48	10	117	95½	187A	156A	253	197
49	24	118	95R	188	157	254	to C
50	...	119	95Q	189	157	255	and R
51	11	120	96	190	158	256	and R
52	13	121	33	191	159	257	210
53	12	122	96A	190	159	257A	214A
54	14	123	100½	191	160	258	to C
55	12½	124	97	192	161	258	216
56	63	125	98	193	162	259	219A
57	18	126	99	194	163	260	to J
58	64	127	100	195	164	260	...
59	5½	128A	101A	196	165	261	215
60	17	128B	101B	197	166	262	216-1
61	5	128C	101C	198	167	263	220A
62	65	128D	101D	199	168	264	to F
63	66	128E	101E	200	169	265	221A
64	15	128F	101F	201	170	266	to T
65	67	128G	102	202	171	267	...
66	70	128H	102½	203	172	268	217
67	68	129	103	204	173	269	218
68	69	130	104	205	174	270	222
69	71	131	105	206	175	271	223A
70	18	132	106	207	176	272	to H
71	71½	133	107	208	177	273	to H
72	19	134	108	209	178	274	211-1
73	20	135	109	210	179	275	224
74	20	136	110	211	180	276	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	292A	395	325
273A	225A	315	264	354	to C	396	326
274	226	316	265	355	to C	397	327
275	227	317	266	356A	291A	398A	327-1
276A	228A	318	267	357	292	399	...
277A	229A	319	268	358	293	400	...
278	230	320	269	359	294	401	...
279	231	321	270	360	295	402	...
280	232	322	271	361	296	403	...
281	233	323	272	362	297	404	...
282	234	324	273	363	298	405	...
283	235	325	274	364	299	406	...
284	236	326	275	365	300	407	...
285A	237A	327	276	366	301	408	...
286	238	328	277	367	302	409	...
287	239	329	278	368	303	410	...
288	240	330	279	369	304	411	...
289	241	331	280	370	305	412	...
290	242	332	281	371	306	413	...
291	243	333	282	372	307	414	...
292	244	334	283	373	308	415	...
293	245	335	284	374	309	416	...
294	246	336	285	375	310	417	...
295	247	337	286	376	311	418	...
296A	248A	338	287	377	312	419	...
297	249	339	288	378	313	420	...
298	250	340	289	379	314	421	...
299	251	341	290	380	315	422	...
300	252	342	291	381	316	423	...
301	253	343	292	382	317	424	...
302	254	344	293	383	318	425	...
303	255	345	294	384	319	426	...
304	256	346	295	385	320	427	...
305	257	347	296	386	321	428	...
306	258	348	297	387	322	429	...
307	259	349	298	388	323	430	...
308	260	350	299	389	324	431	...
309	261	351	300	390	325	432	...
310	262	352	301	391	326	433	...
311	263	353	302	392	327	434	...
312	264	354	303	393	328	435	...
313	265	355	304	394	329	436	...
314	266	356	305	395	330	437	...

* Left for new wells.

... No old number.

RECORDS OF DRILLED WELLS ON OAHU

1A and B (old 1A and 1B). Well A, 79 ft. east of pumphouse 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 recased to 4 in., well B to 8 in.

*Judge Lawrence M'Call in the Hawaiian Almanac and Annual for 1892, Compiler and Publisher Thos. G. Thrum, p. 45, states: "There is a boring east of Diamond Head, at Waialae, where the ground may be 5 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 McCall—less 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	13	7.92	13	8.27
26	8.54	21	8.08	20	7.95	19	8.16
Oct. 3	8.38	8.03	27	7.72	8.26		
June 3	8.39	June 4	8.14	Sept. 3	7.84	Dec. 3	8.06
20	8.38	12	8.08	10	8.37	10	8.31
24	8.39	13	8.00	17	8.00	11	8.15
31	8.42	25	8.08	24	8.44	24	8.30
Nov. 6	8.38	2	8.00	8	8.52	31	8.19
10	8.42	9	8.05	8	8.18		
17	8.32	16	8.00	15	8.17		
Dec. 1	8.39	23	7.86	22	8.17		

* Previous records reported last.

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.)
Sept. 4, 1929	154		Apr. 9, 1930	169		Sept. 28, 1933	140	
11	154		18	168		Oct. 13	6.51	
18	156		May 14	188		13	6.45	
Oct. 3	156		June 19	239		23	6.49	
10	152		July 15	239		31	6.51	142
16	150		Aug. 24	256		Nov. 6	6.66	
22	150		Sept. 8	239		10	6.67	
30	139		Oct. 7	205		6.63	17	
Nov. 6	139		Nov. 12	205		28	6.66	143
13	135		Dec. 16	222		Dec. 6	6.66	
20	132		Jan. 7, 1931	205		22	6.66	
Dec. 27	130		Jan. 14	205		Jan. 26, 1934	6.84	140
4	127		June 27, 1932	115		Feb. 17	6.84	140
11	125		Sept. 22	236		Mar. 29	6.84	140
18	125		Oct. 21	239		Apr. 28	6.84	140
26	125		Nov. 25	239		May 22	6.84	140
Jan. 2, 1930	171		Dec. 1	7.97		June 9	8.16	
15	169		Dec. 27	8.88		June 19	8.16	
23	169		Jan. 31	207		July 31	8.16	
29	169		Jan. 31	205		Aug. 30	8.16	
Feb. 5	169		Feb. 22	188		Sept. 26	8.17	188
12	171		Mar. 29	188		Oct. 17	8.16	
26	171		Apr. 17	188		Nov. 22	8.16	
Mar. 5	169		May 11	205		Nov. 25	8.16	
12	222		24	8.60		Dec. 11	8.25	
19	222		July 22	205		Dec. 11	8.25	
26	169		Aug. 31	110		Dec. 11	8.25	

Meter test

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

Depth (ft.)	Revolutions per minute	Depth (ft.)	Revolutions per minute	Depth (ft.)	Revolutions per minute
10	107	30	75	50	10
20	116	60	71	100	10
30	116	70	105	105	10
40	76	80	11	105	2.67

RECORDS OF DRILLED WELLS ON OAHU

Well 1 (Continued)

Discharge in millions of gallons												
Year	Jan.	Feb.	Mar.	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
1930	3.13	6.35	5.72	6.59	14.81	10.22	15.16	12.15	4.16	8.21	4.02	7.94
1931	8.17	10.39	12.70	12.32	12.32	16.34	15.37	15.46	15.45	8.11	11.16	7.50
1932	6.12	2.08	3.33	7.69	8.69	12.73	13.24	11.27	13.18	12.79	7.30	8.24
1933	5.93	3.50	4.87	9.44	14.09	15.36	15.80	15.79	13.69	13.16	8.59	3.74
1934	4.96	2.34	8.16	14.3	15.8	11.6	18.2	18.0	15.8	10.6	7.58	8.43

1-1 (no old number). In Kahala about 20 ft. south of Farmers Road and 0.6 mile west of Kalaolu 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, testing for water supply for irrigation.

Log

Depth (ft.)	Log	Depth (ft.)
0-6	Alternate layers of medium and soft sandstone (Pd)	24-61
6-15	Medium coral rock with 1 streak or pocket of sand (Pb)	61-69
15-24	Kaimuki basalt (Qbb)	70

2 (old 49). About 600 ft. north of Waiialae 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, 1930	24.74	Feb. 8, 1931	26.88	Nov. 16, 1931	25.60
Nov. 14	24.22	29	24.48	15	29.81	23	25.42
Feb. 28, 1919	24.54	June 1	24.26	22	26.09	20	25.36
Nov. 23, 1923	22.28	15	24.44	Mar. 8	26.62	Dec. 7	25.32
Mar. 12, 1926	20.88	22	24.71	1	26.62	14	25.29
Sept. 26, 1929	24.68	29	25.01	15	26.68	21	25.36
Oct. 1	24.33	July 1	25.07	22	26.44	28	25.57
15	24.70	15	25.03	29	26.28	Jan. 4, 1932	25.70
22	24.69	29	25.00	Apr. 1	26.06	11	25.58
Nov. 1	24.63	Aug. 1	24.67	8	25.50	18	25.50
7	24.77	8	24.96	15	25.78	Feb. 1	25.92
22	24.76	15	24.76	22	25.58	8	26.14
27	24.71	22	24.96	30	25.69	15	26.43
Dec. 1	24.99	Sept. 1	24.49	May 8	25.71	25	26.64
8	25.03	8	24.81	19	25.37	Mar. 7	26.85
15	25.49	15	24.78	22	25.71	14	26.86
22	25.59	22	25.83	June 1	25.72	21	26.85
Jan. 29, 1930	25.51	Oct. 29	25.49	15	25.21	11	27.16
8	25.68	17	25.68	22	25.08	18	27.05
8	25.91	8	26.05	29	26.47	25	26.96
22	25.69	15	26.08	July 6	24.85	May 2	27.04
22	25.48	22	26.04	18	24.82	9	27.21
29	25.54	29	26.23	20	24.68	16	27.14
Feb. 1	25.40	Nov. 1	26.17	27	24.76	23	26.79
8	25.24	8	26.06	Aug. 9	24.79	29	26.29
15	25.26	15	26.11	10	24.74	June 6	26.41
22	25.20	22	25.46	13	24.69	13	26.23
29	24.91	29	26.62	24	24.74	20	26.19
Mar. 1	25.17	Dec. 1	26.64	31	24.67	27	26.27
8	25.10	8	26.70	7	24.84	July 4	26.69
15	25.00	15	26.90	14	25.00	11	26.87
22	24.81	22	27.12	21	25.07	18	27.14
29	24.91	29	27.13	28	25.27	25	27.16
Apr. 1	24.88	Jan. 1, 1931	27.10	Oct. 5	25.13	Aug. 1	27.11
8	25.04	15	27.31	12	25.20	8	27.24
27	25.04	22	27.29	19	25.37	15	27.21
8	25.14	29	27.16	Nov. 9	25.48	22	27.26

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	27	22.95
Oct. 6	27.01	24	27.18	10	23.69	5	22.95
3	27.00	29	26.92	25	24.06	5	22.74
10	26.93	May 6	26.64	Dec. 6	24.57	15	22.65
17	26.82	13	26.69	9	24.70	22	22.37
24	26.86	20	26.45	Jan. 3, 1934	25.51	Aug. 29	22.15
31	26.98	27	26.15	8	25.37	11	22.12
Nov. 7	26.87	June 2	26.02	15	25.32	18	22.06
14	26.95	10	25.94	20	24.99	18	21.96
21	27.01	17	25.93	27	25.18	25	22.08
28	27.61	24	25.78	Feb. 5	25.24	Sept. 1	22.59
Dec. 5	27.34	July 1	25.93	10	25.31	8	22.50
12	27.98	8	25.70	19	25.40	15	23.42
19	28.07	15	25.54	23	25.41	22	24.06
26	28.05	22	25.35	Mar. 5	25.09	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	5	24.87	26	24.38	16	22.92
21	28.12	19	24.59	Apr. 2	24.09	23	23.06
Feb. 28	27.94	26	24.48	9	24.27	30	22.29
4	27.98	Sept. 2	24.35	16	24.13	Nov. 6	22.73
11	27.98	9	24.03	23	23.94	13	23.54
18	28.04	16	24.00	30	24.13	20	24.24
25	27.95	23	23.88	May 4	24.18	26	24.65
Mar. 4	28.14	30	23.65	14	24.11	Dec. 2	23.39
11	28.05	7	23.68	21	22.67	31	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	25.55

3 (old 48). About 100 ft. north of Waialae Road and 50 ft. east of Palolo Stream. Owner, Chas. Booth estate. Drilled, 1884. Altitude, 28 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. Au 3-in. deep well meter used. Readings by K. N. Vaksvik, 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		

4 (old 47). About 75 ft. south of Waialae 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.), Jan. 27, 1919, 25.14.

Log

	Depth (ft.)		Depth (ft.)		Depth (ft.)
Soil	0-30	Boulders (Pa)	50-72	Clay (Pa)	150-190
Boulders (Ra or Pa)	30-35	Clay (Pa)	72-110	Lava or bedrock	
Clay (Pa)	35-50	Coral (Pks)	110-150	(Tkb)	190-350

5 (old 46). About 500 ft. south of Waialae 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	.....	29.0	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	20.72	.....	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. Au 3-in. deep well meter used. Readings by K. N. Vaksvik, 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	155	4
50	58	125 (end of casing as indicated by fishing tools)	54	160	28
70	62	130	44	160.5	20
90	60	135	42	160.7 (meter landed)	0

Discharge in millions of gallons

1929: July, 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 Waialae 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, 175 ft.

Log

	Depth (ft.)		Depth (ft.)		Depth (ft.)
Clay (Pa and Pa)	0-70	Clay (Pa)	170-140	Hard bedrock (Tkb)	173-176
Gravel (Pa)	70-76	Coral (Pks) and clay	140-163	In bedrock (Tkb)	176-276
Clay (Pa)	76-112	(Pa)	160-173		
Coral (Pks)	112-130	Clay (Pa)			

Observations

Date	Head (ft.)	Chloride (p.p.m.)	Date	Head (ft.)	Chloride (p.p.m.)	Date	Head (ft.)	Chloride (p.p.m.)
Feb. 24, 1929	24.0	.....	Sept. 9, 1931	24.73	24.4	June 19, 1934	22.91	24.0
Mar.	24.0	.....	Sept. 17	.....	25.6	Dec. 11	24.32	25.7
Sept.	22.3	.....	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
1929	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
1930	9.42	10.1	11.0	8.56	7.74	7.89	9.60	7.91	6.92	6.52	7.30	8.42	101.42
1931	8.66	9.32	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	8.40	8.63	3.64	2.51	2.38	2.85	5.30	7.42	7.50	7.51	6.50	71.21
1933	4.70	5.09	4.04	3.90	5.56	4.83	6.20	6.30	6.00	6.20	7.23	6.82	60.77
1934	9.46	8.56	11.1	9.51	10.5	11.5	15.0	11.4	9.58	9.54	7.53	8.56	120.44

7A to 7H (A to H)—old 45A to 45F, G—old 44, H—old 45). At Kaimuki pump on Kapahulu Road, Honolulu. Owner, City and County of Honolulu. Wells A and B drilled, 1898; C, D, and E, 1925 by McCandless Bros.; F, 1928 by McCandless Bros.; G and H, 1912. Altitude, 25 to 32 ft. Depth, A and B, 260 ft.; C, 301 ft.; D, 304 ft.; E, 302 ft.; F, 308 ft.; G and H, 240 ft. Diameter, all wells, 12 in. Depth to top of aquifer, C, 97 ft.; D, 100 ft.; E and F, 95 ft. All wells used for municipal purposes. Casing in well C, 95 ft.; D, E, and F, 101 ft.

Logs

	Depth (ft.)		Depth (ft.)
Well C		Well E	
Blue rock (Qhb, Kaimuki)	0-15	Small rock and clay (Qhb, Kaimuki; probably Qlb, Diamond Head and Pa)	0-5
Clay and gravel (Pa) and, probably some Qlb, Diamond Head)	15-20	Blue rock (Qhb, Maunamae or Kaau)	0-7
Blue rock (Qhb, Maunamae or Kaau)	20-31	Blue rock (Qhb, Maunamae or Kaau)	37-43
Clay and gravel (Pa or Qhb)	37-43	Soft rock (Qhb, Maunamae or Kaau)	43-58
Blue rock (Qhb, Maunamae or Kaau)	43-49	Clay (Pa)	58-95
Clay (Pa)	49-97	Bedrock (Tkb)	95-300
Bedrock (Tkb)	97-301	Well F	
Well D		Pit	0-5
Small rock and clay (Qhb, Kaimuki; probably Qlb, Diamond Head and Pa)	0-30	Boulder clay (Pa)	22-30
Blue rock (Qhb, Maunamae or Kaau)	30-46	Blue rock (Qhb, Maunamae or Kaau)	34-65
Clay (Pa)	46-50	Clay and sand streaks (Pa and Plc)	65-95
Blue rock (Qhb, Maunamae or Kaau)	50-100	Bedrock (Tkb)	95-300
Clay (Pa)	100-200		
Bedrock (Tkb)			

Observations

Wells A to H. Bench mark, top of manhole rim at ground; altitude, 26.89 ft. Chloride determinations listed below made on composite samples of all the wells at this pumping plant. Head (ft), Nov. 27, 1931, 99.20

Date	Chloride (p.p.m.)	Date	Chloride (p.p.m.)	Date	Chloride (p.p.m.)	Date	Chloride (p.p.m.)
Dec. 21, 1916	49.0	May 29, 1920	40.0	Aug. 28, 1926	40.0	Nov. 27, 1929	51.3
" " " 1916	50.0	June 5	42.0	Sept. 4	51.0	Dec. 4	41.2
Feb. 1, 1917	49.0	" 12	41.0	" 11	51.0	" 11	41.0
Feb. 15, 1914	49.6	" 19	41.0	" 18	41.0	" 18	40.0
" " " 1914	49.0	" 25	36.0	" 25	50.0	" 25	41.0
Mar. 20, 1920	42.0	July 3	41.0	Oct. 2	40.0	Jan. 8, 1921	41.0
" 27	41.0	" 10	53.0	" 9	48.0	" 15	40.0
April 10	42.0	" 17	43.0	" 16	44.0	Sept. 13, 1923	57.0
" 17	42.0	" 24	39.0	" 23	50.0	Nov. 4	46.0
" 24	41.0	" 31	43.0	" 30	40.0	Feb. 15, 1924	45.0
May 2	39.0	Aug. 7	49.0	Nov. 4	42.0	Sept. 97	58.6
" 15	40.0	" 14	52.0	" 13	42.0	Nov. 1928	58.6
" 22	40.0	" 21	52.0	" 20	42.0	" " " "	58.6

Well A. Bench mark, top of manhole rim at ground; altitude, 24.56 ft.

Date	Head (ft.)	Chloride (p.p.m.)	Date	Head (ft.)	Chloride (p.p.m.)	Date	Head (ft.)	Chloride (p.p.m.)
Dec. 1, 1901	25.21		Feb. 26, 1923	22.18		Sept. 17, 1929		42.8
Dec. 6, 1904	25.87		Apr. 27	23.77		Oct. 26	23.91	42.8
Jan. 1, 1908	24.54		June 30	21.37		Oct. 2		42.8
July 8, 1911	24.87		Oct. 1, 1928		46.2			42.8
Jan. 16, 1914	25.87		Nov. 25		40.8			42.8
Mar. 9, 1919	24.54		Feb. 26		44.3			42.8
Mar. 29	21.46		Feb. 26		44.3	Nov. 9		42.8
Apr. 1	23.46		Mar. 1	41.8				42.8
Oct. 14	14.71		Mar. 1		44.3			42.8
Mar. 9, 1920	20.98		May 24		42.8			42.8
June 1	20.98		June 30		46.2	Dec. 27		44.3
Aug. 14	19.13		July 25		42.8			42.8
Dec. 22	20.21		Aug. 1		44.5			42.8
Jan. 22, 1921	21.46				44.5			42.8
Feb. 1, 1922	22.12				44.5	Jan. 8, 1930		44.5
June 1	21.46				41.8			44.5
Sept. 14	21.77				44.5			44.5
Nov. 24	21.97		Sept. 4		44.5			42.8
Jan. 27, 1923	21.27				41.8	Feb. 29		44.5

Observations Well 7 (Continued)

Well A—Continued

Date	Head (ft.)	Chloride (p.p.m.)	Date	Head (ft.)	Chloride (p.p.m.)	Date	Head (ft.)	Chloride (p.p.m.)
Feb. 12, 1930		42.8	Sept. 6, 1930		42.8	Jan. 28, 1932		47.9
18	25.32		Oct. 7	41.2		Feb. 8		46.3
26		42.8	Nov. 12	41.2	Mar. 30			46.9
Mar. 5		44.5	Dec. 16	41.2	Apr. 27			51.3
12		44.5	Jan. 7, 1931	42.7	May 27			51.3
19		44.5	Mar. 2	46.2	June 28			44.5
26		42.8	May 27	44.5	July 27			49.6
Apr. 9		42.8	June 22	44.5	Aug. 22	27.31		49.6
16		42.8	July 28	44.5	Sept. 22			49.6
23		42.8	Aug. 5	44.5	Oct. 1			49.6
June 19		42.8	Sept. 18	42.7	Nov. 29			49.6
July 15		44.5	Oct. 30	44.5	Dec. 27			49.6
Aug. 12		42.8	Nov. 7	47.9	Jan. 19, 1934	28.54		49.6

Well B. Bench mark, top of flange on valve west of well and at about ground surface; altitude,

Oct. 1928	44.5	May 23, 1929	44.5	Jan. 29, 1932	45
Jan. 29, 1929	44.5	June 20	41.5	Aug. 24	27.37 50
Feb. 26	44.5	Sept. 26	24.09	June 19, 1934	22.77 ..
Mar. 18	46.2	Feb. 18, 1930	25.27		

Wells A and B

Dec. 1904	47.9	Feb. 1914	49.6	Feb. 1924	44.5
Jan. 1906	49.6	July 1920	46.2	Aug.	53.0
July 1910	51.3	Aug.	51.3	Sept.	54.7
Jan. 1912	49.6	Sept.	46.2	Jan. 29, 1929	42.7
Oct.	49.6	Oct.	48.0	Feb. 25	35.9
Dec.	48.0	Nov.	44.5	Mar. 18	35.9
Feb. 1913	49.6	Dec.	42.7	May 24	42.7
Aug.	44.5	Dec.	41.0	June 19	34.2
Feb.	48.0	Nov. 1921	46.2		

Well C. Bench mark, top of manhole rim at ground; altitude, 28.85 ft.

Oct. .. 1928	41.0	Mar. .. 1929	39.3	Jan. 27, 1932	25.75	48
Nov. ..	42.7	May ..	42.7	Aug. 24	27.33	45
Jan. .. 1929	42.7	June ..	39.3			
Feb. ..	41.0	Sept. 9, 1931	24.90			

Well D. Bench mark, top of manhole rim at ground; altitude, 28.05 ft.

Oct. .. 1928	46.2	Mar. 18, 1929	44.5	Feb. 18, 1930	25.24	..
Nov. ..	46.2	May 23	44.5	Sept. 9, 1931	24.84	48
Jan. 29, 1929	44.5	June 20	44.5	Jan. 27, 1932	..	51
Feb. 23	44.5	Sept. 26	23.91	June 19, 1934	23.04	53

Weil E. Bench mark, top of manhole rim at ground; altitude, 27.87 ft. Chloride (p.p.m.), Aug. 24, 1932, 76; Dec. 11, 1934, 97.5.

Oct. 1, 1928	53.1	May 1, 1929	24.22	Nov. 15, 1929	24.85
Nov. 12	55.0	June 1	21.37	25	24.87
Dec. 1	32.65	7	24.47	27	25.02
Jan. 1, 1929	25.0	10	25.05	30	25.01
15	24.65	18	24.62	16	24.92
24	25.12	20	25.05	23	25.47
29	48.0	22	51.4	25	25.69
Feb. 11	25.14	July 1	24.66	Feb. 6, 1930	25.94
15	25.14	Aug. 5	24.02	13	25.87
21	25.06	12	25.72	20	25.87
25	53.1	20	25.88	Feb. 18	25.77
Mar. 1	25.55	24	24.19	Sept. 9, 1931	24.88
13	25.55	Sept. 2	24.09	Jan. 9, 1932	53
15	25.56	9	24.09	8	25.30
18	55.1	16	24.00	15	25.24
19	25.50	23	25.05	22	25.02
19	25.56	25	25.79	27	25.76
21	25.56	Oct. 2	24.32	29	25.56
31	25.32	5	24.65	Feb. 29	51
Apr. 1	25.17	7	24.65	10	26.08
16	25.13	9	24.65	18	26.08
19	25.13	21	24.80	24	26.38
22	24.12	28	24.70	Mar. 2	26.52
22	23.57	Nov. 6	24.65		

Observations—Well 7 (Continued)

Well E—Continued.

Date	Head (ft.)	Date	Head (ft.)	Date	Head (ft.)	Date	Head (ft.)
Mar. 16, 1932	26.68	Nov. 25, 1932	27.30	Sept. 7, 1933	24.15	May 14, 1934	23.96
23	26.60	Dec. 6	27.64	14	24.05	21	23.54
30	26.62	13	27.78	21	23.85	28	23.30
Apr. 7	26.78	20	27.84	28	23.58	June 4	23.31
14	26.74	27	28.10	Oct. 5	23.50	11	23.29
21	26.84	Jan. 3, 1933	28.10	12	23.48	18	22.92
28	26.70	10	28.10	19	23.34	25	22.80
5	26.49	17	28.10	26	23.34	July 2	22.60
12	26.60	24	27.86	Nov. 2	23.60	8	22.68
19	26.60	31	27.78	9	23.80	15	22.51
26	26.59	Feb. 7	27.64	16	23.85	22	22.10
June 2	26.10	14	27.92	23	23.80	Aug. 2	22.90
9	26.60	21	27.90	30	24.30	9	22.98
16	25.92	28	27.82	Dec. 7	24.51	11	21.64
23	25.84	Mar. 7	28.00	14	24.77	18	21.76
30	26.09	14	28.00	21	24.90	25	21.87
July 7	26.48	21	27.68	28	25.26	Sept. 1	22.57
14	26.71	28	27.40	Jan. 1, 1934	25.23	8	22.48
21	26.84	5	27.30	8	25.26	15	22.22
28	26.78	15	27.04	15	25.08	22	24.05
Aug. 4	26.60	22	26.86	22	24.82	29	24.71
11	26.98	29	26.62	29	25.18	Oct. 4	23.53
17	26.92	May 6	26.35	5	25.10	9	22.31
24	27.07	13	26.28	12	25.30	16	22.54
31	26.96	20	26.40	19	25.35	23	22.76
Sept. 7	26.96	27	26.28	26	25.25	30	22.18
14	26.94	Mar. 6	26.87	26	24.94	Nov. 6	22.69
21	26.74	June 3	25.72	12	24.78	13	22.52
Oct. 5	26.72	10	25.74	19	24.43	20	24.15
12	26.66	17	25.70	26	24.21	27	23.85
19	26.52	24	25.50	Apr. 2	23.92	Dec. 2	23.05
26	26.54	July 7	25.40	16	24.02	18	24.43
Nov. 4	26.68	14	25.30	23	23.77	25	23.08
11	26.66	21	25.17	30	23.99	31	22.40
18	27.04	27	25.09	May 7	24.27		

Well F. Bench mark, top of manhole rim at ground; altitude, 29.79 ft. Head (ft.), Apr. 13, 1932, 25.0; Feb. 13, 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, 22.90.

Date	Chloride (p.p.m.)	Date	Chloride (p.p.m.)	Date	Chloride (p.p.m.)	Date	Chloride (p.p.m.)
Oct. 11, 1928	44.5	Dec. 4, 1929	46.3	Dec. 16, 1930	44.5	Mar. 28, 1933	57
Nov. 18	44.5	Dec. 11	44.5	Mar. 2, 1931	47.9	May 26	55
Jan. 29, 1929	44.5	Dec. 18	44.5	April 16	46.2	May 27	55
Feb. 25	44.5	Dec. 26	44.5	May 27	46.2	June 24	57
Mar. 18	44.5	Jan. 8, 1930	44.5	June 23	49.0	July 27	55
May 24	42.8	Jan. 15	44.5	July 28	47.9	Aug. 31	56
June 20	42.8	Jan. 22	44.5	Aug. 8	48	Sept. 28	51
July 23	44.5	Jan. 29	44.5	Sept. 9	48	Oct. 31	51
Aug. 1	46.3	Feb. 5	44.5	Oct. 30	48	Nov. 30	57
Aug. 7	45.3	Feb. 13	44.5	Dec. 5	48	Dec. 28	57
Aug. 14	46.3	Feb. 26	44.5	Jan. 27, 1932	48	Jan. 30, 1934	56
Aug. 21	46.3	Mar. 5	46.3	Feb. 26	48	Feb. 27	56
Aug. 28	46.3	Mar. 12	46.3	Mar. 26	48	Mar. 29	56
Sept. 4	44.5	Mar. 19	46.3	April 28	50	April 28	56
Sept. 11	44.5	Mar. 26	44.5	May 27	55	May 31	56
Sept. 17	44.5	April 9	46.3	June 28	60	June 19	56
Oct. 1	44.5	April 30	46.3	July 27	53	July 21	56
Oct. 8	44.5	May 14	46.3	Aug. 22	56	Aug. 20	56
Oct. 23	44.5	June 19	44.5	Sept. 22	53	Sept. 26	43
Oct. 30	44.5	July 15	48.0	Oct. 27	55	Oct. 17	60
Nov. 6	44.5	Aug. 23	44.5	Nov. 5	53	Nov. 15	53
Nov. 13	44.5	Sept. 6	44.5	Dec. 31, 1933	53	Nov. 6	56
Nov. 20	44.3	Oct. 7	42.8	Jan. 31, 1934	53		
Nov. 27	46.3	Nov. 12	42.8	Feb. 27	55		

Well G. Bench mark, top of manhole rim at ground; altitude, 36.89 ft.

Date	Head (ft.)	Chloride (p.p.m.)	Date	Head (ft.)	Chloride (p.p.m.)	Date	Head (ft.)	Chloride (p.p.m.)
Mar. 27, 1924	22.29	.....	Feb. 18, 1930	25.27	.....	Jan. 29, 1932	27.37	48
Sept. 26, 1929	24.20	.....	Sept. 9, 1931	.....	61	Aug. 21	.....	60

Observations—Well 7 (Continued)

Well H. Bench mark, top of manhole rim at ground; altitude, 27.27 ft.

Date	Head (ft.)	Chloride (p.p.m.)	Date	Head (ft.)	Chloride (p.p.m.)	Date	Head (ft.)	Chloride (p.p.m.)
Mar. 27, 1924	22.35	.....	Feb. 5, 1930	.....	42.7	July 27, 1932	.....	50
Jan. 29, 1929		42.8	Feb. 12	.....	42.7	Aug. 24	27.34	50
Feb. 25		42.8	Feb. 26	.....	42.7	Sept. 22	.....	50
Mar. 18		44.5	Mar. 5	.....	44.5	Oct. 27	.....	50
May 23		45.8	Mar. 12	.....	44.5	Nov. 30	.....	50
June 20		45.8	Mar. 19	.....	44.5	Dec. 27	.....	50
July 2		42.7	Mar. 26	.....	42.7	Jan. 27, 1933	.....	50
Aug. 1		44.5	Apr. 7	.....	42.7	Feb. 27	.....	50
Aug. 5		44.5	Apr. 30	.....	42.7	Mar. 29	.....	50
Aug. 14		44.5	May 13	.....	42.7	May 11	.....	50
Aug. 21		44.5	May 20	.....	42.7	May 26	.....	50
Sept. 4		44.5	June 3	.....	44.5	June 30	.....	50
Sept. 11		44.5	June 23	.....	42.7	July 20	.....	50
Sept. 18		42.7	Sept. 6	.....	42.7	Aug. 31	.....	57
Sept. 26		42.7	Oct. 7	.....	41.0	Sept. 28	.....	57
Oct. 2	24.31	42.0	Oct. 11	.....	41.0	Oct. 31	.....	57
Oct. 15		42.0	Dec. 16	.....	41.0	Nov. 28	.....	51
Oct. 16		42.7	Jan. 7, 1931	.....	42.7	Dec. 22	.....	51
Oct. 23		44.5	Mar. 2	.....	46.2	Jan. 30, 1934	.....	53
Nov. 3		44.5	May 27	.....	44.5	Feb. 27	.....	51
Nov. 6		44.5	June 28	.....	44.5	Mar. 19	.....	51
Nov. 20		44.5	Aug. 8, 1931	.....	44.5	Aug. 28	.....	51
Nov. 27		44.5	Sept. 9	.....	45	May 31	.....	51
Dec. 4		44.5	July 27, 1932	.....	43	July 31	.....	51
Dec. 11		44.5	Dec. 5	.....	45	Aug. 30	.....	48
Dec. 18		44.5	Jan. 27, 1932	.....	45	Sept. 26	.....	43
Dec. 26, 1929		44.5	Feb. 26	.....	46	Oct. 30	.....	51
Jan. 8, 1930		44.5	Mar. 20	.....	50	Nov. 15	.....	56
Jan. 15		44.5	Mar. 27	.....	51	Nov. 30	.....	53
Jan. 22		44.5	May 27	.....	51			
Jan. 29		44.5	June 28	.....	51			

Discharge in millions of gallons

Year	Jan.	Feb.	Mar.	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Total
1924	568	606	766	609	566	649	739	748	783	756	710	708	8,218
1925	476	614	728	731	726	768	781	788	789	768	734	731	7,793
1926	139	133	150	153	167	171	214	204	184	146	151	2,028	2,028
1927	338	328	350	335	361	376	371	395	370	375	323	1,837	1,837
1928	117	122	139	146	136	151	151	159	163	130	131	1,384	1,384
1929	164	131	151	150	166	111	159	136	132	110	110	97	1,650
1930	121	130	150	144	160	129	165	168	168	128	115	118	1,850
1931	121	125	148	152	146	183	172	160	135	135	151	163	1,772
1932	155	112	139	156	153	208	160	175	185	179	144	140	1,953
1933	118	129	152	160	187	154	200	205	112	128	128	2,052	2,052
1934	147	131	181	118	196	200	225	201	57	242	113	55	1,086

8 (old 43). About 50 ft. south of Kaimuki pump. Owner, Geo. Beekley estate. Drilled, 1891. Altitude, 19 ft. Diameter, 9 in. Use, irrigation.

Observations

Bench mark, top of plate on tee, above casing clamp, directly above top 2 ft. above ground; altitude, 20.68 ft.

Date	Head (ft.)	Chloride (p.p.m.)	Date	Head (ft.)	Chloride (p.p.m.)	Date	Head (ft.)	Chloride (p.p.m.)
..... 1910	.....	44.0	Mar. 6, 1933	29.97	26.9	Sept. 9, 1931	24.14	54.2
May 1910	17.28	.....	Mar. 10, 1929	.....	37.7	Sept. 17	.....	54.2
Dec. 29, 1923	22.76	.....	Sept. 26	23.08	36.0	Jan. 27, 1932	24.84	37.6
Aug. 14, 1924	19.73	39.0	Feb. 18, 1930	24.51	.....	Aug. 22	23.39	37.6
Feb. 5, 1926	20.51	39.0	.....	.....	34.3	June 19, 1934	22.16	39.3
July 9	19.08	.....	Mar. 2, 1931	25.65	37.6	Dec. 11	23.28	41.0

* Slight leak at top of casing.

RECORDS OF DRILLED WELLS ON OAHU

Well 8 (Continued)

Discharge in millions of gallons													
Year	Jan.	Feb.	Mar.	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Total
1929	3.17	3.1	3.1	2.8	2.6	2.6	5.0	2.0	3.4	8.0	3.5	3.1	25.0
1930	3.7	2.4	3.1	2.2	3.3	2.6	6.4	4.0	4.8	5.1	2.5	2.5	42.8
1931	3.5	2.4	3.5	2.4	3.0	3.5	2.5	6	5	5.0	2.7	3.1	30.7
1932	3.9	6.4	3.1	5.7	10.8	11.1	8.4	5.3	5.5	8.8	3.7	6.3	80.4
1933	6.05	7.35	10.2	10.4	9.86	9.21	8.30	7.22	8.30	7.22	7.60	95.66	
1934	7.62	7.01	7.12	6.18	6.08	4.97	3.71	2.74	5.48	4.39	5.25	4.00	64.55

9 (old 41½). On Kapahulu Road near Olu St., Honolulu. Owner, J. J. Gouveia. Drilled, 1921. Altitude, 10 ft. Depth, 270 ft. Diameter, 6 in. Depth to top of aquifer, 256 ft. Use, irrigation. Casing, 256 ft.

Log		Depth (ft.)	Depth (ft.)
Soil	0-3	Clay and coral (Pa and Pls)	80-240
Coral (Pls)	3-10	Cemented silt (Pa)	240-252
Lava rock, all kinds, solid, sandy, boulders, etc. (Qhb, Kaimuki and probably Maunaea or Kaau; probably Qht. Diamond Head)	10-80	Coral and sticky gray clay (Pls and Pa)	252-256
		Lava rock, "pukapuka" (Tkb)	256-270

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.

Date	Head (ft.)	Chloride (p.p.m.)	Date	Head (ft.)	Chloride (p.p.m.)	Date	Head (ft.)	Chloride (p.p.m.)
Sept. 1, 1921	32.0	May 24, 1928	24.86	55.0	Sept. 9, 1931	24.82	55.0	
Nov. 27, 1923	22.58	June 20	24.92	55.0	Oct. 6	24.78	55.5	
Dec. 17, 1924	22.78	June 24	25.78	55.0	Oct. 20	25.11	55.0	
Jan. 16, 1924	22.58	Aug. 22	22.84	54.0	Dec. 27	24.88	55.5	
Feb. 4	22.18	Sept. 25	21.58	54.0	Jan. 14, 1932	25.08	55.0	
Feb. 15	22.40	Oct. 27	21.36	53.0	Feb. 18	25.84	55.4	
Mar. 18	22.30	Nov. 20	22.95	53.0	Feb. 18	26.29	55.0	
Apr. 16	22.20	Jan. 3, 1929	24.28	52.5	Mar. 17	26.62	54.5	
May 15	22.30	Jan. 31	24.72	52.5	May 17	26.96	55.5	
June 12	21.90	Feb. 27	25.27	54.0	May 17	26.86	55.5	
Aug. 12	21.00	Feb. 27	25.39	55.5	July 15	26.96	55.0	
Aug. 14	20.70	Apr. 24	25.27	54.0	Aug. 13	26.97	53.5	
Sept. 27	20.10	May 22	23.61	55.0	Aug. 13	27.19	55.0	
Oct. 24	20.50	May 26	24.50	55.0	Sept. 15	26.81	53.5	
Dec. 2	21.60	Aug. 8	23.33	55.0	Oct. 22	26.46	54.0	
Jan. 16, 1925	22.40	Aug. 28	24.00	55.0	Oct. 28	26.46	54.0	
Mar. 1	22.40	Sept. 25	23.93	55.0	Nov. 15	26.81	53.5	
Apr. 25	21.20	Sept. 30	24.41	55.0	Dec. 13	26.46	54.0	
June 18	20.10	Nov. 27	24.77	55.0	Dec. 17, 1933	27.94	53.5	
Nov. 18	20.80	Dec. 28	25.22	55.0	Feb. 18	27.87	53.5	
Feb. 1, 1926	21.70	Jan. 28, 1930	25.38	55.0	Mar. 16	27.62	55.0	
Mar. 10	20.80	Feb. 18	25.38	54.0	Apr. 19	27.08	56.0	
June 16	19.37	Feb. 28	25.04	54.0	May 27	26.58	56.0	
July 9	19.15	Mar. 26	24.74	53.0	June 19	25.33	54.5	
Aug. 17	18.40	Apr. 30	24.80	54.0	Aug. 14	25.09	58.0	
Sept. 22	18.79	May 28	24.74	53.0	Oct. 18	23.40	54.3	
Oct. 20	19.26	July 1	24.18	54.8	Sept. 19	23.74	54.0	
Nov. 20	19.99	July 10	24.74	55.0	Nov. 10	23.71	53.0	
Dec. 23	20.33	Aug. 26	24.05	54.0	Dec. 31	23.92	50.0	
Jan. 31, 1927	20.82	Sept. 6	24.14	54.0	Jan. 24, 1934	24.76	51.0	
Feb. 28	20.77	Oct. 6	23.92	54.0	Feb. 14	25.13	51.0	
Mar. 30	21.34	Nov. 13	23.92	54.0	Mar. 21	25.13	50.0	
Apr. 28	21.28	Dec. 5	23.92	54.0	May 1	25.13	50.0	
June 13	21.10	Dec. 30	26.68	54.0	May 16	25.13	50.0	
July 27	20.72	Jan. 27, 1931	26.88	54.0	June 14	25.04	54.0	
Aug. 23	20.63	Mar. 2	26.64	54.7	July 12	22.46	55.0	
Sept. 28	20.93	Mar. 3	25.53	53.0	Aug. 10	21.96	55.0	
Oct. 23	21.14	Mar. 28	25.68	54.0	Aug. 14	21.65	55.0	
Jan. 9, 1928	24.46	May 28	25.66	54.5	Sept. 13	23.16	80.0	
Feb. 8	24.35	May 29	25.43	54.0	Oct. 16	22.45	80.0	
Feb. 13	24.46	June 25	24.72	54.0	Nov. 22	24.93	80.0	
Mar. 6	24.46	Aug. 5	24.33	54.0	Dec. 20	24.57	59.0	
Apr. 11	24.84	Aug. 25	24.41	55.0				

RECORDS OF DRILLED WELLS ON OAHU

Well 9 (Continued)

Discharge in millions of gallons													
Year	Jan.	Feb.	Mar.	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Total
1929	0	0	0	0	0	0	2.2	2.4	2.7	2.4	4.9	.8	15.4
1930	0	0	2.3	2.2	2.4	1.1	7.0	1.4	1.6	.6	1.1	1.1	15.1
1931	1.5	1.0	.9	1.5	1.5	2.0	1.5	1.0	.9	1.4	1.5	1.4	16.1
1932	1.8	1.0	3.4	4.1	5.0	4.8	5.6	6.0	5.4	2.8	3.4	6.8	50.1
1933	2.49	3.29	3.4	3.75	3.94	3.32	3.41	3.28	3.10	3.22	2.57	1.77	31.01
1934	2.20	1.65	3.04	3.35	1.67	2.67	2.71	2.37	1.80	1.50	.45	.58	24.30

10 (no old number). In Kaimuki on tract of land at 11th Ave. and Mauna Loa Ave. Owner, E. J. Lord. Drilled by Jacob Waikalua. 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 Maunaea), 20-196 ft.

11 (old 40½). 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		Depth (ft.)	Depth (ft.)
Loamy soil	0-10	Coral (Pls)	245-258
Blue clay, very sticky (Pa)	10-20	Blue clay, very sticky (Pa)	258-290
Kaimuki and probably Maunaea or Kaau	20-25	Hard coral (Pls)	290-303
Coral and yellow clay (Pls and Pa)	25-200	Very sticky blue clay (Pa)	303-345
Sticky clay, gray (Pa)	200-245	Red water rock (Tkb)	

Observations

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

Date	Head (ft.)	Chloride (p.p.m.)	Date	Head (ft.)	Chloride (p.p.m.)
Jan. 8, 1920	21.97	Mar. 10, 1926	20.60	June 18, 1927	20.92
Feb. 25	20.49	June 16	19.30	July 2	20.63
Mar. 15	20.18	July 6	19.31	July 2	20.47
Apr. 14	20.10	July 24	19.31	Aug. 6	20.75
May 17	20.08	Dec. 18	19.31	Aug. 13	20.67
May 23	19.55	Jan. 1, 1927	20.32	Aug. 30	20.75
June 18	19.65	Feb. 1	20.16	Aug. 30	20.75
Aug. 2	19.50	Feb. 5	20.71	Sept. 13	20.63
Apr. 15	19.68	Feb. 12	20.88	Sept. 20	20.67
Sept. 20	19.11	Feb. 15	20.88	Sept. 27	20.63
Oct. 18	19.15	Feb. 15	20.75	Sept. 3	20.88
Nov. 17	21.10	Feb. 15	20.75	Sept. 10	20.83
Dec. 16	20.90	Feb. 15	20.85	Sept. 17	20.96
Jan. 27, 1931	21.95	Mar. 6	20.78	Oct. 24	20.99
Feb. 18	21.70	Mar. 12	20.78	Oct. 1	20.89
Mar. 18	21.66	Mar. 12	20.75	Oct. 8	20.93
Apr. 15	21.66	Mar. 12	20.75	Oct. 15	20.90
May 20	21.21	Mar. 12	20.75	Oct. 22	21.08
June 17	21.21	Mar. 12	20.75	Oct. 29	21.00
Aug. 1, 1923	21.15	Mar. 12	20.75	Nov. 5	21.65
Sept. 14	21.38	Mar. 12	20.75	Nov. 12	21.89
Oct. 16	21.89	Mar. 12	20.75	Nov. 19	22.43
Nov. 14	22.35	Mar. 12	20.75	Dec. 5	22.80
Dec. 17	22.55	May 7	21.08	Dec. 9	22.96
Jan. 16, 1924	22.25	May 7	20.97	Dec. 10	23.13
Feb. 4	22.83	May 7	21.15	Dec. 17	23.62
Apr. 14	20.75	May 7	21.02	Dec. 24	23.82
May 12	20.70	June 4	21.03	Dec. 31	24.23
Mar. 12	20.70	June 11	20.08	Jan. 7, 1928	24.96

* 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	Jan. 28, 1929	23.84	Jan. 8, 1931	27.13	June 18, 1932	26.06
21	24.21	Aug. 3	23.72	15	27.21	1	26.06
Feb. 1	24.39	10	23.74	25	27.10	July 3	26.43
4	24.33	18	23.78	29	26.97	9	26.66
11	24.13	25	24.05	Feb. 1	26.86	16	26.98
18	24.13	25	24.06	7	26.75	23	27.03
25	24.13	15	23.92	15	26.68	30	27.03
Mar. 3	24.25	21	23.57	22	26.44	Aug. 6	27.02
10	24.25	28	24.06	28	26.35	13	27.07
17	24.26	Oct. 5	24.30	Mar. 3	26.42	27	27.07
24	24.25	13	24.65	10	26.34	26	27.25
31	24.63	19	24.58	17	26.15	3	27.05
Apr. 7	24.77	26	24.45	24	25.83	10	27.19
14	24.84	Nov. 3	24.55	31	25.58	17	27.09
28	24.92	10	24.77	Apr. 8	25.50	24	26.84
May 5	25.21	16	24.70	8	25.29	Oct. 1	26.89
12	25.14	23	24.64	15	25.28	8	26.84
19	25.18	30	24.83	22	25.35	15	26.71
26	25.18	Dec. 7	24.94	29	25.48	22	26.76
28	25.05	14	24.76	1	25.27	29	26.87
June 9	25.83	21	25.30	8	25.35	Nov. 5	26.79
16	24.71	28	25.46	15	25.14	12	26.82
23	24.58	Jan. 12, 1930	25.69	22	25.39	19	27.20
30	24.62	19	25.56	29	25.45	26	27.45
July 7	24.48	26	25.52	June 5	25.28	Dec. 3	27.66
14	24.42	Feb. 2	25.36	12	25.14	10	27.80
21	24.35	8	25.22	19	24.90	17	27.96
28	23.65	15	25.22	26	24.94	24	27.95
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	28.23
Sept. 1	22.25	23	24.77	31	24.60	Feb. 28	27.84
8	21.79	29	24.82	Aug. 7	24.62	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	24.57	25	27.86
Oct. 6	21.25	May 2	24.87	Sept. 4	24.70	Mar. 4	28.02
13	21.25	8	24.98	11	24.91	11	27.99
20	21.25	10	24.95	18	25.00	18	27.78
27	21.25	17	24.75	25	24.98	Apr. 25	27.70
Nov. 3	22.34	24	24.79	Oct. 2	25.05	8	27.41
10	22.21	June 1	24.29	9	25.05	8	27.41
15	22.54	8	24.30	16	25.27	15	27.34
22	23.10	14	24.20	23	25.34	22	27.16
29	23.29	21	24.55	30	25.40	29	26.90
Dec. 1	24.29	28	24.80	Nov. 5	25.41	May 6	26.56
8	24.17	July 1	24.97	13	25.49	13	26.54
15	24.19	7	25.02	20	25.39	20	26.36
22	24.54	14	24.90	27	25.37	27	26.57
29	24.75	22	24.70	Dec. 4	25.14	June 3	25.91
Feb. 5	24.62	28	24.58	11	25.23	10	25.80
9	24.58	Aug. 1	24.57	18	25.23	17	25.85
16	24.87	8	24.35	25	25.44	24	25.70
23	25.21	15	24.40	31	25.46	July 1	25.74
Mar. 2	25.21	22	24.33	Jan. 8, 1932	25.57	8	25.63
9	25.25	29	24.98	14	25.41	15	25.43
16	25.25	5	24.77	21	25.61	22	25.41
23	25.17	8	26.03	28	25.69	29	25.20
30	25.12	15	26.05	Feb. 4	25.97	Aug. 5	24.98
Apr. 6	25.12	22	25.20	11	26.33	12	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
27	25.04	8	26.03	18	26.77	Sept. 2	24.48
May 4	24.42	15	26.05	25	26.68	9	24.36
11	24.00	22	26.04	Apr. 1	26.88	15	24.09
18	23.46	28	25.48	8	26.95	22	24.02
25	23.83	Nov. 16	26.14	15	27.04	Oct. 3	23.81
June 2	24.25	1	26.48	22	26.91	9	23.82
9	24.29	30	26.61	29	26.86	16	23.82
15	24.42	Dec. 1	26.61	May 7	26.96	23	23.75
22	24.28	8	26.64	14	26.90	30	23.99
29	24.37	15	26.82	21	26.76	Nov. 7	23.95
July 5	24.11	22	27.00	28	26.53	14	23.97
12	24.05	29	26.97	June 2	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	8	23.69	10	22.47
19	24.94	9	24.33	15	22.64	16	22.77
31	25.29	16	24.27	22	22.32	23	23.09
Jan. 6, 1934	25.46	23	24.15	27	22.20	29	22.05
13	25.23	30	24.49	Aug. 5	22.15	6	22.77
22	25.03	May 4	24.53	11	21.92	13	23.60
30	25.27	14	24.16	18	22.00	21	24.42
Feb. 10	25.30	21	23.74	25	22.10	27	24.29
Mar. 24	25.40	June 4	23.57	Sept. 1	22.61	Dec. 2	23.45
5	25.16	11	23.62	8	23.53	1	24.61
12	25.07	18	23.16	15	23.39	25	25.12
19	24.66	25	22.90	29	24.08	31	25.58

Meter test

No water flowing from top of well. An 3-in. deep-well meter used. Readings by K. N. Vaksik, May 25, 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	168	26	190.8	41
148	3.2	168	39	191.5	(landed)

12 (old 39). Intersection of Hunter St. and Kapahulu Road. Owner, Leahi Home Dairy. Drilled, 1889. 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. 5, 1919	*21.02		Aug. 14	*19.00	95.0	Mar. 8	*22.31	...
Aug. 30, 1923	19.19		Feb. 2, 1926	19.19	95.0			
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	390
190	8	270	856	500	9
200	214	290	1009	504	...
210	260	400	923	505	0
214	445	400	856	510 (meter landed)	...
230	400	450	1000		
250	750	400	1060		
260	700	470 (end of casing)	1090		
	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:	had been tamped down 10 in.	full of neat cement
190	190	190
200	200	200
210	210	210
220	220	220
230	230	230
240	240	240
250	250	250
260	260	260
270	270	270
280	280	280
290	290	290
300	300	300
310	310	310
320	320	320
330	330	330
340	340	340
350	350	350
360	360	360
370	370	370
380	380	380
390	390	390
400	400	400
410	410	410

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	24.08	311
Aug. 20, 1923	20.16		Feb. 2, 1925	21.10	330			
Feb. 15, 1924	75.0		July 6	18.67	364			

Meter test

Water flowing from top of well. Static level of well normal for area. Au 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) ..	353	518	300	582	47
440	353	516	293	583	0
448 (end of casing) ..	353	517	245	584	0
460	353	519	287		
			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, 1916	22.00		Dec. 10, 1916	22.00	
Nov. 12, 1916	23.00		Nov. 4, 1919	22.31		Nov. 4, 1919	22.31	
Nov. 19	23.23		Nov. 27, 1923	22.31		Nov. 27, 1923	22.31	
Nov. 26	22.41		Feb. 15, 1924	22.40		Feb. 15, 1924	22.40	
Dec. 3	23.63		Aug. 13	73.0		Aug. 13	73.0	

* 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. Au 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
60	948	400	100	500	149
100	231	450	150	507 (end of casing) ..	49
150	227	500	150	508	28
200	200	495	136	510	30
250	182	500	107	512	39
300	200	502	215	514	39
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, 746 ft. Diameter, 6 in. Depth to top of aquifer, 630 ft. Sealed, Oct. 1925. Head (ft.), Nov. 27, 1923, 6.4 (leaking). Chloride (p.p.m.), Sept. 22, 1923, 8,000.

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.)
Gravel and beach sand (Ra & Rs) ..	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 Qrt, Diamond Head at top)	50-320	Soft white coral (Fib)	1,020-1,048
Hard white coral like marble and without a break (Fib)	320-825	Soft white rock, character of soapstone (Fib)	1,048-1,068
Dark brown clay (Pa)	825-900	Brown clay with broken coral (Pa and Fib)	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
		Permalava 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. Ai. 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	177	Oct. 20, 1928	18.07	675
Jan. 31, 1919	22.89		Aug. 15	19.40	1840	Feb. 13, 1928	23.47	1510
Nov. 21, 1923	20.00		July 8, 1925	18.07		Sept. 10		1510

Meter test

Water flowing from top of well during test. Static level normal for area. Au 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	59	607.5 (end of casing		640	18
200	57	as indicated by		650	13
300	57	Aug tools).		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, 73.7; Feb. 1927, 14,690.

Log

Depth (ft.)		Depth (ft.)		Depth (ft.)	
Sand and coral (Pks and Pils)	0-38	Tough clay and coral (Pa and Pils)	285-350	White coral (Pils)	525-625
White coral (Pils)	38-60	Blue clay (Pa)	350-380	Tough clay (Pa)	625-630
Yellow sand (Pils)	60-103	Hard coral (Pils)	380-420	Coral and clay (Pils)	630-700
Hard lava (Qib Kani or Manumoe)	103-103	Soft coral (Pils)	420-450	Tough clay (Pa)	700-728
White coral (Pils)	150-260	Tough clay (Pa)	450-455	Black sand (Pa or Tkb)	728-730
Blue clay (Pa)	260-285	White coral (Pils)	455-495	Lava and bedrock (Tkb)	730-850
		Tough clay (Pa)	495-525		

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	430	120
153	9	370.5	78	480	89
151 (leak)	123	374.5 (leak)	105	491 (water stopped by obstruction in well)	95
167	77	378	143		
180	80	380	128		
230	84	390	78		
240	72	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). Rear 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

	Depth (ft.)		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).....			
Coral (Pls).....	15-250	Brown mud (Pa).....	402-435	Heavy adobe mud (Pa).....			625-648
Coral mud (Pls).....	250-260	Coral (Pls).....	410-440	Lava sand (?) (Tkb).....			648-670
Coral and coral mud (Pls).....	260-307	Brown adobe mud (Pa).....	440-492	Fine lava sand (Tkb).....			670-693
Coral (Pls).....	307-338	White coral (Pls).....	492-590	Fine clear lava sand (Tkb).....			710-720
Coral mud (Pls).....	338-342	White coral mud and sand (Pa).....	590-608				
Coral (Pls).....	342-358	White coral (Pls).....	608-625				
Coral (Pls).....	358-370						
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	9.50	.....
Apr. 30, 1921	10.530	.....	July 8, 1928	8.05	11,400	Oct. 2	9.60	13,300
Nov. 16, 1923	11.20	.....	Feb. 15, 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. Yakavik, 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	124
100	92	.....	112	770 (end of casing fishing tools)	82
200	88	690	128	780	96
300	92	700	128	790	68
400	90	710	128	800 (meter at bottom) .....	.....
500	90	720	128		
600	90	730	128		
675	98	740	128		
680 .....	.....	750	128		
Size of casing down to 700	700	.....	128		

24 (old 40). In Moiliili, about 300 ft. south of Kino Ave. on Lukepane Ave., extended. Owner, Mrs. C. P. Iaukea. Drilled, 1888. Altitude, 12 ft. Depth, 411 ft. Diameter, 4 in. Use, irrigation. Casing, 196 ft. Recased 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. 14, 1929	49.7	Mar. 12, 1930	49.7	.....	49.7
Nov. 26, 1923	20.13	49.8	Oct. 23	49.7	Mar. 26	49.7	.....	49.7
Feb. 15, 1924	20.50	49.8	Oct. 30	49.7	Mar. 26	49.7	.....	49.7
Aug. 13	18.30	49.0	.....	49.0	Apr. 9	49.0	.....	49.0
Feb. 2, 1926	19.63	49.6	Nov. 6	49.7	Apr. 30	49.0	.....	49.0
July 12	17.25	52.0	Nov. 13	49.7	May 14	49.0	.....	49.0
Feb. 13, 1928	21.58	54.0	Nov. 30	49.7	June 19	49.7	.....	49.7
Mar. 8	21.63	.....	Nov. 27	49.7	July 15	49.7	.....	49.7
Mar. 8	21.33	.....	Dec. 1	49.7	Aug. 23	49.0	.....	49.0
Apr. 3	21.53	.....	Dec. 11	49.0	Sept. 6	49.0	.....	49.0
May 1	22.63	.....	Dec. 18	49.0	Oct. 7	49.0	.....	49.0
Feb. 28, 1929	24.8	.....	Dec. 20	49.0	Nov. 1	49.0	.....	49.0
July 25	51.4	Jan. 8, 1930	.....	49.0	Dec. 16	49.0	.....	49.0
Aug. 1	63.4	Jan. 15	.....	49.0	Jan. 7, 1931	49.0	.....	49.0
Aug. 7	51.4	Jan. 22	.....	49.0	Mar. 2	26.48	.....	49.6
Aug. 14	51.4	Jan. 29	.....	49.0	Sept. 9	24.87	.....	49.0
Aug. 21	49.7	Feb. 5	.....	49.0	Sept. 17	25.61	.....	49.0
Aug. 28	51.4	Feb. 12	.....	49.0	Jan. 27, 1932	25.61	.....	49.0
Sept. 4	51.4	Feb. 18	25.28	.....	Aug. 22	27.37	.....	49.0
Sept. 11	49.7	Feb. 26	.....	49.0	June 19, 1934	22.54	.....	51.3
Sept. 18	49.7	Mar. 5	.....	49.0	Dec. 11	24.20	.....	51.0
Sept. 26	223.45	.....	.....	49.0				

* 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 indicated by fishing tools)	330	315	
110	38	.....	340	273	
120	46	220	273	360	273
130	124	230	273	370	273
140 (leak)	176	240	273	380	240
150	279	250	273	390	214
160	279	260	273	400	130
170	273	270	273	410	105
180	273	280	273	420 (meter at bottom)	90
200	273	290	273		

RECORDS OF DRILLED WELLS ON OAHU

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	2.7	25.0
1930 ..	3.2	2.2	4.0	3.2	2.4	1.4	3.2	1.3	1.4	1.3	1.3	1.3	26.3
1931 ..	1.5	2.6	4.4	3.0	5.0	3.3	2.8	1.8	1.2	1.6	1.4	0	28.1
1932 ..	0	0	0	0	0	0	2.1	0.8	2.1	0.8	1.2	1.2	11.56
1933 ..	2.2	3.1	3.4	3.3	3.4	3.3	3.4	3.7	3.6	3.1	3.0	1.6	37.1
1934 ..	.16	.8	5.4	.12	.12	1.1	.85	.85	.22	.26	.42	.29	10.59

25 (old 41). Olokele Ave. between Kimo and Leialoha Aves., Honolulu. Owner, Magoon estate. Drilled, 1855. Altitude, 13 ft. Diameter, 8 in. Use, irrigation.

Observations

Bench mark, top of flange at south end of well cap, 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	23.32	.....	Feb. 12, 1928	22.65	.....	Sept. 17	.....	41.0
Nov. 26, 1923	22.48	.....	Feb. 7, 1929	.....	42.7	Jan. 27, 1932	26.80	42.7
Feb. 15, 1924	.....	51.2	Sept. 26	24.02	42.8	Aug. 22	27.30	44.5
Aug. 14	20.76	47.0	Feb. 18, 1930	26.59	.....	Oct. 19, 1934	24.16	47.9
July 9, 1926	.....	48.0	Sept.	41.1	Dec. 11	.....	.....	.....

Discharge in millions of gallons

Year	Jan.	Feb.	Mar.	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Total
1929 ..	.....	.....	.....	.....	.....	.....	.065	.016	.015	.04	.012	.007	.095
1930 ..	.008	.03	.006	.03	.03	.03	.03	.03	.03	.021	.023	.095	.....
1931 ..	.03	.03	.03	.03	.03	.03	.03	.03	.03	.06	.06	.42	.....
1932 ..	.03	.03	.03	.03	.03	.03	.03	.03	.03	.06	.06	.42	.....
1933 ..	.06	.02	.03	.03	.03	.03	.03	.03	.03	.06	.06	.42	.....
1934 ..	.03	.03	.03	1.2	.03	1.2	5.7	2.0	4.4	2.6	1.7	24.62	.....

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. 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. 1910	24.79	.....	Nov. 1912	24.51	55.0	Aug. 14, 1929	.....	75.4
May 29	25.71	.....	.....	.....	55.0	Aug. 21	.....	77.1
June ..	23.80	.....	Jan. 1913	25.22	54.0	Aug. 28	.....	77.1
Oct.	24.12	.....	.....	23.46	55.0	Sept. 4	.....	75.4
Nov.	25.05	.....	.....	23.46	55.0	Sept. 11	.....	75.4
Jan. 1911	25.89	.....	.....	24.75	53.0	Sept. 18	.....	73.7
Feb.	25.09	.....	.....	23.87	54.0	Sept. 27	.....	73.7
Mar.	25.34	.....	.....	24.75	53.0	Oct. 3	24.08	.....
Apr.	25.00	.....	.....	23.70	55.0	Oct. 16	.....	73.7
June ..	25.09	.....	.....	22.74	53.0	Oct. 23	.....	73.7
July	25.24	.....	.....	22.70	55.0	Oct. 30	.....	73.7
Aug.	24.50	.....	.....	22.70	55.0	Nov. 6	.....	71.9
Sept.	25.05	.....	.....	22.70	55.0	Nov. 13	.....	73.7
Oct.	25.10	.....	.....	22.70	55.0	Nov. 20	.....	73.7
Jan. 1912	26.20	.....	.....	22.70	55.0	Nov. 27	.....	73.7
Feb.	24.95	55.0	Feb. 15, 1924	.....	63.2	Dec. 4	.....	73.7
Mar.	25.38	56.0	Aug. 14	.....	66.0	Dec. 11	.....	71.9
Apr.	25.14	54.0	Feb. 4, 1926	.....	78.0	Dec. 18	.....	71.9
May ..	24.03	61.0	July 12	18.86	82.0	Dec. 26	.....	71.9
June ..	24.10	55.0	Feb. 14, 1928	.....	77.0	Jan. 2, 1930	.....	71.9
July	24.65	54.0	Mar. 1, 1929	.....	77.1	Jan. 9	.....	71.9
Aug.	23.47	54.0	July 25	.....	77.1	Jan. 15	.....	70.9
Sept.	22.00	55.0	.....	.....	75.8	.....	.....	.....
Oct.	23.06	54.0	Aug. 7	.....	77.1	.....	.....	.....

RECORDS OF DRILLED WELLS ON OAHU

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. 7, 1931	.....	63.8
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. 26		70.2	July 15	.....	73.7	Sept. 17	.....	65.0
Mar. 5		73.7	Aug. 2	.....	70.2	Apr. 27, 1932	.....	66.7
Mar. 12		73.7	Sept. 6	.....	70.2	Aug. 22	.....	66.7
Mar. 19		71.9	Oct. 7	.....	68.5	June 19, 1934	*22.89	75.2
Mar. 26		71.9	Nov. 12	.....	68.5	Dec. 11	24.44	76.9

* 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	25	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	6.2	8.0	4.3	4.2	3.8	11	16	17	6.6	0	102.1
1933 ..	13	19	14	16	14	6.3	7.1	8.4	8.1	11.5	11.7	0	131.7
1934 ..	13.3	11.8	6.5	6.3	6.5	9.0	8.7	8.7	8.7	4.2	5.4	3.6	95.7

27 (old 52½). Near Waialae Ave. 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.)		Depth (ft.)		Depth (ft.)
Clay (Pa)	0-37	umas or Kaimuki)	72-80	Clay (Pa)	275-290
Bedrock (Pa)	37-54	Coral (Pis)	80-106	Clay and sand (Pa)	290-320
Clay (Pa)	54-64	Lava rock (Qbb. Kau or Maunuae)	.....	Clay (Pa)	330-375
Clay and coral (Pa and Pis)	64-72	Coral (Pis)	106-125	Lava or bedrock	.....
Bedrock (Pa and Qbb. possibly some Mau-	.....	Clay (Pa)	125-175	(Tbk)	.....
	.....	Coral (Pis)	175-195	.....	375-407

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	29.0	Sept. 17, 1931	.....	27.4
Nov. 26, 1923	21.73	.....	Mar. 1929	.....	27.4	Jan. 27, 1932	*25.60	30.8
Feb. 13, 1924	22.73	27.6	Sept. 26	.....	29.1	Aug. 22	27.24	30.8
Aug. 15	20.63	28.5	Feb. 18, 1930	23.27	.....	June 19, 1934	22.89	30.8
Sept. 1, 1925	.....	34.0	Sept. ....	.....	30.8	Dec. 11	*24.25	30.8
Feb. 4, 1926	21.43	35.5	Mar. 2, 1931	26.43	29.1	.....	.....	.....
July 12	18.87	30.8	Sept. 9	24.87	.....	.....	.....	.....

* 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	.28	.40	.20	.75	.51	2.54
1930 ..	.....	.....	.....	.....	.....	.....	4	2.8	4	4	4	4	10.4
1931 ..	.3	.3	.3	.3	.3	.3	.6	.3	.3	.3	.3	.6	4.2
1932 ..	.....	.....	.....	.....	.....	.....	3	3	3	1.2	.9	.9	8.1
1933 ..	1.23	.75	1.2	1.41	1.50	1.60	1.50	1.52	1.12	.62	.60	1.02	14.12
1934 ..	.35	.11	1.2	1.2	1.2	1.29	1.34	1.33	1.33	1.10	.97	1.11	13.61

28 (old 6). Moiliili district, Honolulu. Owner, Goo Kim. Drilled, 1882 by Arnold. Altitude, 15 ft. Depth, 540 ft. Diameter, 6 in. Depth to top of aquifer, 475 ft. Lost.

Log

	Depth (ft.)		Depth (ft.)		Depth (ft.)
Soil	0-10	Coral (Pls)	124-150	Coral (Pls)	230-360
Gravel (Ra)	10-23	Hard lava (Qhb, Kaau)		Clay (Pa)	360-380
Lava (Qhb, possibly Kaimuki)	23-66	Coral (Pls)	150-176	Coral (Pls)	380-430
Clay (Pa)	66-124	Clay (Pa)	176-270	Clay (Pa)	430-475
		Clay (Pa)	270-290	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 flange 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.)	Date	Head (ft.)	Chloride (p.p.m.)
June 18, 1917	83		Dec. 26, 1929	274		Feb. 26, 1932	239	
Jan. 19, 1925	208		Jan. 2, 1930	274		Mar. 30	239	
Apr. 22	247		Jan. 8	257		Apr. 27	232	
Apr. 25	220		Jan. 15	291		May 27	239	
May 8	220		Jan. 22	257		June 28	232	
June 18	235		Jan. 29	257		Aug. 22	27.16	232
Sept. 1	847		Feb. 5	237		Sept. 27	239	
Dec. 27	276		Feb. 12	257		Oct. 27	239	
Feb. 4, 1926	284		Feb. 18	24.92		Nov. 29	239	
July 13	17.11	214	Feb. 26	257		Dec. 27	239	
Sept. 14	18.53	324	Mar. 5	257		Jan. 27, 1933	239	
Oct. 29	277		Mar. 12	274		Feb. 23	232	
Nov. 20	282		Mar. 19	274		Mar. 29	232	
Feb. 14, 1928	372		Mar. 26	257		May 11	232	
Sept. 10	219		Mar. 27	257		May 26	232	
Mar. 1, 1929	374		Apr. 30	274		May 26	232	
July 25	329		May 14	274		July 26	232	
Aug. 1	326		June 10	308		Aug. 31	232	
Aug. 7	326		July 15	291		Sept. 28	232	
Aug. 14	308		Aug. 23	308		Oct. 31	232	
Aug. 21	326		Nov. 8	291		Nov. 28	232	
Aug. 28	308		Oct. 7	291		Dec. 22	232	
Sept. 4	308		Nov. 12	291		Jan. 30, 1934	232	
Sept. 11	308		Feb. 16	291		Feb. 16	239	
Sept. 17	308		Jan. 7, 1931	291		Mar. 29	232	
Sept. 28	27.70		Apr. 15	291		Apr. 15	232	
Oct. 2	308		Apr. 15	274		May 31	232	
Oct. 16	308		May 27	256		June 19	22.55	232
Oct. 23	308		Sept. 6	256		July 31	232	
Oct. 30	291		May 28	274		Aug. 30	232	
Nov. 6	291		Aug. 8	274		Sept. 26	236	
Nov. 17	201		Sept. 9	24.47		Oct. 17	239	
Nov. 20	308		Sept. 17	205		Oct. 30	239	
Nov. 27	291		Oct. 30	256		Nov. 15	239	
Dec. 4	291		Dec. 5	256		Nov. 30	239	
Dec. 11	291		Jan. 28, 1932	25.50	239	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						1.31	1.32	1.33	1.34	1.35	1.36	1.37	11.85
1931						1.1	1.1	1.1	1.1	1.1	1.1	1.1	11.85

* 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 flange 2 ft. above ground, on main well casing directly over horizontal discharge pipe; altitude, 15.20 ft.

Date	Head (ft.)	Chloride (p.p.m.)	Date	Head (ft.)	Chloride (p.p.m.)	Date	Head (ft.)	Chloride (p.p.m.)
..... 1910	.....	47.0	Jan. 28, 1921	21.82	30.6	Aug. 14, 1929	.....	39.4
Oct. 22, 1916	23.15		Feb. 18	21.67	25.0	Aug. 21	.....	39.4
Nov. 12	24.06		Mar. 18	21.49	27.0	Aug. 28	.....	39.4
Nov. 13	24.38		April 15	21.47	26.0	Sept. 4	.....	37.7
Nov. 26	24.64		May 20	21.28	29.0	Sept. 11	.....	36.0
Dec. 3	24.66		Sept. 17	21.02	30.0	Sept. 17	.....	39.4
Dec. 10	25.04		Sept. 17, 1923	21.20	.....	Sept. 26	23.78	.....
Dec. 10	25.04		Oct. 16	21.37	27.6	Oct. 2	.....	37.7
Feb. 6	25.06		Feb. 6	22.04	40.0	Oct. 10	.....	37.7
Mar. 2	25.06		Dec. 17	22.24	30.0	Oct. 23	.....	37.7
April 1	25.23		Feb. 7, 1924	22.30	.....	Oct. 30	.....	36.0
Apr. 1	25.30		Feb. 7	22.30	.....	Nov. 6	.....	36.0
June 1	25.65		Feb. 16	22.46	29.1	Nov. 13	.....	36.0
Aug. 1	25.56		Mar. 7	22.60	.....	Nov. 20	.....	37.7
Aug. 1	21.44		April 1	22.70	.....	Nov. 27	.....	39.4
Sept. 1	20.92		May 1	22.80	.....	Dec. 4	.....	42.8
Oct. 1	20.85		June 1	20.00	.....	Dec. 11	.....	39.4
Nov. 1	21.73		July 16	21.23	29.0	Dec. 18	.....	37.7
Dec. 1	23.18		Aug. 14	20.97	27.0	Dec. 26	.....	36.0
Jan. 1, 1918	24.16		Sept. 1	20.15	.....	Jan. 2, 1920	.....	37.7
Feb. 1	23.85		Oct. 1	20.55	.....	Jan. 8	.....	36.0
Mar. 1	23.76		Nov. 1	22.49	.....	Jan. 15	.....	36.0
Apr. 1	23.77		Dec. 1	21.15	.....	Jan. 22	.....	36.0
May 1	22.65		Jan. 1	21.02	.....	Jan. 29	.....	36.0
June 1	22.09		Feb. 1	20.17	.....	Feb. 5	.....	36.0
July 1	21.77		Sept. 1	18.53	36.6	Feb. 12	.....	34.3
Aug. 1	21.93		Oct. 1	20.99	39.0	Feb. 18	.....	36.0
Sept. 1	20.93		Nov. 1	20.93	.....	Feb. 26	24.94	.....
Oct. 1	20.99		Dec. 1	20.74	.....	Mar. 5	.....	39.4
Nov. 1	21.04		Jan. 1	18.09	49.0	Mar. 12	.....	39.4
Dec. 1	23.09		Aug. 17	18.29	46.0	Mar. 19	.....	37.7
Jan. 1, 1919	23.12		Sept. 21	18.78	44.0	Mar. 26	.....	36.0
Feb. 1	22.67		Oct. 20	19.26	41.0	Apr. 9	.....	36.0
Mar. 1	22.15		Nov. 20	20.00	34.0	Apr. 30	.....	36.0
Apr. 1	22.15		Dec. 20	20.31	30.0	May 14	.....	36.0
May 1	21.19		Jan. 21, 1927	20.31	30.0	June 1	.....	36.0
June 1	21.28		Feb. 28	20.70	38.0	July 15	.....	37.7
July 1	21.28		Mar. 29	21.11	41.0	Aug. 23	.....	36.0
Aug. 1	20.20		Apr. 28	21.32	28.0	Sept. 6	.....	44.5
Sept. 1	20.83		June 14	21.03	32.0	Oct. 7	.....	42.8
Oct. 1	20.83		July 27	20.82	36.0	Nov. 12	.....	36.0
Nov. 1	20.40		Aug. 25	20.66	33.0	Dec. 16	.....	37.7
Dec. 1	20.46		Sept. 28	20.46	32.0	Jan. 7, 1931	.....	41.0
Jan. 1	19.89		Oct. 25	21.03	41.0	Mar. 2	.....	42.8
Feb. 1	19.19	36.0	Jan. 9, 1928	24.67	34.0	Mar. 7	.....	41.0
Mar. 1	19.19	36.0	Feb. 15	21.31	37.0	Mar. 14	.....	41.0
Apr. 1	18.96		July 24	38.0	.....	Sept. 7	.....	37.7
May 1	18.83		Mar. 1, 1929	24.3	.....	Jan. 27, 1932	.....	35.9
June 1	18.93		Aug. 25	41.2	.....	Aug. 22	.....	37.7
July 1	19.78	43.0	Aug. 1	41.2	.....	June 10, 1934	.....	23.69
Aug. 1	21.14	26.0	Aug. 7	39.4	.....	Dec. 11	.....	23.94

† 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	1.6	1.4	1.3	9.6	
1930	1.2	1.3	1.3	1.2	1.0	1.1	1.0	1.3	1.3	1.3	1.3	1.3	14.6
1931	1.9	1.9	2.2	2.8	4.8	2.0	1.5	2.2	2.8	4.4	2.7	1.1	32.7
1932	0	0	0	0	0	2.6	2.7	2.7	2.3	1.8	1.8	1.8	17.4
1933	1.9	1.7	1.9	1.8	1.9	1.8	1.98	3.05	2.23	5.76	2.07	3.8	20.78
1934	.....	.....	.....	.....	.....	4.17	5.33	2.13	2.02	2.67	4.70	2.22	31.68

32 (old 50). Near old rice mill and about 10 ft. east of Manoa Stream. Owner, Mrs. Lum 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	.....
June	24.85	47.0	Mar.	23.33	36.0	Mar. 14, 1918	22.76	....
Oct.	20.84	.....	April	23.04	29.0	Feb. 9, 1919	22.87	....
Nov.	24.85	.....	May	23.78	41.0	Feb. 16, 1924	.....	.....
Jan., 1911	23.05	.....	June	24.35	39.0	Mar. 19	.....	41.2
Feb.	26.10	.....	July	23.65	.....	April 16	.....	41.3
Mar.	25.10	.....	Aug.	24.73	.....	May	.....	42.0
April	24.80	.....	Sept.	24.27	.....	Aug. 14	.....	41.1
May	24.90	.....	Oct.	23.25	35.0	Sept. 27	.....	40.5
June	24.90	.....	Nov.	24.56	35.0	Oct.	.....	41.0
July	25.00	.....	Dec.	24.60	30.0	Dec. 2	.....	38.0
Aug.	24.28	46.0	Jan., 1913	24.35	35.0	Jan. 16, 1925	.....	39.0
Sept.	24.87	.....	Feb.	25.00	39.0	April 25	.....	39.0
Oct.	24.90	.....	Mar.	23.65	35.0	May 8	.....	39.0
Jan., 1912	26.10	39.0	April	24.45	.....	June 18	.....	39.5
Feb.	24.65	37.0	May	22.85	38.0	Sept. 11	.....	45.5
Mar.	25.20	39.0	June	23.09	37.0	Dec. 27	.....	46.0
April	24.80	35.0	July	22.9	.....	Feb. 4, 1926	.....	45.0
May	23.85	41.0	Aug.	22.25	35.0	Feb. 14, 1928	.....	63.0
June	23.92	43.0	Sept.	22.43	36.0	.....	.....	24.00
July	24.1	42.0	Oct.	22.95	35.0	Mar. 6	.....	24.42
Aug.	23.15	40.0	Nov.	24.39	34.0	April 11	.....	24.87
Sept.	22.70	40.0	Dec.	24.55	32.0	May 21	.....	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.	24.65	32.0	Mar.	24.40	30.0	Aug. 22	.....	22.84
Jan., 1913	25.01	38.0	April	24.55	35.0	Sept. 25	.....	21.48
Feb.	24.55	40.0	May	24.55	35.0	Mar. 5, 1920	.....	21.48
Mar.	23.18	45.0	June	25.00	35.0	.....	.....	48.0
April	23.72	37.0	July 30	24.80	33.0	Sept. 26	.....	24.00
May	22.75	39.0	Aug.	24.55	35.0	Feb. 15, 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	Oct. 18	23.27	.....	Sept. 17	.....	24.74
Sept.	22.40	40.0	Oct. 24	23.31	.....	Jan. 27, 1932	.....	25.46
Oct.	22.10	42.0	Oct. 25	23.20	.....	Aug. 22	.....	27.28
Nov.	24.22	35.0	Nov. 8	23.40	.....	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
1932	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
1933	6.5	4.9	8.1	7.8	8.6	8.6	10.6	10.7	11.2	8.3	6.3	3.6	92.3
1934	4.30	3.81	6.59	5.42	6.47	6.85	7.71	6.85	6.58	5.98	2.17	5.17	92.37

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 change 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	26.32	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	18.2	28	July 12	18.2	454	June 29	.....	342
Nov. 26	23.21	.....	Nov. 20	.....	540	July 27	.....	308
Dec. 3	23.22	.....	April 15, 1927	.....	492	Aug. 9	.....	292
Oct. 22, 1923	19.82	.....	Feb. 14, 1928	23.06	810	Sept. 9	24.37	.....
Feb. 16, 1924	.....	346	Sept. 26, 1929	23.68	291	Sept. 18	.....	274
..... 15	14.50	345	Feb. 18, 1930	25.14	308	Oct. 31	.....	250

RECORDS OF DRILLED WELLS ON OAHU

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, 1933	.....	256	Feb. 27, 1934	.....	342
Feb. 27, 1932		25.48	Mar. 29	.....	308	Mar. 29	.....	445
..... 26		205	Mar. 29	.....	274	April 28	.....	479
..... 31		222	May 11	.....	274	May 31	.....	411
..... 27		239	May 26	.....	308	June 19	.....	445
..... 28		239	June 30	.....	325	July 31	.....	462
..... 27		274	Aug. 31	.....	308	Aug. 30	.....	496
..... 27		274	Sept. 28	.....	445	Sept. 26	.....	462
..... 27	27.01	256	Sept. 28	.....	445	Oct. 17	.....	496
..... 27		308	Nov. 26	.....	313	Nov. 30	.....	513
..... 27		326	Nov. 26	.....	428	Nov. 16	.....	479
..... 27		274	Jan. 30, 1934	.....	359	Dec. 11	.....	411
..... 27		274	.....	.....	359	.....	.....	24.15

Discharge in millions of gallons

Year	Jan.	Feb.	Mar.	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Total
1930		0.01	0	0	0	0	0	0.01	0	0	0	0	21
1931	0	0	0.06	2.3	2.3	3	3	3	3	3	3	2	6.66
1932		1	3	3	3	3	3	0.9	3	6	3	6	4.09
1933		1	3	3	3	3	3	4	3	4	3	1.2	29.4
1934		6	6	3	3	3	1.2	1.2	1.2	1.4	24	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	23.64	.....	Feb. 6, 1919	22.93	.....	July 9	.....	18.82
..... 24	23.11	.....	Oct. 22, 1923	21.42	.....	Nov. 23	.....	10.9
..... 25	23.09	.....	Feb. 16, 1924	21.88	65	Feb. 14, 1928	.....	21.87
Nov. 8	23.74	.....	Mar. 14	.....	56.2	Sept. 3	.....	20.82
Nov. 14	23.89	.....	Aug. 16	.....	56.5	.....	.....	.....
Nov. 20	24.29	.....	Sept. 1, 1925	.....	72	.....	.....	.....

* Leaking.

Meter tests

Test 1. Water flowing from top of well. Static level 1.63 ft. below normal for area. Au 3 in. deep well meter used. Readings by K. N. Vakavik, Oct. 12, 1928.

Depth (ft.)	Revolutions per minute	Depth (ft.)	Revolutions per minute	Depth (ft.)	Revolutions per minute
10	36	250	.....	35	190 (end of casing)
50	92	275	.....	38	as indicated by
100	92	300	.....	38	flushing tools
125	90	325	.....	36	435
150 (leak)	90	350	.....	38	440
175	90	375	.....	34	450
200	90	400	.....	39	475
225	90	425	.....	36	.....

Test 2. No flow from top of well. Static level about 3 ft. below normal for area. Au 3 in. deep well meter used. Readings by K. N. Vakavik, Oct. 16, 1928.

Depth (ft.)	Revolutions per minute	Depth (ft.)	Revolutions per minute	Depth (ft.)	Revolutions per minute
20-65	0	180	.....	208	440
75	93	190	.....	204	445
80	54	200	.....	204	450
85	72	250	.....	206	460
90	90	275	.....	208	479
90 (leak)	94	350	.....	208	481 (meter at bottom)
100	94	400	.....	208	.....
100	100	450	.....	208	.....
160	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 exact could be obtained without being washed away. Au 2-in. deep-well meter used. Readings by K. N. Vakevik, 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		
450	30	441	45		

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

Observations

Bench mark, top of vertical head 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 1910	24.80		Dec. 11, 1929	223		Jan. 27, 1935	25.69	222
May 1910	24.42	37	Dec. 18	206		Feb. 26		140
Oct. 29, 1916	25.71		Dec. 26	188		Mar. 30		140
Nov. 5	24.22		Jan. 2, 1930	188		May 27		222
Nov. 12	24.21		Jan. 8	188		June 28		222
Nov. 19	24.60		Jan. 15	240		July 27		222
Nov. 26	24.73		Jan. 22	223		Aug. 22	27.44	205
Dec. 3	25.01		Jan. 29	223		Sept. 22		274
Dec. 10	24.29		Feb. 5	223		Oct. 27		239
Oct. 22, 1923	21.72		Feb. 12	206		Nov. 29		205
Feb. 19, 1924			Feb. 18	206		Dec. 27		188
Aug. 15	21.20	154	Feb. 26			Jan. 27, 1933		116
Sept. 1, 1925	152		Mar. 5	223		Feb. 27		84
Feb. 4, 1926	21.60	177	Mar. 12	206		Mar. 29		123
July 13	19.20	186	Mar. 19	206		May 11		188
Feb. 14, 1928	218		Mar. 30	206		May 26		184
Sept. 11	22.32		April 9	206		June 30		152
Mar. 1, 1929		206	April 30	206		July 26		135
July 25		206	May 14	206		Aug. 31		152
Aug. 1		206	June 19	206		Sept. 28		144
Aug. 7		206	July 18	206		Oct. 11		184
Aug. 14		206	Aug. 23	171		Nov. 28		135
Aug. 21		206	Sept. 6	171		Dec. 22		184
Aug. 28		206	Sept. 7	171		Jan. 30, 1934		188
Sept. 4		206	Nov. 12	171		Feb. 27		222
Sept. 8		206	Dec. 16	188		Mar. 29		188
Sept. 17, 20		206	Jan. 2, 1931	171		April 28		188
Sept. 26	23.62		Mar. 2	26.59	188	May 31		205
Oct. 2		206	Mar. 12	188		June 19	29.17	171
Oct. 16		206	May 27	222		July 26		188
Oct. 23		206	June 26	223		Aug. 30		205
Oct. 30		206	July 28	205		Sept. 21		239
Nov. 6		223	Aug. 8	205		Oct. 17		222
Nov. 12		223	Sept. 9	24.84		Oct. 26		274
Nov. 20		240	Sept. 17	239		Nov. 15		274
Nov. 27		223	Oct. 30	256		Nov. 30		256
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	.9	1.0	1.1	1.1	24.4
1931	1.8	1.2	1.8	1.0	1.8	1.8	2.9	.8	.8	1.4	.7	1.7	16.7
1932	2.1	1.9	1.8	1.8	2.0	2.1	2.1	2.4	2.5	2.0	1.6	1.6	24.0
1933	.93	.85	1.15	1.48	1.92	1.96	1.82	1.52	1.83	3.29	2.86	2.40	22.11
1934	1.68	1.18	2.12	1.63	1.22	1.33	1.24	1.25	.83	.86	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, 395 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, 23.85 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 5	47.0		Feb. 18, 1930	*28.94		Oct. 30	*28.31	...
April 12	46.0		Mar. 2, 1931	*29.69		Nov. 6	*28.29	...
May 15	50.0		Sept. 9	*27.02		Nov. 13	*28.28	...
May 22	49.3		Sept. 19	*28.94		Nov. 20	*28.17	...
May 29	44.0		Jan. 27, 1932	*25.39		Nov. 27	*28.26	...
June 5	45.0		Aug. 22	*31.74		Dec. 2	*28.43	...
June 12	50.0		Oct. 17	*31.38		Dec. 25	*28.62	169
June 19	45.0		June 19, 1934	*28.68		Dec. 11	*28.50	...
June 26	51.0		June 19	*29.12		Dec. 18	*28.46	...
Mar. 24, 1924	*27.7		Oct. 9	*27.78		Dec. 25	*28.47	...
Nov. 10, 1929	51.0		Oct. 10	*28.09		Dec. 31	*28.06	...
Dec. 11, 1929	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	49.6	59.7	55.6	69.8	62.8	61.6	61.1	65.0	64.8	62.8	61.7	629.9
1925	45.1	45.6	37.5	43.5	48.8	52.3	57.2	65.6	69.4	64.8	63.2	48.8	639.1
1926	52.4	69.85	56.65	45.4	59.3	61.4	57.2	59.3	59.2	59.2	59.2	59.2	977.4
1927	42.5	37.8	32.4	37.6	21.9	31.1	25.5	28.8	31.0	36.2	26.8	22.3	366.9
1928	30.7	31.9	21.0	12.2	13.7	15.9	17.9	19.0	20.9	.70	1.73	.35	181.08
*1929	.04	1.55	.27	...	...	...	...	...	...	...	...	...	1.86

* 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.)
Surface clay, soil...	0-5	Yellow sandy clay	60-73	Soft black rock (Tbk)	174-189
Volcanic clinders (Qhb)				Soft red rock (Tbk)	189-205
Rocky Hill	5-11	Black clay (Pa)	73-80	Soft black rock (Tbk)	205-207
Blue sand (Qhb)				Hard black rock	207-220
Rocky Hill	11-25	Gravel (Pa)	107-112	(Tbk)	...
Black soft rock (Qhb)		Gray clay (Pa)	112-170	Soft black rock (Tbk)	220-302
Rocky Hill	25-60	Hard black rock	170-174		

Observations

Bench mark, top of well casing 4 ft. below ground; altitude, 40.23 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	31	30.40	Jan. 2, 1911	31.15
18	29.80	12	29.92	Nov. 3	30.35	31	31.20
25	29.65	20	30.10	7	30.50	16	31.30
Aug. 2	29.60	26	30.35	21	30.80	23	31.40
9	29.59	3	30.40	28	30.90	30	31.50
15	29.62	Oct. 10	30.38	Dec. 12	31.10	Feb. 6	31.65
22	29.50	17	30.55	19	31.10	12	31.75

Observations—Well 37 (Continued)

Date	Head (ft.)	Date	Head (ft.)	Date	Head (ft.)	Date	Head (ft.)
Feb. 20, 1911	31.85	Aug. 12, 1912	29.17	Mar. 29, 1914	28.72	Jan. 23, 1916	30.53
27	32.00	19	29.65	April 5	28.90	30	30.00
Mar. 6	32.00	26	28.92	12	29.00	Feb. 6	31.20
19	32.35	Sept. 2	28.30	19	29.00	13	31.55
20	32.40	9	28.90	26	29.20	20	31.70
27	32.55	16	29.05	May 27	29.31	27	31.90
April 3	32.65	23	28.53	24	28.75	Mar. 5	32.15
10	32.60	30	28.47	31	28.72	12	32.33
17	32.50	Oct. 7	28.35	June 31	28.60	19	32.33
24	32.45	14	28.40	21	28.54	26	32.42
May 1	32.50	21	28.25	28	28.39	30	32.30
8	32.40	28	28.30	July 5	28.32	9	32.20
15	32.20	Nov. 4	28.25	12	28.25	16	32.10
22	32.10	11	28.35	19	28.10	23	32.00
29	32.00	18	28.30	26	27.90	30	31.95
June 5	32.00	25	28.52	Aug. 2	27.85	May 7	32.06
12	31.90	Dec. 2	28.52	7	27.70	14	32.25
19	31.95	9	28.70	16	27.70	21	32.50
26	31.90	16	28.06	23	27.60	28	32.30
July 3	32.00	23	29.15	Sept. 6	27.60	June 4	32.00
10	31.95	30	29.25	13	27.65	11	31.95
17	31.90	Jan. 5, 1913	29.25	20	27.80	18	31.70
24	31.90	12	29.75	27	27.85	25	31.65
Aug. 7	31.70	19	30.15	Oct. 4	28.00	July 2	31.52
14	31.50	26	30.88	11	30.30	9	31.40
21	31.40	Feb. 2	29.15	18	28.15	16	31.20
28	31.30	9	29.07	25	28.10	23	31.10
Sept. 4	31.15	16	29.07	Nov. 1	28.10	30	30.90
11	31.10	23	28.95	8	28.20	Aug. 6	30.80
18	31.10	Mar. 2	28.83	15	28.10	13	30.70
25	31.00	9	28.66	22	28.23	20	30.37
Oct. 2	31.00	23	28.40	30	28.40	27	30.40
9	31.20	31	28.60	Dec. 6	28.52	Sept. 3	30.40
16	31.20	April 7	28.62	13	28.75	10	30.27
23	31.10	14	28.66	20	28.60	17	30.00
30	30.90	20	28.46	27	29.10	24	30.10
Nov. 6	30.90	27	28.30	Oct. 1	29.15	31	30.35
13	30.80	May 4	28.50	Jan. 27, 1915	29.60	8	29.83
20	30.85	11	28.42	17	29.35	15	29.77
27	30.80	18	28.41	24	29.50	22	29.71
Dec. 4	30.85	25	28.66	31	29.40	29	29.63
11	30.90	June 1	28.77	Feb. 7	29.40	Nov. 5	29.70
18	31.10	8	28.82	14	29.35	12	29.82
25	31.10	15	28.95	21	29.35	19	29.83
Jan. 1, 1912	31.35	22	29.00	28	29.40	26	29.80
8	31.45	July 6	29.07	Mar. 7	29.20	Dec. 3	29.94
15	31.45	13	28.57	14	29.20	10	29.95
22	31.55	20	28.72	21	29.10	17	29.74
29	31.60	27	28.55	28	29.10	24	29.30
Feb. 5	31.65	Aug. 3	28.42	April 4	29.00	11	29.05
12	31.60	10	28.25	18	29.10	Jan. 31, 1917	30.48
19	31.48	17	28.15	25	29.15	14	30.75
26	31.40	24	28.20	May 2	29.10	21	30.80
Mar. 5	31.40	Sept. 14	28.20	9	29.00	Feb. 4	31.29
12	31.53	21	28.23	16	29.00	11	31.35
19	31.60	28	28.12	23	28.95	18	31.60
26	31.58	Oct. 5	28.05	30	28.80	25	31.61
Apr. 1	31.50	Oct. 5	27.94	June 13	28.60	Mar. 4	31.69
8	31.40	12	27.80	20	28.58	11	31.69
15	31.20	Nov. 19	27.74	27	27.95	18	31.69
22	31.15	26	28.18	July 4	28.00	Apr. 1	32.09
29	31.15	30	28.35	11	28.46	8	32.20
May 6	30.90	Dec. 7	28.40	18	28.46	15	32.20
13	30.80	14	28.69	Aug. 25	28.45	22	32.25
20	30.60	21	28.60	Sept. 1	28.40	8	32.20
27	30.60	28	28.68	8	28.20	May 6	32.10
June 3	30.50	Jan. 4, 1914	28.65	15	28.10	13	32.08
10	30.38	11	28.60	22	28.00	20	32.00
17	30.20	18	28.67	29	27.90	27	31.90
24	30.00	Feb. 1	28.65	Sept. 6	27.80	June 3	31.83
July 1	29.85	8	28.69	12	27.80	10	31.65
8	29.70	15	28.70	19	27.60	17	31.72
15	29.48	Mar. 1	28.62	26	27.75	24	31.80
22	29.35	12	28.62	Dec. 27, 1916	29.00	July 1	31.35
29	29.25	19	28.62	Jan. 9	29.00	8	31.18
Aug. 5	29.25	26	28.61	16	29.00	22	30.80

Observations—Well 37 (Continued)

Date	Head (ft.)	Date	Head (ft.)	Date	Head (ft.)	Date	Head (ft.)
Aug. 5, 1917	30.60	May 12, 1918	30.34	Feb. 16, 1919	29.55	Nov. 30, 1919	26.72
12	30.45	17	30.40	23	29.40	Dec. 7	26.68
19	30.30	24	30.30	Mar. 2	29.38	14	26.40
26	30.10	June 2	30.20	9	29.35	21	26.63
Sept. 2	29.90	16	30.06	16	28.79	Jan. 4, 1920	26.50
9	29.80	23	30.02	23	28.63	11	26.50
16	29.80	30	30.02	30	28.50	18	26.55
23	29.67	July 23	30.02	6	28.40	25	26.73
Oct. 7	29.34	14	29.82	13	28.30	Feb. 1	26.75
14	29.22	21	29.75	20	28.26	8	26.96
21	29.17	28	29.68	27	28.35	15	26.98
28	29.10	Aug. 4	29.60	May 4	28.28	13	27.04
Nov. 4	28.98	11	29.51	June 24	28.25	22	27.01
11	28.90	18	29.35	29	27.96	29	27.31
18	28.90	Sept. 1	29.50	29	27.75	Mar. 7	26.86
25	29.00	8	29.35	30	27.75	14	26.88
Dec. 2	29.03	15	29.40	July 6	27.66	21	26.78
9	29.12	22	29.23	13	27.57	28	26.92
16	29.30	29	29.20	20	27.57	27	27.10
23	29.30	29	29.15	27	27.41	Apr. 4	27.15
Jan. 30, 1918	29.55	13	29.68	Aug. 2	27.40	18	27.10
6	29.74	20	29.87	10	27.34	25	26.92
13	29.90	27	29.80	17	27.30	May 2	26.76
20	30.00	Nov. 3	28.74	24	27.12	9	26.57
Feb. 27	30.39	17	28.71	Sept. 7	27.03	23	26.43
10	30.39	17	28.64	24	27.00	30	26.40
17	30.35	24	28.42	Dec. 1	26.95	June 6	26.40
Mar. 24	30.50	8	29.25	28	26.84	13	26.30
10	30.40	15	29.45	Oct. 5	26.80	20	26.30
17	30.40	22	29.68	12	26.90	July 27	26.35
Apr. 7	30.50	Jan. 5, 1919	29.88	19	26.94	Apr. 4	26.31
14	30.50	12	29.87	26	26.88	13	26.28
21	30.50	19	29.83	Nov. 2	26.87	23	26.22
28	30.51	Feb. 2	29.80	16	26.87	Aug. 1	26.10
May 5	30.58	9	29.60	23	26.75	8	26.00

Observations—Well 37 (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.)
Aug. 15, 1920	25.98	48.4	April 17, 1921	28.68	49.0	Dec. 11, 1921	27.10	.....
22	26.00	.....	May 24	28.69	49.0	18	27.29	.....
29	25.88	.....	1	28.68	48.0	25	27.50	.....
Sept. 5	25.78	47.0	15	28.69	48.0	Jan. 1, 1922	27.43	.....
12	25.70	47.0	22	28.68	48.0	8	27.60	.....
19	25.70	47.0	29	28.68	48.0	15	27.71	.....
Oct. 26	25.64	47.0	June 5	28.65	48.0	22	27.87	.....
3	25.60	47.0	12	28.68	49.0	Feb. 5	28.13	.....
10	25.55	47.0	19	28.68	49.0	12	28.32	.....
17	25.50	46.6	26	28.10	.....	19	28.38	.....
24	25.55	46.8	29	28.10	46.5	26	28.38	.....
Nov. 1	25.55	46.8	July 3	28.10	47.2	Mar. 5	28.39	.....
8	25.48	46.1	10	28.10	47.1	12	28.40	.....
15	25.58	46.7	17	27.90	.....	19	28.49	.....
22	25.68	46.7	24	27.80	.....	26	28.42	.....
Dec. 5	25.81	46.7	31	27.60	.....	Apr. 2	28.81	.....
12	25.81	46.7	Aug. 7	27.60	.....	9	28.33	.....
19	25.81	46.0	14	27.60	.....	16	28.25	.....
26	25.99	45.0	21	27.10	.....	23	28.25	.....
Jan. 2, 1921	26.20	46.0	Sept. 28	27.00	.....	29	28.00	.....
9	26.00	.....	5	27.00	.....	12	27.18	.....
16	26.02	.....	11	26.80	.....	19	27.86	.....
23	27.31	47.0	18	26.60	.....	21	27.77	.....
30	27.55	46.5	25	26.70	.....	28	27.50	.....
Feb. 6	27.83	47.0	Oct. 2	26.75	.....	June 4	27.52	.....
13	27.95	46.2	9	26.80	.....	11	27.55	.....
20	28.20	46.5	16	26.80	.....	18	27.14	.....
Mar. 27	28.22	46.4	23	26.85	.....	25	27.30	.....
6	27.75	46.4	30	26.80	.....	2	26.97	.....
13	28.60	47.0	Nov. 6	27.10	.....	9	26.95	.....
20	28.59	43.6	13	27.10	.....	16	26.69	.....
27	28.59	44.9	20	27.02	.....	23	26.63	.....
Apr. 3	28.62	44.1	27	27.20	.....	30	26.32	.....

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.)
Aug. 13, 1922	26.18	.....	June 22, 1924	27.60	48.5	Dec. 13, 1925	25.10	47.4
20	26.12	.....	27	27.40	46.5	19	25.30	51.3
27	26.04	.....	July 6	27.10	46.5	27	25.30	48.8
Sept. 2	25.97	.....	13	27.00	46.5	Jan. 2, 1926	25.23	.....
10	26.10	.....	20	26.60	48	10	25.50	.....
17	26.20	.....	27	26.50	.....	17	25.50	.....
24	26.21	.....	3	26.30	44	24	25.50	.....
Oct. 1	26.20	.....	10	26.10	47.5	31	25.42	.....
8	26.22	.....	17	26.00	47.5	Feb. 7	25.38	.....
15	26.23	.....	24	25.90	47.5	14	25.30	.....
22	26.28	.....	31	25.70	48	21	25.25	.....
Nov. 5	26.35	.....	Sept. 7	25.60	48	28	25.08	.....
12	26.48	.....	14	25.50	49	Star. 7	25.00	.....
19	26.49	.....	21	25.40	.....	14	25.08	.....
Jan. 7, 1923	26.54	.....	28	25.45	49	24	25.00	.....
14	26.61	.....	Oct. 5	25.35	50.5	28	24.92	.....
21	26.90	.....	12	25.50	.....	4	24.83	.....
28	27.22	.....	19	25.50	.....	11	24.67	.....
Feb. 4	27.37	.....	26	25.60	44	18	24.67	.....
11	27.65	.....	Nov. 2	25.60	.....	25	24.50	.....
18	27.75	.....	9	25.70	.....	May 2	24.50	.....
Mar. 13	30.80	.....	23	25.80	.....	9	24.33	.....
20	30.80	.....	30	25.90	44	16	24.33	.....
27	30.80	.....	Dec. 7	25.90	46	23	24.17	.....
June 3	30.80	.....	14	25.90	45	30	24.17	.....
10	29.60	.....	23	26.20	.....	June 6	24.08	.....
17	29.40	.....	30	26.30	.....	13	24.17	.....
24	29.10	.....	Jan. 4, 1925	26.50	.....	July 27	.....	.....
July 1	29.10	.....	11	26.70	.....	Aug. 29	45	.....
8	29.60	.....	18	26.80	47	Oct. 30	48	.....
15	29.40	.....	25	26.90	48	Nov. 30	46	.....
Aug. 12	29.04	.....	Feb. 1	26.90	47	Dec. 30	45	.....
19	27.98	.....	8	26.90	47	Jan. 30, 1927	46	.....
26	27.80	49.3	15	26.90	.....	Mar. 13	25.60	.....
Sept. 2	27.80	50.0	22	26.90	.....	20	25.60	.....
9	.....	49.0	Mar. 1	26.70	.....	27	25.60	.....
16	27.50	48.3	8	26.60	.....	April 3	25.50	.....
23	27.40	47.0	15	26.40	.....	10	25.50	.....
Oct. 7	27.40	49.2	22	26.40	48	17	25.00	.....
14	27.20	.....	29	26.40	48	May 1	25.90	.....
21	27.10	46.0	Apr. 5	26.40	47	8	25.90	.....
28	27.00	45.0	12	26.50	47	15	25.90	.....
Nov. 4	27.00	47.0	19	26.50	.....	22	25.90	.....
11	27.00	46.1	May 3	26.50	46	29	25.90	.....
18	26.90	48.2	10	26.30	.....	June 5	25.90	.....
25	26.90	48.1	17	26.30	47.5	12	25.90	.....
Dec. 2	27.00	49.7	24	26.10	50	19	25.80	.....
9	27.00	47.8	Jan. 31	26.60	49	26	25.80	.....
16	27.00	47.3	7	26.90	47	July 3	25.80	.....
23	27.30	47.5	14	26.70	.....	10	25.80	.....
30	27.50	47.1	21	26.50	.....	17	25.80	.....
Jan. 6, 1924	49.1	.....	28	26.40	.....	24	25.80	.....
13	.....	47.5	July 5	25.20	.....	Aug. 7	25.80	.....
20	.....	47.0	12	25.20	.....	14	25.80	.....
Feb. 3	28.40	47.8	19	25.20	.....	21	25.80	.....
10	28.30	48.3	Aug. 26	25.10	.....	28	25.80	.....
17	28.40	47.0	9	25.10	.....	Sept. 18	25.80	.....
24	28.10	48.5	16	25.10	.....	Oct. 9	25.80	.....
Mar. 2	28.20	46.5	23	25.00	.....	16	25.80	.....
9	28.10	48.0	30	25.10	.....	23	25.80	.....
16	27.70	.....	Sept. 6	25.10	.....	30	25.80	.....
23	27.50	47	13	25.10	44	Oct. 7	25.80	.....
30	27.40	48	20	25.10	44	Nov. 4	25.80	.....
Apr. 6	27.50	46	Oct. 4	24.80	51	Dec. 1	25.80	.....
13	27.70	47	8	24.70	.....	Jan. 8, 1926	25.80	.....
20	27.80	.....	15	24.70	.....	15	25.80	.....
27	27.80	.....	22	24.60	.....	22	25.80	.....
May 4	28.10	46.5	Nov. 5	24.50	.....	29	25.80	.....
11	28.30	45.5	Nov. 12	24.70	.....	Dec. 6	25.80	.....
18	28.30	47	19	24.70	.....	13	25.80	.....
25	28.20	47	15	24.70	.....	20	25.80	.....
June 1	28.00	47	19	24.90	.....	27	25.80	.....
8	27.80	48	26	24.90	.....	Jan. 15, 1928	25.10	.....
15	27.70	.....	Dec. 6	25.10	.....	Feb. 1	25.30	.....

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.)
Mar. 11, 1928	29.95	43	Sept. 1, 1929	26.10	.....	Mar. 2, 1931	29.92	.....
15	29.95	44	15	26.00	.....	15	29.92	.....
18	29.95	44	20	26.00	40	22	29.90	.....
25	30.00	44	27	26.15	.....	29	29.45	.....
April 1	30.30	44	Oct. 6	26.05	.....	19	29.00	.....
8	30.40	44	13	26.15	.....	26	29.00	.....
15	30.30	44	20	26.15	.....	29	29.00	.....
22	30.20	44	27	26.15	.....	May 10	28.80	.....
29	30.20	44	Nov. 3	26.35	.....	18	28.50	.....
May 29	30.20	44	10	26.40	.....	24	28.40	.....
13	30.20	44	17	26.80	.....	June 4	41.0	.....
20	30.20	44	24	27.15	.....	11	28.30	.....
June 3	29.90	43	Dec. 1	27.35	.....	14	28.40	.....
10	29.70	43	8	27.35	.....	21	28.35	.....
17	29.70	43	15	27.60	45	28	28.20	.....
24	29.50	44	22	27.70	.....	July 7	28.50	.....
July 8	29.10	43	29	28.90	.....	14	28.40	.....
15	29.10	43	Jan. 5, 1930	28.25	.....	21	28.35	.....
22	29.10	43	12	28.55	.....	28	28.20	.....
Aug. 29	29.00	45	19	28.78	.....	Aug. 2	27.10	.....
12	29.00	45	26	29.00	.....	9	27.00	.....
19	29.40	44.5	Sept. 2	29.10	.....	16	26.90	.....
26	28.70	44.5	9	29.20	.....	23	27.00	.....
Sept. 2	28.75	45	16	29.20	.....	30	27.10	.....
9	28.80	45	23	29.27	.....	Sept. 6	27.2	.....
16	28.90	45	Mar. 2	29.50	.....	13	27.4	44.5
23	29.10	44	9	29.55	.....	20	27.5	.....
Oct. 30	28.85	43	16	29.60	.....	27	27.6	.....
Nov. 6	28.75	45	23	29.65	.....	Oct. 4	27.7	.....
13	28.60	44	30	29.55	.....	11	27.8	.....
20	28.45	43	Apr. 6	29.60	.....	18	27.9	.....
27	28.40	44	13	29.70	.....	25	27.9	.....
Nov. 4	28.35	43.5	20	29.80	.....	Nov. 1	28.0	.....
11	28.28	43.5	27	29.75	.....	8	28.2	.....
18	28.65	43.5	May 18	29.70	.....	15	28.3	.....
25	28.75	44	25	29.20	.....	22	28.4	.....
Dec. 2	29.00	44	June 1	29.10	.....	29	28.7	.....
9	29.10	43.5	8	28.95	41.2	Dec. 6	28.7	.....
16	29.25	43	15	28.90	.....	13	28.8	.....
23	29.30	43	22	28.85	.....	20	28.9	.....
Jan. 30	29.40	43.5	29	28.80	.....	Jan. 10, 1932	29.2	.....
Feb. 6, 1929	29.45	43	July 29	28.75	.....	17	29.15	.....
13	29.43	43.5	13	28.60	.....	24	29.2	45.8
20	29.40	45.0	20	28.50	.....	Apr. 9	31.85	.....
27	29.35	44.5	27	28.45	.....	16	31.80	.....
Mar. 6	29.35	44.5	Aug. 3	28.00	.....	24	31.85	.....
13	29.35	44	10	27.90	.....	May 1	31.10	.....
20	29.40	44	17	27.90	.....	8	32.00	.....
27	29.50	44	24	27.90	.....	15	32.15	.....
Apr. 3	29.50	44	31	28.10	.....	22	32.25	.....
10	29.60	44.5	Sept. 6	.....	41.0	June 12	33.3	.....
17	29.65	44	7	28.70	.....	19	33.1	.....
24	29.50	44	14	28.10	.....	26	32.0	.....
31	29.42	44.5	21	28.30	.....	July 3	35.0	.....
May 7	29.45	44.5	28	28.60	.....	Oct. 10	32.0	.....
14	29.40	.....	Oct. 5	28.85	.....	17	31.9	.....
21	29.25	.....	12	29.00	.....	24	31.9	.....
28	29.20	.....	19	29.20	.....	31	31.85	.....
May 5	29.15	.....	26	29.40	.....	Aug. 7	31.85	.....
12	29.10	.....	Nov. 2	29.50	.....	14	31.90	.....
19	28.95	.....	9	29.60	.....	21	31.60	.....
26	28.50	.....	16	29.65	.....	28	31.83	41.0
June 2	28.70	.....	23	29.70	.....	Sept. 4	31.80	.....
9	28.90	.....	30	29.70	.....	11	31.70	.....
16	28.90	.....	7	29.80	.....	18	31.50	.....
23	28.70	.....	14	30.00	.....	Oct. 9	31.50	.....
30	28.70	.....	21	30.10	.....	16	31.40	.....
July 7	28.70	.....	28	30.30	.....	23	31.40	.....
14	28.70	.....	Jan. 4, 1931	30.30	.....	30	31.40	.....
21	28.55	.....	11	30.35	.....	Nov. 29	31.45	.....
28	28.50	.....	18	30.50	.....	Dec. 1	31.73	.....
Aug. 4	28.30	.....	25	30.70	.....	8	31.95	.....
11	28.60	.....	Feb. 8	30.00	.....	15	31.95	.....
18	28.60	.....	15	30.00	.....	Jan. 15, 1933	32.10	.....
25	28.60	.....	19	30.00	.....	Feb. 1	32.30	.....

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	.....	Nov. 30	29.30	.....	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	28.60	.....
Sept. 1	29.20	.....	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	1.2	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	.9	.....	.....	.....	.....	.....	.....	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	1.22	1.25	1.15	1.47	1.50	1.58	18.07
1931	1.00	.04	1.70	1.09	1.07	1.02	1.04	1.47	1.44	1.94	1.09	1.30	16.00
1932	1.08	1.35	1.46	1.45	1.36	1.33	1.22	.66	.84	1.70	1.74	1.41	16.23
1933	1.47	1.29	1.46	1.49	2.07	1.67	1.68	1.84	2.37	3.07	2.49	1.88	22.38
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	22.66

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. Recased twice from 6 in.

Log

	Depth (ft.)		Depth (ft.)
Clay (Ra)	0-10	Hard lava (Tbk); or possibly an early post-Koolaa 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 (Tbk)	250-295
Water	290		

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	29.99	.....
Nov. .. 1882	42.6	.....	June 1	35.2	.....	.....	29.38	.....
Jan. .. 1883	42.3	.....	.....	1910	.....	June 19, 1934	27.14	.....
Mar. .. 1883	42.0	.....	Mar. 21, 1924	47.6	.....	Dec. 11	27.18	39.3
June .. 1883	41.0	.....	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
1890								0.00	0.00	0.00	0.00	0.00	0.00
1930							0.01	0.01	0.02	0.03	0.03	0.03	0.13

* 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 (Ra and probably some Qhb)	0-20	Light colored clay (Pa)	55-80	Clay (Pa)	142-146
Blue clay (Pa)	20-30	Bedders and clay (Pa)	80-95	Brown clay (Pa)	145-169
Bedders and clay (Pa)	30-55	Brown clay (Pa)	95-120	Sand and gravel (Pa)	160-170
Bedrock and water (Qhb, Rocky Hill)	.....	Coral and clay (Pls and Pa)	120-135	Bedrock and water (Tbk)	170-213

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. .. 1899	35.39	Oct. .. 1900	33.19	May .. 1902	33.85	Oct. .. 1903	33.30
May .. 1899	35.26	Nov. .. 1900	33.00	June .. 1902	33.50	Nov. .. 1903	33.34
June .. 1899	35.10	Dec. .. 1900	34.00	July .. 1902	33.40	Dec. .. 1903	33.40
July .. 1899	34.60	Jan. .. 1901	34.00	Aug. .. 1902	33.10	Jan. .. 1904	33.93
Aug. .. 1899	34.40	Feb. .. 1901	34.37	Sept. .. 1902	32.55	Feb. .. 1904	34.80
Sept. .. 1899	34.20	Mar. .. 1901	34.30	Oct. .. 1902	32.95	Mar. .. 1904	35.85
Oct. .. 1899	34.20	Apr. .. 1901	34.00	Nov. .. 1902	33.00	Apr. .. 1904	36.30
Dec. .. 1899	34.85	June .. 1901	32.85	Dec. .. 1902	34.57	May .. 1904	35.86
Jan. .. 1900	34.25	July .. 1901	33.40	Jan. .. 1903	35.06	June .. 1904	35.40
Feb. .. 1900	34.05	Sept. .. 1901	33.20	Feb. .. 1903	35.25	Jan. .. 1905	31.30
Mar. .. 1900	33.75	Oct. .. 1901	33.10	Mar. .. 1903	34.85	Feb. .. 1910	31.30
Apr. .. 1900	34.50	Nov. .. 1901	33.50	Apr. .. 1903	34.75	Mar. .. 1910	30.85
May .. 1900	33.60	Dec. .. 1901	34.05	May .. 1903	34.65	April .. 1910	30.50
June .. 1900	33.53	Jan. .. 1902	33.95	June .. 1903	34.18	May .. 1910	29.75
July .. 1900	33.28	Feb. .. 1902	33.80	July .. 1903	33.80	June .. 1910	29.70
Aug. .. 1900	32.90	Mar. .. 1902	34.05	Aug. .. 1903	33.50	Aug. 20, 1926	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	14.1
1909	1.2	1.0	.8	1.1	1.7	1.8	.9	1.8	1.6	1.5	1.6	.8	15.8
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, Pusake. Drilled, 1882, by Cooke & Peddler. Altitude, 10 ft. Depth, 730 ft.

41 (old 61). 1827 Dole St., Honolulu. Owner, Lai Hwee Soon. Drilled, 1885. Altitude, 30 ft. Depth, 260 ft. Diameter, 6 in. Depth to top of aquifer, 250 ft. Casing, 181 ft. Sealed, June 1929.

Log

	Depth (ft.)		Depth (ft.)
Soil (Ra and probably some Qhb)	0-28	Soil (Pa)	38-250
Coral (Pls)	28-38	Water-bearing rocks (Tbk)	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, 1921	28.99
Aug. 13, 1916	40.84	Oct. 15	29.94	Dec. 3	30.04	Feb. 7	28.95
Aug. 20	30.67	Oct. 22	29.83	Dec. 10	30.18	Feb. 14	28.85
Aug. 29	30.69	Oct. 29	29.72	Rev. 1, 1920	27.60	Feb. 21	28.89
Sept. 17	30.30	Nov. 5	29.94	Mar. 22, 1924	27.86	Feb. 27	29.00
Sept. 24	30.22	Nov. 12	29.93	July 19, 1926	24.18	Mar. 2	28.98
Oct. 1	30.94	Nov. 19	29.96	Jan. 20, 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. Vakavis, June 4, 1929.

Depth (ft.)	Revolutions per minute	Depth (ft.)	Revolutions per minute	Depth (ft.)	Revolutions per minute
100	78	177	64	187	.....
120	98	179	52	189	.....
140	100	180	40	190	.....
160 (end of casing)	109	183	53	242 (meter jammed)	.....
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. 22, 1910	39.91	.....	Nov. 12	29.89	.....	Feb. 18, 1930	29.12	.....
Aug. 30	30.47	.....	Nov. 19	29.88	.....	.....	.....	48.0
Sept. 5	30.35	.....	Nov. 26	29.94	.....	Mar. 2, 1931	29.88	51.3
Sept. 11	30.30	.....	Dec. 3	30.00	.....	Sept. 9	27.32	.....
Sept. 18	30.27	.....	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	29.86	.....	Feb. ..	29.86	.....	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	29.79	.....	Mar. 20	28.30	.....			
Oct. 29	29.69	.....	July 19, 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								.01	.006	.006	.006	.006	.04
1930		.03	.03	.03	.06	.06	.05	.03	.03	.03	.03	.03	.47
1931		.06	.06	.06	.06	.02	.02	.02	.02	.02	.02	.02	.44
1932		.02	.03	.03	.03	.01	.01	.01	.01	.01	.01	.01	.21
1933		.03	.02	.03	.02	.03	.03	.03	.03	.03	.03	.03	.34
1934		.03	.03	.03	.03	.03	.02	.02	.03	.03	.03	.03	.33

43 (old 56). On east side of McCully St. between Coyne Ave. and Detritan 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, 1315 McCully St., 2 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	.....	May ..	28.90	.....	Sept. 9	27.24	.....
Feb. ..	29.75	.....	Aug. 19	26.30	.....	Sept. 17	.....	49.6
Aug. .. 1923	29.59	.....	Dec. 26, 1929	29.30	.....	Sept. 27, 1932	29.34	51.2
Sept. ..	27.72	.....	Jan. .. 1925	26.80	.....	Aug. 22	31.70	51.2
Nov. ..	27.26	.....	July 19, 1926	24.17	57.5	June 19, 1934	.....	61.5
Dec. ..	27.40	.....	Sept. 26, 1929	29.30	49.7	Dec. 11	38.68	51.3
Jan. .. 1924	27.50	.....	Feb. 18, 1930	29.20	.....			
	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								.003	.003	.003	.003	.003	.011
1930		.009	.009	.009	.03	.01	.02	.02	.02	.02	.02	.02	.107
1931		.03	.03	.03	.03	.03	.02	.02	.03	.03	.02	.02	.21
1932		.02	.02	.02	.02	.02	.02	.02	.02	.02	.02	.02	.09
1933		.02	.01	.02	.02	.02	.02	.02	.02	.02	.02	.02	.15

* 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. .. 1912	28.49	57	Oct. .. 1914	28.08	58
May ..	30.24	.....	Nov. ..	28.65	59	Nov. ..	28.61	59
June ..	29.50	56	Dec. ..	29.24	58	Dec. ..	29.49	60
Oct. ..	30.40	.....	Jan. .. 1913	29.24	58	Jan. .. 1915	29.50	60
Nov. ..	31.03	.....	Feb. ..	28.84	58	Feb. ..	29.52	59
Jan. .. 1911	31.45	.....	Mar. ..	28.60	54	Mar. ..	29.16	60
Feb. ..	32.40	.....	April ..	28.38	57	Apr. .. 1923	28.06	.....
Mar. ..	32.64	.....	May ..	28.55	58	Nov. 9	27.40	.....
Apr. ..	32.50	.....	June ..	28.93	58	Mar. 20, 1924	28.30	61.8
June ..	31.95	.....	July ..	28.52	58	Aug. ..	26.20	.....
July ..	31.96	.....	Aug. ..	28.30	59	Dec. ..	26.20	.....
Aug. ..	31.48	.....	Sept. ..	28.01	59	June 16, 1926	24.27	69.0
Sept. ..	31.20	.....	Nov. ..	28.37	60	Nov. .. 1929	.....	.....
Oct. ..	31.28	.....	Dec. ..	28.78	58	Sept. 26	25.93	53.1
Jan. 1912	31.85	.....	Jan. .. 1914	28.60	58	Feb. 18, 1930	28.87	.....
Feb. ..	31.45	55	Feb. ..	28.75	58	Sept. ..	28.87	.....
Mar. ..	31.60	57	Mar. ..	28.84	58	Mar. 2, 1931	29.75	53.0
April ..	31.16	57	April ..	29.10	58	Sept. 9	27.07	.....
May ..	30.61	59	May ..	28.78	59	Sept. 17	31.83	.....
June ..	29.65	57	June ..	28.51	59	Jan. 27, 1932	29.09	.....
July ..	29.25	57	July ..	28.00	.....	Aug. 22	31.67	53.0
Aug. ..	28.98	57	Aug. ..	27.88	.....	June 19, 1934	28.61	54.7
Sept. ..	28.40	59	Sept. ..	26.19	.....	Dec. 11	28.50	54.7

Discharge in millions of gallons

Year	Jan.	Feb.	Mar.	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Total
1929								.003	.003	.003	.003	.003	.015
1930		.009	.009	.03	.01	.02	.03	.01	.03	.03	.03	.03	.207
1931		.06	.06	.06	.06	.02	.02	.02	.02	.02	.02	.02	.267
1932		.02	.03	.03	.03	.03	.03	.03	.03	.03	.02	.02	.22
1933		.02	.02	.03	.02	.03	.05	.05	.05	.03	.03	.03	.41
1934		.05	.03	.03	.03	.03	.02	.02	.02	.03	.03	.03	.33

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 sitting 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	55.54	61.4	Jan. 27, 1932	.....	51.2
Jan. 13, 1929	27.75	.....	Feb. 18, 1930	55.12	.....	Aug. 22	31.87	51.3
Mar. 20, 1924	27.94	54.9	Sept. ..	51.4	.....	June 19, 1934	28.60	54.7
July 13, 1929	24.28	55.0	Mar. 2, 1931	29.85	53.0	Dec. 11	28.55	54.7
Feb. 27, 1928	29.94	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.)
July .. 1882	42.92	Sept. 1, 1883	40.62	Jan. .. 1884	39.75
Aug. ..	42.88	Sept. 26	40.29	Feb. ..	39.65
Oct. ..	42.60	Oct. ..	40.17	Mar. ..	39.54
May .. 1883	41.94	Nov. ..	40.04	Apr. 1	39.54
Aug. ..	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	
Sandy clay (Pa)	10-15	Clay (Pa)	180-205	Pa and sand	
Black sand (Qtz)	30-50	Black clay (Pa)	205-230	some Pis)	260-270
Clay (Pa)	50-60	Corall (Pis)	230-240	Sand and gravel (Pa)	270-280
Corall (Pis)	60-70	Brown clay (Pa)	240-250	Black lava rock	
Clay (Pa)	70-105	Blue clay (Pa)	260-260	(Tbb)	280-290
Corall (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.)		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	Corall and clay (Pis and Pa)	120-135		
Boulders and clay (Pa)	30-55	Corall (Pis)	135-145		
Light clay (Pa)	55-80	Brown clay (Pa)	145-160		
Boulders (Pa)	80-85	Sand and gravel (Pa)	160-170		
		Dredge and water rock (Tbb)	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.)
Aug. 13, 1916	30.75	Oct. 1, 1916	30.06	Nov. 12, 1916	29.96
Aug. 27	30.57	Oct. 8	30.00	Nov. 26	30.00
Sept. 3	30.41	Oct. 15	29.94	Dec. 3	30.04
Sept. 19	30.37	Oct. 22	29.85	Dec. 10	30.29
Sept. 17	30.34	Oct. 29	29.79	Nov. 16, 1923	27.29
Sept. 24	30.24	Nov. 5	30.04	Mar. 24, 1924	27.83

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

Well 55 (Continued)

Meter tests
Test 1—Oct. 25, 1932. An 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	170	165	203	325	87
131	45	175	162	329	69
131	42	180	69	335	62
133	46	185	80	339	66
149	33	189	60	350	66
145	46	194	96	360	44
150	38	200	87	375	39
155	70	204	86	380	9
160	51	210	86	385	0
175	78	214	93	387.4	0
175	72	219	88		

Test 2—Oct. 31, 1932.

130	0	170	75	230	90
132	36	179	69	240	84
135	53	180	47	249	84
140	42	185	94	250	63
144	45	190	90	255	72
145	42	195	78	260	33
145	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	278.5-290	0
165	80	225	88	295.1 (landed)	0

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

150-132	0	160	69	230	60
152	45	170	69	240	59
153	51	179	81	250	54
154	50	180	80	259	26
155	50	190	76	265	57
149	44	200	78	270	46
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. No velocity recorded, indicating that well was effectively sealed. Nov. 3, 1932.

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 Kalakaau Ave. Owner, Miss M. F. Rawlins. Drilled, 1882, by Fessier. Altitude, 28 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.

No flow from top of well during test. Head 0.66 ft. below normal for area. An 3-in. deep-well meter used. Readings by E. N. Yaksiv. Nov. 10, 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	51	275	48
148	19	237	50	282	48
149	31	238	52	285	47
150	34	240	51	288	0
160	43	245	53	290	0
165	45	250	52	299.7	0
175	50	255	58	299.7 (meter landed)	0

RECORDS OF DRILLED WELLS ON OAHU

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 fitting 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.)
Jan. 31, 1919	29.75	62	Mar. 27, 1929	25.30	58.2	Sept. 12, 1931	26.76	54.7
Aug. 23, 1923	28.03	62	Sept. 27	25.30	56.6	Sept. 17	29.19	56.4
Mar. 20, 1924	28.55	62	Oct. 20	25.30	56.4	Jan. 28, 1932	29.19	56.4
July 15, 1926	28.18	64	Feb. 18, 1930	28.10	58.1	Aug. 26	31.50	54.7
Feb. 27, 1920	29.57	64	May 8	29.54	58.1	June 19, 1934	28.37	58.1
			Mar. 7, 1934	29.54	58.1	Dec. 11	28.50	58.4

Discharge in millions of gallons

Year	Jan.	Feb.	Mar.	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Total
1929	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
1930	.. .09	.. .08	.. .09	.. .09	.. .09	.. .09	.. .09	.. .02	.. .02	.. .02	.. .02	.. .13	.....
1931	.. .25	.. .23	.. .25	.. .24	.. .25	.. .18	.. .19	.. .19	.. .18	.. .19	.. .18	.. .19	2.52
1932	.. .19	.. .03	.. .03	.. .03	.. .03	.. .03	.. .03	.. .03	.. .03	.. .03	.. .03	.. .03	.. .52
1933	.. .09	.. .03	.. .03	.. .03	.. .03	.. .03	.. .03	.. .03	.. .03	.. .03	.. .03	.. .03	.. .47
1934	.. .03	.. .03	.. .03	.. .03	.. .03	.. .03	.. .03	.. .03	.. .03	.. .03	.. .03	.. .03	.. .36

59 (old 5½). Near corner of King St. and Kalakaua Ave., Honolulu. Owner, H. 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)	300-320
Coral (Pla)	60-97	changed to blue clay with decomposed wood (Pa)	Blue rock (Tbb)	320-340
Rocky (Hill)	97-107		Flowing water	350
Coral (Pla)	107-200		Rock (Tbb)	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.)
Aug. 20, 1916	30.51	.....	Nov. 5, 1916	29.80	.....	Sept. 26, 1929	25.74	59.1
Aug. 27	30.49	.....	Nov. 12	29.83	.....	Feb. 18, 1930	29.36	55.0
Sept. 2	30.34	.....	Nov. 19	29.88	.....	Sept. 1	29.89	54.7
Sept. 10	30.40	.....	Nov. 26	29.86	.....	Mar. 2, 1931	29.36	55.0
Sept. 17	30.23	.....	Dec. 3	29.91	.....	Sept. 9	26.70	51.3
Sept. 24	30.17	.....	Dec. 10	30.04	.....	Sept. 17	29.08	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	53.2
Oct. 22	29.77	.....	Oct. 15	28.22	.....	Dec. 11	28.75	53.2
Oct. 29	29.68	.....	Mar. 7, 1920	25.31	.....			

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	.. .19	.. .16	.. .15	.. .13	.. .14	197.7
1931	.. .16	.. .17	.. .18	.. .17	.. .17	.. .18	.. .14	.. .15	.. .16	.. .15	.. .13	.. .14	226.0
1932	.. .25	.. .23	.. .25	.. .20.9	.. .20.3	.. .18.2	.. .23.5	.. .25.4	.. .21.6	.. .18.5	.. .14.5	.. .15.5	260.3
1933	.. .15.2	.. .12.4	.. .13.1	.. .14.9	.. .15.6	.. .13.4	.. .11.6	.. .14.0	.. .15.3	.. .12.6	.. .14.4	.. .13.3	161.9
1934	.. .13.9	.. .12.6	.. .13.7	.. .11.3	.. .12.9	.. .4.5	.. .4.6	.. .9.2	.. .7.7	.. .9.22	.. .8.64	.. .7.81	115.30

RECORDS OF DRILLED WELLS ON OAHU

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	42.7	.....	Mar. 7, 1929	61.7	.....	Jan. 17, 1932	63.3	.....
Jan. 31, 1919	29.91	.....	Sept. 26	24.05	.....	Feb. 17	63.3	.....
Sept. 7, 1923	27.47	.....	Feb. 18, 1930	27.55	.....	Feb. 20	29.09	61.4
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	.....	66.4			

Leaking.

Meter tests

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

Depth (ft.)	Revolutions per minute	Depth (ft.)	Revolutions per minute	Depth (ft.)	Revolutions per minute
14	0	204	29	364	58
54	0	214	29	374	56
84 (leak)	0	224	29	379	50
94	10	234	29	384	78
104	9	254	24	389	102
114	9	264	26	394	192
124	12	274	26	399	128
134	21	284 (leak)	32	404	156
144	24	294	40	409	148
154	29	304	35	414	152
164	28	314	34	419	146
174	29	324	32	420	130
184	26	334	32	420.5	58
194	28	339	34	420.5 (meter at bot.)	
204	29	344	42	low or obstructed	
214	28	349 (leak)	50	tion)	
224	29	354	57		
	29	359	56		

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. An 3-in. deep-well meter used. Readings by K. N. Vaskiv, Feb. 25, 1932.

Depth (ft.)	Revolutions per minute	Depth (ft.)	Revolutions per minute
245	12	385 (below end of casing)	0
265	15	395	2
275	15	390	406 (top of iron fill)

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. Vaskiv, Mar. 1, 1932.

Depth (ft.)	Revolutions per minute	Depth (ft.)	Revolutions per minute
100-380	0	387	80
386 (leak; below end of casing)	0	388	94
387	0	389	110
388	73	390	129
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 neat cement had been deposited at bottom. Au 3-in. deep-well meter used. Readings by K. N. Vaskiv, Mar. 3, 1932.

Depth (ft.)	Revolutions per minute	Depth (ft.)	Revolutions per minute
97.4-277.4	0	287.4	114
382.4 (leak; below end of casing)	22	393.4	86
		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. Vaskiv, Mar. 4, 1932.

Depth (ft.)	Revolutions per minute	Depth (ft.)	Revolutions per minute
34	0	294	12
64	0	254	12
104	0	304	14
124	0	304.5	10
129	3	374	10
134	12	384 (leak; below end of casing)	10
144	11	399 (top of fill)	3
154	10	389	80

Test 6. No water flowing from top 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. Vaskiv, Mar. 5, 1932.

Depth (ft.)	Revolutions per minute	Depth (ft.)	Revolutions per minute
25	0	95	0
30 (leak)	0	110.5	5
39	1	119	9
55	5	130	0
65	4	135 (leak)	3
75	4 1/2	140	9
85	4	145	9
200 (leak)	5	152	8 1/2

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. Vaskiv, 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 45 ft. the flow from the hose stopped and the nearly all discharge from hose overflowed 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. Vaskiv, Mar. 7, 1932.

Discharge in millions of gallons

Year	Jan.	Feb.	Mar.	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Total
1929	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	1.8
1930	.3	.3	.3	.3	.3	.3	.3	.3	.3	.3	.3	.3	3.6
1931	.3	.3	.3	.3	.3	.3	.3	.3	.3	.3	.3	.3	3.6
1932	.03	.03	0	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. 1, 1929	.....	54.8	Sept. 9	27.39	.....
July 19, 1926	28.26	61.5	Sept. 26	.....	53.9	Aug. 11	27.3	.....
Nov. 18	.....	60	Feb. 18, 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. Vaskiv, Oct. 30, 1928.

Depth (ft.)	Revolutions per minute	Depth (ft.)	Revolutions per minute
18-398	0	428	14
408 (end of casing)	13	438	9
409	18	448	10
418	26	458	19

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
50-445	0	470	20
445 1/2	21	475	15
446	21	500	20
450	18	510	15

Test 3. Nov. 16, 1932.

Depth (ft.)	Revolutions per minute	Depth (ft.)	Revolutions per minute
50-437	0	465	18
438	10	470	21
439	21	475	15
440	22	480	20
445	18	490	22
450	15	495	21
455	12	500	18

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

Depth (ft.)	Revolutions per minute	Depth (ft.)	Revolutions per minute
435	0	442	16
437	0	445	15
438	8	447	15
441	7	450	10
445	0	452	10
446	0	455	8
447	9	457	9
449	18	460	8

Test 5. Test made after well filled with 105 ft. of cement. No velocity recorded, indicating that well is effectively sealed. Nov. 23, 1932.

Discharge in millions of gallons

Year	Jan.	Feb.	Mar.	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Total
1929	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	4.0
1930	.6	.6	.6	.6	.6	.6	.6	.6	.6	.6	.6	.6	7.2
1931	.6	.6	.6	.6	.6	.6	.6	.6	.6	.6	.6	.6	7.1
1932	.6	.6	.6	.6	.6	.6	.6	.6	.6	.6	.6	.6	6.3

* Scaled 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 .. 1916	30.27	.....	Nov. 4	29.89	.....	Mar. .. 1929	.....	51.4
Aug. 23, 1916	30.64	.....	Nov. 13	29.90	.....	Sept. 26	25.74	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	29.37	.....
Sept. 18	30.28	.....	Dec. 11	30.11	.....	Sept. 9	27.51	.....
Sept. 25	30.19	.....	Oct. .. 1919	28.68	.....	Sept. 18	.....	47.9
Oct. 1	30.01	.....	Aug. 24, 1923	28.08	.....	Jan. 28, 1932	29.26	51.3
Oct. 9	29.93	.....	Mar. 21, 1924	.....	54.9	Aug. 22	31.74	47.9
Oct. 16	29.93	.....	Mar. 26	27.76	.....	June 10, 1934	28.64	53.0
Oct. 22	29.80	.....	July 19, 1926	24.09	58	Dec. 11	28.70	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 ..	.....	.....	.....	.....	.....	.....	19	11	13	5.5	9.6	11.5	69.6
1930 ..	14.9	14	16	16	12	12	11	11	12	12	15	15	194.2
1931 ..	10	17	19	13	24	2.6	13	9.6	9.3	11	13	15	172.3
1932 ..	15	14	23	21	15	15	22	16	16	13	8.4	10	188.4
1933 ..	9.3	13.2	11.9	15.3	15.8	15.7	14.1	14.4	13.9	14.0	12.5	13.9	165.2
1934 ..	13.5	12.4	14.0	13.4	12.3	13.4	12.6	11.9	10.8	12.2	12.3	13.1	151.9

64 (old 15) On grounds of Strainers' Hospital for Crippled Children on Punahoa 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. Recensed 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	30.65	.....	Oct. 29, 1916	29.70	.....	Sept. 26, 1929	25.79	48.0
Aug. 27	30.49	.....	Nov. 12	30.18	.....	Feb. 18, 1930	29.25	.....
Sept. 3	30.33	.....	Nov. 12	29.60	.....	Sept. ....	.....	45.0
Sept. 10	30.30	.....	Nov. 10	29.50	.....	Mar. 5, 1931	29.85	44.5
Sept. 17	30.26	.....	Nov. 20	29.35	.....	Sept. 9	26.84	.....
Sept. 24	29.74	.....	Dec. 8	29.26	.....	Sept. 17	.....	47.9
Oct. 1	30.01	.....	Dec. 10	30.08	.....	Jan. 27, 1932	28.88	47.9
Oct. 8	29.91	.....	July 12, 1924	27.59	.....	Aug. 26	31.88	44.5
Oct. 15	29.94	.....	July 29, 1926	23.62	.....	June 10, 1934	28.79	47.9
Oct. 22	29.78	.....	Mar. 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 ..	.....	.....	.....	.....	.....	.....	8	5	5	5	5	5	3.1
1930 ..	3	3	3	3	3	3	3	3	3	3	3	3	3.6
1931 ..	40	36	43	42	43	42	43	42	43	42	46	5	5.05
1932 ..	58	23	25	30	43	42	53	53	51	51	36	37	4.82
1933 ..	22	10	07	21	45	50	53	50	42	44	37	37	4.13
1934 ..	22	23	40	1.91	30	39	49	41	41	20	18	19	4.40

65 (old 67). 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. 26, 1910	30.00	Sept. 19, 1910	30.08	Oct. 1, 1910	30.02	Sept. 10, 1923	27.80
Aug. 27	30.41	Sept. 17	30.27	Oct. 8	29.94	Mar. 24, 1924	27.84
Sept. 3	30.38	Sept. 24	30.15	Oct. 15	29.86	Aug. 29, 1926	23.59

Meter tests

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

Depth (ft.)	Revolutions per minute	Depth (ft.)	Revolutions per minute	Depth (ft.)	Revolutions per minute
40	50	175	66	230	34
100	66	200	64	225	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. Au 3-in. deep-well meter used. Readings by K. N. Vaksvik, 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	(leak) 11		
110	12		
120	15		
130	19		
140			

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. Au 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 Ualakaa St., Honolulu. Owner, Mrs. F. M. Swany. 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	1.8
1930 ..	00	00	00	00	00	00	00	00	00	00	00	00	1.2
1931 ..	06	06	06	06	06	06	06	06	06	06	06	06	1.2
1932 ..	06	06	06	06	06	06	06	06	06	06	06	06	1.06

*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

Log	Depth (ft.)	Depth (ft.)
Loose stone and rubble (Probably Ra)	0-10	Shit, then clay followed by water rock with some water. Clay, hard rock, blue flint, and then water under pressure. (Pa resting on Tbb)...
Black sand (Qtd)	16-46	
		46-181

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	30.06	Nov. 5	29.87	Dec. 10	29.11
Sept. 3	30.42	Oct. 8	29.07	Nov. 12	29.84	Oct. 2, 1923	27.23
Sept. 10	30.41	Oct. 15	29.01	Nov. 19	29.69	Mar. 24, 1924	27.82
Sept. 17	30.28	Oct. 22	29.84	Nov. 26	29.74	Aug. 24, 1936	23.65

68 (old 69). 1915 Keesamoku 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, 29; 1910, 50; 1913, 60; 1915, 61; 1916, 61; 1917, 61; 1918, 61; 1919, 61; 1920, 61; 1921, 61; 1922, 61; 1923, 61; 1924, 61; 1925, 61; 1926, 61; 1927, 61; 1928, 61; 1929, 61; 1930, 61; 1931, 61; 1932, 61; 1933, 61; 1934, 61; 1935, 61; 1936, 61; 1937, 61; 1938, 61; 1939, 61; 1940, 61; 1941, 61; 1942, 61; 1943, 61; 1944, 61; 1945, 61; 1946, 61; 1947, 61; 1948, 61; 1949, 61; 1950, 61; 1951, 61; 1952, 61; 1953, 61; 1954, 61; 1955, 61; 1956, 61; 1957, 61; 1958, 61; 1959, 61; 1960, 61; 1961, 61; 1962, 61; 1963, 61; 1964, 61; 1965, 61; 1966, 61; 1967, 61; 1968, 61; 1969, 61; 1970, 61; 1971, 61; 1972, 61; 1973, 61; 1974, 61; 1975, 61; 1976, 61; 1977, 61; 1978, 61; 1979, 61; 1980, 61; 1981, 61; 1982, 61; 1983, 61; 1984, 61; 1985, 61; 1986, 61; 1987, 61; 1988, 61; 1989, 61; 1990, 61; 1991, 61; 1992, 61; 1993, 61; 1994, 61; 1995, 61; 1996, 61; 1997, 61; 1998, 61; 1999, 61; 2000, 61; 2001, 61; 2002, 61; 2003, 61; 2004, 61; 2005, 61; 2006, 61; 2007, 61; 2008, 61; 2009, 61; 2010, 61; 2011, 61; 2012, 61; 2013, 61; 2014, 61; 2015, 61; 2016, 61; 2017, 61; 2018, 61; 2019, 61; 2020, 61; 2021, 61; 2022, 61; 2023, 61; 2024, 61; 2025, 61; 2026, 61; 2027, 61; 2028, 61; 2029, 61; 2030, 61; 2031, 61; 2032, 61; 2033, 61; 2034, 61; 2035, 61; 2036, 61; 2037, 61; 2038, 61; 2039, 61; 2040, 61; 2041, 61; 2042, 61; 2043, 61; 2044, 61; 2045, 61; 2046, 61; 2047, 61; 2048, 61; 2049, 61; 2050, 61; 2051, 61; 2052, 61; 2053, 61; 2054, 61; 2055, 61; 2056, 61; 2057, 61; 2058, 61; 2059, 61; 2060, 61; 2061, 61; 2062, 61; 2063, 61; 2064, 61; 2065, 61; 2066, 61; 2067, 61; 2068, 61; 2069, 61; 2070, 61; 2071, 61; 2072, 61; 2073, 61; 2074, 61; 2075, 61; 2076, 61; 2077, 61; 2078, 61; 2079, 61; 2080, 61; 2081, 61; 2082, 61; 2083, 61; 2084, 61; 2085, 61; 2086, 61; 2087, 61; 2088, 61; 2089, 61; 2090, 61; 2091, 61; 2092, 61; 2093, 61; 2094, 61; 2095, 61; 2096, 61; 2097, 61; 2098, 61; 2099, 61; 2100, 61; 2101, 61; 2102, 61; 2103, 61; 2104, 61; 2105, 61; 2106, 61; 2107, 61; 2108, 61; 2109, 61; 2110, 61; 2111, 61; 2112, 61; 2113, 61; 2114, 61; 2115, 61; 2116, 61; 2117, 61; 2118, 61; 2119, 61; 2120, 61; 2121, 61; 2122, 61; 2123, 61; 2124, 61; 2125, 61; 2126, 61; 2127, 61; 2128, 61; 2129, 61; 2130, 61; 2131, 61; 2132, 61; 2133, 61; 2134, 61; 2135, 61; 2136, 61; 2137, 61; 2138, 61; 2139, 61; 2140, 61; 2141, 61; 2142, 61; 2143, 61; 2144, 61; 2145, 61; 2146, 61; 2147, 61; 2148, 61; 2149, 61; 2150, 61; 2151, 61; 2152, 61; 2153, 61; 2154, 61; 2155, 61; 2156, 61; 2157, 61; 2158, 61; 2159, 61; 2160, 61; 2161, 61; 2162, 61; 2163, 61; 2164, 61; 2165, 61; 2166, 61; 2167, 61; 2168, 61; 2169, 61; 2170, 61; 2171, 61; 2172, 61; 2173, 61; 2174, 61; 2175, 61; 2176, 61; 2177, 61; 2178, 61; 2179, 61; 2180, 61; 2181, 61; 2182, 61; 2183, 61; 2184, 61; 2185, 61; 2186, 61; 2187, 61; 2188, 61; 2189, 61; 2190, 61; 2191, 61; 2192, 61; 2193, 61; 2194, 61; 2195, 61; 2196, 61; 2197, 61; 2198, 61; 2199, 61; 2200, 61; 2201, 61; 2202, 61; 2203, 61; 2204, 61; 2205, 61; 2206, 61; 2207, 61; 2208, 61; 2209, 61; 2210, 61; 2211, 61; 2212, 61; 2213, 61; 2214, 61; 2215, 61; 2216, 61; 2217, 61; 2218, 61; 2219, 61; 2220, 61; 2221, 61; 2222, 61; 2223, 61; 2224, 61; 2225, 61; 2226, 61; 2227, 61; 2228, 61; 2229, 61; 2230, 61; 2231, 61; 2232, 61; 2233, 61; 2234, 61; 2235, 61; 2236, 61; 2237, 61; 2238, 61; 2239, 61; 2240, 61; 2241, 61; 2242, 61; 2243, 61; 2244, 61; 2245, 61; 2246, 61; 2247, 61; 2248, 61; 2249, 61; 2250, 61; 2251, 61; 2252, 61; 2253, 61; 2254, 61; 2255, 61; 2256, 61; 2257, 61; 2258, 61; 2259, 61; 2260, 61; 2261, 61; 2262, 61; 2263, 61; 2264, 61; 2265, 61; 2266, 61; 2267, 61; 2268, 61; 2269, 61; 2270, 61; 2271, 61; 2272, 61; 2273, 61; 2274, 61; 2275, 61; 2276, 61; 2277, 61; 2278, 61; 2279, 61; 2280, 61; 2281, 61; 2282, 61; 2283, 61; 2284, 61; 2285, 61; 2286, 61; 2287, 61; 2288, 61; 2289, 61; 2290, 61; 2291, 61; 2292, 61; 2293, 61; 2294, 61; 2295, 61; 2296, 61; 2297, 61; 2298, 61; 2299, 61; 2300, 61; 2301, 61; 2302, 61; 2303, 61; 2304, 61; 2305, 61; 2306, 61; 2307, 61; 2308, 61; 2309, 61; 2310, 61; 2311, 61; 2312, 61; 2313, 61; 2314, 61; 2315, 61; 2316, 61; 2317, 61; 2318, 61; 2319, 61; 2320, 61; 2321, 61; 2322, 61; 2323, 61; 2324, 61; 2325, 61; 2326, 61; 2327, 61; 2328, 61; 2329, 61; 2330, 61; 2331, 61; 2332, 61; 2333, 61; 2334, 61; 2335, 61; 2336, 61; 2337, 61; 2338, 61; 2339, 61; 2340, 61; 2341, 61; 2342, 61; 2343, 61; 2344, 61; 2345, 61; 2346, 61; 2347, 61; 2348, 61; 2349, 61; 2350, 61; 2351, 61; 2352, 61; 2353, 61; 2354, 61; 2355, 61; 2356, 61; 2357, 61; 2358, 61; 2359, 61; 2360, 61; 2361, 61; 2362, 61; 2363, 61; 2364, 61; 2365, 61; 2366, 61; 2367, 61; 2368, 61; 2369, 61; 2370, 61; 2371, 61; 2372, 61; 2373, 61; 2374, 61; 2375, 61; 2376, 61; 2377, 61; 2378, 61; 2379, 61; 2380, 61; 2381, 61; 2382, 61; 2383, 61; 2384, 61; 2385, 61; 2386, 61; 2387, 61; 2388, 61; 2389, 61; 2390, 61; 2391, 61; 2392, 61; 2393, 61; 2394, 61; 2395, 61; 2396, 61; 2397, 61; 2398, 61; 2399, 61; 2400, 61; 2401, 61; 2402, 61; 2403, 61; 2404, 61; 2405, 61; 2406, 61; 2407, 61; 2408, 61; 2409, 61; 2410, 61; 2411, 61; 2412, 61; 2413, 61; 2414, 61; 2415, 61; 2416, 61; 2417, 61; 2418, 61; 2419, 61; 2420, 61; 2421, 61; 2422, 61; 2423, 61; 2424, 61; 2425, 61; 2426, 61; 2427, 61; 2428, 61; 2429, 61; 2430, 61; 2431, 61; 2432, 61; 2433, 61; 2434, 61; 2435, 61; 2436, 61; 2437, 61; 2438, 61; 2439, 61; 2440, 61; 2441, 61; 2442, 61; 2443, 61; 2444, 61; 2445, 61; 2446, 61; 2447, 61; 2448, 61; 2449, 61; 2450, 61; 2451, 61; 2452, 61; 2453, 61; 2454, 61; 2455, 61; 2456, 61; 2457, 61; 2458, 61; 2459, 61; 2460, 61; 2461, 61; 2462, 61; 2463, 61; 2464, 61; 2465, 61; 2466, 61; 2467, 61; 2468, 61; 2469, 61; 2470, 61; 2471, 61; 2472, 61; 2473, 61; 2474, 61; 2475, 61; 2476, 61; 2477, 61; 2478, 61; 2479, 61

69 (old 71½). 1799 Kewalo Dk., Honolulu. Owner, Mrs. Jaeger. Altitude, about 150 ft. Diameter, 12 in. Use, domestic. Chloride (p.p.m.), 1910, 65.

70 (old 18). Old pumphouse 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. 16, 1920	41		Mar. 3, 1931	29.25		24	31.49	
April 17	41.8		Dec. 17	29.51		May 13	31.42	
20	42		24	28.70		20	31.99	
24	42		31	28.84		25	31.99	
May 15	40.1		Jan. 9, 1932	28.86		June 13	31.67	
22	40.5		16	28.66		July 9	31.67	
29	40.4		23	29.00		16	31.66	
June 5	41.3		30	29.10		23	31.57	
16	40.8		Feb. 5	29.28		30	31.54	
21	41		12	29.26		Aug. 6	31.51	
26	41		23	29.34		13	31.47	
July 10	42		Mar. 25	30.31		20	31.45	
17	44.2		16	30.51		27	31.42	
24	41		21	30.80		Sept. 3	31.46	
31	41		24	31.13		10	31.57	
Sept. 28, 1929	40.7		April 4	31.15		17	31.52	
25.50	41		11	31.36		24	31.45	

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

71 (old 71½). Old Lunalilo Home in Makiki, Honolulu. Owner, Territory of Hawaii. Altitude, 144 ft. Casing, 7 in. Scaled, 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). Scaled, Oct. 1926.

Log

	Depth (ft.)	Depth (ft.)
Soil (Ra and near top probably some <i>Q₁</i> alluvium).....	0-50	
Pure white coral (Pls).....	50-220	
Clay (Pa).....		220-340
Rock and water (Tkh).....		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. Scaled, 1933.

Log

	Depth (ft.)	Depth (ft.)	Depth (ft.)
Soil (Ra).....	0-25		
Black sand (Qtz).....	25-80		
Blue clay (Pa).....	80-100		
White coral (Pls).....	100-105		
Coral and clay (Pls).....	105-125		
Blue clay (Pa).....		125-195	
Black sand (Pa).....		195-207	
White coral (Pls).....		207-215	
Black sand (Pa).....		215-230	
Blue clay (Pa).....		230-340	
Rock and water (Tkh).....		340-358	

Well 73 (Continued)

Meter test

At 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	139	360	210	483
58.0	20	140	447	245	465
58.3	48	150	408	250	470
58.8	72	160	415	355	458
65	86	170	465	260	462
75	106	180	450	265	450
80	102	190	440	270	405
90	114	200	398	275	345
100	152	210	453	277.4	307
110	201	220	479	278.2 (landed)	351
120	282	230	492		

74 (old 21). Intersection of Keesumoku St. and Beretania St., Honolulu. Owner, City and County of Honolulu. Drilled, 1866. Altitude, 17 ft. Diameter, 6 in. Not in use.

Observations

Bench mark, top of plate, top of valve, beside 1½-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, 1929	25.72		44.6	Sept. 17, 1931	46.2
Mar. 24, 1920	71.9		Feb. 18, 1930	28.96		Jan. 27, 1932	28.76	40.0
Nov. 13, 1923	27.00		Sept. 1	49.7		Aug. 23	31.17	41.0
Mar. 24, 1924	27.83		Mar. 2, 1931	29.02		June 19, 1934	27.40	47.9
July 19, 1926	24.01		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	..	..	..	..	..	..	..	..	..	..	..	..	..
1930	..	..	..	..	..	..	..	..	..	..	..	..	..
1931	..	..	..	..	..	..	..	..	..	..	..	..	..
1932	..	..	..	..	..	..	..	..	..	..	..	..	..
1933	..	..	..	..	..	..	..	..	..	..	..	..	..
1934	..	..	..	..	..	..	..	..	..	..	..	..	..

74-1 (no old number). At plant of Honolulu Dairymen's Association, corner Beretania St. and Keesumoku 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 Cinders (Qtz).....	17-22		
Coral (Pls).....	22-29		
Black rock (Pa).....	29-32		
Blue rock (Pa or Q ₁).....	32-49		
Clay (Pa).....	49-52		
Coral (Pls).....			

75 (old 22½). 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 2½ 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, 1923	27.03		Sept. 27, 1929	25.43	68.5	Jan. 28, 1932	26.79	68.4
Mar. 21, 1924	75.0		Feb. 19, 1930	27.75		Aug. 22	31.24	68.4
April 2	27.68		Sept. 6	66.8		June 19, 1934	28.49	68.4
Jan. 25, 1926	75.0		Sept. 2	75.2		Dec. 11	25.91	66.7
Nov. 18	75.0		Sept. 11	25.32				
Mar. 1, 1929	68.5		17	66.7				

*Some draft.

RECORDS OF DRILLED WELLS ON OAHU

Well 75 (Continued)

Discharge in millions of gallons													
Year	Jan.	Feb.	Mar.	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Total
1929	2.8	2.5	2.8	2.7	2.8	2.6	3.1	3.4	3.0	2.7	2.8	3.4	34.6
1930	2.8	2.4	2.6	2.6	2.7	2.6	2.6	2.7	2.6	2.7	2.8	3.4	34.0
1931	2.2	1.1	2.3	2.6	2.6	2.6	2.7	2.7	2.8	2.8	2.8	3.4	29.5
1932	3.3	2.9	3.0	2.7	2.9	3.0	3.7	3.8	2.6	2.9	2.8	3.4	39.5
1933	2.8	2.6	2.9	2.8	2.9	2.8	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, 656 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.)	Depth (ft.)	
Soil	0-4	Clay (Pa)	250-280	Clay (Possibly Pa but	-
Black sand (Qtz)	4-10	Coral (Pls)	280-350	more probably de-	
Coral (Pls)	10-60	Clay (Pa)	350-450	composed (Thb)	575-620
Hard lava (Qtz, prob-	60-100	Boulders (Pa)	450-475	Lava or bedrock	
ably Rocky Hill)	100-130	Clay and gravel (Pa)	475-535	(Thb)	620-660
Clay (Pa)	130-200	Lava and boulders			
Coral (Thb)	200-250	(probably Thb)	535-575		

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

Observations							
Bench mark, top of upper ledge 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.)
Jan. 30, 1930	29.57	62.0	July 29, 1926	22.65	43.0	Mar. 2, 1931	29.40
Sept. 6, 1929	27.47	45	Feb. 28, 1928	29.45	41.0	Sept. 9	26.99
Feb. 20, 1924	27.80		Mar. 7, 1929	37.7		Jan. 17	35.9
Mar. 28	26.45	45.0	Sept. 20	37.7		Jan. 27, 1932	29.09
Feb. 28, 1926	29.45		Feb. 18, 1930	28.62		Aug. 23	31.46
			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	..	..	..	..	..	..	..	..	..	..	..	..	..
1932*	..	..	..	..	..	..	..	..	..	..	..	..	..
1933	..	..	..	..	..	..	..	..	..	..	..	..	..
1934	..	..	..	..	..	..	..	..	..	..	..	..	..
1935	..	..	..	..	..	..	..	..	..	..	..	..	..
1936	..	..	..	..	..	..	..	..	..	..	..	..	..
1937	..	..	..	..	..	..	..	..	..	..	..	..	..
1938	..	..	..	..	..	..	..	..	..	..	..	..	..
1939	..	..	..	..	..	..	..	..	..	..	..	..	..
1940	..	..	..	..	..	..	..	..	..	..	..	..	..
1941	..	..	..	..	..	..	..	..	..	..	..	..	..
1942	..	..	..	..	..	..	..	..	..	..	..	..	..
1943	..	..	..	..	..	..	..	..	..	..	..	..	..
1944	..	..	..	..	..	..	..	..	..	..	..	..	..
1945	..	..	..	..	..	..	..	..	..	..	..	..	..
1946	..	..	..	..	..	..	..	..	..	..	..	..	..
1947	..	..	..	..	..	..	..	..	..	..	..	..	..
1948	..	..	..	..	..	..	..	..	..	..	..	..	..
1949	..	..	..	..	..	..	..	..	..	..	..	..	..
1950	..	..	..	..	..	..	..	..	..	..	..	..	..
1951	..	..	..	..	..	..	..	..	..	..	..	..	..
1952	..	..	..	..	..	..	..	..	..	..	..	..	..
1953	..	..	..	..	..	..	..	..	..	..	..	..	..
1954	..	..	..	..	..	..	..	..	..	..	..	..	..
1955	..	..	..	..	..	..	..	..	..	..	..	..	..
1956	..	..	..	..	..	..	..	..	..	..	..	..	..
1957	..	..	..	..	..	..	..	..	..	..	..	..	..
1958	..	..	..	..	..	..	..	..	..	..	..	..	..
1959	..	..	..	..	..	..	..	..	..	..	..	..	..
1960	..	..	..	..	..	..	..	..	..	..	..	..	..
1961	..	..	..	..	..	..	..	..	..	..	..	..	..
1962	..	..	..	..	..	..	..	..	..	..	..	..	..
1963	..	..	..	..	..	..	..	..	..	..	..	..	..
1964	..	..	..	..	..	..	..	..	..	..	..	..	..
1965	..	..	..	..	..	..	..	..	..	..	..	..	..
1966	..	..	..	..	..	..	..	..	..	..	..	..	..
1967	..	..	..	..	..	..	..	..	..	..	..	..	..
1968	..	..	..	..	..	..	..	..	..	..	..	..	..
1969	..	..	..	..	..	..	..	..	..	..	..	..	..
1970	..	..	..	..	..	..	..	..	..	..	..	..	..
1971	..	..	..	..	..	..	..	..	..	..	..	..	..
1972	..	..	..	..	..	..	..	..	..	..	..	..	..
1973	..	..	..	..	..	..	..	..	..	..	..	..	..
1974	..	..	..	..	..	..	..	..	..	..	..	..	..
1975	..	..	..	..	..	..	..	..	..	..	..	..	..
1976	..	..	..	..	..	..	..	..	..	..	..	..	..
1977	..	..	..	..	..	..	..	..	..	..	..	..	..
1978	..	..	..	..	..	..	..	..	..	..	..	..	..
1979	..	..	..	..	..	..	..	..	..	..	..	..	..
1980	..	..	..	..	..	..	..	..	..	..	..	..	..
1981	..	..	..	..	..	..	..	..	..	..	..	..	..
1982	..	..	..	..	..	..	..	..	..	..	..	..	..
1983	..	..	..	..	..	..	..	..	..	..	..	..	..
1984	..	..	..	..	..	..	..	..	..	..	..	..	..
1985	..	..	..	..	..	..	..	..	..	..	..	..	..
1986	..	..	..	..	..	..	..	..	..	..	..	..	..
1987	..	..	..	..	..	..	..	..	..	..	..	..	..
1988	..	..	..	..	..	..	..	..	..	..	..	..	..
1989	..	..	..	..	..	..	..	..	..	..	..	..	..
1990	..	..	..	..	..	..	..	..	..	..	..	..	..
1991	..	..	..	..	..	..	..	..	..	..	..	..	..
1992	..	..	..	..	..	..	..	..	..	..	..	..	..
1993	..	..	..	..	..	..	..	..	..	..	..	..	..
1994	..	..	..	..	..	..	..	..	..	..	..	..	..
1995	..	..	..	..	..	..	..	..	..	..	..	..	..
1996	..	..	..	..	..	..	..	..	..	..	..	..	..
1997	..	..	..	..	..	..	..	..	..	..	..	..	..
1998	..	..	..	..	..	..	..	..	..	..	..	..	..
1999	..	..	..	..	..	..	..	..	..	..	..	..	..
2000	..	..	..	..	..	..	..	..	..	..	..	..	..
2001	..	..	..	..	..	..	..	..	..	..	..	..	..
2002	..	..	..	..	..	..	..	..	..	..	..	..	..
2003	..	..	..	..	..	..	..	..	..	..	..	..	..
2004	..	..	..	..	..	..	..	..	..	..	..	..	..
2005	..	..	..	..	..	..	..	..	..	..	..	..	..
2006	..	..	..	..	..	..	..	..	..	..	..	..	..
2007	..	..	..	..	..	..	..	..	..	..	..	..	..
2008	..	..	..	..	..	..	..	..	..	..	..	..	..
2009	..	..	..	..	..	..	..	..	..	..	..	..	..
2010	..	..	..	..	..	..	..	..	..	..	..	..	..
2011	..	..	..	..	..	..	..	..	..	..	..	..	..
2012	..	..	..	..	..	..	..	..	..	..	..	..	..
2013	..	..	..	..	..	..	..	..	..	..	..	..	..
2014	..	..	..	..	..	..	..	..	..	..	..	..	..
2015	..	..	..	..	..	..	..	..	..	..	..	..	..
2016	..	..	..	..	..	..	..	..	..	..	..	..	..
2017	..	..	..	..	..	..	..	..	..	..	..	..	..
2018	..	..	..	..	..	..	..	..	..	..	..	..	..
2019	..	..	..	..	..	..	..	..	..	..	..	..	..
2020	..	..	..	..	..	..	..	..	..	..	..	..	..
2021	..	..	..	..	..	..	..	..	..	..	..	..	..
2022	..	..	..	..	..	..	..	..	..	..	..	..	..
2023	..	..	..	..	..	..	..	..	..	..	..	..	..
2024	..	..	..	..	..	..	..	..	..	..	..	..	..
2025	..	..	..	..	..	..	..	..	..	..	..	..	..
2026	..	..	..	..	..	..	..	..	..	..	..	..	..
2027	..	..	..	..	..	..	..	..	..	..	..	..	..
2028	..	..	..	..	..	..	..	..	..	..	..	..	..
2029	..	..	..	..	..	..	..	..	..	..	..	..	..
2030	..	..	..	..	..	..	..	..	..	..	..	..	..
2031	..	..	..	..	..	..	..	..	..	..	..	..	..
2032	..	..	..	..	..	..	..	..	..	..	..	..	..
2033	..	..	..	..	..	..	..	..	..	..	..	..	..
2034	..	..	..	..	..	..	..	..	..	..	..	..	..
2035	..	..	..	..	..	..	..	..	..	..	..	..	..
2036	..	..	..	..	..	..	..	..	..	..	..	..	..
2037	..	..	..	..	..	..	..	..	..	..	..	..	..
2038	..	..	..	..	..	..	..	..	..	..	..	..	..
2039	..	..	..	..	..	..	..	..	..	..	..	..	..
2040	..	..	..	..	..	..	..	..	..	..	..	..	..
2041	..	..	..	..	..	..	..	..	..	..	..	..	..
2042	..	..	..	..	..	..	..	..	..	..	..	..	..
2043	..	..	..	..	..	..	..	..	..	..	..	..	..
2044	..	..	..	..	..	..	..	..	..	..	..	..	..
2045	..	..	..	..	..	..	..	..	..	..	..	..	..
2046	..	..	..	..	..	..	..	..	..	..	..	..	..
2047	..	..	..	..	..	..	..	..	..	..	..	..	..
2048	..	..	..	..	..	..	..	..	..	..	..	..	..
2049	..	..	..	..	..	..	..	..	..	..	..	..	..
2050	..	..	..	..	..	..	..	..	..	..	..	..	..
2051	..	..	..	..	..	..	..	..	..	..	..	..	..
2052	..	..	..	..	..	..	..	..	..	..	..	..	..
2053	..	..	..	..	..	..	..	..	..	..	..	..	..
2054	..	..	..	..	..	..	..	..	..	..	..	..	..
2055	..	..	..	..	..	..	..	..	..	..	..	..	..
2056	..	..	..	..	..	..	..	..	..	..	..	..	..
2057	..	..	..	..	..	..	..	..	..	..	..	..	..
2058	..	..	..	..	..	..	..	..	..	..	..	..	..
2059	..	..	..	..	..	..	..	..	..	..	..	..	..
2060	..	..	..	..	..	..	..	..	..	..	..	..	..
2061	..	..	..	..	..	..	..	..	..	..	..	..	..
2062	..	..	..	..	..	..	..	..	..	..	..	..	

*No discharge, 1933, 1934.

78 (old 35). On Young St. in line with projection of Pensacola St., Honolulu. Owner, Hawaiian Electric Co. Drilled, 1887. Altitude, about 16 ft. Depth, 510 ft. Diameter, 8 in. Reopened from 6 in. Sealed, Oct. 1924.

Observations												
Date	Head (ft.)	Date	Head (ft.)	Date	Head (ft.)	Date	Head (ft.)	Date	Head (ft.)	Date	Head (ft.)	Date
Aug. 6, 1916	14.24	Sept. 17, 1916	14.02	Oct. 29, 1916	13.51	Nov. 26, 1916	13.41	Dec. 3	13.45	Nov. 26, 1916	13.41	Dec. 3
Aug. 20	14.05	Oct. 1	13.67	Nov. 12	13.57	Dec. 29, 1916	13.49	Sept. 4, 1923	9.09			
Aug. 27	14.16	Oct. 15	13.79	Nov. 19	13.55	Dec. 3	13.45	Nov. 26, 1916	13.41			
Sept. 4	14.14	Oct. 22	13.57	Nov. 19	13.55	Dec. 3	13.45	Nov. 26, 1916	13.41			

*Leaking.

RECORDS OF DRILLED WELLS ON OAHU

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.)		Depth (ft.)
Soil	0-4	Coral (Pls)	252-277	Lava or bedrock	
Black sand (Qtz)	4-14	Clay (Pa)	277-317	(Thb)	450-503
Coral (Pls)	14-214	Coral (Pls)	317-397		
Brown clay (Pa)	214-252	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. 11, 1916	19.01
Sept. 26	19.20	Oct. 16	18.95	Nov. 13	18.87	Sept. 4, 1923	18.09
Sept. 27	19.12	Oct. 22	18.91	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 Mano Way. Owner, Oahu Poi Factory. Drilled, 1936 by W. H. Mullin. Altitude, 15 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. 292, 1936.)

	Depth (ft.)
Soil	0-3
Coral (Qtz, 5 ft.; Pls, 4 ft.; Pa (mud), 8 ft.; Pls, 36 ft.; Qtz (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))	188-202
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 (Pls)	300-315
Clay (Pa)	315-325
Coral (Pls)	325-335
Brown clay (Sample labelled -295 to -350 ft. contains mixture of about 50% reef probably from gravel (Pa))	335-365
Brown cinders (Sample labelled -350 ft. is a very fine-grained friable brown material possibly a marine scum as it is not typical of a coral reef; sample at -350 ft. is a gray marly marine mud; sample labelled -420 ft. is similar to sample at -350 ft.; sample labelled -440 ft. consists of coarser 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 basalt and weathered basalt indicating a layer of gray sand and gravel)	490-503
Samples labelled -497 ft. and -503 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	503-525

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 large fragments of limestone and small grains of very fine-grained black sand 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 -600 ft. is fine-grained basalt in various stages of weathering and grains of olivine probably Tbb].....	600-620
Clay and gravel [Sample labelled -620 ft. to -644 ft. similar to sample at -600 ft. and probably Tbb].....	620-650
Soft rock [Sample labelled -645 ft. contains fragments up to ½ in. across of vesicular and dense fine-grained basalt (Tbb)].....	650-670
Hard rock (Tbb).....	670-700

Meter test.

Water flowing from top of well. At 3-in. deep-water 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 R. N. Volkovik, Dec. 9, 1926.

Depth (ft.)	Revolutions per minute	Depth (ft.)	Revolutions per minute	Depth (ft.)	Revolutions per minute
11.25	106	632.35	0	614.35	60
118.35	106	630.35	0	612.35	102
223.35	108	628.35	0	610.35	114
332.35	110	626.35	10	608.35	126
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	602	
625.60	6	618.35	66	600.35	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 24½). 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.)	Date	Head (ft.)	Chloride (p.p.m.)
Sept. 18, 1916	30.26	.....	Dec. 30, 1930	29.69	43.0	Dec. 15, 1932	31.82	42
Sept. 25	30.15	.....	Jan. 27, 1931	30.24	43.0	Jan. 17, 1933	32.00	42.5
Oct. 2	30.00	.....	Mar. 5	29.74	43.0	Feb. 18	32.09	42.5
Oct. 16	29.85	.....	Mar. 28	29.34	43.0	Mar. 16	32.83	41.5
Oct. 22	29.81	.....	Mar. 29	28.49	43.5	April 19	32.30	42.5
Oct. 29	29.70	.....	May 29	28.49	43.5	May 27	32.15	43
Nov. 6	29.87	.....	June 25	27.94	49.5	June 10	31.50	41.8
Nov. 12	29.91	.....	Aug. 21	28.02	44.0	July 1	31.18	43
Nov. 21	29.88	.....	Aug. 26	26.87	43.5	Aug. 14	30.59	44
Nov. 28	29.92	.....	Sept. 9	27.24	.....	Sept. 19	30.08	43
Dec. 4	29.90	.....	Sept. 17	41.0	.....	Oct. 18	29.67	43
Sept. 4, 1923	27.57	.....	Oct. 6	26.69	42.5	Nov. 10	29.18	43
Dec. 11	29.12	.....	Oct. 26	27.89	43.0	Dec. 21	29.03	..
Mar. 24, 1924	27.84	41.2	Dec. 17	28.79	42.5	Jan. 25, 1934	29.49	41
July 30, 1926	24.02	.....	Jan. 14, 1932	29.07	42.0	Feb. 24	29.03	41
Mar. 7, 1929	29.24	.....	Jan. 27	29.25	41.0	Mar. 21	29.15	46
Sept. 26	25.78	39.4	Feb. 18	29.61	42.5	May 1	29.07	47
Feb. 18, 1930	28.97	.....	Mar. 17	30.92	41.5	May 16	29.09	45
Mar. 26	29.48	43.0	Apr. 27	31.29	42.5	June 14	28.81	42
April 30	29.54	43.0	May 17	32.02	42.5	July 12	27.96	43
May 29	28.95	43.0	June 16	31.59	43	Aug. 14	27.28	44
July 1	29.69	43.0	Aug. 13	31.59	43	Sept. 13	27.76	40
July 30	27.08	44.0	Aug. 23	31.72	42.5	Oct. 16	27.76	60
Aug. 26	27.76	43.0	Aug. 23	31.85	41.0	Nov. 22	28.07	60
Oct. 4	28.70	43.0	Sept. 15	31.30	42.5	Dec. 20	28.31	45
Nov. 13	29.33	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							.1	.1	.1	.1	.1	.1	6
1930							.1	.1	.1	.1	.1	.1	1.4
1931		.2	.2	.2	.2	.2	.2	.2	.2	.2	.2	.2	2.4
1932		.2	.1	.1	.1	.1	.03	.03	.04	.09	.12	.12	1.13
1933		.12	.11	.12	.12	.12	.12	.12	.12	.12	.12	.12	1.43
1934		.12	.11	.12	.12	.12	.09	.09	.09	.08	.09	.20	1.32

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 (Qrt)	5-11	8 ft. hard coral		lava (Tbb)...	504-509
White sand (Rs)	11-15	(Pls) at bottom...	219-261	Hard gray rock	
Hard coral (Pls) with		Yellow clay (Pa)...	261-270	(Tbb).....	508-509.5
3 ft. white clay		Hard coral (Pls)...	270-373	Black rock with	
(Pa) at bottom...	15-195	Soft coral (Pls)...	373-393	three hard	
Coral and shells (Pls)	195-210	Yellow clay (Pa)...	393-450	places and plenty	
Hard coral (Pls)...	210-215	White clay (Pa)...	450-475	of water	
		Yellow clay (Pa)...	475-500	(Tbb).....	509.5-539.5

Observations

Beach mark, top of well can at ¼-in. diameter measuring along 2 ft. above ground; altitude, 17.60 ft.

Date	Head (ft.)	Chloride (p.p.m.)	Date	Head (ft.)	Chloride (p.p.m.)	Date	Head (ft.)	Chloride (p.p.m.)
April .. 1910	30.84	65.0	Oct. 29, 1916	29.58	.....	Mar. .. 1929	.....	42.8
May	30.24	.....	Nov. 6	29.72	.....	Sept. 26	25.80	42.8
Aug. 30, 1916	30.38	.....	Nov. 13	29.76	.....	Feb. 18, 1930	28.67	.....
Sept. 5	30.28	.....	Nov. 21	29.77	.....	Sept. 6	41.2	.....
Sept. 11	30.24	.....	Nov. 28	29.79	.....	Mar. 6, 1931	29.88	37.6
Sept. 18	30.13	.....	Dec. 4	29.84	.....	Sept. 10	27.30	.....
Sept. 25	29.97	.....	Dec. 11	29.91	.....	Sept. 17	29.30	.....
Oct. 2	29.86	.....	Sept. 4, 1923	27.58	.....	Jan. 27, 1932	29.17	37.6
Oct. 9	29.75	.....	Mar. 24, 1924	27.56	47.0	Aug. 23	31.64	41.0
Oct. 16	29.74	.....	July 20, 1926	23.87	47.0	June 19, 1934	28.71	44.5
Oct. 23	29.69	.....	Mar. 1, 1928	29.20	44.0	Dec. 11	28.62	44.5

Discharge in millions of gallons

Year	Jan.	Feb.	Mar.	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Total
1929	.....	.....	.....	.....	.....	.....	.8	1.08	1.08	1.3	1.3	.95	6.51
1930	1.6	1.0	.7	.8	.8	1.6	.8	1.0	.9	1.0	1.0	1.0	12.2
1931	.....	.....	.....	.....	.....	.....	.6	.9	.....	.....	.7	.7	8.4
1932	.....	.0	.7	1.0	1.0	1.0	1.0	.6	.9	1.0	1.0	1.0	11.1
1933	1.0	.6	1.8	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	1.2	13.6
1934	1.2	1.1	1.2	1.2	1.2	2.1	3.0	3.1	3.2	1.6	3.0	3.0	23.9

83 (old 26). Thomas Square, corner of Beretania & Kapiolani Sts., Honolulu. Owner, City and County of Honolulu. Drilled, 1882. Altitude, 27 ft. Depth, 509 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	0-5	White coral (Pls)...	16-216	White coral (Pls)...	320-380
Black sand (Qrt)	6-12	Brown clay (Pa)...	216-260	Brown clay (Pa)...	380-460
Clay (Probably Qrt)	.....	260-270	Lava or bedrock		
Punchbowl	12-16	Brown clay (Pa)...	270-330	(Tbb).....	460-509

Well 83 (Continued)

Observations

Bench mark, top of flange bolted to valve on south side of well 3 1/2 ft. below ground; altitude, 22.81 ft. Chloride (p.p.m.), 1896, 82.8.

Date	Head (ft.)	Date	Head (ft.)	Date	Head (ft.)	Date	Head (ft.)
Oct. 8, 1928	*12.25	Aug. 28, 1926	23.72	Jan. 14, 1928	28.82	June 1, 1929	28.15
April 7, 1925	126.42	Sept. 1	23.67		27.04		23.54
11	26.45	11	23.66	28	29.15	15	27.67
18	26.54	18	23.65	Feb. 4	29.36	22	27.38
22	26.46	25	23.58	11	29.46	22	27.19
May 2	26.43	Oct. 2	23.56	18	29.55	July 7	26.81
10	26.41	8	23.55	25	29.64	15	26.85
16	26.23	16	23.54	Mar. 5	29.71	20	26.41
23	26.13	23	23.52	10	29.73	Aug. 10	26.03
15	25.97	30	23.58	17	29.79	17	25.94
June 6	25.85	Nov. 6	23.59	24	29.73	24	25.92
19	25.79	19	23.64	31	29.80	31	25.90
20	25.57	20	23.65	April 7	29.90	Sept. 7	25.90
27	25.45	27	23.66	14	29.94	14	25.86
July 11	25.34	Dec. 4	23.67	21	29.99	21	25.79
16	25.27	11	23.70	28	30.07	28	25.78
19	25.22	18	23.75	May 5	30.08	Oct. 5	25.74
25	25.16	25	23.85	12	30.03	12	25.62
Aug. 1	25.13	Jan. 1, 1927	23.97	19	30.03	19	26.02
8	25.10	8	24.18	26	29.91	26	26.06
15	25.06	15	24.24	June 2	29.84	2	26.09
22	25.05	22	24.51	9	29.64	9	26.31
29	25.00	29	24.61	16	29.49	16	26.61
Sept. 6	24.97	Feb. 5	24.72	23	29.23	23	26.90
12	24.93	12	24.86	30	29.12	30	27.13
19	24.94	19	25.05	July 7	29.00	Dec. 7	27.29
26	24.92	26	25.25	14	28.97	14	27.44
Oct. 3	24.94	Mar. 5	25.43	21	28.97	21	27.54
10	24.85	10	25.59	28	28.85	28	27.78
17	24.86	17	25.73	Aug. 4, 1930	27.99		27.99
Nov. 7	24.89	26	25.92	11	28.17	10	28.17
14	24.89	April 2	26.02	18	28.00	18	28.00
21	25.01	9	26.06	25	28.64	24	28.64
28	25.03	16	26.09	Sept. 8	28.81	7	28.81
Dec. 5	25.15	23	26.11	8	28.77	8	29.05
12	25.25	30	26.03	15	28.81	15	29.17
19	25.32	May 7	25.92	22	28.76	22	29.41
26	25.44	14	25.77	29	28.63	Mar. 1	29.37
Jan. 2, 1926	25.38	21	25.93	5	28.54	5	29.33
9	25.76	28	25.88	13	28.37	15	29.50
16	25.75	June 4	25.87	20	28.23	22	29.48
23	25.72	11	25.93	27	28.12	29	29.40
30	25.71	18	25.86	Nov. 3	28.13	April 5	29.49
Feb. 6	25.64	25	25.71	10	28.19	12	29.57
13	25.56	2	25.57	17	28.45	19	29.61
20	25.49	9	25.50	24	28.62	26	29.55
27	25.44	16	25.69	Dec. 1	28.75	May 3	29.45
Mar. 6	25.30	23	25.83	8	28.83	10	29.48
13	25.19	30	25.53	15	29.04	17	29.23
20	25.06	Aug. 6	25.43	22	29.06	24	29.19
27	25.08	13	25.48	29	29.20	June 1	28.99
April 3	24.97	20	25.47	Jan. 5, 1929	29.30	7	28.92
10	24.96	27	25.45	12	29.34	15	28.88
17	24.93	Sept. 3	25.39	19	29.30	22	28.77
24	24.86	10	25.23	26	29.31	29	28.75
May 8	24.76	17	25.58	Feb. 2	29.29	July 1	28.73
15	24.70	24	25.70	9	29.29	8	28.55
22	24.61	Oct. 8	25.94	16	29.39	15	28.59
June 5	24.41	15	25.90	Mar. 22	29.47	29	28.16
12	24.40	22	25.96	9	29.52	Aug. 8	27.98
19	24.37	29	25.99	16	29.50	8	27.83
26	24.42	Nov. 5	26.08	23	29.41	15	27.85
July 3	24.39	12	26.40	30	29.34	22	27.81
10	24.32	19	26.46	April 6	29.34	29	27.86
17	24.24	Dec. 3	26.61	20	29.33	Sept. 1	27.94
24	24.14	10	27.14	27	28.94	15	28.07
31	23.84	17	27.50	May 27	28.36	22	28.55
Aug. 7	23.91	24	27.90	11	28.86	29	28.51
14	23.82	31	28.54	18	28.57	1	28.59
21	23.75	Jan. 7, 1928	28.64	25	28.42	Oct. 8	28.90

*Leaking. †Recorder installed.

Observations—Well 83 (Continued)

Date	Head (ft.)	Date	Head (ft.)	Date	Head (ft.)	Date	Head (ft.)
Oct. 15, 1930	29.20	Sept. 18, 1931	27.48	Dec. 26, 1932	31.90	Jan. 1, 1934	29.42
	29.24	25	27.50	Jan. 2, 1933	31.94		29.64
	29.29	Oct. 2	27.67		31.99	15	31.99
Nov. 1	29.46	8	27.72		32.09	22	29.99
	29.40	16	27.88		32.10	29	30.00
	29.37	23	27.99		32.21	Feb. 5	30.03
	29.01	30	27.94	Feb. 8	32.24	12	30.03
	29.63	Nov. 6	28.20	13	32.33	19	30.07
Dec. 1	29.65	13	28.32	20	32.35	26	30.11
	29.46	27	28.40		32.74	Mar. 5	30.18
	30.08	27	28.53	Mar. 6	32.75	12	30.14
	30.20	27	28.58		32.79	19	30.17
	30.22	11	28.77	20	32.85	26	30.61
Jan. 1, 1931	30.26	18	28.83	27	32.82	April 2	29.93
	30.32	25	28.97	April 3	32.85	9	29.78
	30.43	26		10	32.86	16	29.56
	30.34	Mar. 1, 1932	29.97	17	32.89	23	29.32
	30.22	22	30.87	24	32.76	30	29.29
Feb. 1	30.17	21	31.14	May 1	32.69	May 7	29.14
	30.07	28	31.40	8	32.46	14	29.07
	30.03	April 4	31.68	15	32.44	21	28.89
	29.05	May 6	31.04	22	32.30	June 4	28.94
Mar. 1	29.82	15	32.11	29	32.00	11	28.92
	29.83	22	32.27	June 5	32.19	18	28.78
	29.77	June 5	32.28	12	32.06	25	28.67
	29.62	12	32.32	19	31.80		
	29.55	12	32.33	26	31.70	July 1	28.49
	29.45	19	32.23	July 3	31.57	8	28.17
April 1	29.40	26	32.13	10	31.41	15	27.91
	29.26	July 1	32.00	17	31.34	22	27.84
	29.18	11	31.68	24	31.17	29	27.79
	29.01	18	31.86	31	31.03	Aug. 4	27.70
May 29	28.85	Aug. 7	31.79		30.82	11	27.52
	28.14	Aug. 1	31.78		30.67	18	27.49
	28.67	8	31.75	21	30.54	25	27.41
	28.52	15	31.67	28	30.44	Sept. 1	26.94
	28.30	22	31.70	Sept. 4	30.38	8	26.64
	28.61	29	31.66	11	30.28	15	26.72
June 1	28.66	6	31.65	18	30.19	22	26.74
	28.38	13	31.67	25	30.12	29	26.81
	28.46	19	31.60	Oct. 2	29.95	Oct. 4	27.31
	28.41	26	31.58	9	29.86	11	27.72
July 3	28.19	Oct. 3	31.48	16	29.76	16	28.02
	27.99	10	31.37	23	29.61	23	27.92
	27.75	17	31.32	Nov. 6	29.33	Nov. 6	28.21
	27.58	24	31.29	13	29.17	20	28.12
	27.09	Nov. 7	31.30	20	29.17	27	28.12
Aug. 7	27.03	14	31.31	27	29.16	Dec. 2	28.34
	26.85	21	31.28	Dec. 4	29.12	9	28.38
	26.97	28	31.52	11	29.15	11	28.58
Sept. 28	27.00	Dec. 5	31.66	18	29.12	18	28.37
	26.86	12	31.60	25	29.04	25	28.42
	27.26	19	31.86	31	29.40		

*Gage removed.

Motor test

No water flowing from top of well. Head reported about 18 ft. lower than normal for area. Improved Price current meter used. Readings by J. McCombs, May 1, 1924.

Depth (ft.)	Revolutions per minute	Depth (ft.)	Revolutions per minute	Depth (ft.)	Revolutions per minute
0	0	226	62	296	114
156	0	236	62	306	135
196 (leak)	0	size of casing	102	336	125
206	62	256	122	385	128
216	74	276	121		

84 (old 78). Rear 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. 19	30.24	Oct. 1	30.15	Nov. 12	30.07	Mar. 28, 1928	27.77
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	Head (ft.)	Revolutions per minute	Depth (ft.)	Revolutions per minute
50	42	350	84	430	42
100	88	400	86	435	54
150	92	410	79	440	0
200	94	420	82	450	0
250	86	422 (end of casing)		480 (meter landed)	0
300	90	425	50		

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, 734 ft. Diameter, 8 in. Use, domestic. Casing, 602 ft. Raised from 10 in.

Observations

Bench mark, top of 8-in. plug in tee above main valve 3 1/2 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	29.54		Sept. 9, 1931	27.35	
Jan. 28, 1919	26.76		Mar. 27, 1929	36.0		Sept. 18		42.8
Aug. 28, 1923	23.04		Sept. 26	25.59		Jan. 27, 1932	25.58	41.0
Aug. 30	25.27		Feb. 19, 1930	28.86		Aug. 24	31.43	41.0
Feb. 19, 1924	28.30		Sept.	48.0		June 19, 1934	28.59	42.7
July 20, 1926	22.92		Mar. 3, 1931	29.53		Dec. 11	28.64	41.0

Discharge in millions of gallons

Year	Jan.	Feb.	Mar.	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Total
1929													1.4
1930													2.39
1931													3.55
1932													3.6
1933													3.6
1934													1.37

86 (old 82). Rear of Fernhurst (Y.W.C.A.), Honolulu. Owner, Y.W.C.A. Drilled, 1889 by McCandless Bros. Altitude, 19 ft. Depth, 655 ft. Diameter, 8 in. Depth to top of aquifer, 595 ft. Use, irrigation.

Log

Soil	Depth (ft.)	Log	Depth (ft.)	Log	Depth (ft.)
Coral, traces of clay (Pis and probably some Chl. Pannich bowl)	0-12	Brown clay; traces of coral (Pa and Pis)	230-290	Coral (Pa), sand, coral, and gravel (Pa and Pis)	505-515
Red clay (Pa)	12-190	Brown clay (Pa)	320-355	Bedrock or lava (Pis)	515-595
Coral (Pa)	190-230	clay (Pis and Pis)	355-480		
	230-230	Gravel and clay (Pa)	480-505		

Well 86 (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. .. 1929	42.8		Jan. 27, 1932	28.99	42.8
Mar. 6, 1920	27.16		Sept. 26	28.18		Aug. 24	31.54	41.0
Sept. 8, 1923	27.05		Feb. 18, 1930	28.84		June 19, 1934	28.62	42.7
Mar. 31, 1924	27.03		Mar. 2, 1931	29.62		Dec. 11	28.43	41.0
April .. 1925	27.03		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													1.6
1930													3.6
1931													3.5
1932													4.2
1933													3.5
1934													3.5

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, large flat plate flange on standpipe at ground; altitude, 19.15 ft. Chloride (p.p.m.): June 23, 1910, 75; Apr. 25, 1913, 66; Apr. 1, 1920, 55; June 18, 1920, 55; July 31, 1920, 53; June 23, 1920, 53; Oct. 18, 1920, 50; Nov. 16, 1920, 54; Dec. 16, 1920, 53; Jan. 28, 1921, 54; Sept. 31, 1920, 55; Oct. 18, 1920, 50; Nov. 16, 1920, 54; Dec. 16, 1920, 53; Jan. 28, 1921, 54; Feb. 18, 1921, 51; Mar. 15, 1921, 54; Apr. 15, 1921, 52; May 20, 1921, 56; June 17, 1921, 60; 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
Feb. 1910	31.29	April .. 1915	29.25	17	30.17	23	29.58
Mar. 1910	30.66	May .. 1915	29.05	11	30.00	Oct. 2	29.35
April .. 1910	30.23	June .. 1915	28.85	31	30.50	Oct. 2	29.16
May .. 1910	29.75	July .. 1915	28.67	Jan. 1, 1917	30.58	14	29.42
June 23	29.70	Aug. 1915	28.17	30	30.83	19	29.42
July .. 1910	29.75	Sept. 1915	28.00	15	30.83	28	29.16
Aug. 1910	29.2	Oct. 1915	28.00	4	30.83	28	29.16
Sept. 1910	28.83	Nov. 1915	28.00	1	31.42	Nov. 1	29.16
Oct. 1910	30.40	Dec. 1915	29.50	11	31.67	18	29.16
Nov. 1910	30.60	Jan. 1916	31.17	15	31.67	25	29.00
Dec. 1910	31.25	Feb. 1916	31.17	25	31.82	Dec. 2	29.16
Jan. 1911	31.25	Mar. 1916	31.17	Mar. 1	31.83	16	29.35
Feb. 1911	32.40	Apr. 1916	32.25	11	32.00	25	29.35
Mar. 1911	32.68	May .. 1916	32.25	15	32.16	30	29.50
Apr. 1911	32.12	June .. 1916	32.25	25	32.33	Jan. 6, 1918	29.50
May .. 1911	28.88	July .. 1916	32.21	1	32.42	13	29.72
June .. 1911	28.04	Aug. 1916	31.75	8	32.42	20	30.08
July .. 1911	28.04	Sept. 1916	31.67	15	32.42	27	30.33
Aug. 1911	28.58	Oct. 1916	31.60	22	32.42	Feb. 3	30.33
Sept. 1911	28.64	Nov. 1916	31.42	May 1	32.33	17	30.50
Oct. 1911	28.00	Dec. 1916	31.25	6	32.25	24	30.65
Nov. 1911	28.40	Jan. 1917	31.17	15	32.25	Mar. 4	30.65
Dec. 1911	28.75	Feb. 1917	31.00	22	32.16	10	30.64
Jan. 1914	28.63	Sept. 3	30.50	10	32.08	17	30.64
Feb. 1914	28.95	Oct. 10	30.20	15	32.00	31	30.75
Mar. 1914	29.00	Nov. 17	30.50	10	32.08	17	30.75
April .. 1914	29.04	Dec. 24	30.20	15	32.00	31	30.75
May .. 1914	29.00	Jan. 1	30.16	22	31.95	Apr. 7	30.66
June .. 1914	28.75	Feb. 1	30.16	22	31.95	14	30.66
July .. 1914	28.42	Mar. 8	30.16	22	31.95	21	30.66
Aug. 1914	27.83	Apr. 22	30.16	22	31.95	May 5	30.83
Sept. 1914	28.08	May 29	30.00	29	31.95	12	30.83
Oct. 1914	28.25	June 5	29.50	Aug. 5	31.00	17	30.66
Nov. 1914	28.16	July 1	29.00	13	30.75	24	30.41
Dec. 1914	28.16	Aug. 19	30.50	19	30.50	30	30.41
Jan. 1915	29.50	Sept. 2	30.00	26	30.42	9	30.33
Feb. 1915	29.42	Oct. 3	30.00	Sept. 2	30.33	16	30.25

Observations—Well 87 (Continued)

Date	Head (ft.)	Date	Head (ft.)	Date	Head (ft.)	Date	Head (ft.)
July 20, 1910	20.00	April 9, 1920	27.17	Aug. 12, 1921	27.50	Dec. 1, 1922	26.50
July 21	20.00	10	27.17	16	27.42	5	26.58
14	20.00	14	27.16	20	27.33	14	26.67
21	20.00	17	27.00	25	27.23	21	26.75
28	20.92	24	27.00	28	27.17	28	26.80
Aug. 4	20.92	30	27.00	31	27.00	21	27.25
18	20.75	May 6	26.90	Sept. 1	27.00	21	27.33
25	20.82	10	26.80	4	26.92	18	27.33
Sept. 8	20.66	26	26.90	8	26.80	15	27.33
16	20.66	12	26.60	10	26.75	13	27.58
22	20.66	21	26.40	19	26.67	19	27.75
29	20.59	June 1	26.30	Oct. 1	26.58	April 1	29.17
Oct. 6	20.59	25	26.08	1	26.72	23	28.42
13	20.59	14	26.20	13	26.67	July 1	28.84
20	20.17	17	26.12	25	26.92	10	28.30
27	20.00	25	26.08	1	26.92	17	28.30
Nov. 3	28.52	July 1	26.08	6	27.00	28	28.34
10	28.75	7	26.08	13	27.08	Aug. 1	28.34
17	28.75	15	26.00	17	27.17	6	28.17
Dec. 24	28.69	21	26.92	21	27.00	17	27.90
Dec. 8	29.00	25	25.83	1	27.83	22	28.60
15	29.25	Aug. 9	25.73	6	27.00	25	27.75
22	29.58	15	25.67	20	27.25	29	27.67
29	29.75	19	25.87	Jan. 1, 1922	27.25	Sept. 1	27.00
Jan. 5, 1919	30.00	28	25.88	7	27.42	6	27.58
12	30.00	Sept. 1	25.50	14	27.50	11	27.50
19	29.75	13	25.42	16	27.58	14	27.42
26	29.75	21	25.42	19	27.67	18	27.33
Feb. 2	30.09	Oct. 18	25.42	26	27.75	23	27.25
9	29.87	Nov. 9	25.50	30	27.67	30	27.33
16	29.42	16	25.50	Feb. 31	27.83	Oct. 1	27.25
23	29.42	23	25.50	8	28.00	8	27.08
Mar. 2	29.38	Dec. 1	25.50	8	28.25	16	27.00
9	29.25	16	26.00	8	28.25	22	26.83
16	29.09	23	26.08	8	28.25	Nov. 1	26.75
17	29.00	30	26.17	Mar. 1	28.33	10	26.75
20	28.83	Jan. 6, 1921	26.67	8	28.33	17	26.83
24	28.75	11	26.75	13	28.42	Apr. 6, 1924	27.33
31	28.75	16	27.00	April 1	28.42	13	27.42
Apr. 4	28.75	20	27.00	20	28.33	20	27.42
11	28.60	28	27.50	12	28.33	27	27.07
15	28.50	Feb. 5	28.00	16	28.00	May 4	28.08
10	28.63	11	28.08	21	28.00	11	28.00
16	28.33	12	28.10	23	28.00	July 1	26.92
23	28.50	16	28.20	May 1	28.00	5	26.83
June 10	28.33	18	28.10	11	28.00	12	26.83
16	28.17	23	28.00	21	27.75	18	26.50
23	28.42	26	28.40	31	27.67	31	26.42
July 1	28.25	Mar. 2	28.40	June 1	27.67	31	26.17
10	28.25	11	28.60	6	27.58	Aug. 1	26.17
Aug. 5	28.00	15	28.60	11	27.50	11	26.00
17	27.66	21	28.67	19	27.23	17	25.83
23	27.50	30	28.75	July 1	27.08	24	25.67
Sept. 2	27.40	April 1	27.00	9	26.92	14	25.58
Oct. 1	27.10	9	26.90	15	26.75	Sept. 1	25.58
Nov. 1	26.90	1	26.80	19	26.67	6	25.42
6	26.75	May 10	27.75	28	26.58	10	25.33
8	26.83	17	28.67	26	26.42	12	25.17
23	26.83	20	28.60	29	26.33	19	25.00
Dec. 30	26.66	25	28.58	Aug. 1	26.25	14	25.25
30	26.50	31	28.50	5	26.17	Jan. 8, 1926	25.10
31	26.60	June 8	28.42	16	26.00	23	25.20
Jan. 3, 1920	26.50	10	28.42	11	25.92	Feb. 29	25.20
10	26.50	13	28.40	Sept. 1	25.92	3	25.10
17	26.58	17	28.40	8	26.00	12	25.20
24	26.75	21	28.35	Oct. 1	26.05	19	25.10
Feb. 1	26.92	25	28.17	16	26.17	Mar. 5	24.90
7	27.00	27	28.08	21	26.25	12	24.75
14	27.00	29	27.92	Oct. 1	26.25	19	24.60
21	27.00	July 1	27.92	7	26.50	26	24.50
28	27.00	7	27.92	26	26.42	30	24.60
Mar. 6	27.00	17	27.92	24	26.42	April 2	24.50
13	26.92	25	27.83	Nov. 1	26.42	9	24.50
20	27.00	Aug. 1	27.83	8	26.42	16	24.50
27	27.08	6	27.67	23	26.58	23	24.40

Observations—Well 87 (Continued)

Date	Head (ft.)	Date	Head (ft.)	Date	Head (ft.)	Date	Head (ft.)
April 20, 1920	24.90	April 2, 1927	25.50	Nov. 5, 1927	26.00	June 4, 1928	26.50
May 7	24.90	9	25.66	12	26.20	July 1	26.50
14	24.20	16	25.70	19	26.20	8	26.50
21	24.20	23	25.80	26	26.80	15	26.50
28	24.20	30	25.80	Dec. 3	26.80	22	26.00
June 4	24.20	May 7	25.80	10	26.80	29	26.00
11	24.20	14	25.80	Jan. 1, 1928	26.80	Aug. 5	26.08
18	24.40	21	25.80	8	26.25	12	26.08
25	24.40	28	25.80	15	26.33	19	26.08
July 2	24.40	June 4	25.80	22	26.50	26	26.08
9	24.20	11	25.80	Feb. 25	26.50	Sept. 9	26.08
16	24.20	18	26.60	5	28.67	9	26.00
23	24.20	25	25.50	12	28.83	16	26.00
30	24.20	2	25.30	19	29.92	23	26.00
Dec. 3	24.20	July 2	25.30	26	30.00	30	26.00
10	23.20	16	25.20	Mar. 4	29.17	Oct. 7	29.00
17	23.20	23	25.20	11	29.17	14	29.00
24	23.20	30	25.10	18	29.17	21	28.75
31	23.40	Aug. 6	25.00	25	29.25	28	28.75
Jan. 8, 1927	23.50	11	25.00	Apr. 13	29.25	Nov. 4	28.75
15	23.50	20	25.00	0	29.50	11	28.50
22	23.60	27	25.25	18	29.50	18	28.50
Feb. 5	23.70	Sept. 3	25.20	22	29.50	25	28.50
12	23.70	10	25.20	29	29.50	Dec. 2	28.75
19	24.20	17	25.30	6	29.75	9	28.75
26	24.70	24	25.40	13	29.75	16	28.83
Mar. 6	24.70	Oct. 1	25.50	20	29.75	23	28.83
12	25.20	8	25.50	27	29.75	30	29.00
19	25.20	15	25.80	June 3	29.75		
26	25.20	22	25.80	10	29.75		
28	25.20	29	25.80	17	29.75		

Observations—Well 87 (Continued)—Including 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, 1929	29.25	.....	July 14, 1929	28.00	.....	Feb. 5, 1930	.....	41.2
13	29.25	.....	20	28.00	.....	12	.....	41.2
20	29.25	.....	28	27.00	45.8	18	29.66	.....
27	29.25	.....	Aug. 4	27.00	42.8	26	.....	41.2
Feb. 3	29.42	.....	11	27.00	41.2	Mar. 5	.....	42.8
10	29.42	.....	14	.....	42.8	11	.....	42.8
17	29.42	.....	21	.....	42.8	18	.....	42.8
Mar. 3	29.42	.....	Sept. 4	.....	42.8	26	.....	41.2
10	29.42	.....	11	.....	41.2	Apr. 30	.....	41.2
17	29.42	.....	17-20	.....	41.2	May 14	.....	41.2
24	29.42	.....	24	26.69	.....	June 19	.....	41.2
31	29.25	.....	Oct. 2	.....	39.4	July 15	.....	39.4
Apr. 7	29.25	.....	16	.....	39.4	Aug. 23	.....	39.4
14	29.42	.....	23	.....	39.4	Sept. 6	.....	39.4
21	29.42	.....	Nov. 6	.....	39.4	Oct. 7	.....	41.2
28	29.42	.....	13	.....	41.2	Dec. 1	.....	42.8
May 5	29.42	.....	20	.....	39.4	Jan. 7, 1931	.....	39.5
12	29.42	.....	27	.....	41.2	Mar. 2	.....	41.0
19	29.42	.....	Dec. 4	.....	41.2	Sept. 9	.....	27.55
June 2	29.60	.....	11	.....	41.2	Jan. 19, 1932	.....	42.8
9	29.60	.....	18	.....	41.2	Aug. 24	.....	31.72
16	29.60	.....	Jan. 15, 1935	.....	41.2	Jan. 19, 1934	.....	28.80
23	29.60	.....	22	.....	41.2	Dec. 11	.....	42.7
July 7	28.00	.....	29	.....	41.2	Dec. 18	.....	42.7

Discharge in millions of gallons

Year	Jan.	Feb.	Mar.	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Total
1929													4.05
1930		55	58	46	39	37	35	37	38	35	33	34	4.75
1931		56	59	42	39	32	30	32	37	46	42	44	4.30
1932		44	31	30	32	30	34	33	29	29	31	25	3.82
1933		36	28	33	36	32	34	32	38	34	31	29	4.10
1934		36	24	27	28	23	20	22	24	18	22	20	2.75

88A to 1 (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 B. B. Primmer; H and I, 1895. Altitude, A and C, 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, 606 ft; H, 580 ft; I, 616 ft. Diameter, A to G, 12 in.; H and I, 10 in. Weight, A, 457 lb; B, 474 lb; C, 484 lb; D, 485 lb; E, 465 lb; F and G, 459 lb; H, 580 lb; I, 500 lb. Use, municipal. Casing, A and B, 495 ft; C and D, 487 ft; E, 479 ft; F and G, 474 ft; H, 488 ft.

Logs

	Depth (ft.)		Depth (ft.)		Depth (ft.)
Well A					
Black sand (Qft.)...	0-10	Clay (Qht. Punchbowl)	25-45	Black stickle clay (Pa)	435-445
Boulder rock, red		Clay (Pa)	45-220	Corral (Pa)	445-460
Boulder (Qht. Punch-	10-20	Clay (Pa)	220-230	bed rock (Pa)	460-485
bow) ...		Clay (Pa)	230-350	Water-hearing rock	
Boulder rock, red	20-30	Clay (Pa)	350-350		485-600
Boulders (Qht. Punch-		Clay (Pa)	350-405	Well D	
bow) ...	30-35	Clay and clay (Pa)		Black sand (Qft.)...	0-10
Boulder (Qht. Punch-		Corral (Pa)	405-450	Boulders (Qht. Punch-	
bow) ...	35-70	Corral (Pa)	450-480	bow) ...	10-25
Clay (Pa) ...	70-120	Black sand (Pa or		Boulders (Qht. Punch-	
Clay (Pa) ...	210-215	bow) ...	480-490	bow) ...	20-80
Corral (Pa) ...	370-405	Blue rock lava (Tbk)	490-515	Corral (Pa) ...	80-215
Clay (Pa) ...	410-415	Blue rock (Tbk)	515-517	Corral (Pa) ...	215-230
Clay (Pa) ...	418-460	Blue rock (Tbk)	515-617	Corral (Pa) ...	280-300
Sand and gravel (Pa)	460-470	Well C		Dark clay (Pa)...	300-350
Sand and gravel (Pa)	470-510	Boulder sand (Qht)	0-10		
Red rock, water (Tbk)	510-540	Boulder sand (Qht, Punch-		(Pa and Pa) ...	350-490
bow) ...		bow) ...	10-25	Brown clay (Pa)...	400-435
Red rock, water (Tbk)	540-580	Dark clay (Pa) (Qht. Punchbowl)	25-80	Corral (Pa) ...	445-460
Red rock, water (Tbk)	580-590	Dark clay (Pa) ...	215-280	bed rock (Pa)	460-485
Red rock, water (Tbk)	590-607	Corral (Pa)	300-300	Water-hearing rock	
Red rock, water (Tbk)		Dark clay (Pa)	300-350	lava (Tbk)	485-600
Well B		Brown clay (Pa)	350-400		
Ashe and sand (Qft)	0-10				
Corral (Pa) ...	10-13	Gravel, clay and coral			
Boulders (Qht. Punch-	13-25	(Pa and Pa) ...	350-400		
bow) ...		Brown clay (Pa)	400-450		

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

	Depth (ft.)
Well B	
Black sand (Qtz)	
Coral (Pls). Sample shows many angular fragments of cream-colored limestone and large angular fragments of dark blue-gray slightly vesicular hard basals containing abundant olive phenocrysts	0-14
Black boulder (Qbt, Puncbw). Sample shows dark blue-gray hard slightly vesicular basalt containing abundant olive phenocrysts	14-26
Yellow rotten coral (Qbt, Puncbw). Sample shows yellow-brown basaltic tuff together with some angular fragments of white limestone and blue-gray basalt	26-30
Brown coral crinkled with coral (Qbt, Puncbw). Sample at 52 feet shows brown basaltic tuff together with fragments of white limestone	30-52
Brown coral (Qbt, Puncbw). Sample shows brown basaltic tuff together with fragments of white limestone	52-71
Coral (Pls). Sample shows white limestone containing coral foraminifera, small gastropods, and large chione-like pelecypods	71-105
Coral (Pls and Pa). Sample at 105 ft. shows white limestone fragments and white limestone	105-122
White coral (Pls). Sample shows white limestone	122-168
Clay and Coral (Pa and Pls). Sample at 168 ft. shows white limestone fragments and white limestone	168-178
Clay contains two echinoid spines	178-211
White limestone and dark gray basalt	211-295
Clay and Coral (Pa and Pls). Sample shows brown clay and white limestone	295-310
Brown clay (Pa). Sample shows brown clay, white limestone, and silt	310-347
Gray clay (Pa). Sample shows brownish gray to cream colored firm well-sorted, strongly bedded, shaly claystone, with conchoidal fracture containing a few white decomposed foraminifera	347-382

Well E—Continued

Logs—Well 88 (Continued)

	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.	352-359
Gray clay (Pa). Sample shows brown slightly silty 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.	430-445
Lava rock with olivines (Pa or Tkb). Sample shows brown, loose, angular to sub-rounded poorly sorted, very coarse sand, containing rounded fragments of basalt up to 1/2 in. in diameter.	445-448
Brown sandy clay (Pa or Tkb). Sample shows light brown silt containing abundant sand grains of white limestone.	448-453
Gray lava, water rock (Tkb). Sample shows dark brown fine-grained sand, dark blue-gray to red-brown, hard, very vesicular in part amygdaloidal basalt.	453-933
Well F	
Black sand (Qtz)	0-10
Coral (Pls). Sample shows fragments of white limestone and blue-gray basalt.	10-15
Blue rock, boulders (Qhb, Punchbowl). Samples show dark blue-gray to very dark brown claystone, vesicular (Qtz) basalt, together with fragments of white limestone, corals, gastropods, including well-preserved Cypraea and Onus.	15-33
Brown rotten rock (Qht, Punchbowl).	33-80
Clay and coral (Pa and Pls). Sample shows light brown clay with abundant fragments of white limestone and blue-gray basalt.	80-95
White coral (Pls). Sample at 97 ft. shows dark brown clay with white limestone.	97-101
Clay and coral (Pa and Pls). Sample shows dark-brown clay and white limestone.	170-210
Brown clay (Pa).	210-235
Clay and coral (Pa and Pls).	235-242
Brown clay (Pa). Sample shows lilac-gray to yellow-brown friable fairly well-sorted sandy silt.	280-290
Black sand (Qtz).	290-300
Pink clay (Pa). Sample shows brown clay containing many small fragments of white limestone.	300-303
Black sand (Qtz).	303-318
Clay and coral (Pa and Pls). Sample shows light-brown sandy clay containing fragments of white limestone and two angular fragments of dark brown clay.	318-330
Claystone (Qtz). Sample shows light brown clay with abundant fragments of white limestone and a few pink echinoid spines.	348-360
Light brown clay (Pa).	360-370
Clay and coral (Pa and Pls). Sample shows brown fairly well-sorted siltstone.	400-430
Clay and coral (Pa and Pls). Sample shows brown fairly well-sorted siltstone.	430-442
Brown sandy clay (Pa). Sample shows dark-brown clay containing some fragments of white limestone.	442-457
Porous lava (Tkb). Sample from 457 to 520 ft. show dark green-gray to dark blue-gray hard strongly vesicular dark gray basalt containing brown sandy claystone. Sample at 575 ft. shows gray to brown hard strongly vesicular basalt containing abundant olivine phenocrysts. Sample from 605 to 625 ft. shows dark gray basalt containing abundant olivine phenocrysts.	457-633
Hard rock (Tkb).	633-636
Well G	
Black sand (Qtz)	0-5
Blue rock, revives (Qhb, Punchbowl).	5-10
Blue rock, with seams of brown rotten rock (Qhb, Punchbowl).	10-15
Brown rotten rock (Qht, Punchbowl).	15-33
Clay and coral (Pa and Pls).	33-75
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 (Pa and Pls). Sample shows light brown clay and white limestone.	152-919
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 of white limestone, iron ore, and coral.	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 white limestone.	370-405
Pelecypod shells.	405-457
Clay and coral (Pa and Pls). Sample shows dark red-brown clay containing many fragments of blue-gray basalt and a few fragments of white limestone.	457-566
Lava and water rock (Tkb). Sample at 460 ft. shows dark blue-gray slightly vesicular	460-465
	457-566

Logo Well 88 (Continued)

	Depth (ft.)		Depth (ft.)
Well I			
Black sand (Qtz)	0-10	Coral (Pla)	40-220
Boulders (Pa or Qbb, Punchbowl)	5-15	Clay (Pa)	220-386
Coral (Pa or Qbb, Punchbowl)	15-30	Coral (Pla)	386-402
Boulders (Pa or Qbb, Punchbowl)	30-40	Trough clay (Pa or Tbb)	402-500
		Lava rock (Tbb)	500-616

Observations

Date	Head (ft.)	Chloride (p.p.m.)	Date	Head (ft.)	Chloride (p.p.m.)
..... 1895	60	April 1, 1914	28.84	June 12, 1920	48
..... 1909	67	June 1, 1914	28.53	 19	47.5
Dec. 1905	56.4	July 1, 1914	27.95	 26	49.1
Jan. 1910	54.7	Aug. 1, 1914	27.70	 19	48.7
Mar. 1911	50.93	Sept. 1, 1914	26.75	 10	48.4
June 1911	51.96	Oct. 1, 1914	26.08	 17	49.2
July 1911	51.75	Nov. 1, 1914	25.50	 24	49.5
Aug. 1911	51.72	Dec. 1, 1914	25.50	 29	49.9
Sept. 1911	50.98	Jan. 1, 1915	25.05	 49	49
Oct. 1911	51.01	Feb. 1, 1915	28.95	 14	49.3
Nov. 1911	50.74	Mar. 1, 1915	28.37	 21	48.6
Dec. 1911	51.04	Apr. 1, 1915	27.62	 28	49.3
Jan. 1912	53.7	May 1, 1915	27.75	 48	48.5
Mar. 1912	48.0	June 1, 1915	26.58	 5	48
June 1912	54.7	Sept. 1, 1915	30.30	 11	48
July 1912	54.7	Oct. 1, 1915	29.85	 18	47.5
Aug. 1912	54.7	Nov. 1, 1915	29.77	 23	48.7
Sept. 1912	54.7	Dec. 1, 1915	29.80	 29	48.8
Oct. 1912	54.7	Jan. 1, 1916	29.80	 46	47.5
Nov. 1912	54.7	Feb. 1, 1916	29.92	 23	45.8
Dec. 1912	54.7	Mar. 1, 1916	30.12	 40	46
Jan. 1913	54.7	Apr. 1, 1916	30.04	 17	47
Feb. 1913	29.06	May 1, 1916	30.12	 10	48.2
Mar. 1913	28.59	June 1, 1916	50	 20	46.6
April 1913	28.90	July 1, 1916	46.4	 27	45.8
May 1913	28.44	Aug. 1, 1916	47.6	Mar. 1924	48.0
June 1913	28.95	Sept. 1, 1916	45.0	July 1926	48.0
July 1913	28.06	Oct. 1, 1916	48.0	Nov. 20	48.0
Aug. 1913	28.53	Nov. 1, 1916	48.5	July 1927	446.0
Sept. 1913	28.60	Dec. 1, 1916	47.9	Dec. 1928	444.0
Oct. 1913	28.72	Jan. 1, 1917	48		
Nov. 1913	28.12	Feb. 1, 1917	48		

*H and I only. H and B only. 4C and D added to pumping station. SE, E, and G added to pumping station.

Well A. Bench mark, top of manhole rim 10 ft. below ground; altitude, 10.04 ft.

Mar. 17, 1924	27.76	.....	May 24, 1929	.....	34.2	Jan. 28, 1932	29.66	34.2
Oct. 1928	.....	35.9	June 20	.....	34.2	Aug. 23	31.84	35.9
Nov. 1928	.....	37.6	Sept. 2, 1931	.....	34.2	June 19, 1934	28.75	37.6
Jan. 29, 1929	.....	35.9	Feb. 18, 1930	.....	29.45	Sept. 26	.....	37.6
Feb. 25	.....	35.9	Sept. 9, 1931	.....	27.22			
Mar. 19	.....	35.9	Sept. 14	.....	49.6			

Well B. Bench mark, top of manhole rim 1 1/2 ft. below ground; altitude, 18.32 ft.

Mar. 17, 1924		27.71		Sept. 26, 1929	26.06		June 19, 1934	28.73	46.2
Jan. 29, 1929			42.7	Feb. 18, 1930	29.34		Sept. 15		44.5
Feb. 25			42.7	Mar. 2, 1931	27.59		Oct. 6		51.3
Mar. 19			41.5	Sept. 9, 1931	27.57		Oct. 17		47.9
May 23			42.7	Sept. 14		39.3			
June 20			41.0	Aug. 23, 1932	31.80	41.0			

Well C. Bench mark, top of manhole rim at ground; altitude, 16.97 ft.

Mar. 15, 1924	28.00	.....	June 20, 1929	.....	36.0	June 19, 1934	28.63	42.7
Oct. 1928	.....	39.3	Sept. 26	25.87	.....	Sept. 11	.....	39.3
Nov. ....	.....	37.6	Feb. 18, 1930	29.24	.....	Sept. 21	.....	39.3
Jan. 29, 1929	.....	37.6	Sept. 9, 1931	27.30	.....	Sept. 27	.....	37.6
Feb. 25	.....	37.6	Sept. 14	.....	42.8	Oct. 17	.....	39.3
Mar. 18	.....	37.6	Jan. 27, 1932	29.41	.....			
May 23	.....	37.6	Aug. 23	31.80	44.5			

Observations—Well 88 (Continued)

Well D. Bench mark, top of upper flange on valve over valve stem 6 ft. below ground; altitude, 14.18 ft. Chloride (p.p.m.), Jan. 29, 1929, 39.3; Feb. 25, 1929, 42.7; Mar. 18, 1929, 46.2; Sept. 14, 1931, 47.9; Aug. 23, 1932, 50.5; June 18, 1934, 50.7.

Date	Head (ft.)	Date	Head (ft.)	Date	Head (ft.)	Date	Head (ft.)
Mar. 14, 1924	27.8	Feb. 5, 1934	29.94	May 28, 1934	28.88	Sept. 15, 1934	26.91
Nov. 1, 1928	28.18	Feb. 12	29.08	June 4	28.87	Sept. 22	26.38
Nov. 9	28.10	Feb. 19	30.01	June 11	28.85	Sept. 29	26.57
Nov. 16	28.10	Feb. 26	30.02	June 18	28.75	Oct. 6	27.51
Sept. 26, 1929	26.04	Mar. 5	30.09	June 25	28.56	Oct. 13	27.97
Feb. 18, 1930	29.21	Mar. 12	30.07	July 1	28.39	Oct. 20	27.55
Sept. 9, 1931	27.45	Mar. 19	30.04	July 8	28.21	Oct. 27	28.18
Dec. 19, 1935	30.09	Mar. 26	29.84	July 16	30.10	Nov. 3	28.05
Jan. 21	29.42	Apr. 2	29.81	July 22	27.87	Nov. 9	28.37
Jan. 27	29.43	Apr. 9	29.67	July 29	27.71	Nov. 16	27.98
Aug. 23	31.82	Apr. 16	29.44	Aug. 5	27.60	Nov. 23	28.22
Jan. 1, 1934	28.37	Apr. 23	29.22	Aug. 12	27.39	Nov. 30	28.20
Jan. 8	29.59	Apr. 30	29.12	Aug. 19	27.84	Dec. 7	28.58
Jan. 15	29.76	May 7	29.09	Aug. 26	27.34	Dec. 14	28.29
Jan. 22	29.94	May 14	29.01	Sept. 1	26.51	Dec. 21	28.20
Jan. 29	29.91	May 21	29.00	Sept. 8	26.23	Dec. 27	28.24

Well E. Bench mark, top of manhole rim at ground; altitude, 18.33 ft.

Date	Head (ft.)	Chloride (p.p.m.)	Date	Head (ft.)	Chloride (p.p.m.)	Date	Head (ft.)	Chloride (p.p.m.)
Aug. 19, 1926	23.63	.....	Jan. 2, 1930	.....	53.1	Sept. 14, 1931	.....	49.6
Nov. 12	23.35	.....	8	.....	51.4	Dec. 5	.....	51.3
Dec. 1928		51.4	8	.....	51.4	Jan. 28, 1932	29.66	.....
Nov. 1929		53.0	22	.....	51.4	Feb. 26	.....	49.6
Jan. 29, 1929		51.3	22	.....	51.4	Mar. 30	.....	49.6
Feb. 25		51.3	25	.....	51.4	Apr. 27	.....	49.6
Mar. 19		51.4	12	.....	51.4	May 27	.....	51.3
Apr. 19		51.4	18	29.40	.....	June 24	.....	49.6
June 20		49.6	26	.....	51.4	Aug. 23	31.87	.....
July 25		53.1	3	.....	53.1	Sept. 23	.....	53.0
Aug. 1		51.4	19	.....	51.4	Oct. 27	.....	46.2
..... 14		51.4	26	.....	51.4	Mar. 30	.....	46.2
..... 28		53.1	30	.....	51.4	June 30	.....	47.9
Sept. 11		53.1	19	.....	51.4	July 27	.....	49.6
..... 17		51.4	15	.....	51.4	Sept. 28	.....	49.6
..... 26	26.04	.....	26	.....	51.4	Oct. 21	.....	47.9
Oct. 2		51.4	26	.....	51.4	Nov. 28	.....	46.2
..... 18		51.4	27	.....	51.4	Feb. 27, 1933	.....	46.2
..... 23		51.4	27	.....	51.4	Mar. 29	.....	46.2
Nov. 30		51.4	16	.....	51.3	Apr. 28	.....	46.2
..... 13		51.4	19	.....	51.4	May 31	.....	47.9
..... 20		51.4	16	.....	49.6	July 31	.....	49.6
Dec. 4		51.4	27	.....	49.6	Sept. 26	.....	53.0
..... 11		51.4	27	.....	49.6	Oct. 17	.....	53.0
..... 26		53.0	27	27.46	49.6	Nov. 30	.....	53.0
..... 26		53.0	27	.....	49.6	Dec. 15	.....	51.3

Well F. Bench mark, top of manhole rim at ground; altitude, 14.55 ft.

Sept. 14, 1926	23.68	55.0	Oct. 2, 1929	39.4	Feb. 18, 1930	29.21	.....
Nov. 12	23.42	.....	16	39.4	Mar. 26	42.8	.....
Oct. 1928	41.0	.....	20	39.4	Apr. 12	42.8	.....
Nov. 1928	41.0	.....	20	39.4	May 12	42.8	.....
Jan. 29, 1929	39.3	.....	Nov. 6	39.4	19	42.8	.....
Feb. 25	39.3	.....	12	41.2	26	42.8	.....
Mar. 19	41.0	.....	20	41.2	April 9	41.2	.....
May 23	39.3	.....	27	41.2	April 30	39.4	.....
June 20	37.6	.....	Dec. 4	42.8	May 14	39.4	.....
July 25	42.8	.....	11	42.8	June 19	41.2	.....
Aug. 1	42.8	.....	18	42.8	July 13	37.7	.....
..... 14	42.8	.....	Jan. 26, 1930	42.8	Aug. 23	37.7	.....
..... 21	42.8	.....	21	42.8	Sept. 6	42.8	.....
..... 28	42.8	.....	25	41.2	Nov. 12	42.8	.....
Sept. 4	41.2	.....	22	42.8	Dec. 16	42.8	.....
..... 11	39.4	.....	22	42.8	Jan. 7, 1931	39.3	.....
..... 19	39.4	.....	Feb. 2	42.8	Mar. 2	39.3	.....
..... 26	25.92	.....	12	42.8	April 16	39.3	.....

Well P—Continued. Observations—Well 88 (Continued)

Date	Head (ft.)	Chloride (p.p.m.)	Date	Head (ft.)	Chloride (p.p.m.)	Date	Head (ft.)	Chloride (p.p.m.)
May 27, 1931		57.6	Sept. 23, 1932	.....	39.3	Jan. 30, 1934	.....	44.5
June 27		57.3	Oct. 27	.....	42.7	Feb. 27	.....	44.5
July 28		42.7	Nov. 29	.....	44.5	Mar. 29	.....	44.5
Aug. 8		42.7	Dec. 7	.....	42.7	April 28	.....	44.5
Sept. 9	27.08	.....	Jan. 27, 1933	.....	42.8	May 11	.....	44.5
Sept. 14		37.6	Feb. 27	.....	41.0	June 19	28.72	44.5
Oct. 30		37.6	Mar. 30	.....	44.5	July 31	.....	44.5
Dec. 5		39.3	May 11	.....	44.5	Aug. 30	.....	44.5
Jan. 28, 1932		44.5	June 30	.....	44.5	Sept. 26	.....	41.0
Feb. 28		44.5	July 26	.....	44.5	Oct. 8	.....	41.0
Mar. 30		44.5	Aug. 31	.....	44.5	Oct. 17	.....	41.0
April 27		44.5	Sept. 26	.....	44.5	Nov. 15	.....	44.5
May 27		41.0	Oct. 31	.....	44.5	Nov. 30	.....	41.0
June 28		44.5	Nov. 28	.....	44.5	Dec. 22	.....	42.8
Aug. 23	31.89	46.2	Dec. 22	.....	42.8			

Well G. Bench mark, top of manhole rim at ground; altitude, 15.37 ft.

Oct. 12, 1926	.....	47.0	June 20, 1929	.....	39.3	Aug. 23, 1932	31.89	41.0
Nov. 12	23.27	.....	Sept. 26	26.05	.....	June 19, 1934	28.77	44.5
Jan. 29, 1929	.....	42.7	Feb. 18, 1930	29.35	.....	Sept. 17	.....	44.5
Feb. 25	.....	41.0	Sept. 9, 1931	27.34	.....	Oct. 17	.....	44.5
Mar. 18	.....	42.7	Sept. 14	.....	39.3			
May 24	.....	39.3	Jan. 28, 1932	29.45	.....			

Well H. Bench mark, cross on manhole rim at ground; altitude, 21.18 ft.

.....	1895	.....	60	Mar. 18, 1929	.....	39.3	Aug. 23, 1932	32.04	41.0
.....	1899	.....	60	May 28	.....	39.3	June 10, 1934	28.85	42.7
Dec. 20, 1906	.....	56	June 20	.....	38.0	Sept. 18	.....	42.7	.....
Mar. 1910	.....	55	Sept. 26	26.01	.....	Sept. 24	.....	37.6	.....
Sept. 1912	.....	55	Feb. 18, 1930	29.58	.....	Sept. 28	.....	37.6	.....
Mar. 17, 1924	27.73	48	Sept. 9, 1931	27.56	.....	Oct. 9	.....	51.3	.....
Jan. 29, 1929	.....	29.3	Sept. 14	.....	37.6	Oct. 17	.....	37.6	.....
Feb. 25	.....	39.3	Jan. 28, 1932	29.73	42.8				

Well I. Bench mark, top of manhole rim at ground; altitude, 21.93 ft.

Mar. 17, 1924	27.68	.....	.....	Sept. 26, 1929	26.15	.....	June 10, 1934	99.99	44.5
Jan. 29, 1929	.....	39.3	.....	Feb. 18, 1930	27.74	.....	Sept. 18	.....	44.5
Feb. 25	.....	39.3	.....	Sept. 9, 1931	27.49	.....	Sept. 28	.....	41.0
Mar. 18	.....	39.3	.....	Sept. 14	.....	39.3	Oct. 9	.....	51.3
May 23	.....	39.3	.....	Jan. 28, 1932	29.64	42.8	Oct. 17	.....	41.0
June 20	.....	39.3	.....	Aug. 23	32.07	39.3			

Discharge in millions of gallons

Year	Jan.	Feb.	Mar.	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Total
1924	184	232	287	244	190	206	272	308	307	303	258	302	3133
1925	302	269	298	253	294	295	298	311	300	308	254	305	3214
1926	291	270	296	280	308	293	294	302	289	306	296	305	3230
1927	289	215	191	251	339	341	351	375	341	356	275	296	3620
1928	309	300	338	314	412	332	274	289	251	255	251	255	3252
1929	239	213	241	223	220	230	243	302	309	210	190	310	3019
1930	190	187	191	198	224	225	234	243	200	196	200	175	2473
1931	187	200	220	227	249	250	267	293	197	203	198	182	2542
1932	195	157	170	156	103	190	219	194	197	196	168	167	2162
1933	134	108	129	139	151	155	167	168	181	178	179	168	1845
1934	149	154	157	176	170	150	181	212	221	43	51	187	1931

80 (old 81A). At the Oahu Ice Co. plant on Kapiolani Blvd., Honolulu. Owner, Oahu Ice Co. Drilled, 1912. Altitude, 6 ft. Depth, 887 ft. Diameter, 10 in. Use, industrial.

Observations

Bench mark, top of 2-in. tee south side of well at ground; altitude, 6.48 ft.

Date	Head (ft.)	Chloride (p.p.m.)	Date	Head (ft.)	Chloride (p.p.m.)	Date	Head (ft.)	Chloride (p.p.m.)
May 13, 1910		95	Aug. 28, 1923	27.78	.....	Mar. 9, 1926	.....	116
June 12, 1911		78	Mar. 27, 1924	27.68	76	Mar. 16	29.08	.....
Mar. 15, 1920		244.48	Feb. 17, 1925	.....	79	Feb. 18, 1927	.....	81
April 20, 1921		95	Feb. 17, 1926	24.73	70	Mar. 2, 1928	.....	68.4

*Reading unsatisfactory.

Observations—Well 89 (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		63.4	Nov. 27, 1929	.....	66.8	April 30, 1930	.....	63.4
July 9		61.7	Dec. 11	.....	63.4	May 14	.....	63.4
Aug. 1		65.2	Dec. 18	.....	63.4	June 19	.....	65.2
Aug. 7		65.2	Dec. 26	.....	63.4	July 15	.....	65.2
Aug. 14		66.8	Dec. 26	.....	63.4	Aug. 23	.....	63.4
Aug. 21		66.2	Jan. 2, 1930	.....	65.2	Sept. 6	.....	61.7
Aug. 28		66.8	Jan. 8	.....	65.2	Oct. 7	.....	63.4
Sept. 4		65.8	Jan. 15	.....	65.2	Nov. 13	.....	63.4
Sept. 19		63.4	Jan. 22	.....	65.2	Dec. 16	.....	63.4
Sept. 26	117.78	.....	Feb. 5	.....	65.2	Jan. 7, 1931	.....	63.3
Sept. 29		61.7	Feb. 26	.....	65.2	Mar. 2	.....	65.0
Oct. 16		63.4	Mar. 5	.....	66.8	Sept. 3	26.39	61.6
Oct. 23		63.4	Mar. 12	.....	66.8	April 5, 1932	31.27	59.8
Oct. 30		63.4	Mar. 19	.....	65.2	April 27	.....	61.6
Nov. 6		63.4	Mar. 19	.....	65.2	June 19, 1934	.....	59.8
Nov. 13		66.8	April 9	.....	63.4	Dec. 11	.....	58.1

*Pumping 800 g.p.m.

Discharge in millions of gallons

Year	Jan.	Feb.	Mar.	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Total
1929	.....	.....	.....	.....	.....	.....	37	37	36	37	36	37	220
1930	37	34	37	36	37	36	37	37	36	36	36	37	436
1931	36	37	37	36	37	36	37	37	36	37	37	37	436
1932	37	35	37	36	37	38	37	37	38	37	36	37	438
1933	37	34	37	36	37	36	37	37	36	37	36	37	437
1934	35.0	25.1	28.5	27.6	28.7	27.8	28.5	28.2	26.9	24.9	29.0	27.1	330.3

90 (no old number). At main office of C. Brewer and Co. Owner, C. Brewer and Co. Drilled, 1937 by W. H. Mullin. Depth, 100 ft. Diameter, 6 in. Casing, 20 ft. Use, air conditioning. Driller's log: black sand (Qtz), 0-8 ft.; coral (Pls), 8-100 ft.

91 (old 83). Under Kapiolani Blvd., 200 ft. west of the Advertiser Bldg., Honolulu. Owner, City and County of Honolulu. Drilled, 1896. Altitude, 9 ft. Diameter, 10 in. Use, domestic.

Observations

Bench mark, top of plug in cross union on casing, 6 ft. below ground; altitude, 3.06 ft.

Date	Head (ft.)	Chloride (p.p.m.)	Date	Head (ft.)	Chloride (p.p.m.)	Date	Head (ft.)	Chloride (p.p.m.)
..... 1910		80	Mar. 13, 1928	28.43		Sept. 18, 1931		51.3
Mar. 25, 1929	24.93	.....	..... Mar. 19, 1929		63.3	April 27, 1932		51.3
Aug. 30, 1923	27.11	.....	Sept. 27	25.49	61.7	Aug. 27	.....	53.0
Mar. 26, 1924	25.86	.....	Sept. 6, 1930	.....	56.6	June 19, 1934	.....	54.7
July 30, 1928	29.47	76	Dec. 9	.....	29.85	Dec. 11	28.51	54.7
Feb. 28, 1928	.....	73	Mar. 3, 1931	.....	56.4			

Discharge in millions of gallons

Year	Jan.	Feb.	Mar.	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Total
1929							15	15	15	15	15	15	1.51
1930							3	3	3	3	3	3	3.6
1931							3	3	3	3	3	3	3.6
1932							3	3	3	3	3	3	3.6
1933							3	3	3	3	3	3	3.6
1934							3	3	3	3	3	3	3.6

92 (old 85). Between Marmon Lane and Kawaiahao St., Honolulu. Owner, American Sanitary Laundry. Drilled, 1900. 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 $\frac{1}{8}$ -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	.....	.....	Mar. 2, 1931	27.64	61.6	Oct. 28, 1931	27.84	.....
Jan. 30, 1919	29.12	90.0	Sept. 18	47.6	.....	Nov. 6	29.79	.....
Sept. 4, 1924	27.31	.....	Oct. 9	26.8	.....	Nov. 21	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. 29, 1929	.....	.....	Oct. 19	27.40	.....	Nov. 11	27.80	.....
Sept. 26	123.94	60.0	Oct. 20	27.40	.....	Nov. 12	27.80	.....
Feb. 15, 1930	26.15	.....	Oct. 22	27.70	.....	Nov. 13	27.80	.....
Sept. 11, 1931	.....	56.6	Oct. 24	27.50	.....	Nov. 14	27.80	.....
Feb. 10, 1931	27.73	.....	Oct. 25	27.70	.....	Nov. 15	27.80	.....

*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-well meter failed to record velocity to depth of 211 ft. Readings by K. N. Vakavik, 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-well meter used. Readings by K. N. Vakavik, June 15, 1931.

Depth (ft.)	Revolutions per minute	Depth (ft.)	Revolutions per minute	Depth (ft.)	Revolutions per minute
50	214	620	400	740	312
100	208	670	400	750	356
150	212	680	400	760	320
300	328	690	400	770	276
400	334	700	400	780	170
500	336	710	384	785	126
600 (hook)	320	720	344	789 (meter landed)	.....
610 (hook)	359	730	328	.....	.....

Discharge in millions of gallons

Year	Jan.	Feb.	Mar.	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Total
1929	.....	.....	.....	.....	.....	.....	2.78	2.69	2.55	2.61	2.40	2.50	15.50
1930	2.33	2.29	2.62	2.11	2.61	2.45	3.02	2.84	2.72	2.85	2.76	3.11	32.57
1931	2.91	2.64	3.19	2.61	2.63	2.92	2.95	2.96	3.00	3.28	2.81	2.80	34.80
1932	2.84	2.56	3.47	2.70	2.59	2.61	3.05	2.48	2.40	3.10	2.58	2.48	32.92
1933	2.70	2.21	2.71	2.52	3.50	2.77	2.76	2.35	2.15	2.60	2.56	3.10	33.69
1934	3.19	2.82	3.15	2.88	3.68	2.95	2.94	2.76	2.60	2.65	2.61	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.)	Depth (ft.)
Coral and sand (Pis and Pw)	Sticky clay (Pa).....	625-680	Soft rock and sand (Tsb)
Hard coral (Vls).....	Sticky clay (Pis and Pa).....	680-840	Hard blue rocks; water (Tbh).....
Brown clay (Pa).....	Sticky clay (Pa).....	840-865	Soft red rock (Tbh).....
Coral (Pis).....	Sticky clay (Pa).....	865-891	Blue rock (Tbh).....
Brown clay (Pa).....	Clay and coral (Pa and Pis).....	.....	.....
Coral (Pis).....	.....	.....	.....
Hard coral (Pis).....	.....	.....	.....

Well 93 (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	.....	240
Oct. 22, 1916	30.23	.....	Jan. 15	206	May 27	.....	240	.....
Oct. 30	29.55	.....	Jan. 15	206	June 28	.....	240	.....
Nov. 6	29.79	.....	Jan. 22	206	July 28	.....	240	.....
Nov. 21	29.42	.....	Jan. 29	206	Aug. 23	.....	240	.....
Nov. 28	29.13	.....	Feb. 5	206	Sept. 23	.....	240	.....
Dec. 11	29.37	.....	Feb. 12	206	Oct. 27	.....	240	.....
Dec. 1929	.....	120	Feb. 20	206	Nov. 20	.....	240	.....
Aug. 31, 1923	27.29	.....	Mar. 5	206	Dec. 27	.....	240	.....
Mar. 27, 1924	27.20	.....	Mar. 12	206	Jan. 27, 1933	.....	240	.....
Sept. 11, 1925	176	.....	Mar. 19	206	Feb. 24	.....	240	.....
Feb. 16, 1926	284	.....	Mar. 26	206	Mar. 29	.....	240	.....
July 20	22.69	200	Mar. 26	206	Mar. 29	.....	240	.....
Mar. 1, 1929	29.41	216	Apr. 10	206	May 31	.....	240	.....
July 25	.....	223	Apr. 10	206	June 30	.....	240	.....
Aug. 1	257	.....	May 14	223	July 26	.....	240	.....
Aug. 7	257	.....	May 15	240	Aug. 31	.....	240	.....
Aug. 14	240	.....	Aug. 23	240	Oct. 31	.....	240	.....
Aug. 21	240	.....	Sept. 6	240	Nov. 28	.....	240	.....
Aug. 28	240	.....	Sept. 7	240	Dec. 24	.....	240	.....
Sept. 4	240	.....	Nov. 12	240	Jan. 20, 1934	.....	240	.....
Sept. 11	240	.....	Dec. 10	240	Jan. 27	.....	240	.....
Sept. 20	240	.....	Jan. 7, 1931	240	Mar. 29	.....	240	.....
Sept. 26	25.60	.....	Mar. 3	29.82	Apr. 28	.....	240	.....
Oct. 2	223	.....	Apr. 16	240	May 31	.....	240	.....
Oct. 16	223	.....	May 27	222	June 19	28.60	239	.....
Oct. 23	240	.....	June 26	257	July 31	.....	239	.....
Oct. 30	240	.....	Aug. 6	240	Aug. 30	.....	239	.....
Nov. 6	240	.....	Aug. 8	240	Sept. 26	.....	239	.....
Nov. 12	240	.....	Sept. 9	27.45	Oct. 17	.....	239	.....
Nov. 20	240	.....	Sept. 18	240	Nov. 10	.....	239	.....
Nov. 27	240	.....	Oct. 30	240	Nov. 15	.....	239	.....
Dec. 4	240	.....	Dec. 7	222	Nov. 30	.....	239	.....
Dec. 11	223	.....	Jan. 29, 1932	20.08	Dec. 11	28.35	239	.....
Dec. 18	223	.....	Feb. 26	205	.....	.....	.....	.....
Dec. 26	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	.6	.46	.22	4.28
1930	.....	.....	.....	.....	.....	.99	1.03	1.32	1.47	1.0	.62	.42	10.69
1931	.58	.70	.32	1.05	.95	.51	.63	.53	.3	.3	.3	.3	5.75
1932	.3	.6	.2	.8	.9	.4	.3	.3	.3	.3	.3	.3	5.75
1933	.....	.78	1.13	.62	1.34	.34	.88	1.03	1.24	1.55	.51	.52	11.51
1934	1.22	1.34	1.66	.72	.86	.59	.66	1.46	.66	1.48	.59	.52	12.13

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	16.20	.....	Dec. 10, 1916	14.30	.....
Aug. 13, 1916	15.86	.....	Oct. 22	15.80	.....	Dec. 17	14.00	.....
Sept. 10	15.80	.....	Oct. 29	16.00	.....	Sept. 4, 1923	27.76	.....
Sept. 17	15.90	.....	Nov. 12	14.00	.....	Mar. 27, 1924	27.50	179
Sept. 24	16.10	.....	Nov. 26	14.50	.....	July 30, 1926	176	.....
Oct. 1	16.00	.....	Dec. 3	15.30	.....	Oct. 8	187	.....
Oct. 8	16.80	.....	Dec. 3	15.30	.....	Mar. 1, 1928	29.71	190

*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	171	June 19, 1930	171	171	Nov. 29, 1932	152	152
Sept. 19	171	171	July 15	171	171	Dec. 7	147	147
Sept. 28	29.74	161	Aug. 23	140	140	Jan. 27, 1933	144	144
Oct. 30	161	161	Sept. 6	171	171	Feb. 24	144	144
Nov. 6	171	171	Oct. 7	171	171	Mar. 29	135	135
Nov. 13	171	171	Nov. 12	171	171	May 11	135	135
Nov. 20	168	168	Dec. 16	168	168	May 31	132	132
Nov. 27	158	158	Jan. 7, 1931	158	158	June 30	132	132
Dec. 4	168	168	Mar. 1	29.58	171	July 26	128	128
Dec. 11	171	171	April 16	171	171	Aug. 1	133	133
Dec. 18	171	171	May 27	171	171	Sept. 28	120	120
Dec. 26	171	171	June 26	171	171	Oct. 31	120	120
Jan. 2, 1930	171	171	July 28	161	161	Nov. 28	120	120
Jan. 8	168	168	Aug. 8	161	161	Dec. 22	120	120
Jan. 15	171	171	Sept. 11	27	169	Jan. 30, 1934	115	115
Jan. 22	171	171	Sept. 18	169	169	Feb. 27	109	109
Jan. 29	171	171	Oct. 30	159	159	Mar. 29	108	108
Feb. 5	171	171	Feb. 5	169	169	April 28	111	111
Feb. 12	171	171	Jan. 28, 1932	29.02	161	May 31	111	111
Feb. 18	168	168	Feb. 26	161	161	June 19	28.71	109
Feb. 26	168	168	Mar. 30	161	161	June 31	108	108
Mar. 5	171	171	April 27	161	161	Aug. 30	108	108
Mar. 12	168	168	May 27	169	169	Sept. 24	116	116
Mar. 19	168	168	June 28	169	169	Oct. 1	106	106
Mar. 26	171	171	July 28	164	164	Oct. 30	104	104
April 9	171	171	Aug. 23	31.05	152	Nov. 15	99	99
April 30	171	171	Sept. 22	156	156	Nov. 30	94	94
May 14	171	171	Oct. 27	154	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	..	..	..	..	..	..	..	..	..	..	..	..	3.62
1931	..	..	..	..	..	..	..	..	..	..	..	..	3.6
1932	..	..	..	..	..	..	..	..	..	..	..	..	3.6
1933	..	..	..	..	..	..	..	..	..	..	..	..	3.6
1934	..	..	..	..	..	..	..	..	..	..	..	..	3.6

95 (old 86). Near large red brick bldg. on opposite side of Queen St. from Kawaiahao Church graveyard, Honolulu. Owner, C. Q. 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 2½ 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	89.0	Nov. 12, 1926	28.51	71.0	Mar. 3, 1931	29.88	68.4
..... 1910	88.0	88.0	Mar. 1, 1928	28.86	70.0	Sept. 10	26.78	65.0
Aug. 31, 1923	27.66	.....	Mar. 1, 1929	.....	68.5	Sept. 18	.....	68.4
Feb. 19, 1924	28.30	.....	July 19	.....	68.4	Jan. 29, 1932	29.33	63.8
Mar. 13	60.0	.....	Sept. 28	25.67	68.5	Aug. 24	31.65	66.7
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	.....	.....	.....	.....	.....	.....	..08	..06	..012	..014	.....	.....	..176
1930	..03	..03	..03	..03	..03	..03	..03	..03	..03	..015	.....	.....	..176
1931	..05	..04	..05	..05	..05	..05	..05	..05	..05	..05	.....	.....	..176
1932	..05	..05	..05	..05	..05	..05	..05	..05	..05	..05	.....	.....	..176
1933	..06	..06	..06	..06	..06	..06	..06	..06	..06	..06	.....	.....	..176
1934	1.20	1.10	1.20	1.20	1.20	1.25	1.27	1.48	1.23	1.05	1.07	1.18	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 2½ ft. above ground near pump; altitude, 16.80 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	52.0	Oct. 16, 1929	37.7	37.7	Mar. 12, 1930	39.4	39.4
Feb. 3, 1919	26.07	.....	Oct. 23	37.7	37.7	Mar. 19	37.7	37.7
Aug. 18, 1923	25.59	.....	Oct. 30	36.0	36.0	Mar. 26	36.0	36.0
Nov. 9	34.49	.....	Nov. 6	37.7	37.7	April 9	36.0	36.0
Feb. 19, 1924	26.10	.....	Nov. 13	37.7	37.7	April 30	36.0	36.0
May 21	25.40	46.0	Nov. 20	37.7	37.7	May 14	36.0	36.0
July 30, 1926	23.57	46.0	Nov. 27	37.7	37.7	June 19	37.7	37.7
May 21, 1927	26.07	.....	Dec. 4	37.7	37.7	July 15	36.0	36.0
Feb. 17, 1928	29.13	13.0	.....	37.7	37.7	Aug. 23	37.7	37.7
Mar. 1, 1929	37.7	37.7	Dec. 18	37.7	37.7	Sept. 6	36.0	36.0
July 25	37.7	37.7	Dec. 26	37.7	37.7	Oct. 7	36.0	36.0
Aug. 1	37.7	37.7	Jan. 2, 1930	37.7	37.7	Nov. 12	36.0	36.0
Aug. 7	37.7	37.7	Jan. 8	37.7	37.7	Dec. 16	34.3	34.3
Aug. 14	37.7	37.7	Jan. 15	37.7	37.7	Jan. 7, 1931	35.9	35.9
Aug. 21	37.7	37.7	Jan. 22	37.7	37.7	Jan. 29	35.9	35.9
Aug. 28	37.7	37.7	Jan. 29	37.7	37.7	Sept. 9	27.41	27.41
Sept. 4	37.7	37.7	Feb. 5	37.7	37.7	Sept. 16	36.0	36.0
Sept. 11	37.7	37.7	Feb. 12	37.7	37.7	Jan. 29, 1932	28.54	27.6
Sept. 17-20	37.7	37.7	Feb. 18	28.65	37.7	Aug. 26	35.9	35.9
Sept. 25	37.7	37.7	Feb. 26	37.7	37.7	June 19, 1934	37.7	37.7
Oct. 2	39.4	39.4	Mar. 5	37.7	37.7	Dec. 11	37.6	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. Improvised Price meter used. Readings by G. K. Harrison and John Kahenka, July 12, 1920.

Depth	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 (hook)	65	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	.....	.....	.....	.....	.....	.....	..94	1.00	1.02	1.06	..86	..70	5.58
1928	..86	..50	..32	..34	..24	..43	..65	..59	..58	..59	..50	1.01	6.57
1929	..46	..42	..46	..45	..49	..71	..54	..25	..26	..21	..09	..51	4.65
1930	..39	..39	..31	..42	..43	..42	..43	..43	..42	..43	..42	..39	4.70
1931	..34	..33	..40	..26	..32	..46	..34	..39	..32	..42	..39	..26	4.23
1932	..27	..63	..07	..13	..06	..18	..28	..27	..15	..10	..05	..06	1.67
1933	..05	..04	..07	..08	..10	..11	..08	..07	..07	..11	..09	..06	.93
1934	..05	..03	..10	..10	..07	..14	..12	..11	..08	..09	..07	..06	1.02

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, 1910	30.77	.....	Mar. .. 1911	32.18	.....	Jan. .. 1912	31.30	51.0
.....	30.77	.....	.....	32.09	.....	.....	31.30	51.0
June ..	29.90	91.0	June ..	31.70	.....	Mar. ..	31.00	50.0
Oct. ..	29.90	.....	July ..	31.40	.....	April ..	30.66	50.0
Nov. ..	29.50	.....	Aug. ..	31.10	.....	May ..	30.10	53.0
Jan. .. 1911	31.00	.....	Sept. ..	31.10	.....	June ..	29.45	52.0
Feb. ..	31.20	.....	Oct. ..	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. 1912	28.65	51.0	Sept. 1914	27.70	...	Oct. 29, 1916	28.02	...
Sept. 1912	28.17	55.0	Oct. 1914	27.75	...	Nov. 5	28.11	...
Oct. 1912	28.10	51.0	Nov. 1914	28.00	50.0	Nov. 12	28.12	...
Nov. 1912	28.22	50.0	Dec. 1914	28.80	48.0	Nov. 19	28.30	...
Dec. 1912	28.30	51.0	Jan. 1915	28.90	49.0	Nov. 26	28.19	...
Jan. 1913	28.66	51.0	Feb. 1915	28.90	49.0	Dec. 3	28.34	...
Feb. 1913	28.45	51.0	Mar. 1915	28.23	48.0	Dec. 10	28.32	...
Mar. 1913	28.10	50.0	Apr. 1915	28.43	48.0	Jan. 30, 1919	27.97	...
April 1913	27.95	51.0	May 1915	28.70	48.0	Oct. 11, 1923	23.38	...
May 1913	28.25	51.0	June 1915	28.20	40.0	Mar. 26, 1924	23.80	44.6
June 1913	28.65	51.0	July 1915	28.90	49.0	June 18, 1926	21.00	...
Aug. 1913	27.85	51.0	Aug. 1915	27.20	44.0	Dec. 9	25.79	...
Sept. 1913	27.75	51.0	Sept. 1915	27.30	50.0	Dec. 30	23.30	...
Nov. 1913	27.70	50.0	Oct. 1915	27.25	52.0	Sept. 28, 1929	25.35	...
Dec. 1913	28.10	51.0	Sept. 3, 1916	28.58	...	Feb. 18, 1930	29.10	...
Jan. 1914	28.35	49.0	Sept. 19	28.56	...	Mar. 5, 1931	29.40	80.0
Feb. 1914	28.15	51.0	Sept. 17	28.34	...	Sept. 10	27.12	...
Mar. 1914	28.20	52.0	Sept. 22	28.34	...	Jan. 28, 1932	29.07	38.6
April 1914	28.66	50.0	Oct. 1	28.47	...	Aug. 24	31.48	39.0
May 1914	28.30	50.0	Oct. 8	28.69	...	June 19, 1934	28.64	51.0
June 1914	28.00	50.0	Oct. 15	28.10	...	Dec. 11	28.54	41.0
July 1914	27.55	...	Oct. 17	28.69	...			
Aug. 1914	27.20	...	Oct. 22	27.97	...			

*Leaking. †After recasing well.

98 (old 94). 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.)		Depth (ft.)		Depth (ft.)
Black sand (Qtz) ...	0-10	Clay (Ps)	100-110	Streaks of tough clay	
Coral (Pls)	10-23	Coral (Pls)	110-145	and 70 ft. of lava	
Punchbowl stuff (Qbk)	23-70	Coral (Pls)	145-150	rock (TK) tough	
Punchbowl)	23-70	Coral (Pls)	150-200	clay probably clink	
Coral (Pls)	70-100	Clay (Pls)	200-420	er beds)	420-490

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.)
..... 1910	49.0	...	Oct. 29, 1916	29.70	...	Sept. 27, 1920	25.59	44.5
Aug. 20, 1916	40.48	...	Nov. 5	29.82	...	Feb. 18, 1920	29.03	...
Aug. 27	40.45	...	Nov. 12	29.89	...	Sept. 10	29.67	44.5
Sept. 5	39.32	...	Nov. 19	29.89	...	Mar. 2, 1931	29.77	48.0
Sept. 10	40.73	...	Nov. 26	29.77	...	Sept. 9	27.19	...
Sept. 17	39.19	...	Dec. 3	29.98	...	Sept. 18	29.25	48.0
Sept. 24	39.08	...	Dec. 19	30.08	...	Jan. 28, 1932	29.29	46.2
Oct. 3	29.92	...	Sept. 12, 1923	27.45	...	Aug. 24	31.53	44.5
Oct. 8	29.77	...	Mar. 31, 1924	28.50	48.5	June 19, 1934	28.69	46.2
Oct. 15	29.79	...	Aug. 25, 1926	23.98	...	Dec. 11	28.68	44.5
Oct. 22	29.78	...	Mar. 25, 1929	48.0	...			

Discharge in millions of gallons

Year	Jan.	Feb.	Mar.	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Total
1929	...	...	...	...	...	...	...	...	...	...	...	...	...
1930	3.0	2.8	3.0	2.7	4.8	3.0	3.0	3.0	2.8	3.0	3.0	3.0	17.8
1931	3.0	2.8	3.3	3.3	3.5	3.4	3.0	2.8	3.0	3.0	3.0	3.0	36.3
1932	3.3	3.2	3.6	3.5	3.5	3.6	2.8	2.8	2.7	2.8	2.7	2.8	37.3
1933	3.8	3.4	3.7	3.6	3.4	3.3	3.7	3.7	3.6	3.7	3.9	3.8	43.7
1934	3.5	3.1	3.7	3.6	4.0	3.9	3.5	3.3	3.7	3.6	4.0	4.0	42.7

99 (old 29). Palace 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.)		Depth (ft.)		Depth (ft.)
Soil	0-4	Hard lava (Qbk, prob-		Coral (Pls)	378-452
Black sand (Qtz)	4-8	ably Nuanani)	72-78	Clay and gravel (Ps)	452-707
Coral (Pls)	8-72	White coral (Pls)	78-138	Lava or bedrock	
		Clay (Ps)	138-378	(TK)	707-762

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	42.75	43.2	Aug. 15, 1923	23.63	...	Feb. 18, 1920	28.95	...
Mar. 1889	42.75	...	Dec. 2, 1926	19.52	...	Mar. 4, 1931	29.99	35.9
June 1890	42.75	...	May 25, 1927	21.22	...	Sept. 12	27.39	...
..... 1900	44.0	...	Feb. 17, 1928	22.11	...	Jan. 20, 1932	22.42	42.0
..... 1910	54.0	...	Mar. 1, 1929	26.0	...	Aug. 24	31.88	42.8
Nov. 1, 1919	25.20	...	Sept. 26	25.19	42.8			

*Leaking. †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 Kaheka, June 10, 1927.

Depth (ft.)	Revolutions per minute	Depth (ft.)	Revolutions per minute	Depth (ft.)	Revolutions per minute
1-3 (leak)	0	254	133	409	217
189	78	259	150	459	205
204 (leak)	70	309	150	509	205
206	93	319	150	559	210
214	106	329	150	609	205
219	110	330 (leak or reduce-	619 (probably end		
224	108	ing) in size of	casings)	195	
229	112	334	161	639	192
234	112	334	186	709	163
239	112	334	200	759 (meter landed)	3
244	88	339	195		
249 (leak)	93	359	195		

Discharge in millions of gallons

Year	Jan.	Feb.	Mar.	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Total
1929	...	...	...	...	...	...	...	...	...	...	...	...	...
1930	...	...	...	...	...	...	...	...	...	...	...	...	...
1931	0.48	0	0	0	0.81	1.1	1.0	0.32	0.52	0.44	0.33	0.71	3.71
1932	0	0	0	0	0	0	0	0	0	0	0	0	3.210
1933	0	0	0	0	0	0	0	0	0	0	0	0	0.971
1934	0	0	0	0	0	0	0	0	0	0	0	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.

RECORDS OF DRILLED WELLS ON OAHU

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. 1929, 790,000; Oct. 1934, 3,380,000; Nov. 1934, 730,000.

Log

	Depth (ft.)		Depth (ft.)
Rubbish and clay fill (Ra)	0-6	Black mud (Pa)	886-882
Coral (Pa)	6-118	Brown mud (Pa)	882-866
Boulders imbedded in coral (Pa and possibly some Qbb)	118-153	Tough dark brown clay (Pa)	886-952
Coral and clay (Pa and Pa)	153-590	Sand (Pa)	958-968
Hard coral (Pa)	590-603	Mud (Pa)	968-981
Soft coral (Pa)	603-645	Lava (Tkb)	981-986
Yellow clay (Pa)	645-756	6 in. strata red conglomerate (Cb, probably diorite)	986-1,006
Brown clay (Pa)	756-771	1,006-1,076	
Coral (Pa)	771-780	2nd water-bearing rock (Tkb)	1,076-1,151 1/2
Brown clay (Pa)	786-836		

Observations

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.)
Aug. 7, 1929	194	3940	Jan. 30, 1930	2907	2565
Sept. 4, 1929	232.46	3940	Mar. 14, 1930	2907	2565
Mar. 17, 1927	24.00	1134	May 11, 1930	2907	2565
Jan. 9, 1929	1068	3940	June 15, 1930	2907	2565
Sept. 26	24.07	3940	Oct. 7	2907	2565
Oct. 29	24.37	3940	Nov. 12	2907	2565
Nov. 5	19.38	4007	Dec. 16	2907	2565
Nov. 12	4001	4001	Mar. 2, 1931	26.28	2907
Nov. 19	4001	4001	Apr. 16	26.28	2907
Nov. 26	4104	4001	May 26	2907	2565
Dec. 3	4104	4001	June 27	2907	2565
Dec. 12	4104	4001	July 28	2907	2565
Dec. 19	28.00	4001	Aug. 8	2907	2565
Jan. 9, 1930	28.35	4001	Sept. 18	26.14	2907
Jan. 15	3940	3940	Oct. 8	1881	1197
Jan. 22	3940	3940	Nov. 19	25.38	1180
Jan. 29	3940	3940	Dec. 5	2907	2565
Feb. 5	3940	3940	Feb. 26	2736	2907
Feb. 12	3940	3940	Mar. 26	2736	2907
Feb. 18	123.79	3940	Apr. 26	2736	2907
Feb. 20	3770	3940	May 27	2736	2907
Mar. 5	3940	3940	June 28	2736	2907
Mar. 12	4120	3940	July 28	2736	2907
Mar. 19	4120	3940	Aug. 13	2736	2907
Mar. 26	4120	3940	Oct. 27	2736	2907
April 9	3940	3940			

* Testing. † 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. Improvised meter used. Readings by J. E. Steward and R. D. Kline, Oct. 4, 1918.

Depth (ft.)	Revolutions per minute	Depth (ft.)	Revolutions per minute
150 (leak)	10	240	100
200	80	300	110

Test 2. Water discharging from top of well during test. Static level normal for area. Au 3-in. deep-well meter used. Readings by Sam Wong, Jan. 4, 1929.

17	146	777	146	1087	158
17	146	777	146	1087	158
177	154	977	144	1097	162
277	164	997	144	1107	162
377	174	1017	144	1117	162
477	184	1037	144	1127	162
577	194	1057	144	1137	162
677	204	1077	144	1147	162

RECORDS OF DRILLED WELLS ON OAHU

Meter tests—Well 101 (Continued)

Depth (ft.)	Revolutions per minute	Depth (ft.)	Revolutions per minute
1119	130	1127	80
1120	120	1142	143
1122	128	1187	2

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	82	Jan. 8	754	April 27	596
June	72	Jan. 15	771	May 27	257
Sept. 26, 1923	27.18	Jan. 22	771	June 28	276
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	410	Mar. 5	788	Nov. 29	205
June 9	144	Mar. 12	788	Dec. 27	188
Sept. 11	409	Mar. 19	788	Jan. 27, 1933	171
Feb. 8, 1926	280	Mar. 26	788	Mar. 29	205
Aug. 1, 1929	771	April 9	771	May 11	171
July 9	908	Apr. 26	771	May 31	581
Aug. 1	908	May 14	788	June 30	144
Aug. 7	908	June 19	480	July 26	140
Aug. 14	925	Aug. 23	514	Aug. 31	164
Aug. 21	960	Sept. 6	394	Sept. 28	222
Aug. 28	960	Nov. 12	257	Oct. 31	581
Sept. 4	977	Dec. 16	257	Dec. 32	684
Sept. 11	977	Dec. 27	30.13	Jan. 30, 1934	615
Sept. 18	994	Feb. 27, 1931	259	Feb. 27	291
Oct. 2	1100	Mar. 2	29.28	Mar. 29	291
Oct. 10	1200	Apr. 16	509	Apr. 26	205
Oct. 23	1400	May 27	547	May 31	222
Oct. 30	1610	June 26	564	June 19	564
Nov. 6	1800	July 28	239	July 31	684
Nov. 13	25.11	Aug. 3	239	Aug. 30	291
Nov. 20	771	Sept. 11	27.06	Sept. 26	496
Nov. 27	771	Oct. 17	239	Oct. 17	684
Dec. 4	771	Oct. 30	239	Oct. 30	684
Dec. 11	771	Dec. 3	257	Nov. 15	667
Dec. 18	850	Jan. 29, 1932	257	Nov. 29	1197
Dec. 26	754	Feb. 26	257	Dec. 11	667

Discharge in millions of gallons

Year	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Total
1929	31.0	31.0	31.0	31.0	31.0	31.0	31.0	31.0	31.0	31.0	31.0	31.0	186.7
1930	31.0	31.0	31.0	31.0	31.0	31.0	31.0	31.0	31.0	31.0	31.0	31.0	186.7
1931	1.8	3.2	0	0	0	1.0	0	0	1.0	1.0	1.0	1.0	8.3
1932	9.7	10.3	13.5	7.8	0	3.2	0	0	0	3.6	4.5	6.1	92.3
1933	25	25	25	25	25	25	25	25	25	25	25	25	300.0
1934	17.29	57.10	10.50	.49	1.82	31.29	60.60	15.29	17.90	20.20	19.50	20.29	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 (Ra)	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, Nuuanu)	150-160	Coral (Pis)	520-560
Boulders (Pa or possibly Qbb, Nuuanu)	160-165	Clay (Pa)	560-660
Boulders and clay (Pa or possibly Qbb, Nuuanu)	165-190	Clay and gravel (Pa)	660-730
Clay (Pa)	190-210	Black mud (Pa)	730-755
Clay and coral (Pa and Pis)	210-260	Clay (Pa)	755-840
Coral (Pis)	260-275	Hard blue rock; flowing water (Tbb)	810-840
Coral (Pis)	275-330	Soft blue rock (Tbb)	840-845
Clay (Pa)	330-445	Hard blue rock; flowing water (Tbb)	845-900
Clay and coral (Pa and Pis)	445-465	Streaks of hard and soft blue rock (Tbb)	900-960
Sticky clay (Pa)	465-480	Hard blue rock (Tbb)	960-1,080
Sandy clay (Pa)	480-520	Medium hard blue rock (Tbb)	1,080-1,150
Coral (Pis)	520-520		

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	55.0		Oct. 16, 1929	77.1		Mar. 12, 1930	73.7	
Sept. 25, 1923	27.18		Oct. 23	80.5		Mar. 19	73.7	
Dec. 27	84.0		Oct. 20	78.8		Mar. 20	75.4	
Jan. 22, 1924	24.19		Nov. 6	25.69		April 9	71.9	
Jan. 24	27.20		Nov. 13	75.4		April 30	71.9	
Mar. 27	82.0		Nov. 20	75.4		May 14	71.9	
May 8, 1920	124.0		Nov. 27	75.4		June 19	70.2	
June 9	131.6		Dec. 4	75.4		July 15	71.9	
Sept. 11	124.0		Dec. 11	75.4		Aug. 23	71.9	
Mar. 1, 1929	75.4		Dec. 18	75.4		Sept. 6	71.9	
July 25	75.4		Dec. 26	75.4		Sept. 18	71.9	
Aug. 7	75.4		Jan. 3, 1930	75.4		Sept. 28	71.9	
Aug. 14	75.4		Jan. 8	75.4		Oct. 10	71.9	
Aug. 21	75.4		Jan. 15	75.4		Oct. 18	71.9	
Aug. 28	75.4		Jan. 22	75.4		Oct. 25	71.9	
Sept. 4	75.4		Jan. 29	75.4		Nov. 2	71.9	
Sept. 11	75.4		Feb. 5	75.4		Nov. 9	71.9	
Sept. 19	75.4		Feb. 12	75.4		Nov. 16	71.9	
Oct. 2	77.1		Mar. 6	75.4		Nov. 23	71.9	

Discharge in millions of gallons

Year	Jan.	Feb.	Mar.	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Total
1927	19	17	19	18	19	19	19	19	18	19	18	19	212
1928	19	17	19	18	19	19	19	19	18	19	18	19	222
1929	19	17	19	18	19	19	19	19	18	19	18	19	222
1930	19	17	19	18	19	19	19	19	18	19	18	19	222
1931	19	17	19	18	19	19	19	19	18	19	18	19	222
1932	19	17	19	18	19	19	19	19	18	19	18	19	222
1933	19	17	19	18	19	19	19	19	18	19	18	19	222
1934	19	17	19	18	19	19	19	19	18	19	18	19	222

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.), Sept. 27, 1923, 24.72; Feb. 19, 1926, 25.02; Sept. 9, 1929, 26.21; Jan. 20, 1930, 26.97; Aug. 24, 1932, 21.61; June 19, 1934, 25.52; Dec. 11, 1934, 25.82.

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	73.7
Feb. 18, 1926	75.0	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	61.9	Aug. 28	75.4	Nov. 23	73.7	Dec. 4	73.7

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	71.8
Dec. 26	71.9	Feb. 26	73.7	June 19	71.9	Mar. 3	71.8
Jan. 8, 1930	71.9	Mar. 5	73.7	July 15	70.2	Sept. 18	75.2
Jan. 15	72.7	Mar. 12	75.4	Aug. 23	66.8	Jan. 28, 1932	73.5
Jan. 22	72.7	Mar. 19	75.4	Sept. 6	71.9	Aug. 24	71.9
Jan. 29	73.7	Mar. 26	73.7	Oct. 10	71.9	June 19, 1934	76.9
	73.7	April 9	71.9	Nov. 12	71.9	Dec. 11	88.4

Discharge in millions of gallons

Year	Jan.	Feb.	Mar.	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Total
1929	19	17	19	18	19	19	19	19	18	19	18	19	212
1930	19	17	19	18	19	19	19	19	18	19	18	19	212
1931	19	17	19	18	19	19	19	19	18	19	18	19	212
1932	19	17	19	18	19	19	19	19	18	19	18	19	212
1933	19	17	19	18	19	19	19	19	18	19	18	19	212
1934	19	17	19	18	19	19	19	19	18	19	18	19	212

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	25.40	44.0
Dec. ..	29.07	43.0	Dec. 31	27.76	...	July 30	28.40	47.0
Jan. .. 1916	31.20	43.0	Jan. 1, 1924	28.60	...	Aug. 30	28.40	47.0
Feb. ..	31.25	42.0	Feb. 4	28.60	...	Mar. .. 1929	25.40	44.0
Mar. ..	32.55	42.0	Feb. 16	28.60	...	Sept. ..	27.00	47.0
April ..	32.20	44.0	Feb. 18	28.30	...	Oct. 10	27.00	47.0
May ..	32.40	43.0	Feb. 26	28.10	...	Feb. 10, 1930	28.69	...
June ..	31.80	43.0	Mar. 12	27.50	...	Sept. ..	27.7	...
July ..	31.05	43.0	Mar. 20	27.50	...	Mar. 3, 1931	29.53	37.6
Aug. ..	30.60	44.0	Apr. 10	27.40	44.0	Sept. 8	29.00	44.0
Sept. 11, 1923	27.41	...	Apr. 23	27.60	...	Sept. 18	29.00	44.0
Oct. 16	27.01	...	May 12	28.30	...	Jan. 29, 1932	28.80	34.2
Nov. 14	27.01	...	May 15	28.30	...	Aug. 23	31.03	37.6
Dec. 17	27.26	48.0	Jan. 16, 1925	28.40	...	June 10, 1934	28.53	37.6
Dec. 24	27.56	...	Feb. 18	28.40	44.5	Dec. 11	28.40	37.6

Discharge in millions of gallons

Year	Jan.	Feb.	Mar.	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Total
1929	19	17	19	18	19	19	19	19	18	19	18	19	212
1930	19	17	19	18	19	19	19	19	18	19	18	19	212
1931	19	17	19	18	19	19	19	19	18	19	18	19	212
1932	19	17	19	18	19	19	19	19	18	19	18	19	212
1933	19	17	19	18	19	19	19	19	18	19	18	19	212
1934	19	17	19	18	19	19	19	19	18	19	18	19	212

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 aquifer, 600 ft. Head (ft.), Sept. 11, 1923, 25.98; Sept. 12, 1923, 25.57; Mar. 31, 1924, 26.54. 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.

108 (old 30). In rear of Pacific Club on Emma St., Honolulu. Owner, Old Colonial Hotel. Drilled, 1884. Altitude, 28 ft. Diameter, 6 in. Use, domestic.

Observations

Bench mark, top of 3-in. tee, top of casing at ground; altitude, 28.41 ft.

Date	Head (ft.)	Chloride (p.p.m.)	Date	Head (ft.)	Chloride (p.p.m.)	Date	Head (ft.)	Chloride (p.p.m.)
..... 1910	.....	35.0	Feb. 19, 1930	28.40	.....	Aug. 23, 1932	29.17	35.9
..... 1910	.....	38.0	.....	.....	.....	June 19, 1934	26.54	37.6
Sept. 30, 1926	23.23	.....	Mar. 4, 1931	.....	36.0	Aug. 14	25.33	.....
Mar. 31, 1929	.....	34.3	Sept. 9	26.47	.....	Dec. 11	28.15	42.7
Oct. 26	35.20	34.3	Sept. 17	.....	37.6	.....	.....	.....
Sept. 11	28.29	.....	April 27, 1932	.....	27.6	.....	.....	.....

Discharge in millions of gallons

[illegible]

109 (old 31). Near corner School and Nuuanu Sts., Honolulu. Owner, Thomas Foster. Drilled, 1883. Altitude, 35 ft. Depth, 767 ft. Diameter, 8 in. Depth to top of aquifer, about 740 ft. Not in use.

Log

	Depth (ft.)		Depth (ft.)		Depth (ft.)
Soil					
Black sand (Qf)	0-3	Boulders (Pa)	70-82	Dark clay (Pa)	560-600
Boulders (Qb, Nu- nu or Qb)	4-8	Clay (Pa)	82-102	Clay and boulders (Pa and Tkb)	
7-9 (Qb, Nu- nu or Qb)	8-14	Clay (Pa)	102-110		600-740
Clay (Pa)	14-31	Coast (Pb)	110-116	Loam and b. dr. ch.	
	31-47	Clay and gravel (Pa)	410-550	(Tkb)	740-760
			550-560		

Observations

Bench mark, top of open well casing inside water tank tower at ground; altitude, 35 ft.

Date	Head (ft.)	Chlorine (p.p.m.)	Date	Head (ft.)	Chlorine (p.p.m.)	Date	Head (ft.)	Chlorine (p.p.m.)
July 20, 1910								
July 20, 1916	31.79	55.0	Oct. 22, 1916	30.48		Aug. 27, 1926	34.82	
Aug. 17	31.42		Oct. 29	30.56		Sept. 24, 1926	36.26	
Aug. 27	31.42		Nov. 5	30.56		Oct. 10	36.00	
Sept. 3	31.06		Nov. 10	30.56		Sept. 1	35.31	44.5
Sept. 10	31.06		Nov. 16	30.56		Sept. 8, 1931	36.00	46.0
Sept. 17	30.99		Dec. 3	30.56		Sept. 9	37.23	46.0
Oct. 1	30.99		Dec. 8	30.72		Aug. 23	32.14	
Oct. 8	30.61		Mar. 22, 1918	30.72		Dec. 1, 1934	32.14	
Oct. 15	30.58		Jan. 3, 1925	25.87		Dec. 11	28.72	82.1

Discharge in millions of gallons

1931: Jan. to June, no discharge; July, 1.2; Aug., 1.2; Sept., 1.2; Oct., 1.2; Nov., 1.2; Dec., 1.7; total, 7.7. No discharge 1932-33.

110 (no old number). At Market Refrigerating Co. Owner, Market Refrigerating Co. Drilled, 1937 by W. H. Mullin to depth of 60 ft. when sand was encountered which filled hole to 30 ft. Diameter, 6 in. Casing, 20 ft. Driller's log: mud (Pa), 0-11 ft.; coral (Pls) with water, 11-60 ft. Use, refrigeration.

111 (old 31A). At ice plant of Hawaii Products Co. on Booth Road, Honolulu. Owner, Hawaii Products Co. Drilled, 1918. Altitude, 131 ft. Depth, 230 ft. Diameter, 12 in. Use, industrial.

Observations

Head (ft.), Mar. 22, 1918, 31.04.

Date	Chloride (p.p.m.)	Date	Chloride (p.p.m.)	Date	Chloride (p.p.m.)	Date	Chloride (p.p.m.)
Mar. 19, 1929	54.8	Sept. 9, 1930	41.2	Sept. 17, 1931	54.7	June 19, 1934	61.5
Mar. 22, 1929	54.8	Mar. 9, 1931	59.8	Jan. 28, 1932	56.3	Dec. 11	58.1

Discharge in millions of gallons

Year	Jan.	Feb.	Mar.	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Total
1929 .....	.....	.....	.....	.....	.....	1.7	1.9	1.2	1.1	4.2	4.3	26.7	.....
1930	3.9	3.5	4.3	2.1	3.3	3.0	4.6	1.1	4.8	5.2	4.8	4.9	49.9
1931	4.7	4.5	5.3	5.5	5.5	5.5	5.3	4.8	5.0	2.6	2.8	56.1	.....
1932	9.8	9.2	8.8	7.7	2.8	2.7	2.8	2.8	2.7	2.8	2.6	2.4	32.1
1933	2.14	1.92	1.58	2.50	2.34	2.21	2.26	2.37	1.43	2.55	2.33	2.36	27.39
1934	2.33	2.22	2.34	2.24	2.63	2.16	2.50	2.58	3.09	3.54	3.44	3.21	36.37

112 (old 96). At Salvation Army home on Vineyard St., Honolulu. Owner, Salvation Army. Drilled, 1905. Altitude, 23 ft. Depth, 1,028 ft. Diameter, 10 in. Scaled, Nov. 1931.

Observations

Bench mark, top of blind flange on upper cross union on well 4 ft. above ground; altitude, 27.11 ft.

Recent months, 1919-1931			1930-1931		
Date	Head (ft.)	Chalcid (p.p.m.)	Date	Head (ft.)	Chalcid (p.p.m.)
Aug. 1.....	1919	70	Oct. 16, 1929	....	412
".....	1911	291	".....	April 30	408
Jan. 1912	291	300	".....	May 14	468
Feb.	2008	Nov. 6	".....	June 19	480
Mar.	2008	Nov. 128	".....	July 15	463
April	2008	Nov. 20	".....	Aug. 23	463
June	2008	Nov. 27	".....	Oct. 7	463
Jan. 16, 1924	29.63	".....	Nov. 12	463	
".....	29.51	Dec. 11	".....	Dec. 16	445
Mar. 17, 1925	338	Dec. 18	".....	Feb. 7, 1931	479
Aug. 30, 1926	24.97	Dec. 26	".....	Feb. 10	495
Sept. 19, 1926	29.47	Mar. 2, 1930	".....	Mar. 9	29.30
Aug. 25	421	Jan. 5	".....	April 16	479
Mar. 1, 1929	412	Jan. 15	".....	Oct. 8	428
July 25	428	Jan. 15	".....	Oct. 13	428
Aug. 1	445	Jan. 29	".....	Oct. 14	428
Aug. 7	428	Feb. 9	".....	Oct. 15	469
Aug. 14	445	Feb. 19	".....	Oct. 16	469
Aug. 21	445	Feb. 12	".....	Oct. 19	27.30
Aug. 28	428	Feb. 18	".....	Oct. 20	450
Sep. 4	428	Feb. 24	".....	Oct. 20	208
Sep. 11	420	".....	".....	Oct. 29	59
Sep. 17	412	Mar. 12	".....	Nov. 13	27.93
Oct. 2	25.25	Mar. 16	".....	Nov. 14	28.03
".....	412	Mar. 26	".....	Nov. 15	28.03

* Decrease in chloride resulted from sealing operations.

Discharge in millions of gallons

Year	Jan.	Feb.	Mar.	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Total
1929 ..	.	.	.	.	.	.06	.06	.06	.	.06	.20	.20	.64
1930 ..	.2	.2	.2	.2	.2	.3	.2	.3	.3	.3	.3	.	2.9
1931 ..	.3	0	0	0	0	0	0	0	a	a	0	0	.3

Observations

Bench mark, cross cut in hexagonal bushing top of 12-in. valve on casing 3 ft. above ground; altitude, 8.17 ft.

Observations

Date	Head (ft.)	Chloride (p.p.m.)	Date	Head (ft.)	Chloride (p.p.m.)	Date	Head (ft.)	Chloride (p.p.m.)
Jan. 20, 1910	...	187	Sept. ... 1915	28.49	312	May 14, 1930	...	140
April ... 1910	30.10	504	...	28.29	308	June 19	...	223
May ...	29.72	...	Nov. ...	29.47	374	June 19	...	206
June ...	29.62	503	Dec. ...	30.89	306	Aug. 23	...	206
Oct. ...	29.62	...	...	31.39	306	...	...	206
Nov. 1 ...	29.15	74	Feb. ... 1916	33.39	312	Oct. 7	...	206
Jan. ... 1911	29.15	...	...	33.84	302	Nov. 12	...	206
Feb. ...	30.50	...	April ...	33.74	308	Dec. 16	...	206
Mar. ...	31.20	...	May ...	33.65	310	Jan. 7, 1931	...	205
April ...	31.20	...	...	33.20	304	Mar. 3	...	205
June ...	31.92	...	July 31	33.00	300	Apr. 16	28.29	205
Aug. ...	31.72	...	Aug. ...	31.33	310	April 27	...	205
Sept. ...	30.20	287	July 30, 1917	31.37	308	June 26	...	205
Oct. ...	31.30	...	Aug. 27	31.01	...	June 28	...	205
Jan. ... 1912	31.90	284	Feb. 4, 1919	30.32	...	Aug. 8	...	205
Feb. ...	32.20	304	Feb. 18	27.00	...	Sept. 10	26.03	205
Mar. ...	30.4	304	April 2	27.89	...	Oct. 30	...	205
April ...	31.44	309	April 4	28.09	...	Oct. 30	...	205
May ...	31.06	...	April 4	28.09	153	Jan. 28, 1932	27.74	205
June ...	30.4	304	...	...	230	Feb. 26	...	205
July ...	29.47	311	May 18	...	230	Feb. 26	...	205
Aug. ...	29.52	308	May 20	23.02	239	April 27	...	205
Sept. ...	29.20	310	Aug. 9, 1928	28.37	228	May 27	...	205
Oct. ...	28.82	308	Aug. 9	218	...	June 28	...	205
Nov. ...	28.44	308	Aug. 25	229	...	Aug. 23	29.65	188
Dec. ...	29.47	306	Mar. 1, 1929	219	...	Sept. 23	...	188
Jan. ... 1913	29.72	304	July 24	240	...	Sept. 23	...	188
Feb. ...	29.50	308	July 25	233	...	Oct. 27	...	188
Mar. ...	29.50	310	Aug. 7	233	...	Nov. 26	...	188
May ...	29.60	312	Aug. 7	223	...	Dec. 27	...	188
June ...	29.67	304	Aug. 14	223	...	Feb. 27, 1933	...	205
July ...	29.00	308	Aug. 28	223	...	Feb. 24	...	205
Aug. ...	29.08	...	Aug. 31	223	...	Mar. 30	...	188
Sept. ...	28.97	312	Sept. 26	223	...	May 11	...	188
Oct. ...	29.00	308	Oct. 2	223	...	May 29	...	188
Nov. ...	29.72	312	Oct. 2	223	26.37	...	...	188
Dec. ...	29.19	304	Oct. 23	171	...	July 26	...	188
Jan. ... 1914	29.19	304	Oct. 23	130	...	Aug. 31	...	188
Feb. ...	29.19	304	Oct. 30	110	...	Oct. 31	...	188
Mar. ...	29.10	308	Nov. 13	140	...	Dec. 12	...	188
April ...	29.60	308	Nov. 20	123	...	Dec. 22	...	188
May ...	29.07	307	Dec. 11	123	...	Mar. 30, 1934	...	188
June ...	28.91	304	Dec. 11	123	...	Mar. 29	...	188
July ...	28.92	...	Dec. 11	151	...	Mar. 29	...	188
Aug. ...	28.48	...	Dec. 11	151	...	May 3	...	188
S. Int. ...	29.00	...	Dec. 18	120	...	June 19	26.69	188
Nov. ...	28.80	308	Dec. 26	120	...	July 31	...	188
Dec. ...	29.32	310	Jan. 8, 1930	130	...	Aug. 29	...	188
Jan. ... 1915	30.24	304	Jan. 8	223	...	Sept. 26	...	188
Feb. ...	30.39	320	Jan. 15	223	...	Oct. 10	...	188
Mar. ...	29.64	304	Feb. 12	223	...	Oct. 30	...	188

Year	Jan.	Feb.	Mar.	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Total
1929 ..	..	..	..	..	..	..	2	2	..	2	1	1	1.0
1930 ..	..	..	09	08	11	11	21	27	20	19	15	13	1.71
1931 ..	12	12	12	14	10	11	21	14	09	13	07	06	1.56
1932 ..	08	06	08	10	07	08	10	10	08	10	05	04	0.91
1933 ..	07	09	05	07	04	04	09	09	05	06	06	06	0.75
1934 ..	06	06	06	06	06	11	09	15	09	10	01	01	0.66

Log

	Depth (ft.)		Depth (ft.)		Depth (ft.)
Coral (Pls)	0-30	Red clay and boulders		Blue clay (Pa)	410-450
Clay (Pa)	30-55	(Pa) and possibly		Brown clay (Pa)	450-500
Coral (Pls)	55-85	some Qhb, Nuuanu)	135-150	Brown clay (Pa)	475-505
Blue rock, hard (Qhb, Nuuanu)	85-92	and Pa		Brown clay, sticky	
		and Pa	150-180		505-515
Clay, boulders (Qhb, Nuuanu)	92-108	Brown clay (Pa)	180-265	Coral and clay (Pls	
		Gravel (Pa)	265-300	and Pa)	515-525
	108-111	Blue clay (Pa)	270-340	Brown clay (Pa)	525-530
Rock, hard (Qhb, Nuuanu)	111-116	Brown clay (Pa)	340-480	Gravel and sand (Pa)	532-537
		Coral and clay (Pa)		Rock (Txb)	537-618
Clay (Pa) and possibly		and Pa)	260-375		
zone Qhb, Nuuanu)	116-125	Blue clay (Pa)	375-420		
Blue rock, hard (Qhb, Nuuanu)	125-135	Brown clay			
		(Pa)	420-440		

Observations

170 ft.

Date	Head (ft.)	Chloride (p.p.m.)	Date	Head (ft.)	Chloride (p.p.m.)	Date	Head (ft.)	Chloride (p.p.m.)
Dec. 31, 1923	28.20		Feb. 12, 1930		170	July 28, 1932		156
Sept. 1, 1924		171	Feb. 18	29.76	170	Sept. 23	28.62	156
Mar. 4, 1927		171	Feb. 25		170	Sept. 23		156
Mar. 10		171	Mar. 5		170	Oct. 27		152
Mar. 14		171	Mar. 19		170	Oct. 27		152
Mar. 20	31.16	171	Mar. 19		170	Dec. 27		128
Aug. 25		210	Mar. 26		170	Jan. 27, 1933		128
Sept. 19		205	April 9		170	Feb. 24		128
Sept. 19	1929	170	April 30		161	Mar. 11		128
July 25		223	May 14		161	Mar. 30		128
Aug. 1		240	June 19		170	May 31		128
Aug. 2		223	July 15		206	Sept. 30		132
Aug. 14		223	Aug. 23		223	Oct. 31		132
Aug. 21		223	Oct. 6		240	Sept. 38		132
Aug. 28		223	Oct. 23		240	Sept. 38		132
Sept. 4		240	Nov. 12		240	Oct. 31		132
Sept. 16		206	Dec. 1		240	Nov. 28		144
Sept. 17		206	Jan. 7, 1931		240	Dec. 22		144
Sept. 28	26.17		Mar. 3	28.37	150	Jan. 30, 1934		149
Oct. 9		171	Mar. 19		161	Mar. 21		138
Oct. 16		171	May 27		140	Mar. 29		149
Oct. 18		188	May 28		161	Apr. 28		138
Oct. 30		171	May 31		230	May 21		138
Nov. 6		171	Aug 8		242	June 19	27.73	156
Nov. 13		171	Sept. 11	27.28	161	July 31		168
Dec. 11		171	Sept. 18		171	Aug. 30		154
Dec. 18		171	Oct. 30		171	Sept. 26		171
Dec. 26		171	Dec. 5		222	Oct. 17		171
Jan. 2, 1930		171	Jan. 28, 1932	29.63	150	Oct. 30		171
Jan. 7		170	Feb. 1		151	Nov. 15		167
Jan. 15		170	Mar. 30		150	Nov. 30		167
Jan. 22		170	April 27		148	Dec. 11	28.62	154
Jan. 29		170	May 2		150			
Feb. 5		170	June 28		150			

*Probably city water.

Discharge in millions of gallons

Year	Jan.	Feb.	Mar.	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Total
1927							24.18	14.15	4.82	1.59	2.50	2.77	49.81
1928	3.24	2.20	1.86	1.28	1.99	11.38	21.12	9.21	1.25				53.63
1929							6.20	6.66	1.81	1.40	0.21	1.37	17.65
1930	0.97	1.1	1.23	1.06	1.78	4.40	49.3	26.6	7.52	8.49	4.60	5.4	114.61
1931	2.94	3.94	4.94	5.94	6.94	7.94	8.94	9.94	10.94	11.94	12.94	13.94	121.57
1932	5.21	3.94	6.85	7.45	5.19	5.13	38.0	17.2	30.3	8.50	1.15	1.51	93.50
1933	.94	.8	1.91	1.25	1.19	6.37	18.9	10.8	10.7	7.23	2.85	1.00	62.57

115 (old 95E). Rear of Hawaiian Pineapple Cannery, Honolulu. Owner, Hawaiian Pineapple Co. Drilled, 1927 by McCandless Bros. Altitude, 5 ft. Depth, 540 ft. Diameter, 10 in. Depth to top of aquifer, 480 ft. Use, industrial. Casing, 485 ft. Wells 115 to 118 are now connected to one pumping station.

Log

	Depth (ft.)		Depth (ft.)		Depth (ft.)
Coral (Pa)	6-10	Red rock and clay (Pa		Tough blue clay (Pa)	350-385
Clay (Pa)	10-50	and possibly some		Brown clay (Pa)	385-410
Coral (Pis)	50-84	Qhb, Nuuanu	145-155	Sticky clay (Pa)	410-430
Hard rock (Qhb, Nuuanu)	84-109	Brown soft clay (Pa)	153-196	Brown sandy clay	430-440
Soft rock (Qhb, Nuuanu)	109-115	Clay and gravel (Pa)	196-230	Clay with coral streaks	440-460
Hard rock (Qhb, Nuuanu)	115-120	Sticky clay (Pa)	230-240	Very sticky clay (Pa)	460-480
Boulders and clay (Pa and possibly some Qhb, Nuuanu)	120-145	Soft sandy clay (Pa)	240-255	Reddish clay (Pa)	480-490
		Sticky clay (Pa)	255-261	Sticky clay (Pa)	490-510
		Clay with coral streaks (Pa and Pis)	261-285	Soft rotten clay (Pa)	510-520
			300-350	Hard rock (Tbk)	520-540
				Soft rock (Tbk)	540-550
				Hard rock (Tbk)	510-620
				Soft rock (Tbk)	620-650

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	68.4	68.4	Mar. 3, 1931	30.29	75.2	Aug. 22, 1932	30.72	73.3
Sept. 26	26.46	68.6	Sept. 10	27.41	77.0	Aug. 22	30.72	73.3
Oct. 2	60.7	60.7	Sept. 18	85.5	77.0	June 19, 1934	27.80	75.2
Feb. 20, 1930	29.88	29.88	Jan. 28, 1932	29.44	77.0	Dec. 11	27.98	76.9

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, 496 ft.

Log

Depth (ft.)		Depth (ft.)		Depth (ft.)	
Coral (Pis)	6-10	Brown soft clay (Pa)	152-196	Reddish soft clay (Pa)	460-480
Clay (Pa)	10-50	Clay and gravel (Pa)	196-230	Rotten soft rock (Tbk)	485-495
Coral (Pis)	50-84	Sticky clay (Pa)	230-240	Hard rock (Tbk)	495-510
Hard rock (Qhb, Nuuanu)	84-109	Brown soft clay (Pa)	240-255	Soft rock (Tbk)	510-520
Soft rock (Qhb, Nuuanu)	109-115	Sticky clay (Pa)	255-261	Soft rock (Tbk)	520-535
Hard rock (Qhb, Nuuanu)	115-120	Sticky clay (Pa)	261-285	Hard rock (Tbk)	535-555
Boulders and clay (Pa or Qhb, Nuuanu)	120-145	Coral streak (Pa)	285-306	Soft rock (Tbk)	555-585
Red rock and clay (Pa or Qhb, Nuuanu)	145-150	Tough blue clay (Pa)	306-350	Hard rock (Tbk)	585-595
		Brown clay (Pa)	350-385	Soft (Tbk)	595-612
		Sticky clay (Pa)	410-430		
		Brown sandy clay (Pa)	430-440		
		Clay, very sticky (Pa)	440-460		

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	76.0	Feb. 20, 1930	29.55	71.8	Aug. 22, 1932	30.70	71.8
May 8	27.58	27.58	Mar. 3, 1931	29.63	71.8	Dec. 22	27.80	71.8
April 9, 1928	73.0	73.0	Sept. 10	27.58	71.8	June 19, 1934	26.59	76.9
Aug. 25	94.0	94.0	Sept. 18	78.7	71.8	Aug. 10	26.03	71.8
Sept. 26, 1929	26.39	26.39	Jan. 28, 1932	28.56	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. tees on well; altitude, 6.69 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	31.61	200	Oct. 14, 1917	30.22	...	June 16, 1918	31.24	...
Sept. 10, 1916	30.59	...	Nov. 4, 1917	30.21	...	Sept. 14, 1918	31.11	...
17	30.59	...	28	30.06	...	Dec. 21, 1923	28.49	...
30	30.59	...	Nov. 4	30.12	...	Apr. 4, 1924	...	126
30	30.59	...	21	30.09	...	May 21	...	117
Oct. 1	30.59	...	Jan. 14, 1918	31.14	...	Aug. 21	...	115
8	30.59	...	20	31.36	...	Dec. 11	...	112
15	30.86	...	27	31.36	...	Aug. 31, 1925	...	118
18	30.86	...	Feb. 3	31.44	...	Oct. 5, 1926	...	94
Nov. 8	30.69	...	10	31.44	...	Sept. 18, 1929	...	79
19	30.86	...	17	31.44	...	26	26.32	84
30	30.84	...	24	31.59	...	Oct. 2	...	81
Dec. 3	30.86	...	Mar. 3	31.59	...	Feb. 20, 1930	29.83	...
17	30.89	...	17	31.71	...	Mar. 2	29.42	...
19	31.84	...	Oct. 1	31.84	...	Oct. 1	...	78
Jan. 2, 1917	31.34	...	31	31.59	...	Mar. 3, 1931	29.42	75
9	31.46	...	April 1	31.71	...	Sept. 18	...	120
18	31.34	...	14	31.71	...	Jan. 28, 1932	28.66	91
Feb. 3	31.24	...	21	31.84	...	Aug. 22	30.06	94
12	32.04	...	28	31.93	...	Dec. 22	...	91
16	32.24	...	May 12	31.93	...	June 19, 1934	26.63	99
Sept. 16	30.82	...	19	32.09	...	Aug. 10	26.72	...
23	30.61	...	25	31.89	...	Dec. 11	26.03	98
30	30.49	...	June 2	30.92	...			
			9	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 (Ka and Pis)	0-20	Sticky dark clay (Pa)	225-245	Reddish sandy clay (Pa)	420-450
Coral (Pis)	20-35	Brown clay (Pa)	245-260	Dark sticky clay with tallows streaks (Pa)	450-530
Hard black rock (Qhb, Nuuanu)	84-120	Brown sticky clay (Pa)	270-290	Red to dark clay, in above casing at 600 ft. (Tbk)	540-650
Soft rock (Qhb, Nuuanu)	120-125	Gravel (Pa)	310-320		
Coral (Pis)	125-190	Brown clay (Pa)	320-330		
Light clay (Pa)	190-225	Sticky clay (Pa)	290-310		
		Gravel (Pa)	310-320		
		Brown clay (Pa)	320-330		
		Rock, water flowed 2	330-355		
		Brown clay (Pa)	355-360		
		Coral (Pis)	360-420		
		Light clay (Pa)	420-440		

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, 1929	28.42	...	Dec. 2, 1926	110.0	...	Sept. 10, 1931	27.30	...
Jan. 10, 1924	29.42	...	April 9, 1928	29.31	...	Sept. 12	...	80.5
Feb. 18	29.00	...	Aug. 25	97.0	...	Jan. 28, 1932	28.22	73.5
April 4	29.00	158.0	Sept. 18, 1929	85.5	...	Aug. 25	31.39	73.5
May 21	26.72	157.0	Sept. 26	26.52	90.8	Dec. 22	25.07	73.3
Aug. 21	26.32	122.0	Feb. 20, 1930	29.87	...	June 12, 1934	25.07	73.3
Dec. 11	...	130.0	Mar. 3, 1931	29.91	71.8	Dec. 11	28.01	75.2

Observations—Well 118 (Continued)

Wells 115, 116, 117, 118.

Date	Chloride (p.p.m.)	Date	Chloride (p.p.m.)	Date	Chloride (p.p.m.)	Date	Chloride (p.p.m.)
Aug. 25, 1928	96.0	Oct. 23, 1929	73.7	Jan. 8, 1930	95.9	April 9, 1930	89.1
Feb. 21, 1929	77.0	39	72.0	15	94.2	30	80.5
Aug. 1	97.6	Nov. 6	70.2	22	90.8	May 14	80.5
7	96.6	19	20.2	7	90.0	June 15	71.9
14	85.6	20	83.9	Feb. 5	90.8	July 15	85.6
21	78.4	27	89.1	12	90.8	Aug. 23	83.9
28	87.4	Dec. 2	91.0	26	90.8	Sept. 6	92.5
Sept. 4	85.6	11	92.5	Mar. 5	92.5	Oct. 7	92.5
19	77.1	15	92.5	18	92.5	Oct. 15	92.5
Oct. 2	73.7	26	92.5	19	89.1	Dec. 16	90.8
16	73.7	Jan. 2, 1930	94.2	26	90.8	Jan. 7, 1931	51.4

Discharge in millions of gallons

Year	Jan.	Feb.	Mar.	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Total
1928	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
1929	9.16	4.92	4.28	3.55	3.35	29.66	25.3	35.1	3.10	20.9	9.58	13.9	172.17
1930	3.08	9.08	7.32	3.72	3.30	15.0	10.7	81.6	15.4	10.3	9.88	2.74	215.00
1931	4.95	3.24	3.17	5.03	4.02	14.0	60.3	48.1	8.26	46	1.04	3.31	155.88
1932	1.38	3.2	1.10	0	2.63	2.31	7.84	2.12	0	13	13	31.64	.....
1933	1.32	3.41	2.58	1.04	2.15	6.74	21.3	40.0	12.2	1.90	4.28	4.31	106.38
1934	5.38	1.33	1.06	2.88	7.20	19.3	22.4	21.3	21.5	11.4	15.8	2.0	135.53

119 (old 95C). At Honolulu Gas Works, Honolulu. Owner, Honolulu Gas Co. Drilled, 1923. Altitude, 4 ft. Depth, 682 ft. Diameter, 10 in. Depth to top of aquifer, 617 ft. Use, industrial.

Log

	Depth (ft.)		Depth (ft.)		Depth (ft.)
Coral (Pls)	0-50	Coral with clay (Pls and Pa)	260-270	Coral (Pls)	460-480
Dark clay (Pa)	50-70	Brown clay (Pa)	270-290	Sand and gravel (Pa)	480-500
Coral (Pls)	70-90	Very brown sand clay (Pa)	290-320	Dark sticky clay (Pa)	500-505
Clay and coral (Pa and Pls)	120-135	Soft coral (Pls)	320-330	(Coral) (Pls)	505-570
Boulders and clay Gbh, Naunau, and Pa)	135-195	Brown clay with sticky streaks (Pa)	335-400	Brown clay (Pa)	570-580
Dark sticky clay (Pa)	195-260	Coral (Pls)	400-425	Black sand (Pa or Tch)	580-600
		Dark brown clay (Pa)	425-460	Red rock (Tch)	601-682

Observations

Bench mark, top of bolts holding blind flange on tee on well at ground; altitude, 4.22 ft.

Date	Head (ft.)	Chloride (p.p.m.)	Date	Head (ft.)	Chloride (p.p.m.)	Date	Head (ft.)	Chloride (p.p.m.)
Dec. 12, 1923	28.22	205	July 15, 1926	24.12	295	Apr. 11, 1928	30.22	314
Dec. 17	29.18	258	Aug. 18	23.72	304	May 24	29.92	318
Jan. 26, 1924	29.20	232	Sept. 22	23.15	304	June 20	28.22	313
Feb. 15	29.60	256	Oct. 30	23.22	308	July 24	28.42	319
Mar. 18	29.60	258	Nov. 19	23.62	309	Aug. 22	27.92	314
April 16	28.70	253	Dec. 27	24.34	307	Sept. 25	28.82	312
May 15	29.60	264	Jan. 31, 1927	24.32	304	Oct. 27	28.27	311
June 13	.....	268	Mar. 1	27.00	308	Nov. 20	29.12	311
Aug. 21	29.60	270	Mar. 29	27.80	307	Dec. 29	29.92	306
Dec. 31	29.40	272	April 27	27.49	312	Jan. 3, 1929	29.52	305
Jan. 16, 1929	29.40	217	June 13	27.22	312	Feb. 19	.....	308
Mar. 5	27.20	244	July 27	27.22	312	Feb. 27	29.92	306
April 27	27.20	282	Aug. 25	27.07	310	Mar. 27	29.62	308
May 8	.....	268	Sept. 28	27.27	311	April 24	29.42	312
June 16	26.32	244	Oct. 25	28.07	310	May 27	28.07	310
Aug. 31	25.82	290	Jan. 9, 1928	30.47	310	June 25	27.22	309
Nov. 18	26.32	290	Feb. 27	30.27	312	July 18	29.92	308
Feb. 18, 1926	26.32	277	Mar. 6	31.92	311	Aug. 25	.....	326
June 16	26.47	300	Mar. 14	.....	304	Aug. 7	.....	308

Observations—Well 119 (Continued)

Date	Head (ft.)	Chloride (p.p.m.)	Date	Head (ft.)	Chloride (p.p.m.)	Date	Head (ft.)	Chloride (p.p.m.)
Aug. 8, 1929	26.52	307	July 15, 1930	.....	308	Jan. 17, 1933	31.20	314
Aug. 14	326	308	July 23	.....	308	Feb. 23	31.75	312
Aug. 21	.....	308	July 29	27.97	318	Mar. 16	32.55	309
Aug. 28	36.32	308	Aug. 23	27.97	308	April 19	31.52	324
Sept. 4	.....	308	Aug. 26	27.97	315	May 31	31.14	317
Sept. 11	.....	308	Sept. 6	.....	308	June 19	30.90	329
Sept. 17-20	.....	308	Sept. 6	.....	308	July 24	29.97	320
Sept. 25	26.22	314	Nov. 12	29.52	308	Sept. 19	29.26	320
Oct. 2	.....	308	Dec. 2	29.72	320	Oct. 18	28.78	330
Oct. 15	.....	308	Dec. 10	30.07	320	Nov. 17	28.28	323
Oct. 25	26.32	308	Dec. 30	30.07	320	Dec. 21	28.52	321
Nov. 30	.....	308	Jan. 7, 1931	.....	325	Jan. 25, 1934	31.31	306
Nov. 6	.....	326	Jan. 27	30.07	325	Jan. 30	.....	308
Nov. 13	.....	308	Feb. 26	29.72	328	Feb. 20	29.56	.....
Nov. 29	.....	326	Mar. 2	29.74	325	Feb. 24	.....	297
Nov. 27	27.12	341	Mar. 5	29.72	324	Feb. 27	.....	309
Dec. 1	.....	308	Mar. 17	29.72	308	Mar. 21	29.29	319
Dec. 11	.....	308	April 27	28.57	318	Mar. 29	.....	304
Dec. 18	.....	308	May 27	.....	308	April 28	.....	308
Dec. 24	27.77	311	May 29	28.72	300(1)	May 1	28.47	320
Dec. 26	.....	308	June 25	27.77	340	May 16	28.14	309
Jan. 2, 1930	.....	308	June 28	.....	325	May 31	.....	308
Jan. 6	.....	326	Aug. 5	26.62	319	June 14	28.20	333
Jan. 15	.....	326	Aug. 5	26.62	319	June 19	27.96	308
Jan. 22	.....	326	Aug. 10	26.57	318	July 12	27.14	333
Jan. 29	29.15	319	Aug. 10	27.90	319	July 31	.....	308
Feb. 5	.....	326	Oct. 6	27.22	324	Aug. 3	.....	324
Feb. 12	.....	308	Oct. 26	27.87	318	Aug. 30	.....	308
Feb. 18	29.82	320	Dec. 17	28.22	324	Sept. 8	26.57	.....
Feb. 26	.....	320	Jan. 14, 1932	28.62	325	Sept. 23	26.62	320
Feb. 28	29.22	327	Jan. 28	29.27	327	Sept. 26	.....	325
Mar. 5	.....	308	Feb. 17	30.70	319	Oct. 17	27.42	325
Mar. 12	.....	326	Feb. 18	31.30	322	Oct. 30	.....	325
Mar. 19	.....	326	Mar. 17	31.70	317	Nov. 8	.....	325
Mar. 26	29.66	314	June 16	31.47	323	Nov. 15	.....	325
April 9	.....	326	July 15	31.25	318	Nov. 30	.....	325
April 30	29.92	317	Aug. 23	30.80	323	Dec. 8	27.68	.....
May 14	.....	326	Sept. 19	30.77	321	Dec. 11	27.93	323
May 28	.....	315	Oct. 18	30.65	311	Dec. 22	27.96	333
June 1	.....	326	Nov. 15	30.72	310			
July 1	26.62	315	Dec. 16	31.30	314			

Discharge in millions of gallons

Year	Jan.	Feb.	Mar.	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Total
1929	.....	.....	.....	.....	.....	.....	.....	9.0	9.0	9.0	6.9	9.6	52.5
1930	15.8	13.2	13.2	13.2	13.2	13.2	13.2	13.2	13.2	13.2	13.2	13.2	176.2
1931	18.3	14.2	11.5	11.0	13.2	12.2	12.7	13.4	13	12	15	17.6	170.1
1932	8.3	7.1	7.1	7.1	8.1	7.1	7.4	7.6	7.2	7.9	8.1	8.5	53.5
1933	8.8	8.8	9.4	10.7	11.0	11.6	10.8	10.7	11.5	11.1	11.2	12.8	127.8
1934	11.1	10.2	11.6	12.4	12.7	12.2	12.9	14.2	13.4	13.3	13.5	13.3	151.3

121 (old 33). Rear of Kaunakapihi Church on N. King St., Honolulu. Owner, Kaunakapihi Church. Drilled, 1882. Altitude, 21 ft. Diameter, 5 in. Depth to top of aquifer, 400 ft. Use, irrigation.

Observations

Bench mark, top of large hexagonal bushing on well cap 8 in. above ground; altitude, 22.19 ft.

Date	Head (ft.)	Chloride (p.p.m.)	Date	Head (ft.)	Chloride (p.p.m.)	Date	Head (ft.)	Chloride (p.p.m.)
April, 1882	41.70	.....	Sept. 25, 1916	30.98	.....	Nov. 20, 1916	30.81	.....
..... 1900?	.....	204	Oct. 2	30.85	.....	Nov. 28	30.41	.....
..... 1910	.....	179	Oct. 16	30.80	.....	Dec. 4	30.94	.....
..... 1916	.....	179	Oct. 16	30.72	.....	Dec. 11	31.07	.....
Aug. 29	31.25	.....	Oct. 22	30.67	.....	Dec. 19	31.27	.....
Sept. 12	31.25	.....	Oct. 24	30.68	.....	Dec. 10, 1923	28.85	.....
Aug. 21	31.07	.....	Nov. 6	30.68	.....	Mar. 14, 1924	29.50	.....
Sept. 18	31.07	.....	Nov. 13	30.91	.....	Feb. 18, 1926	.....	132

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. 20, 1936	24.88	128	Mar. 27, 1939	29.60	121	Sept. 10, 1931	27.46	165
Mar. 1, 1938	30.60	123	Apr. 11, 1939	29.60	121	Sept. 10, 1931	27.46	165
Aug. 25	29.90	116	May 22	28.68	116	Sept. 25, 1932	29.25	165
Oct. 1	29.90	121	May 22	28.68	116	Oct. 1, 1934	29.25	165
Nov. 26	29.20	120	Nov. 18, 1936	26.26	116	Aug. 25	31.14	106
Jan. 3, 1939	29.90	117	Sept. 6	.....	116	Dec. 11, 1934	27.30	101
Feb. 3	29.80	117	June 4, 1931	30.44	169	Dec. 11, 1934	27.30	79
Feb. 27	29.80	122	.....	.....	169	.....	.....	.....

Discharge in millions of gallons

[illegible]

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, 200 ft.

Log					
	Depth (ft.)		Depth (ft.)	Depth (ft.)	
Tare patch clay (Ra)	6-13	Clay and gravel (Pa)	139-168	Red rock (Tkb)....	255-289
Coral rock (Pbs)....	3-2	Brown clay (Pa)....	168-230	Good water r....	
Dark rock (qbs, Yau- am).....	13-12	Black sticky clay (Pa)	230-250	struck water at 310 ft. (Tkb).....	
Dark Clay (Pa).....	42-139	Sand and gravel (Pa)	250-250		280-335
		Russell			

Observations

Bench mark, center line of cock 4 ft. below ground, just below pressure gage of pump; altitude, 23.01 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	37.76	.....	Sept. 26, 1929	28.87	110.0	Sept. 18, 1931	.....	99.2
Aug. 25, 1926	26.25	128.0	Feb. 19, 1930	30.41	.....	Jan. 29, 1932	29.08	94.6
Mar. 27, 1928	30.41	107.0	.....	.....	.....	June 19, 1934	31.92	97.4
Aug. 25	.....	122.0	Mar. 3, 1931	29.58	97.5	.....	27.87	95.8
Mar. .. 1929	.....	97.7	Sept. 10	27.49	99.1	Dec. 11	.....	.....

Discharge in millions of gallons

Discharge in millions of gallons											
Year	Jan.	Feb.	Mar.	April	May	June	July	Aug.	Sept.	Oct.	Total
1929	..	..	2	3.0	2.4	..	2.5	2.8	2.7	2.5	2.8
1930	..	..	2	3.0	2.4	..	2.5	2.8	2.7	2.5	2.8
1931	..	..	2	3.0	2.4	..	2.5	2.8	2.7	2.5	2.8
1932	..	..	2	3.0	2.4	..	2.5	2.8	2.7	2.5	2.8
1933	..	..	2	3.0	2.4	..	2.5	2.8	2.7	2.5	2.8
1934	..	..	2	3.0	2.4	..	2.5	2.8	2.7	2.5	2.8
1935	..	..	2	3.0	2.4	..	2.5	2.8	2.7	2.5	2.8
1936	..	..	2	3.0	2.4	..	2.5	2.8	2.7	2.5	2.8
1937	..	..	2	3.0	2.4	..	2.5	2.8	2.7	2.5	2.8
1938	..	..	2	3.0	2.4	..	2.5	2.8	2.7	2.5	2.8
1939	..	..	2	3.0	2.4	..	2.5	2.8	2.7	2.5	2.8
1940	..	..	2	3.0	2.4	..	2.5	2.8	2.7	2.5	2.8
1941	..	..	2	3.0	2.4	..	2.5	2.8	2.7	2.5	2.8
1942	..	..	2	3.0	2.4	..	2.5	2.8	2.7	2.5	2.8
1943	..	..	2	3.0	2.4	..	2.5	2.8	2.7	2.5	2.8
1944	..	..	2	3.0	2.4	..	2.5	2.8	2.7	2.5	2.8
1945	..	..	2	3.0	2.4	..	2.5	2.8	2.7	2.5	2.8
1946	..	..	2	3.0	2.4	..	2.5	2.8	2.7	2.5	2.8
1947	..	..	2	3.0	2.4	..	2.5	2.8	2.7	2.5	2.8
1948	..	..	2	3.0	2.4	..	2.5	2.8	2.7	2.5	2.8
1949	..	..	2	3.0	2.4	..	2.5	2.8	2.7	2.5	2.8
1950	..	..	2	3.0	2.4	..	2.5	2.8	2.7	2.5	2.8
1951	..	..	2	3.0	2.4	..	2.5	2.8	2.7	2.5	2.8
1952	..	..	2	3.0	2.4	..	2.5	2.8	2.7	2.5	2.8
1953	..	..	2	3.0	2.4	..	2.5	2.8	2.7	2.5	2.8
1954	..	..	2	3.0	2.4	..	2.5	2.8	2.7	2.5	2.8
1955	..	..	2	3.0	2.4	..	2.5	2.8	2.7	2.5	2.8
1956	..	..	2	3.0	2.4	..	2.5	2.8	2.7	2.5	2.8
1957	..	..	2	3.0	2.4	..	2.5	2.8	2.7	2.5	2.8
1958	..	..	2	3.0	2.4	..	2.5	2.8	2.7	2.5	2.8
1959	..	..	2	3.0	2.4	..	2.5	2.8	2.7	2.5	2.8
1960	..	..	2	3.0	2.4	..	2.5	2.8	2.7	2.5	2.8
1961	..	..	2	3.0	2.4	..	2.5	2.8	2.7	2.5	2.8
1962	..	..	2	3.0	2.4	..	2.5	2.8	2.7	2.5	2.8
1963	..	..	2	3.0	2.4	..	2.5	2.8	2.7	2.5	2.8
1964	..	..	2	3.0	2.4	..	2.5	2.8	2.7	2.5	2.8
1965	..	..	2	3.0	2.4	..	2.5	2.8	2.7	2.5	2.8
1966	..	..	2	3.0	2.4	..	2.5	2.8	2.7	2.5	2.8
1967	..	..	2	3.0	2.4	..	2.5	2.8	2.7	2.5	2.8
1968	..	..	2	3.0	2.4	..	2.5	2.8	2.7	2.5	2.8
1969	..	..	2	3.0	2.4	..	2.5	2.8	2.7	2.5	2

123 (old 100½). 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, Alvin. Drilled, 1900 by McCandless Bros. Altitude, 16 ft. Depth, 150 ft. Diameter 8 in. Use, domestic.

Observations

Observations
Ranch mark, top of hexagonal head on 3 in. valve $2\frac{1}{2}$ ft. above ground directly over well; distance
17.49 ft.

Date	Heat (fl.)	Chloride (p.p.m.)	Date	Heat (fl.)	Chloride (p.p.m.)	Date	Heat (fl.)	Chloride (p.p.m.)
July 1, 1930		118.0	Oct. 22, 1936	30.61		April 9, 1932	31.64	167
July 16, 1936	31.95		Oct. 29	30.63		Aug. 9		118.0
Aug. 2	31.92		Nov. 5	30.65		Feb. 21, 1939		99.2
Aug. 30	31.54		Nov. 12	30.67		Mar. 17	29.95	118.0
Aug. 31	31.51		Nov. 39	30.75		Sept. 27	26.37	181.0
Aug. 12	31.48		Dec. 26	30.81		Oct. 9	29.95	122.0
Aug. 29	31.28		Dec. 3	30.88		Sept. 6		
Aug. 27	31.23		Dec. 10	31.01		Mar. 3, 1931	29.95	95.8
Sept. 2	31.17		Jan. 11, 1924	30.81		Sept. 19	27.38	
Sept. 17	31.05		Mar. 14	29.58		Sept. 18, 1932	29.36	95.7
Sept. 24	30.93		May 12	28.35	127.0	Oct. 30	29.36	95.7
Oct. 1	30.67		June 2, 1926		96.0	Dec. 9, 1934	28.67	85.9
Oct. 15	30.76		July 15		95.0	Dec. 11	27.48	86.5
Oct. 8	30.67		Aug. 27	21.83				

Discharge in millions of gallons

[illegible]

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, 25.93 ft.

Date	Head (ft.)	Chloride (p.p.m.)	Date	Head (ft.)	Chloride (p.p.m.)	Date	Head (ft.)	Chloride (p.p.m.)
July 1, 1910		138	Oct. 10, 1917	30.72		Sept. 20, 1920	25.42	123
July 16, 1916	31.55		Nov. 9	30.34		Nov. 17		123
Aug. 2	31.85		Dec. 7	30.00		Dec. 23		123
Aug. 30	31.55		Jan. 31, 1918	31.34		Jan. 28, 1921	29.12	117
Aug. 31	31.55		Feb. 10	31.62		Feb. 18		116
Sept. 13	31.31		Mar. 1	31.84		Mar. 20		116
Aug. 20	31.25		April 8	31.92		April 15	30.33	109
Aug. 27	31.21		May 17	31.61		May 20	30.17	116
Aug. 28	31.06		June 1	31.78		June 1	30.17	116
Sept. 10	31.02		July 9	31.05		July 23, 1923	29.96	
Sept. 17	30.93		Aug. 1	31.05		Oct. 16	29.96	
Sept. 24	30.98		Sept. 26	30.61		Nov. 14	27.98	123
Oct. 1	30.62		Oct. 11	30.41		Dec. 17	28.98	123
Oct. 15	30.80		Nov. 1	30.41		Jan. 28, 1924	28.98	123
Oct. 15	30.69		Dec. 14	31.14		Jan. 16	30.68	121
Oct. 22	30.64		Jan. 24, 1919	31.35		Feb. 15	29.76	118
Oct. 29	30.67		Feb. 7	31.30		Mar. 14	29.74	118
Nov. 5	30.65		Mar. 17	30.50		Mar. 18	29.38	116
Nov. 12	30.75		April 4	30.50		Apr. 18, 1926	29.48	116
Nov. 19	30.75		May 9	29.70		Mar. 13, 1928	30.25	121
Nov. 26	30.80		July 1	28.77		Mar. 1, 1929		120
Nov. 30	30.75		Aug. 6	28.77		Apr. 1	26.75	120
Dec. 10	31.04		Oct. 21	28.05		Feb. 18, 1930	27.78	
Dec. 11	30.98		Nov. 6, 1920	28.05		Sept. 6		126
Dec. 12	30.98		Feb. 22	28.05		Mar. 29, 1931	29.99	
April 1	32.01		Mar. 15	28.19		Sept. 9	26.94	
April 7	32.04		April 14	28.19	152	Sept. 28		
June 1	33.91		May 21	27.73		Jan. 28, 1932	28.55	109
Aug. 6	32.49		June 15	27.47	156	Aug. 24	30.21	106
Sept. 7	32.75		July 18, 1928	27.47	158	Jan. 19, 1934	28.98	106
Sept. 7	32.49		Aug. 16	26.32	111	Dec. 11	27.72	99

RECORDS OF DRILLED WELLS ON OAHU

Well 125 (Continued)						Discharge in millions of gallons							
Year	Jan.	Feb.	Mar.	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Total
1929	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
1930	..02	..02	..02	..02	..02	..02	..02	..000	..02	..02	..03	..03	..03
1931	..03	..03	..03	..03	..03	..03	..03	..03	..03	..03	..03	..03	..03
1932	..03	..03	..03	..03	..03	..03	..03	..03	..03	..03	..03	..03	..03
1933	..03	..03	..03	..03	..03	..03	..03	..03	..03	..03	..03	..03	..03
1934	..03	..03	..03	..03	..03	..03	..03	..03	..03	..03	..03	..03	..03

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, 138 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.)
July 22, 1910	...	...	Oct. 8, 1916	30.80	...	Mar. 13, 1928	...	121
July 26, 1916	...	...	Oct. 15	30.71	...	Mar. 19	30.62	...
July 23	31.84	...	Oct. 22	30.65	...	Mar. 19, 1929	...	110
July 30	31.56	...	Nov. 5	30.64	...	Sept. 26	26.16	110
Aug. 6	31.53	...	Nov. 12	30.66	...	Oct. 10	26.41	...
Aug. 13	31.50	...	Nov. 19	30.81	...	Sept. 4, 1920	...	...
Aug. 20	31.27	...	Nov. 26	30.82	...	Mar. 3, 1931	...	109
Aug. 27	31.27	...	Dec. 3	30.93	...	Sept. 18	27.29	...
Sept. 3	31.21	...	Dec. 10	31.05	...	April 27, 1932	...	92
Sept. 10	31.00	...	July 29, 1923	29.90	...	Aug. 24	...	101
Sept. 17	31.04	...	Oct. 16	...	114	June 10, 1934	...	98
Sept. 24	30.99	...	Aug. 27, 1926	24.77	...	Dec. 11	27.83	101
Oct. 1	30.86	...						

* 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	...	...	...	...	...	...	...	...	...	...	...	...	...
1930	..3.4	2.2	2.2	1.8	1.9	2.1	0.3	2.1	0.4	0.3	1.8	1.2	4.4
1931	..1.6	1.4	1.6	3.6	3.7	2.1	2.2	2.2	1.7	2.8	2.4	2.6	24.4
1932	..2.2	1.8	2.4	2.7	1.9	1.8	3.1	2.2	2.1	1.6	1.6	1.9	25.6
1933	..4.8	1.7	2.8	3.0	3.1	1.8	1.9	1.2	1.2	1.4	1.5	1.9	27.1
1934	..1.9	1.7	1.6	1.5	1.6	1.2	1.2	1.2	1.3	1.3	1.3	1.8	14.5

127 (old 100). Between School St. and end of Auld Lane, Honolulu. Owner, Ah Yia. 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., 1911	31.43	...	Feb., 1918	27.85	...
May	28.51	...	Jan., 1912	31.89	113	Mar.	27.93	124
June	...	120	Feb.	31.77	113	April	27.91	120
July	29.21	...	Mar.	31.72	119	May	28.36	129
Nov., 1911	29.65	...	April	31.50	116	June	28.61	114
Dec.	31.30	...	May	30.82	120	July	28.31	116
Feb.	31.30	...	June	29.11	118	Aug.	27.96	116
Mar.	31.70	...	July	28.81	118	Sept.	27.80	105
April	31.11	...	Aug.	28.25	116	Oct.	27.96	116
May	31.00	...	Sept.	28.11	108	Nov.	...	122
June	30.16	...	Oct.	27.70	110	Dec.	...	110
July	30.18	...	Nov.	28.16	108	Jan., 1914	28.51	114
Aug.	31.26	112	Dec.	28.75	110	Feb., 1915	28.51	114
Sept.	31.29	...	Jan., 1916	27.61	128 (1)	Mar., 1916	31.31	110

RECORDS OF DRILLED WELLS ON OAHU

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	31.58	...	Sept. 17, 1916	31.05	...	Mar. 22, 1918	31.95	...
Mar.	32.96	...	Oct. 9	30.97	...	Jan. 10, 1924	29.26	...
April	32.56	...	Oct. 1	30.82	...	Aug. 27, 1926	24.90	...
May	31.71	108	Oct. 8	30.98	...	Mar. 19, 1928	30.49	117
June	31.95	...	Oct. 15	30.69	...	Oct. 10, 1929	26.47	...
July 16	31.23	...	Oct. 22	30.65	...	Feb. 18, 1930	29.70	...
July 23	31.18	...	Oct. 29	30.64	...	Mar. 3, 1931	29.77	101
July 30	31.68	...	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	101
Aug. 27	31.25	...	Dec. 3	30.99	...	June 19, 1934	27.63	103
Sept. 3	31.05	...	Dec. 10	31.05	...	Dec. 11	27.68	103
Sept. 10	31.05	...	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	..11	..12	..12	..12	..12	..12	..12	..12	..12	..12	..12	1.43
1934	..12	..11	..12	..12	..12	..12	..12	..12	..12	..12	..12	..12	1.43

128A to H (A to E=old 101A to E; F=101; G=102; H=102½). Kalihi 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=6. Drilled, A, B, C, in 1920; 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 and F, 401 ft.; B, 19 ft.; C and E, 23 ft.; D, 24 ft.; G and H, 20 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, 363 ft.; C, 265 ft.; D, 251 ft.; E, 271 ft. Detailed description of samples following driller's log by T. F. Harris.

Logs

Well A	Depth (ft.)
Clay and gravel (Pa). Samples from 17 to 75 ft. show brown clay, silt, and gravel. Pebbles of greenish-gray basalt attain a size of ¼ in in diameter. Sample at 10 ft. shows clay containing abundant fragments of clay and coral (Pa and Pls). Sample at 30 ft. shows clay containing abundant fragments of clay and pebbles (Pa). Sample at 101 ft. shows dark brown clay containing abundant 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. Sample at 141 ft. shows brown mud containing abundant small subangular to subrounded fragments of white limestone. Sample at 142 ft. shows white limestone. Sample at 152 ft. shows brown clay containing angular to rounded fragments of white limestone. Sample at 165 ft. shows dark brown sandy clay containing subangular to subrounded fragments of white limestone and angular to subangular fragments of blue-gray basalt. Sample at 166 ft. shows brown medium-grained sand. Sample at 167 ft. shows brown and (Pa). Sample at 168 ft. shows brown medium-grained sand. Sample at 169 ft. shows gravel (Pa). Sample at 196 ft. shows subangular to subrounded pebbles up to 20 mm in diameter. Sample at 200 ft. shows brown clay containing angular fragments of white limestone. Sample at 200 ft. shows brown clay containing angular to subangular fragments of blue-gray basalt. Sample at 214 ft. shows gray clay containing angular to subangular fragments of blue-gray basalt.	60-101
White coral (Pls). Sample at 132 ft. shows white limestone.	101-123
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.	123-139
Yellow clay (Pa). Samples at 145 ft. and 152 ft. show brown clay containing angular to rounded fragments of white limestone.	139-140
White clay (Pa). Sample at 160 ft. shows clay similar to above.	140-142
Brown clay (Pa). Sample at 165 ft. shows dark brown sandy clay containing subangular to subrounded fragments of white limestone and angular to subangular fragments of blue-gray basalt.	142-146
Brown and (Pa). Sample at 166 ft. shows brown medium-grained sand.	146-152
Gravel (Pa). Sample at 196 ft. shows subangular to subrounded pebbles up to 20 mm in diameter.	152-160
Brown clay (Pa). Sample at 200 ft. shows brown clay containing angular fragments of white limestone.	160-162
Sandy gray clay (Pa). Sample at 214 ft. shows gray clay containing angular to subangular fragments of blue-gray basalt.	162-168
Sandy gray clay (Pa). Sample at 214 ft. shows gray clay containing angular to subangular fragments of blue-gray basalt.	168-212
Sandy gray clay (Pa). Sample at 214 ft. shows gray clay containing angular to subangular fragments of blue-gray basalt.	212-216

Well A—Continued

Logs—Well 128 (Continued)

	Depth (ft.)
Hard blue rock (Tbk). Sample at 218 ft. shows dark blue-gray hard dense basalt,	216-221
Red rotten rock (Tbk). Sample at 222 ft. shows reddish-brown, hard to friable, moder-	221-230
ately vesicular basalt containing abundant olivine phenocrysts.	
Blue rock (Tbk). Sample at 242 ft. shows dark-gray basalt containing abundant olivine	245-258
phenocrysts. Sample at 252 ft. shows dark blue-gray basalt containing many olivine	
phenocrysts.	
Porous lava, purple and blue in color. With olivines (Tbk). Sample at 258 ft. shows red	258-430
basalt containing abundant olivine phenocrysts. Sample at 258 ft. shows blue-gray	
hard, moderately vesicular basalt containing abundant phenocrysts of olivine and feld-	
spar. Samples from 302 ft. to 337 ft. show blue-gray, hard, moderately vesicular to	
dense basalt containing abundant olivine phenocrysts. Hardies at 340 to 418 ft. show	
dark blue-gray to greenish-gray hard, very amygdaloidal basalt.	
Well B	
Brown clay (Rs and Pa). Sample at 70 ft. shows brown silt.	0-110
Coral (Pls). Sample at 120 ft. shows white limestone.	110-114
Blue clay (Pa). Sample shows dark-brown-gray clay, sandy siltstone showing a few	144-102
carbonized remains and grass-like imprints of plants.	
Brown clay (Pa). Sample shows brown mud containing rounded pebbles, up to 22 mm	162-178
in diameter, of blue-gray basalt.	
Gray clay (Pa). Sample shows dark-brown clay containing many angular fragments of	178-228
blue-gray basalt, and a few subrounded fragments of white limestone.	
Blue rock (Tbk). Sample at 234 ft. shows blue-gray dense basalt.	228-230
Mixed rotten rock, soft (Tbk). Samples show similar basalt.	230-236
Rotten gray rock, mixed colors (Tbk). Sample shows dark blue-gray, hard, slightly to	236-244
moderately vesicular basalt containing abundant phenocrysts of olivine and feldspar.	
Rotten rock (Tbk). Samples from 250 to 280 ft. shows dark-gray, blue-gray, green-gray	244-250
and red-brown, hard to friable, slightly to very vesicular basalt, in part containing many	
olivine phenocrysts.	
Porous lava with olivines, hard streaks (Tbk). Samples show blue-gray, hard, moder-	250-285
ately vesicular basalt containing abundant olivine phenocrysts.	
Red rock (Tbk). Sample shows basalt same as above.	285-335
Porous lava, water rock (Tbk). Sample at 348 ft. shows basalt same as above. Sample	335-340
at 382 ft. shows dark-gray to red-brown very vesicular and amygdaloidal basalt.	
Well C	
Gravel and boulders (Ra)	0-20
Clay and gravel (Ra). Sample shows white rounded pebbles of greenish-gray, blue-gray and	
red-brown, slightly to very vesicular basalt.	20-40
Clay and gravel (Pa). Sample shows dark brown friable, fine sandy clay.	40-85
Clay and coral (Pa). Sample shows dark brown friable, fine sandy clay containing fragments of	85-110
white limestone, thick pelecypod shells, and green basalt clay containing fragments of	
coral (Pls). Sample shows white limestone containing shells up to 19 mm thick.	110-130
Brown clay (Pa). Sample at 140 ft. shows dense, sticky clay containing fragments of	130-152
white limestone.	
Yellow clay (Pa). Sample shows brown mud containing fragments of white limestone	152-166
and dark bluish-gray basalt.	
Blue rock (Tbk). Samples show dark bluish-gray to greenish-gray, hard slightly vesicular	166-175
basalt containing phenocrysts of feldspar and olivine.	
Porous rock (Tbk). Sample at 175 ft. shows same rock as above, plus red-brown, hard,	175-177
slightly vesicular basalt.	
Rotten red rock (Tbk). Sample at 177 ft. shows purplish-brown to brick-red, hard to	177-181
friable, moderately vesicular basalt containing phenocrysts of feldspar and olivine.	
Hard lava (Tbk). Sample shows same rock as above, plus greenish-gray, hard, slightly	181-187
vesicular basalt.	
Dark rotten rock (Tbk). Samples at 187 ft. and 240 ft. show dark bluish-gray, hard to	
friable, slightly to very vesicular basalt, in part containing few phenocrysts of feld-	
spar and olivine; plus red-brown friable to hard, moderately vesicular basalt contain-	
ing few phenocrysts of feldspar and olivine.	
Hard lava (Tbk). Sample shows dark bluish-gray, hard, moderately vesicular basalt,	187-252
containing phenocrysts of olivine and feldspar.	
Porous lava (Tbk). Sample at 266 ft. shows dark bluish-gray, hard, moderately to very	252-266
vesicular, olivine-rich basalt.	
Hard close lava (Tbk). Sample shows rock similar to above containing abundant olivine	266-320
phenocrysts 1-2 mm in diameter.	
Porous lava (Tbk). Sample at 328 ft. shows basalt same as above, plus red-brown friable	320-338
basalt containing abundant spherical vesicles, some of which are filled with green-	
colored argonite.	
Hard rock (Tbk)	338-438
Well D	
Gravelly rock (Ra)	0-22
Rotten red rock (Possibly Qih, Kamanikih). Sample shows venetian 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 highly decomposed	
lava flow.	22-28

Well D—Continued

Logs—Well 128 (Continued)

	Depth (ft.)
Brown clay (Pa). Sample shows red-brown mud containing subangular to subrounded	28-30
pebbles up to 21 mm in diameter of greenish-gray slightly vesicular basalt.	
Clay and coral (Pa and Pls). Sample shows brownish-gray mud containing angular frag-	90-105
ments of dark blue-gray hard dense basalt, and subrounded fragments of white lime-	
stone.	
Brown clay (Pa). Sample shows dark-brown mud containing many angular fragments of	105-115
dark blue-gray hard dense basalt, and few subangular fragments of white limestone.	
White coral (Pls). Sample shows fragments of white limestone containing corals, small	115-145
gastropods and pelecypods.	
Brown clay (Pa). Sample shows brown mud containing many angular fragments of dark	145-155
blue-gray hard dense basalt, and few subangular fragments of white limestone.	
Yellow clay (Pa). Sample shows dark brown clay containing angular fragments of dark	155-164
blue-gray hard dense basalt.	
Brown and gray clay (Pa). Sample same as above.	164-170
Rotten rock and clay (Pa). Sample shows brown sandy clay containing subrounded	170-179
pebbles up to 26 mm in diameter, of brown and blue dense to vesicular basalt. Prob-	
ably clay and gravel.	
Dark blue-gray hard dense basalt. Probably clay and containing angular fragments of	173-190
Porous rotten rock with clay streaks (Tbk). Sample from 190 ft. to 205 ft. shows 50	
percent fragments of purple-brown hard moderately vesicular basalt, 5 percent green	
ish-gray hard slightly vesicular basalt, and 5 percent fragments of white lime-	
stone. Sample at 220 ft. shows 80 percent fragments of blue-gray hard slightly vesicular	190-230
basalt, and 20 percent purple-brown hard moderately vesicular basalt.	
Porous lava with olivines (Tbk)	230-235
Hard lava, with slight porous stratum of about 6 in. at 322 ft. (Tbk)	230-244
Porous lava (Tbk)	244-250
Well E	
Gravel and boulders (Ra)	0-25
Red rotten rock (Possibly Qih, Kamanikih). Sample shows venetian red, friable clay,	25-30
with very small angular fragments of blue-gray basalt.	
Brown clay (Pa). Sample shows brown clayey sandy silt.	30-60
Clay and coral (Pa and Pls). Sample shows grayish-brown plastic fine sandy clay con-	
taining few fragments of white limestone.	100-120
Brown clay (Pa). Sample shows dark-brown clay containing many angular fragments of	120-142
blue-gray basalt and a few subangular fragments of white limestone.	
Brown sandy clay (Pa). Sample shows brown sandy clay containing angular fragments	142-172
of blue-gray basalt, and subrounded fragments of white limestone.	
Gray clay and boulders (Pa). Sample shows brown mud containing abundant angular	172-210
fragments of blue-gray basalt.	
Porous rock (Tbk). Sample shows blue-gray basalt.	210-234
Rotten gray rock, hard streaks (Tbk). Sample shows dark gray-brown mud, containing	234-254
fragments of blue-gray basalt.	
Porous lava (Tbk). Sample at 275 ft. shows dark-gray firm very vesicular basalt con-	254-310
taining many olivine phenocrysts.	
Hard lava (Tbk). Sample shows dark-gray, red, moderately vesicular basalt contain-	310-315
ing abundant olivine phenocrysts.	
Porous lava (Tbk). Sample same as above.	315-338
Hard lava (Tbk). Sample shows similar basalt containing many olivine	338-345
phenocrysts.	
Porous lava (Tbk)	345-411
Hard lava (Tbk)	410-411

Observations

Wells 128A to E.

Date	Chelick (p.p.m.)	Date	Chelick (p.p.m.)	Date	Chelick (p.p.m.)	Date	Chelick (p.p.m.)
1900	49.0	May 28, 1920	67.8	Aug. 21, 1920	69.3	Nov. 14, 1920	68.8
June 1910	73.0	June 5	68.2	Sept. 28	67.0	Dec. 29	67.0
Aug. 1912	72.5	1912	68.6	Oct. 11	68.5	Dec. 4	68.0
Feb. 1914	73.5	1914	68.2	11	68.5	Dec. 4	68.0
Apr. 1920	73.0	1920	65.0	18	67.6	18	70.9
April 3	67.7	July 3	60.0	25	67.6	18	70.9
10	68.7	10	64.0	Oct. 2	66.7	25	70.8
19	67.9	17	67.0	17	66.7	Jan. 1921	70.2
24	66.0	24	66.0	16	66.3	Feb. 5, 1926	66.2
May 8	66.2	31	65.0	16	66.8	Nov. 29	71.8
22	67.0	Aug. 7	67.0	39	67.0	Dec. 1	69.0
22	66.9	14	67.9	Nov. 7	68.0	Dec. 1	69.0

Observations—Well 128 (Continued)

Well A. Bench mark, top of manhole rim at ground; altitude, 21.07 ft.

Date	Head (ft.)	Chloride (p.p.m.)	Date	Head (ft.)	Chloride (p.p.m.)	Date	Head (ft.)	Chloride (p.p.m.)
May 1, 1926	78.7		Feb. 23, 1929	63.3		Aug. 25, 1932	31.06	63.3
June 10	75.59		Mar. 19	63.3		June 19, 1934		65.4
Jan. 24, 1927	25.91		May 24	63.3		Sept. 27		69.6
Feb. 3	26.10		June 20	63.3		Sept. 28		63.3
Oct. 1	25.85		Oct. 12	26.55		Oct. 15		63.3
Nov. 1, 1928	63.3		Feb. 19, 1930	29.62		Oct. 25		63.3
Nov. 1	65.0		Sept. 18, 1931	63.3		Nov. 28		47.9
Jan. 29, 1929	63.3		Jan. 29, 1932	29.08				

Well B. Bench mark, top of manhole rim at ground; altitude, 18.99 ft.

Date	Head (ft.)	Chloride (p.p.m.)	Date	Head (ft.)	Chloride (p.p.m.)	Date	Head (ft.)	Chloride (p.p.m.)
June 12, 1926	88.0		May 24, 1929	63.3		Feb. 19, 1934		63.3
Feb. 3, 1927	26.07		June 19	61.5		Sept. 27		65.0
Mar. 3	26.27		Oct. 12	26.59		Sept. 28		63.3
Oct. 1, 1928	63.3		Feb. 18, 1930	29.62		Oct. 15		63.3
Nov. 1	66.7		Sept. 9, 1931	27.31		Oct. 25		63.3
Jan. 29, 1929	65.0		Sept. 18	63.3		Nov. 28		51.3
Feb. 23	65.0		Jan. 29, 1932	28.09				
Mar. 18	65.0		Aug. 25	30.90				

Well C. Bench mark, top of manhole rim at ground; altitude, 23.58 ft.

Date	Head (ft.)	Chloride (p.p.m.)	Date	Head (ft.)	Chloride (p.p.m.)	Date	Head (ft.)	Chloride (p.p.m.)
Jan. 28, 1927	25.49		June 20, 1929	60.0		Sept. 27, 1934		61.5
Mar. 3	26.45		Oct. 12	26.45		Oct. 15		61.5
Oct. 1, 1928	58.1		Feb. 19, 1930	29.59		Oct. 25		61.5
Jan. 29, 1929	60.0		Sept. 18, 1931	61.6		Nov. 28		44.5
Feb. 23	60.0		Jan. 29, 1932	29.19				
Mar. 19	55.0		Aug. 25	30.95				
May 24	62.0		June 19, 1934	63.3				

Well D. Bench mark, top of manhole rim at ground; altitude, 24.02 ft.

Date	Head (ft.)	Chloride (p.p.m.)	Date	Head (ft.)	Chloride (p.p.m.)	Date	Head (ft.)	Chloride (p.p.m.)
Jan. 28, 1927	25.63		Jan. 22, 1930	71.9		May 27, 1932		66.7
Mar. 3	26.28		Feb. 12	70.2		June 28		68.4
Oct. 1, 1928	66.7		Feb. 12	71.9		July 25		68.4
Nov. 1	66.7		Mar. 12	29.66		Aug. 25	31.05	68.4
Jan. 29, 1929	66.7		Mar. 12	71.9		Sept. 23		70.1
Feb. 23	66.7		Mar. 12	71.9		Oct. 27		70.1
Mar. 18	66.8		Mar. 12	71.9		Nov. 26		70.1
May 24	66.7		Mar. 12	68.5		Dec. 27		70.1
June 20	65.0		Mar. 12	71.9		Jan. 27, 1933		68.4
July 25	70.2		April 9	71.9		Feb. 24		68.4
Aug. 1	70.2		May 14	71.9		Mar. 30		68.4
Sept. 4	68.5		May 14	68.4		May 11		68.4
Oct. 1	68.5		June 19	68.4		May 29		68.4
Nov. 1	68.5		July 15	70.2		June 30		68.4
Jan. 2, 1930	68.5		Aug. 23	70.2		July 26		68.4
Feb. 23	70.2		Sept. 6	68.4		Aug. 31		70.1
Mar. 18	70.2		Sept. 6	68.5		Sept. 28		70.1
May 24	68.5		Oct. 12	68.5		Oct. 15		68.4
June 20	68.5		Nov. 12	68.5		Nov. 28		68.4
July 25	68.5		Dec. 16	68.5		Dec. 22		68.4
Aug. 1	68.5		Jan. 7, 1931	68.5		Jan. 4, 1932		68.4
Sept. 4	68.5		Mar. 2	70.1		Jan. 30, 1934		68.4
Oct. 1	68.5		Apr. 16	66.7		Feb. 27		68.4
Nov. 1	68.5		May 27	66.7		Mar. 29		68.4
Jan. 2, 1930	68.5		June 25	68.4		Apr. 28		66.7
Feb. 23	68.5		Aug. 8	68.4		May 31		68.4
Mar. 18	71.9		Aug. 25	68.4		June 19		68.4
May 24	70.2		Sept. 18	66.7		July 31		68.4
June 20	71.9		Oct. 30	68.4		Aug. 30		68.4
July 25	71.9		Dec. 5	68.4		Sept. 26		68.4
Aug. 1	71.9		Jan. 29, 1932	29.04		Oct. 17		66.7
Sept. 4	71.9		Feb. 23	68.4		Oct. 30		68.4
Oct. 1	71.9		Mar. 20	66.7		Nov. 15		68.4
Nov. 1	71.9		Apr. 27	68.4		Nov. 20		44.5

Well E. Bench mark, top of manhole rim at ground; altitude, 22.82 ft.

Date	Head (ft.)	Chloride (p.p.m.)	Date	Head (ft.)	Chloride (p.p.m.)	Date	Head (ft.)	Chloride (p.p.m.)
Jan. 28, 1927	25.98		June 1, 1929	68.4		Sept. 27, 1934		66.7
Mar. 3, 1928	26.28		Oct. 12	26.41		Sept. 28		65.9
Oct. 1, 1928	65.0		Feb. 18, 1930	29.56		Oct. 15		65.9
Jan. 29, 1929	66.7		Sept. 18, 1931	70.1		Oct. 25		66.7
Feb. 23	66.7		Jan. 29, 1932	29.17		Nov. 29		49.6
Mar. 19	66.8		June 19, 1934	68.4				
May 24	68.4							

Observations—Well 128 (Continued)

Well F. Bench mark, top of manhole rim at ground; altitude, 23.19 ft.

Date	Head (ft.)	Chloride (p.p.m.)	Date	Head (ft.)	Chloride (p.p.m.)	Date	Head (ft.)	Chloride (p.p.m.)
..... 1906	80.0		June 12, 1920	68.0		Dec. 25, 1920	.....	70.8
Dec. 1, 1906	72.0		Jan. 1, 1921	68.0		Jan. 1, 1921	.....	70.8
..... 1910	73.0		Feb. 6	68.0		Feb. 6, 1926	.....	66.2
Oct. 1, 1912	73.0		July 3	69.0		June 10	25.45	71.0
..... 1913	75.0		Aug. 10	64.0		Nov. 20	.....	61.6
Feb. 1	73.0		Oct. 17	61.0		Oct. 1, 1928	.....	51.3
Apr. 1	73.0		Dec. 24	68.0		Dec. 1	.....	69.0
May 1	73.0		Jan. 19, 1929	65.0		Jan. 19, 1929	.....	51.3
June 1	73.0		Feb. 23	67.0		Feb. 23	.....	51.3
July 1	73.0		Mar. 19	67.9		Mar. 19	.....	51.3
Aug. 1	73.0		May 24	67.9		May 24	.....	51.3
Sept. 1	73.0		June 20	67.0		June 20	.....	51.3
Oct. 1	73.0		Sept. 26	64.0		Sept. 26	26.12	51.3
Nov. 1	73.0		Oct. 12	68.5		Oct. 12	26.49	51.3
Dec. 1	73.0		Mar. 3, 1930	65.0		Mar. 3, 1930	.....	54.7
Jan. 1, 1931	73.0		Mar. 19	66.7		Mar. 19	29.74	54.7
Feb. 1, 1931	73.0		Mar. 27	66.7		Mar. 27	29.74	54.7
Mar. 1, 1931	73.0		Apr. 1	66.7		Apr. 1	29.74	54.7
Apr. 1, 1931	73.0		Apr. 1	66.7		Apr. 1	29.74	54.7
May 1, 1931	73.0		May 1	66.7		May 1	29.74	54.7
June 1, 1931	73.0		June 1	66.7		June 1	29.74	54.7
July 1, 1931	73.0		July 1	66.7		July 1	29.74	54.7
Aug. 1, 1931	73.0		Aug. 1	66.7		Aug. 1	29.74	54.7
Sept. 1, 1931	73.0		Sept. 1	66.7		Sept. 1	29.74	54.7
Oct. 1, 1931	73.0		Oct. 1	66.7		Oct. 1	29.74	54.7
Nov. 1, 1931	73.0		Nov. 1	66.7		Nov. 1	29.74	54.7
Dec. 1, 1931	73.0		Dec. 1	66.7		Dec. 1	29.74	54.7
Jan. 1, 1932	73.0		Jan. 1	66.7		Jan. 1	29.74	54.7
Feb. 1, 1932	73.0		Feb. 1	66.7		Feb. 1	29.74	54.7
Mar. 1, 1932	73.0		Mar. 1	66.7		Mar. 1	29.74	54.7
Apr. 1, 1932	73.0		Apr. 1	66.7		Apr. 1	29.74	54.7
May 1, 1932	73.0		May 1	66.7		May 1	29.74	54.7
June 1, 1932	73.0		June 1	66.7		June 1	29.74	54.7
July 1, 1932	73.0		July 1	66.7		July 1	29.74	54.7
Aug. 1, 1932	73.0		Aug. 1	66.7		Aug. 1	29.74	54.7
Sept. 1, 1932	73.0		Sept. 1	66.7		Sept. 1	29.74	54.7
Oct. 1, 1932	73.0		Oct. 1	66.7		Oct. 1	29.74	54.7
Nov. 1, 1932	73.0		Nov. 1	66.7		Nov. 1	29.74	54.7
Dec. 1, 1932	73.0		Dec. 1	66.7		Dec. 1	29.74	54.7
Jan. 1, 1933	73.0		Jan. 1	66.7		Jan. 1	29.74	54.7
Feb. 1, 1933	73.0		Feb. 1	66.7		Feb. 1	29.74	54.7
Mar. 1, 1933	73.0		Mar. 1	66.7		Mar. 1	29.74	54.7
Apr. 1, 1933	73.0		Apr. 1	66.7		Apr. 1	29.74	54.7
May 1, 1933	73.0		May 1	66.7		May 1	29.74	54.7
June 1, 1933	73.0		June 1	66.7		June 1	29.74	54.7
July 1, 1933	73.0		July 1	66.7		July 1	29.74	54.7
Aug. 1, 1933	73.0		Aug. 1	66.7		Aug. 1	29.74	54.7
Sept. 1, 1933	73.0		Sept. 1	66.7		Sept. 1	29.74	54.7
Oct. 1, 1933	73.0		Oct. 1	66.7		Oct. 1	29.74	54.7
Nov. 1, 1933	73.0		Nov. 1	66.7		Nov. 1	29.74	54.7
Dec. 1, 1933	73.0		Dec. 1	66.7		Dec. 1	29.74	54.7
Jan. 1, 1934	73.0		Jan. 1	66.7		Jan. 1	29.74	54.7
Feb. 1, 1934	73.0		Feb. 1	66.7		Feb. 1	29.74	54.7
Mar. 1, 1934	73.0		Mar. 1	66.7		Mar. 1	29.74	54.7
Apr. 1, 1934	73.0		Apr. 1	66.7		Apr. 1	29.74	54.7
May 1, 1934	73.0		May 1	66.7		May 1	29.74	54.7
June 1, 1934	73.0		June 1	66.7		June 1	29.74	54.7
July 1, 1934	73.0		July 1	66.7		July 1	29.74	54.7
Aug. 1, 1934	73.0		Aug. 1	66.7		Aug. 1	29.74	54.7
Sept. 1, 1934	73.0		Sept. 1	66.7		Sept. 1	29.74	54.7
Oct. 1, 1934	73.0		Oct. 1	66.7		Oct. 1	29.74	54.7
Nov. 1, 1934	73.0		Nov. 1	66.7		Nov. 1	29.74	54.7
Dec. 1, 1934	73.0		Dec. 1	66.7		Dec. 1	29.74	54.7
Jan. 1, 1935	73.0		Jan. 1	66.7		Jan. 1	29.74	54.7
Feb. 1, 1935	73.0		Feb. 1	66.7		Feb. 1	29.74	54.7
Mar. 1, 1935	73.0		Mar. 1	66.7		Mar. 1	29.74	54.7
Apr. 1, 1935	73.0		Apr. 1	66.7		Apr. 1	29.74	54.7
May 1, 1935	73.0		May 1	66.7		May 1	29.74	54.7
June 1, 1935	73.0		June 1	66.7		June 1	29.74	54.7
July 1, 1935	73.0		July 1	66.7		July 1	29.74	54.7
Aug. 1, 1935	73.0		Aug. 1	66.7		Aug. 1	29.74	54.7
Sept. 1, 1935	73.0		Sept. 1	66.7		Sept. 1	29.74	54.7
Oct. 1, 1935	73.0		Oct. 1	66.7		Oct. 1	29.74	54.7
Nov. 1, 1935	73.0		Nov. 1	66.7		Nov. 1	29.74	54.7
Dec. 1, 1935	73.0		Dec. 1	66.7		Dec. 1	29.74	54.7
Jan. 1, 1936	73.0		Jan. 1	66.7		Jan. 1	29.74	54.7
Feb. 1, 1936	73.0		Feb. 1	66.7		Feb. 1	29.74	54.7
Mar. 1, 1936	73.0		Mar. 1	66.7		Mar. 1	29.74	54.7
Apr. 1, 1936	73.0		Apr. 1	66.7		Apr. 1	29.74	54.7
May 1, 1936	73.0		May 1	66.7		May 1	29.74	54.7
June 1, 1936	73.0		June 1	66.7		June 1	29.74	54.7
July 1, 1936	73.0		July 1	66.7		July 1	29.74	54.7
Aug. 1, 1936	73.0		Aug. 1	66.7		Aug. 1	29.74	54.7
Sept. 1, 1936	73.0		Sept. 1	66.7		Sept. 1	29.74	54.7
Oct. 1, 1936	73.0		Oct. 1	66.7		Oct. 1	29.74	54.7
Nov. 1, 1936	73.0		Nov. 1	66.7		Nov. 1	29.74	54.7
Dec. 1, 1936	73.0		Dec. 1	66.7		Dec. 1	29.74	54.7
Jan. 1, 1937	73.0		Jan. 1	66.7		Jan. 1	29.74	54.7
Feb. 1, 1937	73.0		Feb. 1	66.7		Feb. 1	29.74	54.7
Mar. 1, 1937	73.0		Mar. 1	66.7		Mar. 1	29.74	54.7
Apr. 1, 1937	73.0		Apr. 1	66.7		Apr. 1	29.74	54.7
May 1, 1937	73.0		May 1	66.7		May 1	29.74	54.7
June 1, 1937	73.0		June 1	66.7		June 1	29.74	54.7
July 1, 1937	73.0		July 1	66.7		July 1	29.74	54.7
Aug. 1, 1937	73.0		Aug. 1	66.7		Aug. 1	29.74	54.7
Sept. 1, 1937	73.0		Sept. 1	66.7		Sept. 1	29.74	54.7
Oct. 1, 1937	73.0		Oct. 1	66.7		Oct. 1	29.74	54.7
Nov. 1, 1937	73.0		Nov. 1	66.7		Nov. 1	29.74	54.7
Dec. 1, 1937	73.0		Dec. 1	66.7		Dec. 1	29.74	54.7
Jan. 1, 1938	73.0		Jan. 1	66.7		Jan. 1	29.74	54.7
Feb. 1, 1938	73.0		Feb. 1	66.7		Feb. 1	29.74	54.7
Mar. 1, 1938	73.0		Mar. 1	66.7		Mar. 1	29.74	54.7
Apr. 1, 1938	73.0		Apr. 1	66.7		Apr. 1	29.74	54.7
May 1, 1938	73.0		May 1	66.7		May 1	29.74	54.7
June 1, 1938	73.0		June 1	66.7		June 1	29.74	54.7
July 1, 1938	73.0		July 1	66.7		July 1	29.74	54.7
Aug. 1, 1938	73.0		Aug. 1	66.7		Aug. 1	29.74	54.7
Sept. 1, 1938	73.0		Sept. 1	66.7		Sept. 1	29.74	54.7
Oct. 1, 1938	73.0		Oct. 1	66.7		Oct. 1	29.74	54.7
Nov. 1, 1938	73.0		Nov. 1	66.7		Nov. 1	29.74	54.7
Dec. 1, 1938	73.0		Dec. 1	66.7		Dec. 1	29.74	54.7
Jan. 1, 1939	73.0		Jan. 1	66.7		Jan. 1	29.74	54.7
Feb. 1, 1939	73.0		Feb. 1	66.7		Feb. 1	29.74	54.7
Mar. 1, 1939	73.0		Mar. 1	66.7		Mar. 1	29.74	54.7
Apr. 1, 1939	73.0		Apr. 1	66.7		Apr. 1	29.74	54.7
May 1, 1939	73.0		May 1	66.7		May 1	29.74	54.7
June 1, 1939	73.0		June 1	66.7		June 1	29.74	54.7
July 1, 1939	73.0		July 1	66.7		July 1	29.74	54.7
Aug. 1, 1939	73.0		Aug. 1	66.7		Aug. 1	29.74	54.7
Sept. 1, 1939	73.0		Sept. 1	66.7		Sept. 1	29.74	54.7
Oct. 1, 1939	73.0		Oct. 1	66.7		Oct. 1	29.74	54.7
Nov. 1, 1939	73.0		Nov. 1	66.7		Nov. 1	29.74	54.7
Dec. 1, 1939	73.0		Dec. 1	66.7		Dec. 1	29.74	54.7
Jan. 1, 1940	73.0		Jan. 1	66.7		Jan. 1	29.74	54.7
Feb. 1, 1940	73.0		Feb. 1	66.7		Feb. 1	29.74	54.7
Mar. 1, 1940	73.0		Mar. 1	66.7		Mar. 1	29.74	54.7
Apr. 1, 1940	73.0		Apr. 1	66.7		Apr. 1	29.74	54.7
May 1, 1940	73.0		May 1	66.7		May 1	29.74	54.7
June 1, 1940	73.0		June 1	66.7		June 1	29.74	54.7
July 1, 1940	73.0		July 1	66.7		July 1	29.74	54.7
Aug. 1, 1940	73.0		Aug. 1	66.7		Aug. 1	29.74	54.7
Sept. 1, 1940	73.0		Sept. 1	66.7		Sept. 1	29.74	54.7
Oct. 1, 1940	73.0		Oct. 1	66.7		Oct. 1	29.74	54.7
Nov. 1, 1940	73.0		Nov. 1	66.7		Nov. 1	29.74	54.7
Dec. 1, 1940	73.0		Dec. 1	66.7		Dec. 1	29.74	54.7
Jan. 1, 1941	73.0		Jan. 1	66.7		Jan. 1	29.74	54.7
Feb. 1, 1941	73.0		Feb. 1	66.7		Feb. 1	29.74	54.7
Mar. 1, 1941	73.0		Mar. 1	66.7		Mar. 1	29.74	54.7
Apr. 1, 1941	73.0		Apr. 1	66.7		Apr. 1	29.74	54.7
May 1, 1941	73.0		May 1	66.7		May 1	29.74	54.7
June 1, 1941	73.0		June 1	66.7		June 1	29.74	54.7
July 1, 1941	73.0		July 1	66.7		July 1	29.74	54.7
Aug. 1, 1941	73.0		Aug. 1	66.7		Aug. 1	29.74	54.7
Sept. 1, 1941	73.0		Sept. 1	66.7		Sept. 1	29.74	54.7
Oct. 1, 1941	73.0		Oct. 1	66.7		Oct. 1	29.74	54.7
Nov. 1, 1941	73.0		Nov. 1	66.7		Nov. 1	29.74	54.7
Dec. 1, 1941	73.0		Dec. 1	66.7		Dec. 1	29.74	54.7
Jan. 1, 1942	73.0		Jan. 1	66.7		Jan. 1	29.74	54.7
Feb. 1, 1942	73.0		Feb. 1	66.7		Feb. 1	29.74	54.7
Mar. 1, 1942	73.0		Mar. 1	66.7		Mar. 1	29.74	54.7
Apr. 1, 1942	73.0		Apr. 1	66.7		Apr. 1	29.74	54.7
May 1, 1942	73.0		May 1	66.7				

RECORDS OF DRILLED WELLS ON OAHU

Well H—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	26.02	56.4	Dec. 7, 1934	27.10	....
Oct. 6	27.12	....	Nov. 2	26.97	....	Dec. 14	27.84	....
12	26.94	56.4	9	26.82	....	21	27.92	....
17	26.85	....	23	26.48	....	27	28.12	....
20	26.85	....	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	154	163	165	172	174	168	171	159	166	1975
1935	168	155	170	168	158	163	163	158	162	156	165	163	1917
1936	163	147	167	157	157	157	157	157	157	157	157	157	1917
1937	232	200	191	185	189	184	198	182	209	196	220	230	2106
1938	157	138	130	148	138	148	158	168	178	178	178	178	2351
1939	167	175	180	206	194	115	181	188	168	178	178	178	1950
1940	243	190	148	198	225	238	273	269	202	204	238	296	2451
1931	197	198	221	220	245	214	245	236	212	190	227	187	2650
1932	197	198	220	226	251	258	288	288	271	235	179	171	2730
1933	197	198	220	226	251	258	288	288	271	235	179	171	2730
1934	168	157	165	173	191	193	197	210	197	211	203	198	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 St. 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	30.81	Dec. 10	30.87	Nov. 20	24.94	Jan. 29	25.99
Oct. 1	30.50	Jan. 9, 1924	28.70	Nov. 27	25.00	Feb. 5	26.11
Oct. 8	30.60	Mar. 14	28.87	Dec. 4	25.00	Feb. 12	26.15
Oct. 15	30.56	June 10, 1926	24.81	Dec. 11	24.99	Feb. 19	26.37
Oct. 22	30.43	Oct. 2	24.82	Dec. 18	25.14	Feb. 26	26.49
Oct. 29	30.48	Oct. 9	24.81	Dec. 25	25.32	Mar. 5	26.49
Nov. 5	30.50	Oct. 16	24.72	Jan. 5, 1927	25.48	Mar. 8	26.65
Nov. 12	30.64	Oct. 23	24.73	Jan. 12	25.55		
Nov. 19	30.63	Oct. 30	24.72	Jan. 19	25.61		
Nov. 26	30.66	Nov. 6	24.88	Jan. 26	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 the above valve at 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. 5, 1929	26.43	80.5
Sept. 10, 1916	31.15	....	Nov. 26	30.88	....	Feb. 19, 1930	29.49	....
Sept. 24	30.78	....	Dec. 10	31.06	....	Mar. 4, 1931	29.64	....
Oct. 8	30.78	....	Dec. 10	31.06	....	April 16	29.60	80.4
Oct. 22	30.58	....	Jan. 14, 1917	30.46	....	May 27	29.60	83.8
Oct. 29	30.58	....	Dec. 3	30.55	....	June 26	29.60	82.1
Nov. 5	30.58	....	Jan. 11, 1918	31.24	....	Oct. 30	29.60	80.4
Nov. 12	30.72	....	June 5	31.45	....			

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. 26, 1932	87.3	....	Dec. 31, 1933	87.3	....	Dec. 31	87.3	....
Mar. 30	85.5	Feb. 24	87.2	Jan. 30, 1934	87.2			
April 27	80.4	Mar. 20	85.5	Feb. 27	87.3			
May 27	82.1	May 11	87.2	Mar. 29	87.2			
June 28	83.8	May 29	87.2	April 28	87.2			
July 28	85.5	June 30	87.2	June 19	87.2			
Aug. 26	87.2	July 26	87.2	Oct. 17	87.2			
Sept. 23	87.2	Aug. 31	87.2	Nov. 15	27.13			
Oct. 37	87.2	Sept. 28	88.9	Nov. 17	87.2			
Nov. 26	88.9	Oct. 31	88.9	Dec. 11	27.55			

* 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	.6	.4	.6	.6	28.6
1933	3.4	8.4	4.3	2.1	2.2	.6	.6	.6	.2	.4	.09	1.2	24.06
1934	3.4	2.5	1.0	1.0	1.0	.6	.51	.52	.50	.53	.58	.43	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)	83-84
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.). 1900, 65; Sept. 2, 1926, 84.

Date	Head (ft.)	Date	Head (ft.)	Date	Head (ft.)	Date	Head (ft.)
Jan. 14, 1924	28.79	Aug. 31, 1929	26.61	Mar. 29, 1930	29.95	Oct. 25, 1930	29.75
Sept. 30, 1924	24.84	Sept. 4	26.60	April 1	30.07	Nov. 8	29.74
Jan. 14, 1926	28.79	14	26.62	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	29.60
30	30.13	Oct. 5	26.54	May 3	29.88	29	29.90
16	30.14	12	26.75	10	29.75	Dec. 6	30.18
23	30.04	19	26.85	16	29.62	13	30.33
30	29.93	26	26.84	23	29.58	20	30.44
April 8	29.71	Nov. 9	26.84	27	29.29	27	30.52
18	29.67	13	27.03	June 7	29.19	Jan. 3, 1931	30.53
20	29.57	15	27.24	14	29.10	10	30.48
Oct. 27	29.39	24	27.52	21	29.09	17	30.50
May 4	29.27	30	27.77	28	28.95	24	30.40
11	29.11	Dec. 7	27.84	July 5	28.80	31	30.30
18	28.96	14	27.93	12	28.60	Feb. 7	30.24
25	28.58	21	28.09	19	28.49	14	30.10
June 1	28.41	28	28.26	26	28.30	21	30.00
13	28.25	8	28.13	28	28.19	28	29.96
16	28.02	11	28.84	9	28.05	Mar. 7	29.87
21	27.85	18	28.17	16	28.10	14	29.72
30	27.65	25	28.05	23	28.05	21	29.62
July 6	27.30	Feb. 1	29.52	28	28.09	28	29.48
13	27.11	2	29.53	3	28.05	30	29.42
20	26.95	15	29.99	13	28.40	April 1	29.22
27	26.82	22	29.94	20	28.60	18	29.15
Aug. 7	26.60	Mar. 1	29.99	27	28.87	25	29.03
10	26.65	8	30.02	Oct. 4	29.20	May 2	28.90
17	26.58	15	29.93	11	29.37	9	28.74
24	26.57	22	29.84	18	29.66	16	28.63

RECORDS OF DRILLED WELLS ON OAHU

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	32.20	Feb. 12, 1934	29.52
June 5	28.82	23	31.55	25	32.18	19	29.59
19	28.89	30	31.73	31	32.15	26	29.63
26	28.62	May 7	31.82	April 7	32.04	Mar. 5	29.54
29	28.48	14	31.91	14	32.04	12	29.46
July 3	28.23	21	31.98	21	32.04	19	29.46
10	27.94	28	32.04	28	31.77	26	29.32
17	27.72	June 4	32.05	May 5	31.62	April 2	29.19
24	27.53	11	32.01	13	31.44	3	29.04
31	27.19	18	32.01	20	31.42	10	28.79
Aug. 1	27.04	25	31.99	27	31.38	16	28.64
8	27.01	July 2	31.90	June 7	31.19	23	28.41
15	27.02	9	31.79	10	31.08	30	28.45
22	27.12	16	31.60	17	30.89	14	28.45
29	27.07	23	31.48	24	30.73	21	28.40
Sept. 5	27.23	30	31.43	30	30.54	18	28.23
12	27.46	Aug. 6	31.33	July 7	30.38	11	28.20
19	27.71	13	31.33	14	30.28	8	28.07
26	27.76	20	31.29	21	30.05	35	27.90
Oct. 3	27.84	Sept. 3	31.20	Aug. 28	29.89	July 2	27.74
10	28.04	10	31.25	11	29.70	7	27.55
17	28.12	17	31.27	18	29.57	16	27.43
24	28.12	24	31.18	25	29.49	30	27.30
Nov. 7	28.34	Oct. 7	31.07	31	29.43	30	27.19
14	28.54	14	31.05	Sept. 7	29.43	Aug. 5	27.08
21	28.70	21	30.97	12	29.30	19	26.85
Dec. 28	28.70	28	30.91	21	29.30	19	26.81
12	28.91	Nov. 4	30.85	Oct. 5	29.17	26	26.78
19	28.91	11	30.85	12	29.07	8	26.72
26	28.91	19	31.01	21	28.96	8	26.57
Jan. 2, 1932	29.24	Dec. 2	31.13	21	28.80	15	26.72
9	29.25	9	31.27	Nov. 21	28.69	22	26.72
16	29.24	16	31.42	11	28.64	29	26.70
23	29.23	17	31.44	18	28.65	30	26.70
Feb. 6	29.49	Jan. 3, 1933	31.57	Dec. 3	28.55	20	26.77
13	29.56	10	31.57	17	28.50	27	26.77
20	29.78	17	31.63	24	28.65	Nov. 2	26.70
27	30.15	24	31.64	31	28.65	9	26.75
Mar. 5	30.52	Feb. 4	31.68	Jan. 31, 1934	28.88	16	26.88
12	30.71	11	31.75	15	28.84	23	27.05
19	31.13	18	31.81	22	28.90	30	27.81
26	31.31	Mar. 25	31.95	29	29.00	14	27.81
April 2	31.41	Mar. 25	32.04	Feb. 5	29.40	27	28.11
9	31.54	11	32.12	Feb. 5	29.46	27	28.25

*Reading at 9:55 a.m. †Reading at 10:10 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
1930	4.00	4.16	4.07	3.72	3.75	4.13	3.06	3.46	3.90	4.00	4.00	3.65	43.05
1931	4.08	3.80	4.32	4.00	3.59	4.08	3.59	4.08	3.67	3.42	3.53	4.63	46.23
1932	4.10	2.59	2.79	2.91	3.29	3.49	3.21	2.57	3.17	4.62	3.70	3.58	38.19
1933*	4.15	4.25	5.19	4.76	5.03	4.79	0	0	0	0	0	0	26.68

*No discharges after 1927.

133 (old 106). About 20 ft. west of Kapalama Ave. and 150 ft. north of School St., Honolulu. Owner, B. P. Bishop estate. Drilled, 1927 by McCandless Bros. Altitude, 80 ft. Depth, 321 ft. Diameter, 12 in. Use, domestic. Casing, 118 ft.

Log

Depth (ft.)	Remarks
0-14	Basalt, boulders, talus and stream wash (Ra).....
14-26	Boulders of basalt and fragments of volcanic ash, much decomposed (probably stream-laid Qbf, Kahihi).....
26-36	Angie basalt masses, probably boulders weathered along cracks (Tkb).....
36-68	Basalt flow weathered by ground water into rounded chunks, the more completely decomposed parts forming loose cement (Tkb).....

RECORDS OF DRILLED WELLS ON OAHU

Log—Well 133 (Continued)

Date	Head (ft.)	Date	Head (ft.)	Date	Head (ft.)	Date	Head (ft.)
Feb. 8, 1927	30.00	July 2, 1927	29.19	Dec. 3, 1927	27.51	Apr. 7, 1928	31.03
Mar. 6	26.01	16	26.19	10	27.73	14	31.11
12	26.09	23	26.20	17	28.11	21	31.16
19	26.13	30	26.21	24	28.72	28	31.17
Apr. 26	26.30	Aug. 6	26.19	31	29.09	May 5	31.13
9	26.52	13	26.21	Jan. 7, 1928	29.42	12	31.13
16	26.76	20	26.19	21	30.62	26	31.15
23	26.68	23	26.21	23	30.12	June 2	30.90
30	26.77	30	26.24	30	30.78	7	30.99
May 7	26.64	17	26.40	11	30.87	Sept. 26, 1923	125.35
14	26.65	24	26.36	18	30.95	Feb. 19, 1930	125.35
21	26.60	Oct. 1	26.37	25	30.91	Mar. 5, 1931	125.35
June 4	26.63	8	26.61	Mar. 3	31.02	Sept. 10	125.35
11	26.65	15	26.61	10	31.01	Jan. 25, 1932	125.35
18	26.51	22	26.51	17	30.93	July 12, 1934	125.35
July 2	26.22	Nov. 19	26.06	24	30.88	Dec. 11	28.70
		26	26.25	31	30.89		

Observations

Beach 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, 85.5; June 29, 1934, 85.1; Dec. 11, 1934, 82.1.

Date	Head (ft.)	Date	Head (ft.)	Date	Head (ft.)	Date	Head (ft.)
Feb. 8, 1927	30.00	July 2, 1927	29.19	Dec. 3, 1927	27.51	Apr. 7, 1928	31.03
Mar. 6	26.01	16	26.19	10	27.73	14	31.11
12	26.09	23	26.20	17	28.11	21	31.16
19	26.13	30	26.21	24	28.72	28	31.17
Apr. 26	26.30	Aug. 6	26.19	31	29.09	May 5	31.13
9	26.52	13	26.21	Jan. 7, 1928	29.42	12	31.13
16	26.76	20	26.19	21	30.62	26	31.15
23	26.68	23	26.21	23	30.12	June 2	30.90
30	26.77	30	26.24	30	30.78	7	30.99
May 7	26.64	17	26.40	11	30.87	Sept. 26, 1923	125.35
14	26.65	24	26.36	18	30.95	Feb. 19, 1930	125.35
21	26.60	Oct. 1	26.37	25	30.91	Mar. 5, 1931	125.35
June 4	26.63	8	26.61	Mar. 3	31.02	Sept. 10	125.35
11	26.65	15	26.61	10	31.01	Jan. 25, 1932	125.35
18	26.51	22	26.51	17	30.93	July 12, 1934	125.35
July 2	26.22	Nov. 19	26.06	24	30.88	Dec. 11	28.70
		26	26.25	31	30.89		

*Unaccessible. †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
1930	4.00	4.16	4.07	3.72	3.75	4.13	3.06	3.46	3.90	4.00	4.00	3.65	43.05
1931	4.08	3.80	4.32	4.00	3.59	4.08	3.59	4.08	3.67	3.42	3.53	4.63	46.23
1932	4.10	2.59	2.79	2.91	3.29	3.49	3.21	2.57	3.17	4.62	3.70	3.58	38.19
1933*	4.15	4.25	5.19	4.76	5.03	4.79	0	0	0	0	0	0	26.68

*No discharges after 1927.

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

Observations

Beach mark, top of ¼-in. by ½-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	.....
Aug. 7, 1914	.....	120	Oct. 22	30.75	.....	Nov. 19	30.80	.....
Sept. 17, 1916	31.03	.....	Oct. 22	30.64	.....	Nov. 26	30.85	.....
Sept. 24	30.85	.....	Oct. 29	30.65	.....	Dec. 3	30.95	.....
Oct. 1	30.89	.....	Nov. 5	30.68	.....	Dec. 10	31.08	.....

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.)
July 5, 1917	32.47	...	Jan. 29, 1930	161	...	May 27, 1932	...	161
Aug. 5	31.81	...	Feb. 5	110	...	June 28	...	169
Sept. 7	31.16	...	Feb. 12	161	...	July 28	...	171
Oct. 10	30.68	...	Feb. 18	29.63	...	Aug. 26	31.02	171
Nov. 9	30.40	...	Feb. 26	140	...	Sept. 23	...	157
Dec. 7	30.57	...	Mar. 5	151	...	Oct. 27	...	156
Dec. 8, 1923	29.03	...	Mar. 12	151	...	Nov. 26	...	159
Feb. 18, 1926	164	...	Mar. 19	161	...	Dec. 27	...	156
Nov. 16	24.89	172	Mar. 26	161	...	Jan. 27, 1933	...	156
Mar. 31, 1928	30.19	163	Apr. 9	161	...	Feb. 24	...	159
Aug. 7	168	...	Apr. 30	151	...	Mar. 30	...	159
July 25, 1929	170	...	May 14	151	...	May 11	...	159
Aug. 1	171	...	May 19	161	...	May 29	...	159
Aug. 7	161	...	July 15	170	...	June 30	...	164
Aug. 14	161	...	Aug. 23	170	...	July 26	...	164
Aug. 21	161	...	Sept. 6	170	...	Aug. 31	...	164
Aug. 29	171	...	Sept. 7	161	...	Sept. 28	...	159
Sept. 4	171	...	Nov. 12	161	...	Oct. 31	...	159
Sept. 11	161	...	Dec. 16	159	...	Nov. 28	...	159
Sept. 18	161	Jan. 7, 1931	150	Dec. 22	...	Dec. 22	...	162
Sept. 27	26.13	...	Mar. 4	29.57	161	Jan. 30, 1934	...	159
Oct. 23	140	...	Apr. 16	150	...	Feb. 27	...	159
Oct. 30	151	...	May 27	150	...	Mar. 29	...	159
Nov. 6	151	...	June 26	171	...	Apr. 28	...	159
Nov. 13	161	...	July 28	161	...	May 31	...	159
Nov. 20	161	...	Aug. 8	161	...	June 19	27.85	164
Dec. 4	161	...	Aug. 8	161	...	July 31	...	159
Dec. 11	161	...	Sept. 11	26.99	...	Aug. 30	...	171
Dec. 18	161	...	Sept. 18	169	...	Sept. 26	...	128
Dec. 26	161	...	Oct. 30	161	...	Oct. 17	...	* 86
Jan. 9, 1930	121	Jan. 26, 1932	30.00	161	...	Oct. 20	...	* 70
Jan. 8	161	...	Feb. 26	161	...	Nov. 15	...	157
Jan. 15	161	...	Mar. 30	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	2.2	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	...	...	...	83.7	29.9	9.1	...	...	...	111.7
1932	7.6	4.2	3.4	7.3	12.78	78	5.6	0	0	0	0	0	111.8
1933	.01	.01	.01	.01	.01	1.90	7.49	5.52	1.35	.18	.24	.02	16.95
1934	.71	1.56	2.12	1.54	2.7	5.7	8.5	9.1	3.34	2.64	1.35	1.05	39.69

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)	208-228
Coral (Pls)	4-12	Lava (Possibly a boulder, but perhaps Qhb. Kaibab)	328-332
Lava (Qhb, Kamaikai)	12-28	Clay (Pa)	332-382
Clay (Pa)	38-188	Lava or bedrock (Tbb)	382-600
Coral (Pls)	188-208		

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	13.56	Oct. 29, 1916	13.30	Nov. 19, 1916	13.94
Sept. 24	13.32	Oct. 15	13.31	Nov. 5	13.33	Nov. 26	13.53
Oct. 1	13.33	Oct. 22	13.30	Nov. 12	13.33	Dec. 3	13.22

136 (old 107). 734 Mokaua 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 (Pls)	194-224
Coral (Pls)	6-18	Clay and gravel (Pa)	224-330
Lava (Qhb, Kamaikai)	18-44	Lava or bedrock (Tbb)	330-505
Clay (Pa)	44-194		

Observations

Bench mark, top of coupling on casing 6 in. below ground; altitude, 29.40 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, 1920	29.80	Dec. 1, 1932	28.50
Sept. 24	31.08	Nov. 19	30.91	Feb. 26, 1931	29.82	Dec. 2	29.84
Oct. 1	31.05	Nov. 26	30.97	Mar. 7	30.08	Dec. 5	34.21
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	31.71	Jan. 8, 1924	29.40	Aug. 25	31.18	Dec. 8	28.87
Oct. 29	30.69	Aug. 27, 1926	25.05	Nov. 29	31.09		
Nov. 5	30.76	Oct. 11, 1929	26.69	Nov. 30	31.19		

Meter test

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

Depth (ft.)	Revolutions per minute	Depth (ft.)	Revolutions per minute	Depth (ft.)	Revolutions per minute
25-275	0	320	6	406	9
280	0	330	8	415	0
280	4	340	6	425	0
290	10	350	9	450	10
300	9	360-400	0	475	6
310	8	405	0	487.1	0
310	6	410	15		

137 (old 110A). Oahu Prison, Honolulu. Owner, Territory of Hawaii. Drilled, 1915. Altitude, 16 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 (Pls)	0-30	Gravel (Pa)	195-215
Clay (Pa)	30-55	Clay (Pa)	215-415
Boulders (Pa; possibly Qhb, Kamaikai)	55-65	Rotten rock (Tbb or Pa)	415-427
Clay (Pa; possibly Qhb, Kamaikai)	65-85	Clay (Pa or Tbb)	427-522
Boulders (Pa; possibly Qhb, Kamaikai)	85-97	Rotten rock. Struck water at 628 ft. (Tbb or Pa)	522-544
Clay (Pa)	97-155	Rock (Tbb)	544-692

Observations

Bench mark, top of upper flange on main valve on well at ground; altitude, 15.79 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, 1916	32.25	170	Oct. 29, 1916	30.94	...
Feb. ... 1916	32.15	167	Sept. 17	31.37	...	Nov. 12	31.17	...
Feb. ... 1916	32.80	168	Sept. 24	31.23	...	Nov. 19	31.15	...
Mar. ... 1916	34.24	162	Oct. 1	31.14	...	Nov. 26	31.19	...
Apr. ... 1916	33.75	165	Oct. 8	31.06	...	Dec. 3	31.28	...
June 29	33.20	166	Oct. 15	31.09	...	Dec. 10	31.40	...
			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	33.35	...	May 20, 1921	29.97	196	Mar. 30, 1922	.....	205
Apr. . .	33.89	...	June 17	29.81	183	Apr. 27	.....	222
May 7	33.64	...	Sept. 14	28.91	...	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	.....	205
Feb. 13	31.79	...	Dec. 17	28.48	...	Sept. 23	30.97	205
Mar. 11	31.80	...	Feb. 4, 1924	29.68	...	Oct. 27	.....	205
Apr. 15	31.08	...	Mar. 19	29.56	...	Nov. 26	.....	205
May . .	32.03	...	Apr. 16	29.09	...	Dec. 27	.....	205
June . .	31.20	...	May 15	29.44	...	Jan. 27, 1923	.....	188
July . .	31.10	...	June 10	28.85	...	Feb. 24	.....	205
Nov. 9	30.56	...	July 16	28.27	...	Mar. 30	.....	205
Jan. 24, 1919	31.79	...	Oct. 25	27.03	...	May 29	.....	205
Feb. 19	31.31	...	Dec. 11	27.35	...	June 30	.....	188
Mar. 17	30.76	...	Jan. 16, 1925	28.43	...	July 26	.....	205
Apr. 4	30.42	...	Mar. 9	27.63	...	Aug. 31	.....	205
July 11	29.69	...	Apr. 27	27.35	...	Sept. 28	.....	205
Aug. 4	29.01	...	May 22, 1926	24.97	226	Oct. 31	.....	205
Oct. 21	28.94	...	Mar. 29, 1926	30.37	216	Nov. 28	.....	205
Jan. 8, 1920	28.90	...	Mar. . . 1929	.....	171	Dec. 22	.....	205
Feb. 24	29.68	...	Sept. 26	28.59	206	Jan. 30, 1934	.....	205
Mar. 15	28.93	...	Feb. 19, 1930	28.09	206	Feb. 27	.....	205
Apr. 14	29.01	180	Sept. 6	.....	206	Mar. 29	.....	168
May 17	28.76	...	Mar. 3, 1931	28.96	...	Apr. 28	.....	205
July 23	27.70	177	Apr. 16	.....	205	May 21	.....	189
Aug. 19	27.47	176	June 26	.....	205	June 19	27.82	205
Sept. 20	27.05	174	July 28	.....	205	July 31	.....	205
Oct. 18	27.09	176	Aug. 8	.....	205	Aug. 30	.....	168
Nov. 17	27.02	182	Sept. 10	.....	205	Oct. 17	.....	205
Dec. 16	27.51	182	Sept. 18	.....	205	Oct. 30	.....	205
Jan. 27, 1921	29.41	183	Oct. 30	.....	205	Nov. 15	.....	222
Feb. 18	29.59	177	Dec. 5	.....	205	Nov. 30	.....	205
Mar. 18	30.13	173	Jan. 29, 1932	28.56	...	Dec. 11	27.86	205
Apr. 15	30.37	173	Feb. 26	.....	205			

Discharge in millions of gallons

Year	Jan.	Feb.	Mar.	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Total
1925	.....	.....	.....	.....	.....	.....	.06	.04	.04	.19	.15	.15	.88
1930	.19	.84	2.5	3.1	2.4	.....	2.7	2.8	3.3	3.4	25.83	.....	.....
1931	.46	4.3	4.6	4.8	4.4	3.5	3.9	3.7	4.2	4.4	3.6	3.7	49.9
1932	.37	3.5	3.7	3.6	3.7	3.6	2.3	1.3	1.2	1.3	1.3	1.9	31.0
1933	4.0	1.4	4.5	2.4	3.2	3.4	3.8	3.3	3.4	3.3	3.1	3.5	35.25
1934	3.1	3.2	3.4	3.9	3.8	3.5	3.7	3.8	3.8	3.4	3.5	1.6	46.7

Meter test

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

Depth (ft.)	Revolutions per minute	Depth (ft.)	Revolutions per minute	Depth (ft.)	Revolutions per minute
25	40	400	33	450	11
100	37	430 (end of casing)	34	.....	.....
200	42	430	33	.....	.....
300	38	440	18	.....	.....

139 (old 111). 2021 Waterhouse St., Honolulu. Owner, City and County of Honolulu. Drilled, 1888. Altitude, 41 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. 3	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.)
..... 1900?	.....	89.0	Sept. 26, 1929	25.45	68.5	Jan. 29, 1932	26.78	70.1
..... 1910	.....	80.0	Feb. 19, 1930	27.80	.....	Aug. 25	28.28	71.8
Feb. 26, 1919	28.52	.....	Sept. . .	.....	.....	June 19, 1934	25.48	73.5
Dec. 12, 1923	26.29	.....	Mar. 2, 1931	27.07	72.5	Dec. 11	26.12	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	0.9	1.7	2.2	2.4	9.8
1930	3.4	2.1	4.1	1.0	3.5	2.1	2.6	3.8	2.9	3.0	2.9	3.0	34.1
1931	2.4	1.6	2.4	4.5	3.5	3.2	2.4	2.2	2.1	2.7	1.8	1.8	39.6
1932	1.8	2.5	4.6	6.2	6.5	6.6	5.6	7.1	7.2	6.2	7.5	6.2	67.9
1933	1.92	.72	.84	1.59	.69	1.23	3.25	2.81	2.80	2.80	2.42	2.30	22.47
1934	2.67	2.65	2.96	3.55	2.42	1.75	1.30	.72	.64	1.03	.9	.91	20.18

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, 970 ft. Diameter, 10 in. Use, irrigation.

Observations

Bench mark, top of head on south branch cross-section 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	106	Apr. . . 1913	27.08	118
May . .	27.53	...	Feb. . .	28.95	106	May . .	27.23	104
June . .	27.53	...	Mar. . .	28.73	105	June . .	27.53	104
Sept. .	28.00	...	Apr. . .	26.18	104	July . .	27.00	104
Oct. . .	28.30	...	May . .	28.78	103	Aug. . .	27.63	108
Nov. . .	28.05	...	June . .	28.29	104	Sept. . .	27.03	104
Jan. . 1911	29.50	...	July . .	27.38	104	Nov. . .	27.58	104
Feb. . .	31.23	...	Aug. . .	27.33	104	Dec. . .	27.85	106
Mar. . .	31.43	...	Sept. . .	27.13	104	Jan. . . 1914	27.88	105
Apr. . .	30.43	...	Oct. . .	27.18	108	Feb. . .	27.93	102
May . .	30.13	...	Nov. . .	27.53	102	Mar. . .	27.11	108
July . .	30.03	...	Dec. . .	27.10	106	Apr. . .	28.40	104
Aug. . .	29.88	105	Jan. . . 1913	28.03	104	May . .	28.13	108
Sept. . .	27.00	104	Feb. . .	27.00	104	June . .	27.73	106
Oct. . .	29.33	...	Mar. . .	27.07	106	July . .	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. 1914	27.98	...	Aug. 14	110	...	Mar. 5	110	...
Oct. 1914	27.48	100	Aug. 24	110	...	Mar. 12	110	...
Nov. 1914	27.48	...	Aug. 28	110	...	Mar. 18	110	...
Dec. 1914	28.13	104	Sept. 4	110	...	Mar. 26	101	...
Jan. 1915	28.00	108	Sept. 11	110	...	Apr. 9	101	...
Feb. 1915	27.90	104	Sept. 17	110	...	Apr. 30	110	...
Mar. 1915	28.03	108	Sept. 27	110	24.39	May 14	110	...
Apr. 1915	28.03	108	Oct. 2	110	...	May 14	110	...
May 1915	28.03	114	Oct. 16	110	...	June 19	120	...
June 1915	27.73	108	Oct. 23	110	...	July 15	110	...
July 1915	27.04	104	Oct. 30	120	...	Aug. 23	110	...
Aug. 1915	27.08	100	Nov. 6	110	...	Oct. 7	110	...
Sept. 1915	26.87	100	Nov. 13	120	...	Nov. 12	110	...
Oct. 1915	26.80	108	Nov. 20	110	...	Dec. 16	110	...
Nov. 1915	26.86	100	Nov. 27	110	...	Jan. 7, 1931	94	...
Jan. 10, 1924	28.16	...	Dec. 4	110	...	Mar. 9	109	...
Mar. 9	28.03	102	Dec. 8	110	...	Sept. 10	105	...
Feb. 18, 1926	...	107	Dec. 26	101	...	Sept. 18	120	...
Aug. 27	22.83	115	Jan. 22, 1930	191	...	Jan. 29, 1932	99	...
Mar. 29, 1928	27.15	113	Jan. 29	191	...	Aug. 26	116	...
Feb. 19, 1929	...	101	Feb. 5	101	...	Jan. 19, 1934	118	...
July 25	...	110	Feb. 12	110	...	Dec. 11	111	...
Aug. 1	...	120	Feb. 19	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	107.55
1930	...	8.38	15	38.3	29.8	28.0	20.0	37.1	42.2	15.0	...	...	258.98
1931	...	49	15.7	18.6	38.0	21.4	6.7	3.9	11.0	15.0	9.4	4.5	...
1932	...	4.1	14.2	61.0	20.1	30.3	26.9	16.3	19.2	30.3	25.2	14.2	253.1
1933	...	15.1	8.90	11.2	15.6	23.8	22.8	35.0	38.1	22.9	19.6	22.5	224.9
1934	...	22.4	18.9	25.8	24.4	25.6	21.3	27.9	24.8	21.5	27.2	25.6	225.5

143 (old 113). At Hawaii Meat Co. slaughter house, Honolulu. Owner, 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.)
1900	...	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, 1926	27.95	134.0	Nov. 27	...	101.0	June 19	...	101.0
Nov. 9, 1927	25.37	125.0	Dec. 4	...	101.0	July 15	...	101.0
Feb. 16, 1929	27.23	108.0	Dec. 11	...	101.0	Aug. 23	...	92.5
Mar. 1	99.4	...	Dec. 18	99.4	...	Oct. 7	...	110.0
July 25	101.0	...	Dec. 26	...	101.0	Oct. 7	...	110.0
Aug. 1	101.0	...	Jan. 22, 1930	104.0	...	Nov. 12	...	99.4
Aug. 7	101.0	...	Jan. 8	101.0	...	Jan. 8	...	95.8
Aug. 14	101.0	...	Jan. 15	...	110.0	Jan. 7, 1931	...	99.4
Aug. 21	101.0	...	Jan. 22	110.0	...	Mar. 9	...	106.7
Aug. 28	101.0	...	Jan. 29	110.0	...	Mar. 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	27.90	...	Jan. 29, 1932	...	94.0
Sept. 26	24.49	...	Feb. 26	...	101.0	Aug. 25	28.25	98.8
Oct. 2	97.7	...	Mar. 12	...	110.0	Jan. 19, 1934	25.59	87.2
Oct. 16	97.7	...	Mar. 12	...	110.0	Dec. 11	26.14	...
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	...	...	...	...	...	...	1.0	4.0	7.0	1.1	4.0	4.2	20.0
1931	...	4.3	4.0	4.6	3.6	3.2	3.1	3.8	3.7	3.9	3.9	4.0	45.5
1932	...	3.6	3.6	3.6	2.6	3.2	3.1	2.3	2.6	2.8	2.9	3.0	30.1
1933	...	3.1	3.2	4.9	3.7	3.9	4.4	5.5	3.3	4.0	4.4	4.1	3.9
1934	...	4.0	3.4	3.9	3.8	4.0	4.1	4.0	4.0	3.8	3.6	3.7	3.8
1934	...	4.1	4.4	3.4	4.0	4.1	3.9	4.8	3.8	3.7	3.9	4.1	4.4

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 the 1 ft. above ground on well; altitude, 27.17 ft. Chloride (p.p.m.), 1900(?). 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	29.92	June 9	29.90	Apr. 6	28.40	
24	29.73	Aug. 5	29.82	13	28.43		
Oct. 1	29.70	12	29.64	16	29.82	20	28.20
8	29.63	29	29.53	29	29.71	27	28.15
15	29.53	26	29.36	July 3	23.67	May 4	28.00
22	29.44	Sept. 2	29.26	10	29.48	11	27.99
29	29.06	17	29.06	17	29.43	18	27.95
Nov. 5	29.04	24	29.00	24	29.52	29	27.70
12	29.72	30	28.90	Aug. 7	29.34	June 1	27.70
19	29.62	Oct. 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	28.70	28	29.43	22	27.65
10	30.24	Nov. 4	28.55	Sept. 4	29.39	29	27.60
Jan. 17	30.54	Nov. 4	28.61	11	29.17	July 6	27.47
15	30.33	11	28.79	18	29.02	13	27.41
22	30.26	18	28.84	25	29.04	20	27.30
Feb. 5	31.01	Dec. 25	28.71	Oct. 2	28.91	27	27.20
12	31.32	30	28.89	6	28.71	Aug. 3	27.19
19	31.01	16	29.53	16	28.70	10	27.13
Mar. 1	31.26	Jan. 6, 1918	30.01	13	28.63	31	26.86
8	31.22	13	30.11	20	28.74	Sept. 7	26.93
16	31.12	20	30.18	27	28.00	14	27.03
23	31.49	Feb. 27	30.20	Dec. 4	29.46	21	26.93
Apr. 1	31.83	3	30.50	11	29.80	28	26.85
8	31.82	10	30.43	18	29.19	Oct. 5	26.73
16	31.73	17	30.37	25	30.23	12	27.03
23	31.60	24	30.38	Jan. 19, 1919	30.10	19	27.03
May 2	31.58	Mar. 3	30.36	12	29.30	22	26.98
9	31.35	10	30.27	19	29.70	28	26.88
16	31.04	17	30.49	26	29.73	Nov. 1	26.80
24	31.05	24	30.44	Feb. 2	29.67	11	26.91
June 3	31.01	31	30.47	9	29.46	18	26.85
11	31.00	30	30.47	16	29.36	25	26.81
18	30.87	14	30.54	23	29.06	Dec. 2	26.79
25	30.87	May 21	29.65	Mar. 2	28.92	9	26.77
July 1	30.60	12	30.54	16	28.71	23	26.76
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	27.04	...	June 7	26.24	90.0	19	25.17	72.0
20	27.28	...	7	26.15	72.6	26	25.12	72.0
Feb. 27	27.58	...	15	26.05	...	Nov. 2	25.08	72.0
27	27.78	...	22	26.00	73.0	9	25.07	72.0
10	27.85	...	29	26.00	...	16	25.07	...
17	27.91	...	June 6	25.95	73.0	23	25.18	72.0
24	27.96	...	13	25.90	73.5	30	25.15	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	72.7
16	27.27	...	Aug. 3	25.64	74.0	21	26.01	73.0
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	75.0	11	27.44	73.0
20	27.29	75.6	31	25.43	74.0	18	27.57	73.1
27	27.12	72.9	Sept. 12	25.38	72.9	25	27.87	73.0
May 4	27.07	73.2	14	25.32	74.0	Feb. 1	28.15	74.0
11	26.82	73.3	21	25.28	74.0	8	28.32	...
18	26.65	72.9	28	25.25	72.5	15	28.42	...
			Oct. 5	25.20	72.0	22	28.56	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	74.0	Sept. 5, 1922	25.93	...	Aug. 23, 1924	26.75	73.0
8	28.75	74.0	11	25.64	...	25.40	73.0	...
15	28.68	...	19	25.64	...	25.67	...	...
22	28.57	70.0	25	25.71	...	13	25.53	...
Apr. 5	28.47	...	Oct. 5	25.75	...	20	25.45	...
12	28.37	80.0	9	25.79	...	27	25.37	...
19	28.33	...	17	25.85	...	Oct. 2	25.49	...
26	28.23	80.0	31	25.95	...	11	25.35	...
May 3	28.15	75.0	Nov. 7	26.00	...	18	25.53	...
10	28.07	...	21	26.02	...	25	25.78	70.0
17	28.03	...	27	26.22	...	Nov. 8	25.76	...
24	27.96	76.0	27	26.22	...	15	25.79	...
31	27.83	...	Dec. 5	26.45	...	22	25.91	...
June 7	27.72	75.0	10	26.56	...	29	25.97	...
14	27.62	...	15	26.91	...	Dec. 29	25.87	...
21	27.33	...	20	26.79	...	11	26.00	69.0
28	27.23	...	25	26.87	...	12	26.08	...
July 5	27.13	...	30	26.93	...	20	26.51	...
12	27.03	...	Jan. 5, 1923	26.91	...	Jan. 27	26.83	...
19	26.94	...	10	27.31	...	Jan. 27, 1925	27.13	...
26	26.86	...	15	27.37	...	10	27.30	...
Aug. 2	26.80	...	20	27.53	...	16	27.34	73.0
9	26.67	...	25	27.63	...	24	27.36	...
16	26.57	...	30	27.70	...	34	27.27	...
23	26.47	...	Feb. 5	27.66	...	Feb. 31	27.11	...
30	26.39	...	15	27.83	...	12	26.91	...
Sept. 6	26.32	...	20	27.99	...	Mar. 7	26.79	73.0
13	26.26	...	25	28.05	...	14	26.16	...
20	26.24	...	28	28.23	...	21	26.00	...
27	26.16	...	Aug. 18	27.66	...	30	26.13	...
Oct. 4	26.08	...	Sept. 1	27.31	...	Apr. 6	26.19	...
11	26.82	...	8	27.20	...	12	26.39	...
18	26.73	...	15	27.12	72.8	18	26.39	...
25	26.67	...	22	27.01	...	25	26.22	...
Nov. 1	26.60	...	29	26.97	...	Oct. 2	26.17	...
8	26.52	...	Oct. 6	26.79	...	May 2	26.10	...
15	26.43	...	13	26.70	73.3	13	25.89	...
22	26.35	...	20	26.60	...	20	25.89	...
29	26.26	...	27	26.61	...	23	25.68	...
Dec. 6	26.16	...	Nov. 3	26.87	...	Jun. 6	25.43	...
13	26.08	...	10	26.87	...	13	25.39	...
20	25.99	...	17	26.82	73.5	13	25.39	...
27	25.91	...	24	26.70	...	20	25.27	...
Jan. 4, 1922	25.83	...	Dec. 1	26.73	...	27	25.07	...
11	25.73	...	8	26.73	...	Jan. 13	25.07	...
18	25.65	...	15	26.80	72.0	13	24.98	...
25	25.57	...	22	26.89	...	18	24.85	...
Feb. 1	25.49	...	31	26.66	...	Aug. 1	24.99	...
8	25.41	...	Jan. 5, 1924	27.53	...	8	24.84	...
15	25.33	...	12	27.47	...	15	24.66	75.6
22	25.25	...	19	28.23	...	19	24.66	...
Mar. 7	25.17	...	26	28.11	...	26	24.53	...
14	25.09	...	Feb. 2	27.97	...	Oct. 3	24.49	...
21	25.01	...	9	27.79	...	12	24.47	...
Apr. 7	24.93	...	16	27.61	...	19	24.32	75.0
14	24.85	...	23	27.63	...	26	24.22	...
21	24.77	...	Mar. 2	27.52	...	Nov. 2	24.07	...
28	24.69	...	9	27.47	...	9	23.91	...
May 5	24.61	...	16	27.34	...	16	23.81	...
12	24.53	...	23	27.27	...	Jan. 16, 1926	23.77	...
19	24.45	...	30	27.19	...	9	23.64	...
26	24.37	...	Apr. 6	27.10	...	16	23.51	...
June 2	24.29	...	13	27.02	...	23	23.38	...
9	24.21	...	20	26.94	...	30	23.25	...
16	24.13	...	27	26.86	...	Jun. 6	23.12	...
23	24.05	...	4	26.78	...	13	22.99	...
30	23.97	...	11	26.70	...	20	22.86	...
July 7	23.89	...	18	26.62	...	27	22.73	...
14	23.81	...	25	26.54	...	4	22.60	...
21	23.73	...	Aug. 1	26.46	...	11	22.47	...
28	23.65	...	8	26.38	...	18	22.34	...
Aug. 4	23.57	...	15	26.30	...	25	22.21	...
11	23.49	...	22	26.22	...	Sept. 1	22.08	...
18	23.41	...	29	26.14	...	8	21.95	...
25	23.33	...	5	26.06	...	15	21.82	...
Sept. 1	23.25	...	12	25.98	...	22	21.69	...
8	23.17	...	19	25.90	...	29	21.56	...
15	23.09	...	26	25.82	...	Oct. 6	21.43	...
22	23.01	...	3	25.74	...	13	21.30	...
29	22.93	...	10	25.66	...	20	21.17	...
Oct. 6	22.85	...	17	25.58	...	27	21.04	...
13	22.77	...	24	25.50	...	31	20.91	...
20	22.69	...	31	25.42	...	Nov. 7	20.78	...
27	22.61	...	7	25.34	...	14	20.65	...
Nov. 3	22.53	...	14	25.26	...	21	20.52	...
10	22.45	...	21	25.18	...	28	20.39	...
17	22.37	...	28	25.10	...	Dec. 5	20.26	...
24	22.29	...	5	25.02	...	12	20.13	...
Dec. 1	22.21	...	12	24.94	...	19	20.00	...
8	22.13	...	19	24.86	...	26	19.87	...
15	22.05	...	26	24.78	...	Jan. 2, 1927	19.74	...
22	21.97	...	3	24.70	...	9	19.61	...
29	21.89	...	10	24.62	...	16	19.48	...
Jan. 5, 1927	21.81	...	17	24.54	...	23	19.35	...
12	21.73	...	24	24.46	...	30	19.22	...
19	21.65	...	31	24.38	...	Feb. 6	19.09	...
26	21.57	...	7	24.30	...	13	18.96	...
Feb. 2	21.49	...	14	24.22	...	20	18.83	...
9	21.41	...	21	24.14	...	27	18.70	...
16	21.33	...	28	24.06	...	Mar. 6	18.57	...
23	21.25	...	5	23.98	...	13	18.44	...
Mar. 1	21.17	...	12	23.90	...	20	18.31	...
8	21.09	...	19	23.82	...	27	18.18	...
15	21.01	...	26	23.74	...	Apr. 6	18.05	...
22	20.93	...	3	23.66	...	13	17.92	...
29	20.85	...	10	23.58	...	20	17.79	...
Apr. 5	20.77	...	17	23.50	...	27	17.66	...
12	20.69	...	24	23.42	...	4	17.53	...
19	20.61	...	31	23.34	...	11	17.40	...
26	20.53	...	7	23.26	...	18	17.27	...
May 3	20.45	...	14	23.18	...	25	17.14	...
10	20.37	...	21	23.10	...	31	17.01	...
17	20.29	...	28	23.02	...	Apr. 7	16.88	...
24	20.21	...	5	22.94	...	14	16.75	...
31	20.13	...	12	22.86	...	21	16.62	...
June 7	20.05	...	19	22.78	...	28	16.49	...
14	19.97	...	26	22.70	...	5	16.36	...
21	19.89	...	3	22.62	...	12	16.23	...
28	19.81	...	10	22.54	...	19	16.10	...
July 5	19.73	...	17	22.46	...	26	15.97	...
12	19.65	...	24	22.38	...	3	15.84	...
19	19.57	...	31	22.30	...	10	15.71	...
26	19.49	...	7	22.22	...	17	15.58	...
Aug. 2	19.41	...	14	22.14	...	24	15.45	...
9	19.33	...	21	22.06	...	31	15.32	...
16	19.25	...	28	21.98	...	May 7	15.19	...
23	19.17	...	5	21.90	...	14	15.06	...
30	19.09	...	12	21.82	...	21	14.93	...
Sept. 6	19.01	...	19	21.74	...	28	14.80	...
13	18.93	...	26	21.66	...	4	14.67	...
20	18.85	...	3	21.58	...	11	14.54	...
27	18.77	...	10	21.50	...	18	14.41	...
Oct. 4	18.69	...	17	21.42	...	25	14.28	...
11	18.61	...	24	21.34	...	31	14.15	...
18	18.53	...	31	21.26	...	Nov. 7	14.02	...
25	18.45	...	7	21.18	...	14	13.89	...
Nov. 1	18.37	...	14	21.10	...	21	13.76	...
8	18.29	...	21	21.02	...	28	13.63	...
15	18.21	...	28	20.94	...	5	13.50	...
22	18.13	...	5	20.86	...	12	13.37	...
29	18.05	...	12	20.78	...	19	13.24	...
Dec. 6	17.97	...	19	20.70	...	26	13.11	...
13	17.89	...	26	20.62	...	3	12.98	...
20	17.81	...	3	20.54	...	10	12.85	...
27	17.73	...	10	20.46	...	17	12.72	...
Jan. 3, 1928	17.65	...	17	20.38	...	24	12.59	...
10	17.57	...	24	20.30	...	31	12.46	...
17	17.49	...	31	20.22	...	Apr. 7	12.33	...
24	17.41	...	7	20.14	...	14	12.20	...
31	17.33	...	14	20.06	...	21	12.07	...
Feb. 7	17.25	...	21	19.98	...	28	11.94	...
14	17.17	...	28	19.90	...	5	11.81	...
21	17.09	...	5	19.82	...	12	11.68	...
28	17.01	...	12	19.74	...	19	11.55	...
Mar. 7	16.93	...	19	19.66	...	26	11.42	...
14	16.85	...	26	19.58	...	3	11.29	...
21	16.77	...	3	19.50	...	10	11.16	...
28	16.69	...	10	19.42	...	17	11.03	...
Apr. 5	16.61	...	17	19.34	...	24	10.90	...
12	16.53	...	24	19.26	...	31	10.77	...
19	16.45	...	31	19.18	...	May 7	10.64	...
26	16.37	...	7	19.10	...	14	10.51	...
May 3	16.29	...	14	19.02	...	21	10.38	...
10	16.21	...	21	18.94	...	28	10.25	...
17	16.13	...	28	18.86	...	4	10.12	...

Observations—Well 144 (Continued)

Date	Head (ft.)	Date	Head (ft.)	Chloride (p.p.m.)	Date	Head (ft.)	Chloride (p.p.m.)
Mar. 10, 1932	28.70	Feb. 16, 1933	28.93		Jan. 29, 1934	26.93	
17	28.91		29.03		Feb. 5	27.09	
24	28.99	Mar. 6	28.65		12	27.12	
31	28.87		28.91		19	27.24	
Apr. 7	28.88	20	28.91		26	27.35	
14	28.79	27	28.73		Mar. 5	27.08	
21	28.89		27.99		12	27.09	
28	28.85	Apr. 10	28.63		19	26.84	
May 5	28.94	22	28.40		26	26.65	
12	29.02	29	28.90		2	26.48	
19	28.97	May 6	28.14		9	26.29	
26	28.97		28.03		16	26.00	
June 2	28.99	13	27.94		23	25.79	
9	28.86	27	27.88		30	25.99	
16	28.79	June 7	27.50		7	25.69	
23	28.68	10	27.50		14	25.68	
30	28.71	17	27.53		21	25.95	
July 7	28.47	24	27.48		28	25.70	
14	28.65	July 1	27.35		June 4	25.70	
21	28.48	8	27.40		11	26.01	
28	28.42	15	27.25		Feb. 1916	30.73	81.0
Aug. 4	28.33	22	27.14		Mar. 1	31.81	80.0
11	28.37	Aug. 5	27.02		Apr. 1	29.78	81.0
18	28.33	12	26.81		May 1	29.88	82.0
25	28.45	19	26.71		June 1	29.48	83.0
Sept. 1	28.27	26	26.55		July 1	28.98	82.0
8	28.24	30	26.44		Aug. 1	28.69	82.0
15	28.21	Sept. 2	26.44		Sept. 2	28.82	
22	28.14	9	26.41		Sept. 17	28.83	
29	28.06	16	26.35		Sept. 24	28.71	
Oct. 6	28.04	23	26.28		Oct. 1	28.70	
13	28.01	30	26.15		Oct. 8	28.60	
20	27.93	Oct. 7	26.69		Oct. 15	28.23	
27	27.94	14	26.03		Oct. 22	28.41	
Nov. 3	27.89	21	25.92		Oct. 29	28.40	
10	27.96	Nov. 28	25.90		Nov. 5	28.61	
17	28.17		25.95		Nov. 12	28.82	
24	28.59	11	25.99		Nov. 19	28.72	
Dec. 1	28.88	18	25.96		Nov. 26	28.76	
8	28.93	25	25.92		Dec. 3	28.94	
15	28.76	Dec. 2	26.10		Dec. 10	29.20	
22	28.65	9	26.06		Feb. 1917	31.10	
29	28.69	16	26.43		Mar. 1	31.14	
Jan. 5, 1933	28.82	23	26.25		Apr. 1	31.82	
12	28.88	30	26.72		May 7	31.15	
19	28.76	Jan. 30, 1934	26.80		June 14	26.14	
26	28.61		27.06		July 5	30.85	
Feb. 2	28.72		26.95		Aug. 6	29.77	
9	28.73	22	26.88				

145 (old 115). Near pumphouse 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, 26.45; Jan. 11, 1927, 28.84; Apr. 7, 1928, 29.54. Chloride (p.p.m.), 1910, 68. Sealed, Dec. 1928.

Meter test

Water flowing from well during test. Static level normal for area. An 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
5	56	161	54	170	29
25	56	162 (end of casing)	54	176	22
50	56	163	52	180	19
75	56	164	50	185	9
100	56	165	46	200	6
125	56	166	42	208	0
150	54	167	35	219 (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	0-6	Down wash and coral (Tbb) and (Pb)	111-155
Basalt (Ba)	6-33	Slight water	155-169
Sand and clay (Pa)	33-111	Water-bearing ledge (Tbb)	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
Dec. 1916	29.92	81.0	Oct. 10	28.63		Sept. 20	25.27	71.0
Mar. 1	30.73	81.0	Nov. 9	28.66		Oct. 18	25.18	68.8
Apr. 1	31.81	80.0	Dec. 7	29.08		Nov. 17	25.02	68.6
May 1	29.78	81.0	Jan. 11, 1918	30.30		Dec. 16	26.15	69.2
June 1	29.88	82.0	Feb. 11	30.36		Jan. 27, 1921	28.31	69.6
July 1	29.48	83.0	Mar. 11	30.15		Feb. 18	28.29	65.6
Aug. 1	28.98	82.0	Apr. 10	30.51		Mar. 18	28.39	66.0
Sept. 2	28.82		May 17	30.22		Apr. 19	28.20	66.0
Sept. 17	28.83		June 1	29.58		May 20	27.78	73.0
Sept. 24	28.71		July 1	29.55		June 17	27.45	73.0
Oct. 1	28.70		Aug. 8	29.19		Sept. 17, 1923	27.26	73.7
Oct. 8	28.60		Sept. 1	29.60		Oct. 17	27.33	
Oct. 15	28.23		Oct. 11	28.80		Nov. 14	27.42	
Oct. 22	28.41		Dec. 14	28.93		Sept. 30, 1926	23.48	73.0
Oct. 29	28.40		Jan. 24, 1919	29.65		Jan. 11, 1927	24.66	
Nov. 5	28.61		Feb. 19	29.13		Apr. 7, 1928	20.73	71.0
Nov. 12	28.82		Mar. 17	28.89		Oct. 15	25.88	
Nov. 19	28.72		Apr. 4	28.31		Mar. 19, 1929	24.58	68.8
Nov. 26	28.76		Aug. 4	27.11		Feb. 19, 1930	27.92	
Dec. 3	28.94		Mar. 11	26.94		Mar. 3, 1931	27.34	70.1
Dec. 10	29.20		Oct. 21	27.90		Sept. 10	25.55	
Feb. 1917	31.10		Jan. 8, 1920	27.89		Sept. 18	25.95	58.1
Mar. 1	31.14		Feb. 19	27.95		Jan. 29, 1932	26.98	
Apr. 1	31.82		Mar. 15	27.23	72.7	Apr. 27	26.67	
May 7	31.00		Apr. 14	27.23	72.7	Aug. 25	28.34	68.4
June 14	26.14		June 15	25.73	72.5	Jan. 1934	25.73	72.5
July 5	30.85		June 15	26.07	70.0	Dec. 11	26.25	71.7
Aug. 6	29.77		July 23	25.62	71.0			

Discharge in millions of gallons

Year	Jan.	Feb.	Mar.	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Total
1915	.....	.....	.....	.....	.....	.....	.....	7.5	16	20	16	39	59.5
1916	16	14	15	17	18	20	.....	22	23	21	.....	187	187
1917	25.8	27.8	30.3	25.6	25.8	23.4	.....	32.2	34.1	32.3	36.0	35.8	319.9
1918	31.0	35.0	38.2	37.8	31.0	30.4	.....	25.5	23.9	28.1	33.0	30.5	318.8
1919	26.0	25.9	27.2	29.0	31.0	31.4	.....	34.7	31.7	31.3	31.1	28.6	350.4
1920	26.5	28.3	32.9	33.8	.....	.....	.....	35.2	36.2	29.6	30.5	28.1	27.7
1921	25.9	22.8	17.2	17.0	17.6	19.9	.....	34.6	31.5	30.6	31.5	28.6	30.5
1922	15.1	12.3	15.3	15.2	16.4	10.1	.....	19.6	18.4	16.8	17.7	16.6	15.3
1923	15.1	12.3	15.3	15.2	16.4	10.1	.....	17.3	19.8	17.7	22.2	21.9	15.7
1924	15.9	13.1	17.2	17.0	16.4	17.5	.....	20.3	21.8	16.4	17.1	17.4	16.4

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. Sealed, June 1929.

*Log

Depth (ft.)		Depth (ft.)
Top of floor to top of concrete.....	0-1.9	
Solid concrete.....	1.9-7.0	
Loose concrete, mostly crushed rock.....	7.0-11.4	
Soft mud, clay, etc. (Pa).....	11.4-21.8	
Soft coral rock (Tbk).....	21.8-24.6	
Soft mud rock and clay (Pa).....	24.6-26.6	
Boulder (Pa).....	26.6-27.6	
Compact clay (Pa).....	27.6-32.0	
Soft lava rock (Pa).....	32.0-33.8	
Soft sand and gravel (Pa).....	33.8-39.3	
Compact sand and gravel (Pa).....	39.3-40.8	
Compact clay (Pa).....	40.8-47.7	
Compact mud rock and thin clay (Pa).....	47.7-88.2	
Medium coral rock, almost rotten (Pa).....	88.2-90.0	
		90.0-142.1
		142.1-145.0
		145.0-139.5
		139.5-165.0
		165.0-236.0
		236.0-259.8
		259.8-290.5
		290.5-290.5

* 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 45,000 gals. per day at 142 ft.; 54,000 gals. per day at 260 ft.; and 72,000 gals. per day at 290.5 ft. An 1-in. deep-well meter used. Readings by Sam Wong, May 15, 1929.

Depth (ft.)	Revolutions per minute	Depth (ft.)	Revolutions per minute
10.....	150	50.....	80
20.....	166	60.....	68
30.....	168	70.....	64
40 (end of casing).....	174	80.....	54
45.....	92	90.....	130

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. An 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	150 (end of casing).....	80
20.....	62	151.....	80
30.....	66	152.....	76
40.....	72	153.....	80
100.....	76	154.....	89

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, 1805. 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	Depth (ft.)	Chloride (p.p.m.)	Date	Depth (ft.)	Chloride (p.p.m.)
..... 1910			 1910		
Dec. 26, 1923	27.2	65.0	Oct. 16, 1929	63.4	66.8
Mar. 17, 1927	23.88	70.0	Oct. 23	63.4	65.2
Apr. 4, 1928			Nov. 6	63.4	65.2
Aug. 14	25.51		Nov. 13	65.2	63.2
Feb. 19, 1929			Nov. 20	65.2	66.8
Sept. 17	63.4		Nov. 27	66.8	60.9
Sept. 26	24.08		Dec. 4	65.2	63.4
Oct. 2		65.4	Dec. 11	66.8	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. 20		63.4	July 15	.....	63.4	Sept. 18	.....	56.4
Mar. 5		68.5	Aug. 23	.....	61.7	Jan. 29, 1932	26.13	66.7
Mar. 12		68.5	Sept. 6	.....	66.8	Jan. 29, 1932	27.92	63.3
Mar. 19		63.4	Sept. 7	.....	66.8	June 19, 1934	24.84	63.3
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
May 30		63.4	Jan. 7, 1931	.....	63.3			
May 34		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	16.0	11.6	10.9	59.7	
1930.....	16.7	14.6	13.9	13.2	12.0	11.1	12.3	12.3	15.0	18.0	18.4	18.4	172.3
1931.....	18.4	16.2	17.5	18.0	18.4	16.0	17.2	16.7	15.5	19.8	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	19.4	17.7	16.6	19.8	19.8	12.7	203.6
1934.....	10.6	11.4	13.2	10.2	15.9	13.3	15.8	17.7	15.3	16.6	14.8	18.5	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. 1910	*28.80	.....	Nov. 27, 1929	.....	54.8	Apr. 9, 1930	.....	54.8
..... 1918	60.0	.....	Dec. 4	.....	53.1	Apr. 30	.....	51.4
Dec. 26, 1923	27.40	.....	Jan. 14	.....	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. 5, 1930	.....	54.8	Aug. 23	.....	49.7
Sept. 11	24.82	.....	Jan. 8	.....	54.8	Sept. 6	.....	49.7
Sept. 12	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	27.08	53.0
Oct. 2	.....	51.4	Feb. 12	.....	54.8	Sept. 9	25.68	.....
Oct. 16	.....	51.4	Feb. 19	67.60	.....	Sept. 30	.....	51.0
Oct. 23	.....	51.4	Feb. 26	.....	54.8	Jan. 29, 1932	26.17	49.6
Oct. 30	.....	53.1	Mar. 5	.....	51.4	Aug. 25	28.25	49.6
Nov. 6	.....	53.1	Mar. 12	.....	54.8	June 19, 1934	.....	51.3
Nov. 19	.....	54.8	Mar. 19	.....	53.1	Dec. 11	26.03	51.0
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.	18.	19.	17.	101.	
1930.....	18.0	16.6	18.2	18.0	19.0	17.1	9.2	7.5	6.0	4.9	6.4	8.1	149.6
1931.....	17.4	14.4	16.8	18.3	18.4	16.3	11.3	13.1	12.5	11.4	12.5	10.5	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	14.9	15.3	16.1	15.6	19.8	189.1

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

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			
Depth (ft.)		Depth (ft.)	Depth (ft.)
Sand loam and boulders (Ita).....	0-13	Yellow clay, gravel (Pa).....	122-140
Yellow clay (Pa).....	13-50	Gravel (Pa).....	140-144
Red clay (Ita).....	50-52	Yellow clay (Pa).....	144-157
Yellow clay (Pa).....	52-112	Hard rock (Tbk).....	157-171
Gravel (Pa).....	112-122		
		Soft reddish rock (Tbk).....	171-281
		Water rock (Tbk).....	281-290
		Water rock; harder (Tbk).....	290-302

153 (old 119). About 25 ft. east of Mamala 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.

Date	Head (ft.)	Chloride (p.p.m.)	Date	Head (ft.)	Chloride (p.p.m.)
Apr. 1913	25.90	66.0	Sept. 1914	26.15	....
May 1913	25.89	....	Oct. 1914	25.05	....
June 1913	25.45	....	Nov. 1914	26.31	70.6
Sept. 1913	25.20	....	Dec. 1914	27.75	78.0
Oct. 1913	27.00	....	Jan. 1915	27.31	78.0
Nov. 1913	27.05	....	Feb. 1915	27.02	79.0
Jan. 1911	28.30	....	Mar. 1915	26.65	78.0
Feb. 1911	28.85	....	Apr. 1915	26.08	....
Mar. 1911	29.15	....	May 1915	26.69	78.0
Apr. 1911	28.73	....	June 1915	26.06	78.0
May 1911	28.30	....	July 1915	26.95	80.0
June 1911	28.30	....	Aug. 1915	25.70	80.0
July 1911	28.11	....	Sept. 1915	25.65	78.0
Aug. 1911	27.53	53.0	Oct. 1915	25.65	78.0
Sept. 1911	27.26	....	Nov. 1915	27.61	78.0
Oct. 1911	27.23	....	Dec. 1915	28.06	78.0
Jan. 1912	27.42	80.0	Jan. 1916	31.15	80.0
Feb. 1912	27.42	81.0	Feb. 1916	31.08	79.0
Mar. 1912	27.60	82.0	Mar. 1916	30.00	79.0
Apr. 1912	27.38	81.5	Apr. 1916	30.25	78.0
May 1912	26.46	81.0	May 1916	29.79	81.0
June 1912	25.96	81.0	June 1916	29.15	80.0
July 1912	25.62	81.0	Aug. 1916	28.65	81.0
Aug. 1912	25.25	81.0	Nov. 1916	28.18	81.0
Sept. 1912	25.16	81.0	Dec. 1916	29.28	....
Oct. 1912	24.88	80.0	Jan. 1917	29.28	....
Nov. 1912	25.34	78.0	Feb. 1917	29.28	....
Dec. 1912	26.17	76.0	Mar. 1917	31.88	....
Jan. 1913	26.17	76.0	Apr. 1917	31.37	77.0
Feb. 1913	25.29	79.0	May 1917	31.08	....
Mar. 1913	25.05	80.0	June 1917	29.68	....
Apr. 1913	25.00	80.0	July 1917	29.06	....
May 1913	25.48	81.0	Aug. 1917	29.07	....
June 1913	25.70	78.0	Sept. 1917	29.07	....
July 1913	25.26	78.0	Oct. 1917	28.77	....
Aug. 1913	25.37	78.0	Nov. 1917	29.10	....
Sept. 1913	25.40	78.0	Dec. 1917	29.10	....
Oct. 1913	25.80	77.0	Jan. 1918	30.26	....
Nov. 1913	25.06	78.0	Feb. 1918	30.19	....
Dec. 1913	27.00	79.0	Mar. 1918	30.43	....
Jan. 1914	26.55	77.0	Apr. 1918	30.26	....
Feb. 1914	26.37	77.0	May 1918	30.63	....
Mar. 1914	26.37	77.0	June 1918	29.69	....
Apr. 1914	26.35	78.0	July 1918	29.24	....
May 1914	26.00	80.0	Aug. 1918	29.56	....
June 1914	25.72	....	Sept. 1918	28.86	....
July 1914	25.42	....	Oct. 1918	29.69	....
Aug. 1914	25.42	....	Nov. 1918	28.86	69.0

Observations—Well 153 (Continued)

Date	Head (ft.)	Chloride (p.p.m.)	Date	Head (ft.)	Chloride (p.p.m.)
Dec. 27, 1920	24.31	70.0	Nov. 13, 1929	63.4	....
Jan. 21, 1927	24.82	68.0	Aug. 4, 1931	25.11	62.5
Mar. 1	25.19	69.0	Aug. 25	25.19	61.0
Mar. 17	25.11	....	Sept. 10	25.43	....
Mar. 29	25.43	68.0	Sept. 18	25.43	....
Apr. 13	25.58	67.0	Oct. 6	25.67	63.0
Apr. 28	25.37	71.0	Oct. 26	25.90	63.0
June 21	25.35	69.0	Dec. 17	26.30	63.0
Aug. 25	24.66	68.0	Jan. 14, 1932	26.57	62.0
Oct. 25	25.08	68.0	Jan. 29	27.45	60.0
Jan. 9, 1928	28.71	68.0	Feb. 18	27.45	62.0
Feb. 8	28.61	67.0	Mar. 7	28.71	62.0
Mar. 6	28.37	66.0	Mar. 17	28.56	62.0
Apr. 11	29.46	67.0	Apr. 14	28.70	64.0
May 24	28.46	67.0	May 17	28.46	62.5
June 26	29.46	....	June 16	28.31	62.5
Aug. 13	26.70	68.0	Aug. 12	27.99	62.5
Aug. 22	26.70	68.0	Aug. 25	28.03	61.6
Sept. 11	26.38	....	Sept. 15	27.93	62.5
Sept. 25	26.34	68.0	Oct. 18	27.65	62.0
Oct. 27	25.57	68.0	Nov. 15	27.83	62.0
Nov. 20	27.03	67.0	Dec. 16	28.33	62.5
Jan. 3, 1929	27.47	67.0	Jan. 17, 1933	28.47	61.5
Jan. 31	27.59	66.0	Feb. 16	28.65	60.5
Feb. 19	27.19	66.0	Feb. 26	28.78	60.5
Feb. 27	27.68	66.0	Mar. 16	29.12	61.5
Mar. 27	27.68	66.0	Mar. 26	29.45	63.5
Apr. 23	26.71	67.0	May 21	27.89	63.0
May 23	25.99	67.0	June 19	27.57	62.0
June 25	25.99	68.0	July 24	27.16	65.0
July 25	25.99	67.0	Aug. 21	26.71	66.0
Aug. 1	26.68	68.0	Sept. 10	25.73	62.0
Aug. 6	26.64	65.0	Oct. 10	26.00	62.0
Aug. 7	63.4	Sept. 6.9	Nov. 17	25.90	67.0
Aug. 14	65.2	Sept. 20	Dec. 21	26.03	61.0
Aug. 23	63.4	Oct. 7	Dec. 29	26.56	....
Aug. 28	24.70	67.0	Jan. 11, 1934	26.56	61.0
Sept. 4	63.4	Oct. 12	Jan. 25	26.98	61.0
Sept. 11	63.4	Nov. 12	Mar. 22	26.53	61.0
Sept. 17	63.4	Nov. 24	Mar. 26	25.84	62.0
Sept. 17	61.7	Dec. 16	Apr. 16	25.82	63.0
Sept. 17	61.7	Dec. 30	May 16	25.76	62.0
Sept. 17	61.7	Jan. 9, 1931	June 19	25.14	62.0
Oct. 2	61.7	Jan. 27	Aug. 14	24.46	61.0
Oct. 16	61.7	Mar. 3	Sept. 12	24.66	60.0
Oct. 30	61.7	Mar. 23	Oct. 16	25.07	60.0
Oct. 34	63.4	Mar. 28	Nov. 21	25.11	60.0
Nov. 6	63.4	May 25	Dec. 20	26.01	67.0
	63.4	June 25			

* A. M. (P. M.)

Discharge in millions of gallons

Year	Jan.	Feb.	Mar.	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Total
1929	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
1930	10.9	11.0	10.6	10.6	11.4	16.0	16.0	10.6	18.0	16.0	17.7	11.9	176.3
1931	18.3	19.3	18.7	18.7	15.5	15.7	8.1	15.2	8.4	13.9	11.9	11.9	176.3
1932	17.4	17.4	19.4	19.4	19.4	20.1	18.8	17.2	18.7	19.7	19.5	20.5	229.7
1933	20.1	17.9	21.9	20.9	20.3	18.8	19.6	18.5	15.9	16.1	15.0	16.0	221.3
1934	12.0	11.0	12.0	13.1	13.5	11.3	10.5	9.3	9.5	10.5	7.5	16.6	133.9

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.

Date	Head (ft.)	Chloride (p.p.m.)	Date	Head (ft.)	Chloride (p.p.m.)
..... 1910	.....	62.0	Sept. 26, 1929	24.79	51.4
Aug. 13, 1929	27.80	....	Feb. 20, 1930	27.74	....
Sept. 11	26.29	....	Sept. 6	51.4	....
Sept. 12	26.34	....	Mar. 3, 1931	26.87	54.7
Mar. 19, 1929	.....	.....	Sept. 9	25.61	....

RECORDS OF DRILLED WELLS ON OAHU

Well 154 (Continued)

Discharge in millions of gallons													Total
Year	Jan.	Feb.	Mar.	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	
1929	.....	.....	.....	.....	.....	.....	1.3	.68	1.2	.6	.07	1.4	5.13
1930	5.0	2.5	5.1	3.3	1.4	1.2	0.8	0.5	2.0	1.1	2.0	2.0	26.2
1931	3.2	1.5	2.2	1.4	2.0	4.2	5.2	1.7	0.3	0.2	1.4	2.2	24.5
1932	1.8	.9	5.6	6.3	7.1	6.9	5.0	4.0	3.9	6.8	0.7	6.8	58.2
1933	8.7	6.4	8.1	6.9	7.4	6.0	6.2	3.4	3.3	.6	.9	0	58.2
1934	2.8	4.2	4.0	4.7	.38	.34	1.01	1.25	.62	.71	.37	.29	21.4

155 (old 121). At pump house about 400 ft. west of junction of main highway and Puuloa Road in Manuana, 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	60.7	Mar. 4, 1931	66.7	Aug. 25, 1932	58.1
..... 1910	68.0	Sept. 17	63.4	Sept. 18	61.6	June 19, 1934	63.3
Mar. 1, 1929	63.4	Sept. 6, 1930	61.7	Apr. 27, 1932	54.3	Dec. 11	65.0

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	31.4
1930	4.1	4.3	5.0	5.0	5.1	5.0	7.9	6.6	6.0	6.1	3.9	4.0	63.7
1931	5.0	3.4	4.7	4.4	4.6	4.2	5.1	4.4	4.1	5.0	3.1	4.0	55.0
1932	5.6	3.8	3.8	5.1	5.4	5.1	5.2	5.0	4.7	4.3	4.2	3.6	55.7
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	50.2
1934	3.4	2.9	3.5	3.9	4.4	3.9	4.5	4.2	3.3	3.5	4.8	3.7	45.8

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, 25.15 ft.

Date	Head (ft.)	Chloride (p.p.m.)	Date	Head (ft.)	Chloride (p.p.m.)	Date	Head (ft.)	Chloride (p.p.m.)
Feb. 13, 1913		70.0	Nov. 6, 1929	.....	61.7	Apr. 9, 1930	.....	63.4
Oct. 15, 1915		56.0	Nov. 12	.....	63.4	Apr. 30	.....	60.0
Apr. 10, 1920		70.0	Nov. 20	.....	25.70	May 14	.....	68.8
Nov. 20, 1920		70.0	Nov. 27	.....	63.4	June 19	.....	61.6
Jan. 10, 1928	28.61	71.0	Dec. 4	.....	63.4	July 15	.....	66.7
Aug. 16	26.51	66.0	Dec. 11	.....	63.4	Aug. 7	.....	25.73
Dec. 1		61.0	Dec. 25	.....	63.4	Nov. 2	.....	60.8
Mar. 1, 1929		61.7	Dec. 26	.....	63.4	Sept. 6	.....	63.4
May 25	26.83	62.0	Jan. 23, 1930	.....	63.4	Oct. 2	.....	63.3
Aug. 7		61.7	Jan. 8	.....	63.4	Nov. 12	.....	65.0
Aug. 1		68.5	Jan. 15	.....	63.4	Dec. 16	.....	58.1
Aug. 7		63.4	Jan. 23	.....	63.4	Jan. 7, 1931	.....	60.7
Aug. 14		68.5	Jan. 29	.....	65.2	Feb. 3	.....	27.27
Sept. 4		66.8	Feb. 5	.....	63.4	Mar. 3	.....	26.85
Sept. 11		63.4	Feb. 12	.....	66.8	Sept. 10	.....	26.43
Sept. 17		63.4	Feb. 20	.....	27.70	.....	.....	26.15
Sept. 27	24.14	.....	.....	.....	63.4	Sept. 18	.....	60.7
Oct. 2		62.4	Mar. 5	.....	63.4	Jan. 29, 1932	.....	70.1
Oct. 16		63.4	Mar. 12	.....	63.4	Aug. 25	.....	58.1
Oct. 23		63.4	Mar. 19	.....	63.4	June 19, 1934	.....	59.8
Oct. 30		61.7	Mar. 26	.....	65.2	Dec. 11	.....	25.92

Discharge in millions of gallons

Year	Jan.	Feb.	Mar.	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Total
1927	.....	.....	.....	.....	.....	.....	10.8	8.38	8.95	9.91	6.40	6.11	50.81
1928	7.08	8.10	9.08	9.04	9.22	11.1	11.3	9.78	9.75	8.47	6.73	8.23	108.85
1929	7.60	5.67	5.75	5.31	6.56	6.62	5.72	4.48	4.37	4.00	2.61	2.18	61.10
1930	2.54	5.41	1.36	1.12	9.94	8.92	9.55	9.70	7.77	4.22	2.96	0	62.69
1931	0	0	0	0	0	1.33	.47	0	.60	0	.66	0	3.06

*No discharges 1931, 1932, 1933.

RECORDS OF DRILLED WELLS ON OAHU

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. 14, 1929		63.4	Dec. 26	.....	66.8	Aug. 23	.....	65.2
Aug. 14		65.5	Dec. 26	.....	66.8	Sept. 6, 1930	.....	65.2
Sept. 4		66.8	Jan. 2, 1930	.....	66.8	Oct. 7	.....	68.5
Sept. 4		63.4	Jan. 8	.....	66.8	Nov. 12	.....	68.5
Sept. 17		63.4	Jan. 22	.....	66.8	Dec. 16	.....	68.5
Oct. 3		63.4	Jan. 29	.....	66.8	Jan. 7, 1931	.....	63.3
Oct. 10	24.64	.....	Feb. 5	.....	66.8	Mar. 4	.....	65.0
Oct. 16		63.4	Feb. 12	.....	66.8	Mar. 4	.....	60.1
Oct. 23		66.8	Mar. 5	.....	66.8	Jan. 29, 1932	.....	129.0
Oct. 30		65.2	Mar. 12	.....	66.8	Aug. 23	.....	63.3
Nov. 6		61.7	Mar. 19	.....	66.8	Nov. 8, 1933	.....	26.53
Nov. 13		66.8	Mar. 26	.....	66.8	June 19, 1934	.....	26.09
Nov. 20		66.8	Apr. 9	.....	65.5	Dec. 11	.....	25.86
Nov. 27		66.8	Apr. 30	.....	101.0	.....	.....	65.0
Dec. 4		66.8	June 19	.....	68.5	.....	.....	65.0

Discharge in millions of gallons

Year	Jan.	Feb.	Mar.	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Total
1929	.....	.....	.....	.....	.....	.....	2	2	1.6	6	6	6	90.4
1930	6	5	6	6	6	8	6	6	6	8	6	6	71
1931	27	24	27	29	27	30	29	27	26	27	29	27	314
1932	27	25	27	30	27	34	55	34	24	24	24	24	362
1933	24	22	20	20	20	20	20	20	20	20	20	20	216
1934	20	18	20	20	20	20	20	20	20	20	20	20	258

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

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.	0-118
Gravel (Pa). Samples from 130 to 134 ft. show dark-brown slightly clayey, pebbly sand. Pebbles are abundant of yellow-orange quartzite, mostly small.	118-135
Samples from 134 to 135 ft. show dark-brown to yellow-orange quartzite, mostly small.	135-138
Blue and red rock (Tb). Samples from 135 to 136 ft. show dark bluish-gray hard slightly vesicular basalt containing a few olivine phenocrysts. Samples from 136 to 137 ft. show dark-gray hard moderately vesicular basalt containing few olivine phenocrysts. Sample from 137 to 140 ft. shows purplish-brown to brick-red felsitic rock with crystals. Sample from 137 to 140 ft. shows purplish-brown to brick-red felsitic rock with crystals. Sample from 137 to 140 ft. shows purplish-brown to brick-red felsitic rock with crystals.	135-138
Black rock (Tb). See above sample from 137 to 140 ft. Samples from 140 to 145 ft. show similar basalt. Samples at 146 and 148 ft. show dark greenish-gray hard slightly vesicular basalt. Samples from 154 to 160 ft. show dark-gray hard moderately vesicular basalt, containing a few olivine phenocrysts.	138-160
Red water rock (Tb). Samples from 160 to 174 ft. show dark gray hard moderately vesicular basalt, containing a few olivine phenocrysts. Sample from 174 to 178 ft. shows dark-gray hard slightly vesicular basalt.	160-176
Black-black rock (Tb). See above sample from 174 to 178 ft. Sample at 190 ft. is similar to black-black rock. Samples from 190 to 195 ft. show brown to brick-red hard to friable moderately vesicular basalt.	176-194
Red water rock (Tb). See above sample from 190 to 195 ft. Sample from 195 to 200 ft. shows brown to brick-red hard to friable moderately vesicular basalt.	194-202
Black rock (Tb). Samples from 200 to 210 ft. show dark bluish-gray hard slightly vesicular basalt. Sample from 207 to 210 ft. shows 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.	202-207

Log—Well 158 (Continued)

	Depth (ft.)
Red water rock (Tbk). See above sample from 217 to 220 ft. Samples from 220 to 228 ft. are similar.	219-223
Dark gray sample from 220 to 223 ft. are similar to above.	223-226
Red water rock (Tbk). Sample from 223 to 239 ft. is similar to above. Sample from 239 to 243 ft. shows red-brown hard to friable very vesicular basalt.	238-246
Black. See above sample from 229 to 243 ft. Samples from 243 to 251 ft. show dark-gray hard slightly vesicular basalt. Sample at 251 to 252 ft. shows dark-gray hard very vesicular basalt. Sample from 255 to 258 ft. shows green-gray to red-brown hard to friable slightly vesicular basalt.	246-258
Red water rock (Tbk). Samples from 258 to 267 ft. are similar to above. Samples from 267 to 277 ft. show dark green-gray hard slightly vesicular basalt, in part containing a few small fragments of chert.	258-282

Observations

Bench mark, top of flange 1½ ft. above ground on tee on well casing: altitude, 17.73 ft.

Date	Head (ft.)	Chloride (p.p.m.)	Date	Head (ft.)	Chloride (p.p.m.)	Date	Head (ft.)	Chloride (p.p.m.)
Nov. 2, 1929	24.60	70.1	Mar. 3, 1931	26.85	71.8	Nov. 2, 1931	25.92	92.2
Nov. 7	24.96	66.7	Apr.	26.19	..	Dec.	26.06	..
Nov. 10	25.39	65.0	May	26.57	..	Nov. 27, 1932	26.01	50.8
Nov. 19	25.73	..	June	25.87	..	Aug. 26	26.03	63.3
Feb. 18, 1930	27.39	..	July	25.20	..	Aug. 27	27.85	..
Mar. 2	27.08	..	Aug.	25.50	..	Oct. 1, 1934	26.00	..
Jan. 1931	27.48	..	Sept.	25.24	..	Dec. 11	25.90	70.7
Mar.	27.08	..	Sept. 18	25.50	63.3			
Jan.	26.95	..						

Discharge in millions of gallons

Year	Jan.	Feb.	Mar.	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Total
1929	.....	.....	.....	.....	.....	.....	.....	.....	.....	0.11	5.3	2.0	7.4
1930	.....	.....	.....	.....	.....	.....	.....	.....	.....	15.8	17.2	2.0	162.6
1931	20.5	18.4	20.6	20.4	20.5	18.6	21.7	21.5	23.2	24.6	25.6	2.0	253.7
1932	22.7	19.6	20.8	17.8	17.4	23.7	21.4	20.5	21.3	23.4	18.8	17.2	244.7
1933	17.2	15.8	19.8	21.0	22.8	27.6	25.2	32.3	24.4	26.0	25.1	26.4	281.6
1934	18.1	17.7	20.3	23.4	28.7	30.9	37.2	37.2	35.3	40.2	12.9	28.4	346.9

150 (old 123). Near Moanalua Service Station at junction of Queen St. and Paulu-
Road, Honolulu. Owner, Sam Damon estate. Drilled, 1897 by McCandless Bros. Altitude, 19 ft. Depth, about 830 ft. Diameter, 10 in. Use, irrigation and domestic.

Observations

Date	Head (ft.)	Chloride (p.p.m.)	Date	Head (ft.)	Chloride (p.p.m.)	Date	Head (ft.)	Chloride (p.p.m.)
Feb. 20, 1909		255	Oct. 30, 1929	.....	617	Apr. 9, 1930	.....	637
June 1, 1910		256	Nov. 5	.....	614	Apr. 30	.....	634
July 16		322	Nov. 13	.....	634	May 14	.....	634
Oct. 20, 1912		322	Nov. 20	.....	658	June 19	.....	630
Sept. 23, 1913		353	Dec. 4	.....	658	July 15	.....	630
Aug. 15, 1914		395	Dec. 11	.....	652	Aug. 23	.....	656
Sept. 30, 1915		367	Dec. 18	.....	652	Sept. 6-9	.....	566
Sept. 13, 1919		353	Dec. 26	.....	634	Oct. 7	.....	556
Nov. 15, 1920		475	Jan. 2, 1921	.....	634	Oct. 15	.....	617
Mar. 1, 1929		514	Jan. 8	.....	634	Dec. 17, 1931	.....	522
Aug. 7		566	Jan. 15	.....	634	Mar. 18	26.37	530
Aug. 14		566	Jan. 22	.....	634	May 27	.....	564
Aug. 21		582	Jan. 29	.....	634	June 26	.....	564
Sept. 28		600	Feb. 7	.....	652	July 28	.....	547
Sept. 4		600	Feb. 12	.....	652	Aug. 8	.....	547
Sept. 11		582	Feb. 20	27.14	.....	Sept. 18	.....	598
Oct. 7		600	Feb. 24	.....	634	Oct. 30	.....	633
Oct. 27	23.87	.....	Mar. 5	.....	634	Dec. 5	.....	633
Oct. 2		582	Mar. 12	.....	600	Jan. 29, 1932	26.19	616
Oct. 9		600	Mar. 19	.....	600	Feb. 26	.....	581
Oct. 23		634	Mar. 26	.....	634	Mar. 26	.....	581

Observations—Well 159 (Continued)

Date	Head (ft.)	Chloride (p.p.m.)	Date	Head (ft.)	Chloride (p.p.m.)	Date	Head (ft.)	Chloride (p.p.m.)
Apr. 27, 1932	547	547	May 11, 1933	445	445	Apr. 28, 1934	581	581
May 27	547	547	May 29	445	445	May 31	584	584
June 26	547	547	June 14	445	445	June 29	588	588
July 27	496	496	July 26	462	462	July 31	615	615
Aug. 26	479	479	Aug. 31	462	462	Aug. 30	635	635
Sept. 26	479	479	Sept. 29	462	462	Sept. 29	639	639
Oct. 26	479	479	Oct. 31	445	445	Oct. 31	647	647
Nov. 26	479	479	Nov. 29	445	445	Nov. 29	647	647
Dec. 26	479	479	Dec. 31	445	445	Dec. 31	647	647
Jan. 27, 1933	479	479	Jan. 30, 1934	568	568	Dec. 31	664	664
Feb. 27	479	479	Feb. 27	568	568			
Mar. 30	462	462	Mar. 29	568	568			

*Some draft.

Discharge in millions of gallons

Year	Jan.	Feb.	Mar.	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Total
1920 ..	.....	.....	.....	.....	.....	.....	.9	.....	.....	.....	.8	.9	4.5
1929 ..	.....	.....	.....	.....	.....	.....	1.	1.	.6	1.	1.	.....	11.8
1931 ..	.9	.8	.....	.9	1.2	1.2	.6	.6	.9	.9	.9	.....	11.0
1932 ..	.9	.9	.9	.9	.6	.6	.6	.6	.6	.6	.6	.8	8.4
1933 ..	.9	.6	.6	.6	.6	.6	.6	.6	.8	.....	1.2	.8	8.5
1934 ..	1.2	1.2	.9	.9	.9	.9	.7	.7	.6	.8	.8	.....	10.0

161 (old 124). South side of Salt Lake Crater near Puulon R. R. Station, Honolulu. Owner, Honolulu Plantation Co. Altitude, about 20 ft. Depth, 972 ft. Diameter, 6 in. Use, domestic. Recased.

Observations

Head (ft.), Sept. 26, 1929, 19.30; Dec. 11, 1934, 25.84.

Date	Chloride (p.p.m.)	Date	Chloride (p.p.m.)	Date	Chloride (p.p.m.)	Date	Chloride (p.p.m.)
June . . . 1902	152	Nov. 6, 1929	308	Sept. 6-9, 1930	308	Jan. 27, 1933	325
July . . .	177	Nov. 13	308	Oct. 7	308	Feb. 25	325
Aug. . . . 1910	153	Nov. 20	326	Nov. 12	308	Mar. 29	325
Sept. . . .	180	Dec. 4	308	Dec. 16	312	May 19	325
July 16	177	Dec. 4	308	Jan. 7, 1931	308	May 26	325
Oct. 29, 1912	177	Dec. 11	308	Mar. 4	325	June 30	325
Sept. 29, 1913	188	Dec. 18	308	Apr. 17	312	July 11	325
Aug. 15, 1914	166	Dec. 26	308	May 27	291	Aug. 31	325
Oct. 30, 1918	228	Jan. 2, 1930	308	June 26	308	Sept. 28	325
Sept. 15, 1919	251	Jan. 8	308	July 2	308	Oct. 31	325
Dec. 10	251	Jan. 15	308	Aug. 8	242	Nov. 30	325
Nov. 15, 1920	752	Jan. 22	308	Sept. 18	308	Dec. 22	325
Jan. 25, 1929	308	Feb. 5	308	Oct. 30	308	Jan. 27, 1934	325
July 25	308	Feb. 5	308	Dec. 5	325	Feb. 27	325
Aug. 1	308	Feb. 12	308	Jan. 28, 1932	325	Mar. 28	325
Aug. 15	308	Feb. 26	308	Feb. 26	308	Apr. 28	325
Aug. 14	308	Mar. 5	308	Mar. 30	293	May 31	325
Aug. 21	308	Mar. 12	308	Apr. 27	308	June 19	325
Aug. 28	308	Mar. 19	308	May 20	308	July 31	325
Sept. 4	291	Mar. 26	308	May 28	308	Aug. 30	325
Sept. 11	368	Apr. 9	308	Sept. 27	225	Sept. 26	342
Sept. 17	308	Apr. 30	308	Sept. 27	242	Oct. 17	342
Oct. 2	291	May 14	308	Sept. 22	308	Oct. 30	342
Oct. 16	291	June 19	308	Oct. 27	325	Nov. 15	342
Oct. 23	308	July 15	308	Nov. 29	325	Nov. 30	342
Oct. 29	417	Aug. 27	308	Dec. 27	308	Dec. 27	342

Discharge in millions of gallons

Year	Jan.	Feb.	Mar.	April	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.	Total
1929 ..	.....	.....	.....	.....	.....	.....	1.6	1.	.9	.9	.8	.....	5.1
1930 ..	1.1	1.	1.	.9	1.	.9	1.	1.	2.	2.	2.	.....	15.9
1931 ..	.9	.8	.9	.9	.9	.9	.9	1.2	1.2	1.2	.9	.....	11.6
1932 ..	.9	.9	1.2	1.1	.9	.9	.9	.9	.9	.9	.9	.....	11.3
1933 ..	1.2	1.1	.9	.9	.9	.9	.7	.7	.6	.6	.8	.9	9.9
1934 ..	.6	.6	.9	.9	.9	.6	.5	.5	.6	.6	.6	.....	8.2

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 Qnt at top)	0-240	Coral (Pls)	605-637	Blue rock (Tkb.)	890-894
Clay (Pa)	240-305	Clay (Pa)	637-652	Clay (Tkb)	894-914
Coral (Pls)	305-340	Coral (Pls)	652-677	Blue rock (Tkb.)	914-922
Clay (Pa)	340-361	Clay (Pa or Tkb)	677-732	Clay (Tkb)	922-950
Coral (Pls)	361-379	Blue rock (Tkb)	702-720	Blue rock (Tkb.)	950-960
Clay (Pa)	379-429	Blue rock (Tkb)	720-742	Clay (Tkb)	960-976
Coral (Pls)	429-457	Clay (Tkb)	742-787	Blue rock (Tkb)	976-1,017
Clay (Pa)	457-469	Blue rock (Tkb)	787-827	Water rock (Tkb)	1,017-1,025
Coral (Pls)	469-481	Clay (Tkb)	827-835	Water rock (Tkb)	1,025-1,085
Clay (Pa)	481-587	Blue rock (Tkb)	835-852	Grey rock (Tkb)	1,085-1,095
Coral (Pls)	587-595	Clay (Tkb)	852-872	Red rock (Tkb)	1,095-1,120
Clay (Pa)	595-605	Blue rock (Tkb)	872-879	Blue rock (Tkb)	1,120-1,125
		Clay (Tkb)	879-890		

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 Qnt at top)	0-250	Caving clay (Pa)	450-490	Water rock (Tkb.)	825-851
Sticky clay (Pa)	250-290	Coral (Pls)	490-510	Hard rock (Tkb.)	851-861
Coral (Pls)	290-320	Clay (Pa)	510-564	Water rock (Tkb)	861-900
Clay (Pa)	320-400	Soft gray clay (Pa or Tkb)	564-772	Hard lava (Tkb)	900-923
Coral (Pls)	400-420	Clay (Pa or Tkb)	772-810	Water rock (Tkb)	923-925
Sticky clay (Pa)	420-450	Loose red rock (Tkb)	810-822	Hard lava (Tkb)	925-950
		Hard rock (Tkb)	822-835	Water rock (Tkb)	950-970

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, 17.55. Chloride (p.p.m.), 1902, 843; 1910, 868; Sept. 30, 1918, 1,910; 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 Qnt at top)	0-245	Clay (Pa)	365-385	Gray rock (Pa or Tkb)	695-705
Brown clay (Pa)	245-290	Coral (Pls)	385-440	Blue clay (Pa or Tkb)	705-730
Coral (Pls)	290-320	Clay (Pa)	440-495	Brown lava (Tkb.)	730-757
Clay (Pa)	320-330	Coral (Pls)	495-515	Clay (Tkb)	757-767
Coral (Pls)	330-360	Clay (Pa)	515-550	Red lava (Tkb)	767-797
		White clay (Pa)	550-615	Hard blue lava (Tkb)	797-800
		Clay (Pa)	615-695		

Meter tests

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

Test 1, May 27, 1937.

Depth (ft.)	Revolutions per minute	Depth (ft.)	Revolutions per minute	Depth (ft.)	Revolutions per minute
100	7	400	4	ESP	4
200	6	500	5	561 (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	0
200	18	470	9	498 (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	467	13
200	18	425	0	472 (landed)	
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	4
190	11	300	8	465	10
200	28	394	18	467	14
310	32	400	11	470	0
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	0	415	0
200	19	402.5	6	420	0
300	12	405	5	425 (landed)	
328	7	410	4		

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; Mar. 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)	42-130	Dry caving clay (Pa)	425-470	Hard rock (Tkb.)	820-838
Black sand (Pa or Qnt)	120-136	Loose coral (Pls)	470-500	Water rock (Tkb.)	838-840
Loose coral (Pls)	136-139	Caving clay (Pa)	500-522	Hard rock (Tkb.)	840-852
Sticky clay (Pa)	139-233	Sticky clay (Pa)	522-536	Water rock (Tkb.)	852-864
Sticky clay (Pa)	233-387	Sandy clay (Pa)	536-600	Hard rock (Tkb.)	864-890
Loose coral (Pls)	387-390	Sandy clay (Pa)	600-720	Water rock (Tkb.)	890-894
Sticky clay (Pa)	390-393	Sandy clay (Pa)	720-758	Hard pan (Tkb.)	894-900

Meter tests

Au 3-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	19	250	69		
30	04	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	151
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	790	109	340	78
30	5	350	112	540	55
50	0	400	94	600	43
100	0	5	87	760	42
130	4	500	106	740	30
140	88	510	98	750	28
150	88	515	80	800	28
200	88	520	84	820	27
250	92	525	86	823.5	3
300	92	530	100	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	300	34	718	
100	1	350	21	725	1
200	24	600	4	728 (landed)	
300	34	700	6		
400	35	710	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	
650 (landed)		550	66	590	34
660	0	555	68	580 (pulling meter out)	
645	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	3	ft. and 532 ft.	
300	9	540 (With water being pumped from well no discharge)		542.5 (landed)	
400	12				
500	16				

166 (old 129). Near Paulon 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.)
Soil	0-5	Coral (Pls)	393-453
Coral sand (Pls with perhaps some Qht)	3-23	Clay (Pa)	453-528
Clay (Pa)	233-248	Hard blue rock (Tkb)	708-888
Coral (Pls)	248-258	Water rock (Tkb)	888-903
Clay (Pa)	258-268	Hard blue rock (Tkb)	903-921
Coral (Pls)	268-278	Red water rock (Tkb)	921-921
Clay (Pa)	278-288	Hard blue rock (Tkb)	923-943
Coral (Pls)	288-298	Water rock (Tkb)	943-948
Clay (Pa)	298-308	Red clay (Tkb)	948-951

Meter tests

Au 3-in. deep-well meter used with rubber gasket. Readings by K. N. Vaksivik.

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
200	7	600	11	675	9
500	8	620	8	684 (landed)	

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.)
Soil	0-24	Dry clay (Pa)	330-536
Lava (Qht. Salt Lake)	24-34	Loose coral (Pls)	536-610
Loose coral (Pls)	34-134	Sticky clay (Pa)	610-650
Sticky clay (Pa)	134-143	Caving clay (Pa)	650-660
Loose coral (Pls)	143-250	Hard rock (Tkb)	660-672
Sticky clay (Pa)	250-280	Sticky clay (Tkb)	672-692
Loose coral (Pls)	280-283	Grey clay rock (Tkb)	692-740
Sticky clay (Pa)	283-323	Hard blue rock (Tkb)	740-764
Loose coral (Pls)	323-333	Red rock and gravel	764-797
Caving and sticky clay (Pa)	333-403	Sticky clay (Tkb)	797-807
Loose coral (Pls)	403-433	Red rock (Tkb)	807-821
Sticky clay (Pa)	433-463	Hard blue rock (Tkb)	821-873
Red rock (Pa)	463-473	Red rock (Tkb)	873-903
Sticky caving clay (Pa)	473-493	Hard blue lava (Tkb)	903-950
Red rock (Pa)	493-508	Black sand and coral	950-957
Sticky clay (Pa)	508-530	(Tkb and Pls)	

168 (old 131). Near Pearl Harbor Navy Yard. Owner, Honolulu Plantation Co. Driller, W. S. Lowe. Altitude, 15 ft. Depth, 938 ft. Not in use. Casing, 485 ft. Chloride (p.p.m.), July 1902, 1930.

Log

Depth (ft.)	Depth (ft.)	Depth (ft.)	Depth (ft.)
Soil	0-2	Clay (Pa)	302-412
Coral (Pls)	2-100	Soft rock (Tkb)	412-482
probably some Qht		Dry sandy clay (Pa)	482-482
Sticky clay (Pa)	100-112	Coral (Pls)	482-502
Coral (Pls)	112-172	Clay (Tkb)	502-572
Clay (Pa)	172-187	Coral (Pls)	572-608
Coral (Pls)	187-207	Clay (Pa)	608-703
Clay (Pa)	207-272	Gray white rock (Pa)	703-718
Coral (Pls)	272-302	or Tkb)	

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	1,620
Oct. 8, 1908	582		Apr. . 2, 1929	20.62	1,750	Dec. 23, 1930	20.06	1,630
Nov. . . 1910	603		Nov. 20 . 1929	20.34	1,620	Dec. 29, 1933	21.01	....
Aug. 10, 1927	2,450		Aug. 7, 1930	19.46	1,630			
Jan. 10, 1928	23.90	1,680	Jan. 22, 1931	21.03	....			

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 Pk)	0-100	Sandy clay (Pa)....	250-310	Clay (Pa or Tkb)....	563-581
Clay material (Pa)....	100-130	Sticky clay (Pa)....	310-320	Hard rock (Tkb)....	581-630
Coral reef (Pls)....	130-150	Sandy clay (Pa)....	390-472	Water rock (Tkb)....	630-640
Sticky clay (Pa)....	150-250	Sticky 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	853		Aug. 16	20.23	2,000	Feb. 3, 1931	20.45	2,180
..... 1910	624		Apr. 2, 1929	20.73	2,050	Dec. 23	19.65	2,290
Aug. 10, 1907	2,070		Nov. 20	20.50	2,150			

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)....	20-30	Brown clay (Pa)....	180-520	Blue rock (Tkb)....	566-582
Coral (Pls).....	30-60	Brown rock (Tkb)....	320-520	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.)
July 1, 1902	104	July 16, 1910	979	Aug. 15, 1914	942
Oct. 3, 1908	291	May 20, 1911	291	Sept. 5, 1916	447
Sept. 1, 1909	270	Oct. 29, 1912	301	Sept. 30, 1918	476
..... 1910	284	Sept. 23, 1913	312	Sept. 13, 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.)
Oct. 3, 1908	343	May 20, 1911	322	Aug. 15, 1914	374
Sept. 1, 1909	222	Oct. 29, 1912	343	Sept. 30, 1918	478
July 16, 1910	333	Sept. 23, 1913	353	Sept. 13, 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)....	627-634
Clay (Pa).....	40-115	Clay (Pa or Tkb)....	515-522	Blue lava (Tkb)....	634-658
Coral (Pls).....	115-125	Blue lava (Tkb)....	522-565	Water rock (Tkb)....	658-667
Clay (Pa).....	125-430	Red rock (Tkb)....	565-572	Brown rock (Tkb)....	667-690
Small boulders (Pa or Tkb).....	430-450	Water rock (Tkb)....	572-577	Water rock (Tkb)....	690-697
		Blue lava (Tkb)....	577-600	Blue lava (Tkb)....	697-732
		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.)
Oct. 3, 1908	499	Sept. 23, 1913	603	Oct. 31, 1935	845
Sept. 1, 1909	551	Aug. 15, 1914	642	Nov. 2	23.27
..... 1910	603	Sept. 30, 1918	634	Nov. 2	23.30
May 20, 1911	551	Sept. 13, 1919	341	Nov. 21	23.38
Oct. 29, 1912	572	Nov. 15, 1920	337	Dec. 29	24.46

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 (Probably Qht. Alamau).....	50-75	Clay (Tkb).....	453-462	Hard blue rock (Tkb)....	645-652
		Soft blue rock (Tkb)....	462-465	Soft blue rock (Tkb)....	652-663
		Clay (Tkb).....	465-473	Hard blue rock (Tkb)....	663-713
		Soft blue rock (Tkb)....	473-523	Soft blue rock (Tkb)....	713-726
		Hard blue rock (Tkb)....	523-538	Hard blue rock (Tkb)....	726-732
		Soft red rock (Tkb)....	533-539	Soft red rock (Tkb)....	732-742
		Hard blue rock (Tkb)....	539-558	Hard blue rock (Tkb)....	742-763
		Soft red rock (Tkb)....	558-561	Soft red rock (Tkb)....	763-769
		Hard blue rock (Tkb)....	561-583	Hard blue rock (Tkb)....	769-780
		Soft blue rock (Tkb)....	583-589	Soft blue rock (Tkb)....	780-783
		Hard blue rock (Tkb)....	589-609	Hard blue rock (Tkb)....	783-792
		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.)
Oct. 3, 1908	270	Oct. 29, 1912	322	Sept. 13, 1919	312
Sept. 1, 1909	302	Sept. 23, 1913	343	Nov. 15, 1920	402
..... 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, 988; 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	.....	440	Nov. 21	19.08	....
May 20, 1911		313	Sept. 13, 1919	.....	540	Dec. 29	22.93	....
Oct. 29, 1912		344	Nov. 15, 1920	.....	509			....
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 1, 1902		146	Aug. 15, 1914	.....	395	Feb. 15, 1933	21.62	....
Dec. 10, 1908		264	Sept. 30, 1918	.....	409	Nov. 2	19.85	744
July 5, 1910		301	Sept. 13, 1919	.....	420	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	22.99	....
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, 545 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 (Tbk)	288-300	Started to flow at 392	
Boulders (Pa or Tbk)	250-278	Clay (Pa or Tbk)	303-343	ft.; 7 water strata.	
Clay (Pa or Tbk)	250-278	Rock (Tbk)	343-545		

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.)	Date	Chloride (p.p.m.)
Dec. 10, 1908	147	Dec. 1, 1910	177	Sept. 23, 1913	177	Sept. 30, 1918	312
July 8, 1910	177	Oct. 29, 1912	177	Aug. 15, 1914	138	Sept. 13, 1919	254

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.)	Date	Chloride (p.p.m.)
July 1, 1902	104	Oct. 29, 1912	229	Aug. 15, 1914	250	Sept. 13, 1918	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 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 1, 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	239	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	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-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 1, 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 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 1, 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, 263 ft.; Q, 211 ft. Altitude of all wells, 25 ft.

Logs

	Depth (ft.)		Depth (ft.)		Depth (ft.)
Well O		Black rock (Tbk)...	330-239	Red rock (Tbk)....	265-270
Clay (Pa).....	0-115	Red rock, soft (Tbk)	339-355	Blue rock (Tbk)....	270-285
Gravel and clay (Pa or Tbk).....	115-140	Red rock (Tbk)....	355-397	Red rock (Tbk)....	285-293
Red rock, water (Tbk)	140-195	Dark blue hard rock (Tbk).....	397-405	Dark blue hard rock (Tbk).....	393-398
Blue rock, set casing (Tbk).....	195-215	Red rock (Tbk)....	405-428	Red rock (Tbk)....	398-405
Red water rock (Tbk).....	215-230	Well P		Blue rock (Tbk)....	345-360
Blue rock (Tbk).....	230-242	Clay (Pa).....	0-110	Red rock (Tbk)....	360-365
Red water rock (Tbk).....	242-250	Gravel (Pa).....	110-120	Blue rock (Tbk)....	365-380
Blue rock (Tbk).....	250-255	Sticky mud (Pa)....	120-130	Blue, very hard rock (Tbk).....	380-385
Red brown rock (Tbk).....	255-260	Soft rotten rock (Pa).....	130-140	Blue rock (Tbk)....	385-390
Red water rock (Tbk).....	260-268	Blue clay (Tbk)....	188-195	Blue rock (Tbk)....	390-395
Blue rock (Tbk).....	268-290	Blue rock (Tbk)....	195-200	Blue rock (Tbk)....	395-400
Red rock (Tbk).....	290-300	Hard rock (Tbk)....	200-202	Black rock (Tbk)....	400-405
Black hard rock (Tbk).....	300-318	Hard blue rock (Tbk)	202-232	Dark brown rock (Tbk)	400-425
Red rock (Tbk).....	318-330	Red rock (Tbk)....	232-240	Red rock (Tbk)....	425-428
		Blue rock (Tbk)....	240-265	Black rock (Tbk)....	428-433

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	.....	640	Dec. 29	22.03	....
Oct. 20, 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 Paoula. 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		146	Aug. 15, 1914	.....	395	Feb. 15, 1933	121.62	...
Dec. 10, 1908		364	Sept. 30, 1918	.....	489	Nov. 2	10.85	744
July 8, 1910		291	Sept. 13, 1919	.....	503	Nov. 20	20.03	....
Dec. 1		333	Nov. 15, 1920	.....	356	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, 545 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 (Tbk)	 288-293	Started to flow at 392 ft.; 7 water strata.	
Boulders (Pa or Tbk)	 250-258	Clay (Pa or Tbk)	 303-343		
Clay (Pa or Tbk)	 258-288	Rock (Tbk)	 343-545		

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. 23, 1913	177
July 8, 1910	177	Oct. 29, 1912	177	Aug. 15, 1914	198
				Sept. 30, 1918	312
				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	108			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	Oct. 29, 1912	240	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, 22.80.

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-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
Dec. 10, 1908	146	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 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 1, 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, 203 ft.; Q, 211 ft. Altitude of all wells, 25 ft.

Logs

	Depth (ft.)		Depth (ft.)		Depth (ft.)
Well O					
Clay (Pa)	 0-115	Black rock (Tbk)	 330-339	Red rock (Tbk)	 265-270
Gravel and clay (Pa or Tbk)	 115-140	Red rock, soft (Tbk)	 339-353	Blue rock (Tbk)	 270-285
Soft red rock (Tbk)	 140-195	Black rock, water (Tbk)	 355-357	Red rock (Tbk)	 285-293
Blue rock, set raising (Tbk)	 195-215	Dark blue hard rock	 397-405	Dark blue hard rock	 293-338
Red rock (Tbk)	 215-230	Clay (Pa)	 405-428	Red rock (Tbk)	 338-345
Blue rock (Tbk)	 230-242	Gravel (Pa)	 410-120	Blue rock (Tbk)	 345-360
Red water rock (Tbk)	 242-250	Sticky mud (Pa)	 120-130	Blue, very hard rock	 360-365
Blue rock (Tbk)	 250-260	Soft brown rock (Tbk)	 130-188	Blue rock (Tbk)	 365-380
Red brown rock (Tbk)	 260-268	Blue clay (Tbk)	 188-195	Blue rock (Tbk)	 380-390
Blue rock (Tbk)	 268-280	Blue rock (Tbk)	 195-200	Red rock (Tbk)	 390-395
Red rock (Tbk)	 280-290	Hard rock (Tbk)	 200-202	Black rock (Tbk)	 395-409
Red rock (Tbk)	 290-300	Hard blue rock (Tbk)	 202-232	Dark brown rock (Tbk)	 400-425
Black hard rock (Tbk)	 300-318	Red rock (Tbk)	 232-240	Red rock (Tbk)	 425-428
Red rock (Tbk)	 318-330	Blue rock (Tbk)	 240-265	Black rock (Tbk)	 428-435

Logs—Well 185 (Continued)

	Depth (ft.)	Depth (ft.)	Depth (ft.)
Well Q			
Clay (Tb)	0-161	Broken red and blue rock (Tbk)	190-195
Gravelly clay (Ra or Tbk)	160-165	Hard blue rock (Tbk)	195-232
Black rock (Tbk)	165-174	Red rock (Tbk)	232-240
Red rock (Tbk)	176-181	Blue hard rock (Tbk)	240-245
White rock (Tbk)	181-190	Red rock (Tbk)	245-295
		Black rock (Tbk)	295-340
		Red rock (Tbk)	340-345
		Blue black rock (Tbk)	345-365
		Red rock (Tbk)	365-370
		Blue rock (Tbk)	370-385
		Red black rock (Tbk)	385-403
		Rendish brown rock (Tbk)	403-415
		Black rock (Tbk)	415-427

Observations

Well 185A to Q. Bench mark, same as plantation bench mark which is stamped 95 ft., 9 ft. below ground; altitude, 23.88 ft.

Date	Head (ft.)	Chloride (p.p.m.)	Date	Head (ft.)	Chloride (p.p.m.)
		Old Pump			Old Pump
July .. 1902	...	...	June 8, 1926	...	...
Dec. 9, 1908	...	...	July 7	...	...
July 8, 1910	...	...	Aug.	...	...
Dec. 1	...	...	Sept.	...	...
May 11, 1911	...	...	Oct.	...	...
Oct. 29, 1912	...	...	Nov.	...	...
Feb. 19, 1913	...	...	Dec.	...	...
Sept. 23	...	...	Mar. .. 1927	...	...
Aug. 18, 1914	...	...	Apr.	...	...
Nov. 5	...	...	May	...	...
Sept. 5, 1916	...	...	June	...	...
Sept. 30, 1918	...	...	July	...	...
Sept. 13, 1919	...	...	Aug.	...	...
Nov. 13, 1920	...	...	Sept.	...	...
Apr. 8, 1921	...	...	Oct.	...	...
Apr. 27	...	...	Nov.	...	...
May 13	...	...	Dec.	...	...
June 3	...	...	Jan.	...	...
June 15	...	...	Feb.	...	...
July 15	...	...	Mar.	...	...
July 20	...	...	Apr.	...	...
Aug. 15	...	...	May	...	...
Sept. 11	...	...	June	...	...
Sept. 29	...	...	July	...	...
Oct. 4	...	...	Aug.	...	...
Oct. 15	...	...	Sept.	...	...
Nov. 15	...	...	Oct.	...	...
Jan. .. 1922	...	...	Nov.	...	...
Feb. 4	...	...	Dec.	...	...
Feb. 11	...	...	Jan. .. 1929	...	...
Mar. ..	...	...	Feb.	...	...
Apr.	...	...	Mar.	...	...
June ..	...	...	Apr.	...	...
July ..	...	...	May	...	...
Dec. .. 1923	...	...	June	...	...
June ..	...	...	July	...	...
Aug.	...	...	Aug.	...	...
Sept.	...	...	Sept.	...	...
Oct.	...	...	Oct.	...	...
Nov.	...	...	Nov.	...	...
Feb. .. 1924	...	...	Dec.	...	...
Mar. 16	...	...	Jan.	...	...
Aug.	...	...	Feb.	...	...
Nov. 16	...	...	Mar.	...	...
Dec. 31	...	...	Apr.	...	...
Apr. 25, 1925	...	...	May	...	...
July 4	...	...	June	...	...
Aug. 7	...	...	July	...	...
Aug. 27	...	...	Aug.	...	...
Sept. 25	...	...	Sept.	...	...
Oct. 9	...	...	Oct.	...	...
Oct. 25	...	...	Nov.	...	...
Feb. .. 1926	...	...	Dec.	...	...
Feb. 16	...	...	Jan.	...	...
Mar. 5	...	...	Feb.	...	...
Mar. 20	...	...	Mar.	...	...
Apr. 26	...	...	Apr.	...	...

Observations—Well 185 (Continued)

Date	Head (ft.)	Chloride (p.p.m.)	Date	Head (ft.)	Chloride (p.p.m.)
		Old Pump			Old Pump
July .. 1931	20.8	484	Apr. .. 1933	24.92	...
Aug.	20.5	...	May	23.50	...
Sept.	21.5	...	June	22.75	...
Oct.	21.5	445	July	22.67	...
Nov.	22.0	457	Aug.	22.46	...
Dec.	21.2	382	Sept.	21.42	...
Jan.	22.7	131	Oct.	20.62	...
Feb.	24.6	...	Nov.	21.25	...
Mar.	25.5	...	Dec.	22.00	...
Apr.	23.0	147	Jan. 1934	23.00	...
May	24.7	147	Feb.	23.08	...
June	23.9	150	Mar.	22.25	...
July	23.8	94	Apr.	21.68	...
Aug.	23.71	143	May	21.26	...
Sept.	23.35	153	June	21.12	...
Oct.	23.60	152	July	20.75	...
Nov.	23.88	152	Aug.	19.75	...
Dec.	24.50	133	Sept.	20.67	...
Jan. 1933	24.75	135	Oct.	20.58	...
Feb.	25.00	262	Nov.	20.67	...
Mar.	25.25	...	Dec.	22.50	...

185A to H (old 154A to H). Pumping station 3 at Halawa camp. Owner, Honolulu Plantation Co. Drilled, 1900. Altitude, about 28 ft. Depth, 500 (±) ft. Diameter, 12 in. Use, irrigation.

Observations

Bench mark, same as plantation bench mark which is stamped 25 ft., 1 ft. below ground; altitude, 23.91 ft.

Date	Head (ft.)	Chloride (p.p.m.)	Date	Head (ft.)	Chloride (p.p.m.)
		Wells A-D			Wells A-D
July .. 1902	...	104	Oct. .. 1924	19.9	...
Dec. 9, 1908	...	125	Nov.	23.1	...
July 8, 1910	...	104	Dec.	23.2	...
Dec. 1	...	104	Apr. .. 1925	22.9	...
May 11, 1911	...	104	July	19.7	...
Oct. 29, 1912	...	104	Aug.	103	109
Feb. 19, 1913	...	104	Sept.	20.4	...
Sept. 23	...	104	Oct.	103	115
Aug. 18, 1914	...	104	Nov.	106	119
Nov. 5	...	104	Dec. 1926	...	...
Sept. 5, 1916	...	114	Jan.	113	121
Sept. 30, 1918	...	114	Feb.	113	121
Sept. 13, 1919	...	106	Mar.	106	112
Nov. 15, 1920	...	99	Apr.	100	133
Jan. .. 1921	...	109	May	100	133
Feb.	...	118	June	106	119
Mar.	...	112	July	113	135
Apr.	...	112	Aug.	113	156
May	...	112	Sept.	106	121
June	...	105	Oct.	106	121
July	...	99	Nov.	106	151
Aug.	...	105	Dec. 1927	...	...
Sept.	...	105	Jan.	22.1	106
Oct.	...	105	Feb.	22.1	106
Nov.	...	105	Mar.	21.5	106
Dec.	...	105	Apr.	20.7	113
Jan. 1922	...	98	May	21.5	113
Feb.	...	112	June	21.5	138
Mar.	...	99	July	19.9	106
Apr.	...	112	Aug.	22.4	113
May	...	106	Sept.	22.0	106
June	...	103	Oct.	24.7	...
July	...	101	Nov.	24.5	...
Aug.	...	101	Dec.	24.7	...
Sept.	...	103	Jan. 1928	...	...
Oct.	...	103	Feb.	24.5	113
Nov.	...	103	Mar.	24.7	128
Dec.	...	103	Apr.	24.8	108
Jan. 1924	...	103	May	22.9	106
Feb.	...	103	June	22.9	115
Mar.	...	103	July	22.9	128
Apr.	...	103	Aug.	22.9	128
May	...	103	Sept.	21.9	106
June	...	103	Oct.	23.1	106

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
Nor. . . 1928	23.1	...	...	...	...	...	...
Dec. . . 1928	23.5	...	...	Dec. . . 1931	22.1	...	...
Jan. . . 1929	23.7	106	121	Jan. . . 1932	22.0	...	108
Feb. . . 1929	23.3	...	...	Feb. . . 1932	22.3	...	116
Mar. . . 1929	22.9	...	...	Mar. . . 1932	24.6	...	...
Apr. . . 1929	22.4	107	121	Apr. . . 1932	24.4	112	108
May. . . 1929	107.2	...	...	May. . . 1932	24.3	116	118
June . . 1929	20.9	104	125	June . . 1932	23.6	118	108
July . . 1929	20.1	102	129	July . . 1932	23.9	110	121
Aug. . . 1929	104	121	125	Aug. . . 1932	23.9	110	118
Sept. . . 1929	19.7	106	120	Sept. . . 1932	23.9	112	117
Oct. . . 1929	21.4	104	145	Oct. . . 1932	23.4	114	122
Nov. . . 1929	21.7	...	...	Nov. . . 1932	23.4	112	...
Dec. . . 1929	23.2	...	...	Dec. . . 1932	24.0	108	109
Jan. . . 1930	24.0	...	...	Jan. . . 1933	24.5	108	112
Feb. . . 1930	24.1	...	...	Feb. . . 1933	24.5	128	125
Mar. . . 1930	24.3	104	116	Mar. . . 1933	25.0	114	127
Apr. . . 1930	24.1	...	...	Apr. . . 1933	24.4	107	128
May. . . 1930	...	108	129	May . . 1933	23.2	112	143
June . . 1930	21.0	112	118	June . . 1933	23.2	114	142
July . . 1930	20.6	110	118	July . . 1933	22.5	110	139
Aug. . . 1930	21.3	104	123	Aug. . . 1933	22.3	105	114
Sept. . . 1930	23.4	104	125	Sept. . . 1933	22.4	110	129
Oct. . . 1930	23.4	104	125	Oct. . . 1933	21.2	108	154
Nov. . . 1930	22.6	...	121	Nov. . . 1933	21.2	102	154
Dec. . . 1930	22.0	...	...	Dec. . . 1933	21.2	112	135
Jan. . . 1931	22.3	...	112	Jan. . . 1934	22.6	...	...
Feb. . . 1931	22.3	...	112	Feb. . . 1934	22.6	...	...
Mar. . . 1931	22.1	102	116	Mar. . . 1934	21.6	116	112
Apr. . . 1931	21.3	108	118	Apr. . . 1934	21.3	104	112
May . . 1931	20.9	106	120	May . . 1934	21.2	106	125
June . . 1931	20.6	112	127	June . . 1934	20.5	106	129
July . . 1931	20.1	104	114	July . . 1934	20.2	104	137
Aug. . . 1931	112	102	129	Aug. . . 1934	19.9	108	156
Sept. . . 1931	20.9	110	143	Sept. . . 1934	19.2	112	156
Oct. . . 1931	21.1	104	129	Oct. . . 1934	19.9	108	154
Nov. . . 1931	21.4	104	129	Nov. . . 1934	20.6	116	156
Dec. . . 1931	21.4	...	116	Dec. . . 1934	21.0	116	152

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

Logs		Depth (ft.)
Well B		
Soil and soft lava shale (Pa with some Qbt, Alaiamau)	0-95.7	
Soil due to weathering of	95.7	
fractured lava and soft		
porous rock (Tbk)	95.7-115.7	
Chalky and soft porous rock (Tbk)	115.7-138.7	
Hard dense blue rock (Tbk)	138.7-143.7	
Hard "granulitic" blue rock, porous blue rock, and porous rock with lumps of clay (Tbk)	143.7-165.7	
More water	165.7-169.7	
Hard and soft rock (Tbk)	169.7-178.7	
Good flow of water	178.7-183.7	
Soft porous rock (Tbk)	183.7-188.7	
Well C		
Dark red adobe soil (Pa with some Qbt, Alaiamau)		0-10
Lava shale (Tbk)		10-12
Shale and chalky porous rock (Tbk)		12-13
Hard dense blue lava rock (Tbk)		13-15
Soft and somewhat porous rock (Tbk)		15-16
Hard rock (Tbk)		16-17
Soft porous rock (Tbk)		17-18
Small flow of water		18-19
Grounded outside of casing to hold steady		19-20
More water		20-21
Est. 400 gal./min. of water		21-22
Less than 100 m.g./min.		22-23

	Observations
187A. Bench mark top of west corner of old building.	

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. 20, 1929	21.98	72	Feb. 15, 1935	20.46	...
Aug. 10, 1928	24.10	70	Aug. 7, 1930	20.98	72	Aug. 27, 1934	19.11	...
Apr. 2, 1929	22.48	62	Feb. 3, 1931	...	95			

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, 1923	.....	138	Apr. 2, 1929	22.33	63	Sept. 17, 1934	20.04	...
Jan. 16, 1928	25.90	...	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	20.57	...	Feb. 3, 1931	22.56	...	Dec. 20	21.16	...

187C. Bench mark, top of west corner of concrete box 4 ft. above ground; altitude, 13.20 ft.

Jan. 16, 1928	26.07	99	Nov. 20, 1929	21.80	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. 3, 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. 24.5

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 .. 1931	81	May .. 1932	90				
Oct. 15, 1918	190	July .. 10	80	Aug. .. 1932	80	June .. 1932	89				
Nov. 15, 1920	82	Oct. .. 2	72	Aug. .. 1932	91	July .. 1932	102				
Aug. 8, 1921	73	Nov. .. 7	78	Sept. .. 1932	89	Aug. .. 1932	89				
May 15, 1921	109	Dec. .. 11	74	Sept. .. 1932	89	Sept. .. 1932	89				
June 15, 1921	73	Mar. 1927	85	Jan. 1930	91	Oct. .. 1932	84				
July 15, 1921	73	Apr. 1927	78	Apr. 1930	87	Nov. .. 1932	86				
Aug. 15, 1921	73	May .. 1927	92	Apr. 1931	77	Jan. 1933	94				
Oct. 15, 1921	73	June .. 1927	78	May .. 1931	85	Feb. .. 1933	89				
Nov. 15, 1921	73	July .. 1927	92	June .. 1931	75	Mar. .. 1933	89				
May .. 1922	73	Aug. .. 1927	85	July .. 1931	75	Apr. .. 1933	89				
June .. 1922	73	Sept. .. 1927	78	Aug. .. 1931	83	May .. 1933	94				
July .. 1922	86	Oct. .. 1927	78	Sept. .. 1931	135	June .. 1933	73				
Dec. .. 1923	70	Nov. .. 1927	84	Oct. .. 1931	125	July .. 1933	89				
Aug. .. 1924	82	Dec. .. 1927	86	Dec. .. 1931	87	Aug. .. 1933	87				
Sept. .. 1924	89	Jan. 1928	85	Jan. 1931	83	Sept. .. 1933	91				
Oct. .. 1924	89	Feb. .. 1928	92	Feb. .. 1931	83	Oct. .. 1933	102				
Feb. 1924	82	Mar. .. 1928	85	Mar. .. 1931	75	Nov. .. 1933	152				
Mar. .. 1924	80	Apr. .. 1928	86	Apr. .. 1931	86	Dec. .. 1933	85				
Apr. .. 1924	75	May .. 1928	92	May .. 1931	75	Jan. 1934	81				
May 7, 1924	79	June .. 1928	85	June .. 1931	87	Feb. .. 1934	85				
Aug. 2, 1924	79	July .. 1928	86	July .. 1931	112	Mar. .. 1934	91				
Oct. 9	79	Aug. .. 1928	85	Aug. .. 1931	89	Apr. .. 1934	89				
Oct. 25	73	Sept. .. 1928	85	Sept. .. 1931	89	May .. 1934	91				
Feb. 1926	79	Oct. .. 1928	85	Oct. .. 1931	102	June .. 1934	81				
Mar. .. 1926	92	Jan. 1929	85	Nov. .. 1931	102	Sept. .. 1934	94				
Apr. .. 1926	92	Feb. .. 1929	92	Dec. .. 1931	87	Oct. .. 1934	94				
June 8	86	Apr. .. 1929	92	Jan. 1932	85	Nov. .. 1934	82				

190 (old 159). At pump house on estate of Mrs. Cooper at McGraw Peninsula, Honolulu. Owner, Mrs. C. B. Cooper. Drilled, before 1889. Altitude, 23 ft. Depth, 300 ft. Diameter, 6 in. Use, domestic. Casing, 200 ft. Recased from 8 in. 1920.

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	Mar. 23, 1929	21.05	.....	Dec. 24, 1929	22.41	76
Sept. 30, 1918	.....	73	May 23	20.24	67	Jan. 29, 1930	24.12	68
Apr. 5, 1919	23.99	.....	June 26	19.73	68	Feb. 28	23.16	68
May 9	23.99	.....	Aug. 6	18.18	69	Mar. 26	23.42	66
May 25	23.99	.....	Aug. 27	18.29	68	Apr. 20	23.07	66
Sept. 13	.....	78	Sept. 26	18.68	68	May 27	21.19	68
Mar. 26, 1929	.....	78	Oct. 23	19.32	69	June 30	21.64	68
Mar. 27	23.32	.....	Nov. 16	18.68	68	.....	.....	.....

RECORDS OF DRILLED WELLS ON OAHU

Observations—Well 190 (Continued)

Date	Head (ft.)	Chloride (p.p.m.)	Date	Head (ft.)	Chloride (p.p.m.)	Date	Head (ft.)	Chloride (p.p.m.)
Aug. 26, 1930	20.30	66	Feb. 18, 1932	23.22	62	Sept. 19, 1933	20.48	59
Oct. 4	23.01	67	Mar. 17	24.68	62	Oct. 18	...	59
Nov. 11	22.38	65	Apr. 15	24.75	62	Nov. 21	19.56	59
Dec. 6	23.27	68	May 16	24.09	65	Nov. 10	20.23	59
Dec. 30	23.03	63	June 16	22.71	62	Dec. 21	20.59	...
Jan. 27, 1931	21.98	65	July 15	23.64	63	July 15, 1934	21.78	...
Feb. 26	21.45	65	Aug. 13	22.67	62	Feb. 14	22.39	61
Mar. 26	20.40	65	Sept. 13	21.97	63	Mar. 22	20.90	59
Apr. 28	20.50	63	Oct. 18	21.88	62	Apr. 1	21.10	59
May 29	21.89	64	Nov. 15	21.91	62	May 15	20.55	59
June 25	20.70	63	Dec. 16	22.08	65	June 15	20.35	59
Aug. 5	20.28	62	Jan. 17, 1933	22.91	60	July 12	19.38	59
Aug. 25	20.30	63	Feb. 15	24.83	64	Aug. 14	19.76	59
Oct. 6	20.30	63	Mar. 16	24.12	63	Jan. 6	19.96	60
Oct. 26	20.99	62	Apr. 18	23.15	61	Oct. 16	19.97	60
Dec. 17	21.16	63	May 26	22.07	63	Nov. 22	19.98	60
Jan. 14, 1932	21.35	62	June 16	21.86	61	Dec. 30	20.81	64
Feb. 7	22.66	...	July 94	21.49	69			
Feb. 8	22.51	...	Aug. 15	21.05	64			

191 (old 160). In Kaluaa Valley; exact location not known. Owner, Honolulu Plantation Co. Not in use.

192 (old 161). At pump house about 200 yd. northwest of Kaluaa R. R. station. Owner, L. L. McCandless. Altitude, 23 ft. Diameter, 12 in. Use, irrigation. Chloride (p.p.m.), 1910, 400. Head (ft.), Feb. 7, 1932, 21.86. Bench mark, top of 4 by 6-in. timber over pump, outside of pump house, 6 in. above ground; altitude, 25.38 ft.

193 (old 162). At sharp bend in old main highway at Waimalu cut-off. Owner, L. L. McCandless. Altitude, 13 ft. Depth, 363 ft. Diameter, 12 in. Use, domestic.

Observations

Bench mark, top of top 5 ft. above ground directly above center of well, altitude, 18.03 ft.

Date	Head (ft.)	Chloride (p.p.m.)	Date	Head (ft.)	Chloride (p.p.m.)	Date	Head (ft.)	Chloride (p.p.m.)
July 1, 1902	...	104	Apr. 1913	20.86	104	Nov. 1915	23.65	112
Apr. 1910	22.72	102	May 1913	21.80	112	Dec. 1915	24.30	106
May 1910	21.65	...	June 1913	21.80	112	Jan. 1916	27.35	103
June 1910	21.73	...	July 1913	21.05	113	Feb. 1916	28.05	100
July 1910	23.13	...	Aug. 1913	21.71	120	Mar. 1916	28.88	95
Oct. 1910	24.09	...	Sept. 1913	20.80	...	Apr. 1916	25.98	108
Nov. 1910	22.78	...	Oct. 1913	21.55	118	May 1916	26.00	100
Dec. 1910	25.13	...	Nov. 1913	22.22	110	June 1916	25.38	108
Feb. 1911	25.93	...	Dec. 1913	22.21	92	Aug. 23	24.15	100
Mar. 1911	25.15	...	Jan. 1914	22.11	92	Aug. 23	25.71	105
Apr. 1911	24.73	...	Feb. 1914	22.45	106	Dec. 1915	24.61	105
June 1911	23.47	...	Mar. 1914	22.51	110	Feb. 1917	27.35	...
July 1911	23.65	...	Apr. 1914	21.05	113	Mar. 1917	26.83	...
Aug. 1911	23.10	...	May 1914	21.35	115	Apr. 1917	27.75	...
Sept. 1911	22.98	...	June 1914	20.71	...	May 1917	26.75	...
Oct. 1911	23.98	...	July 1914	20.71	...	June 1917	26.45	...
Jan. 1912	25.58	...	Aug. 1914	20.80	...	July 1917	27.75	...
Feb. 1912	23.20	108	Sept. 1914	23.30	...	Aug. 1917	24.62	...
Mar. 1912	22.30	116	Oct. 1914	21.10	116	Sept. 1917	25.85	...
Apr. 1912	23.25	108	Nov. 1914	22.58	102	Oct. 1917	22.53	...
May 1912	21.91	114	Dec. 1914	24.55	100	Nov. 1917	24.46	...
June 1912	21.36	114	Jan. 1915	22.53	102	Dec. 1917	25.18	...
July 1912	21.05	103	Feb. 1915	21.80	112	Jan. 1918	26.68	...
Aug. 1912	20.75	120	Mar. 1915	21.92	114	Feb. 1918	26.28	...
Sept. 1912	20.45	126	Apr. 1915	21.21	108	Mar. 1918	26.88	...
Oct. 1912	21.75	108	May 1915	21.05	109	Apr. 1918	25.59	...
Nov. 1912	22.05	108	June 1915	20.59	110	May 1918	24.92	...
Dec. 1912	21.65	114	July 1915	20.73	110	June 1918	25.21	...
Jan. 1913	21.38	118	Aug. 1915	21.21	114	July 1918	24.30	...
Feb. 1913	20.80	118						

RECORDS OF DRILLED WELLS ON OAHU

Observations—Well 193 (Continued)

Date	Head (ft.)	Chloride (p.p.m.)	Date	Head (ft.)	Chloride (p.p.m.)	Date	Head (ft.)	Chloride (p.p.m.)
Feb. 1919	24.23	...	Nov. 13, 1923	21.55	...	Feb. 15, 1933	22.55	59
Mar. 1919	23.14	...	Dec. 20	20.63	81	Mar. 16	23.74	94
Apr. 1919	22.07	...	Jan. 15, 1924	24.35	78	Apr. 19	22.65	86
May 1919	22.31	...	Feb. 14	22.55	70	May 19	21.57	83
June 1919	22.35	...	Mar. 18	23.05	65	June 16	21.32	78
Aug. 1919	21.67	...	Apr. 15	23.65	82	July 24	20.84	80
Oct. 1919	21.10	...	May 13	23.35	87	Aug. 19	20.46	79
Jan. 1920	21.61	...	June 13	21.41	90	Sept. 19	19.91	75
Feb. 1920	23.16	...	July 17	19.85	81	Oct. 18	19.55	75
Mar. 1920	22.20	...	Aug. 19	20.00	86	Nov. 10	19.54	77
Apr. 1920	21.45	76	Sept. 18	19.67	74	Dec. 19	19.65	...
May 1920	21.46	...	Oct. 24	20.15	74	Jan. 1934	21.01	75
June 1920	20.70	66	Jan. 22, 1925	20.15	74	Feb. 14	21.72	87
July 1920	20.02	72	July 14, 1926	...	62	Feb. 14	21.72	87
Aug. 1920	19.15	73	Mar. 16, 1932	24.51	93	Mar. 16	20.37	86
Sept. 1920	19.40	73	Mar. 17	24.55	...	May 1	20.68	85
Nov. 1920	19.30	66	Apr. 15	22.84	91	May 16	20.64	87
Dec. 1920	21.31	63	May 17	19.66	88	June 17	19.06	88
Jan. 1921	24.15	63	June 16	22.39	84	July 12	18.67	89
Feb. 1921	24.23	67	July 15	22.01	86	Aug. 14	18.03	89
Mar. 1921	24.02	60	Aug. 12	21.99	78	Sept. 13	19.33	100
Apr. 1921	23.86	67	Sept. 15	21.32	80	Oct. 16	19.07	100
May 1921	23.38	67	Nov. 18	21.29	77	Nov. 18	19.18	100
June 1921	22.51	73	Dec. 15	21.60	78	Dec. 20	20.38	93
Sept. 20, 1923	21.49	86	Dec. 15	22.37	89			
Oct. 17	20.43	82	Jan. 17, 1933	22.09	89			

194 (old 163). At Chinese camp in Waimalu about 300 yd. northeast of sharp bend in old highway. Owner, L. L. McCandless. Drilled by McCandless Bros. Altitude, 23 ft. Diameter, 10 in. Not in use. Chloride (p.p.m.), 1910, 77. Bench mark, top of horizontal flange on elbow of pump intake, 1½ ft. above ground. Altitude, 25.43 ft.

195 (old 164). About 200 ft. north of well 193. Owner, L. L. McCandless. Drilled by McCandless Bros. Altitude, about 24 ft. Depth, 375 ft. Diameter, 6 in. Not in use. Chloride (p.p.m.), 1910, 57.

196A to T (old 165A to T). Pumping station 2 in Waimalu about a mile above highway. Drilled about 1899. Owner, Honolulu Plantation Co. Depths, 500 to 550 ft., formerly about 1,000 ft. Diameter, 12 in. Use, irrigation.

Observations
Chloride (p.p.m.)

	July 1902	Dec. 1908	Oct. 1909	July 1910	Nov. 1910	Oct. 1930	Jan. 1923	Dec. 1928	June 1929
Well A	1618	1642	...	1579	746	129	604	865	...
Well B	1057	561	...	739	957	518	920	...	...
Well C	73	28	...	31	35	640	35	113	...
Well D	73	28	...	28	28	951	25	...	...
Well E	883	1759	...	348	514	85	142	...	...
Well F	104	125	...	178	574	185	518	...	...
Well G	738	1569	1901	1673	2100	1860	646	2700	...
Well H	83	125	...	142	620	745	284	263	...
Well I	83	145	...	205	528	845	504	283	...
Well J	145	...	...	322	405	469	576	360	684
Well K	156	...	...	478	590	416	567	524	680
Well L	52	...	...	270	...	402	497	624	582
Well M	104	...	...	416	482	639	57	...	...
Well N	83	...	...	821	928	320	...	...	1650
Well O	52	...	...	208	268	...	...	...	...
Well P	73	...	...	291	505	...	...	...	794
Well Q	73	...	...	62	128	118	...	...	260
Well R	73	...	...	31	71	218	...	...	282
Well S	73	...	...	125	199	73	...	...	422
Well T	...	...	...	145	228	165	...	...	145

Observations—Well 196 (Continued)

Date	Hr. (ft.)	Chloride (p.p.m.)		Date	Head (ft.)	Chloride (p.p.m.)	
		Wells A-M	Wells N-T			Wells A-M	Wells N-T
July . . . 1902		281	71	Oct. . . . 1926	....	802	391
Dec. . . . 1908		748	"	Nov. . . . " "	....	852	411
Dec. . . .		1,029	"	Dec. . . .	....	851	389
Feb. . . .		1686	"	Mar. . . . 1927	....	873	312
Dec. . . .		1488	"	Apr. . . .	....	805	276
Feb. . . . 1909		483	"	May . . . .	....	832	312
Feb. . . .		437	"	June	30.5	887	295
Sept. . . .		1488	156	July	30.3	897	303
Sept. . . .		1488	"	Aug. . . .	29.5	862	362
Dec. . . .	291	468	177	Sept. . . .	20.5	872	362
Mar. . . . 1910		457	"	Oct. . . .	20.5	873	383
Apr. . . .		691	166	Nov. . . .	24.1	805	341
Oct. . . .		291	166	Jan. . . . 1928	25.3	860	313
Nov. . . .		291	187	Feb. . . .	24.3	582	262
Feb. . . . 1911		236	187	Mar. . . .	24.6	554	376
Feb. . . . 1913		"	249	Apr. . . .	23.6	511	374
Aug. . . .		270	291	May	24.5	497	391
Aug. . . .		644	291	June	23.0	511	426
Aug. . . .		609	"	July	22.1	511	504
Sept. . . .		577	"	Aug. . . .	22.5	548	445
Sept. . . .		301	"	Sept. . . .	22.3	518	448
Sept. . . .		312	"	Oct. . . .	22.4	567	497
Sept. . . . 1914		322	409	Nov. . . .	22.4	567	497
Nov. . . .		322	260	Dec. . . .	22.7	559	404
Sept. . . . 1916		623	197	Jan. . . . 1929	22.7	559	404
Sept. . . . 1918		488	197	Feb. . . .	22.5	559	404
Sept. . . . 1919		523	290	Mar. . . .	22.7	518	391
Oct. . . .		334	"	Apr. . . .	21.5	547	411
Oct. . . . 1920		329	376	May	20.4	504	478
Nov. . . .		329	376	June	19.8	570	405
Nov. . . . 1921	23.8	783	376	July	19.8	557	373
May		547	"	Aug. . . .	19.8	578	466
May	23.1	521	231	Sept. . . .	19.8	611	480
July	23.8	854	230	Oct. . . .	19.8	623	478
Aug. . . .		597	277	Nov. . . .	21.9	....	....
Aug. . . .	21.2	370	277	Dec. . . .	21.9	....	....
Nov. . . .	21.3	"	270	Jan. . . . 1930	21.3	....	....
Jan. . . . 1922	23.4	145	277	Feb. . . .	23.3	....	....
Feb. . . .	23.2	"	277	Mar. . . .	23.3	337	585
Mar. . . .	23.2	409	105	Apr. . . .	21.1	343	578
Apr. . . .		587	99	May	22.6	418	555
Apr. . . .		600	224	June	426	509	608
June		697	257	July . . . .	....	478	611
June		377	310	Aug. . . .	....	480	665
Dec. . . .		279	372	Sept. . . .	22.5	418	555
Feb. . . . 1923		"	315	Oct. . . .	22.5	412	575
Feb. . . .		518	325	Nov. . . .	22.5	400	512
Aug. . . .		615	415	Dec. . . .	22.8	410	609
Aug. . . .		876	315	Jan. . . . 1931	22.0	402	615
Aug. . . .		390	400	Feb. . . .	22.5	405	603
Oct. . . .		403	363	Mar. . . .	21.3	476	463
Oct. . . .		424	363	Apr. . . .	21.0	488	605
Feb. . . . 1924		414	315	May	681	514	681
Feb. . . .	24.0	403	398	June	20.3	480	652
Feb. . . .		403	405	July	503.0	503	603
Sept. . . .		437	39				

*Measurement at pump; all other measurements made at weir. †Well E closed. ‡Wells A and E closed. §Well G closed. ¶Wells A, C, and E closed. °Wells A, E, and G closed.

Date	Height (ft.)	Chloride (p.p.m.)	Date	Height (ft.)	Chloride (p.p.m.)	
		Wells A-M			Wells A-M	
		Wells N-T			Wells N-T	
Oct. . . 1932	21.8	529	654	Dec. . . 1933	21.6	500
Nov.	22.7	500	649	Jan.	21.6	500
Dec.	23.9	281	682	Feb.	21.8	491
Jan. . . 1933	23.1	450	900	Mar.	21.5	503
Feb.	24.0	583	600	Apr.	21.7	509
Mar.	23.8	593	629	May	20.5	503
Apr.	23.6	448	638	June	20.3	516
May	22.5	500	600	July	20.4	574
June	21.8	728	447	Aug.	20.2	576
July	22.0	500	600	Sep.	20.3	576
Aug.	20.8	568	570	Oct.	20.2	582
Sept.	20.5	682	608	Nov.	20.3	768
Oct.	20.2	680	600	Dec.	21.3	500
Nov.	20.8	614	755			

197A to I (old 166A to 1). Pumping station 4 in Waimala Gulch, about 100 yds from well 196. Owner, Honolulu Plantation Co. Drilled, 1904 by W. S. Lowe. Altitude, 56 ft. Depth, A, 955 ft; D, 707 ft; E, 405 ft; F, 503 ft; G, 510 ft; H, 503 ft; I, 484 ft Diameter, 12 in. Use, irrigation. Casings, A, 200 ft; D, 206 ft; E, 58 ft; F, 88 ft; G, 130 ft; H, 76 ft; I, 40 ft.

Logs

Well A	Depth (ft.)	Well D	Depth (ft.)	Well E	Depth (ft.)
Boulders (Pa)	0-05	Boulders (Pa)	0-05	Blue rock (Tbk)	625-655
Clay (Pa)	35-248	Clay (Pa)	35-110	Blue rock (Tbk)	614-655
Brown rock (Pa or		Soft blue rock (Pa or		Soft blue rock (Tbk)	656-665
clay)		clay)		Blue rock (Tbk)	666-680
Clay (Pa or Tbk)	248-249	Blue rock (Tbk)	110-120	Soft blue rock (Tbk)	676-680
Blue rock (Tbk)	260-263	Soft blue rock (Tbk)	120-243	Blue rock (Tbk)	680-698
Blue clay (Pa or Tbk)	263-264	Blue rock (Tbk)	243-263	Well E	
Blue rock (Tbk)	264-277	Blue rock (Tbk)	270-283	Boulders (Pa)	0-25
Red rock (Tbk)	277-285	Soft red rock (Tbk)	283-291	Clay (Pa)	35-68
Blue clay (Pa or Tbk)	285-292	Blue rock (Tbk)	309-315	Gravel (Pa)	68-70
Blue rock (Tbk)	292-326	Soft red rock (Tbk)	315-330	Clay (Pa)	70-75
Blue clay (Probably		Soft red rock (Tbk)	330-335	Soft blue rock (Tbk)	75-140
Tbk)	326-329	Blue rock (Tbk)	335-340	Blue rock (Tbk)	140-150
Blue rock (Tbk)	329-340	Soft blue rock (Tbk)	340-360	Blue rock (Tbk)	150-160
Clay (Probably a cave		Blue rock (Tbk)	360-365	Blue rock (Tbk)	160-195
floor)		Soft red rock (Tbk)	375-385	Soft blue rock (Tbk)	195-205
Blue rock (Tbk)	340-343	Soft blue rock (Tbk)	385-397	Soft blue rock (Tbk)	205-227
Blue rock (Tbk)	343-355	Blue rock (Tbk)	397-407	Blue rock (Tbk)	227-237
Water rock (Tbk)	355-404	Soft red rock (Tbk)	407-416	Soft blue rock (Tbk)	237-243
Blue rock (Tbk)	404-421	Blue rock (Tbk)	416-424	Blue rock (Tbk)	243-251
Water rock (Tbk)	421-435	Blue rock (Tbk)	424-430	Soft red rock (Tbk)	251-261
Blue rock (Tbk)	426-456	Soft red rock (Tbk)	430-438	Blue rock (Tbk)	261-266
Blue rock (Tbk)	456-461	Blue rock (Tbk)	438-462	Soft blue rock (Tbk)	266-274
Blue rock (Tbk)	464-472	Blue rock (Tbk)	462-474	Soft red rock (Tbk)	274-282
Blue rock (Tbk)	472-481	Soft blue rock (Tbk)	474-481	Blue rock (Tbk)	282-286
Red rock (Tbk)	474-597	Soft red rock (Tbk)	481-503	Soft blue rock (Tbk)	286-300
Red rock (Tbk)	597-600	Blue rock (Tbk)	503-508	Blue rock (Tbk)	300-319
Blue rock (Tbk)	600-620	Blue rock (Tbk)	508-516	Blue rock (Tbk)	319-323
Blue rock (Tbk)	620-680	Soft red rock (Tbk)	516-522	Soft blue rock (Tbk)	323-334
Red rock (Tbk)	674-676	Blue rock (Tbk)	522-530	Blue rock (Tbk)	334-337
Blue rock (Tbk)	685-707	Blue rock (Tbk)	529-541	Soft blue rock (Tbk)	337-344
Red rock (Tbk)	707-719	Soft blue rock (Tbk)	541-545	Blue rock (Tbk)	344-355
Blue rock (Tbk)	719-750	Blue rock (Tbk)	545-557	Blue rock (Tbk)	355-356
Water rock (Tbk)	750-762	Blue rock (Tbk)	556-573	Blue rock (Tbk)	356-359
Blue rock (Tbk)	762-800	Soft red rock (Tbk)	573-580	Soft red rock (Tbk)	359-370
Blue rock (Tbk)	800-823	Blue rock (Tbk)	580-591	Blue rock (Tbk)	370-377
Blue rock (Tbk)	823-890	Blue rock (Tbk)	591-617	Blue rock (Tbk)	377-405
Blue clay (Tbk)	890-900	Soft blue rock (Tbk)	617-625	Soft blue rock (Tbk)	405-405

197A to I (old 166A to I). Pumping station 4 in Waimalu Gulch, about 100 yd. from well 196. Owner, Honolulu Plantation Co. Drilled, 1904 by W. S. Lowe. Altitude, 56 ft. Depth, A, 955 ft.; D, 707 ft.; E, 405 ft.; F, 503 ft.; G, 510 ft.; H, 504 ft.; I, 484 ft. Diameter, 12 in. Use, irrigation. Casing, A, 200 ft.; D, 206 ft.; E, 58 ft.; F, 88 ft.; G, 130 ft.; H, 76 ft.; I, 40 ft.

Logs

Logs—Well 197 (Continued)

	Depth (ft.)		Depth (ft.)		Depth (ft.)
Well F		Well I			
Boulders (Pa)	0-43	Blue rock (Tbk).....	330-350	Slab (Pa)	0-70
Clay (Pa)	43-70	Grey rock (Tbk).....	350-367	Blue rock (Tbk).....	70-83
Soft blue rock (Tbk)	70-130	Brown rock (Tbk).....	450-475	Blue rock (Tbk).....	83-90
Blue rock (Tbk).....	130-135	Blue rock (Tbk).....	475-500	Soft blue rock (Tbk)	90-96
Soft blue rock (Tbk)	135-173	Red rock (Tbk).....	500-515	Blue rock (Tbk).....	96-126
Blue rock (Tbk).....	173-185	Blue rock (Tbk).....	505-510	Soft blue rock (Tbk)	126-141
Soft blue rock (Tbk)	185-243	Well H		Blue rock (Tbk).....	141-176
Blue rock (Tbk).....	243-257	Boulders (Pa)	0-35	Soft blue rock (Tbk)	176-185
Soft blue rock (Tbk)	257-270	Clay (Pa)	35-80	Soft red rock (Tbk)	185-196
Blue rock (Tbk).....	270-287	Blue rock (Tbk).....	80-132	Blue rock (Tbk).....	196-204
Soft blue rock (Tbk)	287-297	Blue rock (Tbk).....	132-144	Soft blue rock (Tbk)	204-224
Blue rock (Tbk).....	297-300	Soft blue rock (Tbk)	144-156	Blue rock (Tbk).....	224-233
Soft blue rock (Tbk)	300-305	Blue rock (Tbk).....	300-305	Soft blue rock (Tbk)	233-255
Blue rock (Tbk).....	305-315	Soft blue rock (Tbk)	164-171	Blue rock (Tbk).....	255-258
Soft blue rock (Tbk)	315-326	Blue rock (Tbk).....	171-178	Soft red rock (Tbk)	258-268
Blue rock (Tbk).....	326-332	Soft blue rock (Tbk)	178-184	Blue rock (Tbk).....	268-272
Soft red rock (Tbk).....	332-342	Blue rock (Tbk).....	184-212	Soft blue rock (Tbk)	272-284
Blue rock (Tbk).....	342-352	Soft red rock (Tbk)	212-222	Blue rock (Tbk).....	284-290
Soft blue rock (Tbk)	352-372	Blue rock (Tbk).....	222-226	Soft red rock (Tbk)	290-299
Blue rock (Tbk).....	372-377	Soft blue rock (Tbk)	226-239	Blue rock (Tbk).....	299-307
Soft blue rock (Tbk)	377-392	Blue rock (Tbk).....	239-244	Soft blue rock (Tbk)	307-321
Blue rock (Tbk).....	392-404	Soft blue rock (Tbk)	244-256	Blue rock (Tbk).....	321-328
Soft red rock (Tbk).....	404-417	Blue rock (Tbk).....	256-263	Soft red rock (Tbk)	328-340
Blue rock (Tbk).....	417-425	Soft blue rock (Tbk)	263-281	Blue rock (Tbk).....	340-349
Soft blue rock (Tbk)	425-440	Blue rock (Tbk).....	281-294	Soft blue rock (Tbk)	349-353
Blue rock (Tbk).....	440-452	Soft blue rock (Tbk)	294-305	Blue rock (Tbk).....	353-360
Soft red rock (Tbk).....	452-458	Soft red rock (Tbk)	305-314	Soft blue rock (Tbk)	360-368
Blue rock (Tbk).....	458-464	Blue rock (Tbk).....	314-318	Blue rock (Tbk).....	368-376
Soft blue rock (Tbk)	464-476	Soft red rock (Tbk)	318-326	Soft blue rock (Tbk)	376-386
Blue rock (Tbk).....	476-490	Blue rock (Tbk).....	326-332	Blue rock (Tbk).....	386-393
Soft blue rock (Tbk)	490-503	Soft blue rock (Tbk)	332-342	Soft blue rock (Tbk)	393-404
Well G		Blue rock (Tbk).....	342-352	Blue rock (Tbk).....	404-411
Boulders (Pa)	0-25	Soft blue rock (Tbk)	352-359	Soft red rock (Tbk)	411-424
Soft brown lava (Pa or Tbk)	25-150	Blue rock (Tbk).....	359-368	Blue rock (Tbk).....	424-432
Blue rock (Tbk).....	150-155	Soft red rock (Tbk)	368-376	Soft blue rock (Tbk)	432-438
Blue rock (Tbk).....	155-160	Blue rock (Tbk).....	376-386	Blue rock (Tbk).....	438-443
Soft brown rock (Tbk)	160-173	Soft blue rock (Tbk)	386-393	Soft blue rock (Tbk)	443-454
Blue rock (Tbk).....	173-185	Soft red rock (Tbk)	404-410	Blue rock (Tbk).....	454-462
Red rock (Tbk).....	185-200	Blue rock (Tbk).....	410-414	Soft blue rock (Tbk)	462-472
Soft blue rock (Tbk)	200-210	Soft red rock (Tbk)	414-424	Blue rock (Tbk).....	472-478
Blue clay (Pa or Tbk)	210-215	Soft blue rock (Tbk)	424-432	Soft blue rock (Tbk)	478-484
Blue lava (Tbk).....	215-227	Soft red rock (Tbk)	432-438	Blue rock (Tbk).....	484-484
Blue rock (Tbk).....	227-252	Soft red rock (Tbk)	438-454		
Red rock (Tbk).....	252-282	Soft red rock (Tbk)	454-462		
Red rock (Tbk).....	282-297	Soft red rock (Tbk)	462-472		
Blue rock (Tbk).....	297-307	Soft red rock (Tbk)	472-478		
Red rock (Tbk).....	307-312	Soft blue rock (Tbk)	478-486		
Blue rock (Tbk).....	312-325	Blue rock (Tbk).....	486-505		
Red rock (Tbk).....	325-330	Soft blue rock (Tbk)	495-504		

Observations

Bench mark, same as plantation bench mark which is stamped 25 ft. about 30 ft. below ground; altitude, 24.31 ft.

Date	Head (ft.)	Chloride (p.p.m.)	Date	Head (ft.)	Chloride (p.p.m.)
Mar. 30, 1910	156	...	July 15, 1921	250	...
Dec. 1	177	...	Aug. 15	277	...
May 11, 1911	187	...	Oct. 1	24.2	...
Feb. 19, 1913	197	...	Oct. 15	86	...
Sept. 23	197	...	Nov. 15	52	...
Aug. 15, 1914	197	...	Jan. 25, 1922	25.8	145
Nov. 5	208	...	Mar. 9	27.3	...
Sept. 5, 1916	291	...	Apr. 9	58	...
Sept. 30, 1918	177	166	May	409	59
Oct. 15, 1919	206	...	June	461	39
Nov. 15, 1920	455	86	June	441	65
Apr. 8, 1921	390	...	July	264	250
May 13	254	...	Dec.	451	109
June 5	22.8	...	Feb., 1923	476	74
June 15	258	...			

Observations—Well 197 (Continued)

Date	Head (ft.)	Chloride (p.p.m.)	Date	Head (ft.)	Chloride (p.p.m.)
Jan. 1920	419	75	Dec., 1929	22.3	...
Aug.	451	68	Jan., 1930	23.3	...
Sept.	464	82	Feb.	23.5	...
Oct.	445	82	Mar.	24.1	293
Nov.	464	92	Apr.	24.3	...
Feb., 1924	497	95	May	320	131
June	474	106	June	21.5	222
Aug.	230	163	July	21.5	218
Sept.	273	200	Aug.	21.0	229
Oct.	23.3	...	Sept.	23.1	320
Nov.	22.3	...	Oct.	21.8	139
Apr., 1925	22.3	...	Nov.	24.1	...
Apr. 19	20.3	...	Dec.	21.9	312
June 10	18.8	...	Jan., 1931	23.5	268
Aug. 7	239	259	Feb.	23.9	335
Aug. 27	196	196	Mar.	21.5	316
Oct. 9	537	166	Apr.	20.8	318
Oct. 25	245	113	May	20.9	257
Feb. 16, 1926	245	112	June	20.5	343
Mar. 5	284	142	July	19.0	351
Mar. 20	270	128	Aug.	19.6	226
Apr. 26	269	141	Sept.	21.0	357
June	265	133	Oct.	21.1	355
July	112	112	Nov.	21.6	241
Aug.	119	119	Dec.	21.3	237
Sept.	249	133	Jan., 1932	21.9	218
Oct.	225	112	Feb.	23.1	...
Nov.	270	128	Mar.	24.5	...
Dec.	284	142	Apr.	24.1	211
Jan., 1927	20.3	163	May	24.2	802
May	20.3	163	June	23.7	332
June	19.1	119	July	22.4	342
July	18.3	284	Aug.	22.5	365
Aug.	18.3	276	Sept.	21.6	314
Sept.	18.3	276	Oct.	21.6	333
Oct.	19.3	284	Nov.	23.3	...
Nov.	25.8	42	Dec.	23.0	...
Dec.	25.8	42	Jan., 1933	23.0	...
Jan., 1928	25.8	...	Feb.	23.6	194
Mar.	19.8	241	Mar.	23.5	225
Apr.	24.7	172	Apr.	23.3	323
May	23.9	169	May	22.4	343
June	18.8	227	June	22.0	352
July	22.5	248	July	21.7	387
Aug.	21.7	248	Aug.	21.7	387
Sept.	21.5	248	Sept.	21.5	387
Oct.	21.5	248	Oct.	21.5	387
Nov.	21.5	248	Nov.	21.5	387
Dec.	21.5	248	Dec.	21.5	387
Jan., 1929	21.5	248	Jan., 1934	22.6	...
Feb.	21.5	248	Feb.	22.0	362
Mar.	22.0	185	Mar.	21.7	372
Apr.	21.8	128	Apr.	20.9	279
May	20.0	...	May	20.8	166
June	20.0	...	June	20.0	412
July	19.3	...	July	18.0	408
Aug.	20.3	...	Aug.	18.4	402
Sept.	19.8	...	Sept.	18.6	398
Oct.	20.0	...	Oct.	19.0	404
Nov.	21.6	...	Nov.	20.5	408
			Dec.	20.5	...

197-1 (no old number). West side of Waimalu Stream, 300 ft. south of main highway on Austin estate land. Drilled, April 1934 by A. H. Hobart. Owner, Lewis C. King. Altitude, about 12 ft. Depth, 239 ft. Diameter, 6 in. Depth to top of aquifer, about 60 ft. Use, irrigation. Casing, 92 ft. Valve, about 5 ft. below ground. Water rises about 6.4 ft. above ground and flowed .08 ft. over 12 in. weir at time of completion. No increase in flow in last 3 layers. Sample of so-called sand at 81 ft. examined by H. T. Stearns and found to be partly decomposed Koolau basalt. Bench mark, top of south side of 6 in. tee at ground surface, altitude, 14.24 ft. Head (ft.), Apr. 23, 1934, 20.24.

Log

Depth (ft.)		Depth (ft.)		Depth (ft.)	
0-16	Soil, clay, grit, etc.	115-124	Mudrock (Tkb)	188-194	Mudrock (Tkb)
16-34	Boulders, etc. (Pa)	124-138	Soft lava rock (Tkb)	194-213	Soft lava rock (Tkb)
34-62	Soil and gravel (Pa)	138-142	Clay (Tkb)	213-220	Mudrock (Tkb)
62-81	Mudrock (Tkb)	142-157	Mudrock (Tkb)	220-237	Hard lava rock (Tkb)
81-88	Sand (Tkb)	157-159	Soft lava rock (Tkb)	237-239	Soft lava rock (Tkb)
88-100	Mudrock (Tkb)	159-182	Mudrock (Tkb)		
100-115	Soft lava rock (Tkb)	182-188	Mudrock (Tkb)		

198 (old 167). About 100 yd. north of Waiau Pond. Owner, Percy Pond. Altitude, 25 ft. Depth, 425 ft. Diameter, 8 in. Use, irrigation. Chloride (p.p.m.), 1910, 70. Bench mark, top of vertical flange on pipe line running past well southeast of well and 2 ft. above ground; altitude, 26.15 ft. Recased from 10 in. 1935.

Meter tests

An 3-in. deep-well meter used. Readings by K. N. Vaskvik.
Test 1. Dec. 18, 1934. Well open and flowing at top.

Depth (ft.)	Revolutions per minute	Depth (ft.)	Revolutions per minute	Depth (ft.)	Revolutions per minute
5	273	15.5	279	24.7 (obstruction, test stopped)	
10	286	19.5	290		

Test 2. Dec. 21, 1934. Well flowing.

15	158	25	120	40	132
20	158	30	46 (handed)		

Test 3. Jan. 2, 1935. Well flowing.

11	150	111	116	351	22
21	150	131	118	271	38
31	150	141	110	291	28
38.5 (bottom of serted casing)	140	146	74	311	38
46	151	151	82	321	26
51	106	156	76	331	0
56	106	161	74	333	36
61	112	171	66	371	32
66	98	181	66	391	22
71	106	191	84	411	28
77	118	201	74	427	6
81	124	231	54	428 (handed)	2

Test 4. Feb. 5, 1935. No water flowing.

25-198	0	298	16	408	16
209	10	308	4	427	0
208	10	308	20	428 (handed)	
228	8	328	14	147	
248	13	308	20		

199 (old 168). About 75 yd. southwest of Waiau Pond. Owner, Terr. of Hawaii and Sing Chong Co. Altitude, about 30 ft. Depth, 300 ft. Use, domestic. Chloride (p.p.m.), 1910, 84.

200 (old 169). About 100 yd. south of Oahu Railway and Land Co. tracks and about 500 yd. east of Pearl City R. R. station. Owner, L. L. McCandless. Altitude, about 15 ft. Diameter, 12 in. Use, irrigation. Chloride (p.p.m.), 1910, 114.

201 (old 170). About 75 yd. south of Oahu Railway and Land Co. tracks and about 200 yd. east of Pearl City R. R. station. Owner, B. P. Bishop estate. Altitude, 9 ft. Diameter, 12 in. Use, irrigation.

Observations

Bench mark, top of upper flange 4 ft. above ground on valve; altitude, 13.17 ft.

Date	Head (ft.)	Chloride (p.p.m.)	Date	Head (ft.)	Chloride (p.p.m.)	Date	Head (ft.)	Chloride (p.p.m.)
Apr. . . . 1910	23.36	200	Dec. . . . 1915	25.06		Dec. 24, 1929	20.87	464
May	22.91		Jan. . . . 1916	28.51		Jan. 28, 1930	21.87	527
June	22.66		Feb. . . .	22		Feb. 28	21.47	570
Sept. . . .	23.55		Mar. . . .	22.09		Mar. 26	21.07	570
Oct. . . .	24.23		Apr. . . .	26.51		Apr. 30	20.87	550
Nov. . . .	23.01		May	26.31		May 27	19.87	490
Jan. . . . 1911	26.21		June	26.91		June 30	19.77	445
Feb. . . .	26.27		July	25.71		July 29	19.41	406
Mar. . . .	26.31		Aug. . . .	26.13		Aug. 24	19.15	441
Apr. . . .	25.81		Dec. . . .	25.62		Sept. 6	19.65	436
May	25.99		Jan. . . . 1917	26.19		Sept. 19	19.65	447
July	25.11		Mar. . . .	27.98		Sept. 20	20.47	461
Aug. . . .	24.51		Apr. . . .	29.07		Sept. 27	21.27	507
Sept. . . .	24.91		May	28.09		Oct. . . .	21.59	529
Oct. . . .	24.56		June	28.19		Oct. 11	21.37	542
Jan. . . . 1912	24.11		July	27.26		Oct. 18	21.27	552
Feb. . . .	24.41		Aug. . . .	26.00		Oct. 25	20.87	540
Mar. . . .	24.31		Sept. . . .	25.76		Nov. 1	20.19	535
Apr. . . .	24.06		Oct. . . .	24.87		Nov. 8	20.37	505
May	23.96		Nov. . . .	25.99		Nov. 22	20.37	509
June	23.05		Dec. . . .	25.24		Nov. 23	21.47	545
July	22.41		Jan. . . . 1918	27.26		Nov. 25	22.27	570
Aug. . . .	22.01	268	Feb. . . .	27.52		Dec. 6	24.17	570
Sept. . . .	21.81	128	Mar. . . .	27.03		Dec. 13	21.47	565
Oct. . . .	21.76		Apr. . . .	27.85		Dec. 20	21.17	553
Nov. . . .	21.96	120	May	26.76		Dec. 27	21.07	560
Dec. . . .	23.35	120	June	26.59		Jan. 3, 1931	17.57	550
Jan. . . . 1913	23.72	115	July	26.01		Jan. 10	20.97	555
Feb. . . .	22.27		Aug. . . .	25.07		Jan. 17	20.57	548
Mar. . . .	21.31		Sept. . . .	25.41		Jan. 24	20.99	520
June	22.91		Oct. . . .	23.81		Jan. 27	20.99	520
July	22.11		Nov. . . .	24.54		Jan. 31	19.37	535
Aug. . . .	22.41		Dec. . . .	25.06		Feb. 14	19.27	525
Sept. . . .	21.81		Jan. . . . 1920	22.96		Feb. 14	19.57	515
Oct. . . .	22.26		Feb. . . .	24.19		Feb. 21	19.67	493
Nov. . . .	23.48		Mar. . . .	23.48		Feb. 28	19.47	493
Dec. . . .	22.91		Apr. . . .	23.41	321	Mar. 7	19.47	493
Jan. . . . 1914	22.91		May	22.34		Mar. 14	19.67	485
Feb. . . .	21.11		June	21.26	103	Mar. 21	19.37	480
Mar. . . .	23.96		Aug. . . .	20.66	306	Mar. 30	19.67	465
Apr. . . .	22.31		Sept. . . .	20.78	394	Apr. 4	19.72	460
May	22.88		Oct. . . .	20.78	340	Apr. 11	19.37	460
June	22.61		Dec. . . .	22.13	161	Apr. 14	19.22	450
July	21.11	347	Jan. . . . 1921	21.51	347	Apr. 21	18.47	423
Aug. . . .	21.81		Feb. . . .	26.33	379	May 2	18.47	423
Sept. . . .	23.08		Mar. . . .	25.10	418	May 9	18.77	425
Oct. . . .	22.36		Apr. . . .	24.84	384	May 16	18.47	423
Nov. . . .	22.71		May	24.14	174	May 23	19.27	445
Dec. . . .	25.06		June	22.76	339	May 30	19.72	455
Jan. . . . 1915	22.41		July	22.36	336	June 6	18.47	405
Feb. . . .	23.44		Aug. . . .	19.91		June 13	18.62	418
Mar. . . .	20.05	116	Sept. . . .	19.91		June 20	18.12	435
Apr. . . .	24.11		Oct. . . .	17.09	316	June 27	18.37	379
May	22.65		Nov. . . .	18.88	375	July 4	18.67	385
June	22.61		Dec. . . .	18.68	314	July 11	18.17	405
July	22.11		Jan. . . .	17.74	312	July 18	18.07	405
Aug. . . .	21.41		Feb. . . .	18.17	301	July 25	18.07	385
Sept. . . .	21.67		Mar. . . .	17.34	310	July 31	17.87	378
Oct. . . .	21.76		Apr. . . .	17.90	338	Aug. 7	18.07	325
Nov. . . .	24.41		May	19.59	427	Aug. 14	18.27	390

* Permanent lowering of head after the head of the rest of wells in this area did not decline makes it probable that there is an error in the bench mark or that the well is not a tank.

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	15.07	390	Aug. 12, 1932	21.01	480	Nov. 10, 1933	18.76	383
Aug. 29	15.27	395	Sept. 16	20.60	463	Dec. 21	19.31	
Sept. 5	17.47	353	Oct. 18	20.96	449	Jan. 29, 1934	20.02	450
Sept. 12	18.77	423	Nov. 15	20.56	465	Feb. 19	21.07	465
Oct. 6	19.02	418	Dec. 11	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	20.00	388	Feb. 15	22.27	580	May 16	19.05	436
Jan. 14, 1932	19.89	480	Mar. 16	22.69	610	June 15	18.79	441
Feb. 7	20.33	438	Apr. 18	21.07	574	July 12	17.82	377
Feb. 16	21.21	535	May 26	20.78	608	Aug. 14	17.43	338
Mar. 17	22.82	644	June 16	20.43	605	Sept. 12	18.29	360
Apr. 15	21.83	580	July 24	19.89	490	Oct. 16	18.49	430
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	352			

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, 1909, 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, 165; Nov. 23, 1925, 171. Well B: Oct. 28, 1925, 175; 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	Red rock (Tkb)	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.; B, 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		
Soft rock (Tkb)	88-99	Clay, muck, coconuts,		
logs, etc. (Ra)	99-101	logs, etc. (Ra)		
Gravel (Pa)	101-107	Boulders and clay (Pa)	0-20	
Hard rock (Tkb)	107-126	and probably Tkb)		
Soft red rock, more	126-142	Hard rock (Tkb)	20-60	
water (Tkb)	142-144	Soft rock (Tkb)	60-62	
Medium soft rock	144-147	Hard rock (Tkb)	62-64	
Soft rock (Tkb)	147-162	Hard rock (Tkb)	94-102	
Hard rock (Tkb)	162-175	Soft rock (Tkb)	102-112	
Soft red rock (Tkb)		Hard rock (Tkb)	113-126	
Very hard rock (Tkb)		First water flow at		
		150 ft.		
		Soft rock (Tkb)	136-140	

Logs—Well 203 (Continued)

	Depth (ft.)		Depth (ft.)		Depth (ft.)
Well G					
Clay, muck, coconuts,		Soft rock (Tkb)	91-108	Boulder and clay (Pa)	
logs, etc. (Ra)	0-13	Hard rock (Tkb)	108-110	and probably Tkb)	22-46
Boulders and clay (Pa)		Soft rock (Tkb)	110-112	Hard rock (Tkb)	46-54
and probably Tkb)		Hard rock (Tkb)	112-142	Soft rock (Tkb)	58-65
Hard rock (Tkb)	15-48	Soft rock (Tkb)	142-160	Hard rock (Tkb)	65-74
Soft rock (Tkb)	48-56	Hard rock (Tkb)	160-176	Soft rock (Tkb)	74-82
Soft rock (Tkb)	56-69			Hard rock (Tkb)	82-92
Hard rock (Tkb)	69-73	Well D		Soft rock (Tkb)	92-108
Soft rock (Tkb)	73-83	Clay, muck, coconuts,		Hard rock (Tkb)	108-128
Hard rock (Tkb)	83-91	logs, etc. (Ra)	0-22	Soft rock (Tkb)	128-176

Observations

Bench mark, top of corner with chiseled mark of concrete box at well nearest gate 1 ft. above ground; altitude, 15.17 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	7483	Mar. . . 1929	178	Apr. . . 1931	154
Apr. . . 1927	234	Apr. . .	146	May . .	152
May . .	206	May . .	217	June . .	152
June . .	206	June . .	172	July . .	150
July . .	206	July . .	170	Aug. . .	158
Aug. . .	198	Aug. . .	174	Sept. . .	172
Sept. . .	248	Sept. . .	176	Oct. . .	152
Oct. . .	220	Oct. . .	187	Nov. . .	152
Nov. . .	234	Nov. . .	210	Dec. . .	174
Dec. . .	241	Dec. . .	187	Jan. . . 1932	172
Feb. . . 1928	241	Jan. . .	183	Apr. . .	193
Mar. . .	284	May . .	189	May . .	166
Apr. . .	252	June . .	181	June . .	160
May . .	276	July . .	179	July . .	160
June . .	276	Aug. . .	172	Aug. . .	158
July . .	276	Sept. . .	187	Sept. . .	164
Aug. . .	263	Oct. . .	162	Oct. . .	168
Sept. . .	241	Nov. . .	160	Nov. . .	168
Oct. . .	213	Dec. . .	152	Dec. . .	164
Jan. . . 1929	198	Jan. . . 1933	173	Jan. . .	164
		Feb. . .	185	Feb. . .	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.)	Date	Head (ft.)	Chloride (p.p.m.)
..... 1910		170	Feb. 8, 1926	20.63	116	Jan. 19, 1931	20.96	...
May 10, 1912		146	Mar. 18, 1930	.....	150	Feb. 7, 1932	20.85	...

205 (old 173). 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, 1979; Feb. 7, 1932, 1952.

Log		
	Depth (ft.)	Depth (ft.)
Soil and mud	0-3	
Clay, grit, sand, and gravel (Pa)	3-16	Loose sand and clay, less water (Pa or Tkb)
Loose and cemented sand and gravel (Pa)	16-24	Cemented gravel, a little water (Tkb)
Clay, grit, sand, and gravel (Pa)	24-39	Soft red rotten water rock, $\frac{3}{4}$ in. pipe full water (Tkb)
Very compact clay, sand, and grit (Pa)	39-46	Hard medium, and soft water rock (Tkb)
Quick sand (Pa)	46-51	Hard rock, $\frac{3}{4}$ in. pipe almost full, chloride, 307 p.p.m. (Tkb)
Cemented and loose gravel (Pa or Tkb)	51-57	
Cemented 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, 1,070; 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)	90-92
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, $\frac{3}{4}$ in. pipe at 120 ft., chloride 520 p.p.m. (Tkb)	110-121.5
Cemented gravel, occasional drizzle of water (Pa or Tkb)	25.5-74	Gray rock, getting harder (Tkb)	121.5-125.3
Clay and sand (Pa or Tkb)	74-83	Hard blue lava (Tkb)	125.3-126.1
Hard cemented gravel (Pa or Tkb)	83-88.7		

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, 13.76 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, 1924	.....	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, 1952. Chloride (p.p.m.), Mar. 18, 1930, 1,390.

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 Tkb)	7-8		
Lava clay, with sand or grit and streaks of mud rock (Pa and prob- ably 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, 2040; Feb. 7, 1932, 2017. Bench mark for well 215, top of 2-in. elbow on well $1\frac{1}{4}$ ft. above ground; altitude, 15.88 ft. Bench mark for well 214, top of 2-in. tee on well $1\frac{1}{4}$ 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.

1950, 1960.

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 (Tlb)	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 $\frac{3}{4}$ of a 2-in. pipe level flow and a head of 7.5 ft. or 22.5 ft. above sea level (Tkb)	124-134
Gravel and some water (Pa or Tkb)	80-85		
Gravel and cemented gravel. Water rose 7 ft. above ground. A level 3-in. pipe $\frac{3}{4}$ full, chloride 812 p.p.m. (Probably Tkb)	85-86.3		
Compact lava mud or clay (Tkb)	86.3-102.1		

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, 215 ft. Chloride (p.p.m.), 1910, 1,040; May 13, 1924, 2,690. Sealed, June 1928.

218 (old 183). At Robt. Atkinson home on Lanikai 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. Titecomb. 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

Log	Depth (ft.)	Depth (ft.)
Adobe, soil, small coral, sand, shell, gravel, etc. (Pa and Pb).....	0-24	84-86
Fine sand mixed with clayey mud (Pa).....	24-30	86-101
Clay, sand, and gravel (Pa).....	30-34	
Clay with grit and some sand (Pa).....	34-44	
Fine sand and some mud (Pa).....	44-47	101-148
Clay and grit (Pa or Pb).....	47-61	
Very compact sand and clay (Pa or Pb).....	61-84	148-149
		149-150

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	340
Apr. 2, 1929	22.24	...	Mar. 7	21.85	287	Oct. 1	20.81	258
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	...	Mar. 7	21.79	255	Dec. 29, 1933	22.55	...
Nov. 20	21.72	393	June 6	20.00	265			
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	965	June 1	404	Nov. 15	447	Dec. 15	468
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	472
Oct. 14	771	Sept. 7	397	Feb. 1	453	May 1	470
Oct. 14	531	Oct. 7	397	Mar. 1	468	Aug. 27	496
Oct. 16, 1904	664	Nov. 4	412	Mar. 15	460	Sept. 3	499
Oct. 22, 1905	872	Dec. 1	412	May 1	461	Nov. 1	453
Oct. 25	382	Jan. 5, 1912	397	Feb. 1	447	Feb. 1, 1915	475
Oct. 22, 1908	372	Feb. 8	390	July 1	461	Mar. 3	475
May 10, 1909	393	Mar. 1	341	Aug. 1	462	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	621
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	430	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	316	Oct. 18, 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	186	Oct. 23	280	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	269
Feb. 28, 1906	1,040	Mar. 16, 1911	372	Oct. 1	868	Apr. 1	410
May 15	1,010	Apr. 11	1,030	Nov. 4	340	Apr. 15	354
Apr. 4, 1907	784	May 2	1,140	Dec. 1	595	June 1	419
Nov. 8, 1909	346	June 1	354	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 Dowsett. Altitude, about 5 ft. Diameter, 12 in. Used for making salt. Chloride (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 Hanalei 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 Eo and Manaloa 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 II country estate or near Waipio experiment station. Owner, John II 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 II 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 II 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 II 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.)	Date	Chloride (p.p.m.)
Oct. 24, 1898	Pump 6	Pump 6B	Pump 6	Pump 6B	Pump 6
Apr. 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	173	...	Oct. 28	506	500
Oct. 13, 1905	251	...	Mar. 20, 1907	138	...
Dec. 1	212	...	Apr. 14	315	340
			May 26, 1907	397	429
			Nov. 27	492	500
			Feb. 27	296	...
			Apr. 25, 1908	291	213
			June 22	456	440
			Oct. 21	532	572

Observations—Well 239 (Continued)

Date	Chloride (p.p.m.)	Date	Chloride (p.p.m.)	Date	Chloride (p.p.m.)
June 4, 1908	Pump 6	Pump 6B	June 15, 1913	Pump 6	Pump 6B
Sept. 9	353	354	July 15	313	549
July 30, 1909	556	542	Aug. 15	677	634
Oct. 27	514	542	Sept. 15	226	400
Feb. 7, 1910	344	379	Oct. 15	247	362
July 7	571	620	Nov. 15	251	...
Aug. 23	633	631	Dec. 15	248	294
Sept. 15	625	638	Jan. 1914	234	297
Oct. 15	615	625	Feb. 15	194	269
Nov. 15	550	578	Mar. 15	286	284
Dec. 15	631	631	Apr. 15	173	231
Jan. 15, 1911	390	401	May 15	269	262
Feb. 15	450	472	June 15	223	297
Mar. 15	550	530	July 15	173	226
Apr. 15	596	570	Aug. 15	254	344
May 15	613	575	Sept. 15	251	337
June 15	652	609	Oct. 15	244	322
July 15, 1912	493	492	Nov. 15	387	415
Aug. 15	598	551	Dec. 15	262	340
Sept. 15	525	503	Jan. 1913	209	400
Oct. 15	713	581	Feb. 15	304	435
Nov. 15	666	588	Mar. 15	301	418
Dec. 15	691	649	Apr. 15	320	436
Jan. 15	699	616	May 15	234	...
Feb. 15	688	663	June 15	372	372
Mar. 15	716	699	July 15	312	440
Apr. 15	623	588	Aug. 15	294	436
May 15	500	...	Sept. 15	212	...
June 15, 1913	645	656	Oct. 15	153	...
July 15	705	656	Nov. 15	163	213
Aug. 15	709	656	Dec. 15	163	213

Observations—Well 239 (Continued)—with head record

Date	Head (ft.)	Chloride (p.p.m.)	Date	Head (ft.)	Chloride (p.p.m.)
Sept. 1926	206	...	Sept. 1929	21.0	352
Oct. 1926	245	...	Oct. 1929	21.3	367
Nov. 1926	262	...	Nov. 1929	22.9	369
Dec. 1926	320	...	Dec. 1929	23.8	...
Jan. 1927	328	...	Jan. 1930	26.4	...
Feb. 1927	340	...	Feb. 1930	25.9	...
Mar. 1927	372	...	Mar. 1930	25.5	...
Apr. 1927	357	...	Apr. 1930	25.8	...
May 1927	392	...	May 1930	25.6	156
June 1927	319	...	June 1930	22.6	170
July 1927	22.0	228	July 1930	23.4	238
Aug. 1927	253	...	Aug. 1930	23.2	281
Sept. 1927	291	...	Sept. 1930	24.2	395
Oct. 1927	313	476	Oct. 1930	25.5	...
Nov. 1927	27.7	...	Nov. 1930	25.4	...
Dec. 1927	27.8	...	Dec. 1930	25.8	...
Jan. 1928	27.8	...	Jan. 1931	25.7	...
Feb. 1928	27.8	144	Feb. 1931	25.0	203
Mar. 1928	26.7	172	Mar. 1931	25.7	242
Apr. 1928	26.1	163	Apr. 1931	25.5	271
May 1928	26.5	159	May 1931	23.3	390
June 1928	25.0	207	June 1931	23.5	299
July 1928	23.9	259	July 1931	23.6	329
Aug. 1928	23.2	253	Aug. 1931	21.9	332
Sept. 1928	22.8	303	Sept. 1931	22.6	319
Oct. 1928	24.1	...	Oct. 1931	23.0	...
Nov. 1928	25.0	...	Nov. 1931	23.0	...
Dec. 1928	25.0	...	Dec. 1931	23.2	...
Jan. 1929	25.0	160	Jan. 1932	23.6	...
Feb. 1929	25.2	177	Feb. 1932	24.7	...
Mar. 1929	25.2	145	Mar. 1932	27.1	186
Apr. 1929	25.3	200	Apr. 1932	26.8	186
May 1929	22.8	223	May 1932	26.9	...
June 1929	22.8	274	June 1932	26.9	186
July 1929	22.0	299	July 1932	26.0	184

Observations—Well 239 (Continued)

Date	Head (ft.)	Chloride (p.p.m.)	Date	Head (ft.)	Chloride (p.p.m.)
Sept. .. 1932	25.1	Pump 6	Dec. 3, 1933	22.9	Pump 6
Oct. ..	24.8	361	Dec. 10	22.8	516
Nov. ..	22.0	350	Dec. 17	22.8	297
Dec. 0	26.0	...	Dec. 24	23.2	...
Jan. 1, 1933	26.1	...	Dec. 31	24.0	...
Jan. 8	26.2	...	Jan. 7, 1934	24.2	...
Jan. 15	26.1	...	Jan. 14	24.5	...
Jan. 22	25.9	...	Jan. 21	24.4	...
Jan. 29	25.8	...	Jan. 28	24.2	...
Feb. 5	25.9	...	Feb. 4	24.5	...
Feb. 12	26.1	...	Feb. 11	24.5	...
Feb. 19	26.5	...	Feb. 18	24.8	...
Feb. 26	26.7	...	Feb. 25	24.9	...
Mar. 5	26.7	...	Mar. 18	23.9	177
Mar. 12	27.1	...	Mar. 26	24.0	163
Mar. 19	27.0	...	Mar. 30	22.1	213
Mar. 26	27.0	...	Apr. 7	22.1	204
Apr. 2	26.6	...	Apr. 14	21.9	255
Apr. 9	26.6	...	Apr. 21	21.9	287
Apr. 16	26.2	...	Apr. 29	22.4	234
Apr. 23	26.2	...	May 6	22.8	...
May 1	121	...	May 13	22.9	...
May 8	141	...	May 20	22.7	...
May 14	25.4	149	May 27	22.3	184
May 22	...	156	June 3	22.1	241
May 29	...	163	June 10	22.6	262
June 5	...	163	June 19	...	249
June 12	24.8	170	June 26	...	249
June 19	...	163	July 2	...	234
June 26	...	184	July 9	...	219
July 4	24.5	191	July 16	...	208
July 11	...	184	July 23	...	241
July 17	...	191	July 30	...	327
July 24	...	184	Aug. 6	...	327
July 31	...	191	Aug. 13	...	327
Aug. 7	24.1	219	Aug. 20	...	327
Aug. 14	...	234	Aug. 27	...	327
Aug. 21	...	234	Sept. 3	...	327
Aug. 28	...	234	Sept. 10	...	327
Sept. 4	23.2	255	Sept. 17	...	327
Sept. 11	23.0	269	Sept. 24	...	327
Sept. 16	23.0	269	Sept. 31	...	327
Sept. 17	23.1	269	Oct. 7	...	327
Sept. 19	22.9	269	Oct. 14	...	327
Sept. 24	22.9	269	Oct. 21	...	327
Oct. 1	22.8	269	Oct. 28	...	327
Oct. 3	22.7	269	Nov. 4	...	327
Oct. 8	22.7	269	Nov. 11	...	327
Oct. 15	22.7	269	Nov. 18	...	327
Oct. 22	22.7	269	Nov. 25	...	327
Oct. 29	22.8	269	Nov. 30	...	327
Nov. 5	22.5	269	Dec. 3	...	327
Nov. 11	22.5	269	Dec. 10	...	327
Nov. 19	22.7	269	Dec. 17	...	327
Nov. 22	22.7	269	Dec. 24	...	327
Nov. 26	22.7	269	Dec. 31	...	327
Nov. 28	22.7	269			
Nov. 30	22.7	269			

240 (no old number). About 150 ft. east of main highway and 900 ft. northeast of Waipahu post office. Owner, John H. estate. Altitude, about 20 ft. Diameter, about 12 in. Use, domestic and irrigation.

241 (old 191). Waipahu. Owner, City and County of Honolulu. Drilled, 1926 by McCandless Bros. Altitude, 26 ft. Depth, 205 ft. Diameter, 12 in. Depth to top of aquifer, about 43 ft. Use, municipal. Casing, 38 ft. Head (ft.), Jan. 21, 1931, 26.26; Feb. 7, 1932, 24.16. Chloride (p.p.m.), Mar. 18, 1930, 142. Log: (depth in feet), Clay, 0-2; soft rock (Pa or Tkb), 2-38; hard rock (Tkb), 38-43; red water rock (Tkb), 43-53; soft and hard rock, water in places (Tkb), 53-205.

242 (old 192). At Waipahu in rear of Spanish camp and in a concrete box. Owner, John H. estate. Altitude, about 15 ft. Diameter, 12 in. Use, irrigation. Chloride (p.p.m.), 1910, 240; Mar. 18, 1930, 117.

243 (old 193). At Waipahu in rear of Spanish camp and 200 yd. south of well 242. Altitude, about 15 ft. Diameter, 12 in. Use, irrigation. Chloride (p.p.m.), 1910, 328; Mar. 18, 1930, 145.

244 (old 194). At Waipahu near water tank about 150 yd. south of the Waipahu Theater. Owner, B. P. Bishop estate. Drilled, 1909. Altitude, 11 ft. Depth, 225 ft. Diameter, 12 in. Use, domestic. Casing, 58 ft.

Observations

Branch mark, top of plate 2 ft. above ground and main valve; altitude, 12.47 ft.

Date	Head (ft.)	Chloride (p.p.m.)	Date	Head (ft.)	Chloride (p.p.m.)
Apr. .. 1910	21.55	192	June .. 1915	20.87	200
May ..	21.17	...	July ..	20.47	204
June ..	21.10	...	Aug. ..	19.97	202
Sept. ..	21.85	...	Nov. 13	21.47	...
Oct. ..	21.97	...	Dec. 20	22.37	170
Nov. ..	21.37	...	Jan. 15, 1924	22.17	168
Jan. .. 1911	25.77	...	Feb. 14	21.47	169
Feb. ..	25.07	...	Mar. 18	20.67	167
Mar. ..	25.07	...	Apr. 15	22.57	166
Apr. ..	24.27	...	May 13	22.17	167
May ..	23.67	...	June 13	20.87	166
June ..	23.67	...	Aug. 19	20.07	169
July ..	23.67	...	Sept. 18	19.07	168
Aug. ..	23.67	...	Oct. 24	20.27	170
Sept. ..	23.35	...	Nov. 27	20.77	165
Oct. ..	22.75	...	Dec. 8	23.07	171
Nov. ..	22.02	198	Jan. 22, 1925	20.77	168
Dec. ..	22.02	198	Mar. 3	20.77	168
Jan. .. 1912	22.02	198	Apr. 1	21.27	168
Feb. ..	22.02	198	Apr. 21	20.77	166
Mar. ..	22.02	198	May 7	...	166
Apr. ..	22.77	200	June 16	19.47	170
May ..	21.70	204	Sept. 15	...	171
June ..	21.70	204	Oct. 27	19.27	165
July ..	20.57	208	Nov. 29	18.72	165
Aug. ..	20.47	200	Dec. 29	19.23	164
Sept. ..	20.37	210	Jan. 9, 1926	19.37	166
Oct. ..	19.98	205	June 15	19.47	168
Nov. ..	20.47	200	July 4	17.82	168
Dec. ..	20.47	200	Aug. 18	17.45	164
Jan. .. 1913	20.02	204	Sept. 30	17.76	170
Feb. ..	20.02	204	Oct. 20	17.27	166
Mar. ..	20.17	204	Nov. 29	18.72	165
Apr. ..	20.15	204	Dec. 29	19.23	164
May ..	21.76	200	Jan. 31, 1927	19.71	164
June ..	21.25	202	Mar. 1	20.17	165
July ..	20.35	201	Apr. 29	21.12	164
Aug. ..	20.57	200	Apr. 27	20.67	166
Sept. ..	20.60	206	June 22	18.57	167
Oct. ..	20.76	200	July 7	18.57	167
Nov. ..	21.17	201	Sept. 26	19.80	160
Dec. ..	21.37	205	Oct. 35	19.37	167
Jan. .. 1914	21.67	204	Nov. 23	19.82	157
Feb. ..	21.87	208	Jan. 10, 1928	26.44	157
Mar. ..	21.72	204	Feb. 8	25.12	155
Apr. ..	22.23	202	Mar. 6	24.12	155
May ..	21.72	200	Apr. 11	24.37	157
June ..	22.44	168	May 24	23.97	155
July ..	20.87	204	June 20	21.67	154
Aug. ..	19.97	204	July 24	21.07	154
Sept. ..	19.75	...	Aug. 22	20.67	152
Oct. ..	19.75	...	Sept. 25	20.37	150
Nov. ..	20.62	200	Oct. 27	19.77	151
Dec. ..	20.62	200	Nov. 20	20.57	152
Jan. .. 1915	21.77	195	Jan. 3, 1929	22.87	150
Feb. ..	22.37	199	Jan. 31	21.87	150
Mar. ..	22.17	195	Feb. 27	23.27	152
Apr. ..	21.31	196	Mar. 28	21.47	147
May ..	23.21	...	Apr. 23	20.77	151
June ..	21.11	200			

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	May 26	22.29	132
Aug. 27	18.77	146	Aug. 5	19.82	136	June 16	21.83	136
Sept. 25	18.37	148	Aug. 25	19.70	135	July 24	21.05	139
Oct. 23	18.84	166	Oct. 6	19.69	135	Aug. 15	20.71	136
Nov. 26	21.57	146	Oct. 26	20.47	134	Sept. 20	20.18	135
Dec. 24	22.77	148	Nov. 17	21.37	136	Oct. 18	19.90	138
Jan. 29, 1930	24.17	146	Jan. 14, 1932	20.17	135	Nov. 10	19.86	134
Feb. 27	23.37	145	Feb. 7	22.50	135	Dec. 19	19.77	132
Mar. 25	23.47	146	Feb. 18	22.55	135	Jan. 25, 1934	21.71	132
Apr. 26	20.07	145	Mar. 17	20.19	130	Feb. 13	22.97	133
May 27	20.87	144	Apr. 15	23.75	135	Mar. 20	21.55	135
June 30	20.89	143	May 17	22.57	134	May 1	20.74	134
July 29	19.97	142	June 16	22.62	135	May 16	20.48	136
Aug. 28	20.02	139	July 15	21.82	133	June 16	20.29	136
Sept. 24	22.45	137	Aug. 12	21.97	131	July 12	18.73	136
Nov. 5	23.07	140	Sept. 15	22.00	130	Aug. 15	18.39	134
Dec. 8	23.27	140	Oct. 18	21.96	130	Sept. 12	19.44	140
Dec. 30	23.32	138	Nov. 14	22.56	132	Oct. 16	19.39	140
Jan. 27, 1931	27.67	137	Dec. 15	23.32	132	Nov. 22	19.90	140
Feb. 26	21.47	138	Jan. 25, 1933	23.38	131	Dec. 20	21.85	142
Mar. 26	20.57	137	Feb. 15	23.37	132			

245 (old 105). At Waipahu about 75 yd. west of well 244. Owner, S. Kato. 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, 430 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 prob- ably some Tbk at bottom).....	0-92	Clay (Pa with prob- ably some Tbk at bottom).....	0-128	Clay (Pa with prob- ably some Tbk at bottom).....	0-92
Bed rock (Tbk)....	92-400	Bed rock (Tbk)....	128-402	Bed rock (Tbk)....	92-430
Well E		Well G			
Clay (Pa with prob- ably some Tbk at bottom).....	0-102	Clay (Pa with prob- ably 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.)	Date	Chloride (p.p.m.)
Nov. 25, 1899	126	June 15, 1911	206	Dec. 15, 1912	181	Mar. 15, 1914	206
Apr. 14, 1907	251	Aug. 15	195	Jan. 25, 1915	184	Apr. 15	188
June 22, 1908	255	Sept. 18	191	Feb. 15	191	May 15	188
Oct. 21	259	Dec. 15	188	Mar. 15	184	June 15	186
Oct. 27, 1900	231	Jan. 15, 1912	184	Apr. 15	184	July 15	188
Feb. 7, 1910	237	Feb. 15	191	June 15	189	Aug. 15	188
Aug. 23	216	Mar. 15	194	July 15	191	Sept. 15	188
Sept. 15	216	Apr. 15	188	Aug. 15	184	Oct. 15	191
Oct. 15	216	May 18	181	Sept. 15	195	Nov. 15	195
Nov. 15	209	June 15	191	Oct. 15	206	Jan. 15, 1915	191
Dec. 15	205	July 15	184	Nov. 15	194	Feb. 15	171
Mar. 15, 1911	206	Aug. 15	186	Dec. 15	180	Mar. 15	174
Apr. 15	202	Oct. 15	198	Jan. 15, 1914	194	Apr. 15	188
May 16	209	Nov. 15	198	Feb. 15	189	May 15	188

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.)	Date	Chloride (p.p.m.)
June .. 1915	177	Dec. .. 1915	166	July .. 1916	177	Sept. .. 1917	156
July .. 1915	181	Jan. .. 1916	174	Aug. .. 1916	174	Oct. ..	156
Aug. .. 1915	189	Apr. ..	170	Sept. ..	177		
Sept. .. 1915	188	May ..	184	Oct. ..	170		
Oct. ..	188	June ..	177	Nov. ..	141		

247A to J (old 205A to J). Pumping station 1 in Waikale 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.)	Date	Chloride (p.p.m.)
Oct. 24, 1898	88	Apr. .. 1912	106	May 2, 1916	99	June .. 1923	131
Nov. 8	78	May ..	113	June 2	85	July 2	134
Dec. 12	84	June ..	116	July 2	106	Aug. ..	137
Oct. 10, 1901	194	July ..	113	Aug. 2	106	Sept. ..	141
Nov. 25	183	Sept. ..	113	Sept. 8	106	Oct. ..	150
Oct. 12, 1902	295	Sept. ..	117	Oct. 2	113	Nov. ..	141
Sept. 24, 1903	242	Nov. ..	117	Nov. 2	95	Dec. ..	139
Oct. 19, 1904	107	Dec. ..	116	Dec. 2	77	Feb. .. 1904	144
July 14, 1905	192	Feb. .. 1913	103	June 2	81	Mar. ..	154
Oct. 13	188	Mar. ..	110	Aug. 2	120	Apr. ..	150
Dec. 1	163	Apr. 2	98	Sept. 2	113	May ..	153
June 16, 1906	159	June 2	85	Oct. 3	106	June ..	143
Sept. 5	159	July 2	110	Aug. 2, 1918	106	July ..	138
Oct. 28	169	Aug. 2	113	Mar. 2, 1919	104	Aug. ..	136
Mar. 20, 1907	131	Sept. 2	124	Aug. 3	120	Sept. ..	136
Apr. 14	138	Oct. 2	128	May 2, 1920	120	Oct. ..	137
May 26	145	Nov. 2	99	June 2	120	Nov. ..	136
Nov. 1	149	Dec. 2	76	July 2	120	Dec. ..	136
Feb. 27, 1908	135	Jan. 2, 1914	120	Aug. 2	128	Feb. ..	128
Apr. 25	131	Feb. 2	134	Sept. 2	128	Mar. ..	129
June 12	128	Mar. 2	128	Oct. 2	128	Apr. ..	131
Oct. 21	138	Apr. 2	117	Nov. 2	113	May ..	131
Dec. 9	135	May 2	99	Dec. 2	113	June ..	132
Jan. 30, 1909	120	June 2	110	Jan. 2, 1921	116	Aug. ..	129
Oct. 27	124	July 2	110	Feb. 2	134	Sept. ..	129
Feb. 7, 1910	88	Aug. 2	103	July 2	120	Oct. ..	131
July 7	113	Oct. 2	103	Aug. 2	134	Nov. ..	137
Aug. 23	113	Nov. 2	110	Sept. 2	137	Dec. ..	143
Sept. 15	124	Jan. 2, 1915	120	Oct. 2	128	Jan. .. 1926	163
Oct. 15	116	Feb. 2	123	Nov. 2	149	Feb. ..	159
Nov. 15	128	Mar. 2	120	Dec. 2	149	Mar. ..	131
Dec. 15	121	Apr. 2	124	Jan. 2, 1922	149	Apr. ..	136
Mar. 15, 1911	100	May 2	113	May 2	160	May ..	139
Apr. 15	92	June 2	145	June 2	144	June ..	136
May 15	106	July 2	120	July 2	141	Aug. ..	122
June 15	124	Aug. 2	126	Aug. 2	134	Sept. ..	115
Aug. 15	124	Sept. 2	120	Sept. 2	134	Oct. ..	111
Oct. 15	116	Oct. 2	134	Oct. 2	134	Nov. ..	110
Dec. 15	110	Dec. 2	103	Nov. 2	135	Nov. ..	109
Jan. .. 1912	99	Jan. 2	99	Dec. 2	106	Dec. ..	113
Feb. ..	116	Apr. 2	120	May 2, 1923	120		

* 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.)	Date	Head (ft.)	Chloride (p.p.m.)
May .. 1927	...	99	June .. 1928	22.6	106	June .. 1929	20.8	116
June ..	...	115	July ..	22.8	109	July ..	20.4	113
July ..	23.3	109	Aug. ..	21.9	106	Aug. ..	19.3	113
Aug. ..	113	109	Sept. ..	20.9	99	Sept. ..	19.4	113
Sept. ..	...	111	Oct. ..	20.3	109	Oct. ..	19.9	113
Oct. ..	...	116	Nov. ..	22.8	106	Nov. ..	22.8	106
Nov. ..	27.8	...	Dec. ..	23.7	...	Dec. ..	22.9	106
Jan. .. 1928	26.9	...	Jan. .. 1929	23.7	107	Jan. .. 1930	24.7	...
Feb. ..	...	114	Feb. ..	24.0	109	Feb. ..	25.0	...
Mar. ..	24.9	95	Mar. ..	23.5	106	Mar. ..	24.2	...
Apr. ..	25.1	...	Apr. ..	21.7	110	Apr. ..	24.5	...
May ..	24.5	...	May ..	20.4	115	May ..	...	106

Observations—Well 247 (Continued)

Date	Head (ft.)	Chloride (p.p.m.)	Date	Head (ft.)	Chloride (p.p.m.)	Date	Head (ft.)	Chloride (p.p.m.)
June .. 1930	21.1	106	Nov. 24, 1932	25.1	...	Sept. 19, 1933	...	93
July ..	21.1	108	Dec. 1	24.9	...	Oct. 3	...	106
Aug. ..	21.1	111	Dec. 1	24.0	...	Nov. 22	...	113
Sept. ..	22.6	99	Dec. 15	24.5	...	Nov. 28	...	107
Oct. ..	24.2	...	Dec. 22	24.4	...	Dec. 9	...	113
Nov. ..	23.9	92	Dec. 29	24.5	...	Dec. 19, 1934	...	121
Dec. ..	24.3	...	Jan. 4, 1933	24.8	...	Mar. 19, 1934	...	99
Jan. .. 1931	23.8	...	Jan. 11	24.8	...	Mar. 26	...	106
Feb. ..	23.8	78	Jan. 18	24.7	...	Mar. 27	...	113
Mar. ..	21.7	81	Jan. 25	24.4	...	Apr. 7	...	113
Apr. ..	21.6	89	Feb. 3	24.5	...	Apr. 14	...	113
May ..	21.8	100	Feb. 10	24.8	...	Apr. 21	...	113
June ..	21.5	106	Feb. 15	25.4	...	May 26	...	99
July ..	22.0	103	May 1	...	106	June 4	...	106
Aug. ..	21.4	123	May 8	...	99	June 5	...	99
Sept. ..	22.3	113	May 15	...	99	June 25	...	113
Oct. ..	22.2	8	May 22	...	106	July 1	...	113
Nov. ..	25.0	...	May 29	...	109	July 5	...	113
Dec. ..	25.0	...	June 5	...	106	July 12	...	99
Jan. .. 1932	23.1	...	June 13	...	106	July 20	...	106
Feb. ..	24.7	...	June 19	...	99	July 27	...	99
Mar. ..	27.2	...	June 26	...	106	Aug. 3	...	99
Apr. ..	25.7	92	July 3	...	99	Aug. 6	...	106
May ..	26.1	102	July 17	...	99	Aug. 17	...	99
June ..	24.0	107	July 24	...	99	Aug. 24	...	106
July ..	24.9	99	July 31	...	106	Sept. 7	...	113
Aug. ..	23.5	87	Aug. 15	...	113	Oct. 12	...	99
Sept. ..	23.4	104	Aug. 21	...	113	Nov. 9	...	93
Oct. ..	...	106	Aug. 28	...	113			
Nov. 17	23.4	...	Sept. 5	...	113			

248A to J (old 206A to J). Pumping station 4 in Waialeale 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

Date	Chloride (p.p.m.)	Date	Chloride (p.p.m.)	Date	Chloride (p.p.m.)	Date	Chloride (p.p.m.)
Oct. 10, 1901	462	Dec. 15, 1911	485	Jan. .. 1915	510	Oct. .. 1920	517
Nov. 23	449	Jan. 15, 1912	453	Feb. ..	528	Nov. ..	545
Oct. 12, 1902	547	Feb. 16	488	Mar. ..	538	Dec. ..	475
Sept. 24, 1903	577	Mar. 15	422	Apr. ..	535	May .. 1921	454
Oct. 19, 1904	520	Apr. 15	475	May ..	503	June ..	503
July 14, 1905	654	May 18	503	June ..	542	July ..	531
Oct. 13	676	June 15	518	July ..	545	Aug. ..	553
Dec. 1	462	July 15	510	Aug. ..	563	Sept. ..	578
June 16, 1906	645	Aug. 15	526	Sept. ..	553	Oct. ..	553
Sept. 5	675	Sept. 15	514	Oct. ..	570	Nov. ..	573
Oct. 28	733	Oct. 15	520	Dec. ..	450	Dec. ..	588
Mar. 20, 1907	600	Nov. 15	523	Mar. .. 1916	840	Jan. .. 1922	586
Apr. 14	608	Dec. 15	500	Apr. ..	439	May ..	450
Nov. 1	713	Jan. 15, 1913	432	May ..	503	June ..	503
Feb. 27, 1908	646	Feb. 15	482	June ..	582	July ..	525
Apr. 25	624	Mar. 15	507	July ..	510	Aug. ..	545
June 22	706	Apr. 15	483	Aug. ..	503	Sept. ..	582
Oct. 21	551	May 15	404	Sept. ..	520	Oct. ..	553
Dec. 9	775	June 15	400	Oct. ..	571	Nov. ..	571
Feb. 24, 1909	449	Aug. 15	525	Nov. ..	354	Dec. ..	597
July 30	668	Sept. 15	522	Dec. ..	578	Jan. .. 1923	284
Oct. 27	705	Oct. 15	538	Jan. .. 1917	241	Feb. ..	464
Feb. 7, 1910	519	Nov. 15	475	Aug. ..	510	July ..	503
July 7	518	Dec. 15	415	Sept. ..	510	Aug. ..	520
Aug. 23	447	Jan. .. 1914	503	Oct. ..	531	Sept. ..	506
Sept. 15	479	Feb. ..	545	Aug. .. 1918	460	Oct. ..	586
Oct. 15	435	Mar. ..	543	Sept. .. 1919	487	Nov. ..	586
Nov. 15	425	Apr. ..	464	June ..	397	Dec. ..	587
Dec. 18	471	May ..	464	July ..	545	Jan. .. 1924	418
Mar. 15, 1911	284	June ..	485	Aug. ..	581	Feb. ..	460
Apr. 15	334	July ..	485	May .. 1920	404	June ..	434
May 15	382	Aug. ..	467	June ..	480	July ..	501
June 15	440	Sept. ..	428	Aug. ..	522	Aug. ..	522
Aug. 15	478	Oct. ..	428	Sept. ..	525	Sept. ..	556
Sept. 18	400	Nov. ..	510	Sept. ..	560	Oct. ..	581

Observations—Well 248 (Continued)

Date	Chloride (p.p.m.)	Date	Chloride (p.p.m.)	Date	Chloride (p.p.m.)	Date	Chloride (p.p.m.)
Nov. .. 1924	566	Aug. .. 1925	537	June .. 1926	516	May .. 1927	291
Dec. ..	582	Sept. ..	534	July ..	506	June ..	382
Feb. .. 1920	550	Oct. ..	583	Aug. ..	556	July ..	414
Mar. ..	465	Nov. ..	573	Sept. ..	513	Aug. ..	485
Apr. ..	390	Dec. .. 1926	425	Oct. ..	510	Sept. ..	490
June ..	433	Jan. ..	484	Nov. ..	414	Oct. ..	418
Oct. ..	462	Apr. ..	510	Dec. ..	*503		
May ..	524	May ..	526	Mar. .. 1927	254		

* Head 20.1 ft.

Observations—Well 248 (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.)
Feb. .. 1928	...	290	June .. 1930	...	472	Oct. 4, 1932	...	532
Mar. ..	...	310	July ..	22.6	484	11	...	567
Apr. ..	29.1	290	Aug. ..	21.9	505	18	...	539
May ..	22.5	315	Sept. ..	22.5	410	Nov. 18	...	25.2
June ..	...	395	Oct. ..	23.9	...	24	...	21.7
July ..	25.3	404	Nov. ..	23.5	...	Dec. 1	...	24.6
Aug. ..	21.6	475	Dec. ..	24.1	...	8	...	24.4
Sept. ..	25.2	473	Jan. .. 1931	23.7	...	15	...	24.2
Oct. ..	...	509	Feb. ..	23.6	265	22	...	24.3
Nov. ..	25.4	...	Mar. ..	21.7	313	29	...	24.9
Dec. ..	23.6	...	Apr. ..	21.5	387	Jan. 1, 1933	...	25.0
Jan. .. 1929	23.8	...	May ..	21.8	427	8	...	24.9
Feb. ..	23.4	439	June ..	...	464	15	...	24.5
Mar. ..	23.5	361	July ..	20.3	478	29	...	24.3
Apr. ..	22.2	428	Aug. ..	21.0	418	Feb. 5	...	24.6
May ..	...	465	Sept. ..	21.5	...	12	...	24.9
June ..	21.9	521	Oct. ..	21.2	...	19	...	25.6
July ..	20.9	600	Nov. ..	21.9	...	Mar. 5	...	25.5
Aug. ..	19.2	551	Dec. ..	21.1	...	13	...	26.2
Sept. ..	19.4	558	Jan. .. 1932	21.3	...	19	...	25.7
Oct. ..	21.8	525	Feb. ..	25.1	...	26	...	25.3
Nov. ..	22.8	...	Mar. ..	24.6	...	Apr. 2	...	25.0
Dec. .. 1930	24.7	...	Apr. ..	24.1	...	9	...	25.1
Jan. ..	24.0	...	May ..	23.6	297	16	...	25.0
Feb. ..	24.0	219	June ..	24.1	410			
Mar. ..	24.3	...	Aug. ..	...	447			
May ..	20.9	400	Sept. ..	...	510			

Observations—Well 248 (Continued) with pump 4B record

Observations—Well 250 (Continued—See page 1)							
Date	Head (ft.)	Chloride (p.p.m.)		Date	Head (ft.)	Chloride (p.p.m.)	
		Pump 4	Pump 4B			Pump 4	Pump 4B
May 1, 1933	....	249	...	Nov. 26, 1933	21.0	....	....
7	....	319	...	30	21.2	....	....
14	23.4	362	...	Dec. 3	21.5	....	....
21	....	390	...	9	21.6	....	....
29	....	397	...	10	21.4	....	....
June 4	22.6	418	...	17	22.2	468	....
12	489	...	...	24	23.1	....	....
19	....	397	...	Jan. 2, 1934	23.5	....	....
26	....	411	1566	9	23.7	....	....
July 4	22.2	425	....	14	23.6	....	....
10	....	397	....	21	23.0	....	....
17	440	440	....	28	23.1	....	....
23	....	455	134	Feb. 4	23.6	....	....
30	....	489	128	11	23.4	....	....
Aug. 15	511	511	121	18	23.9	....	....
21	....	525	134	25	23.9	....	....
28	....	538	121	Mar. 4	23.2	....	....
Sept. 4	21.1	546	134	11	22.9	....	....
11	....	518	....	18	22.6	....	....
12	....	518	....	26	....	383	....
13	21.3	....	....	Apr. 7	....	411	149
16	....	....	....	14	....	468	128
17	21.5	....	....	21	....	....	....
19	....	555	121	29	20.8	....	....
Oct. 3	....	546	....	May 6	21.5	....	....
15	20.9	....	....	13	21.4	....	....
22	....	....	....	20	21.2	....	....
Nov. 5	20.9	....	....				
11	20.9	....	....				
19	21.2	....	....				

RECORDS OF DRILLED WELLS ON OAHU

Observations—Well 248 (Continued)

Date	Head (ft.)	Chloride (p.p.m.)	Date	Head (ft.)	Chloride (p.p.m.)
May 27, 1934	20.2	Pump 4	Oct. 1, 1934	21.0	Pump 4
June 3	19.7	390	Oct. 1, 1934	21.0	Pump 4
10	20.7	415	14	20.4	447
24	20.6	369	21	20.7	...
July 2	...	433	28	20.6	...
13	...	455	Nov. 4	20.7	...
20	...	440	11	20.6	347
27	...	511	18	21.1	...
Aug. 3	...	511	25	21.2	...
10	...	475	30	21.3	...
17	...	531	Dec. 3	22.1	...
31	...	531	10	22.8	...
Sept. 2	19.0	...	17	22.9	...
16	20.5	...	24	23.0	...
20	20.7	...	31	23.3	...

249A to L (old 207A to L). Pumping stations 2 and 3 in Waikale Gulch, about .75 mile north of highway. Owner, Oahu Sugar Co. Altitude, about 35 ft. Depth, A and B, 425 ft.; C, G, and H, 400 ft.; D, F, and I, 410 ft.; J, 420 ft.; K, 429 ft.; L, 439 ft. Diameter, 12 in. Use, irrigation.

Observations

Date	Chloride (p.p.m.)			Date	Chloride (p.p.m.)			Date	Chloride (p.p.m.)		
	A to F	G to L	Pump 3	A to F	G to L	Pump 3		A to F	G to L	Pump 3	
Oct. 24, 1898	81	...	...	June 15, 1912	241	226	July 1, 1916	216	216	226	
Dec. 12	87	...	...	July 15	237	330	Aug. 1	216	216	226	
Nov. 25, 1899	88	...	...	Aug. 15	244	330	Sept. 1	216	216	226	
Oct. 10, 1901	183	...	...	Sept. 15	247	241	Oct. 1	216	216	226	
Nov. 25	180	...	...	Oct. 15	246	330	Nov. 1	216	216	226	
Oct. 12, 1902	224	...	...	Nov. 15	241	337	Dec. 1	216	216	226	
Oct. 19, 1904	210	271	...	Dec. 15	241	337	Jan. 1, 1917	216	216	226	
July 14, 1905	247	340	...	Jan. 1, 1913	241	362	Feb. 1	216	216	226	
Sept. 24, 1905	247	344	...	Feb. 1	219	301	Mar. 1	216	216	226	
Oct. 13	243	340	...	Mar. 1	219	301	Apr. 1	216	216	226	
Dec. 4	243	340	...	Apr. 1	219	301	May 1	216	216	226	
June 16, 1906	247	346	...	May 1	219	301	June 1	216	216	226	
Sept. 5	247	371	...	June 1	219	301	July 1	216	216	226	
Oct. 28	237	371	...	July 1	219	301	Aug. 1	216	216	226	
Mar. 20, 1907	237	371	...	Aug. 1	219	301	Sept. 1	216	216	226	
Apr. 14	237	385	...	Sept. 1	219	301	Oct. 1	216	216	226	
May 25	248	351	...	Oct. 1	219	301	Nov. 1	216	216	226	
Nov. 1	248	351	...	Nov. 1	219	301	Dec. 1	216	216	226	
Feb. 27, 1908	248	344	...	Dec. 1	219	301	Jan. 1, 1917	216	216	226	
Apr. 25	248	351	...	Jan. 1, 1914	234	291	Feb. 1	216	216	226	
June 22	241	340	...	Feb. 1	234	291	Mar. 1	216	216	226	
Oct. 21	241	347	...	Mar. 1	234	291	Apr. 1	216	216	226	
Dec. 9	242	347	...	Apr. 1	234	291	May 1	216	216	226	
July 30, 1909	241	321	...	May 1	237	294	June 1	216	216	226	
Oct. 27	254	315	...	June 1	237	294	July 1	216	216	226	
Feb. 7, 1910	242	309	...	July 1	241	312	Aug. 1	216	216	226	
Apr. 30	247	309	...	Aug. 1	241	312	Sept. 1	216	216	226	
Sept. 15	259	317	...	Sept. 1	241	312	Oct. 1	216	216	226	
Oct. 16	241	334	...	Oct. 1	241	312	Nov. 1	216	216	226	
Nov. 15	244	335	...	Nov. 1	241	312	Dec. 1	216	216	226	
Dec. 15	242	322	...	Dec. 1	241	312	Jan. 1, 1917	216	216	226	
Mar. 15, 1911	206	290	...	Jan. 1, 1915	248	362	Feb. 1	216	216	226	
Apr. 15	207	300	...	Feb. 1	244	341	Mar. 1	216	216	226	
May 16	219	312	...	Mar. 1	254	316	Apr. 1	216	216	226	
June 15	226	323	...	Apr. 1	229	319	May 1	216	216	226	
Aug. 16	237	322	...	May 1	230	320	June 1	216	216	226	
Sept. 18	234	337	...	June 1	241	319	July 1	216	216	226	
Dec. 15	237	322	...	July 1	248	340	Aug. 1	216	216	226	
Jan. 15, 1912	238	315	...	Aug. 1	254	348	Sept. 1	216	216	226	
Feb. 16	234	322	...	Sept. 1	244	334	Oct. 1	216	216	226	
Mar. 15	248	319	...	Oct. 1	244	334	Nov. 1	216	216	226	
Apr. 17	240	320	...	Nov. 1	248	301	Dec. 1	216	216	226	
May 18	241	326	...	Dec. 1	216	256	Jan. 1, 1917	216	216	226	

251 (old 212). About 1 mile south of Oahu Railway and Land quarry, Waikaloa 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. 16, 1930, 300.

254A and B (old 209A and B). Apokaa pump about 700 yd. east of Hoaeae 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.)		Depth (ft.)	
Well B				
Brown clay (Pa).....	0-40	Water rock, poor		
Red clay (Pa or Tkb)	40-50	(Tkb)	55-110	Hard blue rock (Tkb).....
Dark clay and gravel		Hard blue rock (Tkb)	110-115	Water rock (Tkb).....
(Pa or Tkb)	50-55	Water rock (Tkb).....	115-135	Hard blue rock (Tkb).....

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	22.2	Jan. 1929	.....	205	
Feb. 1909	.....	228	May	212	Feb.	22.8	195		
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.	21.5	210		
Aug. 1915	.....	307	Dec.	211	Sept.	21.5	210		
Feb. 1916	.....	279	Jan. 1927	20.0	215	Oct.	19.6	211	
Mar.	275	Feb.	20.3	Nov.	21.9	220			
June	271	Mar.	20.6	Dec.	22.7	204			
Dec.	251	May	20.7	213	Jan. 1930	24.0	...		
June 1917	.....	251	May	212	Feb.	23.8	195		
Nov.	267	June	210	Mar.	23.2	173			
May 1918	.....	263	July	214	Apr.	23.4	169		
Oct. 1919	.....	264	Aug.	214	May	21.5	178		
Jan. 1920	.....	269	Sept.	220	June	19.6	186		
May 1921	.....	262	Oct.	220	July	20.7	183		
Nov.	235	Nov.	208	Aug.	21.9	190			
June 1922	.....	239	Dec.	221	Sept.	22.1	194		
Dec.	263	Jan. 1928	25.7	203	Oct.	23.6	182		
May 1923	.....	267	Feb.	209	Nov.	23.7	188		
Dec.	219	Mar.	24.1	208	Dec.	23.4	190		
May 1924	.....	247	Apr.	23.9	209	Jan. 1931	23.1	168	
Oct.	213	May	212	Nov.	22.6	209			
Aug. 1925	.....	237	June	220	Mar.	21.3	184		
Sept.	219	July	212	Apr.	20.5	182			
Nov.	222	Aug.	232	May	21.0	191			
Dec.	207	Sept.	20.4	220	June	20.3	195		
Feb. 1926	.....	228	Oct.	224	July	20.3	193		
		206	Nov.	22.1	206	Aug.	19.6	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	23.9	168	Jan. 1934	22.82	157
Oct.	26.7	196	Dec.	22.8	171	Feb.	22.66	148
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	21.6	176	Mar.	24.11	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	21.73	175	Aug.	18.58	195
May	23.7	179	July	21.74	171	Sept.	19.71	165
June	22.6	175	Aug.	20.66	173	Oct.	19.63	169
July	22.4	175	Sept.	20.38	174	Nov.	20.15	159
Aug.	22.0	175	Oct.	19.90	173	Dec.	21.95	155
Sept.	22.0	170	Nov.	20.27	167			
Oct.	21.9	160	Dec.	21.36	162			

255 (old 210). About 200 yd. north of Hoaeae 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 Hoaeae Ranch near Hoaeae 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 flume 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.)		Depth (ft.)	
Well C				
Red clay (Pa).....	0-25	Blue rock, no water	85-100	Blue rock, no water
Gravel and boulders		(Tkb)	100-110	(Tkb)
(Pa)	25-33	Hard blue rock (Tkb)	110-120	Hard blue rock (Tkb)
Red clay (Pa or Tkb)		Blue water rock		Blue water rock
Gravel and boulders	35-50	Blue rock, some water		(Tkb)
(Pa)		(Tkb)	120-145	Hard blue rock (Tkb)
Hard blue rock (1 kb)	50-60	Blue rock, no water	145-160	Blue rock, no water
Blue water rock	60-65	(Tkb)	160-195	Hard blue rock (Tkb)
(Tkb)	65-76	Red rock, some water		(Tkb)
Hard blue rock (Tkb)	75-85	(Tkb)	195-200	(Tkb)

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	.....	269	Feb.	19.5	...	Feb.	18.2	...	
June 1910	23.1	...	July	16.9	...	July	18.3	...	
Sept.	22.1	...	Aug.	19.2	302	Sept.	17.4	...	
Nov.	19.4	...	Sept.	21.1	...	Oct.	22.2	292	
Jan. 1911	22.0	...	Oct.	16.5	...	Nov.	17.3	...	
Feb.	22.2	...	Nov.	16.0	...	Dec.	21.2	...	
Mar.	22.8	...	Dec.	17.8	...	Jan. 1915	20.9	...	
July	18.5	...	Jan.	16.8	...	Feb.	18.5	...	

RECORDS OF DRILLED WELLS ON OAHU

Observations—Well 257 (Continued)

Table 1. (continued)									
Date	Head (ft.)	Chloride (p.p.m.)	Date	Head (ft.)	Chloride (p.p.m.)	Date	Head (ft.)	Chloride (p.p.m.)	
July 1915	16.6	...	Aug. 1925	.....	203	June 1930	.....	...	...
Aug. 1915	15.6	304	Sept. 1925	.....	198	July 1930	21.5	187	188
Sept. 1915	20.0	...	Nov. 1925	19.0	198	Aug. 1930	.....	...	188
Dec. 1915	22.0	...	Feb. 1926	18.2	198	Sept. 1930	21.2	184	188
Jan. 1916	22.0	...	Mar. 1926	16.8	206	Oct. 1930	22.8	192	188
Feb. 1916	21.1	...	Apr. 1926	17.4	206	Nov. 1930	22.8	192	188
Mar. 1916	24.8	304	May 1926	16.7	210	Dec. 1930	23.0	204	192
June 1916	22.4	312	July 1926	16.1	206	Jan. 1931	23.0	206	192
Sept. 1916	23.9	...	Aug. 1926	16.7	206	Feb. 1931	21.4	205	192
Dec. 1916	24.9	298	Sept. 1926	16.7	206	Mar. 1931	20.9	213	192
Jan. 1917	23.8	...	Oct. 1926	19.5	206	Apr. 1931	20.9	213	192
Feb. 1917	25.4	...	Nov. 1926	17.5	198	May 1931	20.2	195	192
Mar. 1917	24.7	...	Dec. 1926	17.3	207	June 1931	20.0	194	192
May 1917	24.2	...	Jan. 1927	19.3	193	July 1931	18.6	191	192
June 1917	21.2	318	Feb. 1927	18.9	204	Aug. 1931	18.5	190	192
Sept. 1917	21.8	...	Mar. 1927	20.0	209	Sept. 1931	19.5	193	192
Nov. 1917	21.0	306	Apr. 1927	20.1	209	Oct. 1931	20.2	193	192
Dec. 1917	22.5	...	May 1927	20.4	...	Nov. 1931	20.2	193	192
Jan. 1918	24.9	...	June 1927	19.2	226	Dec. 1931	21.0	194	192
Feb. 1918	24.4	...	July 1927	.....	226	Jan. 1932	21.0	194	192
Mar. 1918	24.4	...	Aug. 1927	.....	218	Feb. 1932	21.1	193	192
Apr. 1918	24.7	...	Sept. 1927	.....	216	Mar. 1932	25.2	210	192
July 1918	20.0	302	Oct. 1927	17.7	215	Apr. 1932	23.0	193	192
Sept. 1918	21.9	...	Nov. 1927	16.7	214	May 1932	23.0	191	192
Dec. 1918	21.2	...	Dec. 1927	24.1	203	June 1932	22.6	187	192
Jan. 1919	23.5	...	Jan. 1928	26.5	209	July 1932	22.0	187	192
Feb. 1919	23.9	...	Feb. 1928	20.0	212	Aug. 1932	21.6	185	192
Mar. 1919	23.6	...	Mar. 1928	23.2	215	Sept. 1932	21.0	189	192
June 1919	18.4	...	Apr. 1928	22.5	215	Oct. 1932	21.8	185	192
Sept. 1919	18.4	...	May 1928	20.9	242	Nov. 1932	23.35	205	192
Oct. 1919	18.6	255	June 1928	22.0	215	Dec. 1932	20.5	187	192
Dec. 1919	17.5	...	July 1928	18.6	254	Jan. 1933	24.18	196	192
Jan. 1920	19.1	262	Aug. 1928	19.0	220	Mar. 1933	24.70	197	192
Feb. 1920	17.7	...	Sept. 1928	20.8	220	Apr. 1933	21.76	195	192
July 1920	17.7	...	Oct. 1928	21.0	206	May 1933	20.73	188	192
Dec. 1920	...	250	Nov. 1928	21.4	206	June 1933	19.90	184	192
Jan. 1921	22.1	...	Dec. 1928	20.6	206	July 1933	18.53	184	192
Feb. 1921	22.1	...	Jan. 1929	22.1	208	Aug. 1933	20.73	188	192
Apr. 1921	22.1	245	Feb. 1929	21.2	216	Sept. 1933	19.90	184	192
Nov. 1921	18.5	...	Mar. 1929	18.8	216	Oct. 1933	19.47	183	192
Dec. 1921	18.5	...	Apr. 1929	18.2	216	Nov. 1933	19.35	173	192
Jan. 1922	20.1	231	May 1929	21.6	216	Dec. 1933	19.07	181	192
Feb. 1922	20.1	230	June 1929	17.8	216	Jan. 1934	22.72	187	192
May 1922	20.1	230	July 1929	21.1	214	Feb. 1934	23.10	189	192
Oct. 1922	21.8	...	Aug. 1929	21.1	214	Mar. 1934	19.25	184	192
Dec. 1922	21.8	...	Sept. 1929	17.1	204	Apr. 1934	19.22	184	192
Jan. 1923	20.1	214	Oct. 1929	21.6	204	May 1934	17.70	179	192
Feb. 1923	20.1	214	Nov. 1929	21.6	204	June 1934	18.53	183	192
Oct. 1924	25.0	250	Dec. 1929	23.1	181	July 1934	18.85	183	192
Jan. 1925	22.2	...	Jan. 1930	23.1	181	Aug. 1934	19.10	182	192
Feb. 1925	21.4	...	Feb. 1930	23.1	181	Sept. 1934	19.10	182	192
July 1925	18.5	...	Mar. 1930	23.2	186	Oct. 1934	22.40	189	192
Aug. 1925	18.5	...	May 1930	19.0	190	Nov. 1934	22.40	189	192

258 (old 216). Water tanks near Honouliuli Stream 500 yd. southeast of Waianae Junction on highway. Owner, J. M. Dowsett Co. Drilled by McCandless Bros. Altitude about 25 ft. Depth, 500 ft. Diameter, 10 in. Use, irrigation. Head (ft.), Oct. 2, 1924, 18.38. Chloride (p.p.m.), 1910, 280.

Log*

	Depth (ft.)		Depth (ft.)		Depth (ft.)
Loam, clay, and grav.					
(1a)	0-45	Gravel (Pa or Tkb.)	80-90	Soft red rock (Tkb.)	150-160
Yellow clay (Pa)	45-57	Hard blue rock (Tkb.)	90-100	Hard blue rock (Tkb.)	160-195
Boulders (Pa)	57-63	Red water rock (Tkb.)	100-110	Soft red rock (Tkb.)	195-222
Gravel (Pa)	60-63	Black lava rock		Hard blue rock (Tkb.)	200-245
Yellow clay (Pa)	63-80	(Tkb.)	110-135	Soft red rock (Tkb.)	245-260
		Hard blue rock (Tkb.)	135-150	Red water rock (Tkb.)	305-400

* This may be log of well 262.

RECORDS OF DRILLED WELLS ON OAHU

259A to L (old 219A to L). Pumping stations 5 and 6 about 700 yd. north of main gate to Ewa Plantation. Owner, Ewa Plantation Co. Altitude, about 50 ft. Drilled, A to G, 1896; H to L, 1897. Depth, A, 304 ft.; B, 305 ft.; C, 310 ft.; D, 304 ft.; E, 306 ft.; F, 303 ft.; G, 312 ft.; H, 307 ft.; I, 306 ft.; J, K, and L, 308 ft. Diameter, 12 in. Use, irrigation. Casing, 70 ft.

Observations

Date	Head (ft.)		Chloride (p.p.m.)	Date	Head (ft.)		Chloride (p.p.m.)	Date	Head (ft.)		Chloride (p.p.m.)
	Pump 5	Pump 6	Pump Pump 5 6		Pump 5	Pump 6	Pump Pump 5 6		Pump 5	Pump 6	Pump Pump 5 6
1907 Dec.	.....	.....	213	1916 Nov.	20.7	.....	.....	1924 Jan.	18.7	.....	.....
1908 Dec.	.....	.....	.....	1916 Dec.	19.6	.....	.....	1924 Feb.	21.3	.....	.....
1908 Feb.	22.1	.....	.....	1917 Jan.	23.4	.....	.....	1924 May	.....	283	283
1908 Mar.	.....	.....	.....	1917 Feb.	26.2	.....	.....	1925 Jan.	.....	287	294
1908 Apr.	26.4	.....	.....	1917 Mar.	25.5	.....	348 312	1925 Aug.	18.7	.....	279 275
1908 Apr.	27.0	.....	.....	1917 Apr.	25.5	.....	328 330	1925 Nov.	.....	279	275
1908 Dec.	23.8	.....	.....	1917 June	.....	.....	.....	1926 Dec.	21.1	.....	282 272
1909 Aug.	.....	.....	221 206	1917 July	22.4	.....	.....	1926 Dec.	.....	18.9	18.8
1909 Nov.	18.4	.....	.....	1917 Nov.	20.3	.....	.....	1927 Mar.	16.4	17.8	273 265
1909 Dec.	19.7	.....	.....	1917 Dec.	23.5	.....	314 318	1927 Mar.	18.0	18.3	383 268
1909 Dec.	.....	.....	.....	1918 Jan.	25.0	.....	.....	1927 June	18.4	18.4	275 267
1909 Jan.	20.1	.....	.....	1918 Feb.	25.2	.....	.....	1927 July	18.1	18.1	283 274
1909 Feb.	24.0	.....	.....	1918 Mar.	24.6	.....	.....	1927 Aug.	16.5	16.7	288 274
1909 Mar.	22.4	.....	.....	1918 June	.....	.....	326 329	1927 Sept.	18.4	18.5	286 272
1909 Oct.	.....	.....	264 241	1918 July	22.9	.....	.....	1927 Oct.	.....	18.0	17.9
1909 Nov.	23.4	.....	.....	1918 Sept.	21.9	.....	.....	1927 Nov.	17.6	18.0	291 276
1909 Dec.	.....	.....	287 250	1918 Nov.	21.1	.....	311 318	1927 Dec.	.....	17.6	18.0
1909 Dec.	.....	.....	.....	1918 Dec.	22.7	.....	.....	1927 Jan.	.....	20.7	20.7
1909 Feb.	19.4	.....	262	1919 Jan.	24.6	.....	.....	1927 Feb.	20.1	20.4	299 288
1909 Mar.	20.5	.....	.....	1919 Feb.	24.5	.....	.....	1927 Feb.	20.8	21.7	387 280
1909 Oct.	.....	.....	320 267	1919 Mar.	25.3	.....	.....	1927 May	20.0	19.9	301 288
1910 Jan.	20.6	.....	.....	1919 Apr.	.....	.....	314 322	1927 May	.....	20.9	291 282
1910 Feb.	18.8	.....	.....	1919 July	23.1	.....	.....	1927 Aug.	.....	20.8	299
1910 June	16.9	.....	.....	1919 Sept.	20.2	.....	.....	1927 Oct.	.....	20.8	298
1910 Sept.	15.4	.....	.....	1919 Dec.	25.0	.....	.....	1927 Nov.	.....	20.8	299
1910 Nov.	18.7	.....	313 289	1919 Jan.	24.1	.....	.....	1927 Dec.	24.4	21.4	287 277
1911 Jan.	22.9	.....	.....	1919 Feb.	21.5	.....	.....	1928 Jan.	27.0	27.0	289 289
1911 Feb.	22.9	.....	.....	1919 July	20.1	.....	.....	1928 Feb.	.....	20.9	287 289
1911 July	20.7	.....	.....	1919 Sept.	18.9	.....	.....	1928 Mar.	.....	20.8	292 293
1911 Sept.	19.1	.....	310 287	1919 Oct.	18.2	.....	276 276	1928 June	.....	19.6	316 312
1911 Dec.	20.7	.....	.....	1919 Nov.	18.3	.....	.....	1928 June	20.4	20.3	311 306
1911 Feb.	20.8	.....	.....	1919 Dec.	18.6	.....	.....	1928 July	.....	19.5	321 306
1911 Feb.	21.1	.....	.....	1920 Jan.	18.8	.....	273 278	1928 Sept.	.....	19.1	311 302
1911 July	17.7	.....	.....	1920 Feb.	25.2	.....	.....	1928 Dec.	22.8	22.8	383 278
1911 Aug.	.....	.....	322 322	1920 July	15.8	.....	.....	1929 Jan.	21.1	21.1	283 278
1911 Sept.	16.8	.....	.....	1920 Oct.	18.0	.....	269 269	1929 Feb.	22.2	22.2	283 274
1911 Oct.	19.1	.....	.....	1920 Dec.	.....	.....	.....	1929 Jan.	22.0	21.2	291 287
1911 Sept.	18.3	.....	.....	1921 Jan.	20.7	.....	285 261	1929 Apr.	19.5	19.5	299 294
1911 Oct.	18.0	.....	339 313	1921 Feb.	21.7	.....	.....	1929 May	11.5	.....	291 271
1911 Nov.	18.8	.....	.....	1921 Mar.	.....	.....	.....	1929 June	17.7	.....	386 286
1911 Nov.	.....	.....	.....	1921 Nov.	18.3	.....	850 850	1929 June	18.5	18.5	299 277
1911 Dec.	19.0	.....	.....	1922 Dec.	19.0	.....	.....	1929 Aug.	.....	20.9	295 283
1912 Feb.	18.7	.....	.....	1922 Jan.	20.6	.....	.....	1929 Sept.	17.0	17.6	286 278
1912 Apr.	17.9	.....	.....	1922 July	17.3	.....	.....	1929 Oct.	18.6	18.8	386 276
1912 May	17.1	.....	.....	1922 June	20.0	.....	.....	1929 Nov.	21.0	21.0	285 272
1912 Sept.	17.2	.....	.....	1922 Mar.	.....	.....	288 292	1929 Dec.	22.1	21.8	280 273
1912 Oct.	19.5	.....	324 307	1923 Jan.	18.5	.....	363 340	1930 Jan.	23.7	23.6	.....
1912 Dec.	22.2	.....	.....	1923 Dec.	.....	.....	.....	1930 Feb.	21.1	24.6	261 261
1913 Dec.	22.2	.....	.....	1923 Jan.	18.5	.....	.....	1930 Mar.	23.0	24.6	287 259
1915 Feb.	20.4	.....	.....	1923 Mar.	21.7	.....	.....	1930 Apr.	22.7	23.2	214 215
1915 Feb.	17.8	.....	.....	1923 May	.....	.....	269 269	1930 Apr.	22.7	23.4	212 215
1915 Feb.	.....	.....	259 335	1923 May	.....	.....	.....				

Observations—Well 259 (Continued)

Date	Head (ft.)	Chloride (p.p.m.)	Date	Head (ft.)	Chloride (p.p.m.)	Date	Head (ft.)	Chloride (p.p.m.)
1930			1932			1933		
June	21.4	271	Jan.	21.0	257	Aug.	23.0	232
July	21.4	269	Feb.	20.2	269	Aug.	19.08	19.67
Aug.	22.3	269	Mar.	23.0	262	Oct.	19.10	19.22
Sept.	22.3	271	Apr.	23.0	262	Nov.	19.40	19.65
Oct.	23.2	263	May	23.3	261	Dec.	20.85	21.09
Nov.	23.0	269	June	21.7	258	1934		
Dec.	23.1	262	July	22.2	215.5	Jan.	22.73	22.91
1931			Aug.	21.0	251	Feb.	22.98	23.12
Jan.	22.0	275	Sept.	21.4	234	Mar.	1.30	21.28
Feb.	21.4	266	Oct.	21.4	234	Apr.	19.00	19.42
Mar.	20.5	266	Nov.	23.4	234	May	19.01	19.21
Apr.	19.5	268	Dec.	23.5	225	June	19.31	19.13
May	20.9	262	1933	23.5	234	July	19.04	18.18
June	19.5	270	Jan.	23.5	244	Aug.	16.66	16.66
July	19.5	270	Feb.	23.07	24.4	Sept.	19.04	18.18
Aug.	20.0	260	Mar.	24.06	25.08	Oct.	21.43	19.29
Sept.	19.6	20.5	Apr.	23.10	23.88	Nov.	19.49	21.32
Oct.	20.2	20.2	May	21.97	24.4	Dec.	22.24	22.34
Nov.	20.5	20.4	June	20.53	24.5	1935		
Dec.	20.9	21.0	July	20.49	20.76	Jan.	24.2	232

261 (old 215). On north side of former Honolulu rice fields and about half a mile south of flume crossing highway between Waipahu and Ewa. Owner, J. M. Dowsett Co. Altitude, 17 ft. Use, irrigation. Head (ft.), Jan. 29, 1931, 21.08; Feb. 8, 1932 (pump operating, started at 5:30 a.m.), 21.54. Chloride (p.p.m.), 1910, 340; Mar. 17, 1930, 178. Bench mark, top of upper horizontal flange on main valve, at ground; altitude, 16.51 ft.

262 (old 216-1). East side of Honolulu Stream about 250 yd. west of well 261. Owner, J. M. Dowsett Co. Drilled by McCandless Bros. Altitude, 16 ft. Use, irrigation. Chloride (p.p.m.), Mar. 17, 1930, 183.

Logs

	Depth (ft.)		Depth (ft.)		Depth (ft.)
Clay and sand (Pa.)	0-45	Hard bed rock (Tbk)	93-100	Very hard rock (Tbk)	195-228
Sticky clay (Pa.)	45-57	Red water rock (Tbk)	100-110	Red water rock (Tbk)	228-235
Boulders and sand (Pa.)	57-60	Dark lava rock (Tbk)	110-135	Dark blue rock (Tbk)	235-245
Gravel and clay (Pa.)	60-92	Hard rock (Tbk)	135-150	Lava rock (Tbk)	245-305
or Tbk		Red water rock (Tbk)	150-160	Slate colored rock	305-410
		Hard rock (Tbk)	160-195		

263A to F (old 220A to F). Pumping station 7 at main gate to Ewa Plantation Co. Owner, Ewa Plantation Co. Drilled, A, 1899; B to F, 1900. Altitude, 46 ft. Depth, A, 468 ft.; B, 476 ft.; C, D, and F, 475 ft.; E, 481 ft. Diameter, 12 in. Depth to top of aquifer, A, B, and F, 295 ft.; C, 305 ft.; D, and E, 300 ft. Use, irrigation. Casing, A and E, 107 ft.; B, C, and D, 116 ft.; F, 108 ft. A new pump, numbered 8, installed for domestic purposes in 1923.

Logs

	Depth (ft.)		Depth (ft.)		Depth (ft.)
Well A		Blue rock (Tbk)	105-125	Red rock (Tbk)	200-210
Soil (Pa and probably Tbk at bottom)	0-90	Red rock (Tbk)	125-135	Hard blue rock (Tbk)	210-235
Red rock (Tbk)	90-105	Blue rock (Tbk)	135-195	Red water rock (Tbk)	235-305
		Hard blue rock (Tbk)	195-200	Blue water rock (Tbk)	305-310

Logs—Wells 263 (Continued)

Depth (ft.)	Depth (ft.)	Depth (ft.)	Depth (ft.)
Well A (Continued)	210-225	Red rock (Tbk)	205-220
Red water rock (Tbk)	220-230	Hard blue rock (Tbk)	230-240
Blue water rock (Tbk)	230-240	Red rock (Tbk)	240-250
Red water rock (Tbk)	250-260	Blue water rock (Tbk)	260-270
Red water rock (Tbk)	270-280	Red water rock (Tbk)	280-290
Red water rock (Tbk)	290-300	Blue water rock (Tbk)	300-310
Blue water rock, hard rock at bottom	310-320	Red water rock (Tbk)	320-330
Well B	400-468	Red water rock (Tbk)	400-410
Soil (Pa and probably Tbk at bottom)	0-95	Blue water rock (Tbk)	410-475
Red rock (Tbk)	95-110	Well C	
Blue rock (Tbk)	110-125	Soil (Pa and probably Tbk at bottom)	0-50
Red rock (Tbk)	125-140	Red rock (Tbk)	50-105
Blue rock (Tbk)	140-150	Blue rock (Tbk)	105-110
Red rock (Tbk)	150-160	Red rock (Tbk)	110-120
Blue rock (Tbk)	160-170	Blue rock (Tbk)	120-130
Hard blue rock (Tbk)	170-180	Red rock (Tbk)	130-140
Red water rock (Tbk)	180-190	Blue rock (Tbk)	140-150
Blue water rock (Tbk)	190-200	Red rock (Tbk)	150-160
Red water rock (Tbk)	200-210	Blue rock (Tbk)	160-170
Blue water rock (Tbk)	210-220	Red rock (Tbk)	170-180
Red water rock (Tbk)	220-230	Blue rock (Tbk)	180-190
Blue water rock (Tbk)	230-240	Red rock (Tbk)	190-200
Red water rock (Tbk)	240-250	Blue rock (Tbk)	200-210
Blue water rock (Tbk)	250-260	Red rock (Tbk)	210-220
Red water rock (Tbk)	260-270	Blue rock (Tbk)	220-230
Blue water rock (Tbk)	270-280	Red rock (Tbk)	230-240
Red water rock (Tbk)	280-290	Blue rock (Tbk)	240-250
Blue water rock (Tbk)	290-300	Red rock (Tbk)	250-260
Red water rock (Tbk)	300-310	Blue rock (Tbk)	260-270
Blue water rock (Tbk)	310-320	Red rock (Tbk)	270-280
Red water rock (Tbk)	320-330	Blue rock (Tbk)	280-290
Blue water rock (Tbk)	330-340	Red rock (Tbk)	290-300
Red water rock (Tbk)	340-350	Blue rock (Tbk)	300-310
Blue water rock (Tbk)	350-360	Red rock (Tbk)	310-320
Red water rock (Tbk)	360-370	Blue rock (Tbk)	320-330
Blue water rock (Tbk)	370-380	Red rock (Tbk)	330-340
Red water rock (Tbk)	380-390	Blue rock (Tbk)	340-350
Blue water rock (Tbk)	390-400	Red rock (Tbk)	350-360
Red water rock (Tbk)	400-410	Blue rock (Tbk)	360-370
Blue water rock (Tbk)	410-420	Red rock (Tbk)	370-380
Red water rock (Tbk)	420-430	Blue rock (Tbk)	380-390
Blue water rock (Tbk)	430-440	Red rock (Tbk)	390-400
Red water rock (Tbk)	440-450	Blue rock (Tbk)	400-410
Blue water rock (Tbk)	450-460	Red rock (Tbk)	410-420
Red water rock (Tbk)	460-470	Blue rock (Tbk)	420-430
Blue water rock (Tbk)	470-480	Red rock (Tbk)	430-440
Red water rock (Tbk)	480-490	Blue rock (Tbk)	440-450
Blue water rock (Tbk)	490-500	Red rock (Tbk)	450-460
Red water rock (Tbk)	500-510	Blue rock (Tbk)	460-470
Blue water rock (Tbk)	510-520	Red rock (Tbk)	470-480
Red water rock (Tbk)	520-530	Blue rock (Tbk)	480-490
Blue water rock (Tbk)	530-540	Red rock (Tbk)	490-500
Red water rock (Tbk)	540-550	Blue rock (Tbk)	500-510
Blue water rock (Tbk)	550-560	Red rock (Tbk)	510-520
Red water rock (Tbk)	560-570	Blue rock (Tbk)	520-530
Blue water rock (Tbk)	570-580	Red rock (Tbk)	530-540
Red water rock (Tbk)	580-590	Blue rock (Tbk)	540-550
Blue water rock (Tbk)	590-600	Red rock (Tbk)	550-560
Red water rock (Tbk)	600-610	Blue rock (Tbk)	560-570
Blue water rock (Tbk)	610-620	Red rock (Tbk)	570-580
Red water rock (Tbk)	620-630	Blue rock (Tbk)	580-590
Blue water rock (Tbk)	630-640	Red rock (Tbk)	590-600
Red water rock (Tbk)	640-650	Blue rock (Tbk)	600-610
Blue water rock (Tbk)	650-660	Red rock (Tbk)	610-620
Red water rock (Tbk)	660-670	Blue rock (Tbk)	620-630
Blue water rock (Tbk)	670-680	Red rock (Tbk)	630-640
Red water rock (Tbk)	680-690	Blue rock (Tbk)	640-650
Blue water rock (Tbk)	690-700	Red rock (Tbk)	650-660
Red water rock (Tbk)	700-710	Blue rock (Tbk)	660-670
Blue water rock (Tbk)	710-720	Red rock (Tbk)	670-680
Red water rock (Tbk)	720-730	Blue rock (Tbk)	680-690
Blue water rock (Tbk)	730-740	Red rock (Tbk)	690-700
Red water rock (Tbk)	740-750	Blue rock (Tbk)	700-710
Blue water rock (Tbk)	750-760	Red rock (Tbk)	710-720
Red water rock (Tbk)	760-770	Blue rock (Tbk)	720-730
Blue water rock (Tbk)	770-780	Red rock (Tbk)	730-740
Red water rock (Tbk)	780-790	Blue rock (Tbk)	740-750
Blue water rock (Tbk)	790-800	Red rock (Tbk)	750-760
Red water rock (Tbk)	800-810	Blue rock (Tbk)	760-770
Blue water rock (Tbk)	810-820	Red rock (Tbk)	770-780
Red water rock (Tbk)	820-830	Blue rock (Tbk)	780-790
Blue water rock (Tbk)	830-840	Red rock (Tbk)	790-800
Red water rock (Tbk)	840-850	Blue rock (Tbk)	800-810
Blue water rock (Tbk)	850-860	Red rock (Tbk)	810-820
Red water rock (Tbk)	860-870	Blue rock (Tbk)	820-830
Blue water rock (Tbk)	870-880	Red rock (Tbk)	830-840
Red water rock (Tbk)	880-890	Blue rock (Tbk)	840-850
Blue water rock (Tbk)	890-900	Red rock (Tbk)	850-860
Red water rock (Tbk)	900-910	Blue rock (Tbk)	860-870
Blue water rock (Tbk)	910-920	Red rock (Tbk)	870-880
Red water rock (Tbk)	920-930	Blue rock (Tbk)	880-890
Blue water rock (Tbk)	930-940	Red rock (Tbk)	890-900
Red water rock (Tbk)	940-950	Blue rock (Tbk)	900-910
Blue water rock (Tbk)	950-960	Red rock (Tbk)	910-920
Red water rock (Tbk)	960-970	Blue rock (Tbk)	920-930
Blue water rock (Tbk)	970-980	Red rock (Tbk)	930-940
Red water rock (Tbk)	980-990	Blue rock (Tbk)	940-950
Blue water rock (Tbk)	990-1000	Red rock (Tbk)	950-960

Bench mark, brass plate on wall of pit marked 24.96 ft., 18 ft. below ground; altitude, 24.75 ft.

Date	Head (ft.)	Chloride (p.p.m.)	Date	Head (ft.)	Chloride (p.p.m.)	Date	Head (ft.)	Chloride (p.p.m.)
Feb. 1902	26.3	...	Nov. 1913	21.3	...	Sept. 1918	24.4	...
Mar. 1903	24.9	...	Dec. 1914	22.4	...	Oct. 1919	25.1	...
Mar. 1904	27.1	...	Jan. 1915	24.7	...	Nov. 1920	26.0	...
Apr. 1905	27.5	...	Feb. 1916	25.8	...	Dec. 1921	26.6	...
Dec. 1906	24.7	...	Mar. 1917	26.9	...	Jan. 1922	27.2	...
Aug. 1907	27.0	...	Apr. 1918	27.6	...	Feb. 1923	27.8	...
Dec. 1908	20.1	...	May 1919	28.5	...	Mar. 1924	28.4	...
Jan. 1909	20.9	...	June 1920	29.4	...	Apr. 1925	29.0	...
Feb. 1910	24.8	...	July 1921	30.3	...	May 1926	29.6	...
Mar. 1911	23.0	...	Aug. 1922	31.2	...	June 1927	30.2	...
Apr. 1912	24.3	...	Sept. 1923	32.1	...	July 1928	30.8	...
May 1913	24.1	...	Oct. 1924	33.0	...	Aug. 1929	31.4	...
June 1914	24.1	...	Nov. 1925	33.9	...	Sept. 1930	32.0	...
July 1915	24.1	...	Dec. 1926	34.8	...	Oct. 1931	32.6	...
Aug. 1916	24.1	...	Jan. 1927	35.7	...	Nov. 1932	33.2	...
Sept. 1917	24.1	...	Feb. 1928	36.6	...	Dec. 1933	33.8	...
Oct. 1918	24.1	...	Mar. 1929	37.5	...	Jan. 1934	34.4	...
Nov. 1919	24.1	...	Apr. 1930	38.4	...	Feb. 1935	35.0	...
Dec. 1920	24.1	...	May 1931	39.3	...	Mar. 1936	35.6	...
1921	24.1	...	June 1932	40.2	...	Apr. 1937	36.2	...
1922	24.1	...	July 1933	41.1	...	May 1938	36.8	...
1923	24.1	...	Aug. 1934	42.0	...	June 1939	37.4	...
1924	24.1	...	Sept. 1935	42.9	...	July 1940	38.0	...
1925	24.1	...	Oct. 1936	43.8	...	Aug. 1941	38.6	...
1926	24.1	...	Nov. 1937	44.7	...	Sept. 1942	39.2	...
1927	24.1	...	Dec. 1938	45.6	...	Oct. 1943	39.8	...
1928	24.1	...	1939	46.5	...	Nov. 1944	40.4	...
1929	24.1	...	1940	47.4	...	Dec. 1945	41.0	...
1930	24.1	...	1941	48.3	...	1946	41.6	...
1931	24.1	...	1942	49.2	...	1947	42.2	...
1932	24.1	...	1943	50.1	...	1948	42.8	...
1933	24.1	...	1944	51.0	...	1949	43.4	...
1934	24.1	...	1945	51.9	...	1950	44.0	...
1935	24.1	...	1946	52.8	...			
			1947	53.7	...			
			1948	54.6	...			
			1949	55.5	...			
			1950	56.4	...			

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	300	308	July 1924	322	322	Oct. 1931	20.0	20.0
Oct. 1924	300	308	Aug. 1924	322	322	Nov. 1931	20.1	20.1
Jan. 1925	23.3	308	Sept. 1924	19.6	326	Dec. 1931	21.0	21.0
Feb. 1925	23.4	308	Oct. 1924	19.5	326	Jan. 1932	22.2	22.2
Mar. 1925	19.8	308	Nov. 1924	22.6	315	Feb. 1932	23.9	23.9
Sept. 1925	258	308	Dec. 1924	20.3	315	Mar. 1932	25.5	25.5
Nov. 1925	18.8	308	Jan. 1925	21.6	303	Apr. 1932	27.2	27.2
Dec. 1925	18.7	308	Feb. 1925	22.7	307	May 1932	28.5	28.5
Jan. 1926	22.0	301	Mar. 1925	23.2	307	June 1932	33.6	33.6
Feb. 1926	18.6	271	Apr. 1925	20.9	303	July 1932	35.0	35.0
Mar. 1926	20.0	280	May 1925	20.3	303	Aug. 1932	36.5	36.5
Apr. 1926	19.0	280	June 1925	19.0	298	Sept. 1932	38.5	38.5
May 1926	291	280	July 1925	20.8	298	Oct. 1932	41.3	41.3
June 1926	293	291	Aug. 1925	20.7	320	Nov. 1932	42.4	42.4
July 1926	19.1	291	Sept. 1925	21.3	308	Dec. 1932	43.0	43.0
Aug. 1926	20.1	301	Oct. 1925	21.8	308	Jan. 1933	43.2	43.2
Sept. 1926	308	308	Nov. 1925	22.6	297	Feb. 1933	44.1	44.1
Oct. 1926	364	343	Dec. 1925	24.6	285	Mar. 1933	45.3	45.3
Nov. 1926	308	308	Jan. 1926	23.2	278	Apr. 1933	46.2	46.2
Dec. 1926	364	308	Feb. 1926	27.8	278	May 1933	47.9	47.9
Jan. 1927	308	299	Mar. 1926	27.8	278	June 1933	49.2	49.2
Feb. 1927	21.4	304	Apr. 1926	27.8	278	July 1933	50.6	50.6
Mar. 1927	22.0	310	May 1926	27.8	278	Aug. 1933	51.9	51.9
Apr. 1927	308	308	June 1926	22.8	281	Sept. 1933	52.6	52.6
May 1927	305	308	July 1926	22.8	281	Oct. 1933	53.2	53.2
June 1927	308	308	Aug. 1926	23.2	274	Nov. 1933	53.9	53.9
July 1927	311	308	Sept. 1926	23.2	274	Dec. 1933	54.6	54.6
Aug. 1927	310	308	Oct. 1926	23.2	274	Jan. 1934	55.3	55.3
Sept. 1927	311	308	Nov. 1926	23.2	274	Feb. 1934	56.0	56.0
Oct. 1927	312	324	Dec. 1926	23.2	274	Mar. 1934	56.7	56.7
Nov. 1927	21.6	324	Jan. 1927	23.2	274	Apr. 1934	57.4	57.4
Dec. 1927	25.7	312	Feb. 1927	23.2	274	May 1934	58.1	58.1
Jan. 1928	26.7	296	Mar. 1927	23.2	274	June 1934	58.8	58.8
Feb. 1928	23.6	306	Apr. 1927	23.2	274	July 1934	59.5	59.5
Mar. 1928	24.1	312	May 1927	23.2	274	Aug. 1934	60.2	60.2
Apr. 1928	23.4	306	June 1927	23.2	274	Sept. 1934	60.9	60.9
May 1928	23.0	318	July 1927	23.2	274	Oct. 1934	61.6	61.6
June 1928	23.0	318	Aug. 1927	23.2	274	Nov. 1934	62.3	62.3
July 1928	332	332	Sept. 1927	23.2	274	Dec. 1934	63.0	63.0

264A to T (old 221A to T). Pumping stations 3 and 4 near plantation road and about 400 yd. south of main grade to Ewa Plantation. Owner, Ewa Plantation Co. Drilled, A, 1890; B, to L. 1891; M to P, 1899; 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 and S, 300 ft.; R, 285 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.)		Depth (ft.)		Depth (ft.)
Well D		Very hard black lava		at bottom	0-21
Hard lava (Pa and Tkb)		(Tkb)	335-341	Hard black lava (Tkb)	287-304
probably some (Tkb)				Soft lava, water (Tkb)	240-267
at bottom	0-268	Hard black lava (Tkb)	341-355	Soft lava, water (Tkb)	240-267
Soft red lava (Tkb)	208-220	Soft black lava, water	355-361	Hard lava (Tkb)	278-284
Hard red lava (Tkb)	220-231	(Tkb)		Soft red lava (Tkb)	284-297
Soft black lava (Tkb)	231-250	Very hard black lava	361-370	Hard red lava (Tkb)	297-304
Soft black lava, water		(Tkb)	370-376	Hard black lava (Tkb)	318-335
(Tkb)	250-267	Soft black lava, water		Soft lava (Tkb)	339-347
(Tkb)	267-298	(Tkb)	376-402	Soft lava, water (Tkb)	347-355
Soft black lava, water	298-316	Hard black lava, with		Hard lava (Tkb)	361-365
(Tkb)	316-320	well cement	402-407	Hard lava (Tkb)	365-374
Hard black lava (Tkb)		Well E		Hard lava (Tkb)	
Soft black lava, water	320-323	Hard red (Pa and Tkb)			

Logs—Well 264 (Continued)

	Depth (ft.)		Depth (ft.)		Depth (ft.)
Soil M		Hard blue rock (Tbk)	350-360	Red clay (Pa and	
Well P	0-95	Blue water rock (Tbk)	360-420	probably some Tbk	
Gravel (Pa)	110-110		420-425	at bottom)	125-121
Red clay (Pa)	95-110	Blue rock (Tbk)	425-441	Red rock (Tbk)	214-241
Red clay (Pa)	110-145	Well R		Red rock (Tbk)	94-95
probably some Tbk		Soil (Pa)	0-95	Hard blue rock (Tbk)	250-239
Red rock (Tbk)	145-210		95-121	Red rock (Tbk)	250-239
Hard blue rock (Tbk)	220-230	Gravel (Pa)	125-130	Blue water rock (Tbk)	305-411
Red rock (Tbk)	230-250	Red clay (Pa and			
Hard blue rock (Tbk)	250-305	at bottom)	130-210	Well S	0-111
Red rock (Tbk)	305-325	Red rock (Tbk)	120-220	Gravel (Pa)	115-121
Red rock (Tbk)	325-355	Red rock (Tbk)	220-225	Clay (Pa)	125-137
Hard blue rock (Tbk)	355-360	Red rock (Tbk)	225-245	Clay (Pa and prob-	
Soft water rock (Tbk)	360-425	Hard blue rock (Tbk)	245-300	ably some Tbk at	170-210
Red rock (Tbk)	425-441	Red rock (Tbk)	315-350	Blue rock (Tbk)	210-235
Hard blue rock (Tbk)	445-451	Blue rock (Tbk)	350-375	Blue rock (Tbk)	230-241
Well N		Hard blue rock (Tbk)	375-375	Blue rock (Tbk)	230-241
Soil (Pa)	0-90	Red water rock (Tbk)	375-375	Red rock, some water	245-255
Red clay (Pa)	90-120	Blue rock (Tbk)	375-425	Red rock, some water	255-259
Gravel (Pa)	120-150	Blue rock (Tbk)	425-425	Well	
probably some Tbk		Blue rock (Tbk)	425-443	Red rock, some water	280-300
at bottom)		Well Q		Blue water rock (Tbk)	300-422
Blue rock (Tbk)	150-215	Red clay (Pa and			
Red rock (Tbk)	215-220	probably some Tbk	6-208	Soil	0-60
Blue rock (Tbk)	226-230	Red bottom)	208-240	Red clay (Pa)	70-80
Red rock (Tbk)	240-300	Blue rock (Tbk)	240-250	Gravel (Pa)	80-81
Hard blue rock (Tbk)	300-320	Red rock (Tbk)	250-250	Red clay (Pa)	115-117
Red rock (Tbk)	320-335	Hard blue rock (Tbk)	275-295	Red clay (Pa)	120-180
Hard blue rock (Tbk)	335-360	Red rock (Tbk)	295-300	Gravel (Pa)	180-185
Blue water rock (Tbk)	360-420	Red rock (Tbk)	300-325	Red clay (Pa)	
Red rock (Tbk)	420-425	Red rock, some water	325-330	Red clay (Pa)	
Well O				probably some Tbk	
Soil (Pa)	0-90			at bottom)	185-205
Gravel (Pa)	90-120	Blue rock, some water	330-345	(Pa or Tbk)	
Red clay (Pa)	120-140	(Tbk)	345-350	Blue rock (Tbk)	205-235
Red clay (Pa)	140-200	Red rock, some water	350-375	Red rock (Tbk)	235-255
Red rock (Tbk)	200-210	Hard blue rock (Tbk)	375-385	Hard blue rock (Tbk)	255-265
Red rock (Tbk)	225-235	Blue water rock (Tbk)	385-395	Blue water rock (Tbk)	265-285
Hard blue rock (Tbk)	235-245	Blue rock (Tbk)	395-415	Blue water rock (Tbk)	285-295
Red rock (Tbk)	245-285	Blue rock (Tbk)	415-425	Blue water rock (Tbk)	295-385
Blue rock (Tbk)	280-305	Well R		Blue water rock (Tbk)	385-420
Red rock (Tbk)	305-320	Red clay (Pa)	0-115		
Red rock (Tbk)	320-330	Red clay (Pa)	115-125		

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		Pump 3	Pump 4	Pump 3	Pump 4
1893					1908					1912				
May			237		Apr.	26.5				Feb.	26.5			
1902					Dec.				367	349	Feb.	25.5		
Aug.	25.7				1909					July	23.9			
Mar.	31.7				Feb.	25.4		376	341	Aug.	22.3		417	390
1904					Mar.	25.6				Sep.	25.0			
Oct.	25.2				Oct.			412	360	1913				
Apr.	31.8				1910					Feb.	23.1			
Dec.	25.7				Jan.	26.0				May	24.7			
1905					Feb.	24.4				July	24.0			
Aug.		246	209		June	22.2				Sep.	22.4			
1906					Sept.	25.6		423	372	Oct.	24.2		468	376
Nov.	17.3				Nov.	24.6				Nov.	24.2			
Dec.	23.5				1911					1914				
1907					Jan.	27.1				Jan.	24.3			
Jan.	26.5				Feb.	27.2				Feb.	24.2			
Mar.	27.2				Mar.	28.6				Apr.	23.4			
1908					Sept.	26.2				July	24.5			
Mar.	26.5				Sept.	25.9				Sept.	24.5			
Oct.										Oct.	24.5			

Observations—Well 264 (Continued)											
Date	Head (ft.)	Chloride (p.p.m.)	Date	Head (ft.)	Chloride (p.p.m.)	Date	Head (ft.)	Chloride (p.p.m.)	Date	Head (ft.)	Chloride (p.p.m.)
1914	Pump 3	Pump 4	Pump 3	Pump 4	Pump 3	Pump 4	Pump 3	Pump 4	Pump 3	Pump 4	Pump 3
Nov. 23.7			1922	....	....	1930	....	....	....	....	....
Dec. 26.0			Mar. 24.3	....	....	Jan. 24.4	24.5	....	Feb. 24.7	24.7	379 322
1915			June 408 358	....	....	Feb. 24.7	24.7	379 322	Mar. 24.7	24.7	379 322
Jan. 26.3			385 323	....	....	Mar. 24.7	24.7	379 322	Apr. 24.7	24.7	379 322
Feb. 24.1						Apr. 24.7	24.7	379 322	May 24.7	24.7	379 322
July 23.2						May 24.7	24.7	379 322	June 24.7	24.7	379 322
Aug. 23.2						June 24.7	24.7	379 322	July 24.7	24.7	379 322
Nov. 25.1						July 24.7	24.7	379 322	Aug. 24.7	24.7	379 322
Dec. 24.4						Aug. 24.7	24.7	379 322	Sept. 24.7	24.7	379 322
1916						Sept. 24.7	24.7	379 322	Oct. 24.7	24.7	379 322
Jan. 27.6						Oct. 24.7	24.7	379 322	Nov. 24.7	24.7	379 322
Feb. 20.1						Nov. 24.7	24.7	379 322	Dec. 24.7	24.7	379 322
Mar. 29.1						Dec. 24.7	24.7	379 322	1917	....	....
Apr. 29.7						1917	....	....	Jan. 28.1	300	Dec. 2, 1924 19.36 221
June 26.5						1918	....	....	Feb. 28.1	304	Jan. 2, 1925 22.26 216
July 26.5						1919	....	....	Mar. 28.1	304	Feb. 16 26.88 203
Sept. 24.8						1920	....	....	Apr. 28.1	304	Mar. 3 19.06 203
Nov. 24.4						1921	....	....	May 28.1	304	Apr. 1 19.06 225
Dec. 27.5						1922	....	....	June 28.1	304	Apr. 21 19.47 226
1917						1923	....	....	July 28.1	312	May 7 20.26 226
Jan. 29.1						1924	....	....	Aug. 28.1	312	June 16 17.96 232
Feb. 29.4						1925	....	....	Sept. 28.1	312	Sept. 15 20.26 222
Mar. 30.5						1926	....	....	Oct. 28.1	312	Dec. 29 22.37 221
May 28.5						1927	....	....	Nov. 28.1	312	Jan. 16, 1926 17.62 226
June 28.5						1928	....	....	Dec. 28.1	312	June 15 18.54 227
July 26.9						1929	....	....	Jan. 28.1	312	July 14 16.65 228
Sept. 25.6						1930	....	....	Feb. 28.1	312	Aug. 18 15.95 228
Nov. 25.2						1931	....	....	Mar. 28.1	312	Sept. 20 16.25 228
Dec. 27.2						1932	....	....	Apr. 28.1	312	Oct. 20 15.75 228
1918						1933	....	....	May 28.1	312	Nov. 30 17.00 228
Jan. 28.9						1934	....	....	June 28.1	312	Dec. 29 18.36 228
Feb. 28.9						1935	....	....	July 28.1	312	Jan. 31, 1927 19.06 228
Mar. 29.0						1936	....	....	Aug. 28.1	312	Mar. 29 21.13 219
Apr. 29.6						1937	....	....	Sept. 28.1	312	Apr. 27 19.86 222
May 27.5						1938	....	....	Oct. 28.1	312	May 27 18.01 226
July 27.5						1939	....	....	Nov. 28.1	312	June 27 17.46 226
Sept. 24.2						1940	....	....	Dec. 28.1	312	July 29 17.29 220
Nov. 24.3						1941	....	....	Jan. 28.1	312	Aug. 16 18.16 219
Dec. 29.0						1942	....	....	Feb. 28.1	312	Sept. 25 17.46 219
1919						1943	....	....	Mar. 28.1	312	Oct. 25 17.46 219
Jan. 28.0						1944	....	....	Apr. 28.1	312	Nov. 3 20.34 217
Feb. 21.3						1945	....	....	May 28.1	312	Jan. 9, 1928 26.08 198
June 22.0						1946	....	....	June 28.1	312	Feb. 7 23.71 200
Sept. 25.7						1947	....	....	July 28.1	312	Mar. 6 23.36 205
Oct. 21.6						1948	....	....	Aug. 28.1	312	Apr. 11 23.16 210
Nov. 17.5						1949	....	....	Sept. 28.1	312	May 24 23.26 213
Dec. 19.2						1950	....	....	Oct. 28.1	312	June 20 22.76 210
1920						1951	....	....	Nov. 28.1	312	July 24 19.81 212
Jan. 22.7						1952	....	....	Dec. 28.1	312	Aug. 21 19.40 213
Feb. 24.2						1953	....	....	Jan. 28.1	312	Sept. 25 18.73 211
Mar. 20.2						1954	....	....	Feb. 28.1	312	Oct. 27 18.08 211
Oct. 21.0						1955	....	....	Mar. 28.1	312	Nov. 26 21.03 212
Dec. 21.0						1956	....	....	Apr. 28.1	312	Dec. 29 22.16 206
1921						1957	....	....	May 28.1	312	Jan. 31 22.29 209
Jan. 24.0						1958	....	....	June 28.1	312	Feb. 26 22.50 209
Feb. 25.1						1959	....	....	July 28.1	312	Mar. 26 20.11 209
Mar. 24.3						1960	....	....	Aug. 28.1	312	Apr. 23 19.32 210
Apr. 23.1						1961	....	....	Sept. 28.1	312	May 22 18.14 210
Nov. 23.4						1962	....	....	Oct. 28.1	312	June 26 17.55 210
Dec. 23.4						1963	....	....	Nov. 28.1	312	July 6 16.81 210
1922						1964	....	....	Dec. 28.1	312	Aug. 27 16.00 211
Jan. 24.8						1965	....	....	Jan. 28.1	312	Sept. 25 16.61 211
Feb. 25.2						1966	....	....	Feb. 28.1	312	Oct. 27 17.47 209

264-1 (no old number). On Ewa Plantation. Exact location unknown but according to an old map in files of Oahu Railway and Land Co. it is about 1,500 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, 1930, 200.

266 (old 218). At north corner of corral at Honouliuli Ranch. Owner, Honouliuli Ranch Co. Altitude, 13 ft. Diameter, 12 in. Use, irrigation.

Observations

Ranch mark, top of blind flange 2 1/2 ft. above ground on top of well; altitude, 15.16 ft.

Date	Head (ft.)	Chloride (p.p.m.)	Date	Head (ft.)	Chloride (p.p.m.)	Date	Head (ft.)	Chloride (p.p.m.)
Apr. ... 1910	19.77	280	Jan. ... 1916	28.91	300	Dec. ... 1924	19.36	221
May ... 1910	19.67	280	Feb. ... 1916	28.81	304	Jan. 22, 1925	22.26	261
June ... 1910	19.67	280	Mar. ... 1916	28.91	304	Feb. 18, 1926	20.84	282
Sept. ... 1910	20.67	280	Apr. ... 1916	28.91	304	Mar. 10, 1926	22.26	253
Oct. ... 1910	21.16	280	May ... 1916	24.71	304	Apr. 1, 1926	19.06	253
Nov. ... 1910	21.16	280	June ... 1916	24.66	300	Apr. 21, 1926	19.47	236
Dec. ... 1910	21.16	280	July ... 1916	24.71	312	May 1, 1926	19.47	236
Jan. ... 1911	21.16	280	Aug. ... 1916	22.77	312	June 16, 1926	17.96	232
Feb. ... 1911	21.16	280	Sept. ... 1916	21.71	312	Sept. 17, 1926	15.43	238
Mar. ... 1911	21.16	280	Oct. ... 1916	21.71	312	Oct. 29, 1926	15.43	238
Apr. ... 1911	21.16	280	Nov. ... 1916	21.71	312	Dec. 29, 1926	22.27	253
May ... 1911	21.16	280	Dec. ... 1916	27.55	312	Jan. 19, 1926	17.11	232
June ... 1911	21.16	280	Jan. ... 1917	27.55	312	Feb. 15, 1926	18.64	227
July ... 1911	21.16	280	Feb. ... 1917	27.55	312	Mar. 29, 1926	16.55	227
Aug. ... 1911	21.16	280	Mar. ... 1917	27.55	312	Apr. 15, 1926	18.64	227
Sept. ... 1911	21.16	280	Apr. ... 1917	27.55	312	May 14, 1926	15.95	227
Oct. ... 1911	21.16	280	May ... 1917	27.55	312	June 15, 1926	16.55	227
Nov. ... 1911	21.16	280	June ... 1917	27.55	312	July 18, 1926	15.95	227
Dec. ... 1911	21.16	280	July ... 1917	27.55	312	Aug. 15, 1926	16.55	227
Jan. ... 1912	21.16	280	Aug. ... 1917	27.55	312	Sept. 20, 1926	16.55	227
Feb. ... 1912	21.16	280	Sept. ... 1917	27.55	312	Oct. 5, 1926	15.75	228
Mar. ... 1912	21.16	280	Oct. ... 1917	27.55	312	Nov. 5, 1926	15.75	228
Apr. ... 1912	21.16	280	Nov. ... 1917	27.55	312	Dec. 29, 1926	18.36	223
May ... 1912	21.16	280	Dec. ... 1917	27.55	312	Jan. 31, 1927	19.08	223
June ... 1912	21.16	280	Jan. ... 1918	26.91	312	Feb. 18, 1927	19.08	223
July ... 1912	21.16	280	Feb. ... 1918	26.91	312	Mar. 29, 1927	21.13	219
Aug. ... 1912	21.16	280	Mar. ... 1918	26.91	312	Apr. 27, 1927	19.86	222
Sept. ... 1912	21.16	280	Apr. ... 1918	26.91	312	May 29, 1927	19.86	222
Oct. ... 1912	21.16	280	May ... 1918	26.91	312	June 29, 1927	17.46	226
Nov. ... 1912	21.16	280	June ... 1918	26.91	312	July 27, 1927	17.46	226
Dec. ... 1912	21.16	280	July ... 1918	26.91	312	Aug. 25, 1927	17.29	226
Jan. ... 1913	21.16	280	Aug. ... 1918	26.91	312	Sept. 26, 1927	17.29	226
Feb. ... 1913	21.16	280	Sept. ... 1918	26.91	312	Oct. 23, 1927	17.04	219
Mar. ... 1913	21.16	280	Oct. ... 1918	26.91	312	Nov. 23, 1927	20.34	217
Apr. ... 1913	21.16	280	Nov. ... 1918	26.91	312	Dec. 28, 1927	23.71	205
May ... 1913	21.16	280	Dec. ... 1918	26.91	312	Feb. 7, 1928	23.71	205
June ... 1913	21.16	280	Jan. ... 1919	21.54	312	Mar. 6, 1928	23.36	205
July ... 1913	21.16	280	Feb. ... 1919	21.54	312	Apr. 26, 1928	21.01	210
Aug. ... 1913	21.16	280	Mar. ... 1919	21.54	312	May 24, 1928	23.26	213
Sept. ... 1913	21.16	280	Apr. ... 1919	21.54	312	June 20, 1928	22.76	213
Oct. ... 1913	21.16	280	May ... 1919	21.54	312	July 24, 1928	22.76	213
Nov. ... 1913	21.16	280	June ... 1919	21.54	312	Aug. 21, 1928	19.40	213
Dec. ... 1913	21.16	280	July ... 1919	21.54	312	Sept. 25, 1928	19.40	213
Jan. ... 1914	21.16	280	Aug. ... 1919	21.54	312	Oct. 21, 1928	18.08	214
Feb. ... 1914	21.16	280	Sept. ... 1919	21.54	312	Nov. 20, 1928	21.03	213
Mar. ... 1914	21.16	280	Oct. ... 1919	21.54	312	Dec. 11, 1928	20.91	213
Apr. ... 1914	21.16	280	Nov. ... 1919	21.54	312	Jan. 31, 1929	20.91	206
May ... 1914	21.16	280	Dec. ... 1919	21.54	312	Feb. 26, 1929	22.59	206
June ... 1914	21.16	280	Jan. ... 1920	21.54	312	Mar. 26, 1929	22.59	206
July ... 1914	21.16	280	Feb. ... 1920	21.54	312	Apr. 23, 1929	19.32	206
Aug. ... 1914	21.16	280	Mar. ... 1920	21.54	312	May 22, 1929	18.14	210
Sept. ... 1914	21.16	280	Apr. ... 1920	21.54	312	June 17, 1929	18.14	210
Oct. ... 1914	21.16	280	May ... 1920	21.54	312	July 6, 1929	16.81	211
Nov. ... 1914	21.16	280	June ... 1920	21.54	312	Aug. 27, 1929	16.00	211
Dec. ... 1914	21.16	280	July ... 1920	21.54	312	Sept. 23, 1929	17.47	205
Jan. ... 1915	21.16	280	Aug. ... 1920	21.54	312	Oct. 23, 1929	17.47	205
Feb. ... 1915	21.16	280	Sept. ... 1920	21.54	312	Nov. 26, 1929	20.95	206
Mar. ... 1915	21.16	280	Oct. ... 1920	21.54	312	Dec. 22, 1929	21.01	206
Apr. ... 1915	21.16	280	Nov. ... 1920	21.54	312	Jan. 24, 1930	24.36	191
May ... 1915	21.16	280	Dec. ... 1920	21.54	312	Feb. 27, 1930	22.22	191
June ... 1915	21.16	280	Jan. ... 1921	21.54	312	Mar. 27, 1930	19.19	191
July ... 1915	21.16	280	Feb. ... 1921	21.54	312	Apr. 27, 1930	21.37	205
Aug. ... 1915	21.16	280	Mar. ... 1921	21.54	312	May 27, 1930	21.37	205
Sept. ... 1915	21.16	280	Apr. ... 1921	21.54	312	June 27, 1930	19.28	204
Oct. ... 1915	21.16	280	May ... 1921	21.54	312	July 29, 1930	18.71	204
Nov. ... 1915	21.16	280	June ... 1921	21.54	312	Aug. 26, 1930	20.91	204
Dec. ... 1915	21.16	280	July ... 1921	21.54	312	Sept. 4, 1930	23.56	204
Jan. ... 1916	21.16	280	Aug. ... 1921	21.54	312	Oct. 4, 1930	20.76	204
Feb. ... 1916	21.16	280	Sept. ... 1921	21.54	312	Nov. 5, 1930	20.76	204

Observations—Well 266 (Continued)

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
Dec. 20	22.06	199	Apr. 15	22.15	200
Jan. 27, 1931	21.70	198	May 17	21.97	200
Feb. 26	20.13	200	June 16	21.10	201
Mar. 26	19.01	200	July 15	20.50	202
Apr. 28	18.91	202	Aug. 12	21.10	200
May 29	20.55	199	Sept. 15	21.18	200
June 25	18.02	202	Oct. 18	21.15	200
Aug. 5	17.64	202	Nov. 14	22.06	198
Aug. 26	18.11	204	Dec. 15	21.80	196
Oct. 6	18.90	202	Feb. 17, 1933	22.38	196
Dec. 17	19.05	202	Feb. 15	22.31	194
Jan. 14, 1932	21.47	200	Mar. 15	25.44	189
Feb. 7	22.37	...	Apr. 18	22.26	203
Feb. 18	22.37	...	May 26	20.64	200
	22.37	260	June 16	20.97	200
			July 20	19.59	222

* Pump 3 operating; started at 5:30 a.m.

267 (old 223). 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, 220 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.)
Soil (Pa)	0-100	Red rock (Tbk)	235-325
Brown clay (Pa)	100-150	Blue rock (Tbk)	325-420
Blue clay (Pa)	150-210	Soft water rock (Tbk)	420-464
Gravel (Pa)	210-215	Soil (Pa)	0-110
Red clay (Pa and probably some Tbk at bottom)	215-220	Brown clay (Pa)	110-160
		Blue clay (Tbk)	160-200
		Gravel (Pa)	200-210

Observations

Bench mark, top of valve on 2-in. vertical pipe about 20 ft. east of pump house, 3 ft. above ground; altitude, 33.41 ft.

Date	Head (ft.)	Chloride (p.p.m.)	Date	Head (ft.)	Chloride (p.p.m.)
May ... 1890	31.5	...	Oct. ... 1909	591	...
June ... 1890	31.5	...	Jan. ... 1910	54.8	...
May ... 1891	302	...	Feb. ... 1910	23.9	...
Feb. ... 1902	24.6	...	Mar. ... 1910	23.9	...
Mar. ... 1904	24.6	...	Sept. ... 1911	24.7	603
Apr. ... 1904	30.9	...	Nov. ... 1911	25.3	...
Dec. ... 1905	26.8	...	Jan. ... 1912	26.8	...
Aug. ... 1905	18.1	437	Feb. ... 1912	27.9	...
Nov. ... 1905	25.6	...	Mar. ... 1912	27.7	...
Dec. ... 1907	22.3	...	Apr. ... 1912	24.8	...
Jan. ... 1907	25.6	...	May ... 1912	25.6	589
Feb. ... 1907	26.7	...	June ... 1912	25.2	...
Mar. ... 1907	25.2	...	July ... 1912	25.2	...
Apr. ... 1908	26.0	465	Aug. ... 1912	22.7	...
Dec. ... 1908	25.5	510	Sept. ... 1912	21.1	...
Feb. ... 1909	23.5	502	Oct. ... 1912	21.9	...
Mar. ... 1909	24.0	515	Nov. ... 1912	21.9	...

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	963		Mar. ... 1930	22.3	582
Feb. ... 1916	30.1	619	Dec. ... 1924	25.5		Apr. ... 1930	22.3	574
Mar. ... 1916	27.1		Jan. ... 1925	24.9		May ... 1930	19.8	841
Apr. ... 1916	27.1	724	Feb. ... 1925	23.0		June ... 1930	20.9	1,091
June ... 1916	997		Mar. ... 1925	21.9		July ... 1930	20.9	1,164
Sept. 16	24.5		Apr. ... 1925	997		Aug. ... 1930	19.7	1,205
Nov. 3	24.4		May ... 1925	1,033		Sept. ... 1930	21.7	1,257
Dec. 1	23.4		June ... 1925	20.9		Oct. ... 1930	22.5	748
Jan. ... 1917	28.9		July ... 1925	20.9		Nov. ... 1930	22.5	1,195
Feb. ... 1917	29.4		Aug. ... 1925	22.4		Dec. ... 1930	22.3	987
Mar. ... 1917	30.3		Sept. ... 1925	25.1		Jan. ... 1931	21.7	800
May ... 1917	28.8		Oct. ... 1925	20.6	861	Feb. ... 1931	20.9	861
June ... 1917	28.8	648	Nov. ... 1925	19.8	697	Mar. ... 1931	20.9	1,080
Sept. ... 1917	25.5		Dec. ... 1925	21.1	979	Apr. ... 1931	19.2	1,193
Nov. ... 1917	25.3		Jan. ... 1926	809		May ... 1931	22.3	923
Dec. ... 1917	26.9		Feb. ... 1926	19.7	899	June ... 1931	19.4	946
Jan. ... 1918	28.8		Mar. ... 1926	19.7	899	July ... 1931	21.9	1,269
Feb. ... 1918	28.7		Apr. ... 1926	19.7	899	Aug. ... 1931	21.1	1,287
Mar. ... 1918	26.7		May ... 1926	20.1	1,247	Sept. ... 1931	19.1	1,030
Apr. ... 1918	29.4		June ... 1926	19.7	400	Oct. ... 1931	19.7	1,307
May ... 1918	27.1		July ... 1926	22.2		Nov. ... 1931	19.7	1,326
June ... 1918	27.1		Aug. ... 1926	22.8		Dec. ... 1931	20.3	1,095
Sept. ... 1918	27.6		Sept. ... 1926	22.8	706	Jan. ... 1932	22.3	628
Oct. ... 1918	26.0		Oct. ... 1926	21.5	544	Feb. ... 1932	24.6	600
Nov. ... 1918	26.0		Nov. ... 1926	22.9		Mar. ... 1932	22.6	622
Dec. ... 1918	28.8		Dec. ... 1926	19.7	899	Apr. ... 1932	22.6	1,022
Jan. ... 1919	27.6		Jan. ... 1927	19.7	899	May ... 1932	22.6	1,022
Feb. ... 1919	25.5		Feb. ... 1927	21.1	987	June ... 1932	21.1	987
June ... 1919	24.0		Mar. ... 1927	21.1	987	July ... 1932	21.6	1,281
Sept. ... 1919	22.2		Apr. ... 1927	21.1	987	Aug. ... 1932	21.1	1,324
Oct. ... 1919	22.2		May ... 1927	21.1	987	Sept. ... 1932	21.1	1,324
Nov. ... 1919	22.2		June ... 1927	21.1	987	Oct. ... 1932	20.9	1,257
Dec. ... 1919	22.6	791	July ... 1927	21.1	987	Nov. ... 1932	22.7	1,080
Jan. ... 1920	22.6		Aug. ... 1927	21.1	987	Dec. ... 1932	22.7	1,080
Feb. ... 1920	23.6		Sept. ... 1927	21.1	987	Jan. ... 1933	22.5	741
Mar. ... 1920	23.1	748	Oct. ... 1927	21.1	987	Feb. ... 1933	22.6	622
Apr. ... 1920	23.1		Nov. ... 1927	21.1	987	Mar. ... 1933	22.6	622
June ... 1920	23.1		Dec. ... 1927	21.1	987	Apr. ... 1933	22.6	622
July ... 1920	21.2		Jan. ... 1928	21.1	987	May ... 1933	22.3	612
Aug. ... 1920	22.7	765	Feb. ... 1928	21.1	987	June ... 1933	22.6	622
Sept. ... 1920	22.7		Mar. ... 1928	21.1	987	July ... 1933	22.3	612
Oct. ... 1920	22.7		Apr. ... 1928	21.1	987	Aug. ... 1933	22.6	622
Jan. ... 1921	22.7		May ... 1928	21.1	987	Sept. ... 1933	22.3	612
Feb. ... 1921	22.7		June ... 1928	21.1	987	Oct. ... 1933	22.6	622
Mar. ... 1921	26.2		July ... 1928	21.1	987	Nov. ... 1933	22.3	612
Apr. ... 1921	22.5		Aug. ... 1928	21.1	987	Dec. ... 1933	22.6	622
May ... 1921	22.5		Sept. ... 1928	21.1	987	Jan. ... 1934	21.7	1,260
June ... 1921	22.5		Oct. ... 1928	21.1	987	Feb. ... 1934	21.7	1,260
July ... 1921	22.5		Nov. ... 1928	21.1	987	Mar. ... 1934	21.7	1,260
Aug. ... 1921	22.5		Dec. ... 1928	21.1	987	Apr. ... 1934	21.7	1,260
Sept. ... 1921	22.5		Jan. ... 1929	21.1	987	May ... 1934	21.7	1,260
Oct. ... 1921	22.5		Feb. ... 1929	21.1	987	June ... 1934	21.7	1,260
Nov. ... 1921	22.5		Mar. ... 1929	21.1	987	July ... 1934	21.7	1,260
Dec. ... 1921	22.5		Apr. ... 1929	21.1	987	Aug. ... 1934	21.7	1,260
Jan. ... 1922	22.5		May ... 1929	21.1	987	Sept. ... 1934	21.7	1,260
Feb. ... 1922	22.5		June ... 1929	21.1	987	Oct. ... 1934	21.7	1,260
Mar. ... 1922	22.5		July ... 1929	21.1	987	Nov. ... 1934	21.7	1,260
Apr. ... 1922	22.5		Aug. ... 1929	21.1	987	Dec. ... 1934	21.7	1,260
May ... 1922	22.5		Sept. ... 1929	21.1	987	Jan. ... 1935	21.7	1,260
June ... 1922	22.5		Oct. ... 1929	21.1	987	Feb. ... 1935	21.7	1,260
July ... 1922	22.5		Nov. ... 1929	21.1	987	Mar. ... 1935	21.7	1,260
Aug. ... 1922	22.5		Dec. ... 1929	21.1	987	Apr. ... 1935	21.7	1,260
Sept. ... 1922	22.5		Jan. ... 1930	21.1	987	May ... 1935	21.7	1,260
Oct. ... 1922	22.5		Feb. ... 1930	21.1	987	June ... 1935	21.7	1,260
Nov. ... 1922	22.5		Mar. ... 1930	21.1	987	July ... 1935	21.7	1,260
Dec. ... 1922	22.5		Apr. ... 1930	21.1	987	Aug. ... 1935	21.7	1,260
Jan. ... 1923	22.5		May ... 1930	21.1	987	Sept. ... 1935	21.7	1,260
Feb. ... 1923	22.5		June ... 1930	21.1	987	Oct. ... 1935	21.7	1,260
Mar. ... 1923	22.5		July ... 1930	21.1	987	Nov. ... 1935	21.7	1,260
Apr. ... 1923	22.5		Aug. ... 1930	21.1	987	Dec. ... 1935	21.7	1,260
May ... 1923	22.5		Sept. ... 1930	21.1	987	Jan. ... 1936	21.7	1,260
June ... 1923	22.5		Oct. ... 1930	21.1	987	Feb. ... 1936	21.7	1,260
July ... 1923	22.5		Nov. ... 1930	21.1	987	Mar. ... 1936	21.7	1,260
Aug. ... 1923	22.5		Dec. ... 1930	21.1	987	Apr. ... 1936	21.7	1,260
Sept. ... 1923	22.5		Jan. ... 1931	21.1	987	May ... 1936	21.7	1,260
Oct. ... 1923	22.5		Feb. ... 1931	21.1	987	June ... 1936	21.7	1,260
Nov. ... 1923	22.5		Mar. ... 1931	21.1	987	July ... 1936	21.7	1,260
Dec. ... 1923	22.5		Apr. ... 1931	21.1	987	Aug. ... 1936	21.7	1,260
Jan. ... 1924	22.5		May ... 1931	21.1	987	Sept. ... 1936	21.7	1,260
Feb. ... 1924	22.5		June ... 1931	21.1	987	Oct. ... 1936	21.7	1,260
Mar. ... 1924	22.5		July ... 1931	21.1	987	Nov. ... 1936	21.7	1,260
Apr. ... 1924	22.5		Aug. ... 1931	21.1	987	Dec. ... 1936	21.7	1,260
May ... 1924	22.5		Sept. ... 1931	21.1	987	Jan. ... 1937	21.7	1,260
June ... 1924	22.5		Oct. ... 1931	21.1	987	Feb. ... 1937	21.7	1,260
July ... 1924	22.5		Nov. ... 1931	21.1	987	Mar. ... 1937	21.7	1,260
Aug. ... 1924	22.5		Dec. ... 1931	21.1	987	Apr. ... 1937	21.7	1,260
Sept. ... 1924	22.5		Jan. ... 1932	21.1	987	May ... 1937	21.7	1,260
Oct. ... 1924	22.5		Feb. ... 1932	21.1	987	June ... 1937	21.7	1,260
Nov. ... 1924	22.5		Mar. ... 1932	21.1	987	July ... 1937	21.7	1,260
Dec. ... 1924	22.5		Apr. ... 1932	21.1	987	Aug. ... 1937	21.7	1,260
Jan. ... 1925	22.5		May ... 1932	21.1	987	Sept. ... 1937	21.7	1,260
Feb. ... 1925	22.5		June ... 1932	21.1	987	Oct. ... 1937	21.7	1,260
Mar. ... 1925	22.5		July ... 1932	21.1	987	Nov. ... 1937	21.7	1,260
Apr. ... 1925	22.5		Aug. ... 1932	21.1	987	Dec. ... 1937	21.7	1,260
May ... 1925	22.5		Sept. ... 1932	21.1	987	Jan. ... 1938	21.7	1,260
June ... 1925	22.5		Oct. ... 1932	21.1	987	Feb. ... 1938	21.7	1,260
July ... 1925	22.5		Nov. ... 1932	21.1	987	Mar. ... 1938	21.7	1,260
Aug. ... 1925	22.5		Dec. ... 1932	21.1	987	Apr. ... 1938	21.7	1,260
Sept. ... 1925	22.5		Jan. ... 1933	21.1	987	May ... 1938	21.7	1,260
Oct. ... 1925	22.5		Feb. ... 1933	21.1	987	June ... 1938	21.7	1,260
Nov. ... 1925	22.5		Mar. ... 1933	21.1	987	July ... 1938	21.7	1,260
Dec. ... 1925	22.5		Apr. ... 1933	21.1	987	Aug. ... 1938	21.7	1,260
Jan. ... 1926	22.5		May ... 1933	21.1	987	Sept. ... 1938	21.7	1,260
Feb. ... 1926	22.5		June ... 1933	21.1	987	Oct. ... 1938	21.7	1,260
Mar. ... 1926	22.5		July ... 1933	21.1	987	Nov. ... 1938	21.7	1,260
Apr. ... 1926	22.5		Aug. ... 1933	21.1	987	Dec. ... 1938	21.7	1,260
May ... 1926	22.5		Sept. ... 1933	21.1	987	Jan. ... 1939	21.7	1,260
June ... 1926	22.5		Oct. ... 1933	21.1	987	Feb. ... 1939	21.7	1,260
July ... 1926	22.5		Nov. ... 1933	21.1	987	Mar. ... 1939	21.7	1,260
Aug. ... 1926	22.5		Dec. ... 1933	21.1	987	Apr. ... 1939	21.7	1,260
Sept. ... 1926	22.5		Jan. ... 1934	21.1	987	May ... 1939	21.7	1,260
Oct. ... 1926	22.5		Feb. ... 1934	21.1	987	June ... 1939	21.7	1,260
Nov. ... 1926	22.5		Mar. ... 1934	21.1	987	July ... 1939	21.7	1,260
Dec. ... 1926	22.5		Apr. ... 1934	21.1	987	Aug. ... 1939	21.7	1,260
Jan. ... 1927	22.5		May ... 1934	21.1	987	Sept. ... 1939	21.7	1,260
Feb. ... 1927	22.5		June ... 1934	21.1	987	Oct. ... 1939	21.7	1,260
Mar. ... 1927	22.5		July ... 1934	21.1	987	Nov. ... 1939	21.7	1,260
Apr. ... 1927	22.5		Aug. ... 1934	21.1	987	Dec. ... 1939	21.7	1,260
May ... 1927	22.5		Sept. ... 1934	21.1	987	Jan. ... 1940	21.7	1,260
June ... 1927	22.5		Oct. ... 1934	21.1	987	Feb. ... 1940	21.7	1,260
July ... 1927	22.5		Nov. ... 1934	21.1	987	Mar. ... 1940	21.7	1,260
Aug. ... 1927	22.5		Dec. ... 1934	21.1	987	Apr. ... 1940	21.7	1,260
Sept. ... 1927	22.5		Jan. ... 1935	21.1	987	May ... 1940	21.7	1,260
Oct. ... 1927	22.5		Feb. ... 1935	21.1	987	June ... 1940	21.7	1,260
Nov. ... 1927	22.5		Mar. ... 1935	21.1	987	July ... 1940	21.7	1,260
Dec. ... 1927	22.5		Apr. ... 1935	21.1	987	Aug. ... 1940	21.7	1,260
Jan. ... 1928	22.5		May ... 1935	21.1	987	Sept. ... 1940	21.7	1,260
Feb. ... 1928	22.5		June ... 1935	21.1	987	Oct. ... 1940	21.7	1,260
Mar. ... 1928	22.5		July ... 1935	21.1	987	Nov. ... 1940	21.7	1,260
Apr. ... 1928	22.5		Aug. ... 1935	21.1	987	Dec. ... 1940	21.7	1,260
May ... 1928	22.5		Sept. ... 1935	21.1	987	Jan. ... 1941	21.7	1,260
June ... 1928	22.5		Oct. ... 1935	21.1	987	Feb. ... 1941	21.7	1,260
July ... 1928	22.5		Nov. ... 1935	21.1	987	Mar. ... 1941	21.7	1,260
Aug. ... 1928	22.5		Dec. ... 1935	21.1	987	Apr. ... 1941	21.7	1,260
Sept. ... 1928	22.5		Jan. ... 1936	21.1	987	May ... 1941	21.7	1,260
Oct. ... 1928	22.5		Feb. ... 1936	21.1	987	June ...		

Log—Well 269 (Continued)

	Depth (ft.)		Depth (ft.)
Compact rotten coral and clay (Pis and Pa)	108.6-127.5	Compact mudrock (Pa or Tkb)	168.6-210.6
Started to flow	130	Compact grit, dissolves easily (Pa or Tkb)	210.6-222.0
Soft mud (Pa)	127.5-137.5	Compact grit, more solid (Pa or Tkb)	222.0-231.5
Compact mud, shell, decayed vege- tation (Pa)	137.5-153.1	Soft lava rock or boulders (Tkb)	231.5-232.8
Compact mud, grit (Pa or Tkb)	153.1-168.6	Hard lava rock or ledge (Tkb)	232.8-233.0

270 (old 224). Old pump 8 in sugar cane field 50 ft. southeast of Oahu Railway and Land tracks and 500 yd. east of road to Ewa Beach lots. Owner, Ewa Plantation Co. Altitude, about 25 ft. Discontinued in 1905. Windmill used to supply adjacent village with domestic water until 1923, when well was abandoned. Pump 8 is the same as pump 7. Sealed 1938.

271 (old 224-1). Northwestern end of naval ammunition depot reservation on west side of West Loch, Pearl Harbor. Owner, U. S. Navy. Drilled, 1931 by A. H. Hobart. Altitude, 16.1 ft. above mean low water. Depth, 361.7 ft. Diameter, 2 in. Depth to top of aquifer, 345 ft. Use, none.

	Depth (ft.)		Depth (ft.)
Limestone and windblown sand formation. Windblown sand is really partly lithified beach sand. (Pis)	0-6.5	wood (Pa)	213.9-217.1
Hard brown clay with streaks of mudrock (Pa)	6.5-24.1	Cemented gravel (Pa)	217.1-221.8
Hard limestone (Pis)	24.1-25.6	Hard limestone or coral (Pis)	221.8-225.9
Brown clay with streaks of mud- rock (Pa)	25.6-85.1	Soft fine sand and a little mud, almost quicksand (Pa)	225.9-227.9
Hard dark clay with streaks of mudrock (Pa)	85.1-92.1	Brown mudrock, clay, and small coral (Pa and Pis)	227.9-230.3
Compact gray clay (Pa)	92.1-139.4	Compact brown mudrock with oc- casional thin streaks of coral or limestone (Pa and Pis)	230.3-237.1
Conglomerate cemented gravel (Pa)	139.4-134.0	Sandy mudrock (Pa or Tkb)	237.1-240.9
Hard cemented sand (Pa)	134.0-139.2	Hard lava rock, downing water first observed (Tkb)	240.9-244.2
Hard limestone (Pis)	139.2-142.1	Sandy mudrock (Pa)	244.2-253.2
Large pieces of coral, hard packed with sand, shell, and clay (Pis and Pa)	142.1-145.1	Hard lava rock (Tkb)	253.2-263.5
Coral, clay, and some shell (Pis and Pa)	145.1-152.1	Mudrock (Tkb)	263.5-271.5
Compact blue clay (Pa)	152.1-162.1	Hard lava rock (Tkb)	271.5-277.9
Compact mud with some shell (Pa)	162.1-172.1	Compact mudrock (Tkb)	277.9-288.6
Cemented material (Pa)	172.1-172.0	Hard lava rock (Tkb)	288.6-295.5
Mud, fine sand and grit (Pa)	172.0-180.1	Hard lava rock (Tkb)	295.5-301.5
Fine sand and mud (Pa)	180.1-211.8	Hard lava rock (Tkb)	301.5-329.4
Hard cemented sand (Pa)	211.8-212.3	Lead wool	329.4-369.2
Compact mud, sand, and rotten coral (Tkb)		Iron filings	369.2-369.2
		Lead wool	369.2-369.2

272 (old 226). 100 yd. northwest of end of tracks running to Ewa Plantation cane fields in Puuloa. Owner, Ewa Plantation Co. Drilled, 1902. Altitude, about 16 ft. Depth, 972 ft. Diameter, 12 in. at top and 10 in. at bottom. Not in use. Casing, 12 in. to 358 ft., 10 in. to 706 ft. Chloride (p.p.m.), 1902, 6,600.

	Depth (ft.)		Depth (ft.)		Depth (ft.)
Soft coral (Pis)	0-55	Clay (Pa)	165-305	Tough clay (Pa)	360-395
Hard coral (Pis)	55-130	Coral (Pis)	305-350	Coral (Pis)	395-420
Soft coral (Pis)	130-165	Hard coral (Pis)	350-360	Clay (Pa)	420-445

Log—Well 272 (Continued)

	Depth (ft.)		Depth (ft.)		Depth (ft.)
Coral (Pis)	445-530	Red clay (Pa)	660-670	Rock (Pa or Tkb)	746-750
Clay (Pa)	530-537	Clay (Pa)	670-690	Red clay (Pa or Tkb)	750-772
Coral (Pis)	537-555	Soft coral (Pis)	690-720	Rock (Pa or Tkb)	772-777
Coral (Pis)	555-615	Clay (Pa or Tkb)	720-732	Clay (Pa or Tkb)	777-784
Coral (Pis)	615-620	Boulders (Pa or Tkb)	732-737	Red rock (Tkb)	784-972
Clay (Pa)	620-660	Gravel (Pa or Tkb)	737-746		

273A to H (old 225A to H). Pump 9 at Ewa mill. Owner, Ewa Plantation Co. Drilled, A and D, 1891; B and C, 1890; E and F, 1900 by McCandless Bros.; G and H, 1908. Altitude, 46 ft. Depth, A, 510 ft.; B, 517 ft.; C, 516 ft.; D, 720 ft.; E, 540 ft.; F, 538 ft.; G, 498 ft.; H, 497 ft. Diameter, A to C and F to H, 12 in.; D, 8 in.; E, 10 in. Depth to top of aquifer, B and C, about 500 ft.; E, about 475 ft. Use, irrigation and industrial. Casing, B, 430 ft.; C, 447 ft.; E, 450 ft.; F, 451 ft. Depths of wells were reduced in 1926 to reduce salt content of water.

Logs

	Depth (ft.)		Depth (ft.)		Depth (ft.)
Well E		Well F		Well G	
Coral (Pis)	0-40	Brown clay (Pa)	135-140	Soil	0-20
Red clay (Pa)	40-110	Brown clay (Pa)	140-160	Coral (Pis)	20-40
Coral (Pis)	110-125	Brown clay (Pa)	160-190	Coral (Pis)	40-50
Brown clay (Pa)	125-130	Brown clay (Pa)	190-230	Coral (Pis)	50-110
Blue clay (Pa)	330-410	Coral (Pis)	230-370	Brown clay (Pa)	110-125
Red clay (Pa or Tkb)	410-420	Brown clay (Pa)	370-400	Coral (Pis)	125-140
Soft red rock (Tkb)	420-431	Coral (Pis)	400-410	Brown clay (Pa)	140-150
Hard blue rock (Tkb)	431-500	Brown clay (Pa or Tkb)	410-435	Coral (Pis)	150-180
Soft water rock, hard rock at bottom	500-600	Red rock (Tkb)	435-450	Coral (Pis)	200-240
Well E		Brown clay (Pa)	450-475	Brown clay (Pa)	240-345
Soil	0-15	Red water rock (Tkb)	475-485	Coral (Pis)	345-365
Coral (Pis)	15-110	Blue water rock (Tkb)	485-515	Brown clay (Pa or Tkb)	365-435
Brown clay, water at 125 ft. (Pa)	110-130	Red water rock (Tkb)	515-520	Red rock (Tkb)	435-450
Coral (Pis)	130-135	Red rock (Tkb)	520-600	Blue rock (Tkb)	450-520
				Red rock (Tkb)	520-525
				Blue rock (Tkb)	525-600

Observations

Date	Chloride (p.p.m.)					Date	Chloride (p.p.m.)				
	Well A	Well B	Wells C, D	Wells E, F	Wells G, H		Well A	Well B	Wells C, D	Wells E, F	Wells G, H
May 1893			385	.....	.....	May 1921	518	.....	920	1,039	1,410
Dec. 1897			492	.....	.....	Nov. 1921	514	.....	903	1,112	1,735
May 1905			449	.....	.....	June 1922	562	.....	954	1,309	1,610
Aug. 1907			428	.....	.....	Dec. 1922	554	.....	808	1,122	1,551
July 1908			428	.....	.....	May 1923	.....	.....	932	1,330	1,679
Dec. 1908			458	.....	.....	Dec. 1923	528	.....	1,021	.....	.....
Feb. 1909			454	.....	.....	May 1924	591	.....	632	.....	.....
Mar. 1909			477	.....	.....	Oct. 1924	547	.....	1,091	.....	1,693
Sept. 1910			521	.....	.....	Dec. 1925	563	.....	1,101	.....	.....
Sept. 1911			531	.....	.....	Jan. 1926	.....	.....	1,312	.....	.....
Aug. 1912			537	.....	.....	Feb. 1926	543	.....	1,070	.....	.....
Oct. 1913			553	.....	.....	Mar. 1926	537	.....	1,080	.....	.....
Oct. 1914			654	.....	.....	Apr. 1926	551	.....	1,143	.....	.....
Aug. 1915			604	.....	.....	May 1926	554	.....	1,091	.....	.....
Feb. 1916			759	.....	.....	June 1926	559	.....	1,122	.....	.....
Mar. 1916			812	.....	.....	July 1926	558	.....	1,153	.....	.....
June 1916			759	.....	.....	Aug. 1926	560	.....	1,184	.....	.....
June 1917			766	.....	.....	Sept. 1926	561	.....	.....	.....	.....
Nov. 1917			761	.....	.....	Oct. 1926	568	.....	.....	.....	.....
May 1918			742	.....	.....	Nov. 1926	576	.....	.....	.....	.....
Oct. 1919			720	.....	.....	Dec. 1926	574	.....	1,184	.....	.....
Jan. 1920			757	.....	.....	Jan. 1927	589	.....	1,080	.....	.....
Oct. 1920			845	.....	.....	Feb. 1927	584	.....	1,080	.....	.....
Jan. 1921			845	.....	.....	Mar. 1927	597	.....	1,091	.....	.....
Apr. 1921			1,361	.....	.....	Apr. 1927	586	.....	1,091	1,257	.....

RECORDS OF DRILLED WELLS ON OAHU

Observations—Well 273 (Continued)

Date	Chloride (p.p.m.)					Date	Chloride (p.p.m.)				
	Well A	Well B	Wells D	Wells E, F	Wells G, H		Well A	Well B	Wells B, C, D	Wells E, F	Wells G, H
May 1927	593	...	1,112	1,330	...	May 1931	561	1,226	...	1,403	1,777
June	596	...	1,112	1,319	...	June	571	1,247	...	1,382	...
July	595	1,184	1,104	1,379	1,685	July	571	1,267	...	1,413	...
Aug.	596	...	1,226	1,642	1,787	Aug.	571	1,278	...	1,423	...
Sept.	603	1,226	1,247	1,662	1,797	Sept.	582	1,247	...	1,413	...
Oct.	612	1,351	1,382	...	1,756	Oct.	571	1,174	1,299	1,340	1,434
Nov.	613	...	1,403	...	1,766	Nov.	571	...	...	...	...
Dec.	582	1,184	1,195	...	...	Dec.	561	977	1,278	1,070	...
Jan. 1928	592	1,226	1,060	1,192	...	Jan. 1932	571	1,195	...	1,413	...
Feb.	592	1,101	...	1,174	...	Feb.	571	1,236	...	1,423	...
Mar.	592	1,091	...	1,174	...	Mar.	571	1,153	...	1,330	1,403
Apr.	603	1,112	...	1,316	...	Apr.	561	1,174	...	1,403	...
May	603	1,143	...	1,367	1,548	May	561	1,174	...	1,351	...
June	623	1,164	...	1,339	1,488	June	561	1,250	...	1,423	...
July	603	1,070	...	1,195	...	July	540	1,319	...	1,444	...
Aug.	613	1,132	...	1,299	1,392	Aug.	551	1,267	...	1,444	...
Sept.	592	1,226	1,444	1,465	1,756	Sept.	551	1,267	...	1,444	...
Oct.	592	...	1,361	...	1,839						
Nov.	592	1,101	1,299	...	...						
Dec.	582	987	...	1,174	...						
Jan. 1929	571	997	...	1,132	...						
Feb.	592	1,101	...	1,267	...						
Mar.	582	1,101	...	1,267	...						
Apr.	592	1,143	...	1,399	...	Jan. 1933	1,320	998	1,160	...	542
May	582	1,203	...	1,466	1,755	Feb.	1,380	...	1,200	...	523
June	592	1,236	...	1,569	1,766	Mar.	1,440	...	1,320	1,730	542
July	571	1,029	...	1,236	1,465	Apr.	1,500	...	1,330	...	542
Aug.	582	1,195	1,292	1,475	1,745	May	1,660	...	1,340	1,960	538
Sept.	603	...	1,455	...	1,901	June	1,710	...	1,480	1,930	550
Oct.	592	...	1,434	...	1,839	July	1,740	...	1,470	1,990	536
Nov.	582	...	1,382	...	1,839	Aug.	1,720	...	1,430	2,000	541
Dec.	592	...	...	...	...	Sept.	1,710	1,340	1,420	2,010	539
Jan. 1930	561	1,039	...	1,205	...	Oct.	1,710	1,340	1,420	2,010	539
Feb.	561	1,070	...	1,276	...	Nov.	1,710	1,340	1,420	2,010	539
Mar.	551	1,060	...	1,247	...	Dec.	1,710	1,340	1,420	2,010	539
Apr.	551	1,192	...	1,267	1,330	Jan. 1934	1,540	...	1,110	1,690	524
May	561	1,153	...	1,288	...	Feb.	1,430	...	1,160	...	538
June	561	1,143	...	1,361	1,610	Mar.	1,620	...	1,280	1,760	531
July	561	1,205	...	1,465	1,735	Apr.	1,650	...	1,310	1,820	534
Aug.	571	1,278	...	1,548	1,818	May	1,650	...	1,320	1,820	534
Sept.	551	...	1,174	...	1,662	June	1,670	...	1,310	1,820	534
Oct.	551	...	1,240	...	1,735	July	1,670	...	1,310	1,820	534
Nov.	561	1,143	1,112	1,267	...	Aug.	1,530	...	1,330	...	540
Dec.	561	1,080	...	1,392	1,465	Sept.	1,530	...	1,330	...	540
Jan. 1931	561	1,184	...	1,153	1,413	Oct.	1,540	...	1,360	...	540
Feb.	571	1,184	...	1,392	1,662	Nov.	1,450	1,080	1,360	...	540
Mar.	571	1,257	...	1,475	1,725	Dec.	...	...	...	...	...

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 Pau Kapuni, Hionouliuli. 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	Dec. 1, 1905	194	Mar. 20, 1907	134	Apr. 25, 1908	213
Oct. 12, 1902	191	Apr. 6, 1906	199	Apr. 14	208	June 22	213
Sept. 24, 1903	168	June 16	201	May 26	201	Oct. 21	213
Oct. 19, 1904	158	Sept. 5	212	...	...	...	...
Oct. 16, 1905	201	Oct. 28	219	Feb. 27, 1908	209	July 30, 1909	203

RECORDS OF DRILLED WELLS ON OAHU

Observations—Well 274 (Continued)

Date	Chloride (p.p.m.)	Date	Chloride (p.p.m.)	Date	Chloride (p.p.m.)	Date	Chloride (p.p.m.)
Oct. 27, 1906	198	Apr. 15, 1913	206	Mar. 3, 1916	219	Apr. ... 1925	177
Feb. 7, 1910	209	June 15	201	Apr. 4	206	June ... 1926	177
July 7	201	July 15	203	May 15	206	June ... 1927	177
Aug. 28	208	Sept. 15	208	June 15	206	July ... 1928	177
Sept. 15	206	Oct. 15	209	Aug. 1	213	Aug. ... 1929	177
Oct. 15	207	Nov. 15	209	Aug. 10	213	Sept. ... 1930	184
Nov. 15	209	Dec. 15	210	Sept. 15	213	Oct. ... 1931	182
Dec. 15	206	Jan. 15, 1914	216	Oct. 17	206	Nov. ... 1932	179
Jan. 15, 1911	195	Feb. 15	209	Nov. 23	213	Dec. ... 1933	174
Apr. 15	213	Mar. 15	219	Apr. 30, 1917	219	Jan. ... 1934	219
June 15	209	Apr. 15	210	May 3	234	Feb. ... 1935	181
Sept. 15	206	May 15	224	Oct. 24	206	Apr. ... 1936	180
Nov. 15	213	June 15	213	Mar. 5, 1919	194	May ... 1937	180
Dec. 15	191	July 15	206	June 6	191	June ... 1938	163
Jan. 15, 1912	202	Aug. 15	206	July 5	194	July ... 1939	177
Feb. 15	198	Sept. 15	202	Aug. 16	191	Aug. ... 1940	177
Mar. 15	206	Oct. 15	206	June ... 1923	188	Sept. ... 1941	179
Apr. 15	206	Nov. 15	209	July ... 1924	182	Oct. ... 1942	183
May 18	198	Jan. 15, 1915	234	Aug. ... 1925	194	Nov. ... 1943	177
June 15	198	Feb. 1	209	Sept. ... 1926	194	Dec. ... 1944	169
July 15	202	Mar. 15	209	Sept. ... 1927	177	Jan. ... 1945	177
Aug. 15	202	Apr. 15	209	Sept. ... 1928	177	Feb. ... 1946	170
Sept. 15	202	May 15	209	Sept. ... 1929	177	Mar. ... 1947	172
Oct. 15	202	June 15	213	Sept. ... 1930	187	Apr. ... 1948	177
Nov. 15	202	July 15	206	Oct. ... 1931	189	May ... 1949	174
Dec. 15, 1913	202	Aug. 15	213	Oct. ... 1932	187	June ... 1950	177
Jan. 15, 1914	202	Sept. 15	206	Dec. ... 1925	189	Nov. ... 1951	177
Feb. 15	202	Oct. 15	206	Mar. ... 1926	178		
Mar. 15	202	Dec. 15	206				

* 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.)
Jan. ... 1928	19.6	...	June ... 1931	18.6	177	June 4, 1933	19.3	170
Feb. ...	19.7	170	July ...	19.1	177	June 12	19.2	170
Mar. ...	19.5	175	Aug. ...	17.8	180	June 19	...	177
Apr. ...	19.5	176	Sept. ...	18.0	...	June 25	19.0	170
May ...	...	...	Oct. ...	18.3	177	July 4	18.9	177
June ...	...	...	Nov. ...	18.5	177	July 10	...	170
July ...	18.7	182	Dec. ... 1932	18.6	184	July 17	...	177
Aug. ...	18.6	179	Jan. ...	18.7	184	July 24	18.9	177
Sept. ...	18.2	184	Feb. ...	18.8	...	Aug. 15	...	175
Oct. ...	17.9	186	Mar. ...	19.6	...	Aug. 21	...	170
Nov. ...	18.6	180	Apr. ...	19.3	170	Aug. 28	...	177
Dec. ...	19.0	...	May ...	19.4	179	Sept. 4	18.3	177
Jan. ... 1929	19.0	188	June ...	18.9	181	Sept. 12	...	177
Feb. ...	19.0	177	July ...	18.4	177	Sept. 16	18.4	177
Mar. ...	18.9	177	Aug. ...	18.7	177	Sept. 19	...	177
Apr. ...	18.8	179	Sept. ...	18.4	177	Sept. 24	18.4	177
May ...	18.8	177	Oct. ...	18.7	177	Oct. 1	18.6	177
June ...	18.2	177	Nov. ...	18.7	177	Oct. 3	...	177
July ...	18.7	177	Dec. ...	19.3	177	Oct. 10	18.5	177
Aug. ...	...	...	Jan. 1, 1933	19.5	...	Oct. 15	18.5	...
Sept. ...	18.1	177	Jan. 15	19.5	...	Oct. 22	18.5	...
Oct. ...	17.7	177	Jan. 22	19.6	...	Oct. 29	18.5	...
Nov. ...	18.2	...	Feb. 5	19.6	...	Nov. 5	18.6	...
Dec. ...	18.7	...	Feb. 12	19.6	...	Nov. 12	18.6	...
Jan. ... 1930	19.2	...	Feb. 19	19.6	...	Nov. 19	18.6	...
Feb. ...	19.6	...	Feb. 26	19.6	...	Nov. 26	18.6	...
Mar. ...	19.3	...	Mar. 5	19.7	...	Nov. 30	18.7	...
Apr. ...	19.2	170	Mar. 12	19.8	...	Dec. 3	18.7	...
May ...	...	...	Mar. 19	19.8	...	Dec. 5	18.8	177
June ...	...	...	Mar. 26	19.9	...	Dec. 10	18.8	177
July ...	18.0	184	Mar. 29	20.0	...	Dec. 17	18.8	170
Aug. ...	20.4	...	Apr. 5	20.0	...	Dec. 24	18.8	...
Sept. ...	18.1	184	Apr. 12	20.0	...	Dec. 31	19.0	...
Oct. ...	18.7	...	Apr. 19	20.0	...	Jan. 1, 1934	19.1	...
Nov. ...	18.9	170	Apr. 26	20.0	...	Jan. 8	19.2	...
Dec. ...	19.0	...	Apr. 23	19.9	...	Jan. 14	19.3	...
Jan. ... 1931	19.1	177	Apr. 30	19.8	...	Jan. 21	19.3	...
Feb. ...	19.0	174	May 7	19.6	170	Jan. 28	19.4	...
Mar. ...	18.7	377	May 16	19.7	170	Feb. 4	19.4	...
Apr. ...	18.6	177	May 21	19.4	177	Feb. 11	...	...

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. 14	18.5	...
Mar. 18	19.5	...	July 4	18.4	...	Oct. 21	18.6	...
Mar. 25	...	170	July 9	...	170	Oct. 28	18.6	...
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	...	177	Nov. 11	18.6	...
Apr. 14	...	170	Aug. 8	18.3	...	Nov. 18	18.7	...
Apr. 22	18.9	170	Aug. 17	...	170	Nov. 25	18.8	...
Apr. 29	19.0	...	Aug. 19	18.2	...	Nov. 30	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	...	Sept. 15	...	170	Dec. 18	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 Barretto. 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).....	68-85	Cinders, water (Twb).....	160-168
Clinker (Twb).....	85-97	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).....	103-105	Hard rock (Twb).....	181-185
Clinker (Twb).....	105-107	Cinders (Twb).....	185-191
Hard brown rock (Twb).....	107-109	Clinker (Twb).....	191-209
Clinker (Twb).....	109-112		

275 (old 228-1). On Pua Kapele, 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 3/4-in. holes. Head (ft.), Jan. 6, 1939, 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	Medium 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).....	78-96		

276A to K (old 228A to K). Pumping stations 10, 11, and 12 about 1,100 yd. northwest of Gilbert R. R. 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)

	Depth (ft.)		Depth (ft.)
Well B		Well I	
Red earth, some gravel (Pa).....	0-35	Rock (Twb).....	58-155
Gravel (Pa).....	35-40	Wells F and G	
Red earth (Pa or Twb).....	40-54	Clay (Ra).....	0-11
Red blue rock (Twb).....	54-72	Boulders, gravel, and clay (Pa).....	11-20
Blue water rock, poor (Twb).....	72-105	Earth and clay (Pa or Twb).....	20-58
Blue water rock, good (Twb).....	105-112	Rock (Twb).....	58-103
Blue water rock, poor (Twb).....	112-140	Well I	
Blue water rock, good (Twb).....	140-155	Red earth with some gravel (Pa and probably some Twb at bottom).....	0-54
Red rock, do not believe any water in same (Twb).....	155-160	Hard blue rock (Twb).....	54-75
Well E		Blue water rock (Twb).....	75-130
Soft.....	0-11	Red rock (Twb).....	130-136
Boulders, gravel, and clay (Pa).....	11-20	Blue water rock (Twb).....	136-154
Earth and clay (Pa or Twb).....	20-58	Rotten lava, believed to contain no water (Twb).....	154-160

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.				476	...	...	Feb. 16.3	...	...	...	453	380	404
1908							Mar. 16.4	...	...	...	651	504	432
Dec.				470	...	...	Apr. 15.8	...	...	...	649	512	408
1909							June 15.0	...	...	...	...	...	...
Feb. 16.7	...	...	...	...	...	...	Sept. 15.2	...	...	...	...	...	...
Mar. 16.1	...	...	...	...	...	...	Nov. 15.6	...	...	...	...	...	...
Dec.				463	...	...	Dec. 15.3	...	...	...	554	388	400
1910							1917						
Jan. 15.8	...	...	...	...	...	...	Jan. 15.7	...	...	...	...	...	...
Feb. 15.8	...	...	...	...	...	...	Feb. 15.8	...	...	...	...	...	...
June 15.8	...	...	...	...	...	...	Mar. 15.7	...	...	...	...	...	...
Sept. 16.1	...	...	...	513	400	...	May 15.6	...	...	...	...	...	...
Nov. 15.8	...	...	...	...	...	...	June 15.5	...	...	...	667	526	432
1911							July 15.4	...	...	...	...	...	...
Jan. 16.2	...	...	...	...	...	...	Sept. 15.1	...	...	...	...	...	...
Feb. 16.0	...	...	...	...	...	...	Nov. 15.1	...	...	...	667	514	424
Mar. 16.2	...	...	...	...	...	...	Dec. 15.5	...	...	...	...	...	...
July 15.2	...	...	...	...	...	...	1918						
Sept. 14.7	...	...	...	...	...	...	Jan. 15.8	...	...	...	...	...	...
Dec. 14.7	...	...	...	...	...	...	Feb. 15.9	...	...	...	...	...	...
1912							Mar. 15.7	...	...	...	...	...	...
Jan. 15.2	...	...	...	...	...	...	Apr. 16.0	...	...	...	...	...	...
Feb. 15.2	...	...	...	...	...	...	May 15.6	...	...	...	754	628	503
July 14.7	...	...	...	...	...	...	July 15.8	...	...	...	...	...	...
Sept. 14.6	...	...	...	...	...	...	Sept. 15.9	...	...	...	...	...	...
Dec. 15.3	...	...	...	...	...	...	Nov. 15.9	...	...	...	...	...	...
1913							Dec. 16.0	...	...	...	...	...	...
Feb. 15.0	...	...	...	...	...	...	1919						
Mar. 15.5	...	...	...	...	...	...	Jan. 15.9	...	...	...	...	...	...
Jul. 15.3	...	...	...	...	...	...	Mar. 15.5	...	...	...	...	...	...
Sept. 15.2	...	...	...	...	...	...	June 15.5	...	...	...	...	...	...
Oct. 15.4	...	...	...	...	...	...	July 15.4	...	...	...	...	...	...
Nov. 15.3	...	...	...	...	...	...	Sept. 15.2	...	...	...	651	487	368
1914							Oct. 15.4	...	...	...	...	...	...
Jan. 15.0	...	...	...	...	...	...	Nov. 15.1	...	...	...	...	...	...
Feb. 15.3	...	...	...	...	...	...	Dec. 15.1	...	...	...	...	...	...
Jul. 15.2	...	...	...	...	...	...	1920						
Oct. 15.2	...	...	...	609	458	...	Jan. 15.3	...	...	...	670	503	440
Sept. 15.2	...	...	...	609	472	387	Feb. 15.4	...	...	...	...	...	...
Oct. 15.2	...	...	...	...	...	...	July 15.2	...	...	...	...	...	...
Nov. 15.2	...	...	...	...	...	...	Oct. 15.2	...	...	...	624	498	408
Dec. 15.2	...	...	...	...	...	...	Nov. 15.2	...	...	...	...	...	...
1915							Dec. 15.2	...	...	...	...	...	...
Jan. 15.2	...	...	...	...	...	...	1921						
Feb. 15.0	...	...	...	...	...	...	Jan. 15.8	...	...	...	662	532	412
July 14.5	...	...	...	...	...	...	Apr. 15.0	...	...	...	...	...	...
Aug. 15.2	...	...	...	623	496	408	Oct. 15.0	...	...	...	...	...	...
Nov. 15.3	...	...	...	...	...	...	Nov. 15.3	...	...	...	638	510	430
Dec. 15.2	...	...	...	...	...	...	Dec. 15.1	...	...	...	...	...	...
1916							1922						
Jan. 15.7	...	...	...	...	...	...	Jan. 15.2	...	...	...	...	...	...

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						
Jan. 15.00		545	.....	620	516	448	July 13.2	14.1	.....	634	530	448	.....
Mar. 15.00		545	.....	620	516	448	Aug. 13.7	.....	.....	630	540	478	.....
Dec. 15.00		545	.....	620	516	448	Sept. 13.0	.....	.....	630	530	478	.....
1923							Oct. 13.1	.....	.....	610	540	492	.....
Jan. 15.00		545	.....	620	516	448	Nov. 12.5	14.5	13.0	613	540	492	.....
Mar. 15.00		545	.....	620	516	448	Dec. 14.0	14.5	14.1	613	540	492	.....
Apr. 15.00		545	.....	620	516	448	1930						
May 14.6		545	.....	620	516	448	Feb. 14.4	14.9	14.7	605	571	513	.....
Nov. 14.6		545	.....	620	516	448	Mar. 14.0	14.6	13.9	634	551	505	.....
Dec. 15.2		545	.....	620	516	448	Apr. 13.9	14.8	13.5	603	540	467	.....
1924							May 13.8	.....	.....	613	530	457	.....
Jan. 15.00		545	.....	620	516	448	June 13.0	.....	.....	603	530	457	.....
Mar. 15.00		545	.....	620	516	448	July 13.0	.....	.....	603	530	457	.....
Apr. 15.00		545	.....	620	516	448	Aug. 13.0	.....	.....	603	530	457	.....
Oct. 15.00		545	.....	620	516	448	Sept. 13.4	.....	13.8	603	540	505	.....
Dec. 15.2		545	.....	620	516	448	Oct. 13.7	.....	13.7	603	530	505	.....
1925							Nov. 14.1	.....	13.1	616	540	492	.....
Jan. 15.2		545	.....	620	516	448	Dec. 13.8	.....	13.9	634	561	530	.....
Mar. 14.8		545	.....	620	516	448	1931						
Apr. 14.8		545	.....	620	507	494	Jan. 13.7	.....	13.4	634	551	510	.....
Sept. 14.8		545	.....	620	507	494	Feb. 13.4	.....	13.3	634	551	510	.....
Nov. 14.6		545	.....	620	493	481	Mar. 13.7	.....	13.4	634	551	510	.....
Dec. 14.9		545	.....	620	493	481	Apr. 13.1	.....	12.9	605	530	498	.....
1926							May 12.8	.....	12.8	616	540	492	.....
Jan. 15.00		545	.....	620	516	448	June 13.0	.....	12.9	618	542	505	.....
Feb. 14.6		545	.....	620	516	448	July 14.8	.....	13.5	609	543	513	.....
Apr. 13.8		545	.....	620	516	448	Aug. 13.7	.....	13.2	612	540	492	.....
June 14.4		545	.....	620	516	448	Sept. 13.0	.....	12.7	610	552	512	.....
July 14.4		545	.....	620	516	448	Oct. 13.2	.....	13.4	611	552	518	.....
Sept. 14.4		545	.....	620	516	448	Nov. 13.3	.....	13.3	617	552	518	.....
Oct. 14.1		545	.....	620	516	448	Dec. 13.4	13.7	13.2	556	519	496	.....
Dec. 14.5		545	.....	620	516	448	1932						
1927							Jan. 13.4	13.5	13.2	610	558	505	.....
Jan. 14.5		545	.....	680	562	570	Feb. 13.9	13.9	13.6	542	500	484	.....
Mar. 14.9		545	.....	684	565	578	Mar. 14.5	14.6	14.6	511	508	489	.....
Apr. 13.8		545	.....	690	573	581	Apr. 13.4	13.4	13.3	618	561	516	.....
May 15.9		545	.....	697	570	570	May 13.2	13.2	12.8	612	546	516	.....
June 15.9		545	.....	693	568	571	June 13.1	13.2	12.9	596	537	504	.....
July 15.9		545	.....	684	541	499	July 13.1	13.2	12.8	604	519	502	.....
Aug. 15.9		545	.....	684	541	499	Aug. 13.1	13.2	12.8	604	519	502	.....
Sept. 15.9		545	.....	684	541	499	Sept. 13.1	13.0	13.1	595	535	495	.....
Oct. 15.9		545	.....	684	541	499	Oct. 13.1	13.0	13.3	590	524	486	.....
Nov. 15.9		545	.....	684	541	499	Nov. 13.8	13.9	13.6	585	518	487	.....
Dec. 15.9		545	.....	684	541	499	Dec. 13.8	14.1	13.6	612	546	498	.....
1928							1933						
Jan. 14.9		545	.....	621	526	516	Jan. 13.8	14.01	13.74	589	546	475	.....
Feb. 14.9		545	.....	621	526	516	Feb. 14.1	14.53	14.12	544	496	445	.....
Mar. 14.9		545	.....	621	526	516	Mar. 13.66	13.87	14.16	578	514	465	.....
Apr. 14.9		545	.....	621	526	516	Apr. 13.74	14.01	13.74	589	546	475	.....
May 14.9		545	.....	621	526	516	May 13.39	13.79	13.75	614	546	498	.....
June 14.9		545	.....	621	526	516	June 13.11	13.11	12.91	623	557	512	.....
July 14.9		545	.....	621	526	516	July 13.01	13.01	12.89	622	556	511	.....
Aug. 14.9		545	.....	621	526	516	Aug. 13.01	13.01	12.88	601	546	504	.....
Sept. 14.9		545	.....	621	526	516	Sept. 13.13	12.89	12.73	598	542	498	.....
Oct. 14.9		545	.....	621	526	516	Oct. 13.21	12.81	12.64	584	538	494	.....
Nov. 14.9		545	.....	621	526	516	Nov. 13.30	13.23	13.28	598	542	494	.....
Dec. 14.9		545	.....	621	526	516	Dec. 13.61	13.67	13.74	556	526	490	.....
1929							1934						
Jan. 14.9		545	.....	621	526	516	Jan. 13.97	14.00	13.95	567	547	502	.....
Feb. 14.9		545	.....	621	526	516	Feb. 14.08	14.43	14.15	568	547	500	.....
Mar. 14.9		545	.....	621	526	516	Mar. 13.84	13.84	13.70	571	548	506	.....
Apr. 14.9		545	.....	621	526	516	Apr. 13.95	13.95	13.08	608	551	513	.....
May 14.9		545	.....	621	526	516	May 13.04	13.14	12.83	600	542	500	.....
June 14.9		545	.....	621	526	516	June 13.04	13.29	12.67	571	538	494	.....
July 14.9		545	.....	621	526	516	July 12.39	12.43	.....	596	543	500	.....
Aug. 14.9		545	.....	621	526	516	Aug. 13.01	13.01	12.92	601	539	497	.....
Sept. 14.9		545	.....	621	526	516	Sept. 13.01	13.01	12.92	601	539	497	.....
Oct. 14.9		545	.....	621	526	516	Oct. 13.15	13.20	13.41	606	539	521	.....
Nov. 14.9		545	.....	621	526	516	Nov. 13.20	13.22	13.32	501	540	500	.....
Dec. 14.9		545	.....	621	526	516	Dec. 13.20	13.22	13.32	501	540	500	.....

277 (old 220). Kamaile Pump 3, 1 1/4 miles northwest of Waiānāe R. R. station. Owner, Waiānāe Plantation Co. Altitude, about 30 ft. Diameter, 12 in. Use, irrigation. Data furnished by Waiānāe 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.	519	Apr.	1931	780	Dec. 1, 1932	2.00	...	...
Mar.	584	May ....	.....	749	Dec. 2	3.15	...	...
Apr.	500	June ....	.....	805	Dec. 3	2.40	...	...
May	618	July ....	.....	873	Dec. 4	2.40	...	...
June	682	Aug. ....	.....	863	Dec. 5	.....	614	...
July	747	Sept. ....	.....	842	Dec. 6	2.40	...	...
Aug.	808	Oct. ....	.....	655	Feb. 14	2.61	593	...
Sept.	834	Nov. ....	.....	687	Feb. 27	5.07	477	...
Oct.	874	Dec. ....	.....	665	Mar.	6.22	441	...
Nov.	892	Jan.	1932	665	Apr.	572	638	...
Dec.	654	Feb. ....	.....	665	May ....	.....	474	...
Feb. 1929	697	Apr. 2	-5.75	874	June ....	.....	614	...
Mar.	718	Apr. 3	-5.82	.....	July ....	.....	666	...
Apr.	672	Apr. 4	-5.83	.....	Aug. ....	.....	697	...
May	676	Apr. 5	-6.00	.....	Sept. ....	.....	666	...
June	759	May ....	.....	593	Oct. ....	.....	718	...
Aug.	821	June ....	.....	645	Nov. ....	.....	738	...
Sept.	873	July ....	.....	655	Dec. ....	.....	749	...
Oct.	905	Aug. ....	.....	707	Jan. 1, 1934	.....	442	...
Nov.	905	Sept. ....	.....	738	Jan. 31	3.15	.....	...
Dec.	946	Oct. ....	.....	738	Feb. 15	4.40	.....	...
Feb. 1930	946	Nov. ....	.....	759	Feb. 28	5.30	.....	...
Mar.	364	Nov. 18	-1.96	.....	Mar. ....	.....	458	...
Apr.	458	Nov. 9	.....	46	Apr.	6.03	403	...
May	624	Nov. 20	-.71	.....	May 1	4.65	551	...
June	686	Nov. 21	-.54	.....	May 9	3.97	.....	...
July	728	Nov. 22	.....	25	June ....	.....	666	...
Aug.	759	Nov. 23	.....	25	July ....	.....	666	...
Sept.	749	Nov. 24	.....	37	Aug. ....	.....	686	...
Oct.	686	Nov. 25	.....	63	Sept. ....	.....	718	...
Nov.	701	Nov. 26	1.04	.....	Oct. ....	.....	707	...
Dec.	701	Nov. 27	1.35	.....	Nov. ....	.....	697	...
Jan.	701	Nov. 28	1.48	.....	Dec. ....	.....	634	...
Feb.	822	Nov. 29	1.65	.....				
Mar.	832	Nov. 30	1.75	.....				

Chloride (p.p.m.) of individual wells

[illegible]

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	1,350	1,060	978	1,170	1,220	1,240	1,270	1,300
6	1,370	1,400	1,500	1,530	1,560	1,590	1,620	1,650
7	1,130	1,270	1,160	1,300	1,320	1,350	1,370	1,380
8	4,530	4,080	3,230	3,640	3,740	3,800	3,860	3,960
14	2,770	3,040	3,100	2,960	2,780	2,700	2,410	2,290
18	...	...	1,340	4,290	4,330	4,350	4,300	...
22	...	225	287	357	370	400	403	420
23	329	312	387	400	420	433	445	457
24	320	312	216	337	379	379	383	387
25	345	295	266	303	320	363	324	329
26	403	391	365	433	425	428	445	437
27	303	295	291	308	325	325	325	329

Depths and casings of wells

Well No.	Depth of well in casing 1919	Length of casing 1919	Depth of new casing 1920	Length of casing 1920	Date of recasing 1920	Well No.	Depth of well in casing 1919	Length of casing 1919	Depth of new casing 1920	Length of casing 1920	Date of recasing 1920
1	180	100	...	77	Oct. 16	14	...	247	112	240	99 Aug. 23
2	128	110	...	79	Oct. 25	15	...	...	124	235	106 Aug. 16
3	242	190	...	72	Nov. 1	16	...	...	124	200	100 Aug. 9
4	...	...	144	75	July 3	17	...	320	124	190	113 July 29
5	...	...	...	...	...	18	...	239	85	...	52 Nov. 20
6	...	142	142	...	...	19	...	...	...	...	...
7	145	...	...	81	July 23	20	...	...	90	188	78 Sept. 28
8	155	85	...	65	Nov. 9	21	...	...	75	190	91 Sept. 20
9	158	75	...	...	...	22	...	...	...	...	...
10	260	108	155	82	Sept. 3	23	...	155	...	...	...
11	295	114	225	98	Aug. 29	24	...	155	...	...	...
12	300	120	200	99	Sept. 9	25	...	150	...	...	...
13	305	120	210	97	Sept. 15	26	...	150	...	...	...
						27	...	160	...	...	...

new wells drilled in 1920.

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, Kaaimoku 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, Waialua 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, Waialua 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 Waialua Agricultural Co. pump 5. Owner, Waialua 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 Waialua Agricultural Co. pump 5. Owner, Waialua 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 road to Dillingham Ranch in Mokuieia. Owner, Waialua 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 flange on tee. Altitude, 13.70 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. ... 1929	...	160	Mar. ... 1932	17.3	...
May ... 1923	...	118	...	...	224	...	...	173
June ... 1923	...	225	Apr. 9, 1930	17.3	...	Sept. ...	...	194
June ... 1924	...	249	May ...	...	136	Jan. ... 1933	17.0	...
July ... 1925	...	161	May ...	...	182	...	...	165
July ... 1926	...	271	July ...	...	...	June ...	...	195
Sept. ...	...	338	Aug. ...	...	...	July ...	...	228
Oct. ...	...	301	Oct. 8	17.4	...	Aug. ...	...	232
Mar. ... 1928	...	193	Nov. 20	17.3	...	Sept. ...	...	262
Apr. ...	...	147	Jan. ... 1931	...	68	Oct. ...	...	200
June ...	...	254	Feb. ...	...	130	Nov. ...	...	180
July ...	...	239	Mar. ...	17.2	...	Dec. ...	17.0	...
Sept. ...	...	249	Apr. ...	...	155	Jan. ... 1934	...	110
Oct. ...	...	250	May ...	...	187	Mar. ...	...	80
Oct. ... 1929	...	176	June ...	...	223	Apr. ...	...	172
...	...	100	July ...	...	228	May ...	...	180
...	...	127	Aug. ...	...	218	June ...	...	224
...	...	166	Sept. ...	...	177	July ...	...	232
...	...	182	Oct. ...	16.8	...	Aug. ...	...	230
Aug. ...	...	211	Jan. ... 1932	16.3	91	Sept. ...	16.2	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, Waialua 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.

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	136
Feb. 26	17.28	150	Feb. 25	17.38	116	Mar. 15	17.58	137
Mar. 20	16.52	149	Mar. 25	17.62	196	Apr. 15	17.95	118
Apr. 22	17.14	141	Apr. 27	17.37	110	May 25	16.95	121
May 21	16.38	137	May 28	17.81	110	June 15	16.90	119
June 24	16.24	132	June 24	16.90	118	July 20	16.82	130
Aug. 6	16.94	140	Aug. 13	17.13	126	Aug. 15	16.76	130
Aug. 27	16.02	142	Aug. 24	17.21	129	Sept. 18	16.89	132
Sept. 24	16.41	145	Oct. 5	17.22	129	Oct. 17	16.68	131
Oct. 27	16.44	147	Oct. 27	17.40	130	Nov. 9	17.10	146
Nov. 26	17.40	146	Dec. 16	17.70	137	Dec. 17	17.35	...
Dec. 23	17.52	152	Jan. 13, 1932	18.55	127	Jan. 11, 1934	17.27	139
Jan. 28, 1930	17.95	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	132
Mar. 25	18.03	151	Apr. 14	17.85	113	Apr. 30	16.51	130
Apr. 29	17.41	128	May 16	17.09	119	May 15	16.95	132
May 27	17.00	132	June 15	16.96	119	June 14	16.85	133
June 30	17.16	132	July 14	17.24	119	Aug. 10	16.40	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. 1	17.98	136	Oct. 17	16.78	125	Oct. 12	16.56	160
Oct. 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			

RECORDS OF DRILLED WELLS ON OAHU

287 (old 239). In sugar cane field 350 yd. south of Mokuleia 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 Mokuleia 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 Mokuleia 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 Mokuleia 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 Mokuleia 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 Mokuleia 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, 14.69 ft.

294 (old 245). In sugar cane field in Mokuleia 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 Mokuleia, 150 yd. south of highway and 100 yd. east of road to Dillingham Ranch. Owner, Waialua Agricultural Co. Well B drilled 1910. Depth, 500 ft. Diameter, well A, 6 in.; B, 12 in. Use, A, domestic supply only; B, irrigation. Well A recased from 8 in.

RECORDS OF DRILLED WELLS ON OAHU

Observations—Well 296 (Continued)

Bench mark, triangle cut in concrete floor under piezometer tube; altitude, 10.92 ft.

Date	Head (ft.)	Chloride (p.p.m.)	Date	Head (ft.)	Chloride (p.p.m.)
July .. 1923	114	114	Aug. .. 1931	109	78
June .. 1924	86	86	Sept. .. 1931	102	88
May .. 1925	89	89	Oct. .. 1931	100	75
Sept. .. 1925	85	85	Jan. .. 1932	18.1	75
Oct. .. 1927	84	84	Mar. .. 1932	18.3	70
July .. 1927	114	114	Aug. .. 1932	91	70
Aug. .. 1928	99	99	Sept. .. 1932	99	67
Oct. .. 1928	99	99	Jan. .. 1933	18.0	...
May .. 1929	99	99	May .. 1933	99	...
June .. 1929	93	93	June .. 1933	100	...
July .. 1929	120	120	July .. 1933	101	...
Aug. .. 1929	145	145	Aug. .. 1933	117	...
Sept. .. 1929	130	130	Sept. .. 1933	114	...
Oct. .. 1929	130	130	Oct. .. 1933	124	...
Nov. .. 1929	112	112	Nov. .. 1933	120	...
Apr. 9, 1930	18.3	18.3	Dec. .. 1933	110	104
Apr. .. 1930	17.9	17.9	Jan. .. 1934	110	96
June .. 1930	17.5	17.5	Mar. .. 1934	104	96
Aug. .. 1930	88	88	Apr. .. 1934	104	96
Oct. 8	18.4	18.4	May .. 1934	100	96
Nov. 20	19.2	19.2	June .. 1934	104	100
Jan. .. 1931	109	109	July .. 1934	104	104
Mar. 31	17.9	17.9	Aug. .. 1934	104	95
Apr. .. 1931	96	96	Sept. .. 1934	116	97
May .. 1931	95	95	Oct. .. 1934	113	...
June .. 1931	102	102	Nov. .. 1934	108	...

297 (old 248). In Mokuleia, 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 Mokuleia 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	285	May .. 1934	262	Aug. .. 1934	466	Nov. .. 1934	548
Mar. .. 1934	514	June .. 1934	474	Sept. .. 1934	*624		
Apr. .. 1934	382	July .. 1934	440	Oct. .. 1934	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. F. 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 .. 1934	250	Sept. .. 1934	*303		
Apr. .. 1934	280	July .. 1934	248	Oct. .. 1934	353		

300 (no old number). In Mokuleia, about 20 ft. north of paved road to Kawaihapai and 150 ft. west of paved road to Mokuleia Beach 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.)
Mud (Pls and Pa)	0-85	Black sand (Possibly partly weathered Twb)	
Coral and clay (Pls and Pa) (Sample labelled 90 ft. is well water-worn)		Brown dirt (Possibly weathered Twb)	490-500
Isolastic gravel up to 2 in. across)	85-105	Cuprock (Twb)	500-508
Coral and gravel (Pls and Pa)	105-110	"Fukapuka" rock (Twb)	508-527
Coral and clay (Pls 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	330	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	302
30	22	140	68	200	320
50	89	150	128	210	320
70	78	160	308	220	266
90	80	170	302	223 (landed)	
110	86	180	300		

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	350	14	455	15
200	11	360	11	470	9
300	17	400	13	490	16
320	8	420	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	252	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	Depth (ft.)	Revolutions per minute
200	24	400	22	422 (top of cement plug)	
300	22	410	20		

Test 3. Oct. 16, 1935.

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	150
30	16	90	146	170	174
35	16	100	148	180	168
40	89	110	140	190	310
45	138	120	174	195 (landed)	
50	136	130	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, 16.60 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, 227; Jan. 20, 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.)
Alternating layers of coral, sand, and alluvial deposits (Pb and Pa)	0-396	
Hard rock (possibly Txb)	396-412	
Alluvial deposit (Pa)	412-432	
First flow of water; chloride, 125 p.p.m.	450	
Flow 5 million gal. a day; chloride, 209 p.p.m.		530
Flow more than 1.0 million gal. a day; chloride, 250 p.p.m.		540
Flow about 1.4 million gal. a day; chloride, 333 p.p.m.		548
Hard solidified lava rock (Txb)		499-542

Observations

Bench mark, top of 1/4-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. 20	19.20	525	Jan. 30	18.03	180	Apr. 14	18.52	108
Apr. 14	18.60	550	Feb. 20	17.89	185	May 16	18.57	114
June 16	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 21	17.20	196	Aug. 11	18.30	115
Jan. 29, 1926	18.85	291	June 24	16.76	200	Sept. 14	18.02	112
Feb. 17	18.20	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	668	Sept. 24	17.34	210	Dec. 14	19.02	135
July 28	17.53	575	Oct. 23	16.96	206	Jan. 16, 1933	18.78	143
Aug. 31	17.66	1122	Nov. 26	18.56	254	Feb. 14	17.96	142
Sept. 20	17.75	...	Dec. 23	18.51	183	Mar. 15	18.81	135
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	18.50	120	Mar. 25	19.16	107	June 15	18.85	92
Jan. 26, 1927	18.50	107	Apr. 29	17.46	163	July 20	18.62	99
Feb. 24	...	238	May 27	17.46	174	Aug. 14	18.30	96
Mar. 30	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 22	18.89	...	Aug. 25	17.67	174	Nov. 9	18.97	96
July 25	16.81	286	Oct. 3	19.55	204	Dec. 19	18.52	92
Aug. 24	17.11	125	Nov. 5	18.29	168	Jan. 11, 1934	18.88	69
Sept. 26	17.81	136	Dec. 5	18.96	201	Feb. 10	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	166	Apr. 30	18.59	91
Jan. 5, 1928	18.41	150	Feb. 25	18.26	201	May 15	17.85	78
Feb. 7	18.21	153	Mar. 25	17.76	166	June 14	18.40	99
Mar. 5	17.46	188	Apr. 27	18.31	165	July 15	17.70	90
Apr. 10	18.26	133	May 28	19.00	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	18.96	96	Oct. 12	18.37	100
July 23	17.34	153	Aug. 24	18.68	111	Nov. 21	18.43	100
Aug. 21	17.00	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, Waiialua 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
Sept. ...	63			July ...	135	Oct. ...	148
Oct. ...	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. Recased 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	Depth (ft.)	Revolutions per minute
50	80	250	200	470	192
100	86	400	234	490	133
150	190	410	206	490	116
200	210	420	202	510	82
250	190	450	192	530	46
300	188	460	186	539	(landed)

Test 2. After iron fill deposited. Aug. 27, 1937: Depth, 400 ft. r.p.m., 58; 440 ft. r.p.m., 40; 470 ft. r.p.m., 38.

Test 3. After first cement fill deposited. Aug. 30, 1937.

Depth (ft.)	0	200	12	360-376	0
100	...	...	...	...	...
200	...	13	350	394	(landed)

314 (old 262). At Chinese camp 300 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, 1935.

Depth (ft.)	Revolutions per minute	Depth (ft.)	Revolutions per minute	Depth (ft.)	Revolutions per minute
2	9	85	94	85	156
10	48	50	94	90	184
20	60	60	94	100	184
30	44	70	102	110	184
35	60	80	115	120	179

Meter test—Well 314 (Continued)

Depth (ft.)	Revolutions per minute	Depth (ft.)	Revolutions per minute	Depth (ft.)	Revolutions per minute
146	184	250	234	400	266
150	184	260	240	420	266
176	206	246	246	440	266
180	208	300	252	460	266
190	210	310	268	470	266
200	212	320	272	475	266
220	210	340	272	480	266
230	214	360	268	485	216
240	222	380	260	495	162

315 (old 264). About 250 yd. north of highway and 2 miles east of Mokuleia R. R. station. Owner, J. P. Mendonca. Diameter, 8 in. Use, irrigation. Chloride (p.p.m.), Dec. 19, 1924, 100. Flowing at rate of 280,000 gal. a day in Jan. 1934. Bench mark, top of flange on casing in flume; altitude, 16.62 ft.

316 (old 263). At pump house 25 ft. north of highway and 2 miles east of Mokuleia 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 Mokuleia R. R. station. Owner, J. P. Mendonca. Diameter, 8 in. Use, irrigation. Chloride (p.p.m.), Mar. 26, 1926, 116. Flowing at rate of 830,000 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 Kawaihapi 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. Drilled but 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. Vaksyik, 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	38	70	43	120	38
30	36	80	38	130	38
40	37	90	38	132 (obstruction)	38
50	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, 1899 by L. E. Pinkham; E, 1900; F and G, 1923; H and I, 1933 by McCandless Bros. Altitude, about 30 ft. Depth, A, 250 ft.; B, 274 ft.; C, 292 ft.; D, 294 ft.; E, 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, 232 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.)
Well A		Gravel and boulders		Red rock (Tkb)	240-282
Clay (Ra)	0-12	(Pa)	130-141	Blue rock (Tkb)	240-292
Soft coral (Pls)	12-32	Clay (Pa)	148-155	Red rock (Tkb)	292-297
Hard coral (Pls)	32-49	Gravel and boulders		Well H	0-15
Clay (Pa)	49-65	(Pa)	155-165	Dirt (Ra)	
Hard coral (Pls)	65-84	Coral (Pls)	165-205	Coral and dirt (Pls)	
Clay (Pa)	84-140	Clay (Pa)	205-212	Coral (Pls)	15-20
Fulser rock (Pa)	140-143	Sand formation (Pa)	215-222	Clay (Pa)	80-134
Clay (Pa)	143-152	Red clay and gravel	222-233	Boulders (Pa)	134-145
Clay (Pa)	152-169	(Pa or Tkb)	233-240	Clay (Pa)	145-155
Gravel (Pa)	169-179	Blue rock (Tkb)	240-250	Boulders (Pa)	155-165
Gravel (Pa)	179-190	Red rock, first water	240-250	Coral and clay (Pls and Pa)	165-208
Clay (Pa)	190-207	(Tkb)	250-283	Clay (Pa)	208-232
Clay (Pa)	207-215	Red rock, no water	232-250	Caprock (blue) (Tkb)	232-250
Soft sand, false rock (Pa or Tkb)	215-234	Red rock, second water	250-255	Water rock (blue) (Tkb)	250-255
Soft sand, false rock (Pa or Tkb)	234-251	Blue rock (Tkb)	295-296	Water rock (blue brown) (Tkb)	265-270
Lava rock, water (Tkb)	251-260	Clay (Ra)	0-4	Caprock (blue) (Tkb)	270-271
Hard rock, water (Tkb)	266-270	Coral (Pls)	4-55	Well I	
Soft water rock (Tkb)	270-282	(Pa)	75-135	Dirt (Ra)	0-15
Hard rock (Tkb)	282-285	Gravel and boulders		Coral (Pls)	16-85
Soft water rock, hard on bottom (Tkb)	285-297	(Pa)	135-176	Clay (Pa)	85-155
Well P		Coral and clay (Pls and Pa)	175-205	Boulders (Pa)	155-165
Clay (Ra)	0-10	Sand formation (Pa)	205-215	Clay and coral (Pa and Pls)	165-238
Clay (Pls)	10-75	Red clay and gravel	215-235	Caprock (blue) (Tkb)	238-240
Clay (Pa)	75-138	(Pa or Tkb)	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
Mar. ..	437	Aug. .. 1928	504	June ..	232	May ..	312
Apr. ..	458	Feb. ..	358	July ..	245	June ..	324
May ..	472	Mar. ..	308	Aug. ..	280	July ..	480
Aug. ..	473	Sept. ..	323	Sept. ..	256	Aug. ..	587
Sept. ..	513	June .. 1929	361	Oct. ..	219	Sept. ..	518
Oct. ..	513	July ..	395	Nov. ..	264	Oct. ..	318
Dec. ..	501	Aug. ..	409	Dec. ..	268	Nov. ..	336
Jan. .. 1927	474	Oct. ..	465	Jan. .. 1934	306		

321A to E (old 268A to E). Pump 1, 200 yd. south of highway bridge over Kaula Stream on Mokuleia Road. Owner, Waialua Agricultural Co. Drilled, A, B, C, 1908 by L. E. Pinkham; D and 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	...	266	Aug. .. 1928	...	218	Oct. .. 1930	12.9	...
May .. 1925	...	305	May .. 1929	...	203	Nov. ..	12.5	...
June .. 1924	...	165	July ..	...	384	Jan. .. 1931	...	...
May .. 1926	...	250	Aug. ..	...	442	Feb. ..	...	190
Nov. ..	...	397	Sept. ..	...	397	Mar. ..	11.3	197
Dec. ..	...	332	Oct. .. 1930	11.7	504	Apr. ..	...	25
July ..	...	291	Nov. ..	...	415	May ..	...	30
Nov. ..	...	208	May ..	11.2	167	June ..	...	30.0
Aug. ..	...	301	July ..	10.9	230	July ..	...	230
July .. 1928	...	166	Aug. ..	...	249	Aug. ..	10.1	483

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. . . 1931	11.9	...	July . . .	...	232	Apr. . .	...	144
Jan. . . 1932	...	...	Aug. . .	...	348	May . . .	...	372
Mar. . .	12.6	...	Sept. . .	...	398	June . . .	...	376
Aug. . .	...	107	Oct. . .	...	448	July . . .	11.05	400
Sept. . .	...	212	Nov. . .	...	488	Aug. . .	...	511
Jan. . . 1933	12.3	...	Dec. . .	12.0	476	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 Kaulaohua Stream on Mokuleia Road. Owner, Waiialua 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

	Depth (ft.)
Wells A, B, and C	
Clay (Ka)	0-40
Boulders (Pa)	40-51
Porous rock (Either Twb or Tkb, but probably Tkb)	51-60
Lava rock (Either Twb or Tkb, but probably Tkb)	60-112
Hard rock (Either Twb or Tkb, but probably Tkb)	112-132
Water rock, water (Either Twb or Tkb, but probably Tkb)	132-165
Hard blue rock (Either Twb or Tkb, but probably Tkb)	165-179
Water rock (Either Twb or Tkb, but probably Tkb)	179-194
Red 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
	325-330

Observations

Bench mark, triangle on top of $\frac{3}{4}$ -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.)
		Wells A-I			Wells J-N
Oct. . . 1920	...	136	July . . 1928	...	135
July . . . 1923	...	109	Aug. . .	...	130
Mar. . . 1924	...	109	Sept. . .	...	140
June . . .	...	118	Oct. . .	...	140
Aug. . .	...	140	Feb. . . 1929	...	109
May . . . 1926	...	140	Mar. . .	...	119
Sept. . .	...	182	Apr. . .	...	114
Oct. . .	...	145	June . . .	...	127
Nov. . .	...	182	July . . .	...	102
Dec. . .	...	176	Aug. . .	...	102
May . . . 1927	...	187	Sept. . .	...	106
June . . .	...	166	Nov. . .	...	113
July . . .	...	145	Dec. . .	...	113
Aug. . .	...	187	Jan. . . 1930	11.8	275
Feb. . . 1928	...	122	May . . .	...	239
Mar. . .	...	122	June . . .	...	106
Apr. . .	...	120	July . . .	...	106
Aug. . .	...	116	Aug. . .	...	140
Jan. . .	...	99	Sept. . .	...	126
			Oct. . .	12.9	...

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
Nov. . . 1920	12.6	...	June . . 1933	...	...
Jan. . . 1931	...	47	July . . .	...	159
Feb. . .	...	104	Aug. . .	...	208
Mar. . .	11.4	169	Sept. . .	...	224
Apr. . .	...	169	Oct. . .	...	244
May . . .	...	199	Nov. . .	...	180
June . . .	...	235	Dec. . .	12.0	284
Aug. . .	...	245	Jan. . . 1934	...	220
Sept. . .	...	224	Feb. . .	...	184
Oct. . .	12.0	...	Mar. . .	...	200
Jan. . . 1932	12.1	...	Apr. . .	...	240
Mar. . .	12.6	...	May . . .	...	236
Aug. . .	...	112	June . . .	...	228
Sept. . .	...	146	July . . .	...	184
Jan. . . 1933	12.4	...	Aug. . .	...	242
May . . .	...	162	Sept. . .	...	288
			Oct. . .	...	311
			Nov. . .	...	340

322A to L (old 271A to L). Pumps 10 and 10A, known as pump 13 for a few months, in Peamoho Gulch about 0.7 mile east of Mokuleia Malicua intersection on Kamehameha Highway. Owner, Waiialua 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, 162 ft.; F and H, 150 ft.; G, 160 ft.; I, 147 ft.; J, 155 ft.; K and L, 165 ft. Use, irrigation. Casing, A, C, and G, 163 ft.; B, D, E and L, 166 ft.; F, 164 ft.; H, 165 ft.; I, 153 ft.; J, 160 ft.; K, 168 ft.

Logs

	Depth (ft.)		Depth (ft.)		Depth (ft.)
Well A		Well E		Well I	
Boulders and clay	0-15	Boulders and clay	0-15	Boulders and clay	0-20
(Ra)	0-15	(Ra)	0-15	(Ra)	0-20
Rotten rock (Tkb)	15-163	Rotten rock (Tkb)	15-164	Rotten rock (Tkb)	20-147
Bed rock (Tkb)	163-380	Bed rock (Tkb)	164-380	Bed rock (Tkb)	147-372
Well B		Well F		Well J	
Boulders and clay	0-19	Boulders and clay	0-20	Boulders and clay	0-20
(Ra)	0-19	(Ra)	0-20	(Ra)	0-20
Rotten rock (Tkb)	15-161	Rotten rock (Tkb)	25-150	Rotten rock (Tkb)	20-165
Bed rock (Tkb)	164-377	Bed rock (Tkb)	150-381	Bed rock (Tkb)	153-379
Well C		Well G		Well K	
Boulders and clay	0-15	Boulders and clay	0-25	Boulders and clay	0-20
(Ra)	0-15	(Ra)	0-25	(Ra)	0-20
Rotten rock (Tkb)	15-160	Rotten rock (Tkb)	25-169	Rotten rock (Tkb)	20-165
Bed rock (Tkb)	160-376	Bed rock (Tkb)	160-376	Bed rock (Tkb)	165-378
Well D		Well H		Well L	
Boulders and clay	0-15	Boulders and clay	0-25	Boulders and clay	0-15
(Ra)	0-15	(Ra)	0-25	(Ra)	0-15
Rotten rock (Tkb)	15-162	Rotten rock (Tkb)	25-150	Rotten 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			Wells E to H		
Apr. 12, 1930	11.75	...	Jan. 18, 1933	12.36	...
Oct. 8	12.27	...	Apr. 15	...	...
Nov. 22	12.30	...	May 17	...	...
Mar. 21, 1931	12.29	...	June 18	...	...
Oct. 13	12.01	...	Aug. 15	...	...
Jan. 9, 1932	12.05	...	Sept. 18	...	...
Mar. 4	12.27	...	Oct. 17	...	...

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	164		May 15	150		Sept. 18	140	
Oct. 15	174		May 15	192		Oct. 17	132	
Nov. 15	153		June 15	192		Nov. 16	144	
			July 15	236		Dec. 18	100	
Wells E to H			Aug. 15	300		Mar. 16, 1934	113	
Apr. 15, 1933	92		Sept. 18	333		Apr. 16	132	
May 7	145		Oct. 16	368		May 15	110	
June 15	159		Nov. 15	320		June 15	108	
July 17	165					July 16	140	
Aug. 15	224		Wells I to L			Aug. 15	192	
Sept. 18	256		Apr. 15, 1933	54		Sept. 18	187	
Oct. 17	276		May 17	96		Oct. 15	198	
Nov. 16	276		June 15	94		Nov. 15	152	

324A to E (old 370A to E). Pump 7 about 200 yd. west of highway over Poamoho Stream on Schofield-Haleiwa road. Owner, Waiulua 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

Depth (ft.)	Red dark rock (Tbb.)	Depth (ft.)	Blue hard rock (Tbb.)	Depth (ft.)
0-25	Red dark rock (Tbb.)	150-162	Blue hard rock (Tbb.)	250-260
25-68	Blue hard rock (Tbb.)	162-180	Red rock, water (Tbb.)	260-280
68-100	Red rock (Tbb.)	180-195	Blue rock, water (Tbb.)	280-286
100-110	Blue rock, water (Tbb.)	195-215	Red rock, water (Tbb.)	286-292
110-150	Red rock, little water (Tbb.)	215-225	Blue rock, water (Tbb.)	292-310
	Red rock, little water (Tbb.)	225-235	Red rock (Tbb.)	310-313
		235-240		

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.)
Pump 7A			Pump 7A		
July .. 1923	104		July .. 1931	209	
June .. 1924	104		Aug. ..	205	
May .. 1927	102		Oct. ..	150	
July ..	114		Jan. .. 1932	11.9	
Aug. .. 1928	123		Mar. ..	12.0	
July ..	114		Sept. ..	12.5	
Aug. ..	114		Jan. .. 1933	10.6	
Oct. ..	102			19.9	
Mar. .. 1929	99				
Apr. ..	97				
May ..	131		May ..	99	Pump 7B
June ..	127		June ..	114	123
July ..	127		July ..	140	156
Aug. ..	162		Aug. ..	184	184
Sept. ..	165		Sept. ..	185	198
Oct. ..	223		Oct. ..	220	244
Nov. ..	247		Nov. ..	250	306
Dec. ..			Dec. ..	12.2	260
Jan. 9, 1930	11.7		Jan. .. 1934	192	304
Feb. ..	11.7				
Mar. ..	106		Mar. ..	176	252
Apr. ..	106		Apr. ..	228	300
May ..	138		May ..	354	350
June ..			June ..	322	350
July ..			July ..	208	312
Aug. ..	12.5		Aug. ..	242	354
Sept. ..			Sept. ..	10.4	354
Oct. ..	11.6		Oct. ..		420
Nov. ..			Nov. ..		288
Dec. ..	129				453
Jan. ..	178				

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 18, 1934	10.53	63
Aug. 14	11.18	64	Feb. 19	11.48	55	Aug. 15	10.34	63
Sept. 18	11.52	60	Mar. 22	10.71	62	Sept. 14	10.65	64
Oct. 17	11.20	61	Apr. 30	10.64	62	Oct. 13	10.71	64
Nov. 9	11.30	62	May 15	10.85	69	Nov. 27	10.92	64
Dec. 18	11.00	55	June 14	10.46	62	Dec. 21	11.50	68

327 (old 273). Pump 9 at pump house about 20 ft. south of road and 600 yd. west of Two Bridges, Waialua. Owner, Waialua 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 .. 1933	56			
Mar. .. 1925	46	June ..	42	Aug. ..	56			
May .. 1926	48	July ..	42	July ..	55			
Oct. ..	44	Aug. ..	38	Sept. ..	60			
June .. 1927	44	Oct. ..	12.9	Oct. ..	60			
Aug. ..	44	Nov. 20	12.9	Nov. ..	68			
Feb. .. 1928	42	Mar. .. 1931	36	Dec. ..	72			
Mar. ..	42	Mar. ..	11.5	Mar. .. 1934	78			
May ..	36	May ..	44	Mar. ..	72			
June ..	42	June ..	48	Apr. ..	68			
Oct. ..	42	July ..	48	Apr. ..	68			
May .. 1929	34	Sept. ..	48	June ..	71			
July ..	37	Jan. .. 1932	11.9	July ..	70			
Aug. ..	39	Mar. ..	12.4	Aug. ..	68			
Sept. ..	33	Aug. ..	11.9	Sept. ..	11.1	75		
Oct. ..	40	Sept. ..	55	Nov. ..	76			
Nov. ..	36	Jan. .. 1933	12.1	Nov. ..	80			

328 (old 275). Pump 13 since 1928; about 500 yd. south of Waialua Court House and 200 yd. west of highway. Owner, Waialua 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	77	Oct. 13, 1931	11.44	77	Nov. 16, 1933	84	
May 1	75	Jan. 15, 1932	11.16	Dec. 18	80			
July 1	68	Jan. 22	11.16	Dec. 27	11.39	88		
June 16	71	Mar. 14	11.80	Mar. 16, 1934	90			
July 16	71	June 15	69	July 16	92			
Aug. 1	82	Aug. 10	65	May 15	84			
Oct. 9	12.20	Jan. 18, 1933	11.57	June 15	82			
Nov. 21	11.86	Mar. 9	12.06	July 16	88			
Feb. 2, 1931	68	Apr. 15	64	Aug. 15	92			
Mar. 3	68	May 17	69	Sept. 15	97			
Apr. 15	68	June 15	69	Sept. 22	10.56	90		
May 15	68	July 17	68	Oct. 15	106			
June 16	65	Aug. 15	79	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, Waialua. Owner, Waialua 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 R	Depth (ft.)	Depth (ft.)
Clay (Ra)	0-10	Blue rock, very dark (Tkb)..... 52-67
Sand, gravel, and boulders (Pa or Tkb)	10-45	Red rock, water (Tkb)..... 67-75
Red rock, first water (Tkb).....	45-55	Hard blue rock, water (Tkb)..... 75-110
		Very hard red rock (Tkb)..... 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			
June .. 1924	70	Nov. ..	69	May ..	59			
May .. 1926	68	Apr. 9, 1930	11.0	June ..	59			
Sept. ..	70	May ..	61	July ..	56			
Oct. ..	70	June ..	61	Aug. ..	65			
May .. 1927	73	July ..	64	Sept. ..	68			
June ..	62	Aug. ..	57	Oct. ..	72			
July ..	68	Oct. 8	12.2	Nov. ..	72			
Aug. ..	68	Nov. 20	11.6	Dec. ..	80			
Mar. .. 1928	77	Jan. .. 1931	64	Jan. .. 1934	74			
Apr. ..	73	Feb. ..	54	Mar. ..	72			
Sept. ..	62	Mar. 31	11.6	Apr. ..	68			
Nov. .. 1929	57	Apr. ..	60	May ..	78			
Apr. ..	60	May ..	58	June ..	73			
May ..	60	June ..	61	July ..	73			
June ..	62	Aug. ..	64	Aug. ..	66			
July ..	61	Sept. ..	61	Sept. ..	10.9	75		
Aug. ..	65	Aug. ..	54	Oct. ..	71			
Sept. ..	65	Sept. .. 1932	55	Nov. ..	70			

331A to T (old 277A to T). Pumps 3A, B, C, about ¼ mile north and ¾ mile east of Two Bridges, Waialua. Owner, Waialua Agricultural Co. Drilled, A to Z, 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, 348 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 pumphouse; altitude, 17.32 ft.

Date	Head (ft.)	Chloride (p.p.m.)	Date	Head (ft.)	Chloride (p.p.m.)
Oct. .. 1920	226	146	July .. 1929	334	119
Jan. .. 1920	210	104	Aug. ..	349	123
June .. 1924	213	136	Sept. ..	351	119
Oct. .. 1926	204	145	Oct. ..	407	135
Sept. ..	274	155	Nov. ..	376	132
Nov. ..	284	155	June .. 1930	278	123
Oct. ..	286	119	July ..	286	119
July .. 1927	295	116	Aug. ..	161	106
Aug. ..	321	141	Oct. 8	12.1	
Mar. .. 1928	218	99	Nov. 20	11.7	
Apr. ..	167	107	Jan. .. 1931	85	42
May ..	220	99	Feb. ..	228	114
July ..	166	166	Mar. ..	258	105
Aug. ..	168	105	Apr. ..	239	113
Sept. ..	218	105	May ..	271	137
Nov. .. 1929	218	125	June ..	317	119
May ..	312	125	July ..	327	119
June ..	301	125	Aug. ..	357	130
			Sept. ..	112	91

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. . . 1934	...	240
Mar. . . 1932	11.8	...	May . . . 1934	...	136
Aug. . . 1932	11.3	...	June . . . 1934	...	236
Jan. . . 1933	11.5	...	July . . . 1934	...	134
Dec. . . 1933	...	380	Aug. . . 1934	...	299
Jan. . . 1934	...	220	Sept. . . 1934	...	142

* Wells B, F, G, I, M, Q, R, S, T. † Wells A, C, D, E, H, I, J, K, N, O, P.

332 (old 278). Pump 12, 300 yd. south and 300 yd. west of Waialua Court House. Owner, Waialua 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	...	104	July . . . 1930	...	109
May . . 1927	...	114	Aug. . . 1930	...	109
Aug. . . 1928	...	111	Oct. 8 . . 1930	...	112
Feb. . . 1928	...	104	Nov. 20 . 1930	...	106
June . . 1928	...	104	Jan. . . 1931	...	91
Sept. . . 1928	...	93	Feb. . . 1931	...	102
Oct. . . 1928	...	93	Mar. 31 . 1931	...	102
Feb. . . 1929	...	93	Apr. . . 1931	...	91
Mar. . . 1929	...	93	May . . . 1931	...	95
Apr. . . 1929	...	97	June . . . 1931	...	95
May . . 1929	...	94	Aug. . . 1931	...	105
June . . 1929	...	96	Oct. . . 1931	...	102
July . . 1929	...	98	Nov. . . 1931	...	102
Aug. . . 1929	...	94	Jan. . . 1932	...	105
Sept. . . 1929	...	102	Mar. . . 1932	...	103
Oct. . . 1929	...	109	Aug. . . 1932	...	85
Nov. . . 1929	...	112	Sept. . . 1932	...	101
May . . 1930	...	101	Jan. . . 1933	...	108

333 (old 279). Rear of Waialua 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	Soft water rock (Tkb) 92-100	Soft water rock (Tkb) 122-134
Soft water rock (Tkb) 45-68	Very hard blue rock (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 water rock (Tkb) 108-109	Hard blue rock (Tkb) 140-141
Hard blue rock (Tkb) 84-86		Soft water rock (Tkb) 141-140

334A to O (old 280A to O). Pump 4 about 0.3 mile east of Kawailoa R. R. station. Owner, Waialua 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	...	576
June . . . 1924	...	540	June . . . 1929	...	577
Mar. . . 1925	...	509	July . . . 1929	...	580
Apr. . . 1925	...	446	Aug. . . 1929	...	603
June . . . 1926	...	618	Sept. . . 1929	...	535
Feb. . . 1926	...	608	Oct. . . 1929	...	537
Mar. . . 1926	...	495	Nov. . . 1929	...	532
Apr. . . 1926	...	457	Dec. . . 1929	...	532
Sept. . . 1926	...	589	Jan. . . 1930	...	532
Oct. . . 1926	...	618	Feb. . . 1930	...	532
Nov. . . 1926	...	652	Mar. . . 1930	...	532
Dec. . . 1926	...	405	Apr. . . 1930	...	532
Jan. . . 1927	...	380	May . . . 1930	...	532
Feb. . . 1927	...	317	June . . . 1930	...	532
July . . . 1927	...	478	July . . . 1930	...	532
Aug. . . 1927	...	540	Aug. . . 1930	...	532
Sept. . . 1927	...	530	Sept. . . 1930	...	532
Oct. . . 1927	...	530	Oct. . . 1930	...	532
Nov. . . 1927	...	530	Nov. . . 1930	...	532
Dec. . . 1927	...	530	Dec. . . 1930	...	532
Jan. . . 1928	...	530	Jan. . . 1931	...	532
Feb. . . 1928	...	530	Feb. . . 1931	...	532
Mar. . . 1928	...	530	Mar. . . 1931	...	532
Apr. . . 1928	...	530	Apr. . . 1931	...	532
May . . . 1928	...	530	May . . . 1931	...	532
June . . . 1928	...	530	June . . . 1931	...	532
July . . . 1928	...	530	July . . . 1931	...	532
Aug. . . 1928	...	530	Aug. . . 1931	...	532
Sept. . . 1928	...	530	Sept. . . 1931	...	532

335 (old 281). Waiale 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 (Tkb) 62-72
Sand, boulders, and clay (Pa or Tkb) 4-25	Hard blue sandy lava rock, contains water (Tkb) 72-83
Medium and soft lava rock (Tkb) 25-40	
Hard blue lava rock (Tkb) 40-62	

336 (old 282). Waiale 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 with medium and hard streaks (Tkb) 13-52	Water rock (Tkb) 71-83

337 (old 283). Waiale 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

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Well 337 (Continued)

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.)	Date	Head (ft.)	Chloride (p.p.m.)
Feb. 4, 1929	14.52	175	Jan. 26, 1931	14.77	171	Feb. 16, 1933	15.11	173
Feb. 25	14.47	177	Feb. 25	14.38	170	Mar. 15	14.90	173
Mar. 25	14.47	172	Mar. 25	12.83	170	Apr. 17	13.83	179
Apr. 22	14.15	176	Apr. 27	14.34	146	May 25	14.00	175
May 21	14.52	164	May 28	14.20	146	June 15	13.91	181
June 25	14.01	164	June 24	13.12	146	July 20	15.00	148
Aug. 5	13.17	164	Aug. 4	14.00	146	Aug. 14	14.03	178
Aug. 26	14.17	171	Aug. 24	12.92	146	Sept. 18	13.85	179
Sept. 24	14.09	168	Oct. 5	14.05	144	Nov. 17	15.15	182
Oct. 22	14.35	167	Oct. 27	14.09	146	Nov. 19	15.18	178
Nov. 23	14.22	168	Dec. 16	14.10	144	Jan. 8, 1934	14.77	164
Dec. 23	14.20	165	Jan. 13, 1932	14.00	145	Feb. 19	14.55	159
Jan. 27, 1930	12.96	168	Mar. 15	13.98	147	Mar. 21	14.06	173
Feb. 26	14.01	168	Mar. 15	14.32	170	Apr. 30	14.21	176
Mar. 24	13.94	166	Apr. 14	14.58	174	May 15	13.55	118
Apr. 28	13.95	169	May 16	14.97	177	June 14	13.64	173
May 26	12.88	168	June 15	15.12	176	July 13	13.50	167
June 24	13.20	169	July 14	15.34	176	Aug. 15	13.55	173
July 28	14.47	171	Aug. 11	15.44	177	Sept. 14	13.60	160
Aug. 25	14.29	148	Sept. 14	15.52	176	Oct. 12	13.53	180
Oct. 8	14.72	174	Nov. 14	15.60	179	Nov. 21	13.49	220
Nov. 5	14.63	171	Oct. 17	14.37	180	Dec. 21	13.50	173
Dec. 4	14.52	172	Dec. 14	14.11	180			
Dec. 29	14.60	175	Jan. 16, 1933					

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.

Observations

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	62	Aug. . . 1931	77	June . . 1932	72
Sept. 26	63	Sept. . .	89	July . .	181
June 4, 1930	74	Oct. . .	66	Aug. . .	67
Sept. 16	74	Nov. . .	76	Sept. . .	74
Feb. . . 1931	72	Dec. . .	112	Nov. . .	70
May . .	77	Feb. . . 1932	67	Feb. 7, 1933	70
July . .	84	May . .	70	Mar. 30	95

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.

Observations

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 13, 1925	167	May . . 1931	238	Feb. . . 1932	181
Apr. 4, 1929	175	June . .	338	May . .	233
July 11	219	July . .	388	June . .	284
Sept. 26	292	Aug. . .	988	July . .	392
Feb. 12, 1930	318	Sept. . .	171	Aug. . .	366
June 4	270	Oct. . .	133	Nov. . .	407
Sept. 16	165	Nov. . .	225	Dec. . .	376
Feb. 7, 1931	353	Dec. . .		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; altitude, 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, 12 in. Drilled, August 1933 by Kahuku Plantation Co. Use, domestic. Casing, 176 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)	190-193
Mud with red and blue rock (Tkb)	135-139	Gravel mixed with sticky mud (Tkb)	193-202
Green rock (Tkb)	139-142	Hard rock (Tkb)	202-203
Hard blue rock (Tkb)	142-176	Hard blue rock mixed with red rock	
Sticky mud with blue and brown rock (Tkb)	176-190	(Tkb)	208-234

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, 7.41 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.

Observations

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	151	June . .	135	Oct. . .	120
				Nov. . . 1931	130
				Dec. . .	140
				Jan. . . 1932	143
				May . .	98

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.)		Depth (ft.)
Reddish-brown dirt up to 105 ft. (Pa)	0-105	Hard rock (Tkb)	136-137	Soft blue rock (Tkb)	152-182
Brown clay (Pa) or		Soft blue rock (Tkb)	136-145	Hard blue rock (Tkb)	182-186
		Hard blue rock (Tkb)	145-152		

Log—Well 351 (Continued)

	Depth (ft.)		Depth (ft.)		Depth (ft.)
Soft red and brown rock (Tkb)	189-210	Soft red and brown rock (Tkb)	234-252	Soft blue rock (Tkb)	284-300
Hard blue rock (Tkb)	210-217	Hard blue rock (Tkb)	252-260	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)	223-234	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. . . 1932	77	Mar. 30, 1933	61	June . . 1933	80	Nov. 19, 1934	92
Feb. 7, 1933	78	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.)
Sticky brown clay (Pa)	0-61	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
Medium hard brown gravel (Pa or Tkb)	64-68	Very hard and very fine blue and red gravel (Tkb)	288-293
Sticky brown clay mixed with small rocks (Tkb)	68-84	Medium hard red and blue gravel (Tkb)	293-301
Soft blue and brown gravel (Tkb)	84-94	Soft gray mud mixed with blue gravel (Tkb)	301-306
Sticky brown clay mixed with blue and brown gravel (Tkb)	94-197	Soft red and blue gravel with soft white water rock (Tkb)	306-314
Sticky mud mixed with blue gravel (Tkb)	127-144	Medium hard and soft red water rock and blue gravel (Tkb)	314-357
Medium hard blue gravel (Tkb)	144-168	Medium hard and soft glassy red and blue water rocks mixed with 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	Hard fine gravel (Tkb)	388-397
Medium hard and soft water rock (Tkb)	251-256	Medium hard gravel (Tkb)	397-412
Medium hard blue rock with red gravel (Tkb)	256-277	Medium hard blue rock (Tkb)	412-414
	277-280		

Well J.

Sticky brown clay (Pa)	0-41	Soft blue gravel (Tkb)	314-322
Hard loose stone and brown sticky clay (Pa and probably some Pk)	41-46	Hard blue rock (Tkb)	322-327
Hard loose stone and light red soil (Pa and Pk)	46-52	Hard fine gravel (Tkb)	327-329
Medium hard rock (Pa or Tkb)	52-57	Hard water rock (Tkb)	329-331
Soft purple soil (Pa or Tkb)	57-68	Soft gray gravel (Tkb)	331-344
Soft sticky clay (Tkb)	68-82	Red water rocks (Tkb)	344-359
Medium hard purple clay (Tkb)	82-87	Fine gravel, soft (Tkb)	359-365
Sticky gray clay (Tkb)	87-151	Hard fine glassy blue rocks (Tkb)	365-370
Sticky brown clay (Tkb)	151-191	Hard fine glassy blue rocks (Tkb)	370-375
Sticky gray clay (Tkb)	191-197	Soft red water rock (Tkb)	375-385
Purple clay (Tkb)	197-222	Medium hard water rock (Tkb)	385-386
Soft blue stone (Tkb)	222-225	Medium hard red and brown rock (Tkb)	386-410
Gray sticky clay (Tkb)	225-276	Hard fine gravel with red water rock (Tkb)	410-415
Hard blue rock (Tkb)	276-283	Very hard gravel (Tkb)	415-425
Sticky gray clay (Tkb)	283-312	Red and brown water rock (Tkb)	425-439.5
Hard blue stone (Tkb)	312-314		

Well K.

Logs—Well 352 (Continued)

Depth (ft.)	Depth (ft.)		
Sticky brown clay (Pa).....	1-20	Soft blue and red gravel (Tkb).....	174-187
Sticky gray mud (Pa and Pk).....	20-47	Soft and hard red and blue gravel (Tkb).....	187-211
Hard and soft red gravel (Pa and Pk).....	47-68	Soft red and blue gravel (Tkb).....	211-218
Pls. limestone present in cuttings).....	68-72	Soft and hard red and blue gravel (Tkb).....	218-223
Medium hard light blue rock (Tkb).....	72-99	Hard blue rock (Tkb).....	223-240
Soft gray mud mixed with red gravel (Tkb).....	99-108	Very hard blue rock (Tkb).....	240-245
Soft red gravel mixed with soft blue gravel (Tkb).....	108-110	Soft and hard blue and red gravel (Tkb).....	245-254
Sticky gray mud mixed with soft red and blue gravel (Tkb).....	110-115	Medium hard gravel (Tkb).....	254-257
Medium hard light blue stone (Tkb).....	115-138	Soft and hard blue and red gravel (Tkb).....	257-299
Medium hard blue rock mixed with red gravel (Tkb).....	138-144	Soft and hard blue gravel mixed with red gravel (Tkb).....	299-303
Soft red mud mixed with red and blue gravel (Tkb).....	144-149	Soft and red blue gravel mixed with red water rock (Tkb).....	303-312
Soft red water rock (Tkb).....	149-157	Hard red and blue gravel (Tkb).....	312-333
Medium hard blue rock (Tkb).....	157-164	Hard red and blue gravel (Tkb).....	333-337
Medium hard blue rock mixed with red gravel (Tkb).....	164-169	Hard blue rock (Tkb).....	337-338
Soft gray mud mixed with blue and red gravel (Tkb).....	169-174	Hard glassy blue rock (Tkb).....	332-362
		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, 14.37.

Date	Chloride (p.p.m.)	Date	Chloride (p.p.m.)	Date	Chloride (p.p.m.)	Date	Chloride (p.p.m.)
Apr. 20, 1925	107	Sept. 16, 1930	146	Nov. . . 1931	130	Sept. . . 1932	266
July 12	152	Feb. 7, 1931	166	Dec. . .	141	Nov. . .	223
Apr. 4, 1929	116	May . .	264	Feb. . . 1932	135	Feb. 7, 1933	119
July 9	181	June . .	191	May . .	141	Apr. 28	236
Sept. 26	224	July . .	263	June . .	188	June . .	198
Feb. 12, 1930	110	Sept. . .	179	July . .	179	Sept. 20	296
June 4	102	Oct. . .	212	Aug. . .	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. Depth to top of aquifer, C, 172 ft. Use, irrigation. Casing, B, 287 ft.; C, 91 ft. Well B recased in 1928.

Log

	Depth (ft.)		Depth (ft.)		Depth (ft.)
Well C		Soft rock (Tkb)	110-114	Soft water rock (Tkb)	183-187
Mud, soft coral (Ra		Hard rock (Tkb)	114-125	Hard rock (Tkb)	187-193
and Pk).....	0-18	Soft rock (Tkb)	125-131	Soft water rock (Tkb)	193-207
Clay (Pa).....	18-30	Hard rock (Tkb)	131-133	Very hard rock (Tkb)	207-210
Gravel (Pa).....	30-70	Soft rock (Tkb)	133-135	Soft red rock (Tkb)	210-240
Sticky clay (Pa or		Hard rock (Tkb)	135-139	Hard rock (Tkb)	240-260
Tkb).....	70-88	Soft rock (Tkb)	139-142	Soft rock (Tkb)	260-265
Rock (Tkb).....	88-96	Hard rock (Tkb)	142-155	Hard rock (Tkb)	
Soft red rock (Tkb)	96-102	Soft rock (Tkb)	155-160		
Hard rock (Tkb)	102-110	Hard rock (Tkb)	160-183		

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, 1925	74	Feb. 12, 1930	74	June . . 1931	104	Nov. . . 1931	70
July 12	78	June 4	96	July . .	109	Dec. . . 1932	104
Apr. 4, 1929	74	Sept. 16	90	Aug. . .	92	Feb. . . 1933	89
July 11	82	Feb. 7, 1931	89	Sept. . .	66	May . .	89
Sept. 26	93	May . .	103	Oct. . .	70	June . .	85

RECORDS OF DRILLED WELLS ON OAHU

Observations—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, B, 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

Well B	Depth (ft.)	Well C	Depth (ft.)
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 probably Pd as shown by cuttings)	6-39	White sand (Cuttings indicate Pa, Pis, and probably Pd)	5-36
Hard rock (Pis)	39-43	Corall rock (Pis)	36-41
Sticky brown clay (Pa and Pis)	43-53	Sticky brown clay (Pa)	41-45
Medium hard coral rock (Pis)	53-55	Hard coral rock (Pis)	45-51
Sticky brown clay (Pis and Pis)	55-57	Medium hard coral rock (Pis)	51-57
Sticky grey mud (Pa)	57-62	Hard coral rock (Pis)	57-62
Sticky brown clay (Pa)	62-109	Soft coral rock (Pis)	62-94
Sticky mud (Pis)	109-122	Sticky brown clay (Pa)	94-129
Soft coral rock (Pis)	122-157	Medium hard coral mixed with sticky brown clay (Pis and Pa)	129-159
Medium hard coral (Pis)	157-160	Sticky brown clay (Pa)	159-162
Hard coral (Pis)	160-165	Medium hard coral mixed with soft blue rock (Pis and Tkb)	162-164
Medium hard coral (Pis)	165-173	Hard blue rock (Tkb)	164-174
Gravel (Tkb)	173-177	Medium soft red water rock mixed with blue gravel (Tkb)	174-183
Blue rock mixed with gravel (Tkb)	177-181	Hard blue rock (Tkb)	183-186
Hard blue rock (Tkb)	181-185	Medium hard blue rock (Tkb)	186-190
Medium hard rock (Tkb)	185-192	Red and blue gravel (Tkb)	190-201
Hard blue rock (Tkb)	192-194	Glassy blue and red gravel (Tkb)	201-204
Gravel (Tkb)	194-198	Medium hard red and blue rock (Tkb)	204-211
Blue gravel (Tkb)	198-208	Hard blue rock (Tkb)	211-214
Hard brown rock (Tkb)	208-210	Soft water rock (Tkb)	214-226
Gravel (Tkb)	210-213	Hard glassy blue and red rock (Tkb)	226-226
Gravel mixed with brown rock (Tkb)	213-217	Very hard glassy blue and red rock (Tkb)	226-229
Hard blue rock (Tkb)	217-225	Soft water rock (Tkb)	229-232
Brown rock mixed with blue rock (Tkb)	225-230	Soft red and blue water rock (Tkb)	232-233
Hard blue rock (Tkb)	230-236	Medium hard rock (Tkb)	233-248
Red rock mixed with brown rock (Tkb)	236-242	Hard blue rock (Tkb)	248-255
Medium hard rock (Tkb)	242-245	Soft water rock (Tkb)	255-263
Hard blue rock (Tkb)	245-250	Medium hard and soft red and blue rock (Tkb)	263-267
Medium hard blue rock (Tkb)	250-252	Hard blue rock (Tkb)	267-269
Hard blue rock (Tkb)	252-259	Medium hard rock (Tkb)	269-271
Red gravel (Tkb)	259-266	Medium hard blue rock (Tkb)	271-280
Medium hard rock (Tkb)	266-269	Hard blue rock (Tkb)	280-280
Hard blue rock (Tkb)	269-271	Medium hard glassy blue rock mixed with water rock (Tkb)	280-292
Medium hard blue rock (Tkb)	271-280	Hard blue rock (Tkb)	292-292
Hard blue rock (Tkb)	280-280	Medium hard brown rock (Tkb)	292-297
Medium hard rock (Tkb)	280-292	Very fine gravel (Tkb)	297-312
Hard blue rock (Tkb)	292-297		

RECORDS OF DRILLED WELLS ON OAHU

Logs—Well 355 (Continued)

Well D	Depth (ft.)	Very hard blue rock mixed with lava (Tkb)	Depth (ft.)
White sand (Rs and Ra)	0-12	Medium hard blue lava mixed with red water rock (Tkb)	215-219
Medium hard coral (Pis)	12-41	Medium hard and soft blue rock mixed with red water rock (Tkb)	219-225
Sticky brown clay (Pa)	41-49	Medium hard blue rock mixed with water rock (Tkb)	225-233
Medium hard coral (Pis)	49-55	Hard blue rock (Tkb)	233-242
Sticky brown clay (Pa)	55-57	Medium hard blue rock (Tkb)	242-257
Sticky brown clay (Pa)	57-69	Medium hard blue rock (Tkb)	257-266
Medium hard coral (Pis)	69-72	Hard blue rock mixed with brown rock (Tkb)	266-269
Soft coral mixed with sand (Pis)	72-93	Hard and soft red water rock and lava rock (Tkb)	269-282
Sticky brown clay (Pa)	93-145	Hard and soft red and blue lava rock (Tkb)	282-287
Limestone (Pa, Ra, and possible Tkb)	145-186	Hard glassy blue rock (Tkb)	287-298
Hard blue rock (Tkb)	186-188	Medium hard and soft lava rock and red water rock (Tkb)	298-319
Hard blue rock (Tkb)	188-193	Hard blue rock (Tkb)	319-320
Medium hard red and blue water rock (Tkb)	193-201		
	201-215		

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, 9.83 ft.

Date	Head (ft.)	Chloride (p.p.m.)	Date	Head (ft.)	Chloride (p.p.m.)	Date	Head (ft.)	Chloride (p.p.m.)
Aug. 31, 1908	7.8	Feb. 1915	15.39	71	Aug. 12, 1924	8.82		
Mar. 1911	14.78	Mar.	14.93	70	Sept. 9	8.84		
Apr.	14.78	Mar.	15.27	67	Oct. 14	8.86		
Apr.	14.82	Dec. 12	15.49	70	Dec. 12	8.81		
July	14.79	June	14.85	69	Feb. 17, 1925	6.60		
Aug.	14.77	July	14.85	71	Apr. 24	6.4		
Sept.	14.82	Aug.	14.68	78	June 15	6.4		
Oct.	15.14	Sept.	14.72	72	Sept. 21	8.85		
Jan. 1912	15.18	Oct.	15.18	78	Oct. 23	8.85		
Feb.	15.14	Nov.	15.02	76	Nov. 11	8.85		
Mar.	14.75	Dec.	16.02	76	Jan. 29, 1926	14.41	92	
Apr.	14.90	Feb. 1916	17.12	74	Feb. 17	13.91	97	
May	14.03	Feb.	17.02	73	Mar. 26	13.52	82	
June	14.14	Mar.	16.26	74	June 11	13.23	86	
July	14.06	Apr.	16.02	70	July 28	13.05	83	
Aug.	14.08	May	15.52	72	Aug. 31	12.31	69	
Sept.	13.81	June	15.02	72	Sept. 2	12.91	85	
Oct.	14.13	July	14.12	74	Sept. 22	13.47	89	
Nov.	14.48	Aug.	14.52	78	Dec. 22	13.76	82	
Dec.	14.52	Sept.	14.45	68	Jan. 26, 1927	14.40	88	
Jan. 1913	15.52	Oct.	15.00	60	Feb. 24	14.88	86	
Feb.	15.68	Nov.	15.89	60	Mar. 30	14.05	80	
Mar.	14.95	Dec. 1917	16.39	60	May 2	14.73	92	
Apr.	14.04	Jan.	15.90	60	June 23	14.26	87	
May	14.12	Feb.	15.90	60	July 25	13.79	85	
June	14.42	Mar.	16.21	60	Aug. 24	14.15	86	
July	13.90	Apr.	15.80	60	Sept. 26	13.52	89	
Aug.	13.99	May	15.59	60	Oct. 26	14.84	84	
Sept.	14.23	June	14.56	60	Nov. 22	15.06	81	
Oct.	15.18	Aug.	14.36	60	Jan. 5, 1928	16.65	84	
Nov.	14.24	Oct.	14.54	67	Feb. 2	14.26	92	
Dec.	14.23	Nov.	15.38	60	Mar. 5	15.48	78	
Jan. 1914	14.81	Dec.	15.69	60	Apr.	14.73	92	
Feb.	14.22	Jan. 29, 1918	15.42	60	May 20	14.91	89	
Mar.	14.77	Feb. 28	16.04	60	June 21	13.37	87	
May	14.96	Mar.	16.23	60	July 2	13.52	85	
Sept.	14.14	Apr.	16.04	60	Aug. 21	13.46	85	
July	14.28	May 30	15.69	60	Sept. 24	12.91	87	
Aug.	14.81	June 10, 1921	15.52	61	Oct. 24	14.00	87	
Oct.	16.02	Feb. 7, 1924	15.52	61	Nov. 19	15.61	87	
Nov.	15.30	Mar. 6	15.51	60	Jan. 2, 1929	15.49	95	
Dec.	15.69	Mar. 9	15.61	60	Feb. 14	15.49	99	
Jan. 1915	16.12	June 9	15.90	60	Feb. 25	14.51	88	
		July 8	15.90	60	Mar. 25	15.94	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, 1933	15.21	103
May 21	12.42	89	Apr. 27	12.85	94	Apr. 27	14.36	106
June 24	12.76	91	May 28	14.08	97	May 28	15.46	106
Aug. 2	12.34	91	June 24	12.09	97	June 15	13.01	108
Sept. 24	12.05	91	Aug. 4	12.06	101	July 20	13.51	109
Oct. 22	12.53	90	Aug. 24	12.97	97	Aug. 14	12.39	109
Nov. 25	14.52	93	Oct. 5	12.86	98	Sept. 18	12.56	104
Dec. 23	14.77	90	Oct. 27	14.54	96	Oct. 17	12.99	103
Jan. 27, 1930	15.43	91	Dec. 16	14.08	98	Nov. 9	12.97	102
Feb. 18	15.43	91	Jan. 13, 1932	13.52	99	Dec. 18	14.85	98
Feb. 26	15.56	92	Feb. 16	15.29	100	Jan. 11, 1934	15.00	102
Mar. 24	15.48	91	Mar. 15	14.83	101	Feb. 19	14.18	100
Apr. 28	14.30	92	Apr. 14	14.58	102	Mar. 22	12.35	110
May 26	13.25	93	May 16	14.57	102	Apr. 10	12.92	109
June 24	12.81	93	May 16	13.16	102	May 15	12.59	111
July 28	12.82	94	July 14	13.16	102	June 14	12.02	109
Aug. 25	12.85	93	Aug. 11	12.84	98	July 13	11.71	110
Oct. 2	15.56	91	Sept. 14	12.80	100	Aug. 25	11.79	110
Oct. 4	14.97	93	Oct. 17	12.62	101	Sept. 14	13.55	100
Dec. 4	15.19	91	Nov. 14	13.00	100	Oct. 12	11.79	109
Dec. 29	14.63	92	Dec. 17	15.46	99	Nov. 21	13.44	100
Jan. 26, 1931	14.19	94	Jan. 16, 1933	14.17	99	Dec. 21	14.58	115
Feb. 25	13.13	95	Feb. 14	15.28	102			

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	Mar. 19, 1931	101	Feb. 19, 1932	132	Feb. 7, 1933	150
July 9	101	June 19	139	May 19	93	Mar. 30	119
Sept. 26	140	July 19	158	June 19	115	Apr. 28	135
Feb. 12, 1930	140	Aug. 19	147	July 19	144	June 19	139
June 4	140	Sept. 19	167	Aug. 19	141	Sept. 20	131
Sept. 16	135	Oct. 19	147	Sept. 19	158	Nov. 19, 1934	135
Feb. 7, 1931	125	Nov. 19	117	Nov. 19	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, 11.83 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		
Sticky brown clay (B and probably F)	0-46	Red and blue gravel (Tkb).....
Sandy gray clay (B and probably F)	46-53	Medium hard red and blue glassy rock (Tkb).....
Hard blue rock (Tkb).....	53-56	Medium hard red and blue glassy rock (Tkb).....
Blue and brown gravel (Tkb).....	56-65	Medium hard glassy blue rock (Tkb).....

Log—Well 361 (Continued)

	Depth (ft.)		Depth (ft.)
Hard and soft blue and brown rock, hit water at 149 ft. (Tkb), chlori- de, 70 p.p.m.....	149-176	Hard and soft lava mixed with red water rock (Tkb), chloride, 45 p.p.m.....	280-299
Hard glassy blue rock (Tkb).....	176-181	Hard blue rock (Tkb).....	299-302
Soft red water rock mixed with blue gravel (Tkb).....	181-186	Soft water rock (Tkb).....	302-306
Very hard blue rock (Tkb), chloride, 56 p.p.m.....	186-197	Very hard and medium hard lava mixed with water rock (Tkb), chlo- ride, 51 p.p.m.....	306-311
Hard and soft red and blue lava mixed with water rock (Tkb).....	197-211	Very hard red and blue lava (Tkb), chloride, 55 p.p.m.....	311-322
Very hard blue rock (Tkb), chloride, 58 p.p.m.....	211-218	Medium hard and soft red and blue lava (Tkb).....	322-335
Hard blue rock (Tkb), chloride, 60 p.p.m.....	218-231	Very hard blue lava (Tkb).....	335-340
Very hard and medium hard blue rock (Tkb), chloride, 48 p.p.m.....	231-247	Very hard red and blue lava (Tkb), chloride, 58 p.p.m.....	340-355
Very hard and medium hard glassy rock (Tkb), chloride, 91 p.p.m.....	247-262	Hard and soft red and blue rock (Tkb), chloride, 52 p.p.m.....	355-370
Very hard and medium hard blue lava (Tkb), chloride, 45 p.p.m.....	262-280	Hard blue lava (Tkb).....	370-378

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, 17.50.

Date	Chloride (p.p.m.)	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	Mar. 30, 1933	54
Apr. 4, 1929	45	July .. 1931	60	June ..	57	Apr. 28	56
July 9	48	Aug. ..	61	July ..	67	June ..	57
June 4, 1930	60	Oct. ..	40	Aug. ..	52	Sept. 20	57
Sept. 16	62	Nov. ..	45	Sept. ..	44	Nov. 19, 1934	62
Feb. 7, 1931	59	Dec. ..	44	Nov. ..	57		
May ..	61	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 (B and Pa)	0-31	Hard rock (Tkb)	165-172	Hard rock (Tkb)	247-254
Clay with gravel (Pa)	31-41	Hard rock (Tkb)	172-175	Red rock (Tkb)	254-268
Brown clay (Tkb)	41-51	Hard rock (Tkb)	175-180	Hard rock (Tkb)	268-280
Soft rotten rock with hard streaks (Tkb)	51-115	Red rock (Tkb)	180-196	Hard rock (Tkb)	280-305
Hard rock (Tkb)	115-144	Hard rock (Tkb)	196-205	Red rock (Tkb)	305-330
Red rock (Tkb)	144-145	Hard rock (Tkb)	205-214	(Tkb)	330-352
Hard rock (Tkb)	145-155	Red rock (Tkb)	214-224	Hard rock, soft (Tkb)	352-367
Red rock (Tkb)	155-160	Red rock (Tkb)	224-232	Hard rock, black (Tkb)	367-373
Hard rock (Tkb)	160-165	Red rock (Tkb)	232-237		
			237-247		

Observations

Bench mark, same as U.S.G.S. bench-mark tablet near south wall of pump house, at ground; altitude, 32.33 ft.

Date	Chloride (p.p.m.)	Pump 17	Date	Chloride (p.p.m.)	Pump 3	Pump 17
July 12, 1925	70	..	Sept. 26, 1929	70	..	70
Apr. 4, 1929	65	..	June 4, 1930	87	..	84
July 9	74	..	Sept. 16	84	..	91

RECORDS OF DRILLED WELLS ON OAHU

Observations—Well 362 (Continued)

Date	Chloride (p.p.m.)	Date	Chloride (p.p.m.)	Date	Chloride (p.p.m.)
July .. 1931	102	May .. 1932	84	Mar. 30, 1933	83
Aug. ..	95	June ..	88	Apr. 28	104
Sept. ..	87	July ..	98	June ..	185
Oct. ..	66	Aug. ..	82	Sept. 20	89
Nov. ..	73	Sept. ..	78	Nov. 19, 1934	69
Dec. ..	73	Oct. ..	92		
Feb. .. 1932	66	Nov. ..	95		
		Dec. 7, 1933	91		

362-1 (no old number). Pump 6, Kahuku Plantation, 1.3 miles south of Kahuku 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.)
Sticky brown clay (Pa).....	0-10	Hard and medium hard glassy blue and brown rock (Tkb).....	183-227
Soft brown stone (Pa).....	10-27	Very hard blue rock (Tkb).....	227-235
Sticky brown clay (Pa).....	27-44	Soft brown water rock (Tkb).....	235-247
Soft red gravel mixed with mud (Cb).....	44-55	Hard and medium hard glassy blue rock (Tkb), chloride, 77 p.p.m., chloride, 94 p.p.m. (Tkb),	247-254
97 (Tkb).....	55-81	Hard and soft blue lava rock (Tkb), chloride, 68 p.p.m.,	254-293
Medium hard light blue rock (Tkb).....	81-87	Medium hard blue rock (Tkb), chloride 71 p.p.m.,	293-308
Hard and soft red and blue lava (Tkb).....	87-100	Hard and medium hard blue and brown rock (Tkb), chloride, 71 p.p.m.,	308-338
Hard and soft blue lava (Tkb).....	100-109	Very hard blue rock (Tkb), chloride, 89 p.p.m.,	338-353
Soft red and blue lava (Tkb).....	106-126	Medium hard blue rock mixed with medium hard red and blue rock (Tkb), chloride, 56 p.p.m.,	353-384
Hard and medium hard blue rock (Tkb).....	126-141		384-397
Soft red water rock (Tkb).....	141-148		
Very hard blue rock (Tkb).....	148-153		
Medium hard blue rock (Tkb).....	153-161		
Soft red and blue lava rock (Tkb).....	161-165		
Medium hard blue rock (Tkb).....	165-169		
Soft water rock mixed with soft blue lava (Tkb).....	169-178		
	178-183		

363 (old 300). Pump 7 about 1½ miles southeast of Kahuku Store, 0.1 mile south-west of highway. Owner, Kahuku Plantation Co. Altitude, 18 ft. Use, irrigation.

Observations

Bench mark, chiseled "O" on concrete doorstep, ½ ft. above ground; altitude, 18.8 ft. Head (ft.), Feb. 5, 1930, 17.47.

Date	Chloride (p.p.m.)	Date	Chloride (p.p.m.)	Date	Chloride (p.p.m.)	Date	Chloride (p.p.m.)
Apr. 20, 1925	66	May .. 1931	105	Feb. .. 1932	97	Mar. 30, 1933	83
July 12	70	June ..	108	May ..	95	Apr. 28	91
July 11, 1929	73	July ..	123	June ..	99	June ..	90
Sept. 26	100	Aug. ..	135	July ..	106	Sept. 20	103
Feb. 12, 1930	71	Sept. ..	105	Aug. ..	114	Nov. 19, 1934	100
June 4	110	Oct. ..	115	Sept. ..	106		
Sept. 16	100	Nov. ..	110	Oct. ..	98		
Feb. 7, 1931	91	Dec. ..	113	Feb. 7, 1933	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.

RECORDS OF DRILLED WELLS ON OAHU

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, B, May 1933 by Kahuku Plantation. Depth, 306 ft. Use, irrigation. Casing, 121 ft.

Log

Well B	Depth (ft.)		Depth (ft.)		Depth (ft.)
Brown and blue soil.....	0-16	Hard rock (Tkb).....	121-126	Hard blue rock (Tkb).....	255-259
Sticky brown soil (Pa).....	16-33	Soft mud (Tkb).....	126-131	Medium hard rock (Tkb).....	259-261
Gravel mixed with mud (Pa).....	33-48	Soft water rock (Tkb).....	131-142	Hard blue rock (Tkb).....	261-269
Sticky mud (Tkb).....	48-63	Hard rock (Tkb).....	142-180	Soft rock (Tkb).....	269-273
Gravel (Pa or Tkb).....	63-72	Water rock (Tkb).....	180-198	Hard blue rock (Tkb).....	273-276
Gravel mixed with mud (Pa or Tkb).....	72-93	Hard blue rock (Tkb).....	198-207	Soft rock (Tkb).....	276-280
Hard rock (Tkb).....	93-94	Soft water rock (Tkb).....	207-212	Medium hard rock (Tkb).....	280-287
Sticky mud (Tkb).....	94-102	Hard blue lava (Tkb).....	212-223	Hard blue rock (Tkb).....	287-292
Hard rock (Tkb).....	102-103	Soft water rock (Tkb).....	223-227	Medium hard rock (Tkb).....	292-303
Sticky mud (Tkb).....	103-105	Hard blue lava (Tkb).....	227-230	Hard blue rock (Tkb).....	303-309
Hard rock (Tkb).....	105-108	Soft water rock (Tkb).....	230-234		
Gravel (Tkb).....	108-121	Hard blue rock (Tkb).....	234-236		
		Soft water rock (Tkb).....	236-241		
		Hard blue rock (Tkb).....	241-252		
		Red lava (Tkb).....	252-255		

Observations

Date	Chloride (p.p.m.)	Date	Chloride (p.p.m.)	Date	Chloride (p.p.m.)	Date	Chloride (p.p.m.)
Aug. 12, 1931	58	Dec. .. 1931	66	Aug. .. 1932	54	Apr. 28, 1933	53
Oct. 15	52	Feb. .. 1932	57	Feb. 7, 1933	61	June ..	47
Nov. ..	47	May 27	55	Mar. 30	50	Sept. 20	47
						Nov. 19, 1934	54

374 (old 309). On east side of R. R. tracks and 0.4 mile south of Laie Store. Owner, Kahuku Plantation Co. Altitude, 9 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. R. 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 pumphouse, 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 (Tkb), which consisted of beds of aa and pahoehoe, partly decomposed near the top and containing much white soapy secondary mineral probably montmorillonite.

Well D	Depth (ft.)	Well E	Depth (ft.)	Well F	Depth (ft.)
Red mud and clay...	0-33	Soft blue rock...	110-113	Clay...	0-33
Sandy clay and brown clay...	33-109	Blue rock (ceasing down to this level)	113-124	Blue clay and fine gravel...	33-36
Blue lava...	109-113	Red lava...	124-149	Hard blue clay and blue gravel...	36-40
Brown lava...	111-124	Black small pebbles...	149-153	Blue clay...	40-45
Hard rock (ceasing down to this level)	124-130	Hard rock...	153-154	Clay with gravel...	45-86
Dark brown lava...	130-145	Water rock...	154-168	Soft rock...	86-88
Red lava...	145-159	Hard lava...	168-179	Clay and gravel...	88-111
Blue lava...	159-191	Water rock...	179-184	Blue rock (ceasing down to this level)	111-120
Brown lava...	191-238	Hard rock...	184-201	Red lava...	120-129
Blue lava...	238-247	Soft brown rock...	201-209	Blue rock...	129-140
Brown lava...	247-275	Hard rock...	209-211	Red lava...	140-150
Hard blue lava...	275-288	Soft brown rock...	211-223	Blue rock...	150-155
Water rock...	288-298	Hard rock...	223-224	Red lava...	155-171
Brown lava...	293-298	Soft blue rock...	224-234	Water rock...	171-174
Blue lava...	298-311	Brown soft rock...	234-238	Grey water rock...	174-182
Brown lava...	312-332	Medium hard blue rock...	238-257	Brown water rock...	182-200
Hard blue rock...	332-341	Hard blue rock...	257-266	Black water rock...	200-208
Brown lava...	341-355	Brown soft rock...	266-282	Lava rock...	208-210
Hard blue lava...	355-360	Hard blue rock...	282-284	Blue rock...	210-225
Well E		Brown rock...	284-300	Blue rock...	225-227
Red mud and clay...	0-31	Soft rock...	300-311	Blue rock...	227-235
Rotten rock...	31-43	Blue rock...	311-317	Blue rock...	235-250
Red clay...	43-53	Water rock...	317-328	Water rock...	250-269
Blue sand...	53-59	Water rock...	328-333	Hard red lava...	269-271
Brown rock...	59-61	Brown rock...	333-345	Soft water rock...	271-277
Very fine sand...	61-63	Hard rock...	345-349	Hard lava...	277-282
Brown mud and clay...	63-65	Water rock...	349-355	Blue rock...	282-295
Soft rock and sand...	65-110	Very soft rock...	355-370	Soft water rock...	295-300

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. 26	86	Sept. 20, 1933	85
June 20	76	Feb. 7, 1933	52	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. 20, 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.)
Clay (Ra)	0-12	Clay (Pa or Tkb)...	77-97
Gravel (Ra or Pa)...	12-17	Clay and gravel (Pa or Tkb)	97-107
Clay (Pa)	17-72		
Hard rock (Pa or Tkb)	72-77		

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 Waiale 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.)
Red clay and small rocks (Pa)	0-20	Soft rock (Tkb)...	98-131
Blue clay (Pa)	20-24	Hard blue rock (Tkb)	131-134
Hard blue rock (Tkb)	24-29	Soft blue rock (Tkb)	134-141
Clay (Tkb)	29-32	Hard red rock (Tkb)	141-146
Hard blue rock (Tkb)	32-34	Soft blue rock (Tkb)	146-179
Red clay (Tkb)	34-41	Hard blue rock (Tkb)	179-183
Clay and gravel (Tkb)	41-47	Soft blue rock (Tkb)	183-203
Blue clay (Tkb)	47-80	Hard blue rock (Tkb)	203-218
Clay and gravel (Tkb)	80-98	Soft blue rock (Tkb)	218-220
		Hard blue rock (Tkb)	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	Nov. 19, 1934	41
Aug. ..	37				36

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. B. 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	Head (ft.)	Date	Head (ft.)	Date	Head (ft.)
July 9, 1929	35.3	Sept. 16, 1930	47.8	Aug. 1, 1932	50
Sept. 26, 1930	35.3	Feb. 7, 1931	85.2	Feb. 7, 1933	49
Feb. 12, 1930	39.5	May 27, 1932	46	Mar. 30	40
June 4	58.2	June 20	41	Apr. 28	45

393 (old 323). At end of flume 0.9 mile northwest of Hauula and 100 yd. south-west 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 300 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	21.65	..	Aug. 1913	19.90	41	Sept. 1915	20.80	40
Apr. 1911	21.26	..	Oct. 1913	20.61	40	Oct. 1915	21.26	40
June 1911	21.06	..	Nov. 1913	20.69	39	Nov. 1915	22.01	40
July 1911	20.93	..	Dec. 1913	20.64	41	Dec. 1915	22.47	41
Aug. 1911	20.88	..	Jan. 1914	20.64	41	Jan. 1916	23.70	40
Oct. 1911	20.98	..	Feb. 1914	20.54	41	Feb. 1916	23.74	41
Nov. 1911	21.19	..	Mar. 1914	21.28	41	Mar. 1916	23.20	42
Dec. 1911	21.65	41	Apr. 1914	21.52	39	Apr. 1916	22.14	42
Jan. 1912	21.51	42	May 1914	21.98	40	May 1916	22.06	42
Feb. 1912	21.18	41	June 1914	21.70	40	June 1916	21.64	42
Mar. 1912	21.34	41	July 1914	21.94	40	July 1916	21.59	41
Apr. 1912	20.75	40	Aug. 1914	21.68	40	Aug. 1916	21.14	42
May 1912	20.84	40	Sept. 1914	21.01	..	Oct. 1916	20.99	..
June 1912	19.75	41	Oct. 1914	22.64	..	Nov. 1916	21.23	..
July 1912	20.46	40	Nov. 1914	22.89	40	Dec. 1916	21.98	..
Aug. 1912	19.95	41	Dec. 1914	24.14	41	Jan. 1917	22.45	..
Sept. 1912	20.14	40	Jan. 1915	22.80	41	Feb. 1917	22.31	..
Oct. 1912	20.64	40	Feb. 1915	22.47	42	Mar. 1917	23.12	..
Nov. 1912	21.14	38	Mar. 1915	21.46	41	Apr. 1917	23.32	..
Dec. 1912	20.78	39	Apr. 1915	23.14	41	May 1917	23.23	..
Jan. 1913	20.20	41	May 1915	22.86	40	June 1917	21.38	..
Feb. 1913	20.44	41	June 1915	21.69	40	July 1917	21.03	..
Mar. 1913	20.74	41	July 1915	22.14	43	Aug. 1917	20.98	..
Apr. 1913	20.20	41	Aug. 1915	21.34	42	Sept. 1917	..	..
May 1913	20.62	40	..	..	..	..	..	..
June 1913	19.86	41	..	..	..	..	..	..

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	21.91	..	June 24, 1931	19.25	54
Jan. 1918	22.32	..	Oct. 29	20.90	55	Aug. 24	19.49	56
Feb. 1918	22.65	..	Nov. 22	21.54	54	Aug. 24	19.41	56
Mar. 1918	22.53	..	Dec. 5	22.82	53	Oct. 5	19.88	57
Apr. 1918	24.53	..	Feb. 7, 1928	22.81	53	Oct. 27	20.32	57
May 1918	24.86	..	Mar. 5	21.65	52	Dec. 16	20.59	54
June 1918	24.98	..	Apr. 10	21.41	54	Jan. 17, 1932	20.97	52
July 1918	28.46	..	May 20	21.36	53	Feb. 16	22.04	52
Jan. 1919	22.34	..	June 21	21.10	54	Mar. 15	22.85	40
Apr. 1921	20.69	..	July 23	20.09	54	Apr. 14	21.00	52
Feb. 1924	20.6	74	Aug. 21	20.21	55	May 16	21.94	52
Mar. 1924	20.6	55	Sept. 24	20.11	56	June 15	21.33	52
Apr. 1924	21.1	..	Oct. 24	20.07	55	July 14	21.07	55
May 1924	21.9	55	Nov. 19	20.85	56	Aug. 11	22.00	54
June 1924	20.5	54	Jan. 2, 1929	20.91	55	Sept. 14	20.57	54
July 1924	19.9	54	Jan. 29	19.69	54	Oct. 17	19.62	54
Aug. 1924	19.6	58	Feb. 25	20.39	55	Nov. 14	19.81	54
Sept. 1924	19.7	58	Mar. 23	20.41	54	Dec. 14	21.00	53
Oct. 1924	20.76	54	Apr. 22	20.16	54	Jan. 16, 1933	21.38	52
Nov. 1924	20.86	55	May 21	19.42	55	Feb. 14	21.36	52
Dec. 1924	21.16	54	June 24	19.24	55	Mar. 15	21.98	50
Jan. 1925	21.16	55	Aug. 5	19.21	55	Apr. 17	21.46	52
Feb. 17	21.16	54	Aug. 26	19.02	57	May 25	20.77	54
Mar. 20	21.16	57	Sept. 24	18.77	54	June 15	20.55	51
Apr. 14	20.36	61	Oct. 22	18.89	59	July 20	19.84	55
May 16	20.26	..	Nov. 25	19.09	59	Aug. 14	19.73	54
June 16	20.26	..	Dec. 23	20.41	57	Sept. 18	19.47	55
July 16	20.26	..	Jan. 27, 1930	21.75	55	Oct. 17	18.83	55
Aug. 16	20.26	..	Feb. 26	21.57	53	Nov. 9	19.24	53
Sept. 16	20.26	..	Mar. 24	21.00	53	Dec. 18	19.68	51
Oct. 16	20.26	..	Apr. 28	21.60	53	Jan. 11, 1934	20.04	50
Nov. 16	20.26	..	May 26	20.64	54	Feb. 19	19.75	50
Dec. 16	20.26	..	June 24	20.33	55	Mar. 22	19.15	55
Jan. 1925	20.26	..	July 24	20.33	55	Apr. 15	19.73	59
Feb. 17	20.26	..	Aug. 25	19.97	57	May 15	19.62	59
Mar. 18	20.26	..	Sept. 2	21.22	54	June 14	19.46	56
Apr. 19	20.26	..	Oct. 3	20.82	54	July 13	19.16	54
May 20	20.26	..	Nov. 4	20.82	54	Aug. 12	19.06	56
June 21	20.26	..	Dec. 4	22.13	53	Sept. 11	19.44	60
July 22	20.26	..	Jan. 25, 1931	20.88	54	Oct. 12	19.18	60
Aug. 23	20.26	..	Feb. 25	20.88	54	Nov. 21	19.88	60
Sept. 24	20.26	..	Mar. 25	20.07	55	Dec. 21	19.71	60
Oct. 25	20.26	..	Apr. 27	19.91	54	..	..	..
Nov. 26	20.26	..	May 28	19.96	55	..	..	..
Dec. 27	20.26	..	..	..	..	..	..	..

397 (old 327). In cane field about 500 yd. southeast of R. R. shop at Hauula. Owner, Kahuku Plantation Co. Altitude, about 10 ft. Use, irrigation.

398A and B (old 327-1). Pump 27 on R. R. track north side of Kahanui 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

Well	Depth (ft.)	Log	Depth (ft.)	Log	Depth (ft.)
Well A	0-15	Very hard black rock (Tbb)	96-99	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 (Pa)	28-37	Hard blue rock (Tbb)	105-130	Hard blue rock (Tbb)	280-291
Hard blue rock (Tbb)	37-46	Soft blue rock (Tbb)	130-142	Well B	..
Soft brown rock (Tbb)	46-56	Soft blue rock (Tbb)	140-148	Black sticky clay (Ra)	0-8
Hard blue rock (Tbb)	56-62	Soft blue rock (Tbb)	148-156	Pa)	8-28
Soft brown rock (Tbb)	62-75	Hard blue rock (Tbb)	156-162	Hard blue rock (Tbb)	28-85
Hard blue rock (Tbb)	75-77	Soft blue rock (Tbb)	162-172	Soft brown rock (Tbb)	85-93
..	..	..	..	Hard blue rock (Tbb)	93-96
..	..	..	..	Soft blue rock (Tbb)	96-111

Log—Well 398 (Continued)

Depth (ft.)	Depth (ft.)	Depth (ft.)	Depth (ft.)
Soft brown rock (Tkb).....	125-157	Hard blue rock (Tkb).....	201-210
Hard blue rock (Tkb).....	157-160	Hard brown rock (Tkb).....	210-217
Soft blue rock (Tkb).....	160-197	Soft blue rock (Tkb).....	217-235
Hard brown rock (Tkb).....	197-201		

Observations			
Date	Chloride (p.p.m.)	Date	Chloride (p.p.m.)
Aug. 1, 1932	59	Mar. 20, 1933	57
Feb. 7, 1933	71	June 1, 1933	67
		Sept. 20	71
		Nov. 19, 1934	69

401 (old 328). In case 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 Punaluu Stream. Owner, Chung Yan Quong. Drilled, 1925 by Chang Yan 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

Log			
	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)	137-218.6
Black dirt (Pa)	29-54		
Rough yellow dirt (Pa or Tkb)	54-93	Rock with holes (Tkb)	218.6-236.6
Hard stone (Pa or Tkb)	93-97		

404 (old 331). In pond 200 yd. southeast of highway bridge over Punaluu 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

Log			
	Depth (ft.)		Depth (ft.)
Gravel, sand, and clay (Rs).....			
Soft clayey mud, sand and streaks of cemented sand and gravel, rotten wood (Pa)	0-32	Cemented and loose sand and gravel (Pa)	87-103
	32-87		

404-1 (no old number). At end of road leading southwest from main highway at point 1,100 yd. southeast of Punaluu bridge. Owner, Kahuku Plantation Co. Drilled, 1937. Diameter, 12 in. Depth, 163 ft. Use, domestic supply. Casing, 50 ft.

Log

Log			
	Depth (ft.)		Depth (ft.)
Sticky brown clay (Ra).	0-5	Hard blue rock (Tkb).	27-30
Medium hard and soft lime coral (Pla).	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.)
Medium hard and soft red and blue lava mixed with red water rock (Tkb)	37-43	Very hard blue lava (Tkb), chloride, 18 p.p.m.	101-118
Hard blue and brown lava rock mixed with red water rock (Tkb)	43-50	Hard and soft blue and brown lava mixed with water rock (Tkb)	118-133
Hard blue and brown lava (Tkb), chloride, 14 p.p.m.	50-58	Hard blue rock (Tkb), chloride, 20 p.p.m.	133-143
Very hard blue and brown lava (Tkb), chloride, 14 p.p.m.	58-68	Very hard blue lava (Tkb), chloride, 18 p.p.m.	143-152
Hard and soft blue and brown rock mixed with red water rock (Tkb)	68-88	Hard and soft blue and brown lava mixed with water rock (Tkb)	152-159
	88-101	Hard blue rock (Tkb), chloride, 20 p.p.m.	159-163

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.)
Pine beach sand (Rs).....	0-10	Soft brown rock (Tkb).....	288-292
Black silt with shells and kukui nuts (Ra and Pa).....	10-80	Hard blue rock (Tkb).....	292-302
Brown soil with pebbles (Pa).....	80-124.5	Soft brown rock (Tkb).....	302-345
Brown and black soil (Pa).....	124.5-165	Soft water rock (Tkb).....	355-364
Blue rock (Tkb).....	165-177	Hard blue rock (Tkb).....	364-371
Soft blue and brown rock (Tkb).....	177-187	Soft water rock (Tkb).....	371-375
Hard blue rock (Tkb).....	187-210.5	Hard blue rock (Tkb).....	375-379
Soft blue rock (Tkb).....	210.5-222	Soft water rock (Tkb).....	379-393
Hard blue rock (Tkb).....	222-254	Hard blue rock (Tkb).....	393-411
Soft brown water rock (Tkb).....	254-270	Soft red and brown water rock (Tkb).....	411-441
Hard blue rock (Tkb).....	270-288		

405-1 (no old number). In Knaawa 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	Hard rock (Tkb).....	62-65
Soft blue rock (Tkb).....	47-52	Hard rock (Tkb).....	65-73
		Soft rock (Tkb).....	73-75

Meter test

No flow from top of well. Au 3-in. deep-well meter used. Readings by K. N. Yavakiv, Aug. 25, 1937.

Depth (ft.)	Revolutions per minute	Depth (ft.)	Revolutions per minute	Depth (ft.)	Revolutions per minute
0	0	40	6	70	4
22	88	50	42	80	3
30	31	60	28		

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.)
White sand with small coral (Pa).....	0-28	Red clinders (Pa)....	46-51
Hard coral (Pa)....	28-46	Soft coral (Pa).....	51-52
		Hard coral (Pa)....	52-77
		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.)
Soil (Ra).....	0-1	Hard rock (Tkb).....	87-120
Hard coral (Pa).....	1-2	Hard blue rock (Tkb) ..	120-151
Reddish rock (Tkb) ..	2-27	Red rock (Tkb).....	201-202
Black clay (Pa).....	27-32	Hard blue rock (Tkb) ..	202-205
Ancient alluvium (Pa) ..	32-57	"Papakapu" rock	205-208
Hard blue rock (Tkb) ..	57-59	Hard blue rock (Tkb) ..	208-212
Brown clay (Pa).....	59-77	Soft rock (Tkb).....	212-214
Coral (Pa).....	77-85	Hard blue rock (Tkb) ..	214-223
Brown clay (Pa or Tkb)	85-87	Hard gray rock (Tkb) ..	223-226
		Hard gray rock (Tkb) ..	226-227

406 (old 332). In Kaaawa about 400 yd. south of highway bridge over Kaaawa Stream. Owner, Mrs. F. M. Swanzey. 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	15.67	241
Aug. 26	14.21	211	Oct. 27	14.31	213	Aug. 14	15.51	213
Sept. 24	13.94	211	Dec. 16	14.27	213	Sept. 18	15.08	216
Oct. 22	13.80	211	Jan. 13, 1932	14.35	218	Oct. 17	14.95	214
Nov. 25	13.82	212	Feb. 16	14.89	221	Dec. 9	14.77	218
Dec. 23	14.03	215	Mar. 15	15.71	225	Dec. 18	14.77	218
Jan. 27, 1930	14.23	223	May 14	16.06	227	Jan. 11, 1934	14.31	198
Feb. 26	15.57	226	May 16	16.46	227	Feb. 22	14.57	209
Mar. 24	15.83	222	June 15	16.58	229	Mar. 22	14.57	219
Apr. 28	16.37	228	Oct. 17	16.32	215	Apr. 30	15.72	216
May 26	16.05	227	Aug. 11	16.48	226	May 15	15.92	222
June 24	16.34	225	Sept. 14	16.32	215	June 14	15.92	223
July 28	16.24	224	Oct. 17	15.99	214	Aug. 13	15.43	223
Aug. 25	15.79	219	Nov. 14	15.71	210	Aug. 15	15.43	223
Oct. 8	15.99	216	Dec. 14	15.55	210	Sept. 14	15.79	220
Nov. 11	15.98	219	Jan. 16, 1933	15.40	212	Oct. 12	15.92	220
Dec. 4	15.86	218	Feb. 14	15.51	211	Nov. 21	14.95	223
Dec. 29	15.76	219	Mar. 15	15.92	213	Dec. 21	14.15	230
Jan. 26, 1931	15.79	217	Apr. 17	16.24	222			
Aug. 4	14.23	212	May 27	16.17	227			

407 (old 333). About 50 ft. north of highway bridge over Kahaaluu 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.

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 Kahaaluu about 75 ft. southeast of Kahaaluu highway bridge. Owner, Kahaaluu 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.)
Black loam (Ra).....	0-4	Silt and gravel (Pa).....	30-47
Gravel (Pa).....	4-8	Hard rock (Tkb).....	47-55
Alluvium silt with coral (Pa and Pa).....	8-30	Hard blue rock (Tkb) ..	55-58
		Blue clay (Tkb).....	58-58.5

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.....	18-22	Ogma hole, no sample.....	295-315
Sand (Pa or Pa).....	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, 420, 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 Pa).....	22-65		
Soft mud and loose coral (Pa and Pa).....	65-85		
Hard coral (Pa).....	88-90		
Layers of coral, some finger coral and some ledge coral (Pa).....	90-140		
Soft coral (Pa).....	140-170		
Clay mixed with volcanic ash (Pa).....	140-170		
Clay (Pa).....	175-180		
Coral (Pa).....	180-240		
Yellow clay and mud rock (Pa).....	240-250		
Clay (Pa).....	250-260		
Yellow clay (Pa).....	260-270		
Soft rock (Pa).....	270-280		
Ledge stone (Pa).....	280-285		

Meter tests

No water flowing from top of well. An 8-in. deep-well meter used. Readings by K. N. Yakavik. June 18, 1935.

Test 1. Pumps running.

Depth (ft.)	Revolutions per minute	Depth (ft.)	Revolutions per minute	Depth (ft.)	Revolutions per minute
22	0	38	15	52	41
24	6	40	19	54	40
26	8	42	15	56	41
30	13	44	14	58	41
32	11	46	13	60	42

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 (landed)	

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.)
Fine gravel and boulders (Ra)	0-45	curried below this depth	98-130	Soft water rock (Tkb)	270-280
Hard rock (Pa)	25-28	Hard rock (Tkb)	120-135	Hard blue rock (Tkb)	280-299
Brown dirt mixed with gravel (Pa)	28-38	Gravel mixed with clay (Tkb)	135-140	Hard blue rock (Tkb)	299-304
Gravel (Pa)	38-48	Hard blue rock (Tkb)	140-144	Hard blue lava (Tkb)	304-307
Hard rock, boulder (Pa)	48-51	Gravel (Tkb)	144-151	Hard blue lava (Tkb)	307-310
Gravel mixed with brown soil (Pa)	51-77	Hard blue rock (Tkb)	151-168	Soft rock (Tkb)	310-319
Hard rock, boulder (Pa)	77-82	Hard blue rock mixed with red lava (Tkb)	165-170	Hard blue lava (Tkb)	319-324
Gravel mixed with brown soil (Pa)	82-98	Soft water rock (Tkb)	170-185	Red and blue rock (Tkb)	324-327
Gravel mixed with clay (Pa and Tkb)		Hard blue rock (Tkb)	185-190	Hard rock (Tkb)	327-330
Samples indicate bed rock was encountered at about 115 ft. and that no more gravel occurred		Gravel mixed with clay (Tkb)	190-200	Soft rock (Tkb)	330-335
		Hard blue rock (Tkb)	200-205	Hard blue lava (Tkb)	335-337
		Gravel mixed with clay (Tkb)	205-234	Soft rock (Tkb)	337-341
		Hard blue rock (Tkb)	234-250	Hard rock (Tkb)	341-343
		Blue rock mixed with red rock (Tkb)	250-260	Soft and hard rock (Tkb)	343-375
		Hard blue rock (Tkb)	260-270	Hard rock (Tkb)	375-380
				Soft rock (Tkb)	380-386
				Hard rock (Tkb)	386-391
				Soft red rock (Tkb)	391-395
				Hard rock (Tkb)	395-400

415 (no old number). Near Kawaiinu 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 gravel (Pa)	155-196	Rock, hard (Tkd)	240-250
Red clay (Pa)	22-42	Decomposed rock (Pa)		Changed from blue to purple rock (Tkd)	250-270
Decomposed rock (Pa)	42-55	(Tkd)	196-202		
Sticky red clay (Pa)	52-60	Rock, hard (Tkd)	202-217		
Red clay (Pa)	60-124	Rock (Tkd)	217-220		
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 200 ft. and filled back to 39 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, 14.35 ft. Head, Dec. 21, 1937, 1.67 ft.

Log

	Depth (ft.)		Depth (ft.)		Depth (ft.)
Cinders (Qkt)	0-40	Coral with fresh water		Soft rock (Pa)	233-237
Hard rock (Qkt)	40-45	100-105 ft. (Pls)	90-110	Yellow clay (Pa)	237-253
Cinders (Qkt)	45-52	Sand (Pls)	110-115	Blue rock (Pa)	235-256
Coral salt water at 72 ft. (Pls)	52-80	Coral (Pa)	110-200	Blue mud (Pa)	256-260
Mud (Pa)	80-90	Mud (Pa)	200-228		
		Coral (Pls)	228-235		

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 Nin 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)	46-52	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