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HAWAII GEOTHERMAL RESOURCE ASSESSMENT PROGRAM: ††

WESTERN STATE COOPERATIVE

DIRECT HEAT RESOURCE ASSESSMENT,

PHASE 1 ⊙ †††

FINAL REPORT

MASTER

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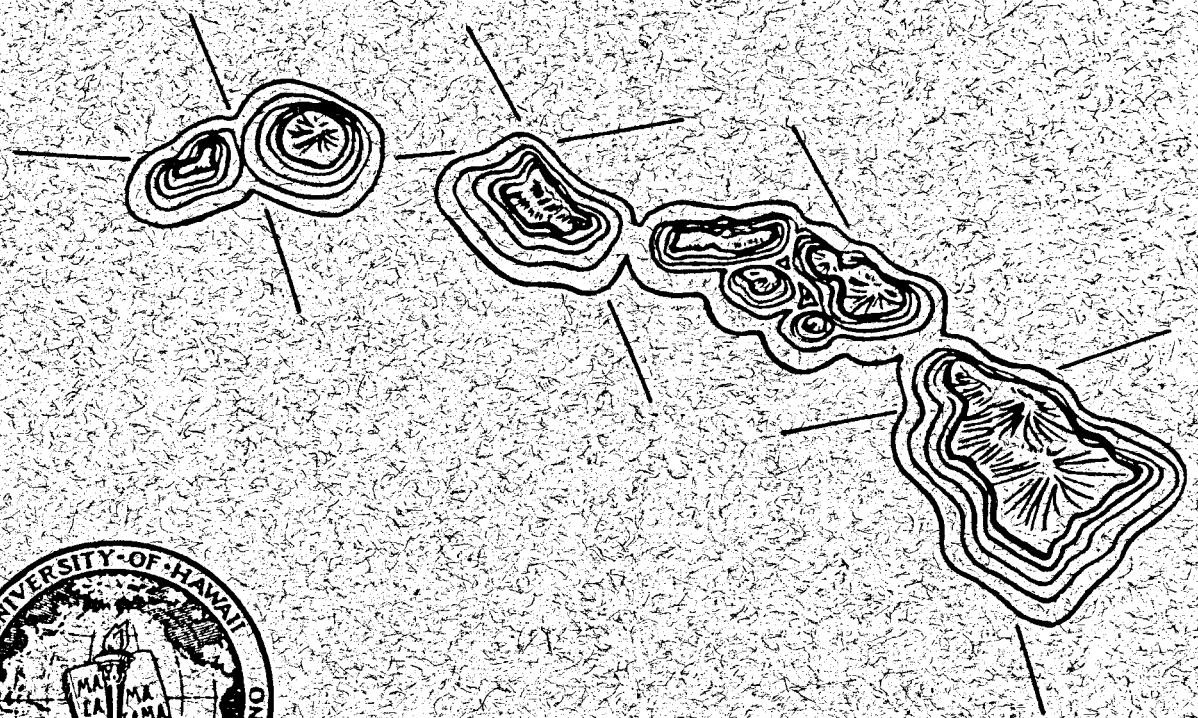

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Hawaii Institute of Geophysics

DISCLAIMER

Western State Cooperative

Direct Heat Resource Assessment

Phase I

Final Report

DOE/ID/01713-4

ABSTRACT

A regional geothermal resource assessment has been conducted for the major islands in the Hawaiian chain. The assessment was made through the compilation and evaluation of the readily accessible geological, geochemical, and geophysical data for the Hawaiian archipelago which has been acquired during the last two decades.

The geologic criteria used in the identification of possible geothermal reservoirs were: age and location of most recent volcanism on the island and the geologic structure of each island. The geochemical anomalies used as traces for geothermally altered ground water were: elevated silica concentrations and elevated chloride/magnesium ion ratios. Geophysical data used to identify subsurface structure which may have geothermal potential were: aeromagnetic anomalies, gravity anomalies, and higher than normal well and basal spring discharge temperatures.

Geophysical and geochemical anomalies which may be the result of subsurface thermal effects have been identified on the island of Hawaii, Maui, Molokai and Oahu.

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INTRODUCTION

The objective of Phase I of the Western States Cooperative Direct Heat Resources Assessment Program have been to:

(1) Review all available data on groundwater geochemistry for the State of Hawaii.

(2) Compile existing data on those shallow groundwater sources having geochemical anomalies normally associated with geothermal reservoirs.

(3) Collect and compile existing data on geothermal gradients throughout the State.

(4) Assist in the compilation of geologic and geophysical data pertinent to geothermal resource assessment.

(5) Identify those areas in the State of Hawaii which may have Geothermal resources and provide a preliminary assessment of their potental

The State of Hawaii is made up of a chain of five major and several minor islands stretching across more than 2000 km of the Pacific Ocean. The geologic and hydrologic conditions found in Hawaii are unique to an island environment and are substantially different from those prevalent in continental terrain. Many of the techniques normally used in regional surveys in the western United States have been found to be inapplicable to Hawaii and thus it has been necessary to modify many of our methods to suit the requirements of the Hawaiian setting. Our assessment of the geothermal potential for Hawaii has been based on the following: age of the island under consideration, proximity to

centers of recent volcanism on the island, observed geophysical anomalies indicative of structural features (e.g. buried magma chambers, fracture systems, etc.) normally associated with geothermal reservoirs, and geochemical anomalies indicative of thermally altered groundwaters.

Geologic Setting

The Hawaiian Archipelago is formed by a chain of tholeiitic shield volcanoes which have erupted sequentially from the central Pacific sea floor (Figure 1). The origin of the intraplate volcanism which has formed the islands is thought to be a "hot spot" or "mantleplume" beneath the Pacific plate; the north westward migration of this plate during the last 25 million years has resulted in a northwest-southeast lineation of islands and sea mounts increasing in age from Hawaii at the south end of the chain to Midway at the north end.

Each island consists of one or more volcanoes which have built steep sided cones from the ocean floor to heights of more than 9000 m above the basement rock. Although there are some exceptions, Hawaiian volcanoes are usually formed from many thousands of thin lava flows erupted out of a summit caldera complex or along two or more rift systems radiating out from the center of the shield. The calderas, where they have been exposed by erosion, have been found to consist of a system of closely spaced parallel and cross cutting dikes and have a generally circular ground plan (Macdonald and Abbott, 1970). The summit diameter of the caldera systems are usually of the order of three to five kilometers. Geophysical studies conducted on several of the caldera systems

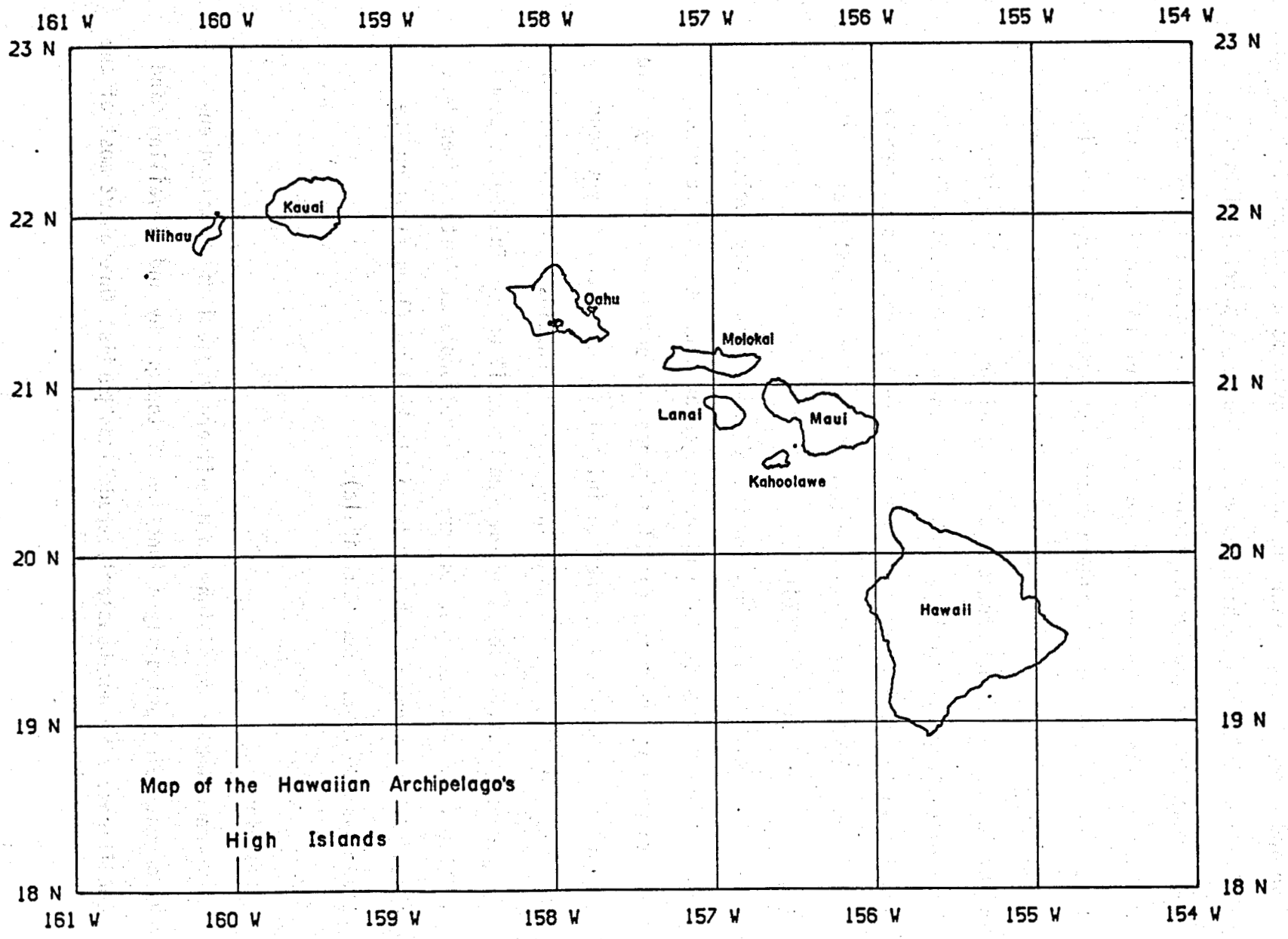


Figure 1 Map of the Hawaiian Archipelago

have indicated that the near surface dike systems are underlain by dense volcanic necks or plugs which extend to depths of several kilometers below the surface (Adams and Furumoto, 1965). These dense volcanics probably represent the near surface portions of a crustal magma chamber that existed beneath the caldera during its active phase. The rift zones radiating out from the summit calderas are closely spaced assemblages of dikes and stocks with vertical or near vertical dip angles and have an overall width of from one to three kilometers. The dike density in the rift zones is on the order of several hundred per kilometer and each dike ranging from a few inches to several feet in thickness (Macdonald and Abbott, 1970).

The lavas produced by Hawaiian volcanoes generally evolve from basaltic tholeiites in the earlier stages of activity to more viscous alkalic rock types during the final phases of activity. The very fluid basaltic flows erupted during the initial stages of activity produce thin, layered, flows resulting in broad flat shields characteristic of the younger Hawaiian volcanoes (Mauna Loa, Kilauea). The more viscous alkalic lavas erupted near the end of a volcano's activity, often leave a steeper sided cap of ash and dense blocky lava flows flows on the older systems (Mauna Kea, Haleakala).

Meteorology

The climatic conditions in Hawaii are typical of an island environment being primarily a function of topography and prevailing wind conditions. The northeasterly tradewinds persist throughout most of the

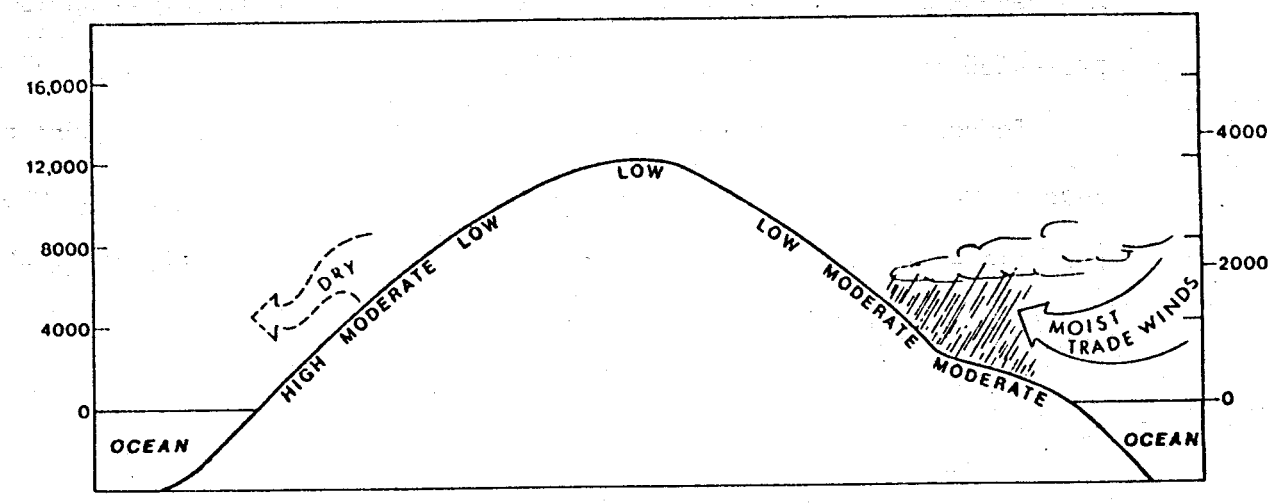
year and have the effect of providing higher mean annual rainfall and lower mean temperatures on the windward (northeast) sides of the islands. The local rainfall distribution is both a function of the location on the island as well as the overall altitude of the island: an idealized representation of the orographic effects on rainfall distribution is presented in Figure 2 (Takasaki, 1978).

Temperature distributions show similar topographic variations: near shore temperatures average approximately 22°C to 24°C decreasing by 6°C per kilometer increase in elevation to below 0°C at an altitude of 4200 m (Mauna Kea summit).

Ground Water Hydrology and Geochemistry

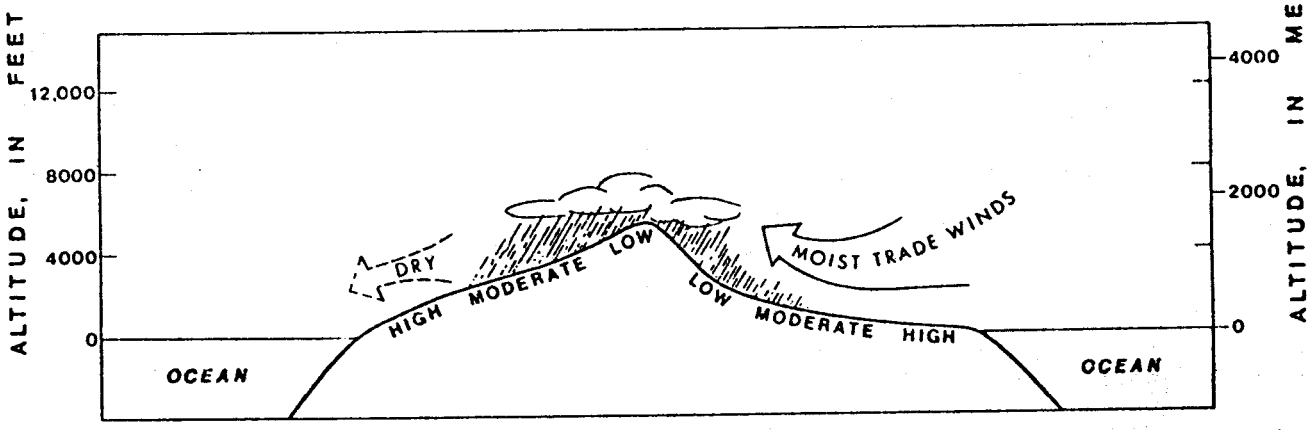
The ground water hydrology in Hawaii is primarily controlled by aquifer type, soil cover, and local rock permeability and, consequently, is a function of both the age of the island and location on the island. A diagrammatic representation of the important hydrologic types found in the State is presented in Figure 3 (Takasaki, 1978).

The prevailing conditions on the younger volcanic systems is similar to that shown on the left hand side of the figure. The rock types above sea level are generally very permeable allowing rapid percolation of rainfall down to the freshwater lens which floats above the denser salt water in the basal aquifers. The hydrologic head of the basal water table increases by 0.5 meters per kilometer inland, which is typical of a Ghyben Herzberg lens system.



HIGH VOLCANIC DOMES

Poor trade-wind rainfall distribution. Most of island is dry except on windward side below altitude of 6,000 feet.



MEDIUM HIGH VOLCANIC DOMES

Ideal trade-wind rainfall distribution. Rainfall decreases rapidly from maximum near crest. Rainfall in coastal areas depends on distance from rainfall maximum.

Figure 2 **Orographic effects on rainfall**

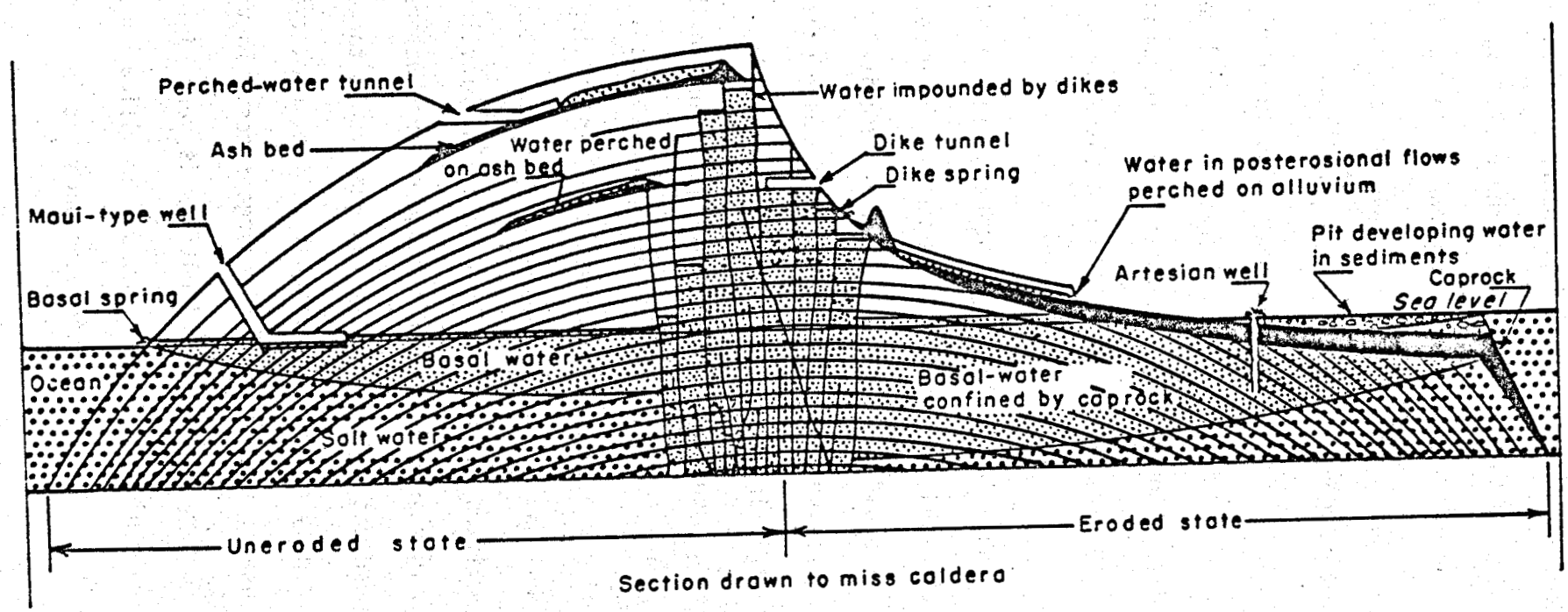


Figure 3 Hydrologic types in Hawaii

Impermeable ash beds are commonly found interbedded with the more open fractured basalt lava flows. These have the effect of impeding the downward flow of meteoric recharge and thus producing a localized perched water table. The near vertical dip angles of the dike systems within rift zones and calderas generally hinder the seaward flow of ground water through the basal aquifer which results in an elevated water table up slope of the dike zone and depressed water levels down slope. High level dike impounded aquifers also occur in areas where cross cutting dike complexes perch local recharge (Stearns and Macdonald, 1946).

The hydrology of the older islands (right hand side of Figure 3) is affected by alluviation and soil formation as well as by erosional exposure of high level aquifers. The formation of relatively impermeable sediment layers fringing the lower and submarine slopes of the island has the effect of restricting the outflow of fresh water from the basal aquifers resulting in a much thicker freshwater lens beneath the island (Stearns and Vaksvik, 1935). Impermeable soil cover at the surface hinders the downward percolation of meteoric water increasing surface discharge rates. Erosional exposure of ash- bed perched water tables and dike impounded aquifers has produced perennial, highlevel spring discharge which also increases surface discharge of freshwaters.

In general, ground water geochemistry has been found to be highly localized. It is strongly controlled by aquifer type, rock type, soil cover, surface land usage, and recharge-discharge rates. In younger islands having high recharge rates, basal outflow is very rapid; rock water interactions are minimal and thus groundwater silica concentrations are relatively low. Since sea water encroachment into the basal

lens is significant only in near shore aquifers; most salts are present only in very low concentration in the inland areas. On those parts of the younger islands where recharge is low, the groundwater chemistry is much different. Both tidal mixing and upward migration of sea water salts into the basal aquifers elevates the disolved salts concentrations considerably; longer residence times of the groundwaters also increases silica concentrations. Thermal effects, such as those arising from a hot intrusive body, serve to enhance both of these effects: mixing of saline and fresh waters is accelerated by thermal convection and dissolved silica concentrations normally increase with higher groundwater temperatures.

Both soil cover and longer groundwater residence times on the older islands increase median silica concentrations by approximately a factor of two above those observed on the younger islands. Agricultural effects, particularly irrigation recharge, serve to elevate silica concentrations as well. The concentrations of other salts can be quite variable: high level dike impounded meteoric water will have very low concentrations as will some inland basal waters. In near shore basal aquifers, where heavy groundwater withdrawal has accelerated sea water migration into the freshwater lens, waters are brackish to saline (Macdonald and Abbott, 1970).

Assessment Criteria

The variability of the local geologic structures, and consequent complexity of the groundwater hydrology and geochemistry, have made it impossible to rely on a single set of rules for the identification of potential geothermal reservoirs. The present assessment is based on information obtained from several types of regional surveys which have

been carried out on Hawaii during the last 15-20 years. Our appraisal of the potential for each area will be a qualitative assessment based on the following types of information:

(1) Surface geology. Surface manifestations of rift zones, calderas, and recent eruptive activity are easily identifiable although, except in areas of obvious thermal activity (springs and fumaroles), they provide little information concerning subsurface conditions.

(2) Infrared studies. Infrared imagery of land surface and near shore ocean waters can identify thermal spring discharges and above-ambient ground temperatures. At present, infrared surveys have been conducted only over the island of Hawaii.

(3) Seismic studies. Passive earthquake monitoring can identify structural features (fractures, rift zones, etc.) normally associated with thermal systems. Relatively little passive seismic data is available for any island other than Hawaii for which there is excellent coverage. Seismic refraction surveys can be used to identify buried magma chambers and intrusives; studies of use to the present survey have been conducted only on the Koolau volcanic pipe zone on Oahu.

(4) Magnetic field studies. Aeromagnetic survey have been used to identify magnetic field anomalies associated with buried rift zones and calderas. Although aeromagnetic studies have been made for all the major Hawaiian islands, most of the surveys were flown at high altitude with a depth of penetration being on the order of 10 km.

(5) Gravity surveys. Gravity data can provide information on the locations of dense intrusive bodies and dike zones. Regional and reconnaissance gravity surveys of the type which have been done on Hawaii can provide little information on conditions of the identified systems at depth.

(6) Groundwater temperature data. Near surface waters having temperatures significantly above ambient are strong evidence of a nearby geothermal reservoir. Groundwater temperatures in Hawaii can vary by several degrees depending on the altitude and temperature at which the water entered the subsurface aquifer. Further, the routinely available data (from the U.S. Geological Survey, State of Hawaii Board of Public Health and Department of Land and Natural Resources, and the counties Boards of Water Supply) were found to be of variable reliability and thus were of only marginal utility.

(7) Groundwater geochemistry data. Near surface waters can have geochemical anomalies (i.e. unusual salts concentrations) which arise from high temperature rock-water interaction. The salts commonly used as indicators of thermally altered groundwater are: silica (SiO_2) - total concentration is a function of temperature; sodium, potassium, calcium (Na, K, Ca) - equilibrium concentrations in thermal waters are related to the empirically derived equation:

$$\log (Na/K) + \log (Ca/Na) = \frac{1647}{273 + T°C} - 2.24$$

$$\beta = 1/3, \quad T > 100°C, \qquad \beta = 4/3, \quad T < 100°C$$

(Fournier and Truesdell, 1973); chloride, magnesium (Cl, Mg) -- Chloride ion concentrations are commonly elevated in thermally

altered groundwaters by contamination from magmatic volatiles where as magnesium ion concentrations are reduced by reaction with clay minerals. Cl/Mg ion ratios can be used to differentiate between cold, thermally altered water and fresh water mixed with sea water. Difficulties were encountered in interpreting the groundwater geochemical data arising from: reliability of the available data, variations of silica concentration with local geologic setting (see above), and sea water contamination of near surface aquifers with brackish water (see above).

Results

The data compiled during Phase I of the Direct Heat Resource assessment is presented below and consists of a brief outline of the regional geology and geophysics as well as a topographic-meteorologic-hydrologic profile of each island. The groundwater chemistry data that has been compiled is presented in the form of edited, computer-generated, maps of all wells on each island having silica concentrations significantly above the median for the island. Included with the maps are tables of the most recently available chemical data for each of the identified water sources. Those areas on each island having elevated Cl/Mg ratios are also denoted on the map plots.

The data presentation for each island is followed by an interpretation and qualitative assessment of the geothermal potential for the island based on all the information presented.

Hawaii

The island of Hawaii is the youngest and largest of the Hawaiian chain (10,438 sq. km) and is made up of five known volcanic systems (two earlier volcanic eruptive centers are thought to have been covered by more recent activity of Mauna Loa). The oldest rocks exposed on the island surface are those of the Ninole Volcanic Series (Figure 4) and are about 500,000 years old; the youngest volcanic system on the island is Kilauea which last erupted in September of 1977. The other volcanic system on Hawaii (in order of increasing age) are Mauna Loa, Hualalai, Mauna Kea, and Kohala. A summary of the surface geology of the island of Hawaii is presented in Figure 4.

Hawaiian volcanism takes place in a series of relatively distinctive phases, several of which are exemplified by the volcanic systems on Hawaii (Stearns, 1967). Kilauea (altitude: 1231 m) is presently in the midst of its youthful shield building phase: very active, either erupting continuously over long periods of time or at intervals of the order of eighteen months. The very fluid basaltic lavas produced are released from the summit caldera or along two major rift zones radiating to the east and southwest from the summit caldera (Figure 5). The flows of the Kilauea shield are thin (averaging a few centimeters to five meters in thickness) and are interlaced with lava tubes; the rocks are generally quite porous and highly fractured. There is little soil cover present over most of the Kilauea shield and the entire system has a high permeability to rain water.

Mauna Loa (altitude: 4169 m) is considerably older and larger than Kilauea and is probably in the mature shield building stage. Until recently, (1952), Mauna Loa erupted quite frequently with a periodicity of

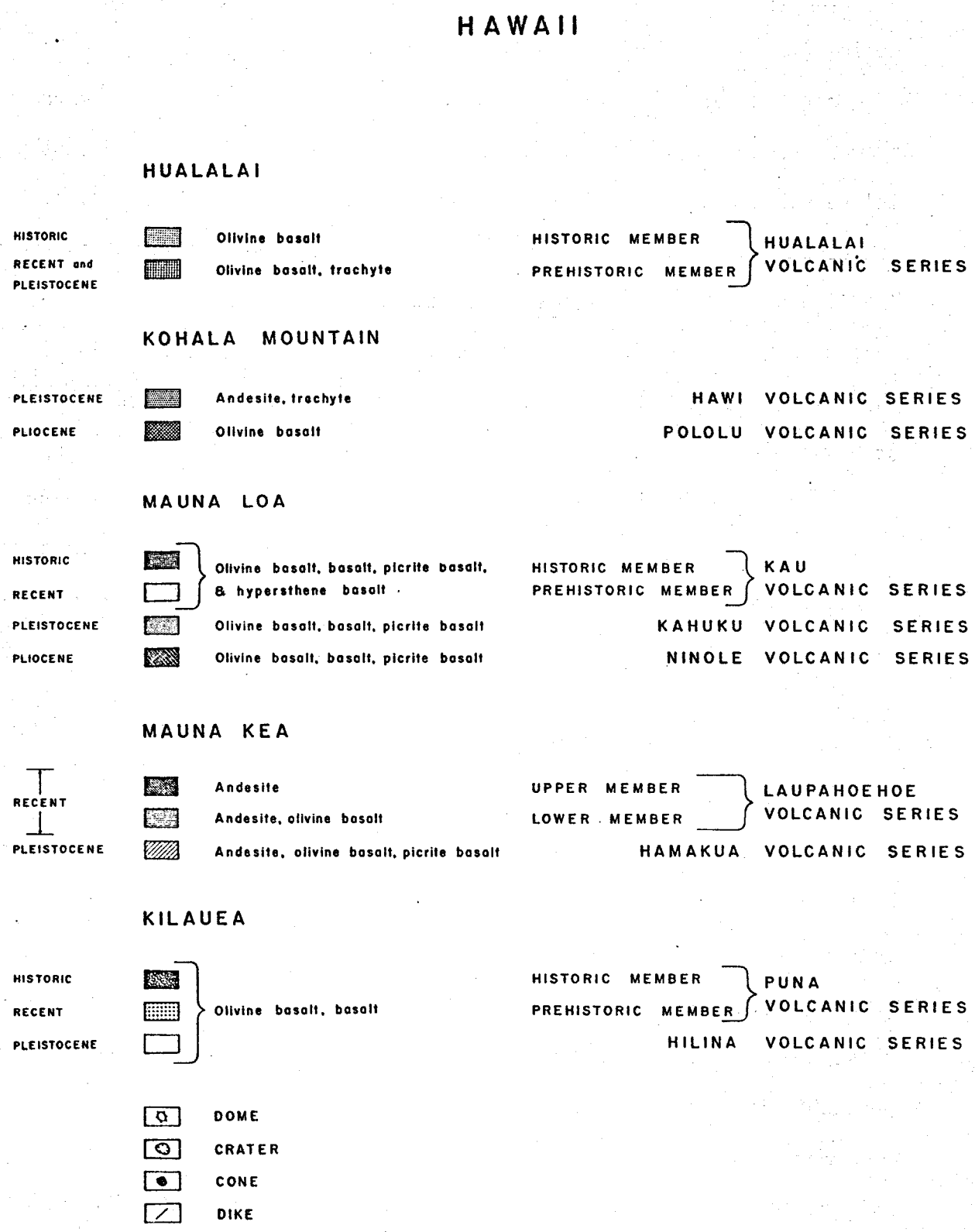
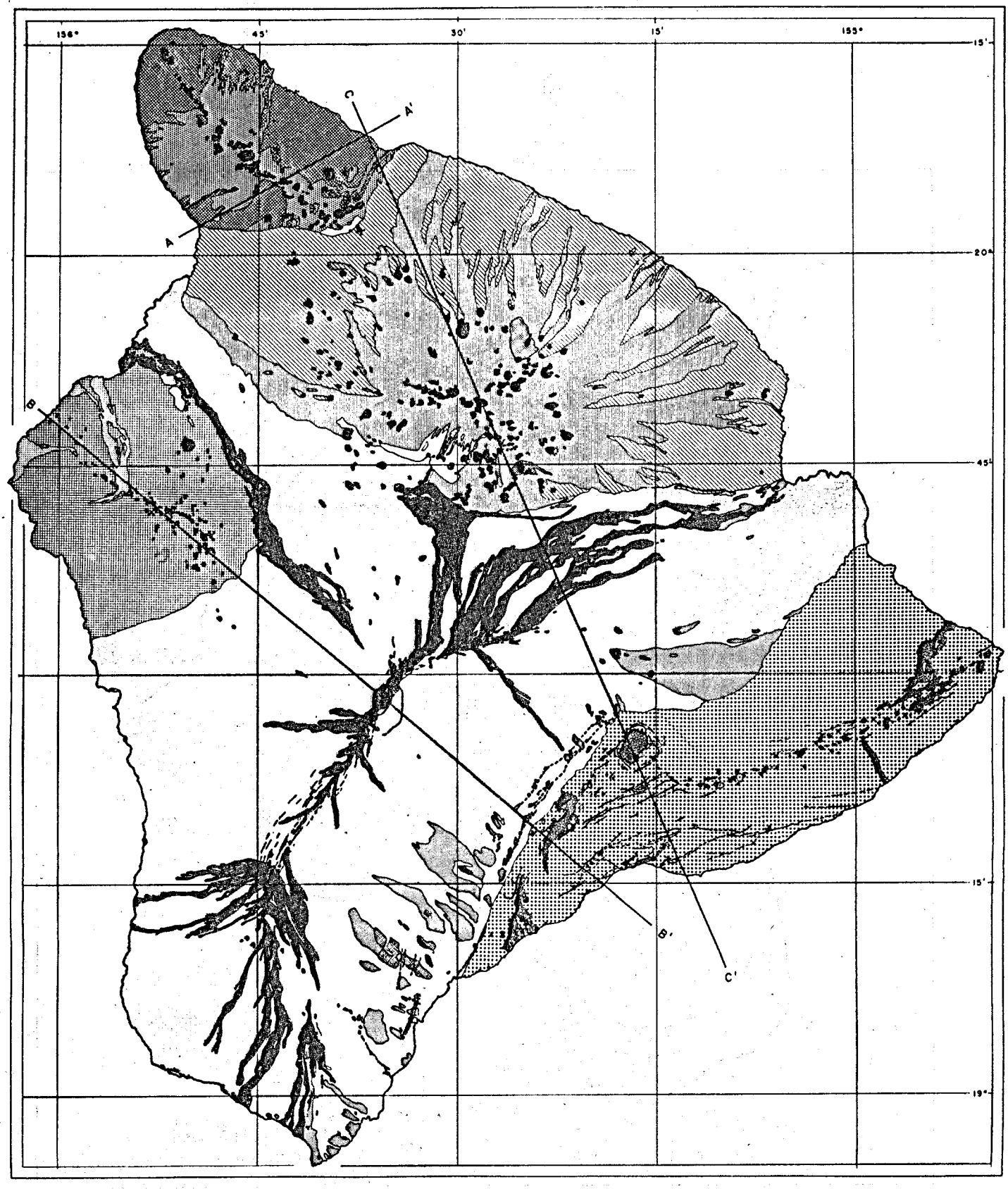


Figure 4 Surface geology of Hawaii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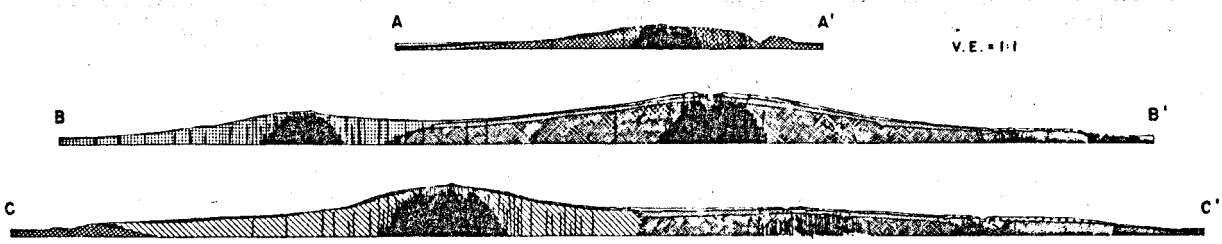
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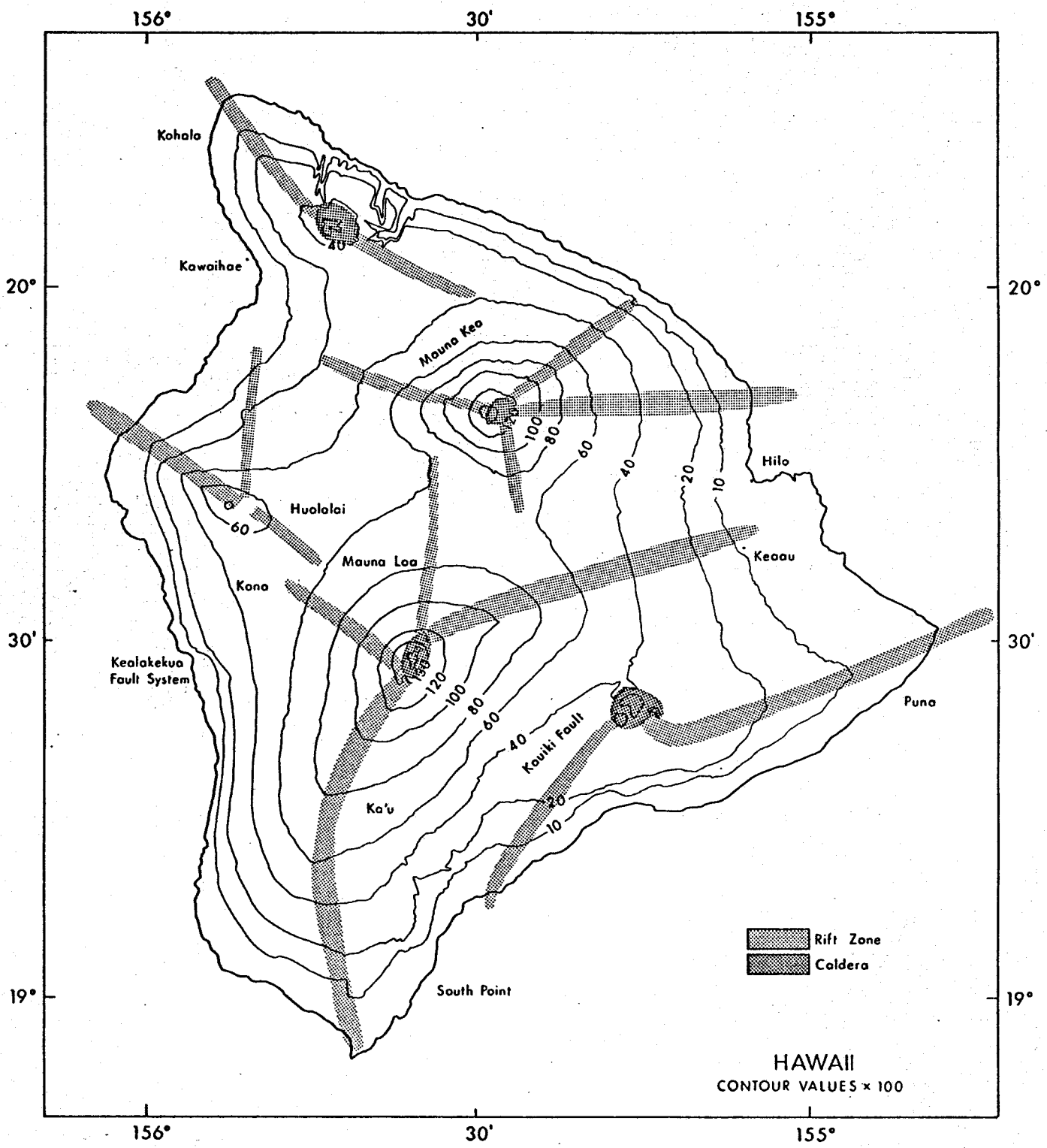


Figure 5 Topography and rift systems of Hawaii

approximately three years. Since 1952, only one eruption has occurred and took place in July of 1975. The rock type and structure of Mauna Loa is not significantly different from Kilauea. The predominant centers of activity on Mauna Loa are at the summit caldera and along a south and an east rift zone. The rock units are fractured and undoubtedly are as porous as those of Kilauea although minor ash bedding occurs which presents some resistance to downward percolation of high level precipitation (Stearns and Macdonald, 1946).

Hualalai (altitude: 2521 m) is to the northeast of Mauna Loa and appears to be in a late mature or post-caldera stage of activity although, at present, it is uncertain whether a caldera ever existed for this system. The most recent activity from Hualalai took place in about 1801 and produced a relatively small lava flow which was exceptionally rich in olivine phenocrysts (Macdonald and Abbott, 1970). Most surface flows on this system are highly differentiated, olivine rich, and are more alkaline than those found on Mauna Loa or Kilauea. Although there is some evidence that typical rift zone eruptive activity occurred on Hualalai, the rift zones are not clearly defined by surface manifestations. There are substantial ash layers over parts of the Hualalai shield but soil development is not very advanced due to the extremely low rainfall in this part of the island.

Mauna Kea (altitude: 4205 m) is in its post caldera stage of activity; the late stage lavas are more differentiated alkalic olivine basalts, ankaramites, and hawaiites whereas the older lava making up the original shield are typical Hawaiian olivine basalts. Extensive ash

layers were produced by the later more explosive volcanics and although a caldera and rift system was present at one time on Mauna Kea, these features have been covered by the more recent activity. The strikes of the rift zone of Mauna Kea have been determined both by the lineation of the parasitic ash cones as well as by aeromagnetic and gravity surveys (Figure 5). Extensive soil formation has taken place in the lower altitude areas where there is extensive ash cover but at the higher elevations, where there is little rainfall or biological activity, soil development is negligible.

The Kohala volcanic system (altitude 1672 m) is considerably older than Mauna Kea having already undergone extensive dissection and subsequent post erosional volcanic activity. Soil and ash cover are quite extensive on this system; stream erosion has cutdeep valleys (in some cases over 400 m deep) in the windward side of what remains of the original shield. Much of the high level groundwater feeding the spring and stream systems is from dike impounded aquifers along the northwest-southeast trending rift system of Kohala (Stearns and Macdonald, 1946). The earlier volcanic series of Kohala is made up of tholeiitic basalts and tholeiite olivine basalts while the younger upper series is composed of more alkaline olivine basalts interspersed with ash layers. The younger and older series are separated by an erosional unconformity; in some places as much as 15 meters of soil and weathered rock are found beneath the younger lavas indicating that there was a substantial period of quiescence between the two episodes of volcanism (Stearns and Macdonald, 1946).

Geophysical Surveys

Extensive aeromagnetic surveys have been conducted over the island of Hawaii in an effort to define the deeper structure of the volcanic systems. A total force aeromagnetic map of Hawaii (Malahoff and Woollard, 1965) is presented in Figure 6 and their interpretation of the magnetic data is found in Figure 7. Two types of magnetic anomalies are outlined in the figure: elongate anomaly zones and more confned "volcanic vent systems." It is apparent that there are substantial differences observed between the anomaly and vent systems in Figure 7 and the near surface structural and rift features found on Hawaii. The observed differences are primarily due to the flight elevation of the survey and consequent recognition of magnetic properties of deeper features (5-10 km). Thus the anomaly zones outlined by Malahoff and Woollard probably arise from crustal features rather than the near surface structure of the island. Although the volcanic pipe zones outlined by the aeromagnetic surveys are associated with the near surface caldera systems, the delineation of several "volcanic vent zones" which have no surface manifestation also indicates a strong crustal control over these anomalies as well.

Gravity surveys carried out on the island of Hawaii agree with the surface features of Hawaii somewhat better than do the aeromagnetic surveys. Figure 8 presents a Bouguer gravity anomaly map of the island (Kinoshita, 1965). Gravity highs are observed near the calderas of most of the volcanoes indicating the presence of a large mass of dense material within the main vent system and magma reservoir. Hualalai is a notable exception to this trend; the absence of an observable caldera complex and the extreme differentiation of the lavas of Hualalai (indicative of a small and perhaps deep magma chamber) is consistent with the

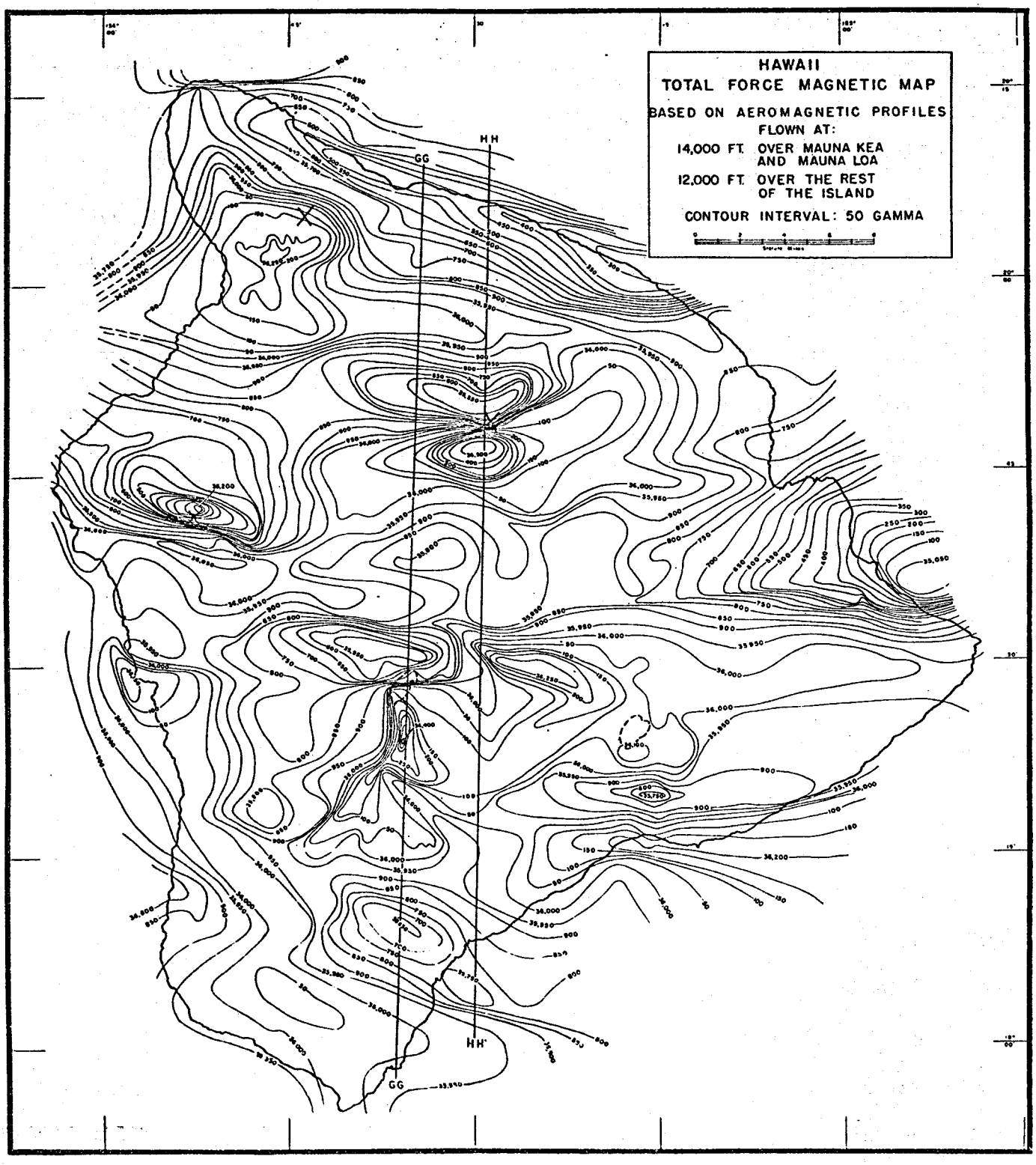


Figure 6 Total force magnetic map of Hawaii

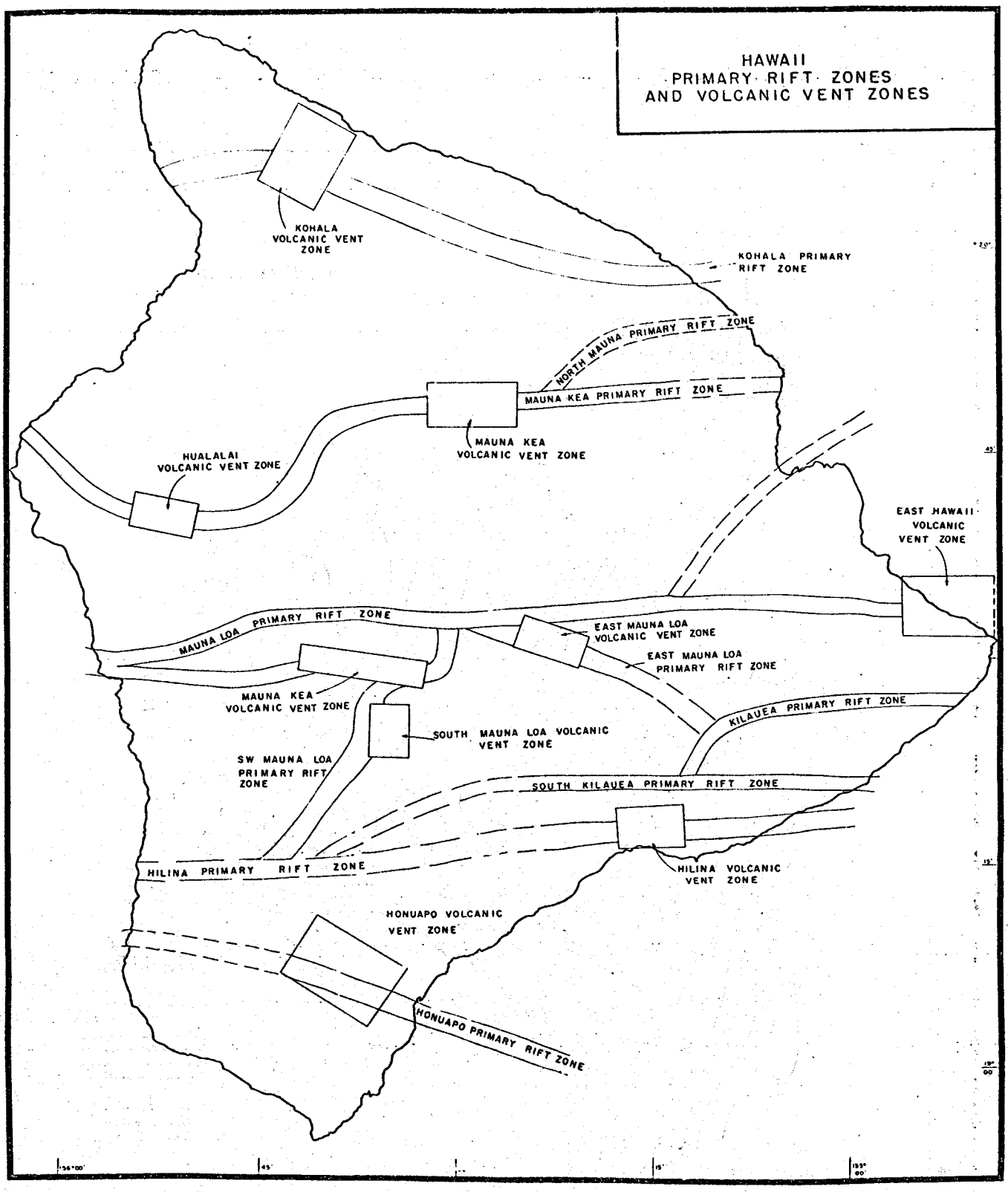


Figure 7 Primary rift zones and volcanic pipe zones of Hawaii

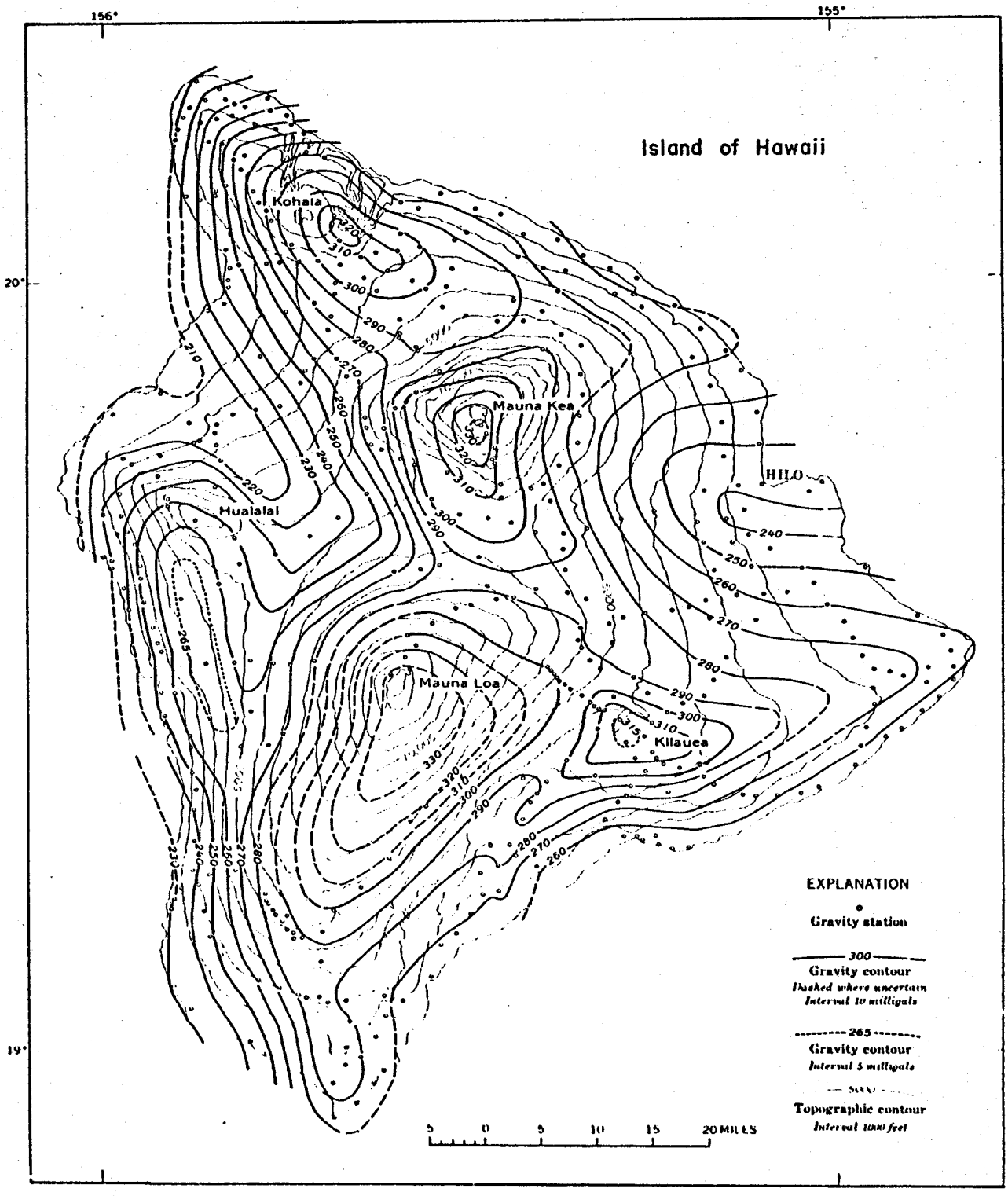


Figure 8 Bouguer gravity anomaly map of Hawaii

absence of a well-defined gravity high in this area. One other gravity anomaly that may also be of interest in the present study is the elongate feature to the south of Hualalai. Although there is no known rift system associated with this gravity anomaly, it is in an area of high seismic activity. There is a fracture system through this district (Kealakekua fault system, (Macdonald, 1970)) and it is possible that there is an intrusive mass at some depth beneath the surface fault.

Seismic coverage of the island of Hawaii is quite extensive and far more data has been acquired over the last several years by the Hawaii Volcano Observatory than could be reasonably summarized here. Recorded earthquakes on Hawaii number in the thousands per year and we feel that a data set covering two years will give a sufficiently accurate distribution of earthquakes for the purpose of the present discussion. Figures 9 and 10 are epicenter plots of all detected earthquakes on the island of Hawaii during 1976 and 1977 (Hawaii Volcano Observatory, Summary 76 and 77 respectively). The region of highest activity is along the southeast rift and Puna area of Kilauea. Other regions of high activity are found along the Kaoiki Fault System (an area of high tectonic earthquake activity rather than volcanic) and the southwest rift of Kilauea. Significant activity also occurs along the Kealakekua Fault System in approximately the same location as the elongate gravity anomaly discussed above. Seismic activity is also somewhat elevated along the Hualalai and Mauna Kea rift systems as well as some minor activity in the Kawaihae area. It is unlikely that the observed seismic activity arises directly from geothermal reservoirs in these areas, nonetheless, the presence of earthquake activity is thought to be indicative of

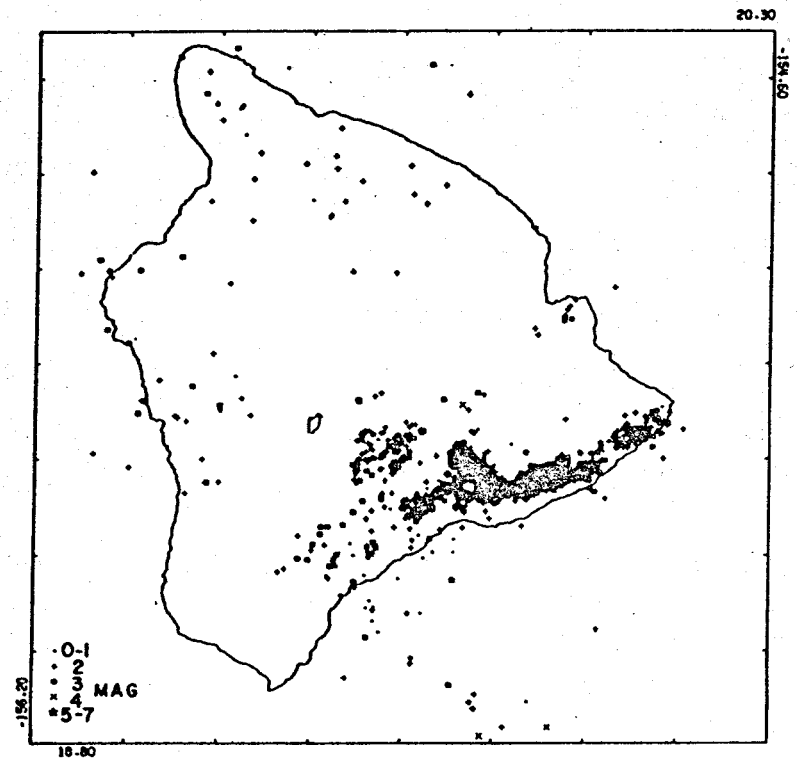


Figure 9 Earthquake epicenter plots for Hawaii, 1976

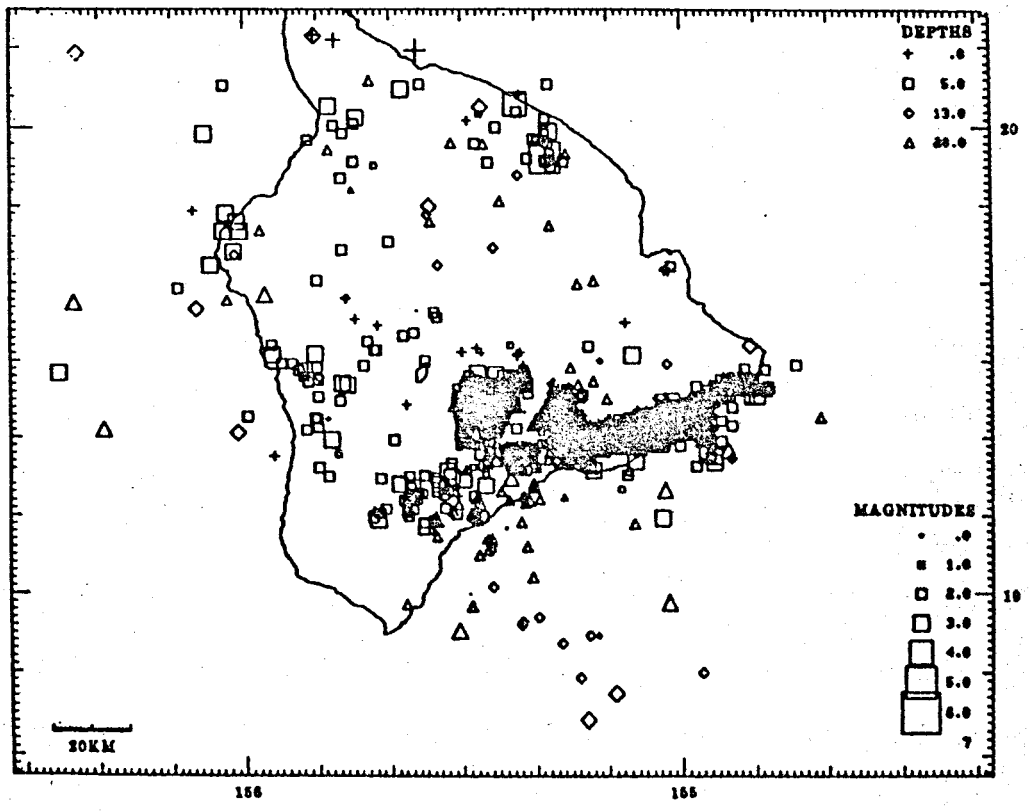


Figure 10 Earthquake epicenter plot for Hawaii 1977

other subsurface structural features (rift zones or fault systems) with which reservoirs may be associated.

Infrared surveys have been carried out over some of the near shore areas of the island of Hawaii (Fischer et al., 1966) in an attempt to identify spring discharge of basal waters along the perimeter of the island. Although the original intent of the study was to identify springs with temperatures colder than surface ocean water, several warm water anomalies were observed. Figure 11 (after Fischer et al., 1966) presents a map of areas which were surveyed as well as those parts of the island discharging warm water. Warm springs along the Puna and Ka'u coast are indicative of basal waters heated by the volcanic rift zones as might be expected in an area of active volcanism. Thermal discharges along the Kona coast are somewhat more surprising in that there are no known active rift zones in the vicinity. The coincidence of warmer than expected groundwaters in an area having both gravity and seismic anomalies is taken as strongevidence that thermal groundwater may be associated with a structural feature in the vicinity. Although no other significant infrared anomalies have been observed in the coastal discharges of Hawaii, in light of the sparse coverage of the island, it may be profitable to consider a more detailed survey of Hawaii, and the other islands at some point in the future.

Downhole temperature profiles have recently been obtained for several shallow wells around the island of Hawaii (Epp, in prep.). To insure that the downhole temperatures were in equilibrium with the surrounding rock, the survey was restricted to wells which were not pumped on a regular schedule and thus only a relatively small fraction of the total wells on the island were surveyed.

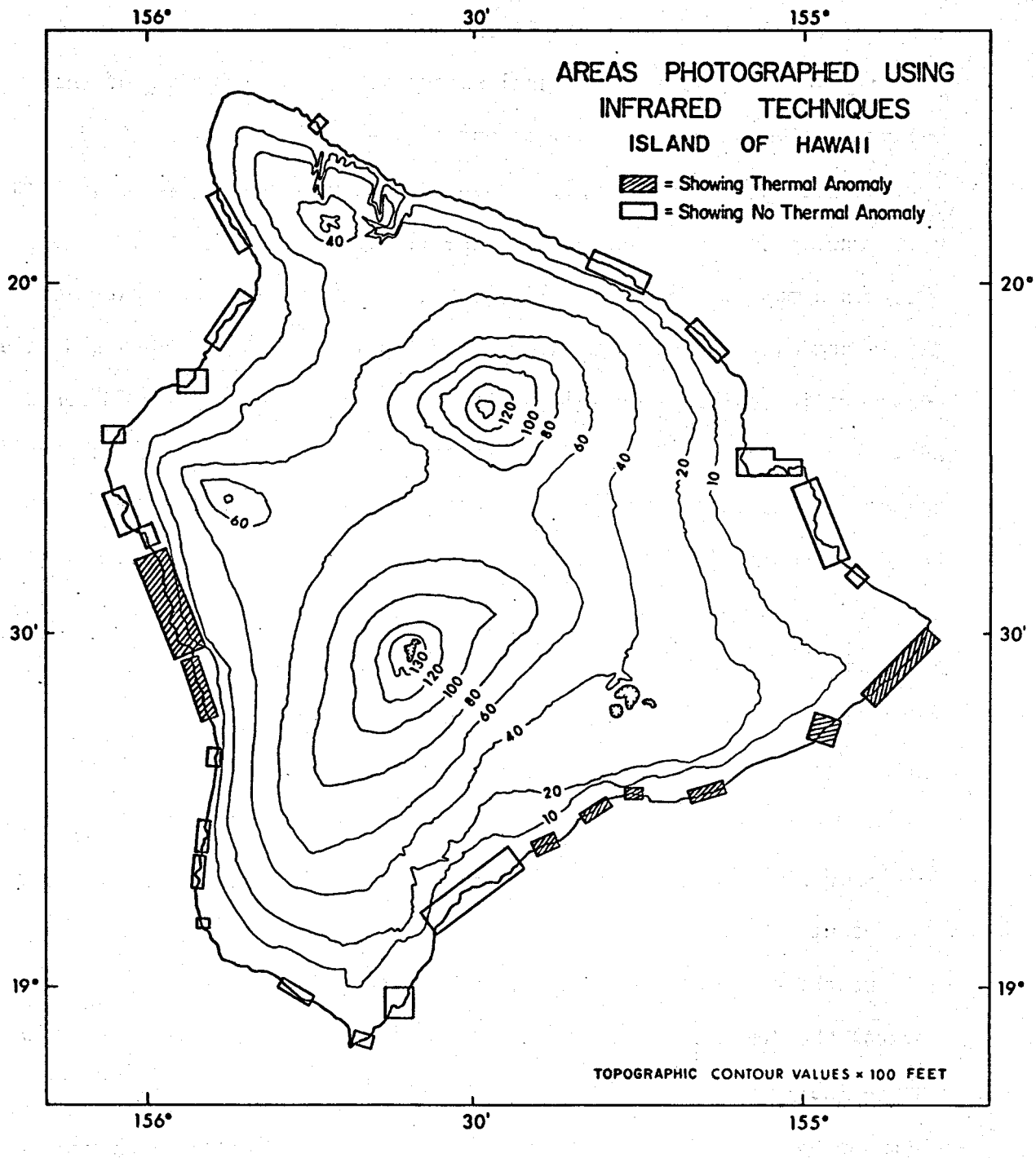
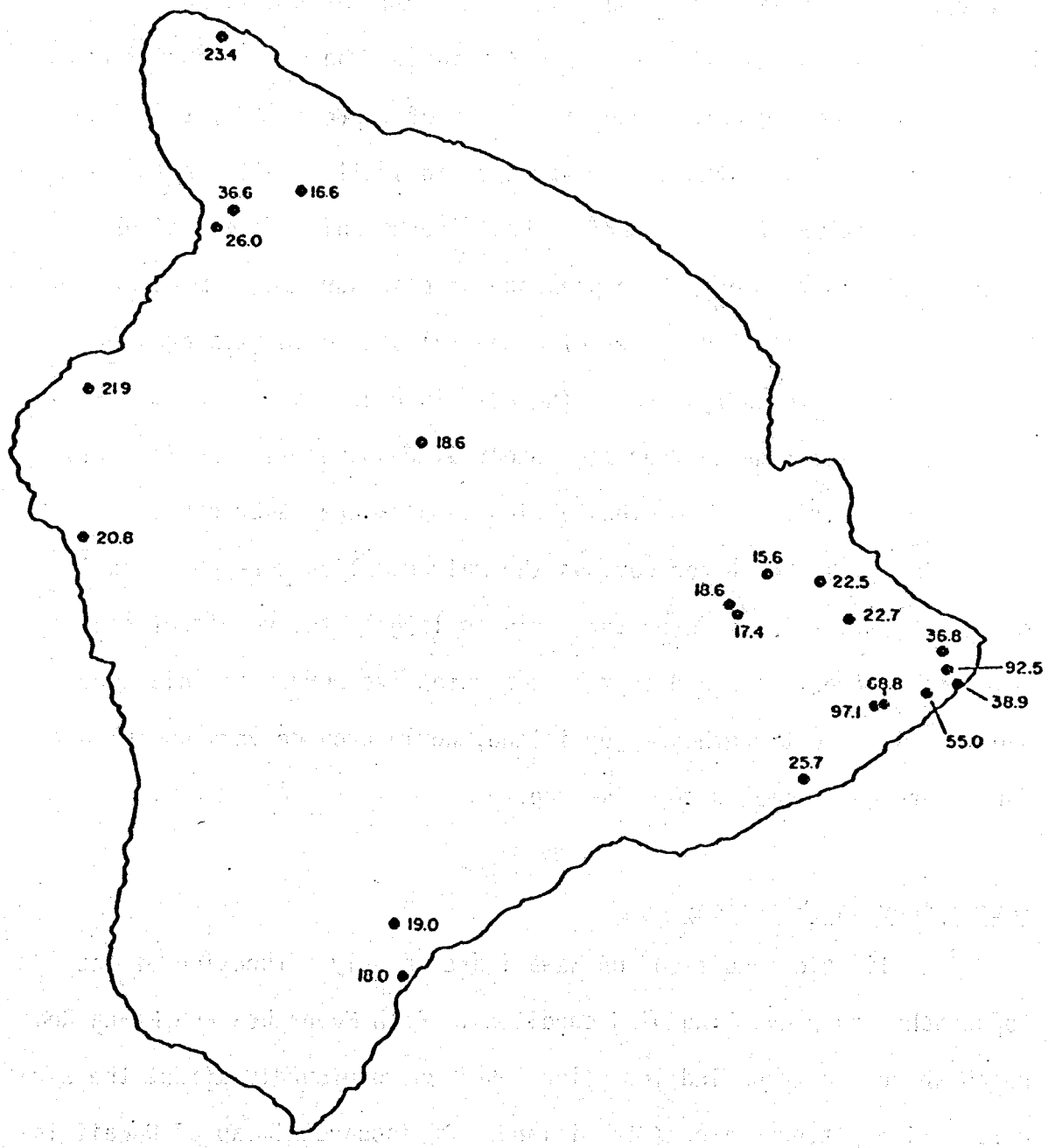


Figure 11 Map of infrared surveys and anomalies on Hawaii



Maximum temperature (°C) in measured wells.

Figure 12 Map of wells for which temperature profiles have been made

A plot of the wells surveyed, and maximum downhole temperatures recorded, are presented in Figure 12. Two areas of the island have obvious thermal anomalies: Puna and Kawaihae. The Puna district has a known high temperature resource at a depth of approximately two kilometers; the presence of thermal anomalies in shallow wells in this area may be indicative of a near surface heat source which may be of use in direct heat applications. The presence of near surface warm waters in Kawaihae is strongly indicative of a thermal source in this area as well. Further investigation of the area is required before it will be possible to determine whether the potential resource is a shallow (low) temperature reservoir or whether a high temperature reservoir exists at a greater depth. No other obvious thermal anomalies were observed in this survey. It is believed that this is largely the result of incomplete coverage of the island and that a more extensive survey of this type over Hawaii, and the other major island, would provide very useful data for future geothermal reconnaissance.

Meteorology and Hydrology

The climatic conditions on Hawaii are largely a function of the topography and prevailing wind conditons. Both Mauna Loa and Mauna Kea reach above the tradewind inversion level and profoundly affect the air circulation patterns around the island. An isohavetal map of Hawaii is shown in Figure 13 (State of Hawaii DOWALD Report R 34). The mean annual rainfall on the windward slopes of Hawaii is over 760 cm in some places whereas parts of the leeward slopes receive less than 25 cm annually.

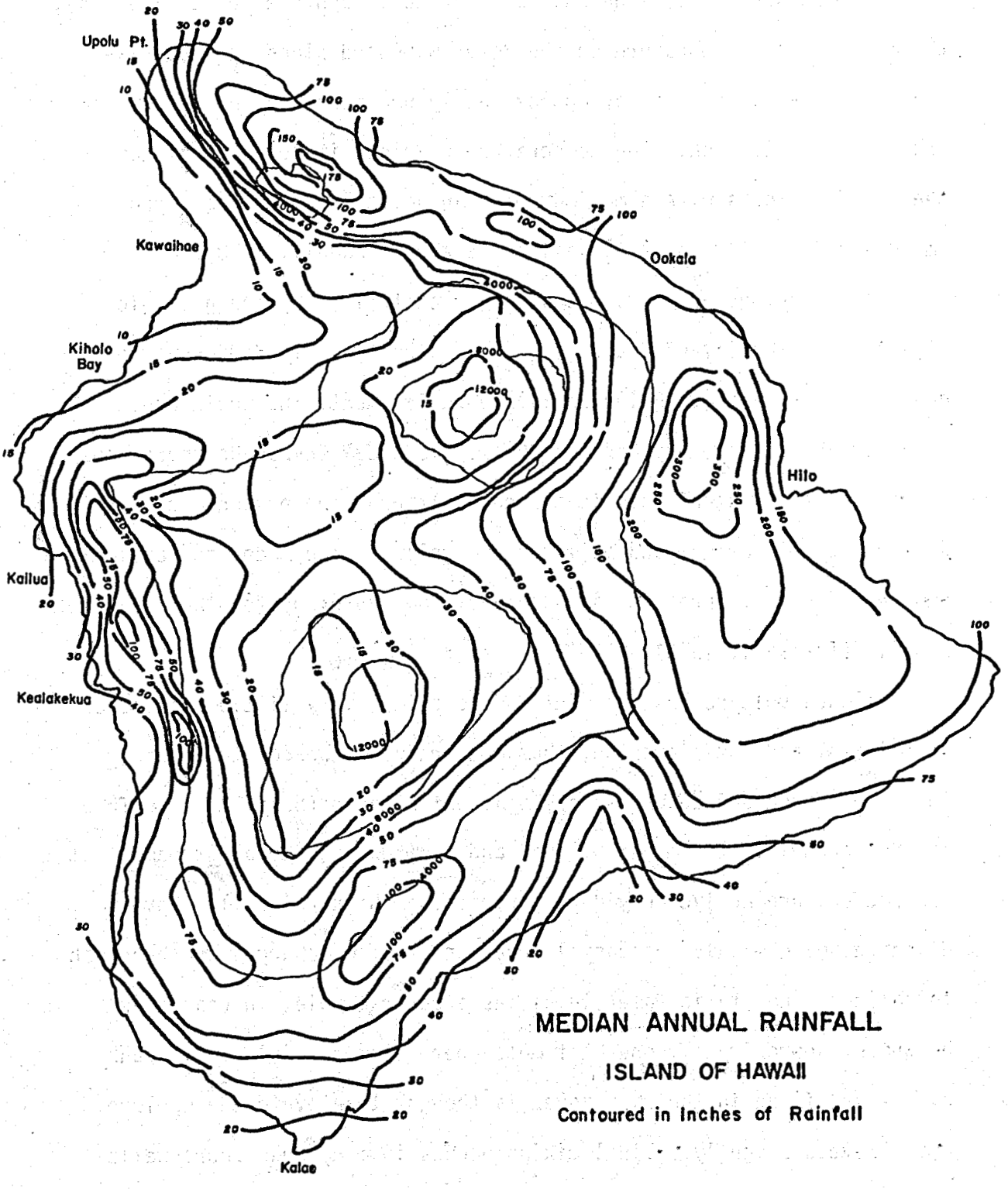


Figure 13 Rainfall distribution on Hawaii

Temperatures variations show similar topographic effects (Fig. 14); the mean annual temperature on the lower windward slopes are approximately 22°C and decrease by approximately 6°C per thousand meter increase in elevation. The temperature gradient is somewhat higher on the leeward slopes with a maximum mean annual temperature of approximately 24°C at the lower elevations (State of Hawaii, 1970).

The hydrology of Hawaii is strongly controlled by the geologic structure of the island and, as such, is significantly different for each volcanic system. Being an island environment, one would expect Hawaii to have hydrology conforming the classical Ghyben-Herzberg lens model. To some extent this is the case although the presence of dike systems, ash layering, and soil cover complicate the model to varying degree. Figure 15 presents a summary of the hydrology for the island of Hawaii (Takasaki, 1978).

Kilauea volcano has, as mentioned earlier, very little soil cover and minimal ash interlayering, thus most rainfall percolates rapidly into the ground and down to the static water table (basal lens). There are no perennial streams on Kilauea and the few ephermeral streams that are present are active only during periods of high rainfall. Spring discharge occurs only in coastal areas and most discharges are brackish to saline. The static water level, as a general rule, increases in height by approximately one-half meter per kilometer inland although extensive diking in the rift zones is thought to elevate the upslope water levels slightly. Tidal mixing occurs in many near shore wells and, under conditions of heavy drawdown, some wells further inland have become increasingly saline (Stearns and Macdonald, 1970). Some

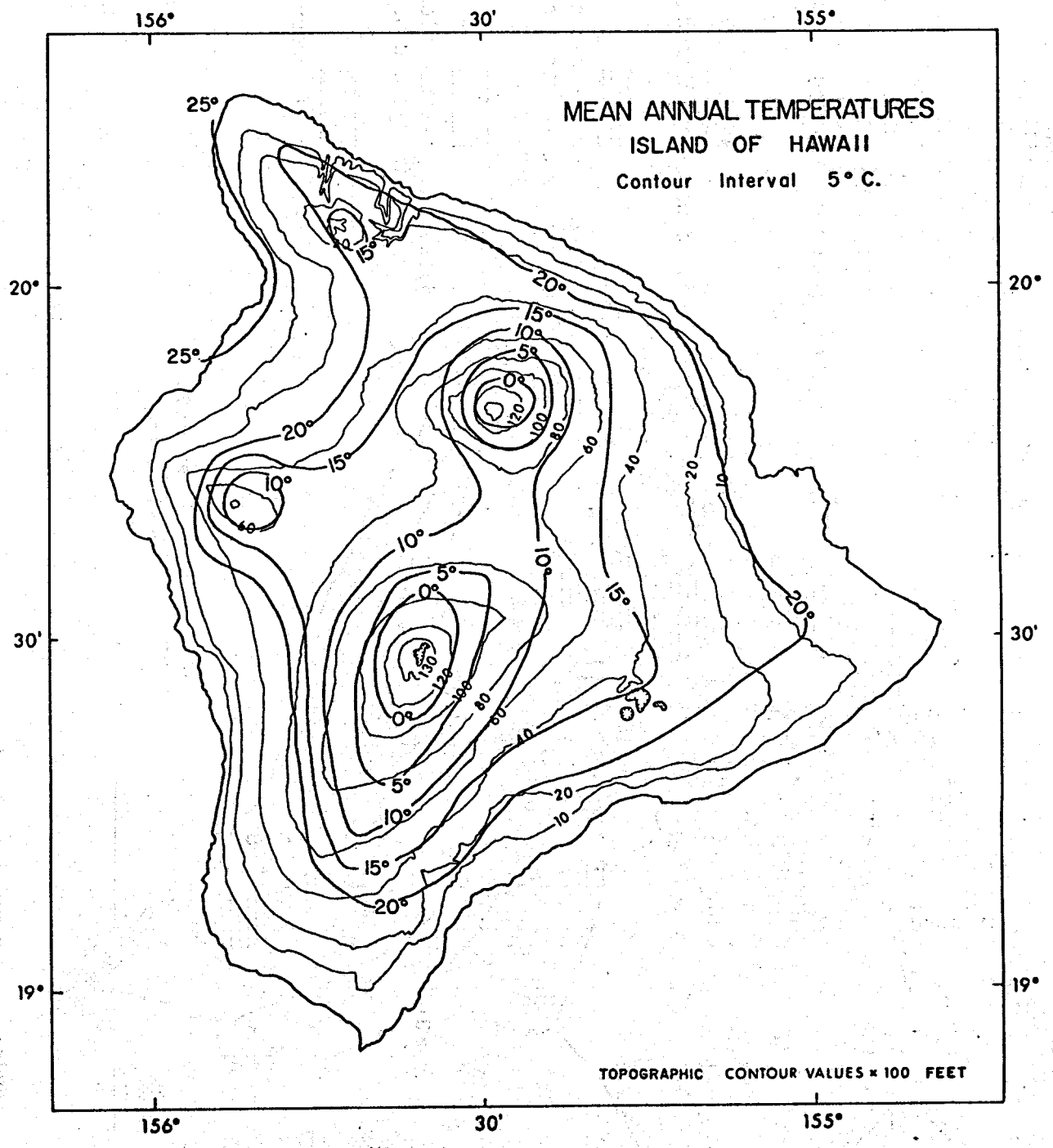
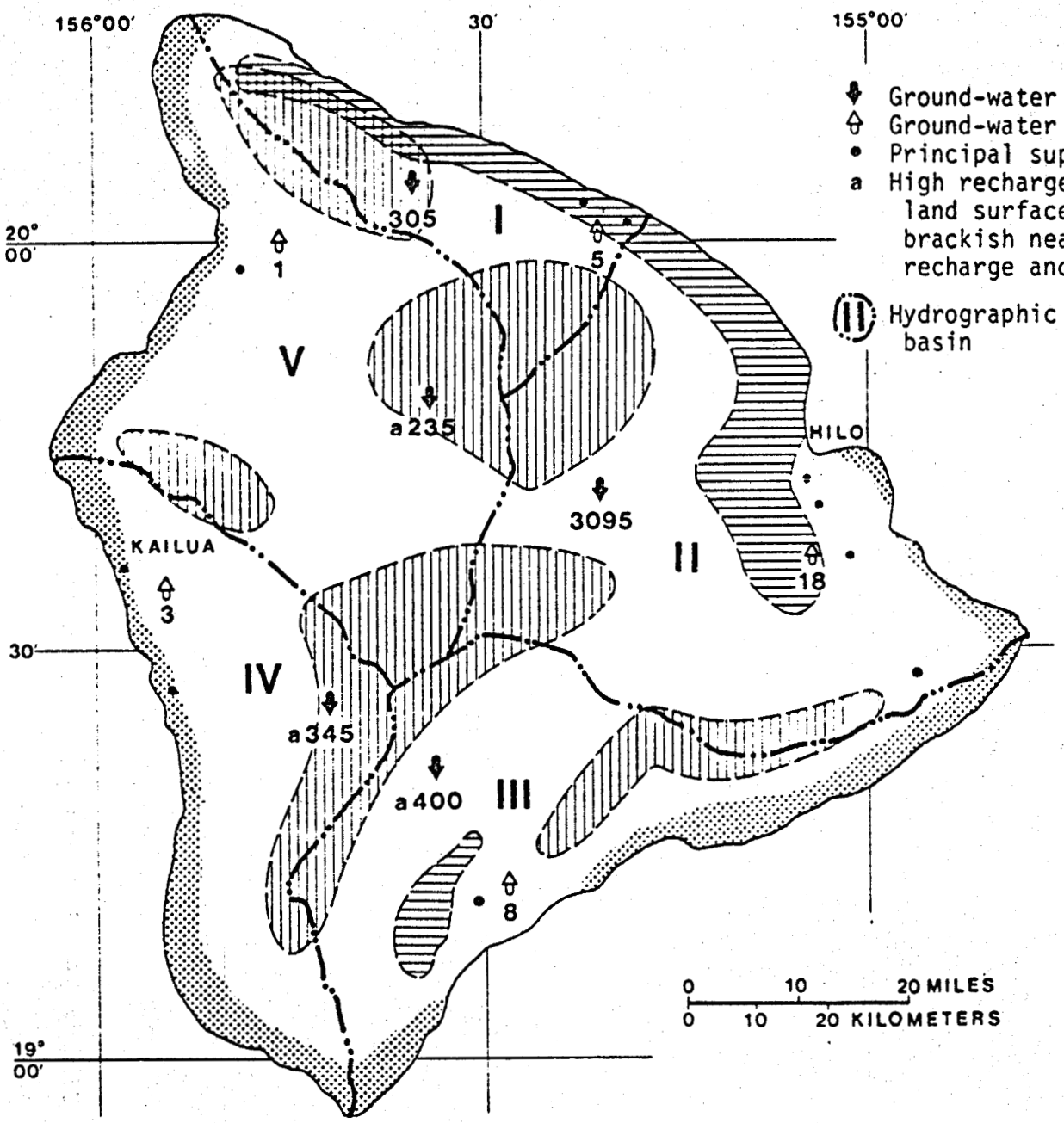


Figure 14 Temperature distribution on Hawaii



EXPLANATION

- Ground-water recharge, million gallons per day
- Ground-water draft, million gallons per day
- Principal supply wells
- a High recharge rate owing to high capacity of land surface to absorb rainfall. Ground water brackish near coast because of intermittent recharge and high permeability of aquifer
- (II) Hydrographic area representing major drainage basin

Ground water impounded by dikes

Ground water perched on soil or ash layers overlying basal ground water

Basal ground water floating on saline ground water

Brackish basal ground water

Figure 15 Hydrologic summary of Hawaii

of the warm water wells in Puna have also been found to be brackish as a result of thermal density inversion: warmer saline waters float above colder meteoric waters.

The leeward slope of Kilauea (Ka'u) receives little rain and has even less soil cover than the windward slope. Although the hydrology in this area is relatively unexplored, one near shore basal spring in the Ka'u district is reported to have warm water. No data exist at present for that temperature and water chemistry of this spring and, as discussed in the geophysics section above, there are probably several other near shore warm water seeps but the inaccessability of this area has made it impossible to confirm their existence.

Although the northeastern (windward) slopes of Mauna Loa receive a moderately high annual rainfall, the absence of significant soil cover result in minimal surface discharge. There are few, if any, perennial springs or streams on Mauna Loa and, of those that are present, nearly all lose their flow during extended periods of low rainfall. Dike-impounded water is thought to exist on the upper Mauna Loa slopes although at the lower elevations the dikes associated with the rift zone have no observable effect on the local hydrology.

The southeastern slopes of Mauna Loa receive a moderate amount of rainfall from the tradewinds funneled through the saddle between Mauna Loa and Kilauea. The hydrology of this particular area is controlled to some extent by ash deposits on the upper flanks of Mauna Loa; high level water has been obtained from tunnels placed along the tops of impermeable ash and tuff beds buried under a few hundred meters of permeable lava flow (Stearns and Macdonald, 1946). Coastal springs in this area

discharge considerable quantities of cold brackish water; the discharge temperatures indicate that the ultimate source of the water is well inland and at a relatively high elevation. The south rift of Mauna Loa, which extends nearly to the northern end of the island, appears to have a minimal impact on the hydrology of the Pahala and Ka'u districts.

The southern tip of the island (South Point) along the south rift zone of Mauna Loa receives relatively little rainfall. There is little cultural activity in the area and, as and a result, hydrologic investigations of South Point have been minimal.

Although the leeward side of Mauna Loa (Kona) is cut off from the normal tradewind patterns, the lower slopes still receive a moderate amount of rainfall due to the diurnal coastal breezes. Nonetheless, basal groundwater is limited and many near-shore springs and wells are brackish either due to tidal mixing or possible thermal disruption of the Ghyben-Herzberg lens. Although there are small amounts of ash-bed perched water on the upper slopes, there has not been enough to develop groundwater sources similar to those in the Pahala district.

The windward slopes of Mauna Kea receive higher annual rainfall than any other part of the island. Considerable depths of ash and soil cover are present at the surface as well as interlayered with the earlier lavas of Mauna Kea. There are several intermittent high level springs on the intermediate slopes of Mauna Kea but only a few perennial streams. Most of the high level water observed is the result of meteoric waters perched on impermeable ash beds rather than dike-fed spring systems.

Large volumes of basal water are withdrawn from near shore wells and tunnels at the base of the Mauna Kea shield. The minimal draw down resulting from the rapid withdrawl of water from these aquifers indicates a large storage capacity in this area. The east rift of Mauna Kea underlies the windward slope of the mountain although, to date, its impact on the local hydrology has not been observed.

The leeward slope of Mauna Kea and the northern Hualalai flank (Kawaihae) receives less rainfall than any of the other low lying areas of the island. Soil cover is minimal and shallow groundwater is virtually nonexistent. The few near-shore wells and springs that are present usually have brackish waters. Recent deep drilling at the mid-level elevations on Hualalai encountered a water level elevated several feet above the expected basal water table. This deep source water remained fresh to a depth of approximately 1000 m below sea level and heavy withdrawal from the aquifers resulted in a negligible drawdown. The well was emplaced upslope of the north rift of Hualalai and, at present, we believe that the dike system in the rift area has disrupted the seaward flow of basal waters resulting in an elevated water table above the rift and a depressed level in the coastal areas. There are no known thermal springs or wells on the lower slopes although the brackishness of most water supplies has led to relatively little groundwater exploration.

The hydrology of the Kohala district is considerably different from that in any other area of Hawaii: the basal water lens is very thin and quite often brackish even at a considerable distance from the shoreline. Extensive weathering and dissection of the original shield have exposed

the rift zone dike systems. Most freshwater sources in this district are the result of leakage from the dike-confined water. Moderately high rainfall in this region provides sufficient recharge to maintain these high level water sources throughout the year. None of the high level water sources have been reported to be above ambient temperatures.

Geochemistry

The geochemical data compiled for the island of Hawaii are presented in Appendix A Table I, listing all water sources on the island having elevated silica concentrations. The wells are listed accordingto well number (numbers are assigned on the basis of the latitude-longitude coordinates of the well); the most recent, available, water chemistry and temperature data for each well is also included. The locations of each well identified are shown in computer generated maps of the well locations in Figure 16; for comparison purposes, the locations of all wells on the island are plotted in Figure 17. (Large scale maps of the well locations are available upon request.)

One point that should be immediately apparent from Figure 17 is that groundwater development is not evenly distributed over the island and, as a result, the available data is biased toward areas with high population densities and of intensive groundwater withdrawal. These locations are largely restricted to the coastal areas.

In some respects, this is not a particular disadvantage: we presently believe that Hawaii's thermal reservoirs are restricted to

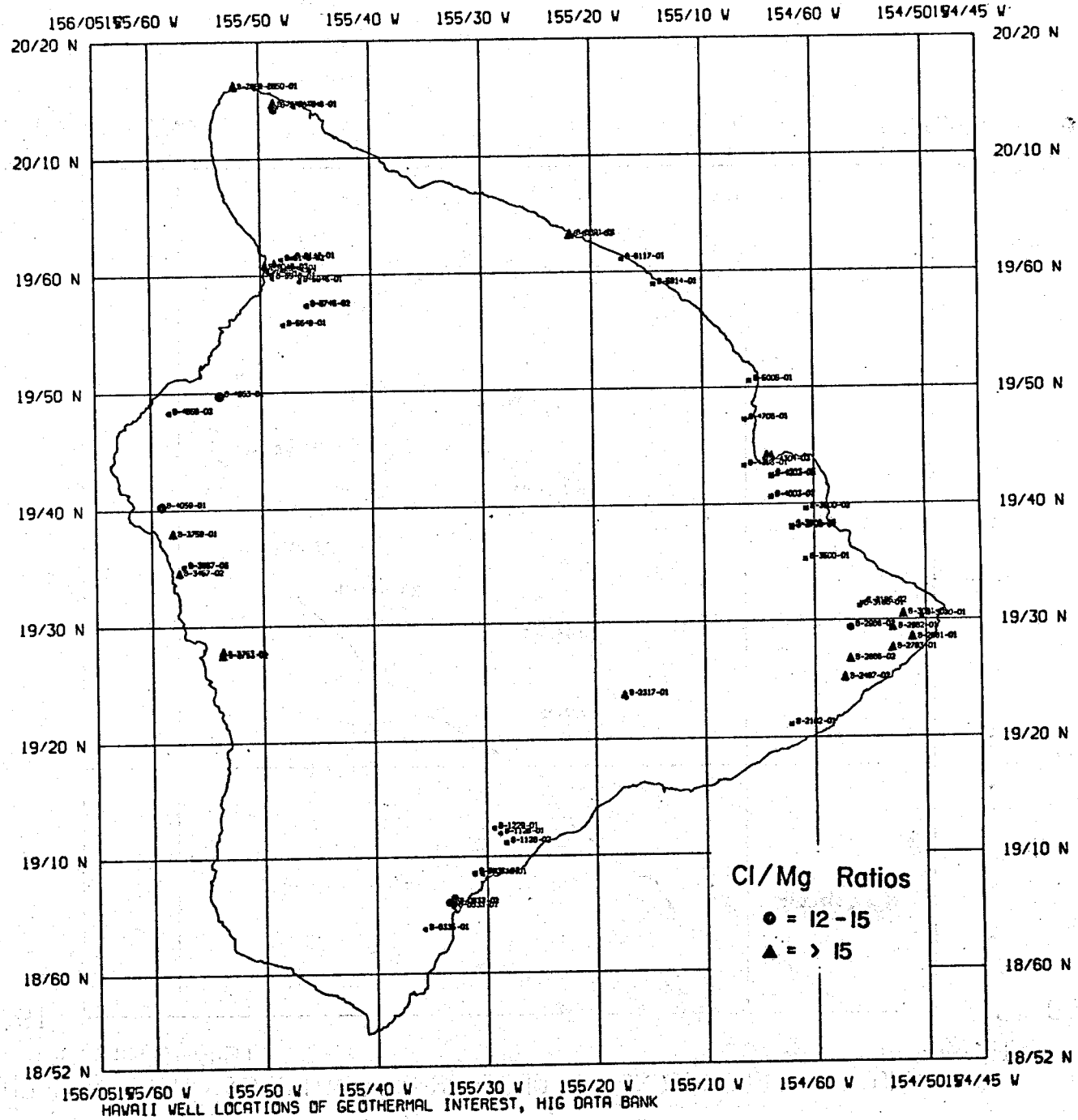
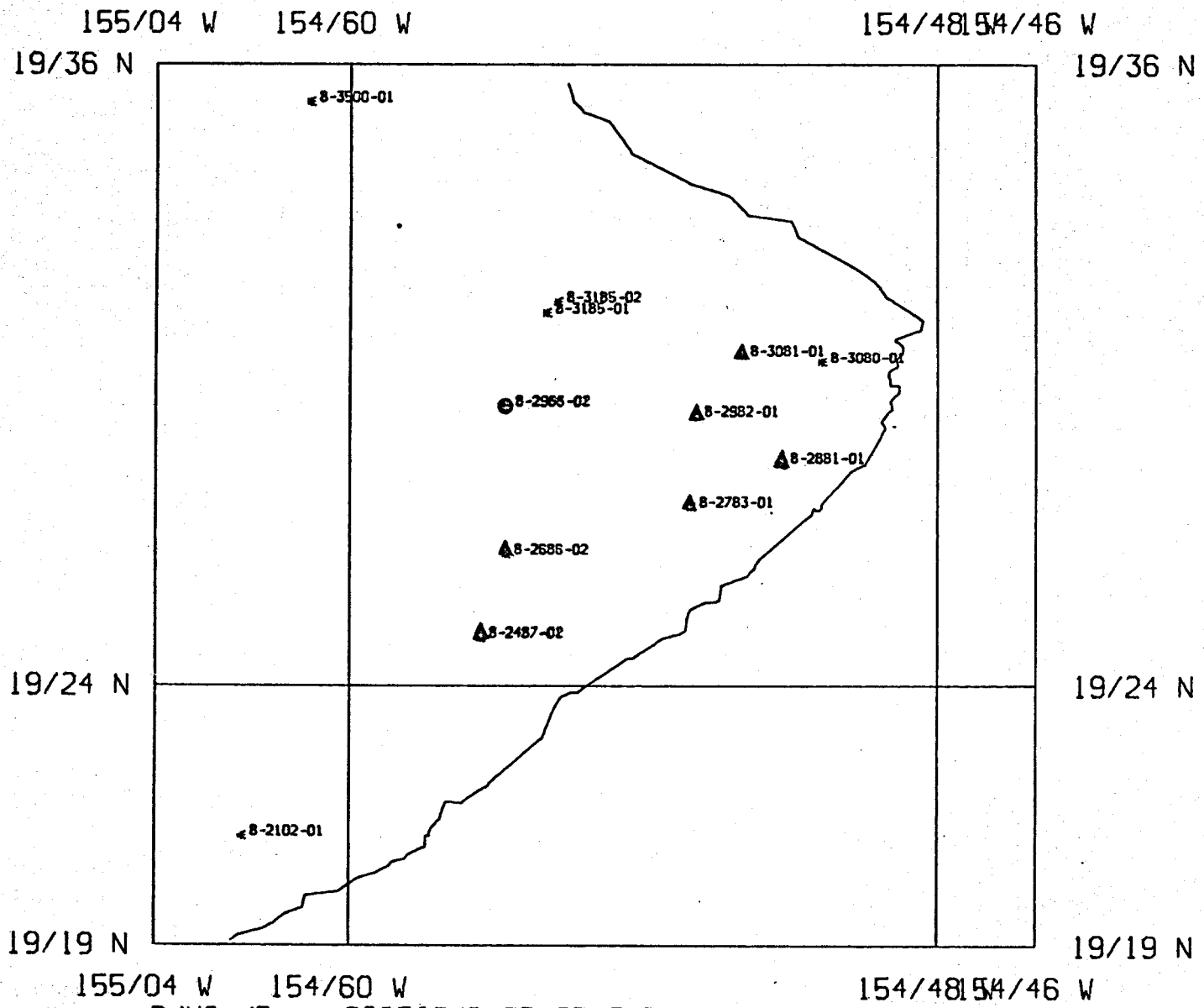
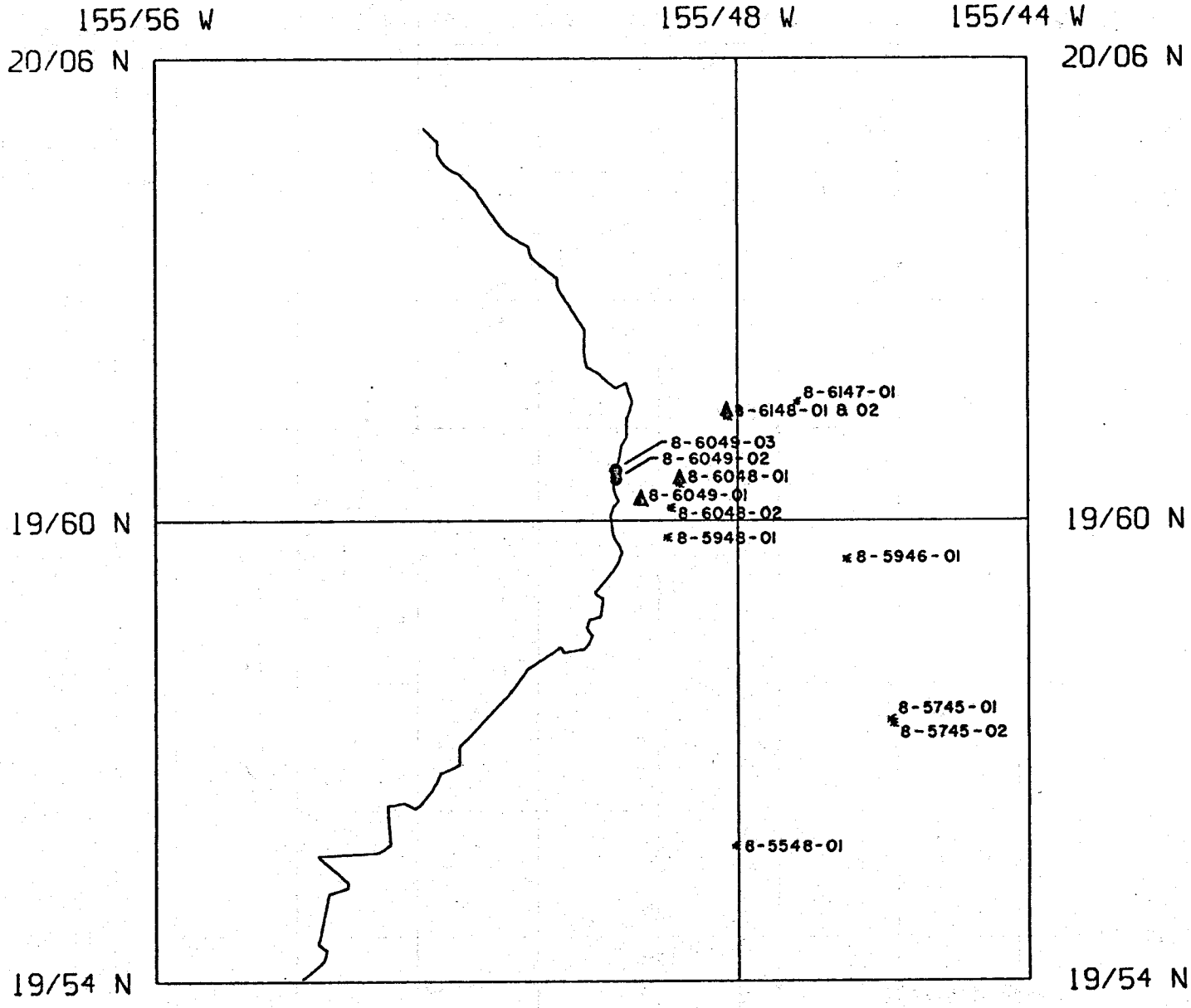


Figure 16 Silica and chloride: Magnesium ion anomalies on Hawaii



PUNA WELL LOCATIONS OF GEOTHERMAL INTEREST, HIG DATA BANK

Figure 16 Continued



KAWAIHAE WELL LOCATIONS OF GEOTHERMAL INTEREST, HIG DATA

Figure 16 Continued

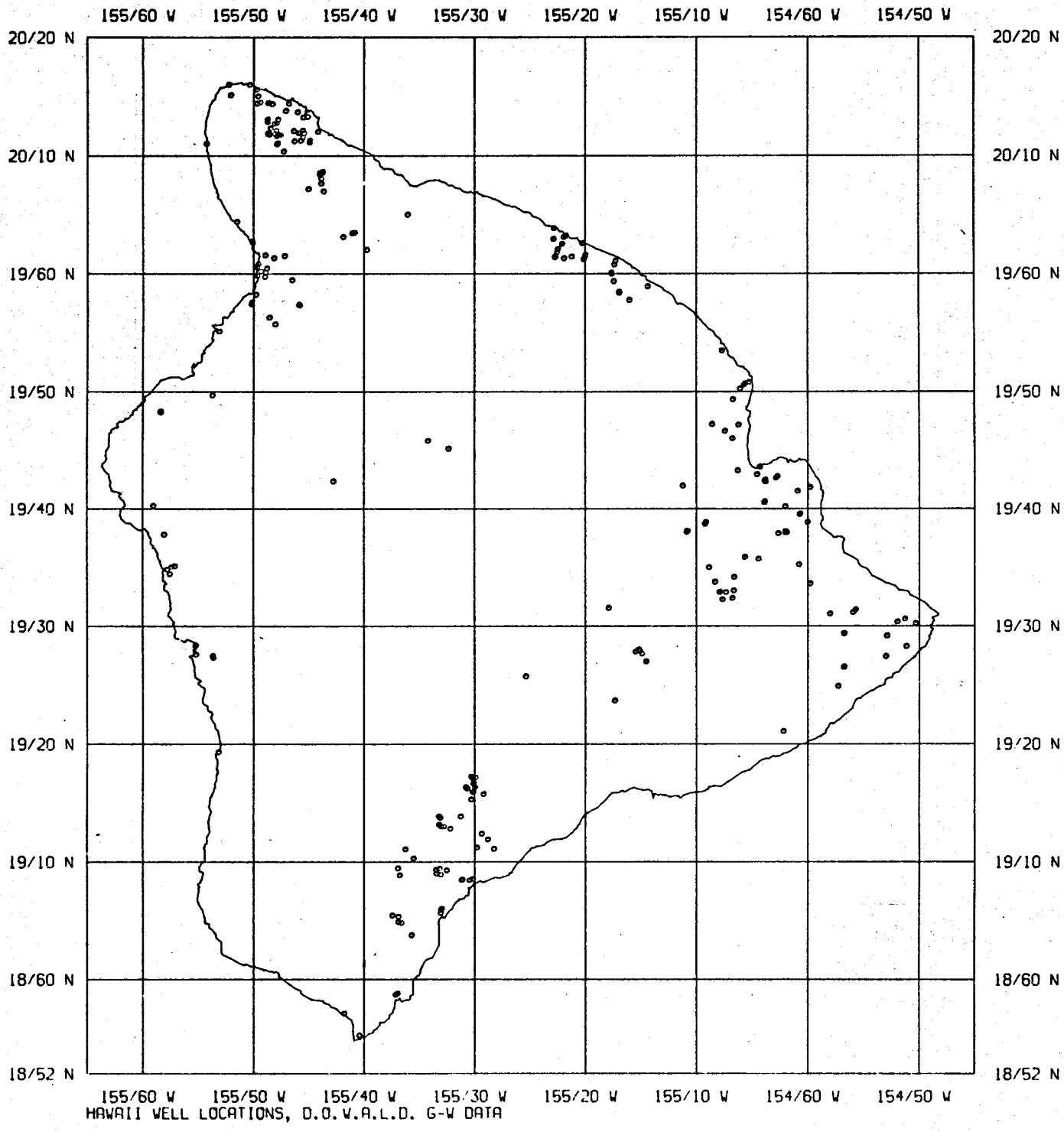


Figure 17 Well locations for all wells on Hawaii

depths of at least several hundred meters below sea level where formation permeability is considerably lower than that in the subaerially erupted basalts. If this is the case, the exploitation of thermal reservoirs from higher elevation areas would be much more difficult than exploitation in the lower elevation, near-shore, areas. The disadvantage inherent in the uneven distribution of water sources is that there are no geochemical data available for a large portion of the island.

Nearly all the wells in the Puna district are included in the data compilation. This is to be expected since Puna has a proven thermal reservoir and many of the wells in the area have temperatures well above ambient. The Cl/Mg ratios encountered in this district range from 57.8 down to 2.4; in general, the higher ratios are found down slope of the rift zone while the lower ratios are above the rift. Although the extent of the high temperature reservoir is not known at present, the fact that many wells in the area exhibit both silica and chloride/magnesium ion anomalies indicates that low temperature (50°C to 150°C) resources are probably quite extensive.

The identified anomaly in the Kilauea summit area is a research well drilled to a depth of approximately 1200 meters. Although a thermal anomaly was encountered (94°C), at 600 m, the bottom hole temperature was only 137°C at a depth of 1262 m (Zablocki et al., 1974). It is unlikely that exploitation of geothermal resources in this area will be economically feasible in the near future. In addition, extensive land holdings of the U.S. National Park Service at the Kilauea summit would severely restrict the type and extent of development which could take place.

The lower Ka'u and Pahala districts have few wells with silica anomalies and of these, fewer still have elevated Cl/Mg ratios. The source of the anomalous water is thought to be the Kilauea south rift although the scarcity of groundwater data from near the rift zone makes it difficult to give a realistic assessment of this area. The similarity between the Puna and Ka'u rifts, as well as the reported infrared anomalies along Ka'u coastline, would tend to indicate that there are potential resources in this area and that further exploration should be conducted.

Although very little geochemical data exists for the south rift of Mauna Loa, it seems unlikely that a rift system as young and recently active (last erupted in 1868 at an elevation of 900 m (Macdonald and Abbott, 1970)) could be completely without thermal potential.

The leeward side of Hawaii, from South Point to Hualalai, has a very sparse distribution of shallow groundwater sources, and, as a result, our interpretation of the geochemical anomalies observed is very tentative. Most sources in the North Kona-Hualalai area have been identified as anomalous both in silica concentrations and in Cl/Mg ion ratios. Although it is possible that the unusual chemistry observed is the result of meteorological and hydrological conditions in the Kona district, the identification of thermal springs along the coastline and the presence of seismic and gravity anomalies in this area strongly imply that some structural features exists here with which a thermal reservoir may be associated. Whether this structural feature is simply a fracture system associated with the Kealakekua Fault or whether it is an intrusive body will not be known until more extensive site specific surveys have been

conducted. In light of the planned future population expansion in this area, and consequent increased power requirements, it is felt that this area should receive detailed investigation in the near future.

Several wells clustered in the Kawaihae Bay area have both silica and chloride/magnesium ion anomalies. Shallow groundwater temperatures are generally elevated as well. Kawaihae may be at, or near, the junction of the major or minor rift systems of Hualalai, Kohala, and Mauna Kea and, as such, could derive a substantial amount of heat from any of these systems. The relatively high temperatures of the groundwaters in this district seem to indicate that anomalous subsurface temperatures exist at a relatively shallow depth and for this reason, we have targeted the Kawaihae district for intensive investigation.

Groundwater sources in the north Kohala district also have silica and chloride-magnesium ion anomalies. Although this is one of the oldest areas of the island, it is still quite possible that a significant amount of residual heat remains within the old caldera-rift complex. Nonetheless, the inaccessibility of the area as well as its low population density makes it less suitable for geothermal investigaiton in the near future.

There are a few weak silica anomalies along the windward coast of Hawaii to the north of Hilo; most have neither significant chloride/magnesium ion nor temperature anomalies. The only well which does exhibit a magnesium ion depletion has a near neighbor with normal ion ratios thus indicating a possible analytical error in the former data set. Nonetheless, the fact that the Mauna Kea rift zone passes through this

area increases the likelihood that a thermal reservoir exists and a more complete investigation of this district is warranted.

The district of South Hilo has a number of silica anomalies but, again, only one has a significant chloride/magnesium ion anomaly. Although local groundwater temperatures are not significantly above ambient, recent volcanism (2000 yrs B.P.) (Macdonald and Abbott, 1970) has taken place in this district near Waikea, thus there is a possibility that a thermal resource does exist in this area. The proximity of south Hilo to a deep water port (Hilo Harbor) as well as to sugar-processing plants makes this area suitable for rapid commercial development of any resource which may be found. For these reasons, the Keaau area has also been targeted for intensive investigation.

Summary Assessment

The island of Hawaii has several areas in which there is moderate to strong evidence for the existence of a thermal reservoir. Table 1, below, presents a preliminary estimate of the potential for a high temperature and a lower temperature reservoir and the probability for development of each of the areas discussed above. The appraisal of each site has been based on all geophysical and geochemical data presently available. The ranking is in descending order: 1 = highest potential (Puna, KGRA), 10 = lowest potential.

TABLE 1

Area	High Temp Resource	Low Temp Resource	Probability for Development
Puna	1	1	2
Ka'u	2	1	7
South Point	3	2	5
Hualalai-North Kona	5	3	1
Kawaihae	5	3	1
Kohala	7	5	8
South Hilo-Keaau	6	4	1

Maui

The island of Maui is the next youngest island in the chain and is considerably smaller than Hawaii having an area of 1886 square km. The island is made up of two volcanic systems: West Maui (the older of the two) and Haleakala.

West Maui (altitude 1764 m) has gone through three phases of activity. The initial phase of activity (the Wailuku series of lavas) produced thin pahoehoe flows consisting of tholeiites, olivine tholeiites and oceanites grading into alkalai olivine basalts during the final stages of activity (Stearns and Macdonald, 1942). The second phase of activity (producing the Honolua series) began after a relatively short period of quiescence at the end of the Wailuku activity and consists largely of andesites and trachites which form a discontinuous cover over the Wailuku basalts (Stearns and Macdonald, 1942). Moderate pyroclastic activity and dome formation also took place during this period (Macdonald and Abbott, 1970). The first two phases of activity were followed by a long period of quiescence during which deep valleys and canyons were cut into the volcanic shield by stream erosion. The final stage of activity (producing the Lahaina series) consisted of four small eruptions of picrite basalt on the southwestern edge of the West Maui shield (Figure 18).

The structure of West Maui is somewhat different from that of the majority of Hawaii's volcanoes in that the rift zones are not nearly as well defined as those found elsewhere. Two dike systems (Figure 19) radiate out from the central caldera in broad cones along an axis trending southwest-northeast while a second chain of sikes and vents,

MAUI

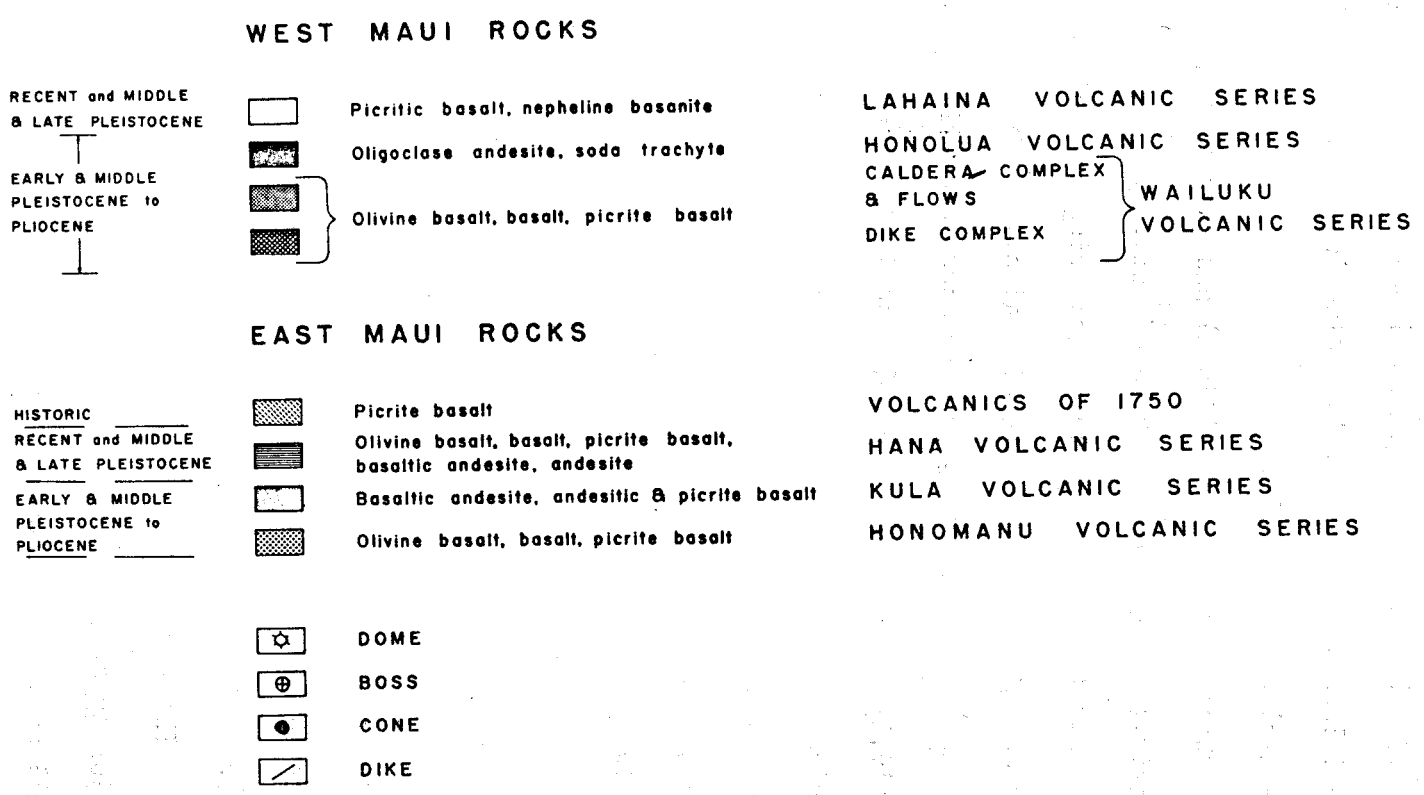
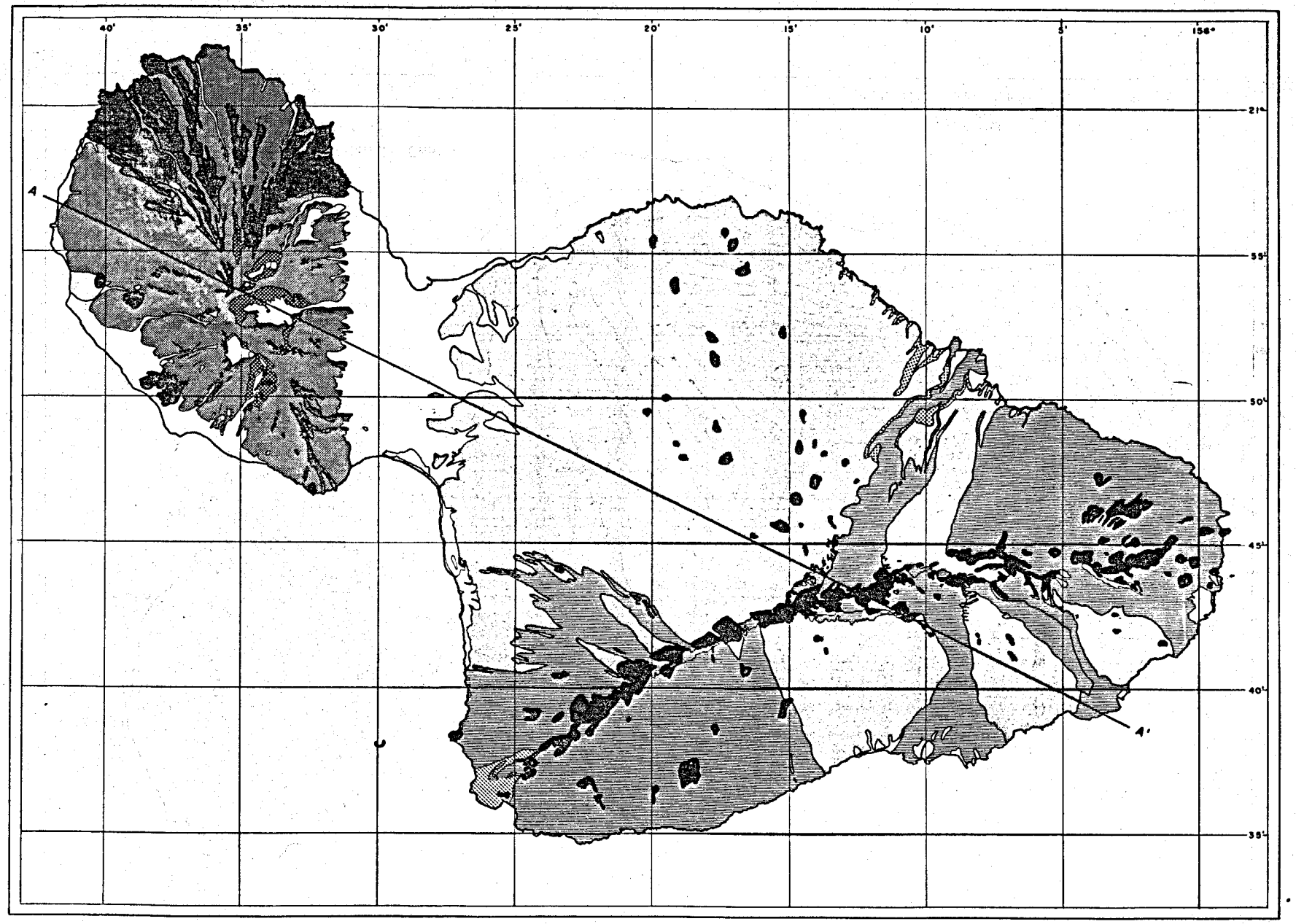


Figure 18 Surface geology of Maui


40'
35'
30'
25'
20'
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156°
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50'
45'
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V.E. = 11
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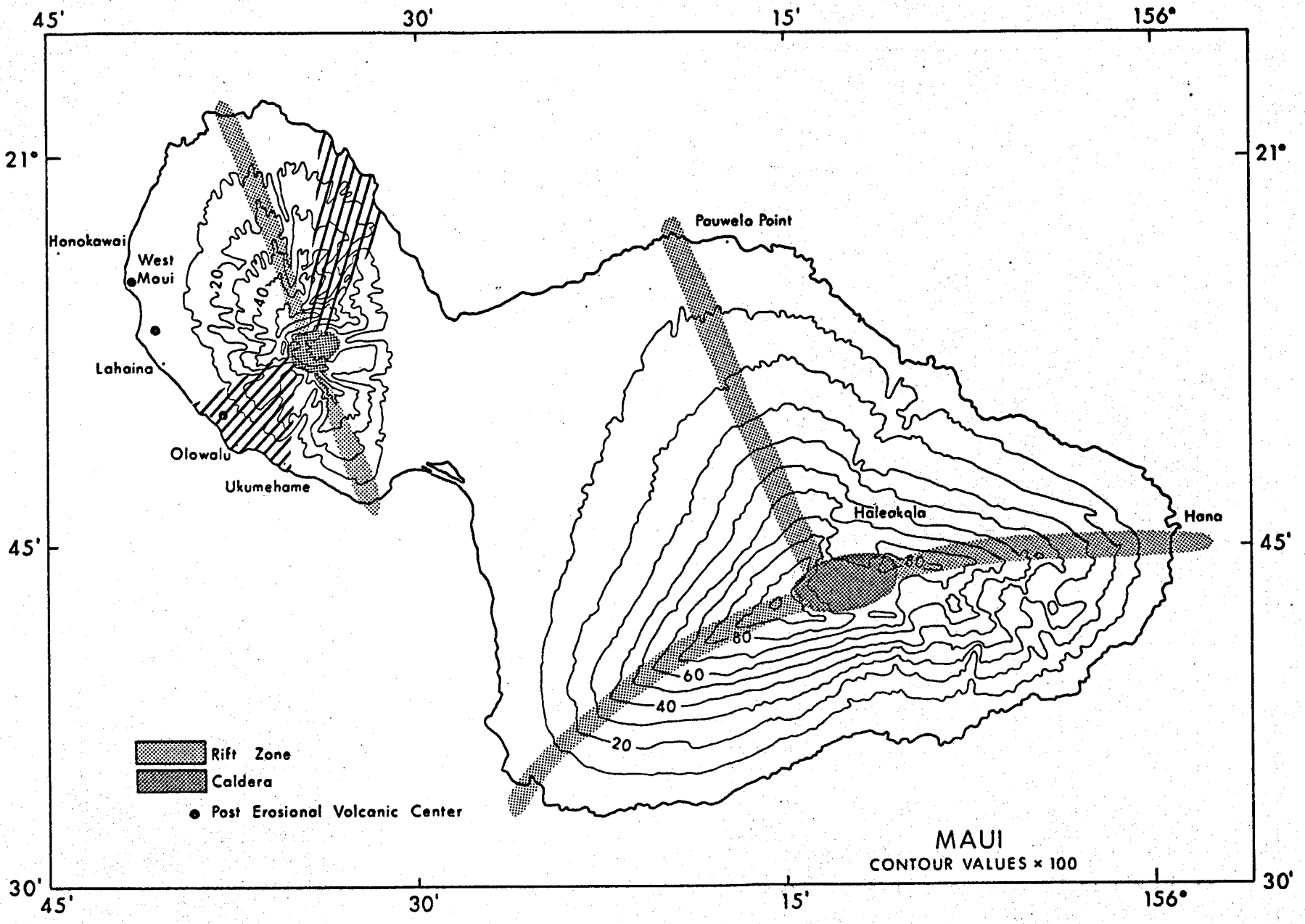


Figure 19 Topography and rift systems of Maui

trending south-southwest intersects the first in the caldera complex. Extensive erosion on West Maui has exposed a number of dikes in the original rift system as well as several stocks which were formed during the later periods of activity.

East Maui, Haleakala Volcano (altitude 3056 m), is considerably younger and larger than West Maui. Haleakala has passed through the mature post caldera stage and is presently in its post erosional period of activity. The core of the volcano is made up of tholeiitic olivine basalt which is almost completely covered by a later volcanic series of hawaiite and alkalic olivine basalt (Stearns and Macdonald, 1942). The later stages of activity on Haleakala were more explosive than the earlier activity and produced extensive ash deposits over the eastern end of the island. Posterosional activity on Haleakala (Figure 19) has been largely confined to the southwest and east rift zones and has filled in several large valleys which were formed during the long inter-eruptive quiescent period. The most recent eruptions on east Maui took place in about 1790 (G. Macdonald, Pers. Comm.) along the southwest rift zone and thus Haleakala should be considered a dormant, rather than an extinct, volcano.

The structure of Haleakala is similar to that for most other Hawaiian volcanoes (Figure 19). The major rift zones trend southwest and east from the central caldera complex and the minor rift trends north-northwest from the summit caldera; the minor rift has not been active during the post-erosional phase of activity (Madonald and Abbott, 1970).

Geophysical Surveys

Aeromagnetic surveys have been conducted over the island of Maui (Figure 20) (Malahoff and Woollard, 1965), and, as was the case with

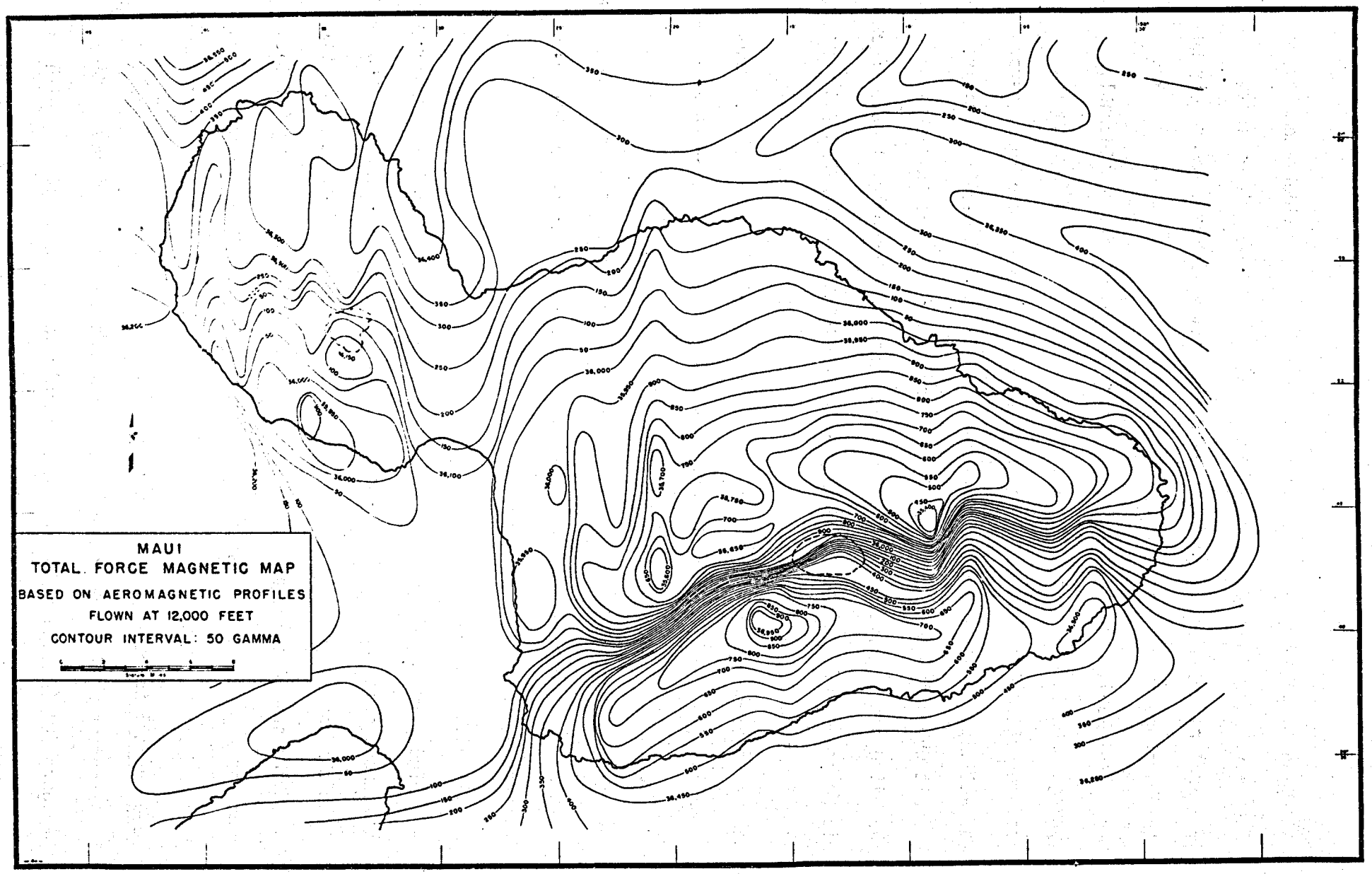


Figure 20 Total force magnetic map of Maui

Hawaii, the structural interpretation given (Figure 21) differs significantly from the surface features observed. It is probable that only those surface features which are crustally controlled correlate well with the magnetic data and one could infer from this that the very broad volcanic pipe zone which underlies the West Maui shield has produced the diffuse rift system observed there. This conclusion is substantiated somewhat by the results of gravity surveys (Figure 22) (Kinoshita and Okamura, 1965) which also indicate a very broad gravity high beneath West Maui.

There is a similar correspondence between the aeromagnetic and gravity data from Haleakala. Both data sets delineate the major rift system of Haleakala and, whereas the aeromagnetic interpretation indicates two volcanic pipe zones, the gravity surveys indicate a single very elongate gravity high. This latter result is probably due to the wide spacing of the gravity stations on Haleakala.

At present, there is not sufficient seismic or infrared data available for Maui or the northern islands to be of use in a geothermal assessment.

Meteorology and Hydrology

Although West Maui is not high enough to block the normal trade-wind patterns, it does have a significant impact on the local rainfall patterns. The mean annual rainfall on the windward side of West Maui is in excess of 1000 cm/yr (Figure 23) at the higher altitudes and decreases to about 375 cm/yr on the lower leeward slopes (Taliaferro, 1959). Perennial streams, fed by dike-impounded waters and surface runoff, are relatively common on the north slopes. They are less common on the southern

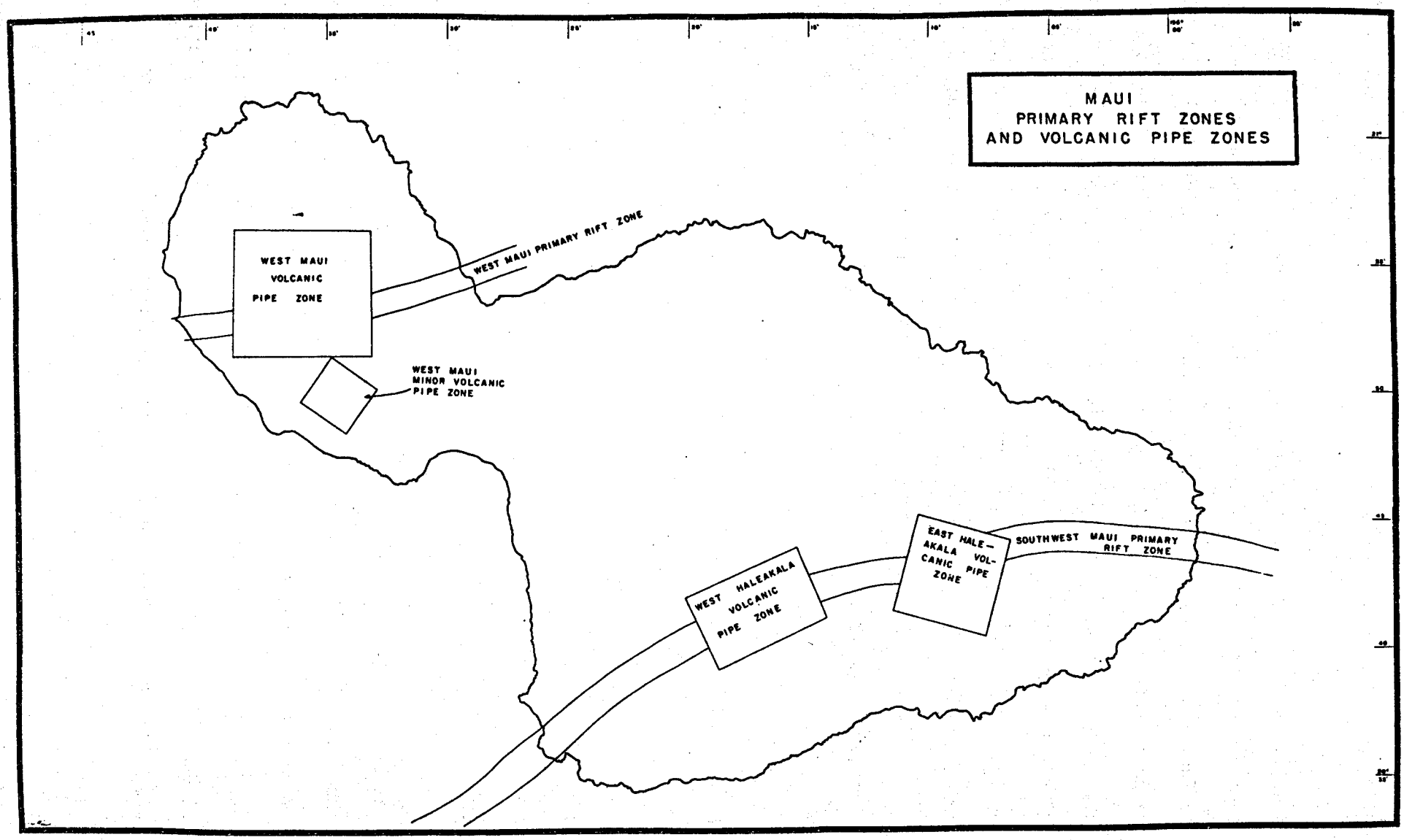


Figure 21 Primary rift zones and volcanic pipe zones of Maui

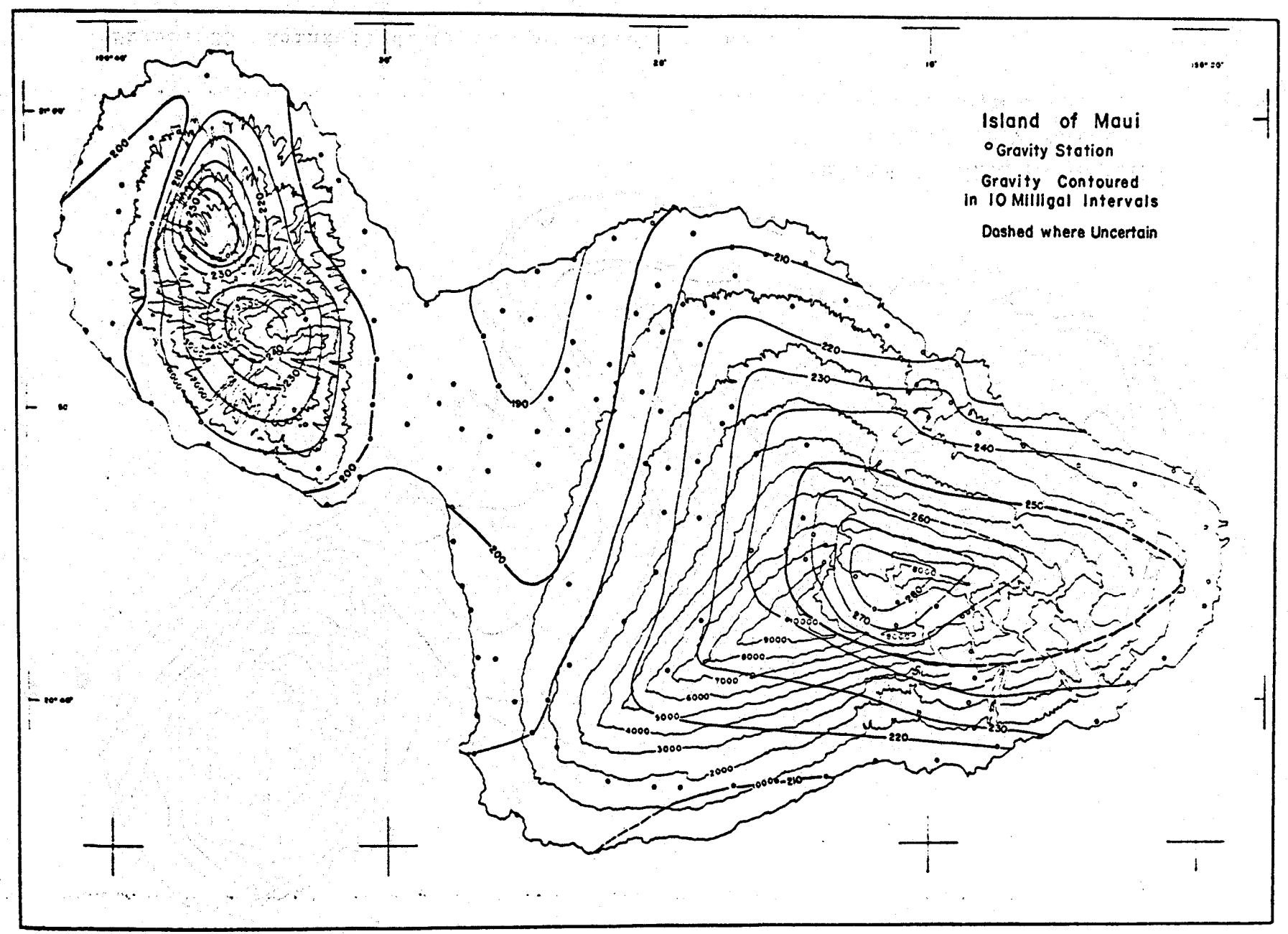


Figure 22 Bouguer gravity anomaly map of Maui

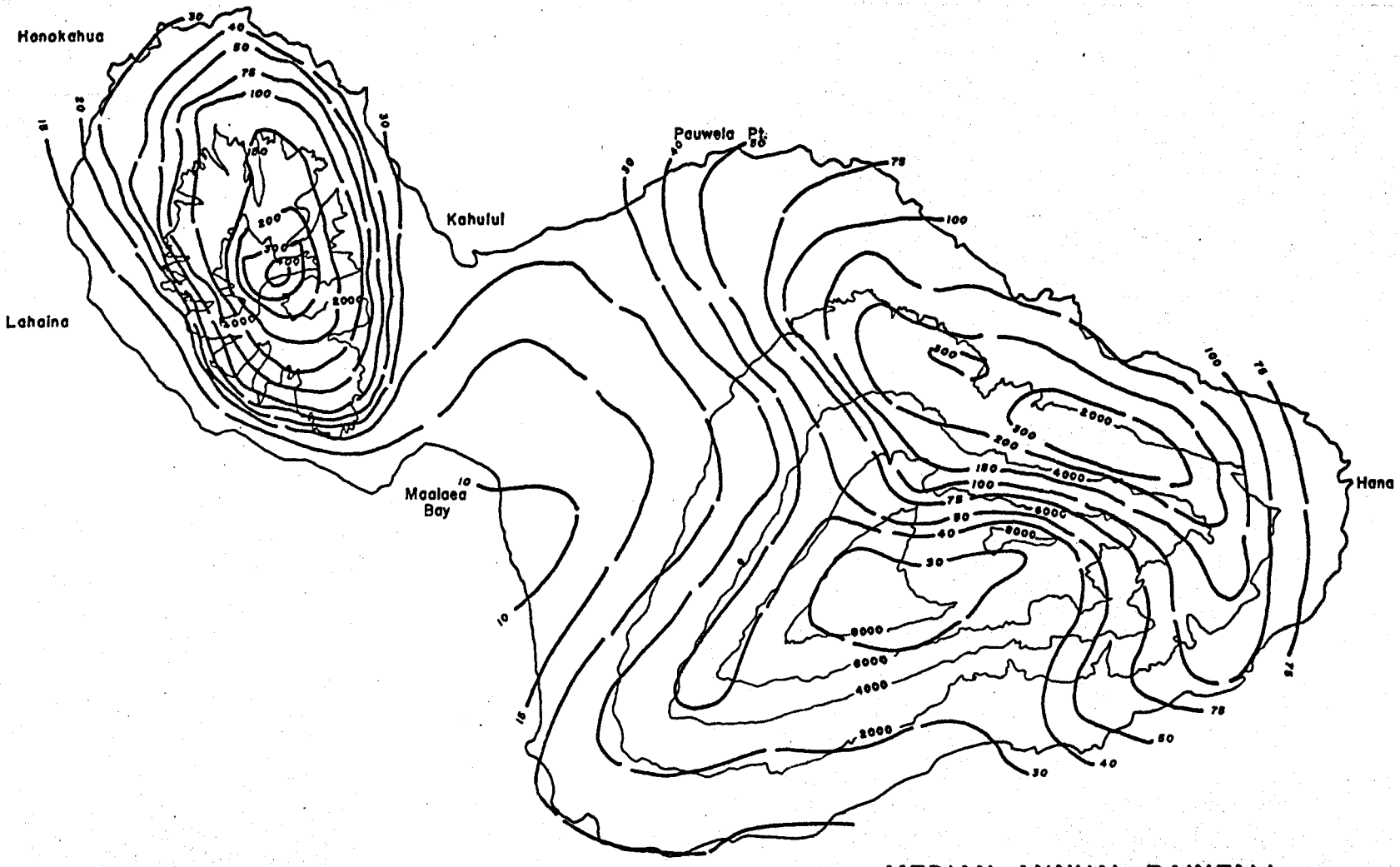


Figure 23 Rainfall distribution pattern on Maui

slopes and often disappear completely during extended period of dry weather.

The hydrology of West Maui is similar to that found on the windward side of Kohala on the island of Hawaii (Figure 24, Takasaki, 1978): a relatively thin basal lens of fresh water is found in the near shore areas while dike-impounded aquifers provide most of the higher elevation groundwaters. Although sea water intrusion into the basal lens is not as ubiquitous as in Kohala, extensive withdrawal from the basal lens can increase the groundwater salinity considerably.

Haleakala receives up to several hundred centimeters of rainfall per year on the windward slopes and a few tens of centimeters or less per year on the leeward slopes (Figure 24). Moderate ash-bed interlayering is found on Haleakala and, where erosion has cut into the windward slopes, ash-bed perched water maintains several perennial streams. Basal water underlies most of the Haleakala shield and is withdrawn from several near shore areas by inclined shafts skimming water off the top of the basal water lens(Stearns and Macdonald, 1942). The relatively confined dike and rift systems on Haleakala have had little apparent impact on the hydrologic flow patterns through the shield.

Geochemistry

Plots of all identified silica anomalies on the island of Maui are presented in Figure 25; all known water sources for the island are shown in Figure 26. Water quality data for all identified silica anomalies on Maui are found in Appendix A Table 2. It is apparent from Figure 26 that the distribution of groundwater sources for the island is far from uniform:

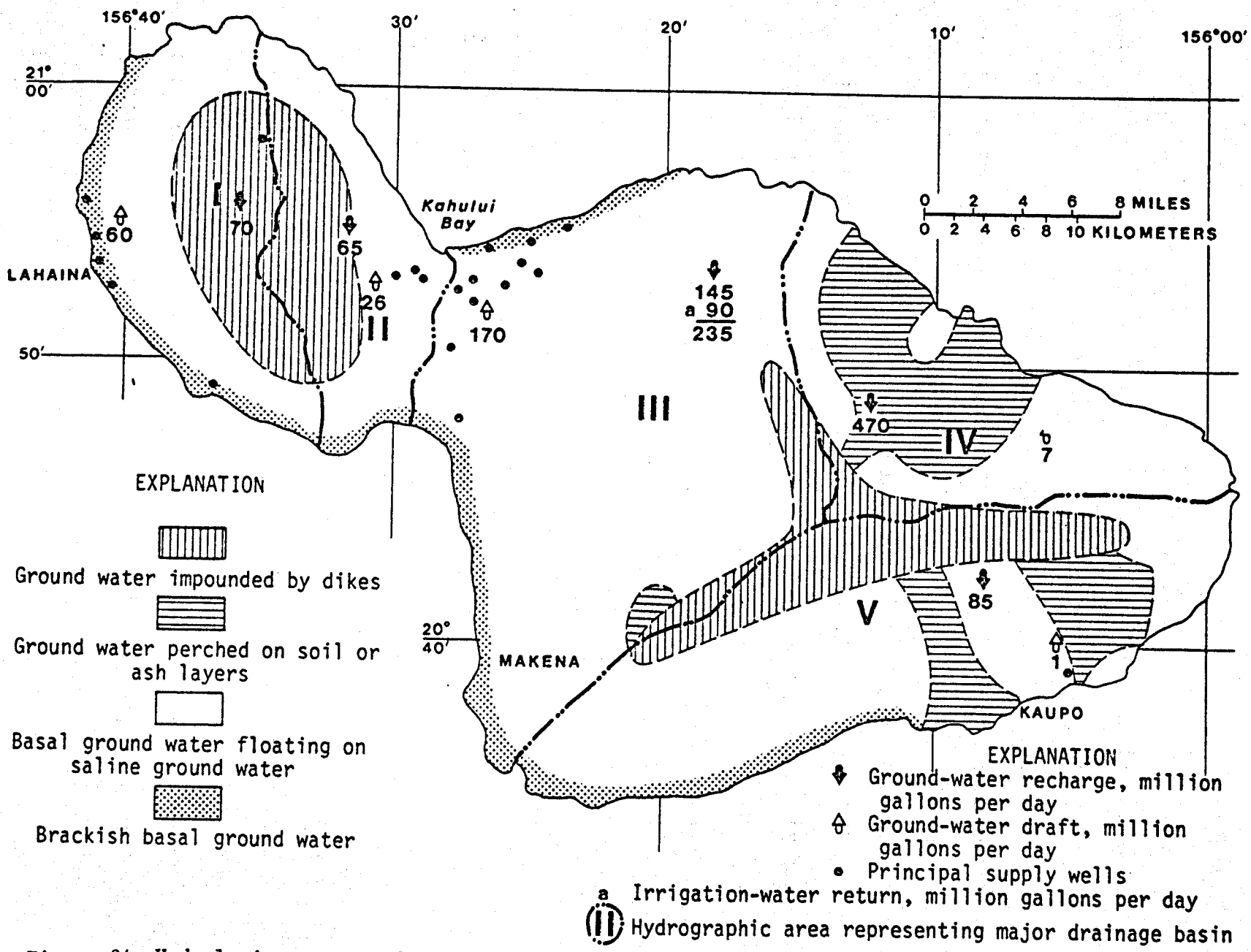


Figure 24 Hydrologic summary of Maui

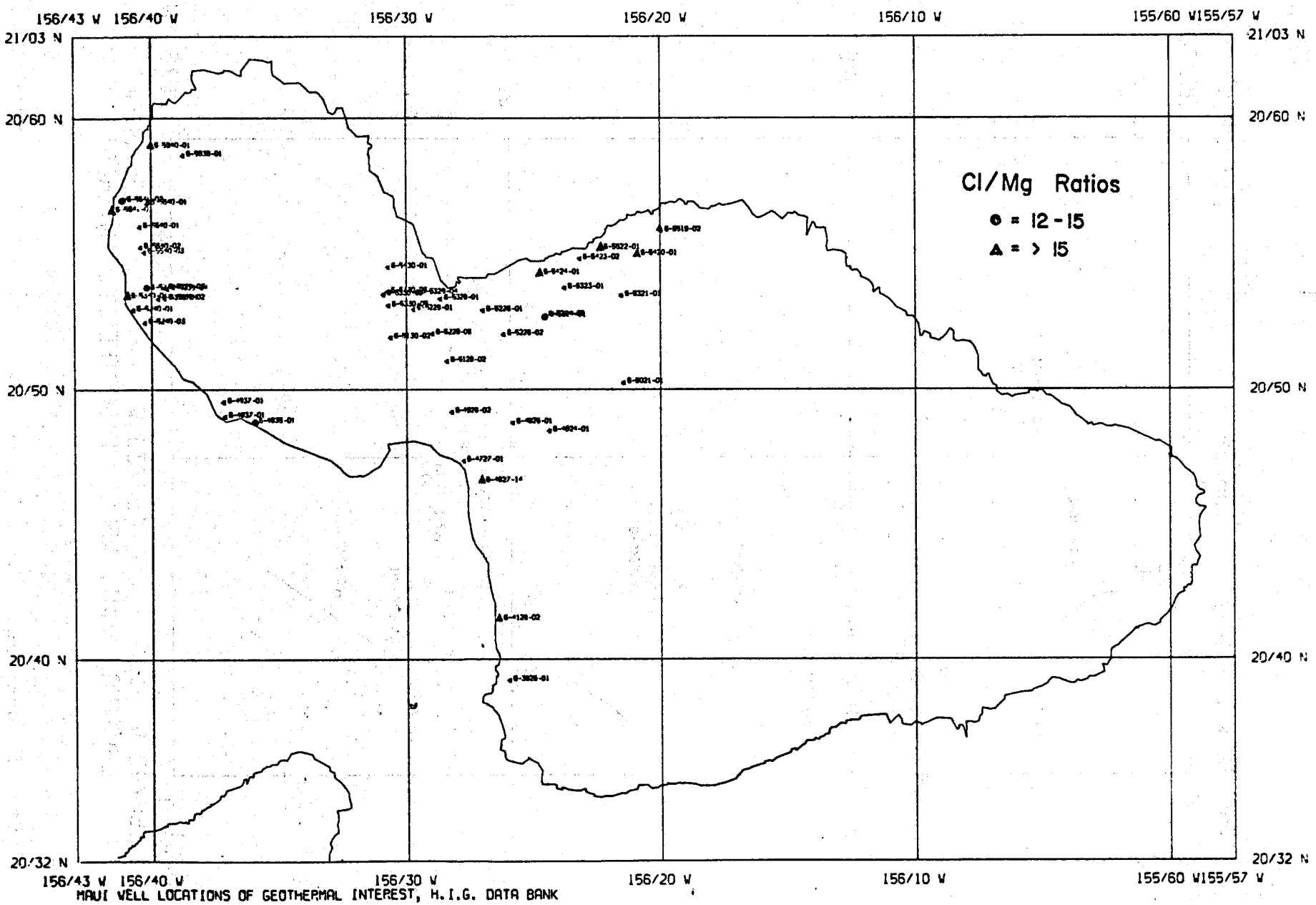


Figure 25 Silica and chloride: Magnesium ion anomalies on Maui

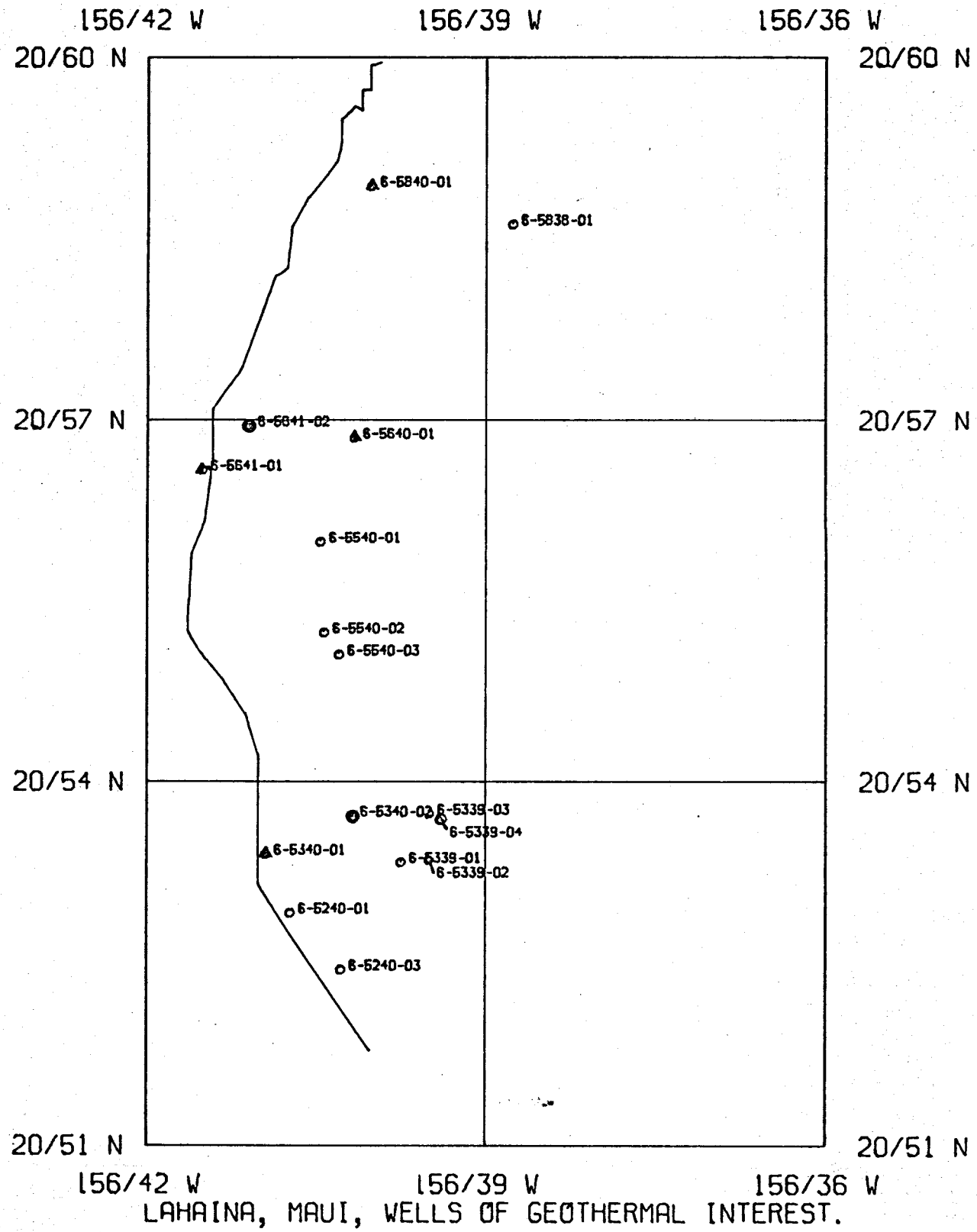


Figure 25 Continued

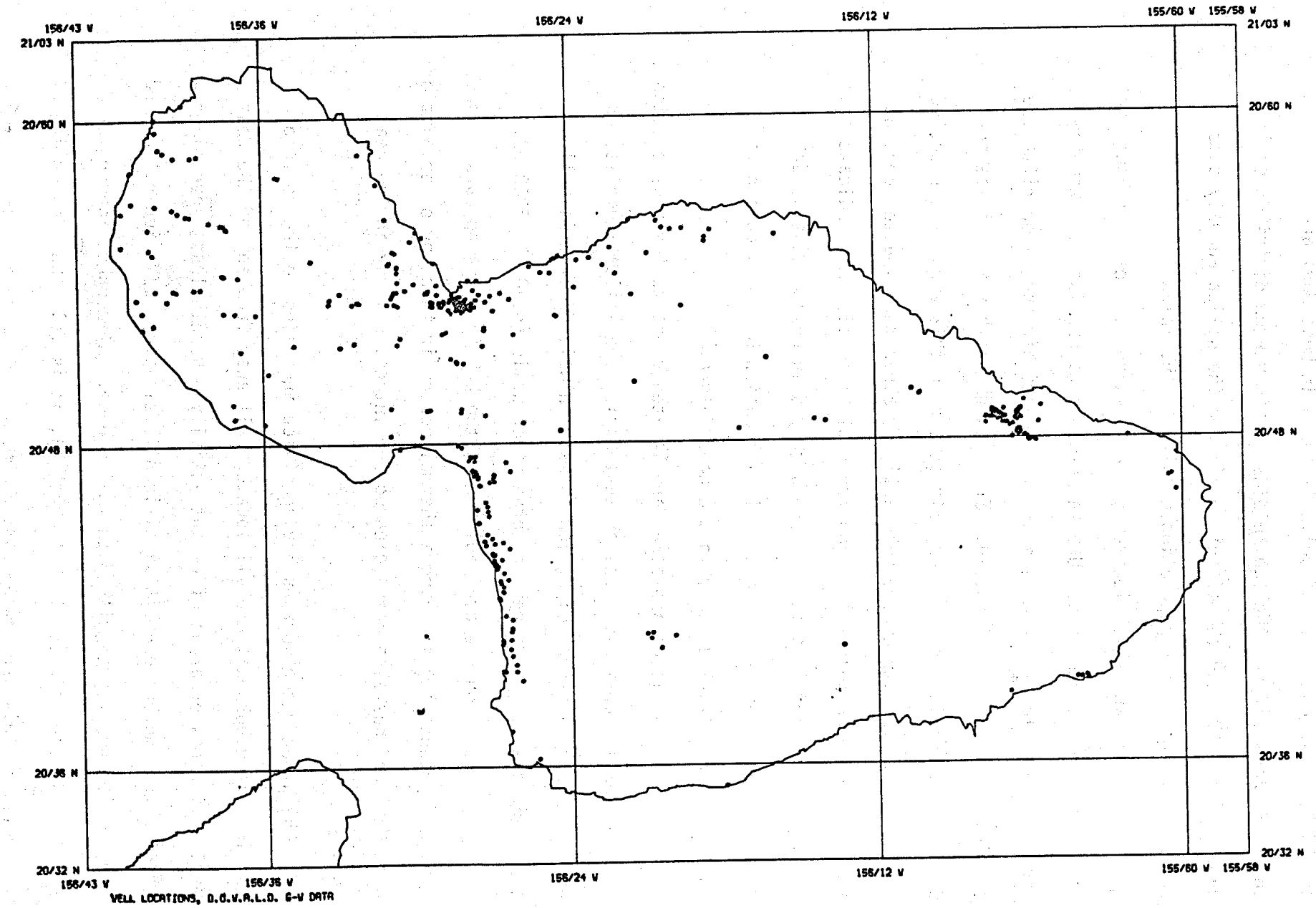


Figure 26 Well locations for all wells on Maui

the highest concentration of wells is found in West Maui and in the isthmus between the two shields. This uneven distribution of water sources has had the effect on biasing the silica anomaly data toward areas of higher population density on the island.

The silica anomalies located on the leeward side of West Maui can be divided into three sets: Ukumehame-Olowalu, Lahaina, and Honokawae. The Ukumehame-Olowalu anomalies are located within the major rift-dike complex of the West Maui shield. Even though neither the silica nor Cl/Mg ion anomalies are particularly strong in this area, the reported groundwater temperatures are substantially above the expected ambient temperatures. The weak silica and ion ratio anomalies may indicate that the thermal waters in this area are highly diluted and that a much hotter resource exists at depth. This location has been chosen for further, more detailed study in the near future.

The Lahaina silica anomalies are located close to the post erosional (most recent) eruptive centers on West Maui. The silica anomalies are accompanied by a strong Cl/Mg ion anomaly in well 5340-02 as well as elevated water temperatures in three other wells (5240-01, 5240-03, 5340-01). Based on the available data, the Lahaina area appears to have a higher potential for having a thermal reservoir than any other part of West Maui and has also been selected for intensive study in the near future.

The groundwater sources having silica anomalies to the north of Lahaina, in Honokawai, are all located well away from any of the West Maui rift zones or areas of recent activity. Nonetheless, several of these water sources exhibit significantly elevated Cl/Mg ion ratios and thus may be associated with a thermal source. Although evidence for a geothermal reservoir is at best marginal, it is felt that resampling of the wells in this area is warranted.

The highest incidence of silica anomalies on Maui is found in the isthmus region between the West Maui and Haleakala shields. The absence of any nearby rift system, or any Cl/Mg ratio anomaly, would indicate that the observed silica concentrations are largely a function of groundwater residence time and recharge patterns. This area seems to be a particularly good example of how Cl/Mg ion ratios can be useful in identifying false positive silica anomalies. Further investigations in the isthmus region is not planned for the near future.

The only significant water chemistry anomaly identified on Haleakala is that found in the area of Pauwela Point along the north rift. Three wells in this area (5420-01, 5424-01, 5519-02) are associated with relatively strong chloride/magnesium ion anomalies but only one, 5423-02, has significantly elevated water temperature. Several of the anomalous water sources are within a few miles of the north rift and there may be thermal fluids in the aquifers from which their water is drawn. Further investigations of this area will be necessary to determine whether the observed anomalies are the result of thermal groundwaters.

The remainder of the Haleakala shield has few wells and, as a result, the local hydrology is so poorly understood that an assessment of the thermal potential along the southwest and east rift zones based on water chemistry alone is impossible. Nonetheless, a generalized estimate of the resource potential can be made on the basis of the regional structure and geology. Heleakala is presently in the midst of a post-erosional phase of volcanic activity. Nearly all the eruptive centers during the most recent period of volcanism are located along the southwest and east rift zones; the most recent outbreak took place at an elevation of about 610 m along the southwest rift in approximately 1790.

Despite the fact that there are no known surface manifestations of thermal activity along these rifts, it is strongly believed that thermal reservoirs exist beneath both the southwest and east rift systems of Haleakala and both area should receive more complete regional surveys in the near future.

Summary Assessment

Considerably fewer data are available for Maui than for Hawaii and thus the preliminary evalaution of Maui's resource potential will have to be correspondingly more tentative. Based on the geochemical and geological information available for Maui, the preliminary assessment for several of the districts on this island is as follows:

Table 2

Area	Low Temperature	High Temperature	Probability for Development
Haleakala Southwest Rift	2	2	4
Haleakala East Rift	2	3	6
Pauwela (north Rift)	3	4	3
Lahaina	1	3	1
Olowalu-Ukumehame	1	3	2
Honokawai	4	5	2

MOLOKAI

The island of Molokai is the fifth largest of the Hawaiian chain and was built up from three volcanic systems (Figure 27). West Molokai (altitude, 421 m) is a broad flat shield volcano with principle rift zones trending west-northwest and west-southwest (Figure 27) (Stearns and Macdonald, 1947). The West Molokai shield is covered by 3 to 15 meters of soil and ash deposits and the major rift complexes are visible only at the head of the Waiahewahewa Gulch. The northwest rift system is marked by a chain of cinder and spatter cones and by dikes exposed in the sea cliffs along the north coast of the island. There is considerable faulting and diking on West Molokai, although there is no convincing evidence that a caldera complex was ever present at the summit; extreme alteration and weathering of surface rocks by acid magmatic gases imply that the fracture complex near the summit of the shield was the center of volcanic activity (Macdonald and Abbott, 1970).

The lavas which formt the West Molokai shield are principally tholeiitic basalts, which, after a relatively extended period of volcanic quiescence, were followed by minor amounts of alkalic olivine basalts and hawaiites (Stearns and Macdonald, 1947). The majority of the West Molokai shield is presently covered by a thick layer (3-15 m) of lateritic soil indicating that West Molokai has been extinct for an extended period of time.

The East Molokai shield (altitude, 1515 m) was built along two major rift zones (Figure 28): One trends east-northeast and a second, larger one, trends west-northwest. A caldera complex does exist on East Molokai at the

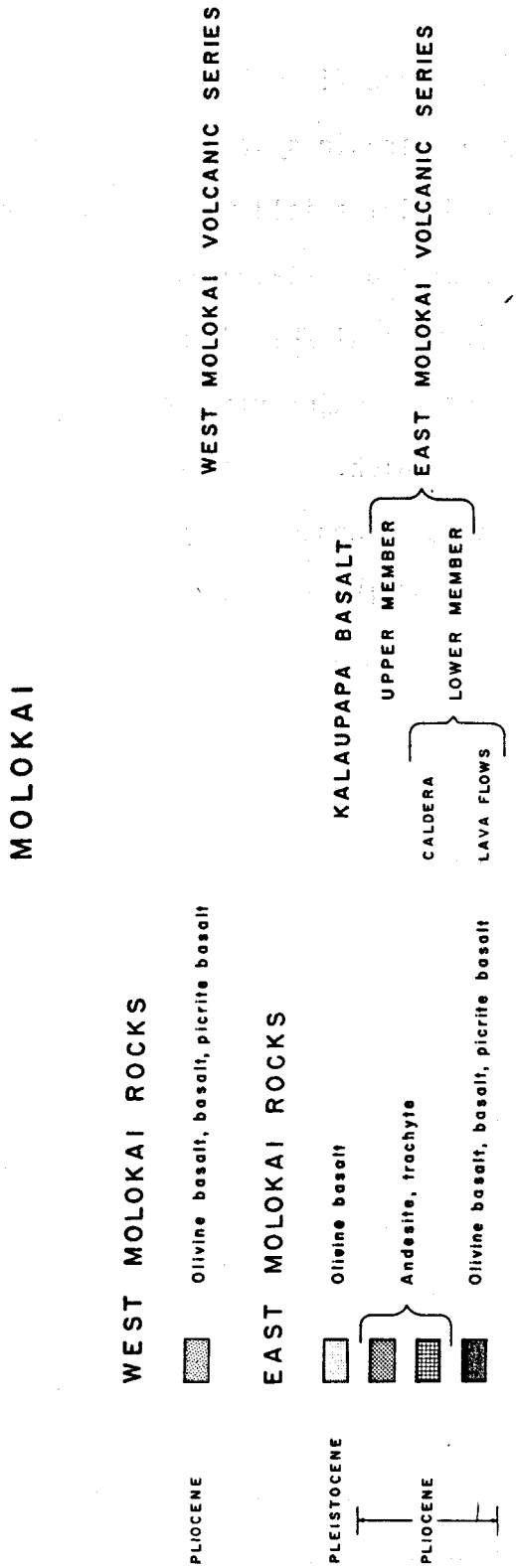
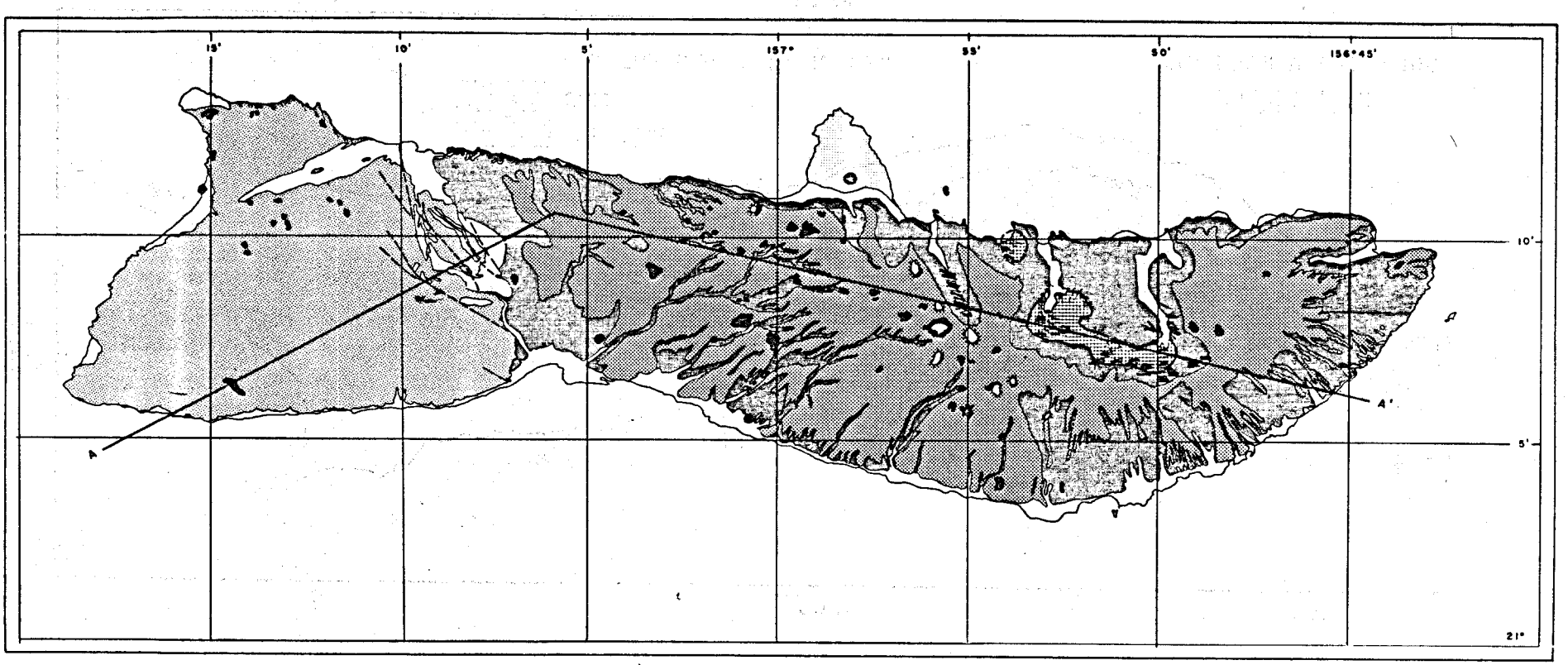


Figure 27 Surface geology of Molokai


15'
10'
5'
157°
55'
50'
156°45'
10'
5'
21°
A
A'


V.E. = 1:1
A
A'

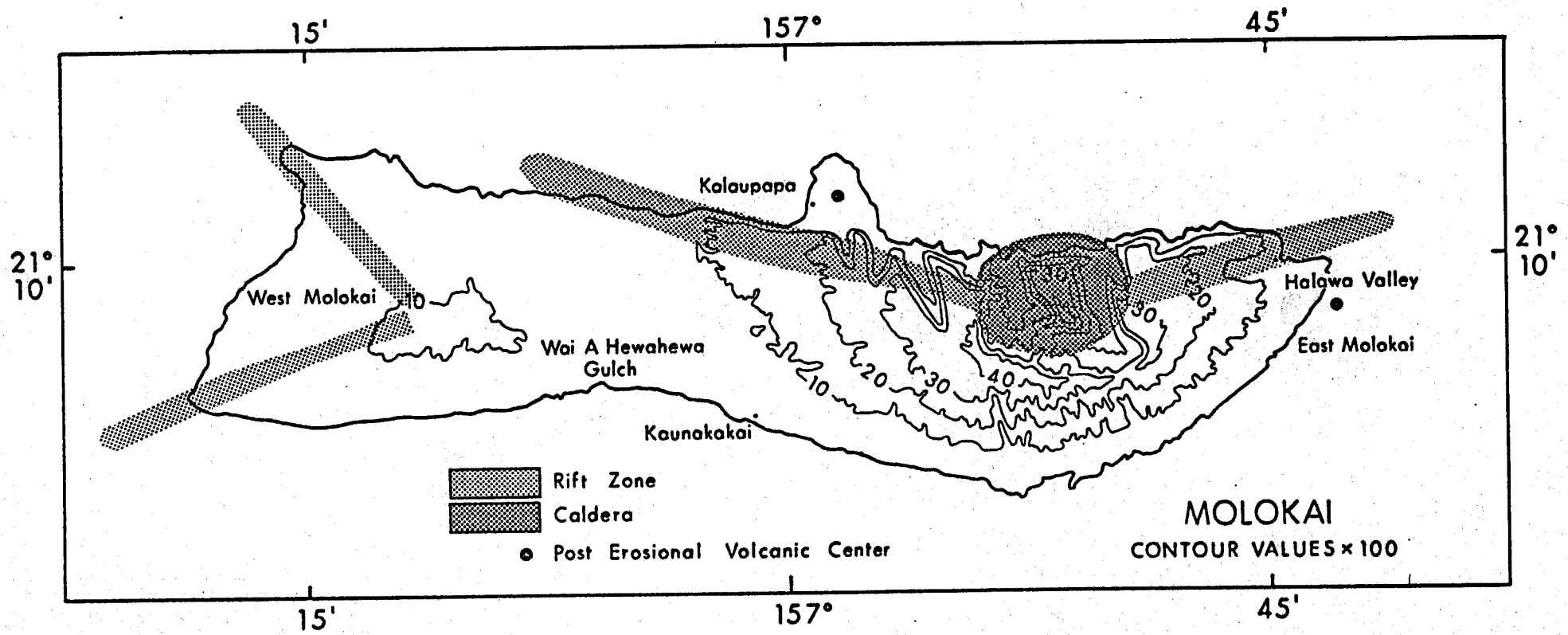


Figure 28 Topography and rift systems of Molokai

intersection of the two rift systems. It was originally 3 km in diameter by 7 km long, but has since been filled in by alluvial material. The original caldera is visible primarily in stream beds where eroison has removed the younger alluvium and exposed dike swarms and plugs in the complex (Macdonald and Abbott, 1970).

The earlier lavas of the East Molokai activity are typical olivine tholeiites and were erupted in thin fluid flows. Where the earlier flows of East Molokai bank against the West Molokai shield there is often a thick bed of lateritic soil underlying the younger lavas indicating that a considerable period had elapsed between the extinction of West Molokai and the more recent activity of East Molokai. The upper member of the East Molokai volcanics consists largely of oligoclase andesite and trachyte which formed a discontinuous cover over the older lavas (Stearns and Macdonald, 1947). The later flows were more viscous than the earlier lavas and thus individual flows were considerably thicker and more dense than those of the lower member. The upper lavas are much less easily eroded than the earlier member and thus have acted as a protective cap over much of East Molokai.

The most recent eruptive activity on Molokai took place in the late Pleistocene when renewed activity produced the Kalaupapa peninsula at the mid-point of the sea cliffs bounding the north side of the island. Only one cone was formed which produced a broad, semicircular peninsula, 4 km in diameter and having an altitude of 150 meters. The Kalaupapa lavas are porphyritic olivine basalts and are highly permeable (Macdonald and Abbott, 1970).

Geophysics

Aeromagnetic surveys have been conducted over the island of Molokai and have provided the total force magnetic map presented in Figure 29 (Malahoff and Woollard, 1975); the volcanic pipe and vent systems delineated by the magnetic data are presented in Figure 29. Whether the East Molokai shield is in fact the result of an extension of the West Molokai rift system, as indicated in Figure 30, is unknown at present in that this magnetic anomaly zone could be interpreted in other ways.

Gravity surveys conducted on Molokai have been restricted largely to the West Molokai shield with only marginal coverage over the eastern end of the island (Figure 31, Moore and Krivoy, 1965). The central caldera and rift systems of West Molokai are well defined by gravity highs and another gravity high extending eastward from the West Molokai summit may be associated with a third rift system or possibly, with the East Molokai system. At present, insufficient data are available to distinguish between these two possibilities.

Meteorology and Hydrology

The rainfall on Molokai, as on the other islands is unevenly distributed. The windward and higher sections of the island, especially on East Molokai, receives the bulk of the rainfall (on the order of 281 cm per year) while the leeward side of the island and West Molokai receives less than 75 cm per year (Figure 32, Taliaferro, 1959).

The hydrology of West Molokai is summarized in Figure 33 (Takasaki, 1978). The basal lens beneath this end of the island is brackish to salty and the low rate of recharge is insufficient to maintain any

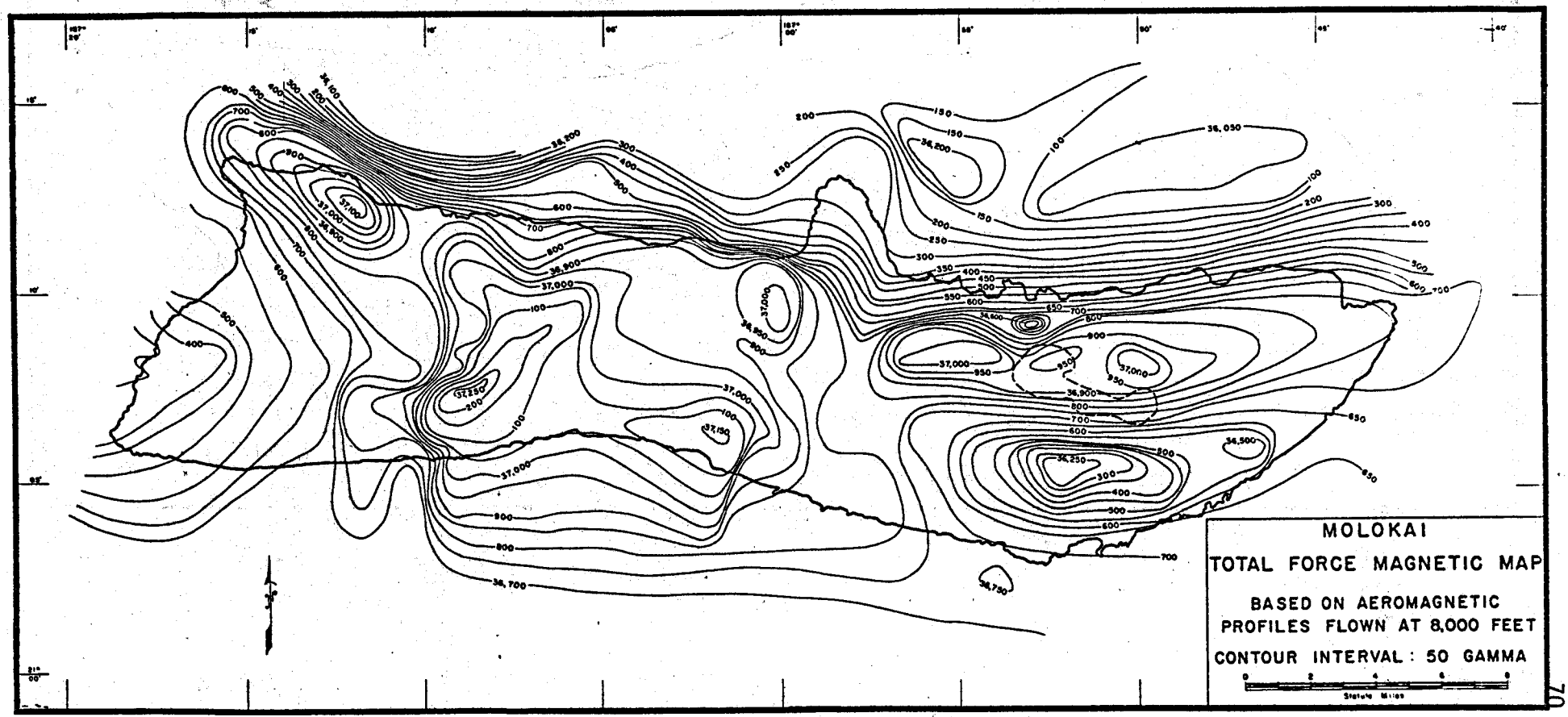


Figure 29 Total force magnetic map of Molokai

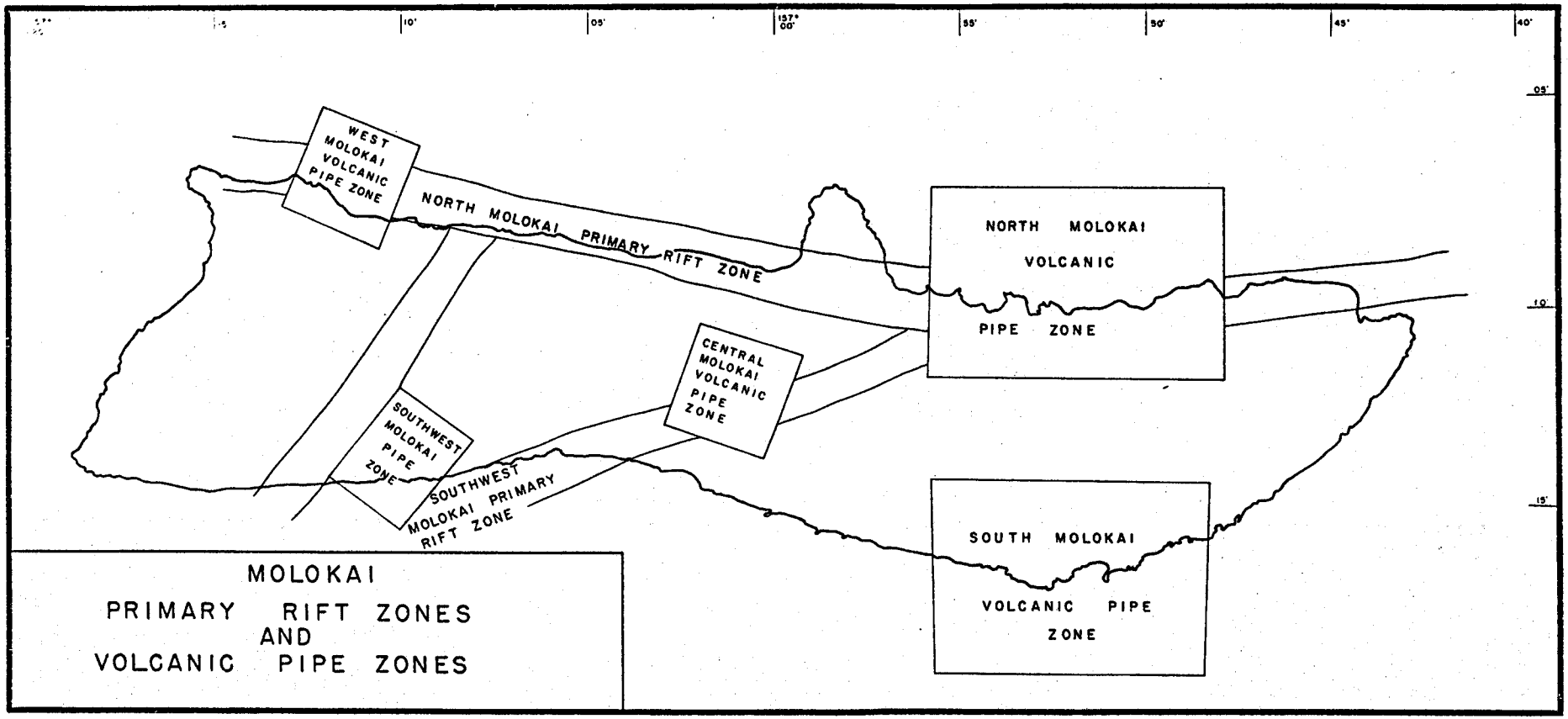


Figure 30 Primary rift zones and volcanic pipe zones of Molokai

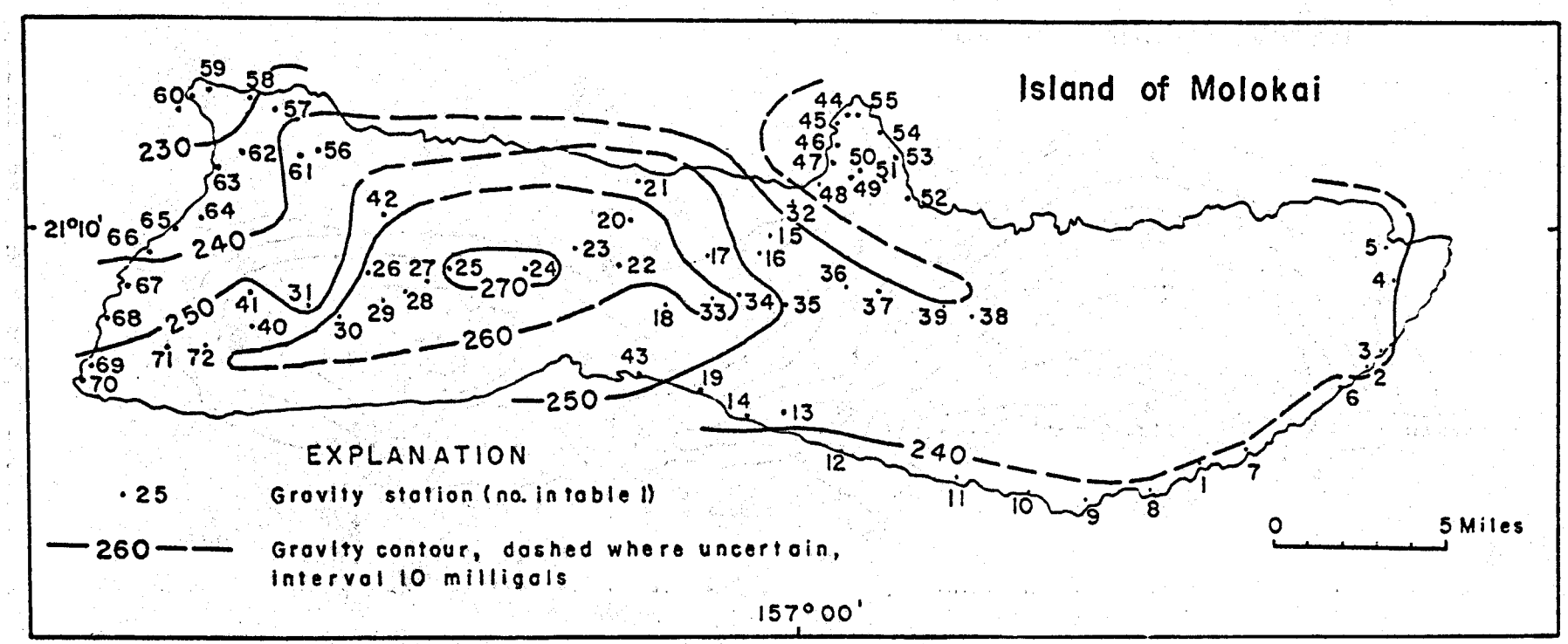


Figure 31 Bouguer gravity anomaly map of Molokai

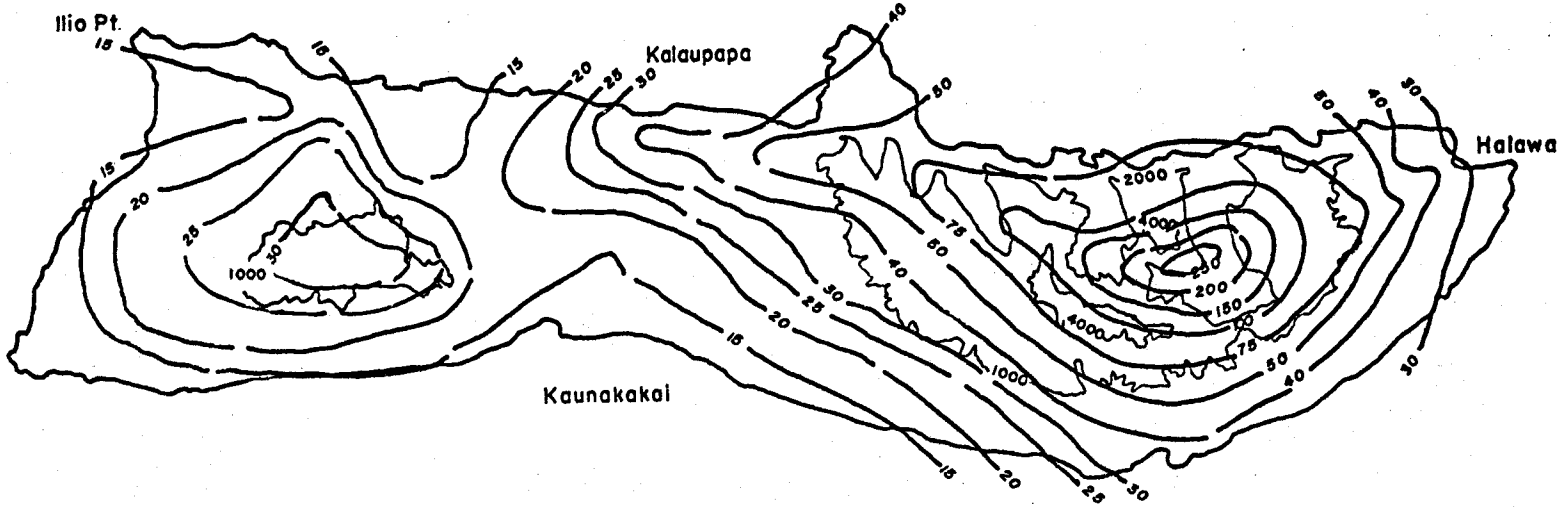


Figure 32 Rainfall distribution pattern on Molokai

perrennial springs or streams on this end of the island. Although there is an extensive dike system in the middle of the West Molokai shield, there are no know sources of dike-impounded water.

The hydrology of East Molokai differs radically from that on the western part of the island (Figure 33). Much higher rates of recharge on the higher slopes provide sufficient fresh water to maintain a substantial basal water lens beneath the eastern end of the island which is drawn on extensively for public water supplies. The dense alkalic lavas on East Molokai have acted to confine considerable quantities of high level water on this area as well.

Geochemistry

The geochemical data compiled for Molokai are presented in Figure 34 and Appendix A, Table 3; the island-wide distribution of wells is found in Figure 35. The wells on this island are quite unevenly distributed and most are located a considerable distance away from any of the rift and caldera systems.

Only eight wells have been identified on Molokai as having significant silica anomalies; of these, seven are considered to be false anomalies arising from effects other than thermal waters. It is probable that the elevated silica concentrations observed in the central part of the island are largely the result of differing soil or rock types from which the water was drawn.

The only well which is thought to indicate some thermal potential is Well #1011-01 which is found in the northwestern end of the island within the west Molokai rift system.. Although no silica data are available for this well, the measured water temperature is reported to be 33.9°C, well above the ambient temperatures for this area.

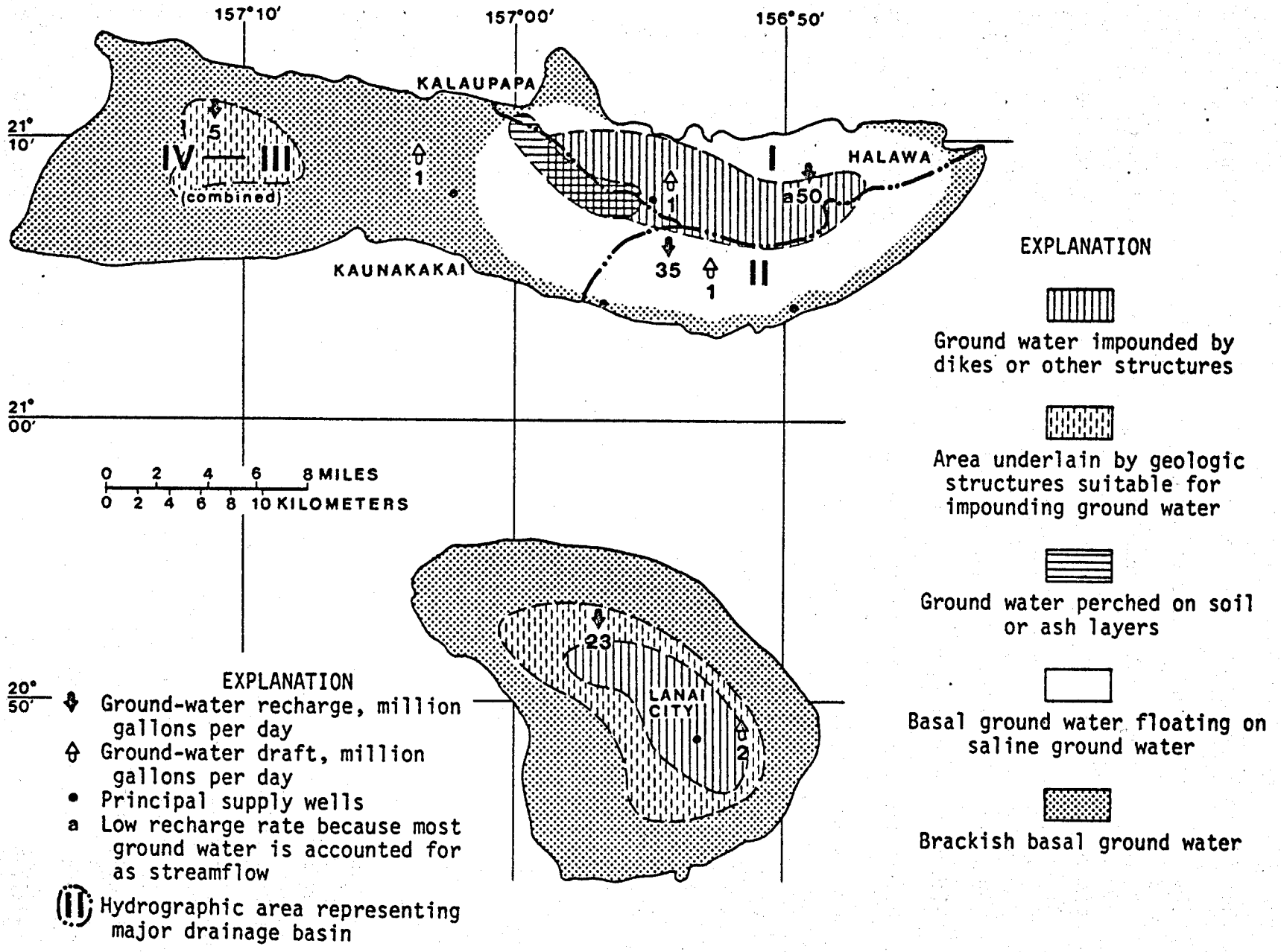


Figure 33 Hydrologic summary of Molokai

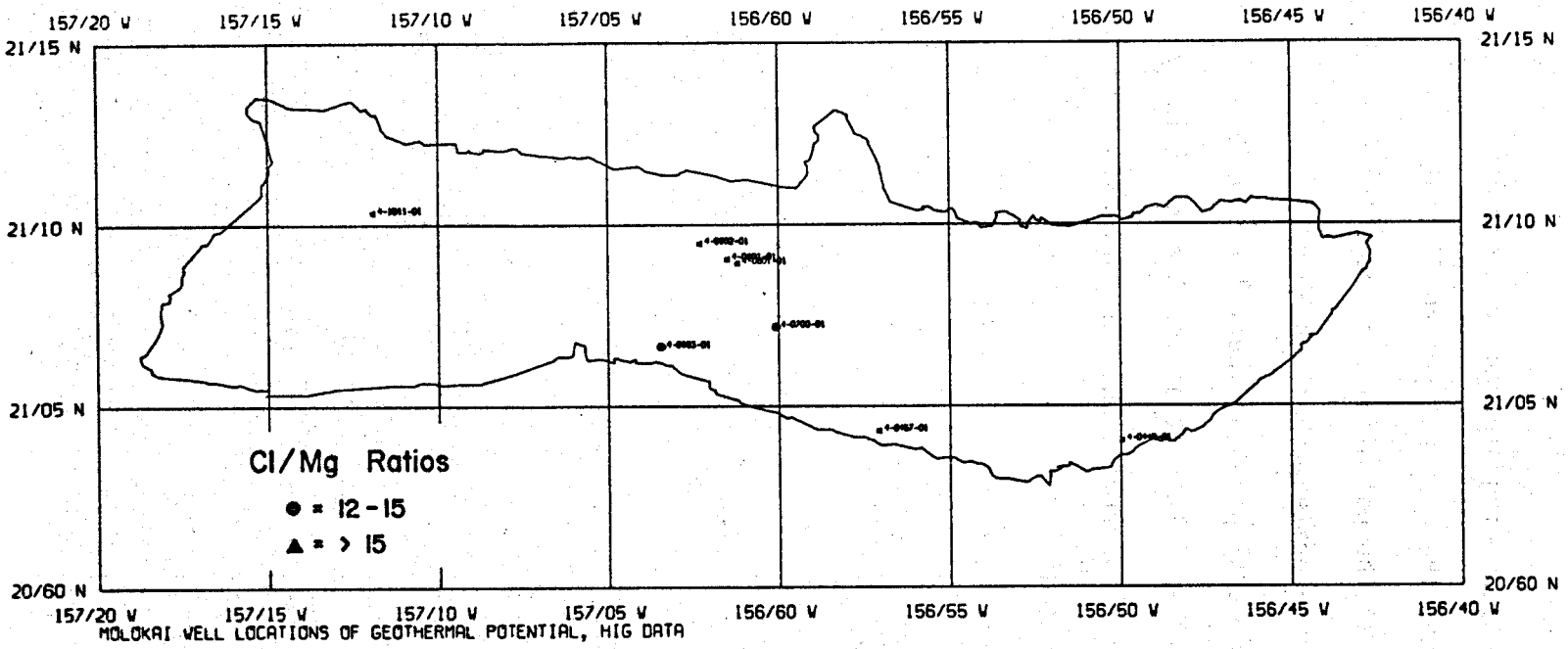


Figure 34 Silica and chloride: Magnesium ion anomalies on Molokai

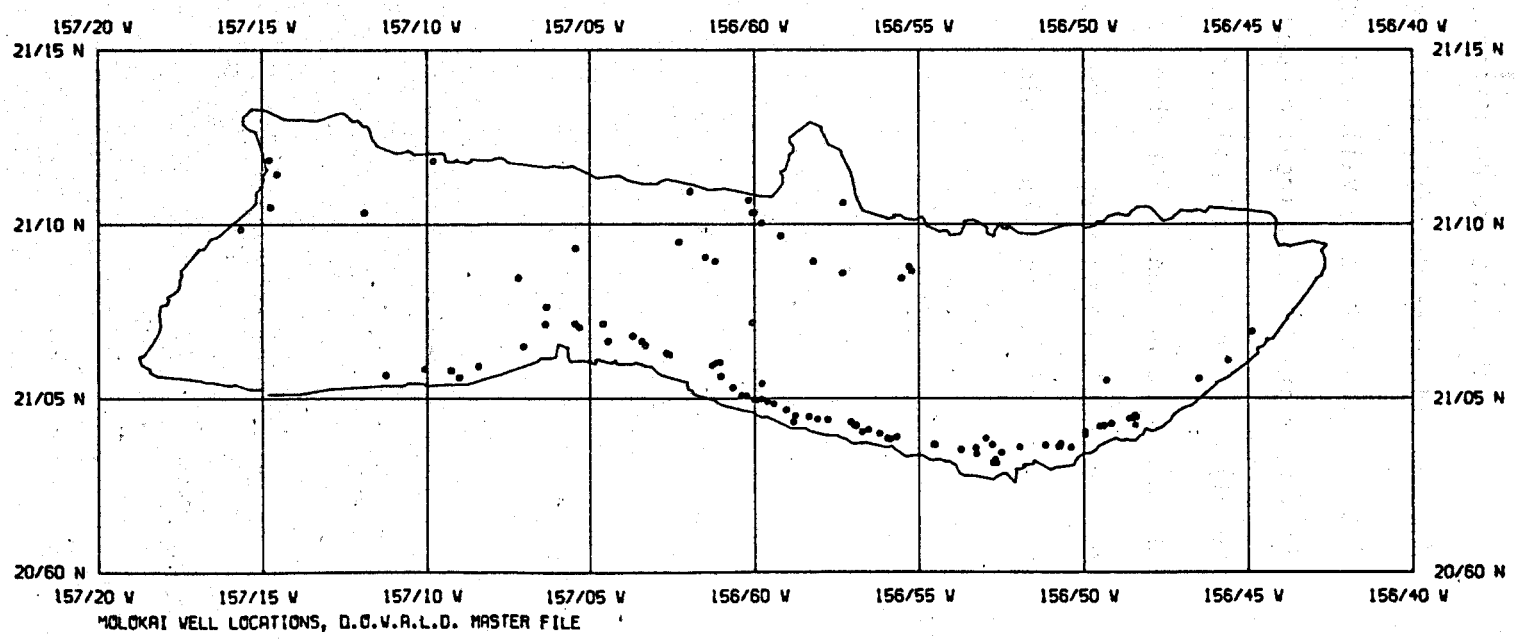


Figure 35 Well locations for all wells on Molokai

Summary Assessment

Although there are no strong indications of geothermal reservoirs for the island of Molokai, it is felt that there is not yet sufficient data available to make valid assessment of the potential resource. There is strong interest by local commercial enterprises (Sheraton Molokai Hotel) and utility (Molokai Electric) in developing any thermal resource which may be present. For this reason it is felt that at least a preliminary survey should be carried out for Molokai to determine whether further, more intensive, research should be conducted.

OAHU

Oahu is the third largest island in the Hawaiian Archipelago and has an area of 1564 square km. The island is built from two volcanic systems: the older Waianae shield on the west and the Koolau to the southeast. The younger Koolau shield is overlain by two post erosional volcanic units; the Honolulu series and the more recent Kokohead series.

The exposed Waianae Volcanic Series consists of three members; the first phase of activity produced tholeiitic basalts which make up the bulk of the Waianae shield. The Middle Member is also tholeiitic but grades into alkalic basalt in the upper part of the member; the lavas are predominantly dense ponded and caldera filling flows (Stearns, 1939). The upper Waianae member consists chiefly of hawaiite with smaller amounts of alkalic olivine basalt and at one time covered most of the Waianae shield (Macdonald and Abbott, 1970); extensive erosion has removed most of this original cover (Figure 36). Soil interbedding between early and late volcanics is minimal suggesting that the Waianae activity was nearly continuous through the life of the volcano. The most recent volcanism on Waianae is estimated to have occurred between 2.7 and 2.8 million years ago (Macdonald and Abbott, 1970). The Waianae shield was built along three rift zones (Figure 37); the major rifts radiate to the northwest andsouth-southeast from the central caldera and the minor rift trends to the northeast. The feeder dike systems for all three rift zones have been well exposed by extensive erosional dissection of the Waianae shield.

The Koolau volcanic system was active considerably later than Waianae and much of central Oahu (Schofield Plain) was formed from the

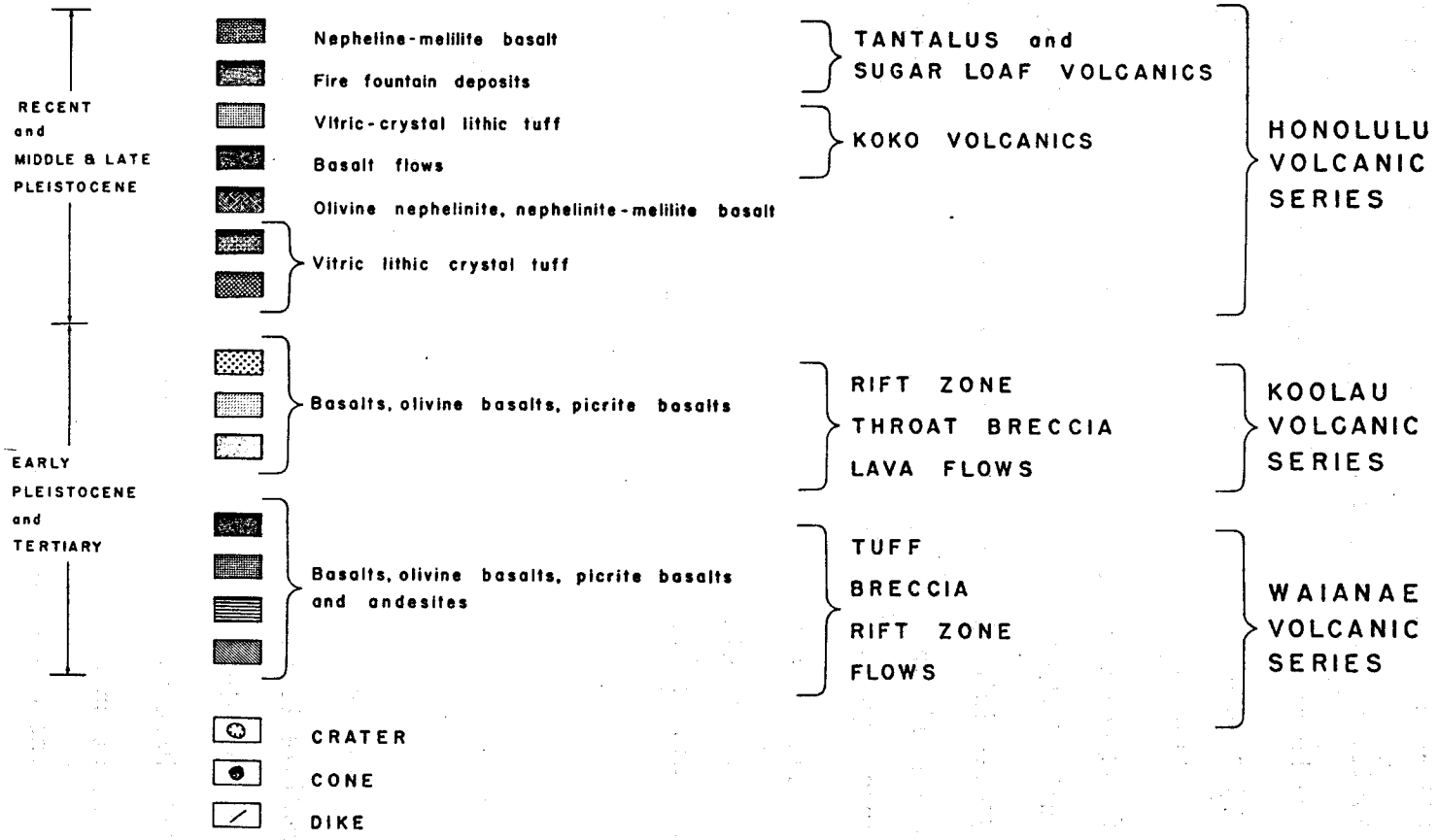
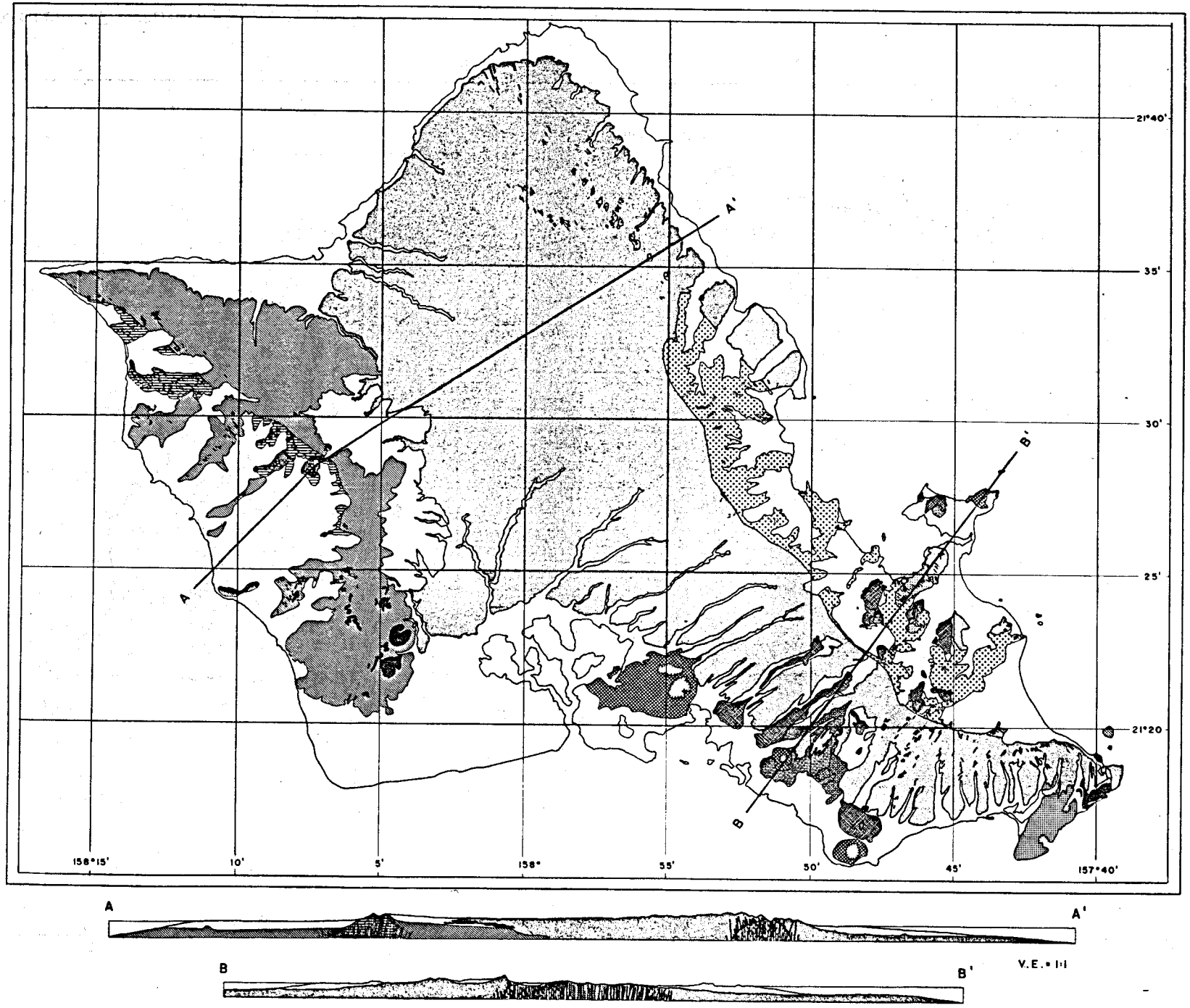


Figure 36 Surface geology of Oahu


21°40'
35'
30'
25'
21°20
158°15'
10'
5'
158°
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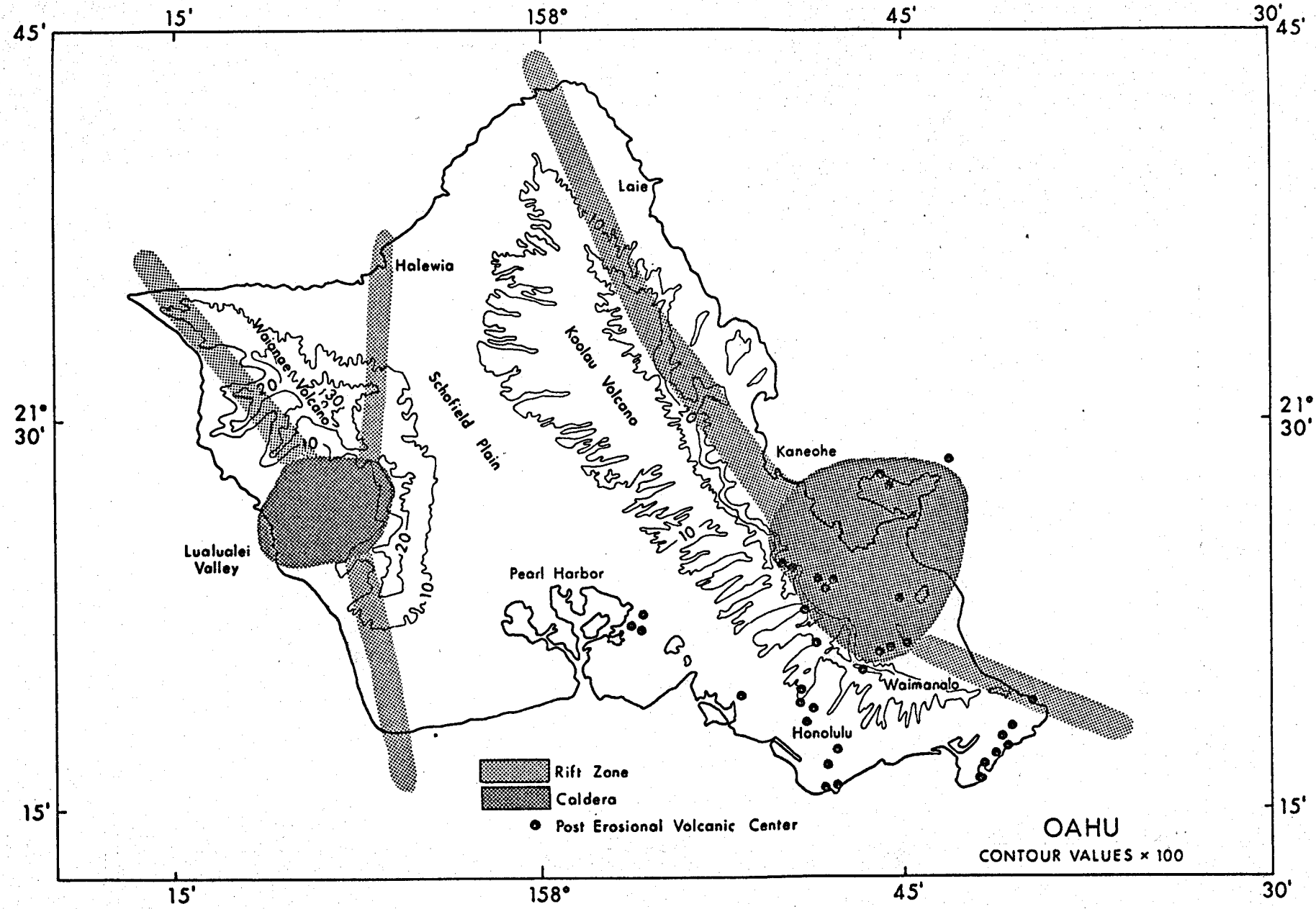


Figure 37 Topography and rift systems on Oahu

banking of Koolau lavas against the Waianae shield. Koolau volcano was built principally by eruptions along northwest and southeast trending rift zones with lesser activity along a third rift trending southwest from the summit caldera.

The Koolau basalts are almost entirely tholeiites and olivine basalts with oceanite being present in much smaller amounts. Very little alkalai basalt has been found associated with the Koolau volcanic series; it is probable that activity from the Koolau caldera ended prior to the transition from tholeiitic to alkalai basalt typically found for Hawaiian Systems (Macdonald and Abbott, 1970). The initial shield building stage of Koolau activity was followed by an extended period of quiescence lasting approximately two million years during which extensive stream and marine erosion removed much of the windward (northeast) side of the shield. Post erosional volcanism resumed approximately one-half million years ago and continued at irregular intervals until possibly thirty thousand years ago (Macdonald and Abbott, 1970). More than thirty separate eruptive events, scattered over the southeastern end of Oahu, took place during this period (Figure 36). The lavas of the post erosional (Honolulu) series of basalts include nephelinites, melitite nephelinites and alkalic olivine basalts.

Geophysical Surveys

Geophysical surveys on Oahu have been directed towards defining the deeper structure of the island as well as towards identifying possible geothermal reservoirs in the Koolau and Waianae areas.

Aeromagnetic surveys over Oahu are shown in Figure 38 (Malahoff and Woollard, 1965). The interpretation of the structure of Oahu

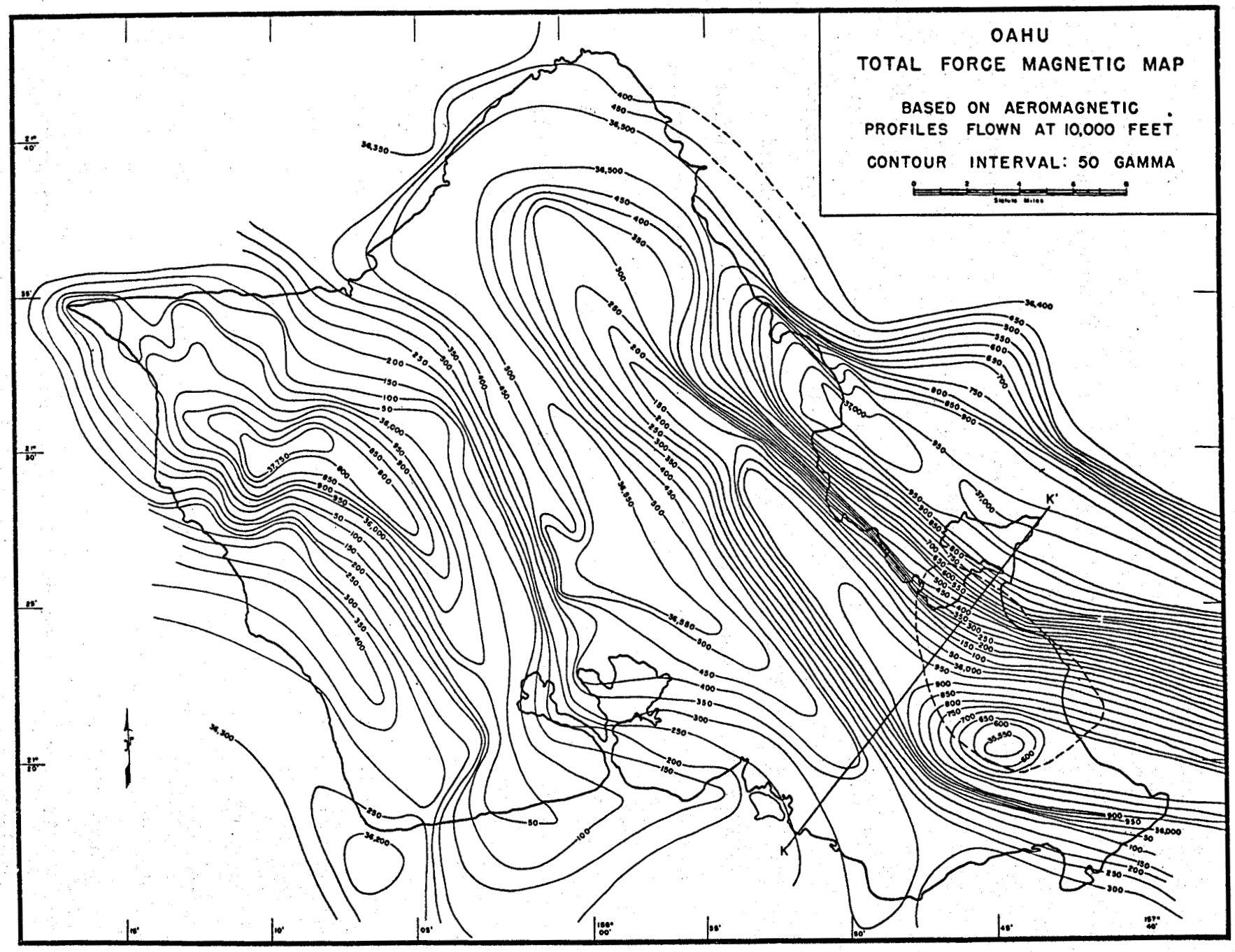


Figure 38 Total force magnetic map of Oahu

based on these results are presented in Figure 39 (Malahoff and Woollard, 1965). The surface structures for both Waianae and Koolau volcanoes corresponds well with the inferred primary rift and pipe zones indicating that these features are probably associated with crustal features. The minor rift systems and post erosional volcanic centers are not out lined by this survey at all and thus may be strongly controlled by the shallow structure of the shield.

Gravity surveys over the island of Oahu have identified locations of subsurface magma chambers and rift zones similar to those arrived at by aeromagnetic surveys (Figure 40, Strange, Machesky and Woollard, 1965). Again, only the major rift systems have been identified through the gravity surveys; no observable anomalies are associated with the minor rifts and post erosional volcanic centers. Estimates of the depth to the Koolau caldera core, based on the gravity data, are approximately 1.5 to 2 km (Strange, Woollard, and Rose, 1967). This estimate agrees well with seismic investigations done on the same area which placed the top of the former magma chamber at about 1.6 km (Adams and Furumoto, 1965). Other seismic work done on the Koolau caldera has been reported to indicate limited microseismic activity, which may be associated with a geothermal reservoir, near the inferred edge of the caldera (Furumoto, 1976).

Several preliminary geophysical surveys have been carried out in the Lualualei valley: self-potential, rotating quadripole resistivity and shallow soil temperature surveys (Grose and Keller, 1975). Low resistivities were observed in the central section of the caldera (Figure 37) which also coincided with slightly elevated subsurface ground temperatures at one meter depth below the surface.

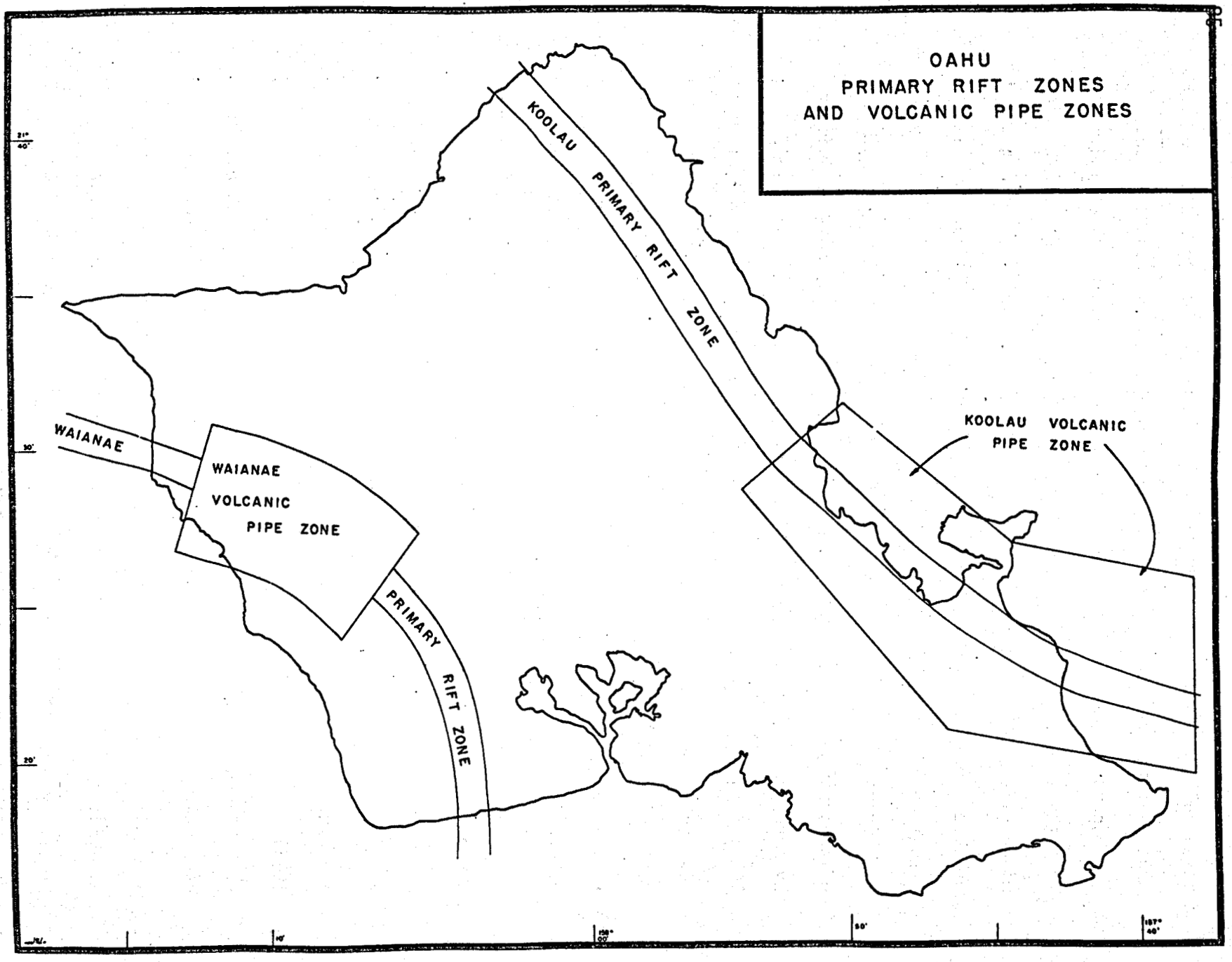


Figure 39 Primary rift zones and volcanic pipe zones of Oahu

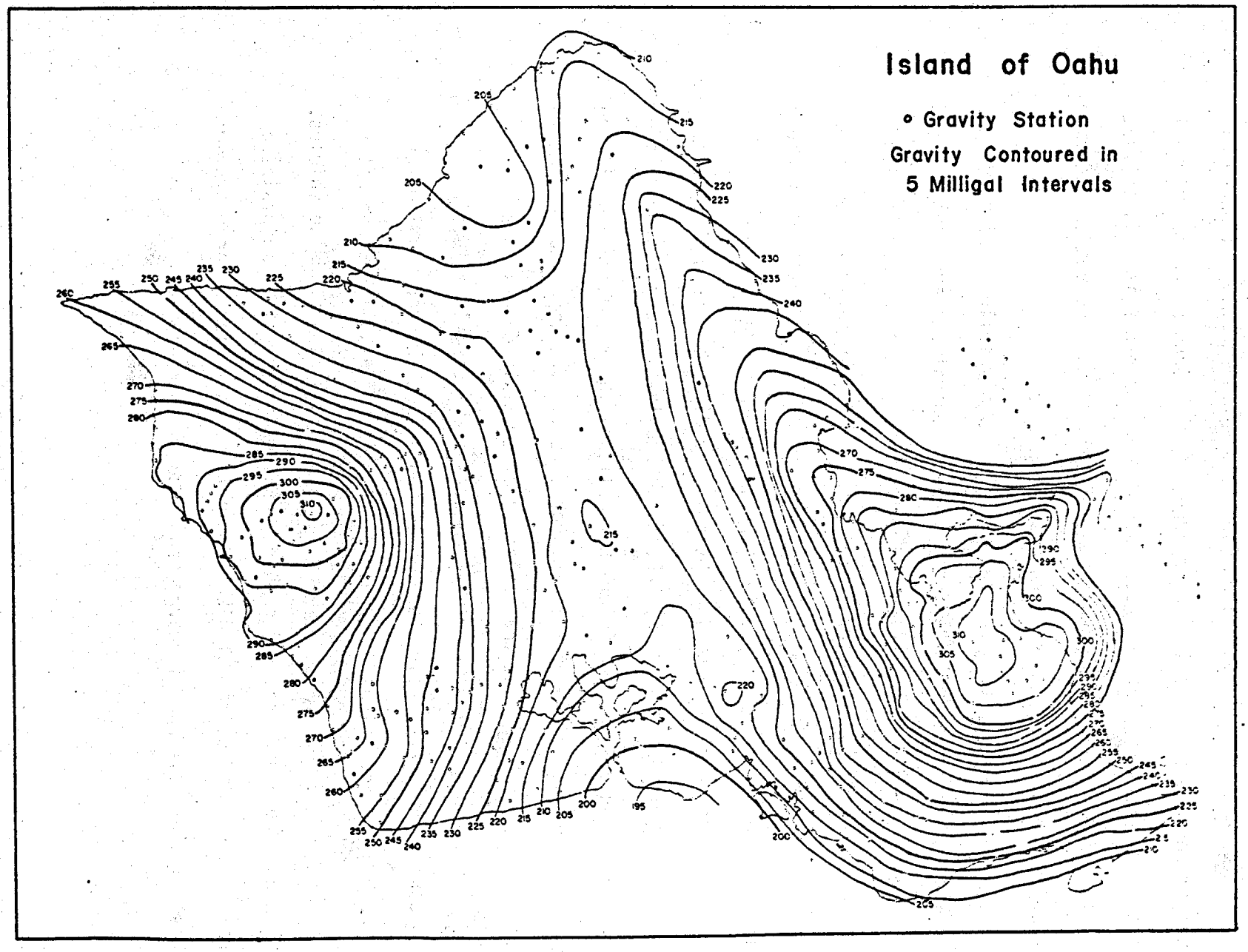


Figure 40 Bouguer gravity anomaly map of Oahu

Meteorology and Hydrology

The mean annual rainfall on Oahu is summarized in the isohayetal map presented in Figure 41 (Taliaferro, 1959). Oahu's annual rainfall distribution is similar to that observed for the other islands in that it is orographic: the windward side of the island receives the heavier rainfall and the leeward side considerably less.

The mean annual temperatures on Oahu roughly follow an inverse relation with annual rainfall; the higher temperatures are found on the sunnier leeward side of the island while cooler temperatures are found on the windward (northwestern) side. Ambient groundwater temperatures are also expected to be slightly warmer in the leeward aquifers where the mean temperatures of precipitaton is somewhat higher.

The hydrology of Oahu is substantially different from that found on the other islands (Figure 42). Multiple sea level changes and subsidence of the island during its history have allowed the formation and silting over of several layers of fringing coral reef. The impermeable limestone layer thus formed around the perimeter of the island acts as a barrier to the outflow of meteoric waters from coastal springs resulting in considerably elevated water tables and a much thicker basal water lens beneath the island. High level supplies of dike impounded water are present in the rift systems of both the Waianae and Koolau shields. Although the higher rate of recharge on the Koolau shield maintains a nearly constant outlfow of dike fed springs, the drier Waianae system has only intermittent discharge from natural sources.

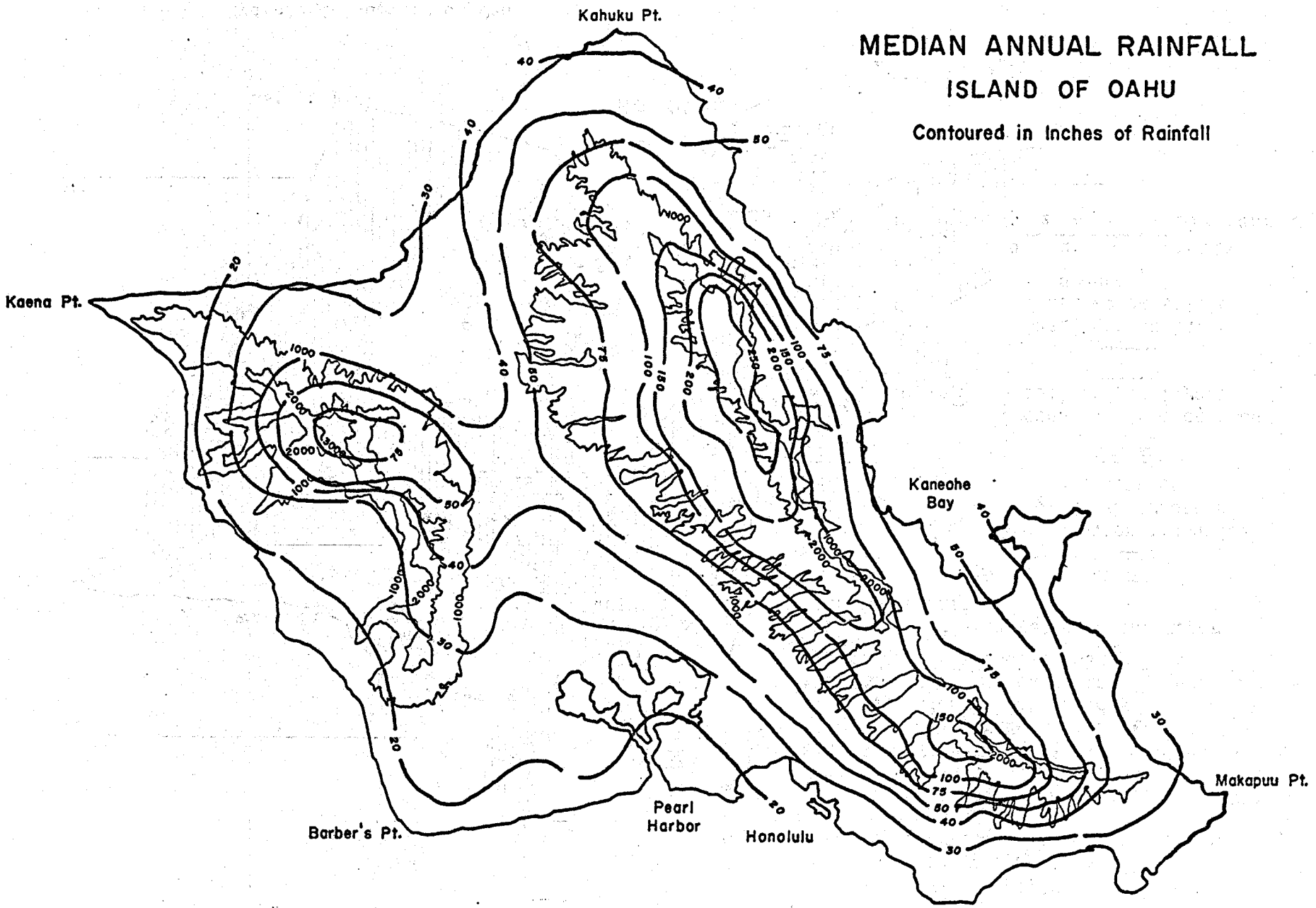


Figure 41 Rainfall distribution pattern on Oahu

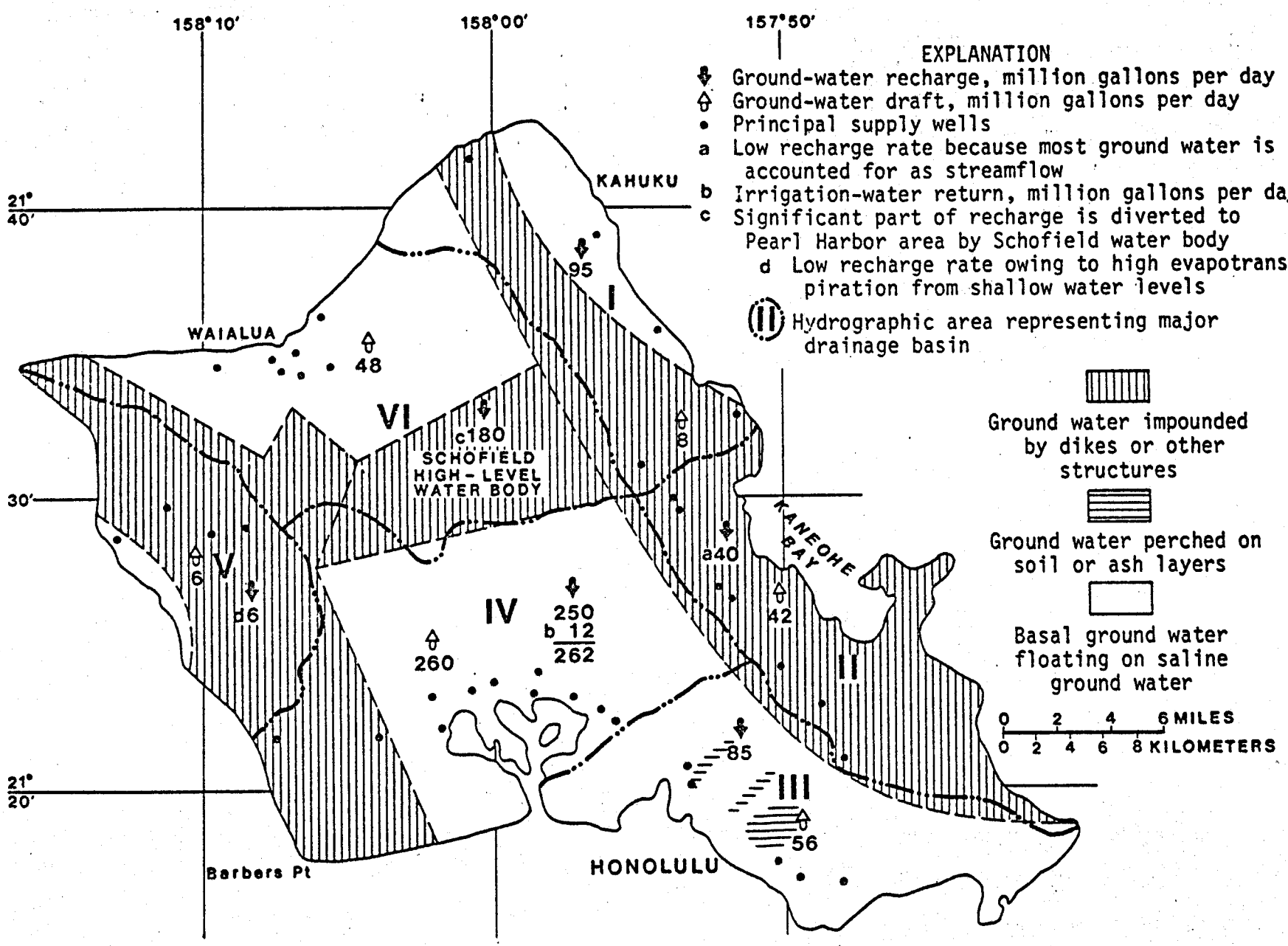


Figure 42 Hydrologic summary of Oahu

Geochemistry

The distribution of silica anomalies (Figure 43) on Oahu corresponds closely to that of all the wells on the island (Figure 44). Increasing the minimum silica concentration for inclusion of the water source in the data file served only to eliminate all but those wells located in areas of heavy irrigation. Thus the silica concentrations are thought to be of little use in the geochemical survey of Oahu.

The Cl/Mg ion anomalies are not nearly as scattered as those for silica (Figure 43) and seem to be concentrated in five locations around the island: Lualualei Valley, Haleiwa, Laie, Kaneohe, Waimanalo, Honolulu, and Pearl Harbor. The differences in the character of each of these areas warrant a separate discussion of each.

Lualualei Valley has several moderate to strong Cl/Mg ion anomalies; groundwater temperatures in a few of the wells in the area are also somewhat elevated (Table 4, Appendix A). Lualualei valley is located within the Waianae caldera complex (Figure 37) and, as discussed above, limited geophysical investigations of the valley have given preliminary indications of a potential thermal reservoir. Extensive geochemical investigations are presently underway to determine whether a thermal reservoir is present in this area.

The silica and Cl/Mg ion ratios observed at Haleiwa are only moderately elevated. This area probably has a significant amount of irrigation return water in its shallow aquifers and thus the silica anomalies are highly suspect. Nonetheless, this area is located on the minor rift system of the Waianae shield and it is possible that this area has some geothermal potential. It is felt that resampling of the shallow water sources is necessary before it will be possible to determine whether or not these anomalies are associated with thermal groundwaters.

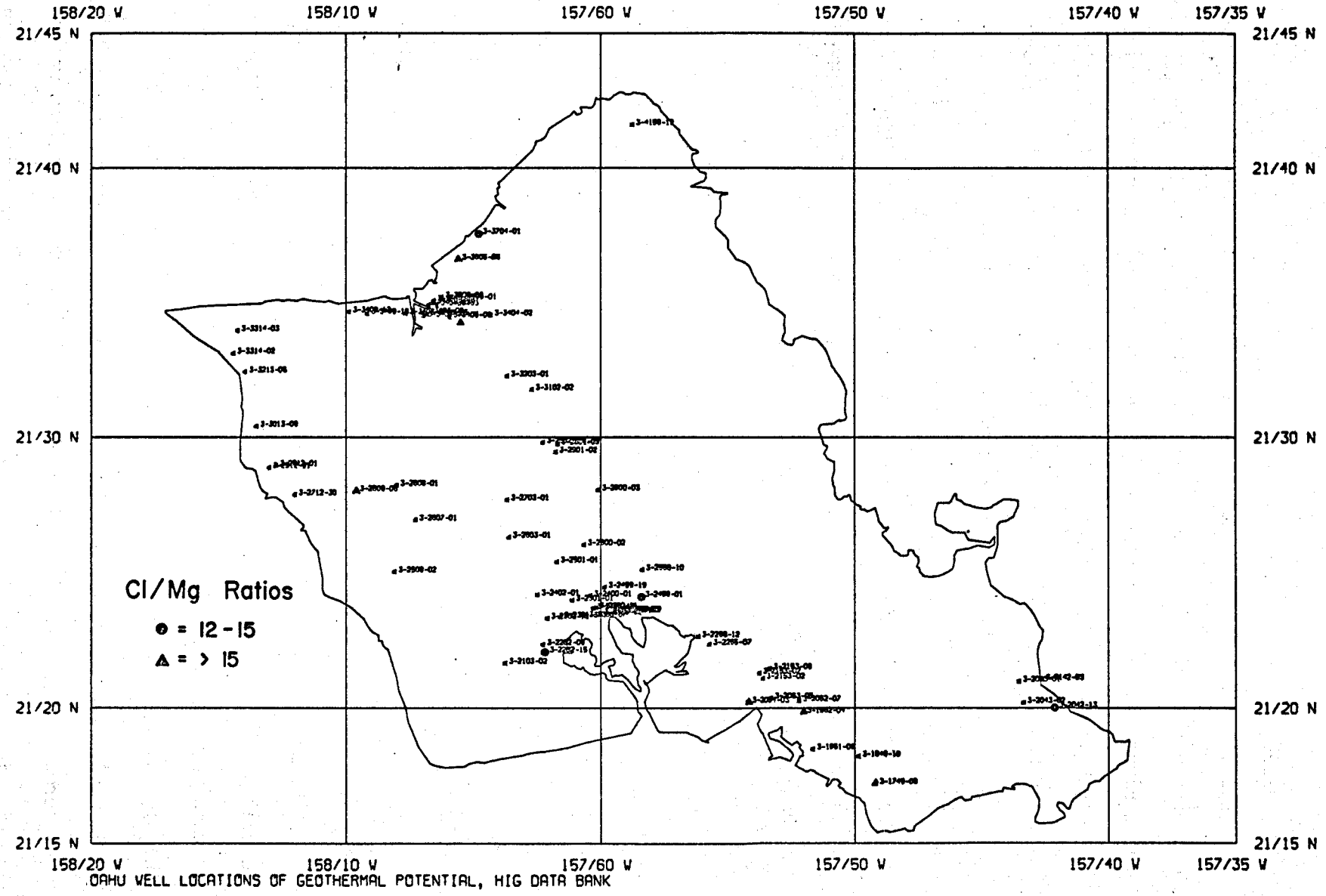


Figure 43 Silica and chloride: Magnesium ion anomalies on Oahu

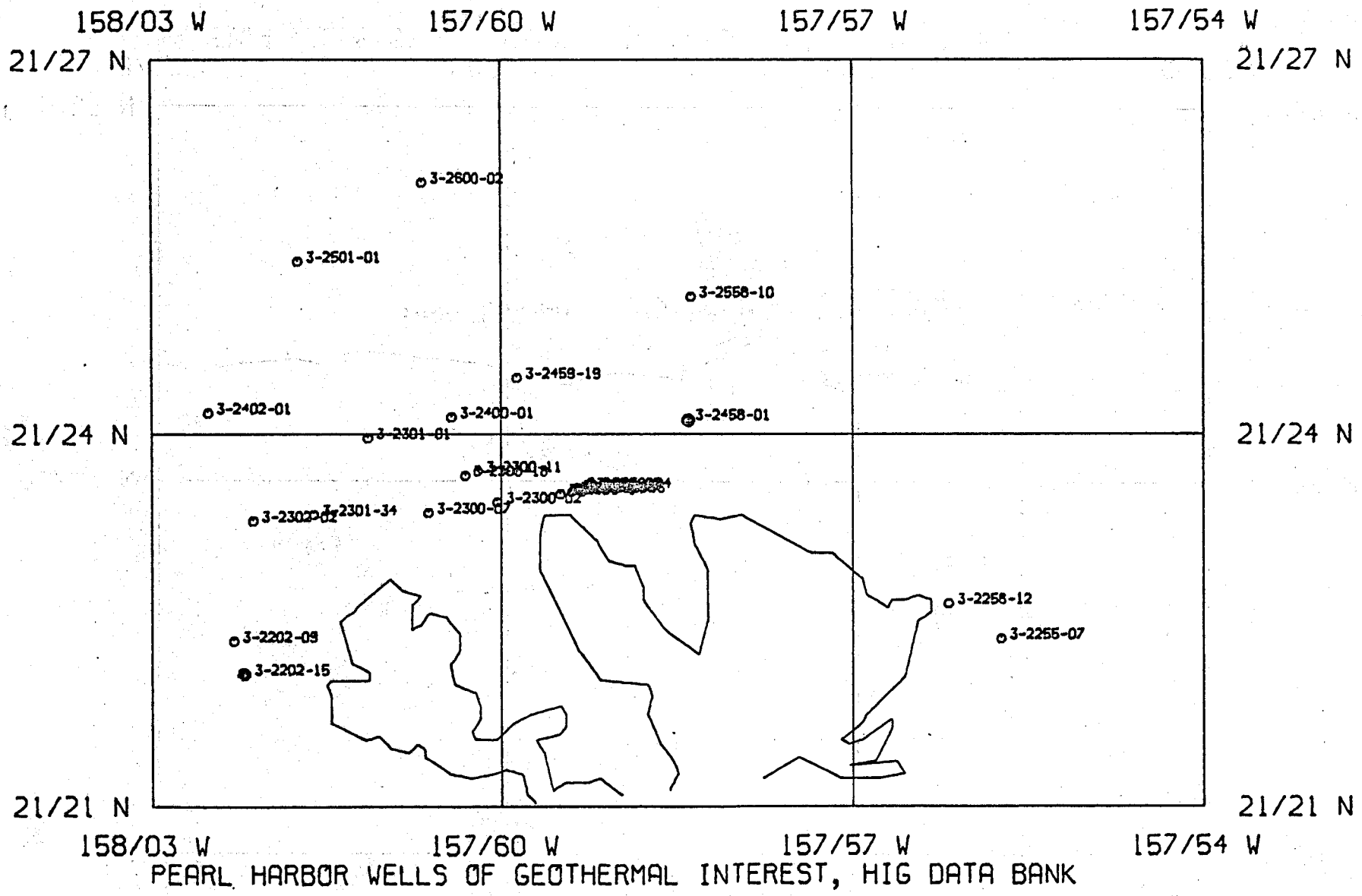


Figure 43 Continued

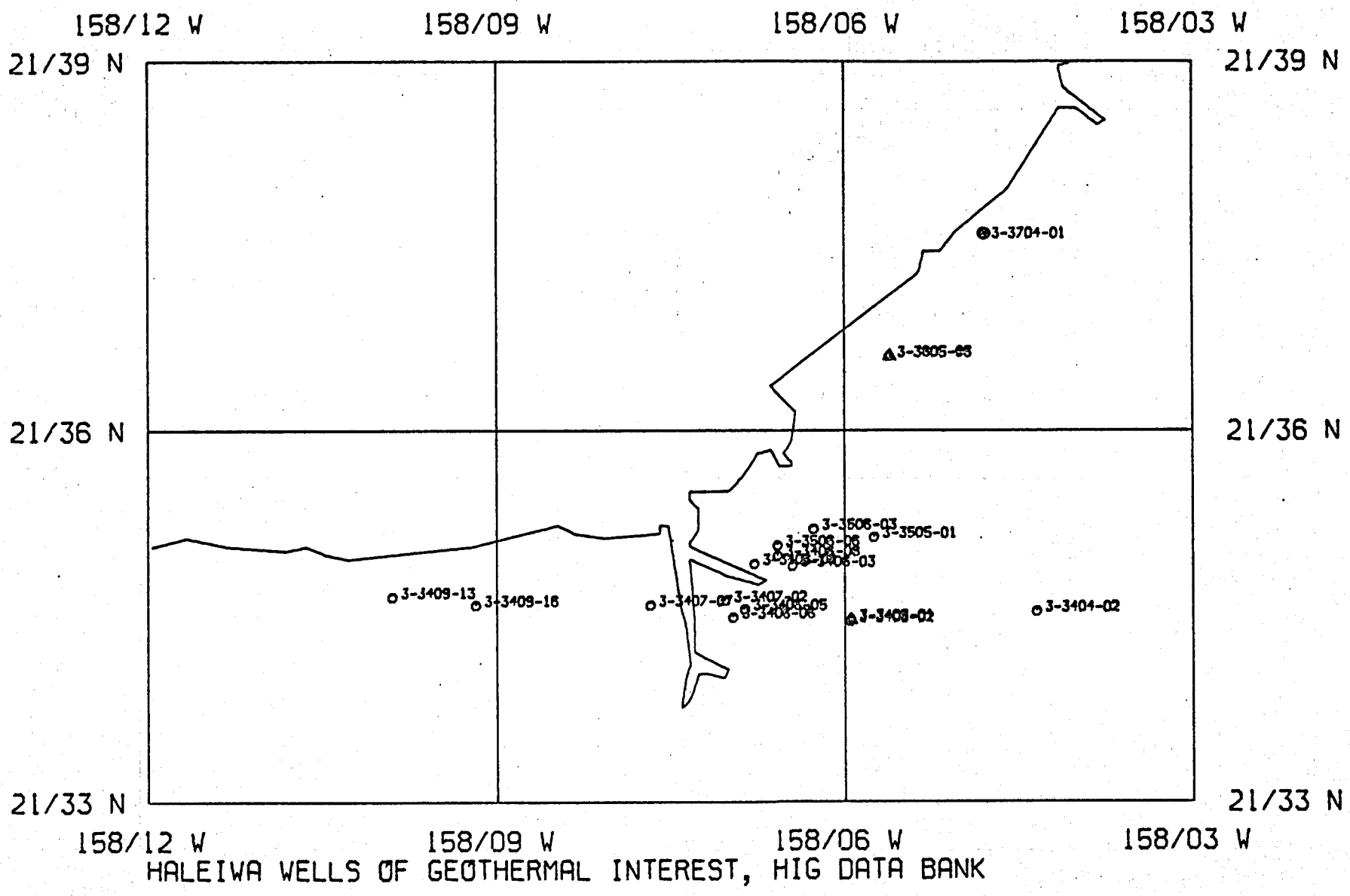


Figure 43 Continued

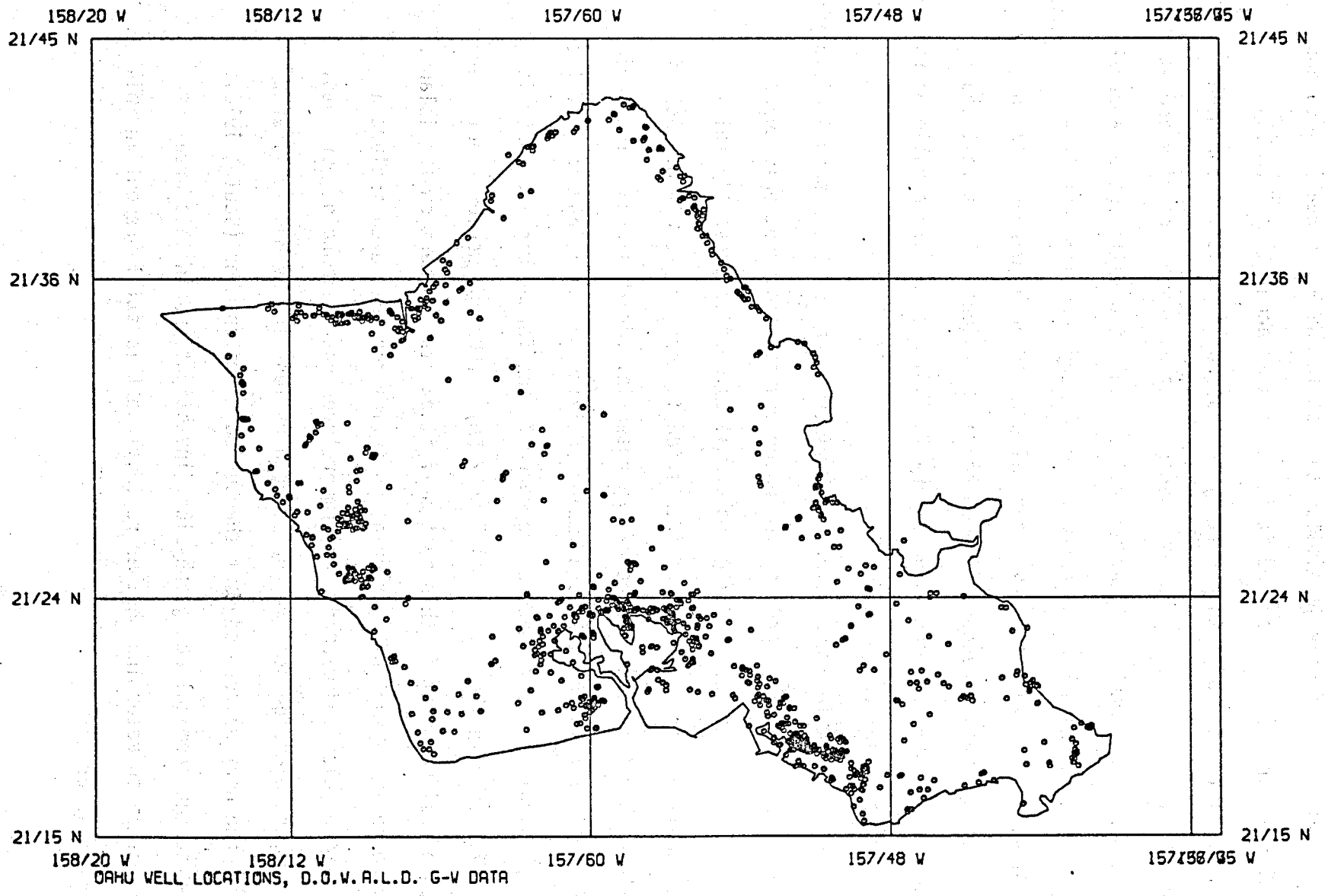


Figure 44 Well locations for all wells on Oahu

The status of Laie is similar to that for Haleiwa; weak silica and Cl/Mg ion anomalies exist and it is located adjacent to a formerly active rift. Although this rift system has not been active for more than 2 million years, it is more recent that Waianae's activity and it should have a somewhat higher potential. Only two wells out of approximately fifteen have anomalous water chemistry; whether this is an indication of a very low level thermal anomaly or of warmer water highly diluted by surface recharge is not known at present. It is felt that further geochemical work is necessary in this area before a valid appraisal of its potential can be made.

The available groundwater geochemistry data for the Kaneohe-Waiamanalo area is quite limited and, of the water sources analyzed, only three have elevated silica or Cl/Mg ion anomalies. It is presently felt that the small number of anomalies identified is more the result of lack of data rather than the absence of any potential for this area. The Koolau system is the youngest area of major activity on the island and, if the geophysical data cited above are correct, the former magma chamber is not far beneath the surface (1.5 to 2 km). Thus one would expect there to be residual heat in this system if it exists anywhere on the island. Evidence in support of geothermal potential for this area include a report of elevated groundwater temperatures near Waimanalo (Furumoto, 1976) and elevated soil mercury concentrations in the Maunawili area near the northwestern edge of the buried magma chamber (Souto, 1978). Further geochemical and geophysical investigations in this area are necessary to determine whether residual heat is still present in this reservoir or not.

The presence of strong geochemical anomalies in the Honolulu area is very encouraging. Although the area in which the anomalies are observed is well away from the major rift system of the Koolau shield, it is quite close to the primary centers of post-erosional Koolau activity (Figure 37) which is the most recent volcanism to have taken place on Oahu. It is presently felt that the available water chemistry data is not sufficiently reliable to state conclusively whether a low temperature resource exists and that resampling of the local groundwaters should be done to confirm the initial results. If indications are still positive, more extensive geophysical and geochemical survey should be conducted around the post-erosional volcanic centers on the southeastern end of Oahu.

The silica and Cl/Mg ion anomalies in the Pearl Harbor area are not particularly strong. The area is not associated with early activity from either the Waianae or Koolau systems, nor has it experienced any nearby post-erosional activity. Thus it is probable that the geochemical anomalies in this area are not associated with a thermal source, but rather arise from cultural effects or from the different type of aquifer found in this area.

Summary Assessment

Several areas of Oahu have geophysical or geochemical anomalies normally associated with a subsurface geothermal reservoir. Ranking each according to its probability of being associated with a thermal resource provides the following table:

TABLE 3

Area	High Temperature	Low Temperature	Probability of Development
Lualualei	8	5	1
Haleiwa	9	7	5
Laie	9	7	5
Waimanalo	7	5	1
Honolulu	8	7	3
Pearl Harbor	10	9	4

KAUAI

Kauai is the northernmost major island in the Hawaiian chain and has an area of approximately 1450 square km. The island was built from a single volcanic system located near the center of the island. The original shield has been heavily altered both by erosional processes and by faulting and collapse.

Two distinct phases of eruptive activity have taken place on Kauai. The earlier phases, which built up the bulk of the shield, occurred between 5.6 and 3.3 million years ago and produced the Waimea Canyon Volcanic Series of flows (Figure 45). During the initial phase of activity thin bedded flow of olivine basalt formed the basic shield of the island (Macdonald et al., 1960). Most of the activity took place along two rift zones trending west-southwest and east-southeast radiating out from the center of the island (Figure 46). This period of activity was followed by the collapse of a central caldera which was approximately 16 km in diameter. Contemporaneous with this collapse was the formation of a second smaller caldera, Haupu, several km to the southeast and a fault-bounded trough, the Makaweli graben, to the south. Subsequent activity filled in both the central flank depressional features with thick beds of dense ponded basalt flows. During the later stages of activity of the central volcanic system, a forth collapse feature was formed, the Lihue basin, which was filled in by the second phase of activity on Kauai. Lavas produced during the later stages of this activity graded from olivine basalts to picrite basalts and basaltic andesite (Macdonald et al., 1960).

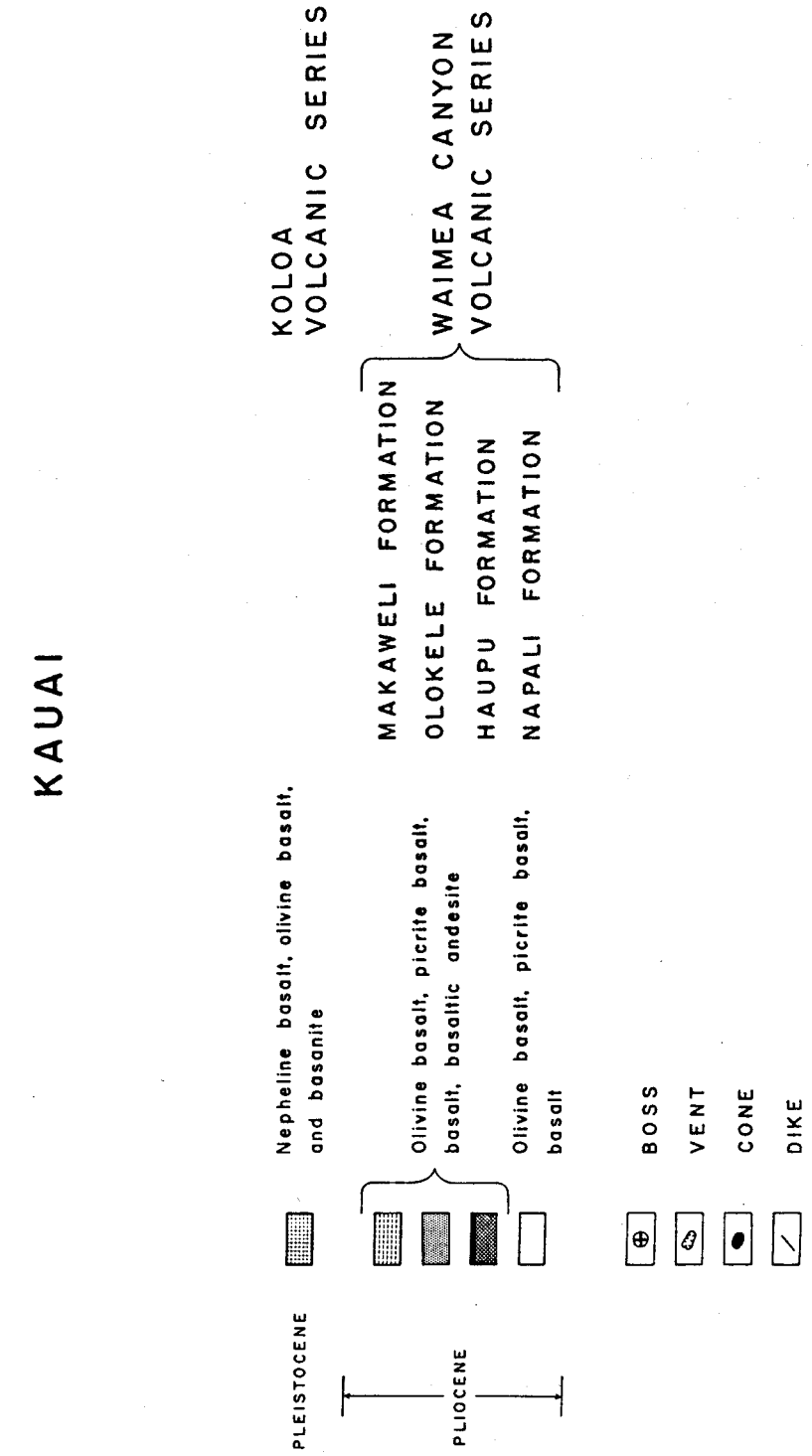
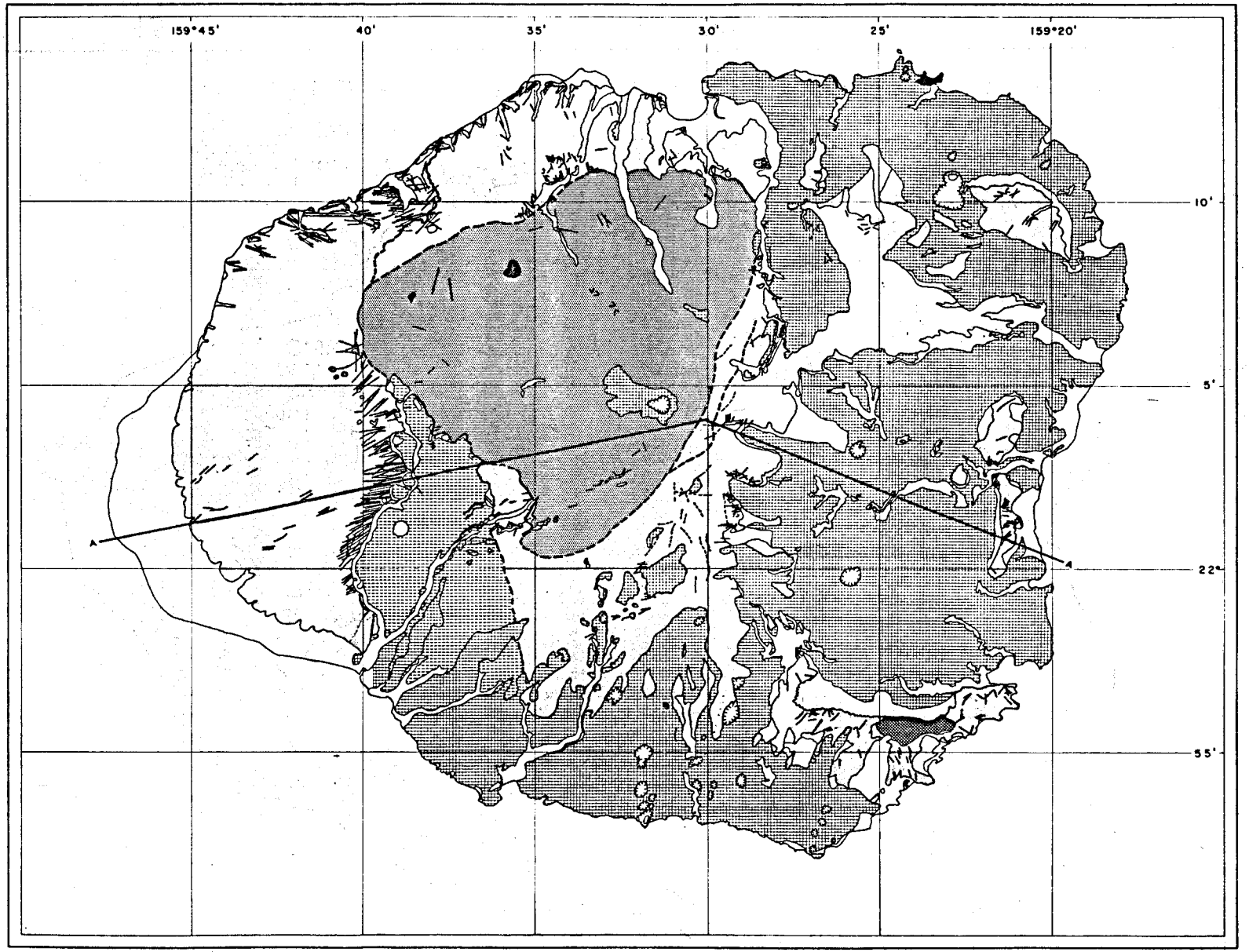
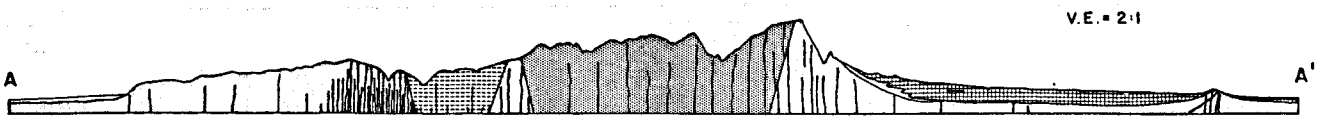


Figure 45 Surface geology of Kauai.


159°45'
40'
35'
30'
25'
159°20'
10'
5'
22°
55'
A
A'


V.E. = 2:1
A
A'

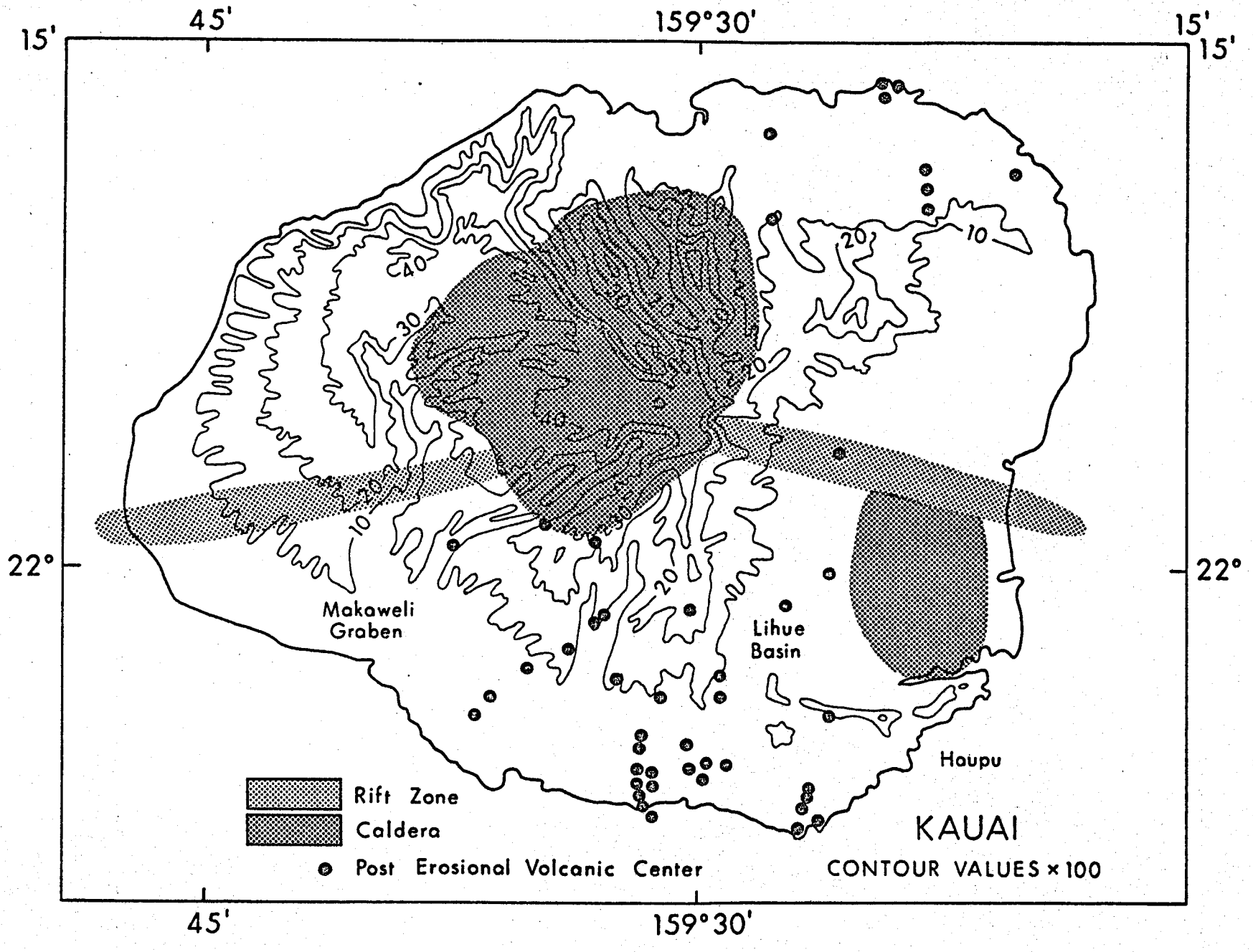


Figure 46 Topography and rift systems of Kauai

The first phase of activity was followed by a period of quiescence lasting approximately two million years. The second phase, producing the Koloa volcanic series, began approximately 1.4 million years ago and persisted intermittently over a period of about 0.8 million years. The eruptive centers during this activity are scattered over the eastern two thirds of Kauai with a general north-south trend (Figure 46) (Macdonald and Abbott, 1970).

The island is deeply dissected, erosion having cut steep sided valleys several hundred meters deep into the original shield. Soil development is quite advanced over the entire island and, in places of high rainfall, the soil has been reduced to a thick cover of laterite and clay.

Geophysical Surveys

Aeromagnetic surveys over the island of Kauai are shown in Figure 47 (Malahoff and Woollard, 1965) and the interpretaiton of their data is given in Figure 48. Although the Waimea and Koloa volcanic pipe zones outlined in Figure 48 agree fairly well with the known eruptive history of Kauai, the North Kauai volcanic pipe zone has no surface expression and is undoubtedly of crustal origin. The depth to the top of the Waimea and Koloa volcanic pipe system has been esitmated at 1.6 and 2.1 km respectively (Malahoff and Woollard, 1965).

Preliminary gravity surveys carried out on Kauai are shown in Figure 49 (Krivoy et al., 1965). It is apparent, as was the case for most other caldera complexes, that the Bouguer gravity high is displaced a considerable distance from the central caldera complex of the

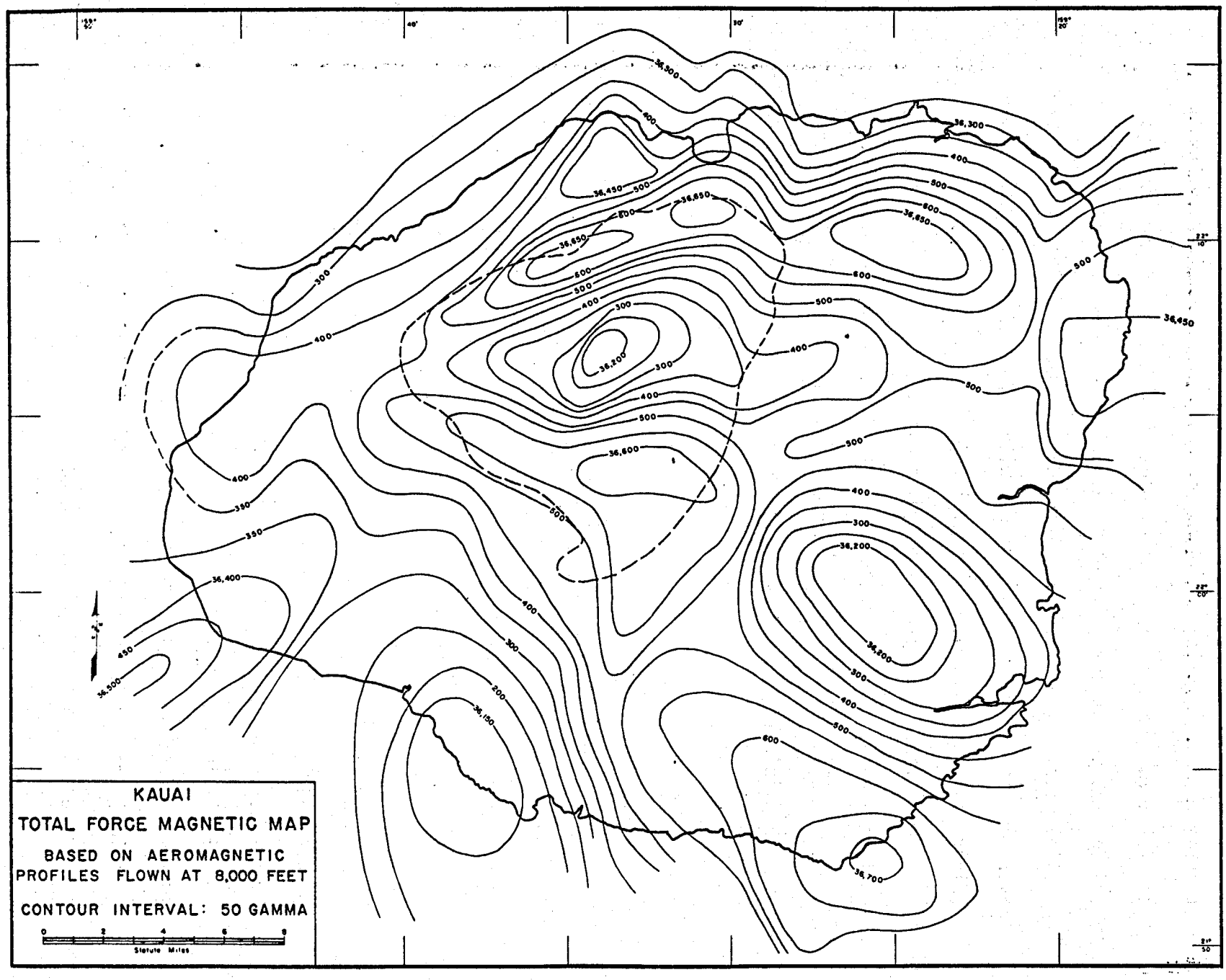


Figure 47 Total force magnetic map for Kauai.

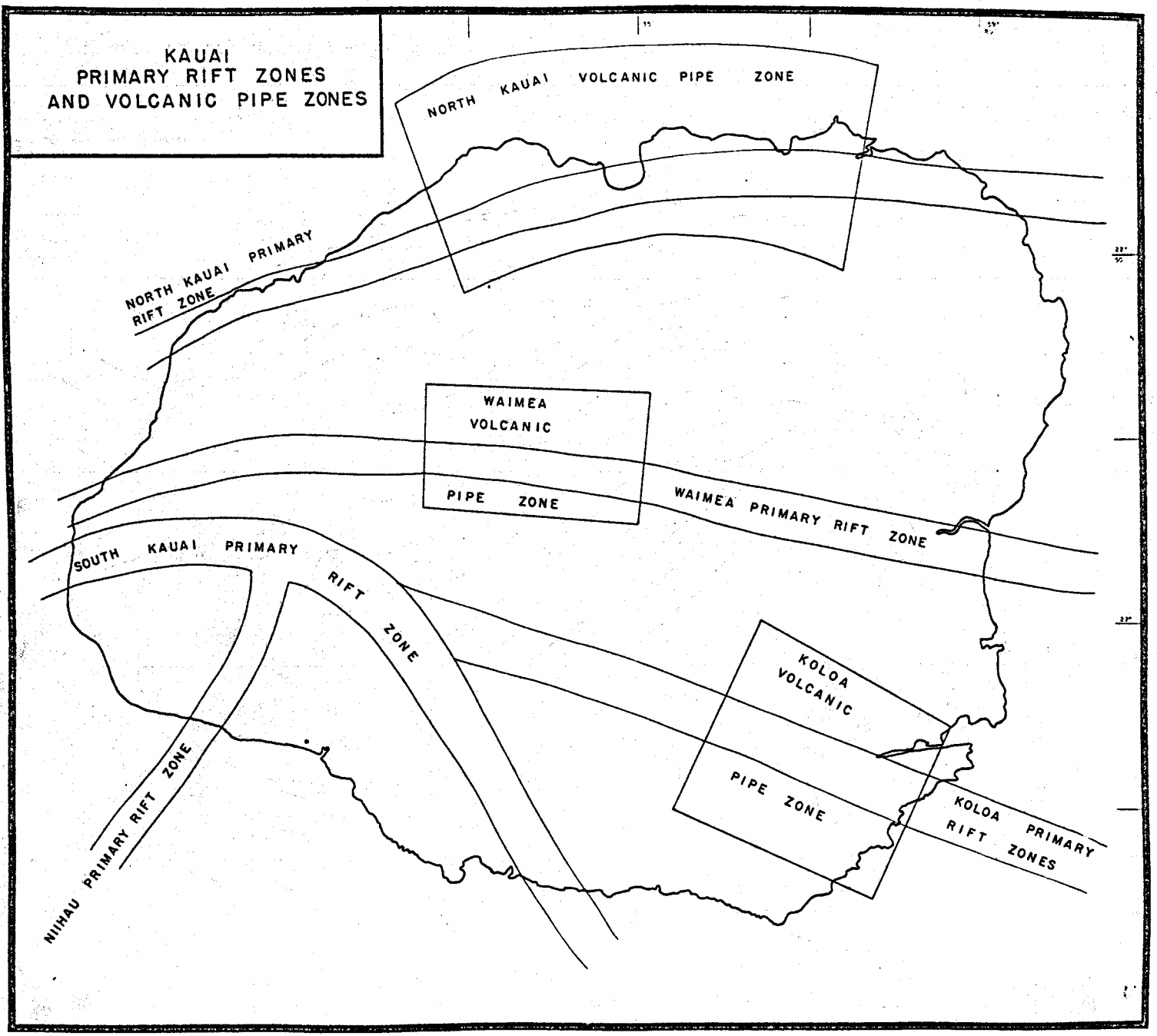


Figure 48 Primary rift zones and volcanic pipe zones of Kauai

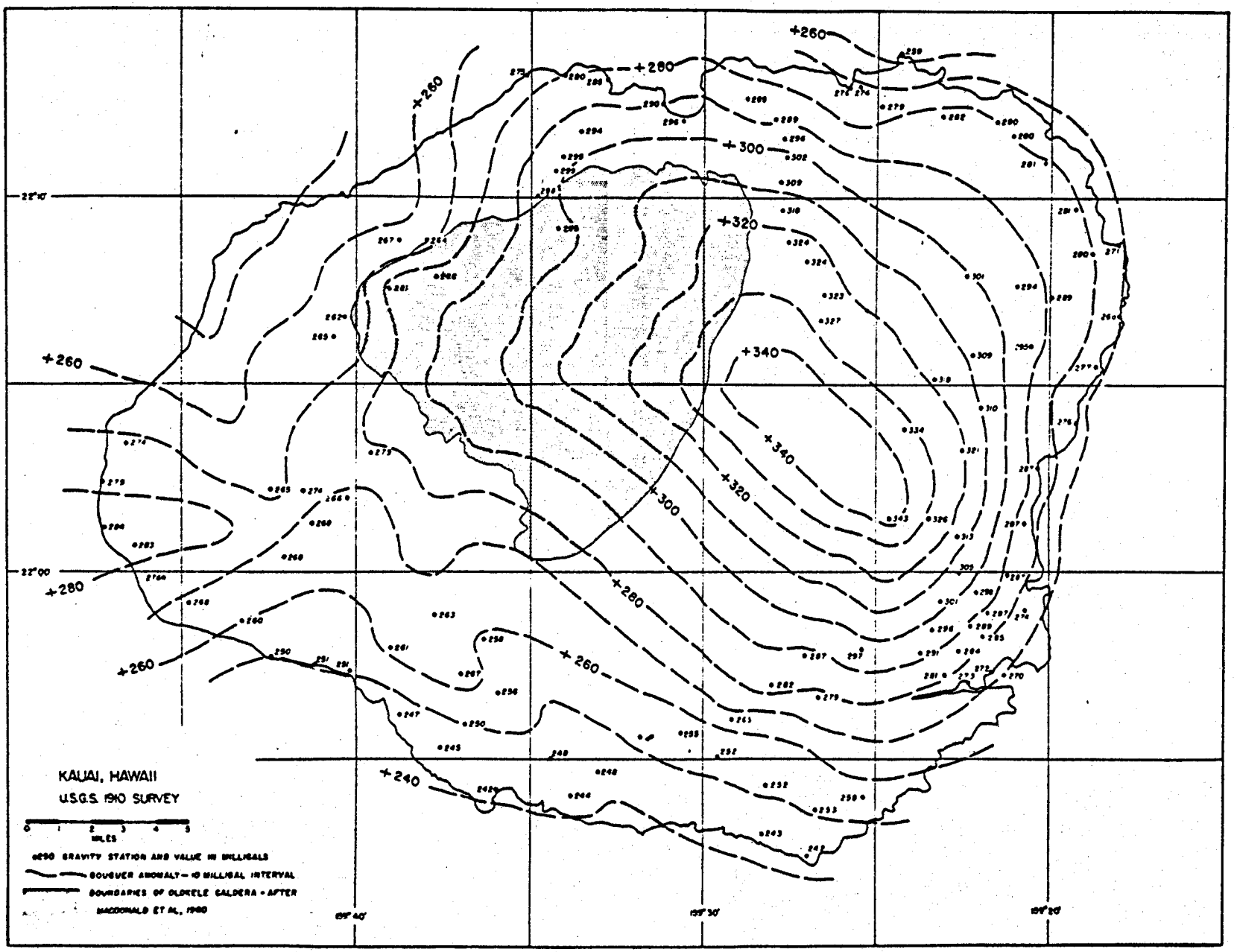


Figure 49 Bouguer gravity anomaly map of Kauai

Kauai shield. Whether this displacement is the result of too few stations between two gravity highs as suggested by the magnetic data, or whether the actual source of the anomaly is displaced from the summit caldera is unknown.

Meteorology and Hydrology

The meteorology of Kauai is similar to that found on the other islands in the chain; the windward side of the island receives the higher mean annual rainfall while the leeward side receives considerably less (Figure 50).

The basal groundwater of Kauai more closely follows the Ghyben-Herzberg lens than that of Oahu (Figure 51, Takasaki, 1978). The basaltic shield rocks of Kauai are highly permeable outside the central caldera and rift systems and supports an extensive basal water lens beneath the island. Fresh basal groundwaters can be obtained from nearly every part of the island except in some of the coastal areas on the leeward (southwest) side. Dike-impounded and ash-bed perched meteoric waters on the upper slopes of the island provide sufficient spring discharge to maintain perennial streams throughout the northeastern side of the island.

Geochemistry

Groundwaters having elevated silica concentrations are plotted in Figure 52; Figure 53 presents a plot of all groundwater wells on Kauai. There is no apparent pattern to the silica anomalies other than that their distribution is nearly equivalent to the distribution for all the wells on the

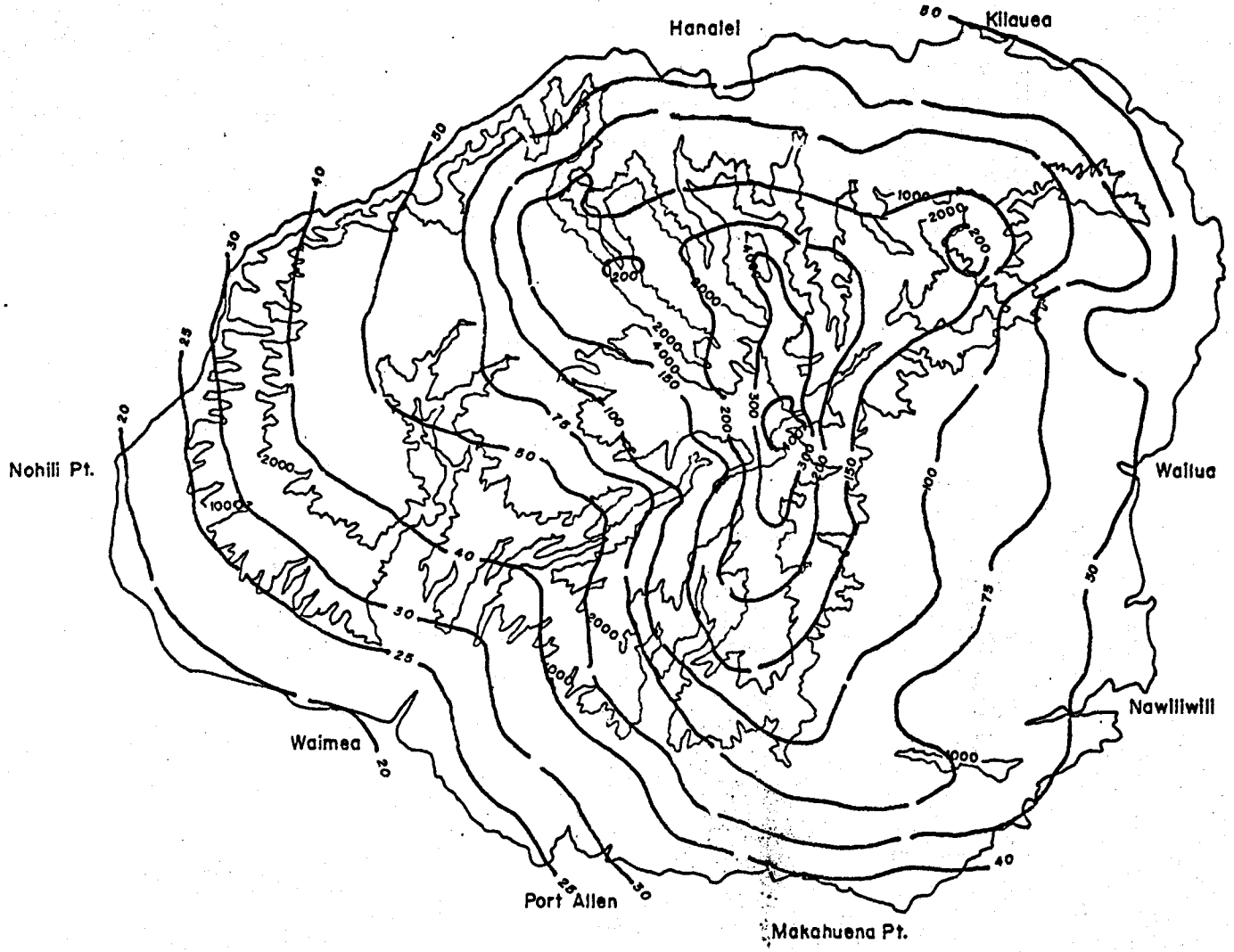
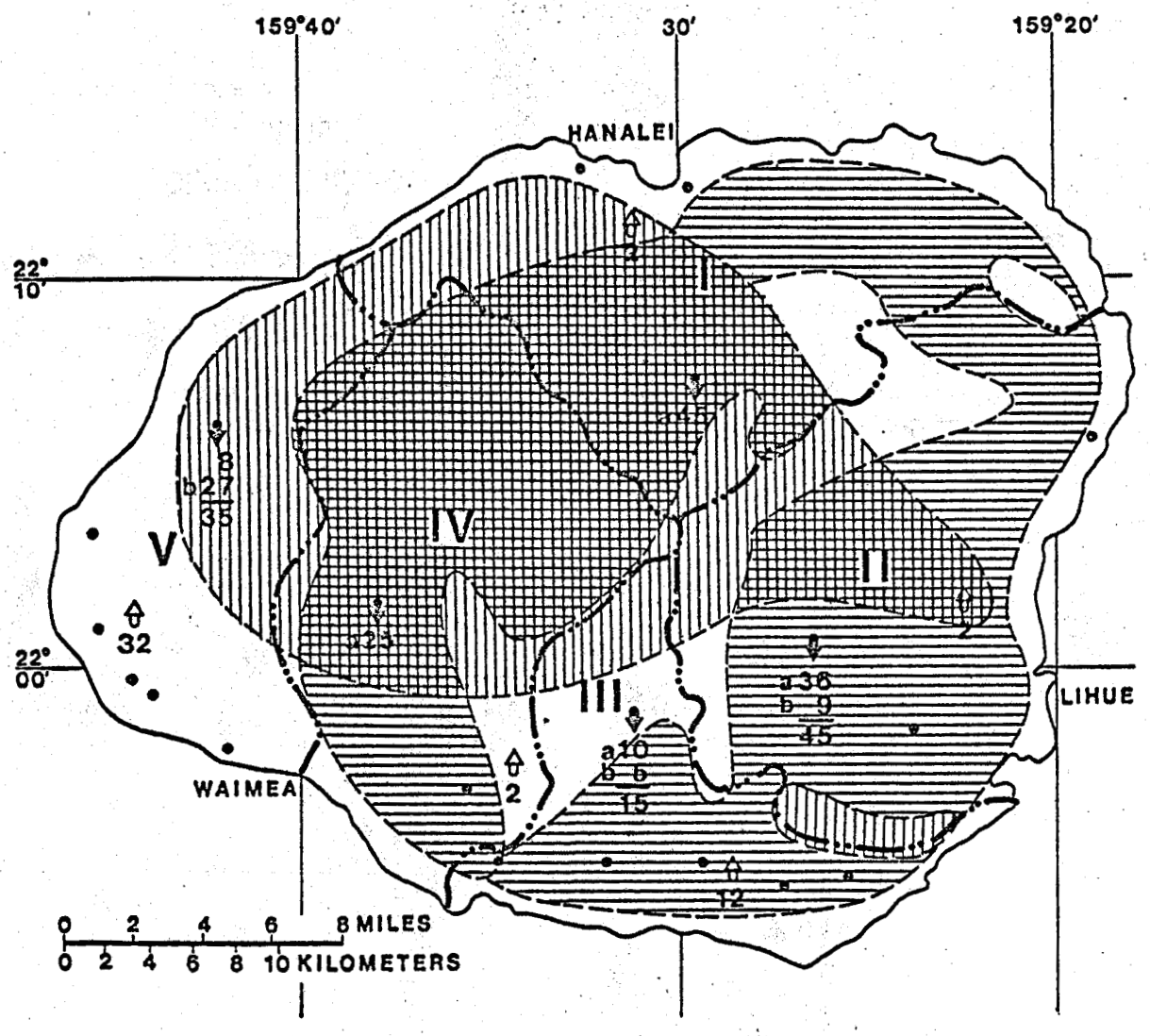


Figure 50 Rainfall distribution pattern on Kauai



EXPLANATION

- Ground-water recharge, million gallons per day
- Ground-water draft, million gallons per day
- Principal supply wells
- a Low recharge rate because most ground water is accounted for as streamflow
- b Irrigation-water return, million gallons per day
- (II) Hydrographic area representing major drainage basin

Ground water impounded by dikes or other structures

Ground water perched on soil, ash, or thick lava flows above basal ground water

Basal ground water floating on saline ground water

Figure 51 Hydrologic summary of Kauai

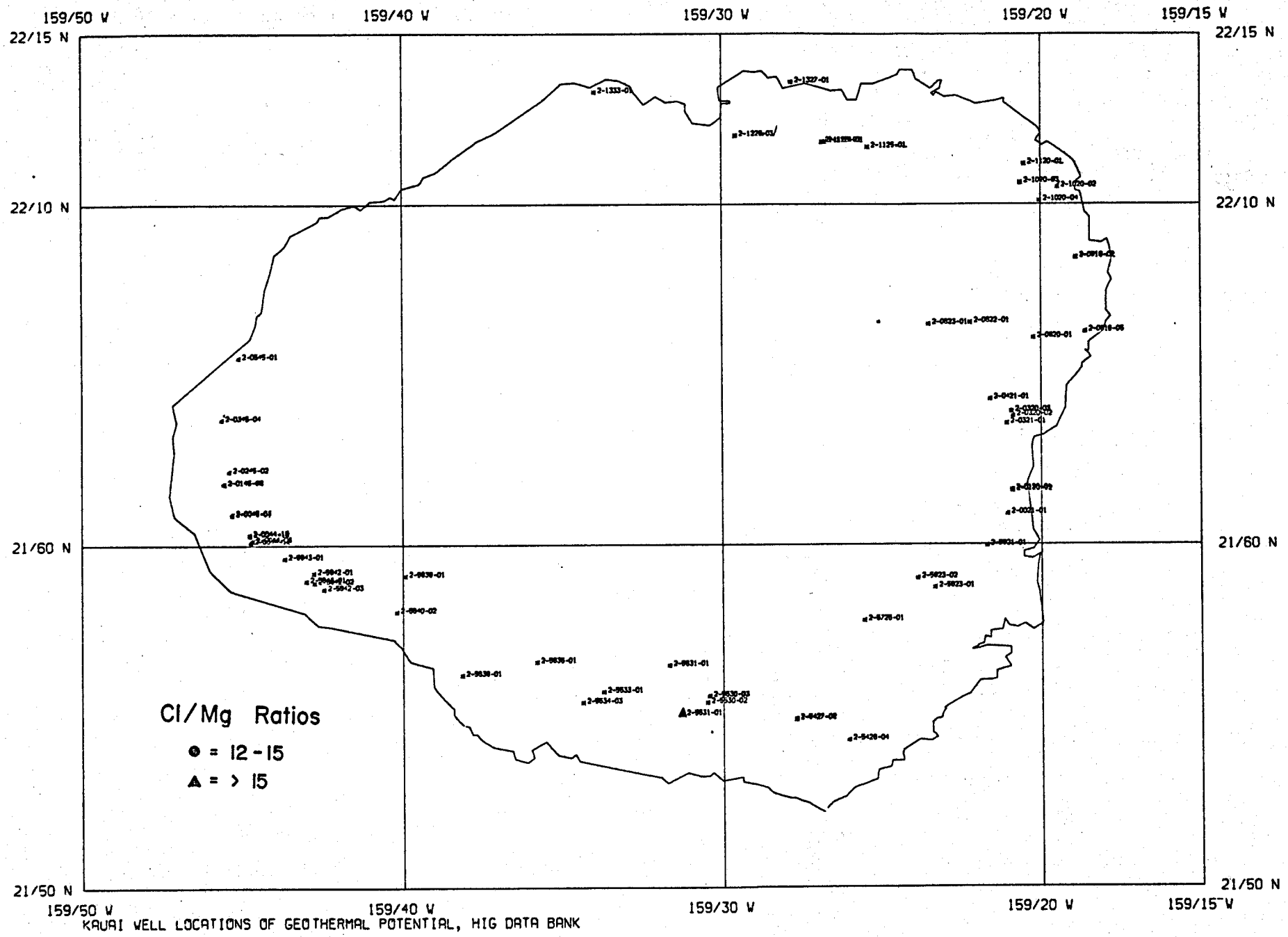


Figure 52 Silica and chloride: Magnesium ion anomalies on Kauai

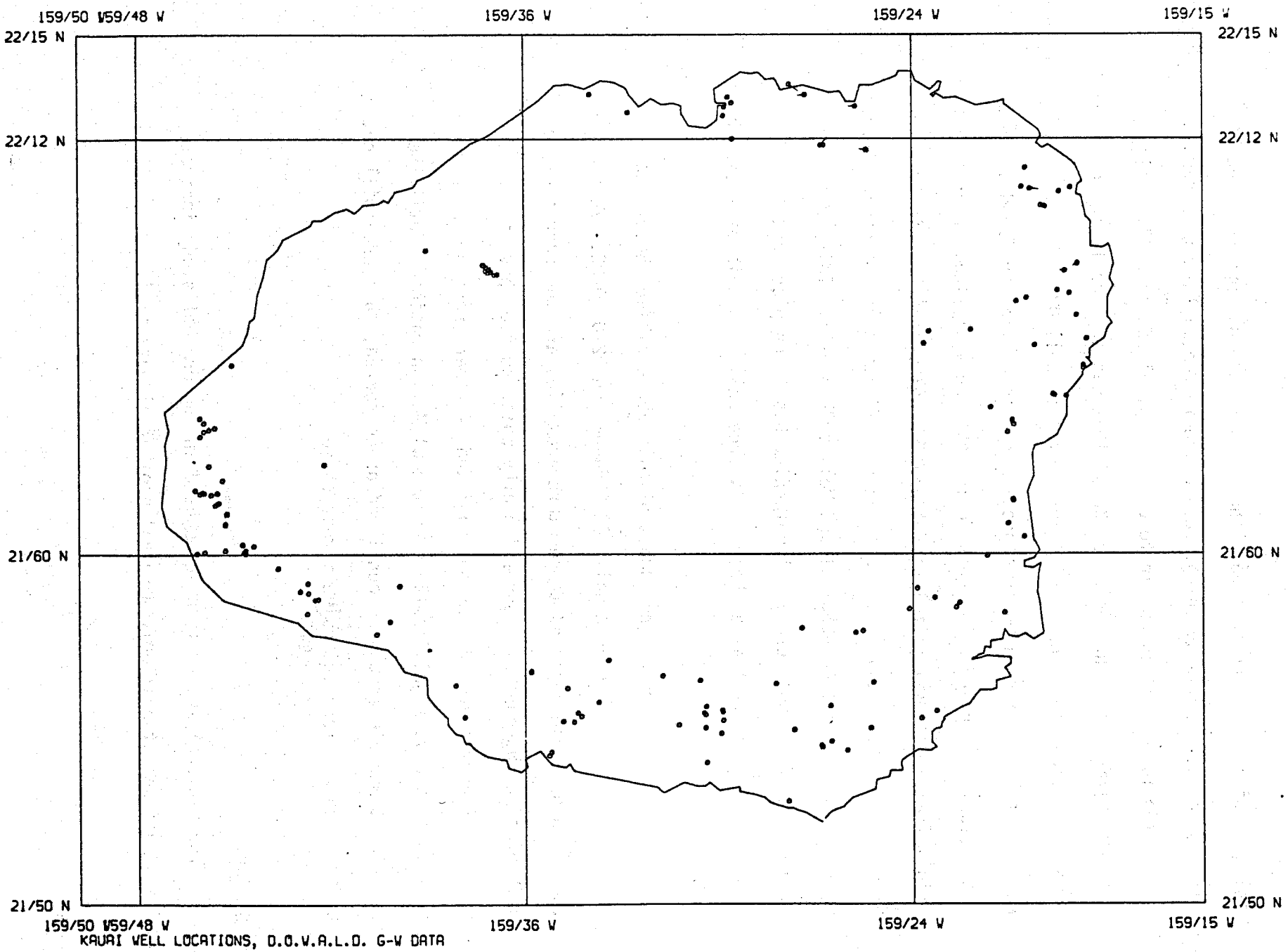


Figure 53 Well locations for all wells on Kauai

island. Similar to the case for Oahu, silica mapping appears to be of little, if any, use in defining areas of geothermal interest on Kauai.

Cl/Mg ion anomalies appear to be of marginal use as well. Using the same Cl/Mg ratio threshold for Kauai that was applied to the other islands provides only one significant anomaly: Well 02-5531-01. Although the exceptionally low magnesium ion concentration found in this water (Table 5, Appendix A) tends to indicate an analytical error in the original water chemistry analysis, two other wells in the vicinity also have a Cl/Mg ratio well above that observed for most of the other sources on the island: Well #02-5531-01 and Well #02-5636-01. This area is also one in which post erosional volcanism has taken place and thus it is not inconceivable that a thermal resource exists in this part of the island.

Groundwater temperatures substantially above ambient have been reported for two wells on Kauai: 02-0044-04 and 02-0120-02. We believe that both of these reported temperature anomalies are the result of poor data or sampling control. Several nearby water sources have temperatures typical of normal groundwater on Kauai and, further, none of the sources in this area have significantly elevated Cl/Mg ion ratios. Until the reported temperatures can be confirmed or corrected, this area will not be targeted for more intensive investigation.

Summary

The regional survey techniques used in the present study indicate that Kauai has at best only marginal geothermal potential.

Nonetheless it should also be noted that most of the wells on the island are located in the alluvial areas and do not provide sufficient coverage of the post erosional volcanic areas (where thermal waters are most likely to exist) to assess their thermal potential through geochemical anomalies. Although the indications for thermal groundwaters are not particularly strong on Kauai, it is felt that some further investigations should be carried out near the post erosional volcanic centers to assess their potential.

Our preliminary assessment of the post erosional volcanic centers is as follows:

TABLE 4

Area	High Temperature	Low Temperature	Probability of Commercialization
Post- erosional volcanic center	10	8	5

SUMMARY ASSESSMENT

A preliminary assessment of the potential geothermal resource areas in the State of Hawaii has been completed during Phase I of the Western States Cooperative Geothermal Resource Assessment. Identification and evaluation of the potential geothermal resources has been based on the geological, geophysical and geochemical data presently available for the State of Hawaii. The types of data used in the evaluation of the resources have been as follows:

Geological: Structural geology of the islands and volcanoes, age of the islands, and age and location of most recent volcanism on each island.

Geophysical: aeromagnetic data, gravity data, seismicity, infrared surveys, and groundwater temperature data.

Geochemical: elevated groundwater silica concentrations and anomalies in the Cl/Mg ion ratios in near surface waters.

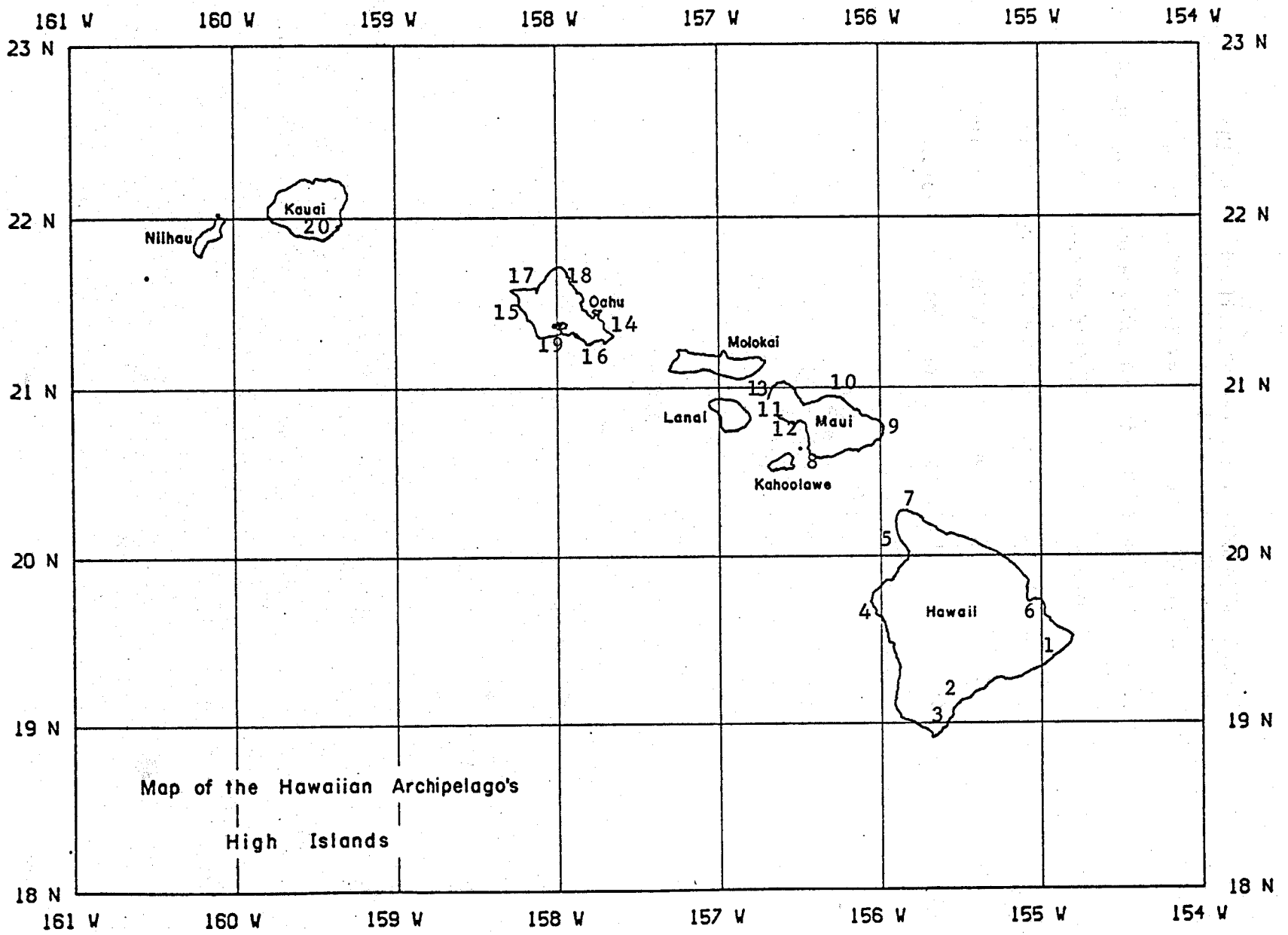
The results of the survey have identified several areas in the State which may have significant geothermal potential and which should receive more intensive site specific surveys in the future. An appraisal of several of the potential thermal areas in the State has been made in terms of their probability for having a high or low temperature resource as well as their probability for near future development. The latter assessment is based on: the present state of the art in drilling and geothermal utilization technology, proximity to potential markets for heat/electric power produced, and local land use constraints (national park lands, urban residential zoning, etc). Table 5, below, presents a summary assessment of the potential resource areas; their ranking is

on a scale of 1 to 10: 1 having the highest potential, 10 having the lowest. Although other areas in the State undoubtedly have thermal resources, their probability for development in the near future (1980-2000) is so small as to not justify their inclusion in the present assessment.

TABLE 5

Location	High Temp. Resource	Low Temp. Resource	Probability for Development
Hawaii			
1. Puna	1	1	3
2. Ka'u	2	1	7
3. South Point	3	2	3
4. Hualalai-North Kona	5	3	1
5. Kawaihae	5	3	1
6. Keaau	6	4	1
7. Kohala	7	5	8
Maui			
8. Haleakala-Southwest Rift	3	2	5
9. Haleakala-East Rift	3	2	6
10. Pauwela	4	3	3
11. Lahaina	3	1	1
12. Olowalu-Ukumehame	3	1	2
13. Honokawai	5	4	2
Oahu			
14. Waimanalo	7	5	1
15. Lualualei	8	6	1
16. Honolulu Volcanic Series	8	7	2
17. Haleiwa	9	7	3
18. Laie	9	7	3
19. Pearl Harbor	10	9	1
Kauai			
20. Post erosional Volcanic Series	10	8	5

The approximate locations of these areas are given in Figure 54.



Map of the Hawaiian Archipelago's High Islands

Figure 54 Location of thermal resources throughout Hawaii

Three of the potential geothermal areas identified during the present study have been targeted for intensive, site specific, surveys: Kawaihae and Keaau on the island of Hawaii and Lahaina on the island of Maui. In addition, preliminary surveys of limited extent will be conducted on those areas for wich the data are conflicting or where there is insufficient data to make a proper assessment. These areas will be on west Molokai, east Maui, adn the post erosional volcanic areas of Oahu.

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APPENDIX A

Geochemical Well Water Data

Meeting Temperature and/or Elevated Silica Criteria

TABLE 1 - Hawaii

2 - Maui

3 - Molokai

4 - Oahu

5 - Kauai

EXPLANATION OF THE DATA SYMBOLS

ID#:	Local USGS Station Number
TYP:	Type of Station
COU:	County (Island)
LOC:	Location or Name of the Well
LAT,LON:	Latitude, Longitude
DAT:	Date

PH :	Hydrogen Ions	SPG:	Specific Gravity	WED:	Well Depth	WAD:	Static Head	TEM:	Temperature	FLO:	Flow Rate	EH :	Oxi-reduct Pot.	SPC:	Spec Conductance
ALK:	Total Alkalinity	DIS:	Dissolved Solids	SUS:	Suspended Solids	LI :	Lithium	NA :	Sodium	K :	Potassium	RB :	Rubidium	MG :	Magnesium
CA :	Calcium	SR :	Strontium	BA :	Barium	MN :	Manganese	FE :	Iron	FET:	Total Fe	F :	Fluorine	CU :	Copper
ZN :	Zinc	HG :	Mercury	B :	Boron	AL :	Aluminum	PB :	Lead	AS :	Arsenic	SB :	Antimony	U :	Uranium
CL :	Chlorine	BR :	Bromine	I :	Iodine	O_2 :	Oxygen	CO_2:	Carbon Dioxide	H_2S:	Hydrogen Sulfide	NH_4:	Ammonia	NO_2:	Nitrite
NO_3:	Nitrate	PO_4:	Phosphate	SIO:	Silicate (SiO_2)	SO_4:	Sulfate	CO_3:	Carbonate	HCO_3:	Bicarbonate	CAR:	Carbonate Alk.	HAR:	Hardness
S :	Sulfur	PHE:	Phenols	CD :	Cadmium	CR :	Chromium	AG :	Silver	P :	Phosphorus	N :	Nitrogen	ELE:	Ground Elevation

TABLE 1 Hawaii

1	ID#=	8-0335-01	TYP=	WELL	COU=	HAWAII			LOC=	NAALEHU-1	LAT,LON=	190347.	1553543.00	DAT=	1975.								
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ALK=	34.00	DIS=	110.00		SUS=		LI =		NA =	11.00	K =	1.50	RB =			MG =	4.60						
CA =	6.40	SR =			BA =		MN =	5.00	FE =	10.00	FET=		F =	0.10		CU =							
ZN =		HC =			B =		AL =		PB =		AS =		SB =			U =							
CL =	10.00	BR =			I =		O2 =		CO2=	1.10	H2S=		NH4=			NO2=							
NO3=	1.90	PO4=	0.37		SIO=	43.00	SO4=	13.00	CO3=	0.00	HCO=	42.00	CAR=			HAR=	35.00						
SE =		PHE=			CD =		CR =		AG =		P =	0.12	N =	0.28		ELE=	746.00						
2	ID#=	8-0533-01	TYP=	WELL	COU=	HAWAII			LOC=	HONUAPO MILL	LAT,LON=	190540.	1553305.00	DAT=	1974.								
PH =	7.00	SPC=			WED=	34.00	WAD=		TEM=	19.00	FLO=		EH =			SPC=	4180.00						
ALK=	38.00	DIS=	2300.00		SUS=		LI =		NA =	680.00	K =	24.00	RB =			MG =	86.00						
CA =	33.00	SR =			BA =		MN =		FE =		FET=		F =	0.20		CU =							
ZN =		HC =			B =		AL =		PB =		AS =		SB =			U =							
CL =	1240.00	BR =			I =		O2 =		CO2=		H2S=		NH4=			NO2=							
NO3=		PO4=			SIO=	43.00	SO4=	169.00	CO3=		HCO=	46.00	CAR=			HAR=	436.00						
SE =		PHE=			CD =		CR =		AG =		P =		N =			ELE=	22.00						
3	ID#=	8-0533-02	TYP=	WELL	COU=	HAWAII			LOC=	HONUAPO-1	LAT,LON=	190559.	1553301.00	DAT=	1972.								
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ALK=	34.00	DIS=	1130.00		SUS=		LI =		NA =	320.00	K =	14.00	RB =			MG =	44.00						
CA =	20.00	SR =			BA =		MN =		FE =		FET=		F =	0.10		CU =							
ZN =		HC =			B =		AL =		PB =		AS =		SB =			U =							
CL =	580.00	BR =			I =		O2 =		CO2=		H2S=		NH4=			NO2=							
NO3=	0.70	PO4=			SIO=	43.00	SO4=	86.00	CO3=		HCO=	42.00	CAR=			HAR=	231.00						
SE =		PHE=			CD =		CR =		AG =		P =		N =			ELE=	94.00						
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ZN =		HC =			B =		AL =		PB =		AS =		SB =			U =							
CL =	500.00	BR =			I =		O2 =		CO2=		H2S=		NH4=			NO2=							
NO3=	1.70	PO4=			SIO=	43.00	SO4=	75.00	CO3=		HCO=	41.00	CAR=			HAR=	202.00						
SE =		PHE=	0.00		CD =		CR =		AG =		P =		N =			ELE=	89.00						
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CA =	17.00	SR =			BA =		MN =		FE =		FET=		F =	0.20		CU =							
ZN =		HC =			B =		AL =		PB =		AS =		SB =			U =							
CL =	440.00	BR =			I =		O2 =		CO2=		H2S=		NH4=			NO2=							
NO3=	1.30	PO4=			SIO=	41.00	SO4=	66.00	CO3=		HCO=	44.00	CAR=			HAR=	178.00						
SE =		PHE=			CD =		CR =		AG =		P =		N =			ELE=	103.00						

6 ID#=8-0830-01 TYP=WELL COU=HAWAII LOC=PUNALUU LAT,LON= 190828. 1553028.00 DAT=1972.

PH =	7.10	SPG=		WED=	20.00	WAD=	14.20	TEM=	19.00	FLO=		EH =		SPC=	830.00
ALK=	28.00	DIS=	441.00	SUS=		LI =		NA =	118.00	K =	5.50	RB =		MG =	15.00
CA =	9.60	SR =		BA =		MN =		FE =		FET=		F =	0.20	CU =	
ZN =		HG =		B =		AL =		PB =		AS =		SB =		U =	
CL =	205.00	BR =		I =		O2 =		CO2=		H2S=		NH4=		NO2=	
NO3=	0.70	PO4=		SIO=	32.00	SO4=	37.00	CO3=		HCO=	34.00	CAR=		HAR=	90.00
SE =		PHE=		CD =		CR =		AG =		P =		N =		ELE=	22.00

7 ID#=8-0831-01 TYP=WELL COU=HAWAII LOC=NINOLE CU TH LAT,LON= 190829. 1553111.00 DAT=1972.

PH =	7.30	SPG=		WED=	174.00	WAD=	4.00	TEM=	18.00	FLO=		EH =		SPC=	530.00
ALK=	35.00	DIS=	329.00	SUS=		LI =		NA =	80.00	K =	4.40	RB =		MG =	12.00
CA =	9.20	SR =		BA =		MN =		FE =		FET=		F =	0.20	CU =	
ZN =		HG =		B =		AL =		PB =		AS =		SB =		U =	
CL =	130.00	BR =		I =		O2 =		CO2=		H2S=		NH4=		NO2=	
NO3=	1.20	PO4=		SIO=	41.00	SO4=	24.00	CO3=		HCO=	43.00	CAR=		HAR=	73.00
SE =		PHE=		CD =		CR =		AG =		P =		N =		ELE=	123.00

8 ID#=8-0831-02 TYP=WELL COU=HAWAII LOC=NINOLE-A LAT,LON= 190832. 1553108.00 DAT=1974.

PH =	7.30	SPG=		WED=	172.00	WAD=	5.40	TEM=	18.00	FLO=		EH =		SPC=	530.00
ALK=	34.00	DIS=	411.00	SUS=		LI =		NA =	100.00	K =	5.90	RB =		MG =	18.00
CA =	13.00	SR =		BA =	0.30	MN =	0.00	FE =	20.00	FET=		F =	0.10	CU =	0.02
ZN =	0.02	HG =		B =		AL =	0.02	PB =	0.01	AS =	0.01	SB =		U =	
CL =	150.00	BR =		I =		O2 =		CO2=	3.30	H2S=		NH4=		NO2=	0.01
NO3=	0.17	PO4=	0.28	SIO=	43.00	SO4=	29.00	CO3=		HCO=	41.00	CAR=		HAR=	110.00
SE =	0.00	PHE=	0.00	CD =	0.00	CR =	0.01	AG =	0.01	P =	0.09	N =	0.26	ELE=	123.00

9 ID#=8-0831-03 TYP=WELL COU=HAWAII LOC=NINOLE-B LAT,LON= 190832. 1553109.00 DAT=1974.

PH =	6.90	SPG=		WED=	172.00	WAD=	4.90	TEM=	21.00	FLO=		EH =		SPC=	
ALK=	42.00	DIS=		SUS=		LI =		NA =	89.00	K =	5.20	RB =		MG =	18.00
CA =	13.20	SR =		BA =	0.10	MN =	0.01	FE =	0.01	FET=		F =	0.15	CU =	0.01
ZN =	0.01	HG =		B =		AL =	0.10	PB =	0.01	AS =	0.01	SB =		U =	
CL =	165.94	BR =		I =		O2 =		CO2=		H2S=		NH4=		NO2=	0.01
NO3=	0.29	PO4=		SIO=	48.00	SO4=	28.00	CO3=		HCO=		CAR=		HAR=	96.00
SE =	0.00	PHE=	0.00	CD =	0.00	CR =	0.01	AG =	0.01	P =		N =		ELE=	128.00

10 ID#=8-1128-01 TYP=TUNNEL COU=HAWAII LOC=PAHALA SHAFT LAT,LON= 191157. 1552849.00 DAT=1973.

PH =	7.20	SPG=		WED=	547.00	WAD=	238.00	TEM=	19.00	FLO=		EH =		SPC=	99.00
ALK=	33.00	DIS=	96.00	SUS=		LI =		NA =	7.20	K =	1.00	RB =		MG =	3.60
CA =	6.60	SR =		BA =	0.30	MN =	0.03	FE =	0.02	FET=		F =	0.20	CU =	0.02
ZN =	0.01	HG =		B =		AL =	0.02	PB =	0.01	AS =	0.01	SB =		U =	
CL =	3.30	BR =		I =		O2 =		CO2=		H2S=		NH4=		NO2=	0.01
NO3=	0.90	PO4=		SIO=	42.00	SO4=	10.00	CO3=		HCO=	43.00	CAR=		HAR=	38.00
SE =	0.00	PHE=	0.00	CD =	0.00	CR =	0.01	AG =	0.01	P =		N =		ELE=	774.00

11 ID#=8-1123-02 TYP=WELL COU=HAWAII LOC=PALIMA LAT,LON= 191108. 1552816.00 DAT=1974.

PH =	7.00	SPC=		WED=	375.00	WAD=	8.70	TEM=	21.00	FLO=		EH =		SPC=	117.00
ALK=	34.00	DIS=	110.00	SUS=		LI =		NA =	12.00	K =	1.20	RB =		MG =	4.30
CA =	6.10	SR =		BA =		MN =	0.00	FE =	10.00	FET=		F =	0.40	CU =	
ZN =		HG =		B =		AL =		PB =		AS =		SB =		U =	
CL =	12.00	BR =		I =		O2 =		CO2=	6.60	H2S=		NH4=		NO2=	
NO3=		PO4=	0.52	SIO=	54.00	SO4=	7.50	CO3=		HCO=	41.00	CAR=		HAR=	33.00
SE =		PHE=		CD =		CR =		AG =		P =	0.17	N =	0.28	ELE=	304.00

12 ID#=8-1229-01 TYP=WELL COU=HAWAII LOC=PAHALA LAT,LON= 191225. 1552922.00 DAT=1974.

PH =		SPC=		WED=	937.00	WAD=	383.60	TEM=	17.00	FLO=		EH =		SPC=	92.00
ALK=	33.00	DIS=	94.00	SUS=		LI =		NA =	5.70	K =	1.30	RB =		MG =	3.30
CA =	7.50	SR =		BA =		MN =		FE =	20.00	FET=		F =	0.10	CU =	
ZN =		HG =		B =		AL =		PB =		AS =		SB =		U =	
CL =	3.20	BR =		I =		O2 =		CO2=		H2S=		NH4=		NO2=	
NO3=		PO4=	0.28	SIO=	42.00	SO4=	6.60	CO3=		HCO=	40.00	CAR=		HAR=	32.00
SE =		PHE=		CD =		CR =		AG =		P =	0.09	N =	0.86	ELE=	112.00

13 ID#=8-2102-01 TYP=WELL COU=HAWAII LOC=PULAMA LAT,LON= 192107. 1550212.00 DAT=1974.

PH =	7.50	SPC=		WED=	250.00	WAD=	3.30	TEM=	28.00	FLO=		EH =		SPC=	1050.00
ALK=	44.00	DIS=	838.00	SUS=		LI =		NA =	170.00	K =	8.50	RB =		MG =	31.20
CA =	15.90	SR =		BA =		MN =	0.05	FE =	0.10	FET=		F =	0.10	CU =	0.10
ZN =	0.10	HG =		B =		AL =	0.05	PB =	0.00	AS =	0.01	SB =		U =	
CL =	345.00	BR =		I =		O2 =		CO2=		H2S=		NH4=		NO2=	0.00
NO3=	0.32	PO4=		SIO=	72.40	SO4=	65.10	CO3=		HCO=	54.00	CAR=		HAR=	145.00
SE =	0.00	PHE=	0.00	CD =		CR =		AG =		P =		N =		ELE=	230.00

14 ID#=8-2317-01 TYP=WELL COU=HAWAII LOC=KILAUEA TH LAT,LON= 192344. 1551721.00 DAT=1974.

PH =	7.30	SPC=		WED=		WAD=		TEM=	75.00	FLO=		EH =		SPC=	
ALK=		DIS=		SUS=		LI =		NA =		K =		RB =		MG =	
CA =		SR =		BA =		MN =		FE =		FET=		F =		CU =	
ZN =		HG =		B =		AL =		PB =		AS =		SB =		U =	
CL =		BR =		I =		O2 =		CO2=		H2S=		NH4=		NO2=	
NO3=		PO4=		SIO=	159.00	SO4=		CO3=		HCO=		CAR=		HAR=	
SE =		PHE=		CD =		CR =		AG =		P =		N =		ELE=	

15 ID#=8-2487-01 TYP=WELL COU=HAWAII LOC=KEAUOHANA-1 LAT,LON= 192456. 1545719.00 DAT=1974.

PH =	7.30	SPC=		WED=	802.00	WAD=	2.90	TEM=	24.00	FLO=		EH =		SPC=	344.00
ALK=	34.00	DIS=	222.00	SUS=		LI =		NA =	54.00	K =	3.80	RB =		MG =	3,30
CA =	6.60	SR =		BA =		MN =	0.10	FE =	0.10	FET=		F =	0.20	CU =	0.10
ZN =	0.03	HG =		B =		AL =	0.20	PB =	0.03	AS =	0.01	SB =		U =	
CL =	70.00	BR =		I =		O2 =		CO2=		H2S=		NH4=		NO2=	
NO3=		PO4=		SIO=	41.00	SO4=	22.00	CO3=		HCO=	42.00	CAR=		HAR=	30.00
SE =	0.05	PHE=	0.01	CD =		CR =		AG =		P =		N =		ELE=	752.00

16 ID#=8-2487-02 TYP=WELL COU=HAWAII LOC=KEAUOHANA-2 LAT,LON= 192457. 1545718.00 DAT=1974.

PH =	7.00	SPG=		WED=	803.00	WAD=	3.10	TEM=	24.00	FLO=		EH =		SPC=	630.00
ALK=	37.00	DIS=	304.00	SUS=		LI =		NA =	57.00	K =	5.40	RB =		MG =	3.90
CA =	11.80	SR =		BA =	0.10	MN =	0.03	FE =	0.66	FET=		F =	0.33	CU =	0.02
ZN =	0.02	HG =		B =		AL =	0.10	PB =	0.01	AS =	0.01	SB =		U =	
CL =	160.00	BR =		I =		O2 =		CO2=		H2S=		NH4=		NO2=	0.01
NO3=	0.15	PO4=		SIO=	45.30	SO4=	23.00	CO3=		HCO=	42.00	CAR=		HAR=	50.00
SE =	0.00	PHE=	0.00	CD =	0.00	CR =	0.01	AG =	0.01	P =		N =		ELE=	752.00

17 ID#=8-2686-02 TYP=WELL COU=HAWAII LOC=GEOTHERM TH2 LAT,LON= 192633. 1545648.00 DAT=1974.

PH =	7.00	SPG=		WED=		WAD=		TEM=	83.00	FLO=		EH =		SPC=	
ALK=		DIS=		SUS=		LI =		NA =		K =		RB =		MG =	
CA =		SR =		BA =		MN =		FE =		FET=		F =		CU =	
ZN =		HG =		B =		AL =		PB =		AS =		SB =		U =	
CL =		BR =		I =		O2 =		CO2=		H2S=		NH4=		NO2=	
NO3=		PO4=		SIO=		SO4=		CO3=		HCO=		CAR=		HAR=	
SE =		PHE=		CD =		CR =		AG =		P =		N =		ELE=	

18 ID#=8-2753-01 TYP=WELL COU=HAWAII LOC=KEEI-A LAT,LON= 192731. 1555341.00 DAT=1974.

PH =	7.30	SPG=		WED=	780.00	WAD=	2.80	TEM=	21.00	FLO=		EH =		SPC=	550.00
ALK=	46.00	DIS=	320.00	SUS=		LI =		NA =	61.00	K =	3.40	RB =		MG =	12.10
CA =	9.80	SR =		BA =	0.10	MN =	0.01	FE =	0.04	FET=		F =	0.28	CU =	0.04
ZN =	0.40	HG =		B =		AL =	0.16	PB =	0.00	AS =	0.01	SB =		U =	
CL =	130.00	BR =		I =		O2 =		CO2=		H2S=		NH4=		NO2=	0.01
NO3=	1.30	PO4=		SIO=	53.00	SO4=	2.50	CO3=		HCO=	47.00	CAR=		HAR=	20.00
SE =	0.00	PHE=	0.00	CD =	0.00	CR =	0.06	AG =	0.01	P =		N =		ELE=	744.00

19 ID#=8-2753-02 TYP=WELL COU=HAWAII LOC=KEEI-B LAT,LON= 192722. 1555338.00 DAT=1974.

PH =	6.80	SPG=		WED=	774.00	WAD=	2.30	TEM=	19.50	FLO=		EH =		SPC=	750.00
ALK=	35.00	DIS=	348.00	SUS=		LI =		NA =	80.00	K =	4.70	RB =		MG =	12.00
CA =	10.00	SR =		BA =	0.10	MN =	10.00	FE =	80.00	FET=		F =	0.20	CU =	0.02
ZN =	0.22	HG =		B =		AL =	0.10	PB =	0.00	AS =	0.01	SB =		U =	
CL =	180.00	BR =		I =		O2 =		CO2=	11.00	H2S=		NH4=		NO2=	0.01
NO3=	1.00	PO4=	0.46	SIO=	50.00	SO4=	26.00	CO3=		HCO=	43.00	CAR=		HAR=	74.00
SE =	0.00	PHE=	0.00	CD =	0.00	CR =	0.01	AG =	0.01	P =	0.15	N =	0.66	ELE=	737.00

20 ID#=8-2783-01 TYP=WELL COU=HAWAII LOC=MALAMAKI 9-9 LAT,LON= 192728. 1545301.00 DAT=1974.

PH =	6.92	SPG=		WED=	319.00	WAD=	0.90	TEM=	53.00	FLO=		EH =		SPC=	13000.00
ALK=	215.00	DIS=	11700.00	SUS=		LI =		NA =	3090.00	K =		RB =		MG =	324.00
CA =	182.00	SR =		BA =		MN =	0.05	FE =	3.16	FET=		F =	1.50	CU =	0.20
ZN =	0.20	HG =		B =		AL =	101.00	PB =	0.01	AS =	0.01	SB =		U =	
CL =	5850.00	BR =		I =		O2 =		CO2=		H2S=		NH4=		NO2=	0.01
NO3=	0.50	PO4=		SIO=	59.00	SO4=	681.00	CO3=		HCO=	262.00	CAR=		HAR=	1790.00
SE =	0.08	PHE=		CD =		CR =		AG =		P =		N =		ELE=	274.00

21 ID#=8-2881-01 TYP=WELL COU=HAWAII LOC=ALLISON PUNA LAT,LON= 192819. 1545110.00 DAT=1975.

PH =	7.35	SPC=		WED=	140.00	WAD=	5.00	TEM=	37.50	FLO=		EH =		SPC=	
ALK=		DIS=		SUS=		LI =		NA =	216.00	K =	10.80	RB =		MG =	15.00
CA =	13.40	SR =		BA =		MN =		FE =		FET=		F =		CU =	
ZN =		HG =		B =		AL =		PB =		AS =		SB =		U =	
CL =	281.00	BR =		I =		O2 =		CO2=		H2S=		NH4=		NO2=	
NO3=		PO4=		SIO=	24.10	SO4=	69.20	CO3=		HCO=	132.00	CAR=		HAR=	
SE =		PHE=		CD =		CR =		AG =		F =	0.00	N =	14.00	ELE=	132.00

22 ID#=8-2982-01 TYP=WELL COU=HAWAII LOC=GEOTHERM 3 LAT,LON= 192913. 1545255.00 DAT=1975.

PH =	6.80	SPC=		WED=	690.00	WAD=		TEM=	93.00	FLO=		EH =		SPC=	
ALK=		DIS=		SUS=		LI =		NA =	2000.00	K =	195.00	RB =		MG =	59.00
CA =	81.00	SR =		BA =		MN =		FE =		FET=		F =		CU =	
ZN =		HG =		B =		AL =		PB =		AS =		SB =		U =	
CL =	3410.00	BR =		I =		O2 =		CO2=		H2S=		NH4=		NO2=	
NO3=		PO4=		SIO=	96.60	SO4=	335.00	CO3=		HCO=	30.00	CAR=		HAR=	
SE =		PHE=		CD =		CR =		AG =		P =	0.08	N =	0.00	ELE=	563.00

23 ID#=8-2986-01 TYP=WELL COU=HAWAII LOC=PAHOA-2A LAT,LON= 192924. 1545647.00 DAT=1973.

PH =	7.40	SPC=		WED=	755.00	WAD=	17.80	TEM=	22.50	FLO=		EH =		SPC=	127.00
ALK=	38.00	DIS=	110.00	SUS=		LI =		NA =	17.00	K =	3.50	RB =		MG =	0.86
CA =	4.80	SR =		BA =	0.30	MN =	0.03	FE =	0.02	FET=		F =	0.46	CU =	0.03
ZN =	0.03	HG =		B =		AL =	0.02	PB =	0.01	AS =	0.01	SB =		U =	
CL =	12.00	BR =		I =		O2 =		CO2=	3.20	H2S=		NH4=		NO2=	0.01
NO3=	0.22	PO4=		SIO=	39.60	SO4=	13.00	CO3=		HCO=	51.00	CAR=		HAR=	22.00
SE =	0.00	PHE=	0.00	CD =	0.00	CR =	0.01	AG =	0.01	P =		N =	0.20	ELE=	711.00

24 ID#=8-2986-02 TYP=WELL COU=HAWAII LOC=PAHOA-2B LAT,LON= 192925. 1545646.00 DAT=1974.

PH =	6.40	SPC=		WED=		WAD=		TEM=	23.00	FLO=		EH =		SPC=	125.00
ALK=	39.00	DIS=	126.00	SUS=		LI =		NA =	16.00	K =	3.20	RB =		MG =	2.40
CA =	3.90	SR =		BA =	0.10	MN =	0.03	FE =	60.00	FET=		F =	0.30	CU =	0.02
ZN =	0.01	HG =		B =		AL =	0.10	PB =	0.01	AS =	0.01	SB =		U =	
CL =	5.80	BR =		I =		O2 =		CO2=	31.00	H2S=		NH4=		NO2=	0.01
NO3=	0.41	PO4=	0.43	SIO=	55.00	SO4=	13.00	CO3=		HCO=	48.00	CAR=		HAR=	20.00
SE =	0.00	PHE=	0.00	CD =	0.00	CR =	0.01	AG =	0.01	P =	0.14	N =	0.53	ELE=	705.00

25 ID#=8-3080-01 TYP=WELL COU=HAWAII LOC=KAPOHO CRATE LAT,LON= 193016. 1545021.00 DAT=1974.

PH =	6.50	SPC=		WED=	46.00	WAD=	2.60	TEM=	23.00	FLO=		EH =		SPC=	1060.00
ALK=	272.00	DIS=	548.00	SUS=		LI =		NA =	80.00	K =	7.00	RB =		MG =	31.00
CA =	60.00	SR =		BA =		MN =	0.00	FE =	20.00	FET=		F =	0.30	CU =	
ZN =		HG =		B =		AL =		PB =		AS =		SB =		U =	
CL =	170.00	BR =		I =		O2 =		CO2=	167.00	H2S=		NH4=		NO2=	
NO3=	27.00	PO4=	0.86	SIO=	58.00	SO4=	19.00	CO3=	6.00	HCO=	331.00	CAR=		HAR=	280.00
SE =		PHE=		CD =		CR =		AG =		P =	0.28	N =	4.20	ELE=	38.00

26 ID#=8-3081-01 TYP=WELL COU=HAWAII LOC=KAPOHO TEST LAT,LON= 193024. 1545139.00 DAT=1961.

PH =	7.20	SPG=		WED=	337.00	WAD=	3.20	TEM=	28.00	FLO=		EH =		SPC=	
ALK=	50.00	DIS=	131.00	SUS=		LI =		NA =		K =		RB =		MG =	17.10
CA =	14.10	SR =		BA =		MN =	0.10	FE =	0.20	FET=		F =	0.10	CU =	0.10
ZN =	0.03	HG =		B =		AL =	0.10	PB =	0.03	AS =	0.01	SB =		U =	
CL =	220.00	BR =		I =		O2 =		CO2=		H2S=		NH4=		NO2=	0.00
NO3=	0.10	PO4=		SIO=	70.50	SO4=	65.40	CO3=		HCO=		CAR=		HAR=	106.40
SE =	0.05	PHE=	0.01	CD =		CR =		AG =		P =		N =		ELE=	287.00

27 ID#=8-3185-01 TYP=WELL COU=HAWAII LOC=HAWN SHORES1 LAT,LON= 193113. 1545558.00 DAT=1974.

PH =	7.70	SPG=		WED=	446.00	WAD=	10.60	TEM=	21.50	FLO=		EH =		SPC=	122.00
ALK=	42.00	DIS=	126.00	SUS=		LI =		NA =	13.00	K =	3.20	RB =		MG =	3.80
CA =	3.90	SR =		BA =	0.10	MN =	0.03	FE =	0.01	FET=		F =	0.28	CU =	0.02
ZN =	0.06	HG =		B =		AL =	0.10	PB =	0.01	AS =	0.01	SB =		U =	
CL =	14.00	BR =		I =		O2 =		CO2=		H2S=		NH4=		NO2=	0.01
NO3=	0.17	PO4=		SIO=	51.90	SO4=	5.10	CO3=		HCO=		CAR=		HAR=	22.00
SE =	0.00	PHE=	0.00	CD =	0.00	CR =	0.01	AG =	0.01	P =		N =		ELE=	402.00

28 ID#=8-3185-02 TYP=WELL COU=HAWAII LOC=HAWN SHORES2 LAT,LON= 193126. 1545544.00 DAT=1974.

PH =	7.60	SPG=		WED=	430.00	WAD=	0.00	TEM=		FLO=		EH =		SPC=	165.00
ALK=	46.00	DIS=	140.00	SUS=		LI =		NA =	19.00	K =	3.50	RB =		MG =	4.50
CA =	3.90	SR =		BA =	0.10	MN =	0.03	FE =	0.01	FET=		F =	0.57	CU =	0.07
ZN =	0.74	HG =		B =		AL =	0.10	PB =	0.02	AS =	0.01	SB =		U =	
CL =	23.00	BR =		I =		O2 =		CO2=		H2S=		NH4=		NO2=	0.01
NO3=	0.11	PO4=		SIO=	49.00	SO4=	7.00	CO3=		HCO=	56.00	CAR=		HAR=	26.00
SE =	0.00	PHE=	0.00	CD =	0.00	CR =	0.01	AG =	0.01	P =		N =		ELE=	380.00

29 ID#=8-3457-02 TYP=WELL COU=HAWAII LOC=KEAUHOU-2 LAT,LON= 193428. 1555734.00 DAT=1966.

PH =	7.90	SPG=		WED=	430.00	WAD=		TEM=		FLO=		EH =		SPC=	
ALK=	48.00	DIS=		SUS=		LI =		NA =	1300.00	K =	0.00	RB =		MG =	110.00
CA =	30.00	SR =		BA =		MN =	0.05	FE =	0.02	FET=		F =	0.76	CU =	0.10
ZN =	0.10	HG =		B =		AL =	0.05	PB =	0.01	AS =	0.01	SB =		U =	
CL =	1700.00	BR =		I =		O2 =		CO2=		H2S=		NH4=		NO2=	0.01
NO3=	3.30	PO4=		SIO=	33.00	SO4=	195.00	CO3=		HCO=		CAR=		HAR=	530.00
SE =	0.01	PHE=	0.00	CD =		CR =		AG =		P =		N =		ELE=	385.00

30 ID#=8-3500-01 TYP=WELL COU=HAWAII LOC=WAI PAHOEHOE LAT,LON= 193517. 1550049.00 DAT=1961.

PH =	7.10	SPG=		WED=	361.00	WAD=	16.20	TEM=	22.00	FLO=		EH =		SPC=	
ALK=	58.00	DIS=		SUS=		LI =		NA =		K =		RB =		MG =	6.70
CA =	5.30	SR =		BA =		MN =	0.10	FE =	0.10	FET=		F =	0.10	CU =	0.10
ZN =	0.03	HG =		B =		AL =	0.20	PB =	0.03	AS =	0.01	SB =		U =	
CL =	5.50	BR =		I =		O2 =		CO2=		H2S=		NH4=		NO2=	
NO3=		PO4=		SIO=	46.50	SO4=	10.90	CO3=		HCO=		CAR=		HAR=	41.00
SE =	0.05	PHE=	0.01	CD =		CR =		AG =		P =		N =		ELE=	311.00

31 ID#=8-3557-01 TYP=WELL COU=HAWAII LOC=KAHALUU-A LAT,LON= 193510. 1555708.00 DAT=1974.

PH =	6.80	SPG=		WED=	878.00	WAD=	4.00	TEM=	22.00	FLO=		EH =		SPC=	170.00
ALK=	46.00	DIS=	172.00	SUS=		LI =		NA =	18.00	K =	1.80	RB =		MG =	6.50
CA =	8.80	SR =		BA =	0.10	MN =	0.01	FE =	0.01	FET=		F =	0.28	CU =	0.01
ZN =	0.15	HG =		B =		AL =	0.10	PB =	0.00	AS =	0.01	SB =		U =	
CL =	14.00	BR =		I =		O2 =		CO2=	6.20	H2S=		NH4=		NO2=	0.01
NO3=	1.40	PO4=	0.46	SIO=	52.00	SO4=	11.00	CO3=		HCO=	49.00	CAR=		HAR=	42.00
SE =	0.00	PHE=	0.00	CD =	0.00	CR =	0.01	AG =	0.01	P =	0.15	N =	0.96	ELE=	833.00

32 ID#=8-3557-02 TYP=WELL COU=HAWAII LOC=KAHALUU-B LAT,LON= 193505. 1555708.00 DAT=1974.

PH =	7.20	SPG=		WED=	881.00	WAD=	4.00	TEM=	20.00	FLO=		EH =		SPC=	400.00
ALK=	43.00	DIS=	162.00	SUS=		LI =		NA =	22.00	K =	1.80	RB =		MG =	7.10
CA =	8.50	SR =		BA =	0.10	MN =	0.02	FE =	0.34	FET=		F =	0.33	CU =	0.04
ZN =	0.05	HG =		B =		AL =	0.10	PB =	0.00	AS =	0.01	SB =		U =	
CL =	32.10	BR =		I =		O2 =		CO2=		H2S=		NH4=		NO2=	0.01
NO3=	1.20	PO4=		SIO=	41.70	SO4=	12.00	CO3=		HCO=	74.00	CAR=		HAR=	48.00
SE =	0.00	PHE=	0.00	CD =	0.00	CR =	0.00	AG =	0.01	P =		N =		ELE=	839.00

33 ID#=8-3557-03 TYP=WELL COU=HAWAII LOC=KAHALUU-C LAT,LON= 193508. 1555707.00 DAT=1974.

PH =	7.30	SPG=		WED=	868.00	WAD=	4.60	TEM=	20.00	FLO=		EH =		SPC=	170.00
ALK=	50.00	DIS=	143.00	SUS=		LI =		NA =	14.00	K =	1.30	RB =		MG =	5.20
CA =	7.50	SR =		BA =	0.10	MN =	0.01	FE =	0.04	FET=		F =	0.30	CU =	0.01
ZN =	0.06	HG =		B =		AL =	10.00	PB =	0.01	AS =	0.01	SB =		U =	
CL =	11.00	BR =		I =		O2 =		CO2=		H2S=		NH4=		NO2=	0.01
NO3=	1.30	PO4=		SIO=	43.60	SO4=	10.00	CO3=		HCO=	48.00	CAR=		HAR=	36.00
SE =	0.00	PHE=	0.00	CD =	0.00	CR =	0.01	AG =	0.01	P =		N =		ELE=	834.00

34 ID#=8-3557-04 TYP=WELL COU=HAWAII LOC=KAHALUU-D LAT,LON= 193505. 1555707.00 DAT=1974.

PH =	7.50	SPG=		WED=	905.00	WAD=	4.00	TEM=	20.00	FLO=		EH =		SPC=	255.00
ALK=	50.00	DIS=	122.00	SUS=		LI =		NA =	12.00	K =	1.30	RB =		MG =	4.80
CA =	6.70	SR =		BA =	0.10	MN =	0.01	FE =	0.01	FET=		F =	0.36	CU =	0.01
ZN =	0.01	HG =		B =		AL =	0.10	PB =	0.00	AS =	0.01	SB =		U =	
CL =	17.13	BR =		I =		O2 =		CO2=		H2S=		NH4=		NO2=	0.01
NO3=	1.30	PO4=		SIO=	45.00	SO4=	9.10	CO3=		HCO=	52.00	CAR=		HAR=	32.00
SE =	0.00	PHE=	0.00	CD =	0.00	CR =	0.01	AG =	0.01	P =		N =		ELE=	855.00

35 ID#=8-3702-01 TYP=TUNNEL COU=HAWAII LOC=OLAA SHAFT-7 LAT,LON= 193757. 1550200.00 DAT=1974.

PH =	7.00	SPG=		WED=	203.00	WAD=	15.00	TEM=	23.00	FLO=		EH =		SPC=	87.00
ALK=	31.00	DIS=	88.00	SUS=		LI =		NA =	5.80	K =	2.40	RB =		MG =	2.70
CA =	6.00	SR =		BA =		MN =		FE =		FET=		F =	0.10	CU =	
ZN =		HG =		B =		AL =		PB =		AS =		SB =		U =	
CL =	4.00	BR =		I =		O2 =		CO2=		H2S=		NH4=		NO2=	
NO3=	2.80	PO4=		SIO=	40.00	SO4=	5.50	CO3=		HCO=	38.00	CAR=		HAR=	26.00
SE =		PHE=		CD =		CR =		AG =		P =		N =		ELE=	220.00

36 ID#=8-3758-01 TYP=WELL COU=HAWAII LOC=KAILUA KONA LAT,LON= 193750. 1555805.00 DAT=1974.

PH =	7.50	SPG=		WED=		WAD=		TEM=	25.00	FLO=		EH =		SPC=	
ALK=		DIS=	1079.00	SUS=		LI =		NA =	247.00	K =		RB =		MG =	27.00
CA =	31.00	SR =		BA =		MN =		FE =		FET=		F =	0.20	CU =	
ZN =		HG =		B =		AL =		PB =		AS =		SB =		U =	
CL =	459.00	BR =		I =		O2 =		CO2=		H2S=		NH4=		NO2=	
NO3=	1.50	PO4=		SIO=	43.00	SO4=	79.00	CO3=		HCO=	56.00	CAR=		HAR=	
SE =		PHE=		CD =		CR =		AG =		P =		N =		ELE=	

37 ID#=8-3802-01 TYP=WELL COU=HAWAII LOC=KEAAU 1(9-3) LAT,LON= 193802. 1550202.00 DAT=1973.

PH =	7.40	SPG=		WED=	450.00	WAD=	0.00	TEM=	24.50	FLO=		EH =		SPC=	78.00
ALK=	30.00	DIS=	80.00	SUS=		LI =		NA =	6.00	K =	2.00	RB =		MG =	1.80
CA =	5.60	SR =		BA =	0.30	MN =	0.03	FE =	0.02	FET=		F =	0.12	CU =	0.02
ZN =	0.01	HG =		B =		AL =	0.02	PB =	0.01	AS =	0.00	SB =		U =	
CL =	3.40	BR =		I =		O2 =		CO2=		H2S=		NH4=		NO2=	0.01
NO3=	0.50	PO4=		SIO=	37.70	SO4=	6.20	CO3=		HCO=	36.00	CAR=		HAR=	40.00
SE =	0.00	PHE=	0.00	CD =	0.00	CR =	0.01	AG =	0.01	P =		N =		ELE=	215.00

38 ID#=8-3802-02 TYP=WELL COU=HAWAII LOC=KEAAU-2 LAT,LON= 193803. 1550202.00 DAT=1974.

PH =	7.40	SPG=		WED=	450.00	WAD=	0.00	TEM=	24.50	FLO=		EH =		SPC=	78.00
ALK=	37.00	DIS=	80.00	SUS=		LI =		NA =	5.00	K =	2.00	RB =		MG =	2.80
CA =	4.90	SR =		BA =	0.10	MN =	0.01	FE =	0.08	FET=		F =	0.10	CU =	0.02
ZN =	0.02	HG =		B =		AL =	0.10	PB =	0.01	AS =	0.01	SB =		U =	
CL =	5.40	BR =		I =		O2 =		CO2=		H2S=		NH4=		NO2=	0.01
NO3=	0.36	PO4=		SIO=	34.60	SO4=	5.60	CO3=		HCO=	86.00	CAR=		HAR=	22.00
SE =	0.00	PHE=	0.00	CD =	0.01	CR =	0.01	AG =	0.01	P =		N =		ELE=	215.00

39 ID#=8-3802-03 TYP=WELL COU=HAWAII LOC=KEAAU MILL-1 LAT,LON= 193804. 1550202.00 DAT=1974.

PH =	7.80	SPG=		WED=	379.00	WAD=	13.40	TEM=	18.50	FLO=		EH =		SPC=	83.00
ALK=	30.00	DIS=	85.00	SUS=		LI =		NA =	6.50	K =	2.00	RB =		MG =	3.10
CA =	6.90	SR =		BA =		MN =	0.00	FE =	10.00	FET=		F =	0.10	CU =	
ZN =		HG =		B =		AL =		PB =		AS =		SB =		U =	
CL =	3.50	BR =		I =		O2 =		CO2=	0.90	H2S=		NH4=		NO2=	
NO3=		PO4=	0.21	SIO=	36.00	SO4=	6.20	CO3=		HCO=	36.00	CAR=		HAR=	30.00
SE =		PHE=		CD =		CR =		AG =		P =	0.07	N =	0.49	ELE=	214.00

40 ID#=8-3802-04 TYP=WELL COU=HAWAII LOC=KEAAU MILL-2 LAT,LON= 193806. 1550202.00 DAT=1972.

PH =	7.40	SPG=		WED=	371.00	WAD=	12.40	TEM=	22.00	FLO=		EH =		SPC=	88.00
ALK=	32.00	DIS=	82.00	SUS=		LI =		NA =	5.20	K =	2.10	RB =		MG =	3.30
CA =	5.50	SR =		BA =		MN =		FE =		FET=		F =	0.10	CU =	
ZN =		HG =		B =		AL =		PB =		AS =		SB =		U =	
CL =	4.00	BR =		I =		O2 =		CO2=		H2S=		NH4=		NO2=	
NO3=	1.50	PO4=		SIO=	36.00	SO4=	5.50	CO3=		HCO=	38.00	CAR=		HAR=	27.00
SE =		PHE=		CD =		CR =		AG =		P =		N =		ELE=	214.00

41 ID#=8-3802-05 TYP=WELL COU=HAWAII LOC=KEAAU MILL-3 LAT,LON= 193807. 1550202.00 DAT=1972.

PH =	7.40	SPC=		WED=	375.00	WAD=	12.40	TEM=	22.00	FLO=		EH =		SPC=	88.00
ALK=	31.00	DIS=	81.00	SUS=		LI =		NA =	5.20	K =	2.10	RB =		MG =	3.30
CA =	5.50	SR =		BA =		MN =		FE =		FET=		F =	0.10	CU =	
ZN =		HG =		B =		AL =		PB =		AS =		SB =		U =	
CL =	4.00	BR =		I =		O2 =		CO2=		H2S=		NH4=		NO2=	
NO3=	1.50	PO4=		SIO=	36.00	SO4=	5.50	CO3=	0.00	HCO=	38.00	CAR=		HAR=	27.00
SE =		PHE=		CD =		CR =		AG =		P =		N =	0.00	ELE=	214.00

42 ID#=8-3900-01 TYP=WELL COU=HAWAII LOC=KEAAU ORCH-1 LAT,LON= 193937. 1550043.00 DAT=1974.

PH =	7.10	SPC=		WED=	137.00	WAD=	8.50	TEM=	18.50	FLO=		EH =		SPC=	300.00
ALK=	29.00	DIS=	197.00	SUS=		LI =		NA =	38.00	K =	3.80	RB =		MG =	7.70
CA =	7.80	SR =		BA =		MN =		FE =	10.00	FET=		F =	0.10	CU =	
ZN =		HG =		B =		AL =		PB =		AS =		SB =		U =	
CL =	64.00	BR =		I =		O2 =		CO2=	4.40	H2S=		NH4=		NO2=	
NO3=	3.60	PO4=	0.21	SIO=	39.00	SO4=	14.00	CO3=	0.00	HCO=	44.00	CAR=		HAR=	51.00
SE =		PHE=		CD =		CR =		AG =		P =	0.07	N =	1.10	ELE=	92.00

43 ID#=8-3900-02 TYP=WELL COU=HAWAII LOC=KEAAU ORCH-2 LAT,LON= 193934. 1550045.00 DAT=1974.

PH =	6.80	SPC=		WED=	147.00	WAD=	8.10	TEM=	19.50	FLO=		EH =		SPC=	380.00
ALK=	36.00	DIS=	355.00	SUS=		LI =		NA =	90.00	K =	5.60	RB =		MG =	13.60
CA =	8.90	SR =		BA =		MN =		FE =		FET=		F =	0.10	CU =	
ZN =		HG =		B =		AL =		PB =		AS =		SB =		U =	
CL =	156.00	BR =		I =		O2 =		CO2=		H2S=		NH4=		NO2=	
NO3=	3.60	PO4=		SIO=	33.00	SO4=	25.00	CO3=		HCO=	44.00	CAR=		HAR=	45.00
SE =		PHE=		CD =		CR =		AG =		P =		N =		ELE=	95.00

44 ID#=8-4003-01 TYP=WELL COU=HAWAII LOC=PANAEWA-1 LAT,LON= 194035. 1550355.00 DAT=1973.

PH =	7.50	SPC=		WED=	306.00	WAD=	13.10	TEM=	20.00	FLO=		EH =		SPC=	93.00
ALK=	37.00	DIS=	76.00	SUS=		LI =		NA =	5.10	K =	1.80	RB =		MG =	2.70
CA =	6.80	SR =		BA =		MN =		FE =		FET=		F =	0.00	CU =	
ZN =		HG =		B =		AL =		PB =		AS =		SB =		U =	
CL =	4.00	BR =		I =		O2 =		CO2=	2.30	H2S=		NH4=		NO2=	
NO3=		PO4=		SIO=	34.00	SO4=	0.00	CO3=		HCO=	45.00	CAR=		HAR=	28.00
SE =		PHE=		CD =		CR =		AG =		P =		N =		ELE=	206.00

45 ID#=8-4003-02 TYP=WELL COU=HAWAII LOC=PANAEWA-2 LAT,LON= 194040. 1550352.00 DAT=1974.

PH =		SPC=		WED=	302.00	WAD=	13.10	TEM=	20.00	FLO=		EH =		SPC=	88.00
ALK=	44.00	DIS=	80.00	SUS=		LI =		NA =	5.00	K =	1.80	RB =		MG =	2.30
CA =	7.20	SR =		BA =	0.10	MN =	0.03	FE =	0.01	FET=		F =	0.22	CU =	0.02
ZN =	0.01	HG =		B =		AL =	0.10	PB =	0.02	AS =	0.01	SB =		U =	
CL =	4.00	BR =		I =		O2 =		CO2=		H2S=		NH4=		NO2=	0.01
NO3=	0.24	PO4=		SIO=	36.60	SO4=	5.00	CO3=		HCO=		CAR=		HAR=	30.00
SE =	0.00	PHE=	0.00	CD =	0.00	CR =	0.01	AG =	0.01	P =		N =		ELE=	201.00

46 ID#=8-4059-01 TYP=WELL COU=HAWAII LOC=PALANI LAT,LON= 194018. 1555903.00 DAT=1958.

PH =	7.90	SPG=		WED=	853.00	WAD=	1.60	TEM=	19.70	FLO=		EH =		SPC=	
ALK=	88.00	DIS=		SUS=		LI =		NA =		K =		RB =		MG =	250.00
CA =	95.00	SR =		BA =		MN =	0.10	FE =	0.10	FET=		F =	0.10	CU =	0.10
ZN =	0.03	HG =		B, =		AL =	0.30	PB =	0.03	AS =	0.01	SB =		U =	
CL =	3600.00	BR =		I =		O2 =		CO2=		H2S=		NH4=		NO2=	
NO3=	0.10	PO4=		SIO=	43.20	SO4=	547.00	CO3=		HCO=		CAR=		HAR=	1278.00
SE =	0.05	PHE=	0.01	CD =		CR =		AG =		P =		N =		ELE=	800.00

47 ID#=8-4203-02Z TYP=WELL COU=HAWAII LOC=WAIAKEA TH-2 LAT,LON= 194223. 1550352.00 DAT=1964.

PH =	7.00	SPG=		WED=	55.00	WAD=	9.10	TEM=	21.10	FLO=		EH =		SPC=	0.00
ALK=	41.00	DIS=	94.00	SUS=		LI =		NA =	10.00	K =	1.00	RB =		MG =	4.40
CA =	8.00	SR =		BA =		MN =		FE =		FET=		F =		CU =	
ZN =		HG =		B =		AL =		PB =		AS =		SB =		U =	
CL =	11.00	BR =		I =		O2 =		CO2=		H2S=		NH4=		NO2=	
NO3=	0.20	PO4=		SIO=	33.00	SO4=	2.50	CO3=	0.00	HCO=	50.00	CAR=		HAR=	38.00
SE =		PHE=		CD =		CR =		AG =		P =		N =		ELE=	41.00

48 ID#=8-4203-03 TYP=WELL COU=HAWAII LOC=WAIAKEA TH-3 LAT,LON= 194230. 1550348.00 DAT=1972.

PH =	7.10	SPG=		WED=	56.00	WAD=	5.80	TEM=	23.50	FLO=		EH =		SPC=	95.00
ALK=	36.00	DIS=	86.00	SUS=		LI =		NA =	7.40	K =	1.80	RB =		MG =	3.60
CA =	6.00	SR =		BA =		MN =		FE =		FET=		F =	0.10	CU =	
ZN =		HG =		B =		AL =		PB =		AS =		SB =		U =	
CL =	7.50	BR =		I =		O2 =		CO2=		H2S=		NH4=		NO2=	
NO3=	0.80	PO4=		SIO=	36.00	SO4=	2.00	CO3=		HCO=	44.00	CAR=		HAR=	30.00
SE =		PHE=		CD =		CR =		AG =		P =		N =		ELE=	41.00

49 ID#=8-4203-04 TYP=WELL COU=HAWAII LOC=WAIAKEA-4 LAT,LON= 194222. 1550351.00 DAT=1974.

PH =	7.20	SPG=		WED=	201.00	WAD=	7.10	TEM=	31.00	FLO=		EH =		SPC=	94.00
ALK=	38.00	DIS=	107.00	SUS=		LI =		NA =	6.90	K =	1.80	RB =		MG =	2.90
CA =	8.40	SR =		BA =		MN =	0.05	FE =	0.20	FET=		F =	0.10	CU =	0.10
ZN =	0.01	HG =		B =		AL =	0.05	PB =	0.01	AS =	0.01	SB =		U =	
CL =	6.50	BR =		I =		O2 =		CO2=		H2S=		NH4=		NO2=	
NO3=	0.22	PO4=		SIO=	55.00	SO4=	2.60	CO3=		HCO=	47.00	CAR=		HAR=	33.00
SE =	0.01	PHE=	0.00	CD =		CR =		AG =		P =		N =		ELE=	47.00

50 ID#=8-4203-06 TYP=WELL COU=HAWAII LOC=KANOELEHUA-2 LAT,LON= 194223. 1550349.00 DAT=1974.

PH =	6.20	SPG=		WED=	200.00	WAD=	6.50	TEM=	21.00	FLO=		EH =		SPC=	130.00
ALK=	32.00	DIS=	109.00	SUS=		LI =		NA =	12.00	K =	2.10	RB =		MG =	3.50
CA =	11.00	SR =		BA =		MN =	0.00	FE =	20.00	FET=		F =	0.00	CU =	0.10
ZN =	0.01	HG =		B =		AL =	0.05	PB =	0.01	AS =	0.01	SB =		U =	
CL =	18.00	BR =		I =		O2 =		CO2=	39.00	H2S=		NH4=		NO2=	
NO3=	0.80	PO4=	0.18	SIO=	37.00	SO4=	5.00	CO3=		HCO=	39.00	CAR=		HAR=	42.00
SE =	0.01	PHE=	0.00	CD =		CR =		AG =		P =	0.06	N =	0.01	ELE=	50.00

51 ID#=8-4203-07 TYP=WELL COU=HAWAII LOC=KANOELEHUA-3 LAT,LON= 194224. 1550330.00 DAT=1972.

PH =	7.20	SPG=		WED=	200.00	WAD=		TEM=	26.00	FLO=		EH =		SPC=	94.00
ALK=	39.00	DIS=	107.00	SUS=		LI =		NA =	6.50	K =	1.80	RB =		MG =	2.90
CA =	3.40	SR =		BA =		MN =		FE =		FET=		F =	0.10	CU =	
ZN =		HG =		B =		AL =		PB =		AS =		SB =		U =	
CL =	6.50	BR =		I =		O2 =		CO2=		H2S=		NH4=		NO2=	
NO3=		PO4=		SIO=	55.00	SO4=	2.60	CO3=		HCO=	47.00	CAR=		HAR=	33.00
SE =		PHE=		CD =		CR =		AG =		P =		N =		ELE=	50.00

52 ID#=8-4304-01 TYP=WELL COU=HAWAII LOC=WAIAKEA LAT,LON= 194337. 1550418.00 DAT=1972.

PH =	7.20	SPG=		WED=	20.00	WAD=		TEM=	20.50	FLO=		EH =		SPC=	23000.00
ALK=	80.00	DIS=	10900.00	SUS=		LI =		NA =	3400.00	K =	110.00	RB =		MG =	390.00
CA =	132.00	SR =		BA =		MN =		FE =	0.20	FET=		F =	0.60	CU =	0.10
ZN =	0.10	HG =		B =		AL =	1449.80	PB =	0.10	AS =	0.01	SB =		U =	
CL =	16000.00	BR =		I =		O2 =		CO2=		H2S=		NH4=		NO2=	
NO3=	0.60	PO4=		SIO=	44.00	SO4=	832.00	CO3=		HCO=	97.00	CAR=		HAR=	1940.00
SE =	0.01	PHE=	0.01	CD =		CR =		AG =		P =		N =		ELE=	12.00

53 ID#=8-4304-02 TYP=WELL COU=HAWAII LOC=WAIAKEA LAT,LON= 194337. 1550418.00 DAT=1972.

PH =	7.20	SPG=		WED=	27.00	WAD=		TEM=	19.50	FLO=		EH =		SPC=	35900.00
ALK=	86.00	DIS=	22700.00	SUS=		LI =		NA =	7200.00	K =	240.00	RB =		MG =	800.00
CA =	340.00	SR =		BA =		MN =		FE =		FET=		F =	1.10	CU =	
ZN =		HG =		B =		AL =		PB =		AS =		SB =		U =	
CL =	12500.00	BR =		I =		O2 =		CO2=		H2S=		NH4=		NO2=	
NO3=		PO4=		SIO=	33.00	SO4=	1630.00	CO3=		HCO=	105.00	CAR=		HAR=	3910.00
SE =		PHE=		CD =		CR =		AG =		P =		N =		ELE=	10.00

54 ID#=8-4304-03 TYP=WELL COU=HAWAII LOC=WAIAKEA LAT,LON= 194337. 1550418.00 DAT=1972.

PH =	7.10	SPG=		WED=	26.00	WAD=		TEM=	20.00	FLO=		EH =		SPC=	19000.00
ALK=	72.00	DIS=	11400.00	SUS=		LI =		NA =	3540.00	K =	110.00	RB =		MG =	460.00
CA =	132.00	SR =		BA =		MN =		FE =		FET=		F =	0.60	CU =	
ZN =		HG =		B =		AL =		PB =		AS =		SB =		U =	
CL =	6250.00	BR =		I =		O2 =		CO2=		H2S=		NH4=		NO2=	
NO3=	2.10	PO4=		SIO=	46.00	SO4=	868.00	CO3=		HCO=	88.00	CAR=		HAR=	2180.00
SE =		PHE=		CD =		CR =		AG =		P =		N =		ELE=	10.00

55 ID#=8-4306-01 TYP=WELL COU=HAWAII LOC=PIIHONUA LAT,LON= 194318. 1550618.00 DAT=1973.

PH =	8.00	SPG=		WED=	423.00	WAD=	42.00	TEM=	17.80	FLO=		EH =		SPC=	93.00
ALK=	38.00	DIS=	88.00	SUS=		LI =		NA =	7.80	K =	2.20	RB =		MG =	3.30
CA =	5.00	SR =		BA =		MN =		FE =		FET=		F =	0.20	CU =	
ZN =		HG =		B =		AL =		PB =		AS =		SB =		U =	
CL =	2.00	BR =		I =		O2 =		CO2=		H2S=		NH4=		NO2=	
NO3=	0.30	PO4=		SIO=	37.00	SO4=	5.90	CO3=		HCO=	46.00	CAR=		HAR=	26.00
SE =		PHE=		CD =		CR =		AG =		P =		N =		ELE=	278.00

56 ID#=8-4360-01 TYP=WELL COU=HAWAII LOC=KALAOA 12-11 LAT,LON= 194327. 1566023.00 DAT=1968.

PH =	7.40	SPG=		WED=	702.00	WAD=	3.20	TEM=	20.80	FLO=		EH =		SPC=	2760.00
ALK=	98.00	DIS=	1560.00	SUS=		LI =		NA =		K =		RB =		MG =	46.00
CA =	23.00	SR =		BA =		MN =		FE =	0.02	FET=		F =		CU =	
ZN =		HG =		B =		AL =		PB =		AS =		SB =		U =	
CL =	740.00	BR =		I =		O2 =		CO2=		H2S=		NH4=		NO2=	
NO3=		PO4=		SIO=	39.00	SO4=		CO3=		HCO=		CAR=		HAR=	248.00
SE =		PHE=		CD =		CR =		AG =		P =		N =		ELE=	680.00

57 ID#=8-4706-01 TYP=WELL COU=HAWAII LOC=PAPAIKOU LAT,LON= 194715. 1550613.00 DAT=1974.

PH =	7.30	SPG=		WED=	425.00	WAD=	21.00	TEM=		FLO=		EH =		SPC=	119.00
ALK=	62.00	DIS=	76.00	SUS=		LI =		NA =	6.00	K =	1.30	RB =		MG =	3.60
CA =	7.20	SR =		BA =	0.10	MN =	0.01	FE =	0.01	FET=		F =	0.26	CU =	0.01
ZN =	0.12	HG =		B =		AL =	0.10	PB =	0.01	AS =	0.01	SB =		U =	
CL =	14.99	BR =		I =		O2 =		CO2=		H2S=		NH4=		NO2=	0.01
NO3=	0.22	PO4=		SIO=	29.80	SO4=	5.00	CO3=		HCO=	66.00	CAR=		HAR=	42.00
SE =	0.00	PHE=	0.00	CD =	0.00	CR =	0.01	AG =	0.01	P =		N =		ELE=	369.00

58 ID#=8-4858-01 TYP=WELL COU=HAWAII LOC=KONA VIL-1 LAT,LON= 194820. 1555824.00 DAT=1974.

PH =	7.70	SPG=		WED=	528.00	WAD=	0.30	TEM=	20.00	FLO=		EH =		SPC=	1920.00
ALK=	348.00	DIS=	1110.00	SUS=		LI =		NA =	260.00	K =	13.00	RB =		MG =	73.00
CA =	28.00	SR =		BA =	0.10	MN =	0.03	FE =	0.06	FET=		F =	2.10	CU =	0.02
ZN =	0.03	HG =		B =		AL =	0.06	PB =	0.01	AS =	0.03	SB =		U =	
CL =	370.00	BR =		I =		O2 =		CO2=		H2S=		NH4=		NO2=	
NO3=	7.30	PO4=		SIO=	73.00	SO4=	68.00	CO3=		HCO=	432.00	CAR=		HAR=	354.00
SE =	0.01	PHE=	0.00	CD =	0.00	CR =	0.01	AG =	0.01	P =		N =		ELE=	501.00

59 ID#=8-4858-02 TYP=WELL COU=HAWAII LOC=KONA VIL-2 LAT,LON= 194818. 1555824.00 DAT=1973.

PH =	7.10	SPG=		WED=	523.00	WAD=	1.80	TEM=	22.20	FLO=		EH =		SPC=	1900.00
ALK=	270.00	DIS=	1160.00	SUS=		LI =		NA =	313.00	K =	16.00	RB =		MG =	77.00
CA =	29.00	SR =		BA =	0.30	MN =	0.03	FE =	0.23	FET=		F =	2.40	CU =	0.02
ZN =	0.04	HG =		B =		AL =	0.02	PB =	0.01	AS =	0.00	SB =		U =	
CL =	380.00	BR =		I =		O2 =		CO2=		H2S=		NH4=		NO2=	0.01
NO3=	1.10	PO4=		SIO=	84.40	SO4=	80.00	CO3=		HCO=	73.00	CAR=		HAR=	350.00
SE =	0.00	PHE=	0.00	CD =	0.00	CR =	0.01	AG =	0.01	P =		N =		ELE=	503.00

60 ID#=8-4858-03 TYP=WELL COU=HAWAII LOC=KONA VIL-3 LAT,LON= 194820. 1555825.00 DAT=1974.

PH =		SPG=		WED=	534.00	WAD=	2.80	TEM=	20.00	FLO=		EH =		SPC=	2550.00
ALK=	160.00	DIS=	1130.00	SUS=		LI =		NA =	362.00	K =	11.10	RB =		MG =	92.70
CA =	25.00	SR =		BA =	0.10	MN =	0.01	FE =	0.12	FET=		F =	1.00	CU =	0.02
ZN =	0.22	HG =		B =		AL =	0.10	PB =	0.05	AS =	0.01	SB =		U =	
CL =	580.00	BR =		I =		O2 =		CO2=		H2S=		NH4=		NO2=	0.01
NO3=	2.00	PO4=		SIO=	47.90	SO4=	77.00	CO3=		HCO=		CAR=		HAR=	344.00
SE =	0.00	PHE=	0.00	CD =	0.00	CR =	0.01	AC =	0.01	P =		N =		ELE=	500.00

61 ID#=8-4953-01 TYP=WELL COU=HAWAII LOC=KIHOLO LAT,LON= 194945. 1555344.00 DAT=1972.

PH =	7.90	SPC=		WED=	971.00	WAD=	2.60	TEM=	21.00	FLO=		EH =		SPC=	1250.00
ALK=	75.00	DIS=	769.00	SUS=		LI =		NA =	218.00	K =	12.00	RB =		MG =	26.00
CA =	16.00	SR =		BA =		MN =		FE =		FET=		F =	0.90	CU =	
ZN =		HG =		B =		AL =		PB =		AS =		SB =		U =	
CL =	330.00	BR =		I =		O2 =		CO2=		H2S=		NH4=		NO2=	
NO3=	0.90	PO4=		SIO=	36.00	SO4=	71.00	CO3=		HCO=	91.00	CAR=		HAR=	147.00
SE =		PHE=		CD =		CR =		AG =		P =	0.08	N =		ELE=	932.00

62 ID#=8-5005-01 TYP=WELL COU=HAWAII LOC=PEPEEKEO SUG LAT,LON= 195034. 1550545.00 DAT=1972.

PH =	7.20	SPC=		WED=	333.00	WAD=	11.40	TEM=	21.00	FLO=		EH =		SPC=	162.00
ALK=	61.00	DIS=	141.00	SUS=		LI =		NA =	7.80	K =	0.60	RB =		MG =	10.00
CA =	12.00	SR =		BA =	0.10	MN =	0.05	FE =	0.23	FET=		F =	0.10	CU =	0.02
ZN =	0.67	HG =		B =		AL =	0.02	PB =	0.01	AS =	0.00	SB =		U =	
CL =	12.00	BR =		I =		O2 =		CO2=		H2S=		NH4=		NO2=	0.01
NO3=	0.50	PO4=		SIO=	45.00	SO4=	17.00	CO3=		HCO=	74.00	CAR=		HAR=	72.00
SE =	0.01	PHE=	0.00	CD =	0.00	CR =	0.05	AG =	0.01	P =		N =		ELE=	304.00

63 ID#=8-5548-01 TYP=WELL COU=HAWAII LOC=PARKER-1 LAT,LON= 195546. 1554802.00 DAT=1977.

PH =	7.50	SPC=		WED=	849.00	WAD=	6.10	TEM=	28.00	FLO=		EH =		SPC=	2000.00
ALK=	110.00	DIS=	1180.00	SUS=		LI =		NA =	320.00	K =	22.00	RB =		MG =	47.00
CA =	29.00	SR =		BA =		MN =	10.00	FE =	20.00	FET=		F =	0.50	CU =	
ZN =		HG =		B =		AL =		PB =		AS =		SB =		U =	
CL =	520.00	BR =		I =		O2 =		CO2=	7.10	H2S=		NH4=		NO2=	
NO3=	3.10	PO4=		SIO=	56.00	SO4=	99.00	CO3=		HCO=	140.00	CAR=		HAR=	270.00
SE =		PHE=		CD =		CR =		AG =		P =		N =		ELE=	814.00

64 ID#=8-5745-01 TYP=WELL COU=HAWAII LOC=PARKER-5 LAT,LON= 195725. 1554553.00 DAT=1974.

PH =	6.70	SPC=		WED=	1236.00	WAD=	16.00	TEM=	26.00	FLO=		EH =		SPC=	280.00
ALK=	88.00	DIS=	210.00	SUS=		LI =		NA =	27.00	K =	3.10	RB =		MG =	8.60
CA =	5.40	SR =		BA =	0.10	MN =	0.01	FE =	0.27	FET=		F =	0.36	CU =	0.05
ZN =	0.12	HG =		B =		AL =	0.10	PB =	0.01	AS =	0.01	SB =		U =	
CL =	26.00	BR =		I =		O2 =		CO2=	5.20	H2S=		NH4=		NO2=	0.01
NO3=	0.94	PO4=		SIO=	46.80	SO4=	14.00	CO3=		HCO=	102.00	CAR=		HAR=	76.00
SE =	0.00	PHE=	0.00	CD =	0.00	CR =	0.01	AG =	0.01	P =		N =	3.80	ELE=	1213.00

65 ID#=8-5745-02 TYP=WELL COU=HAWAII LOC=PARKER-4 LAT,LON= 195722. 1554551.00 DAT=1977.

PH =	7.40	SPC=		WED=	1231.00	WAD=	16.00	TEM=	26.50	FLO=		EH =		SPC=	280.00
ALK=	82.00	DIS=	207.00	SUS=		LI =		NA =	34.00	K =	4.80	RB =		MG =	9.90
CA =	9.00	SR =		BA =		MN =	0.00	FE =	20.00	FET=		F =	0.30	CU =	
ZN =		HG =		B =		AL =		PB =		AS =		SB =		U =	
CL =	27.00	BR =		I =		O2 =		CO2=	6.40	H2S=		NH4=		NO2=	
NO3=		PO4=		SIO=	57.00	SO4=	16.00	CO3=		HCO=	100.00	CAR=		HAR=	63.00
SE =		PHE=		CD =		CR =		AG =		P =		N =		ELE=	1203.00

66 ID#=8-5814-01 TYP=WELL COU=HAWAII LOC=LAUPAHOEHOE LAT,LON= 195857. 1551423.00 DAT=1974.

PH =	7.00	SPG=		WED=	700.00	WAD=	5.90	TEM=	19.00	FLO=		EH =		SPC=	470.00
ALK=	45.00	DIS=	262.00	SUS=		LI =		NA =	46.00	K =	4.10	RB =		MG =	13.00
CA =	15.00	SR =		BA =		MN =	0.00	FE =	60.00	FET=		F =	0.10	CU =	0.02
ZN =	0.13	HG =		B =		AL =	0.02	PB =	0.02	AS =		SB =		U =	
CL =	100.00	BR =		I =		O2 =		CO2=	8.80	H2S=		NH4=		NO2=	0.01
NO3=	0.15	PO4=	0.21	SIO=	40.00	SO4=	14.00	CO3=		HCO=	55.00	CAR=		HAR=	91.00
SE =	0.00	PHE=		CD =		CR =		AG =		P =	0.07	N =	0.44	ELE=	659.00

67 ID#=8-5946-01 TYP=WELL COU=HAWAII LOC=LALAMILO LAT,LON= 195930. 1554630.00 DAT=1977.

PH =		SPG=		WED=	1277.00	WAD=	24.90	TEM=	26.50	FLO=		EH =		SPC=	449.00
ALK=	73.00	DIS=	291.00	SUS=		LI =		NA =	61.00	K =	5.90	RB =		MG =	15.00
CA =	11.00	SR =		BA =		MN =	20.00	FE =	40.00	FET=		F =	0.30	CU =	
ZN =		HG =		B =		AL =		PB =		AS =		SB =		U =	
CL =	78.00	BR =		I =		O2 =		CO2=		H2S=		NH4=		NO2=	
NO3=		PO4=		SIO=	55.00	SO4=	21.00	CO3=		HCO=	89.00	CAR=		HAR=	89.00
SE =		PHE=		CD =		CR =		AG =		P =		N =		ELE=	1172.00

68 ID#=8-5948-01 TYP=WELL COU=HAWAII LOC=HAPUNA BCH P LAT,LON= 195947. 1554838.00 DAT=1979.

PH =	7.30	SPG=		WED=	278.00	WAD=		TEM=	25.00	FLO=		EH =		SPC=	1600.00
ALK=	73.00	DIS=	922.00	SUS=		LI =		NA =	250.00	K =	15.00	RB =		MG =	37.00
CA =	20.00	SR =		BA =		MN =		FE =		FET=		F =	0.30	CU =	
ZN =		HG =		B =		AL =		PB =		AS =		SB =		U =	
CL =	440.00	BR =		I =		O2 =		CO2=		H2S=		NH4=		NO2=	
NO3=	5.30	PO4=		SIO=	49.00	SO4=	68.00	CO3=		HCO=	95.00	CAR=		HAR=	202.00
SE =		PHE=		CD =		CR =		AG =		P =		N =		ELE=	244.00

69 ID#=8-6048-01 TYP=WELL COU=HAWAII LOC=KAWAIHAE-2 LAT,LON= 200029. 1554848.00 DAT=1961.

PH =	7.70	SPG=		WED=	430.00	WAD=	3.30	TEM=	26.10	FLO=		EH =		SPC=	
ALK=	78.00	DIS=		SUS=		LI =		NA =		K =		RB =		MG =	27.80
CA =	53.60	SR =		BA =		MN =	0.10	FE =		FET=		F =		CU =	
ZN =		HG =		B =		AL =		PB =		AS =		SB =		U =	
CL =	504.00	BR =		I =		O2 =		CO2=		H2S=		NH4=		NO2=	
NO3=		PO4=		SIO=	30.00	SO4=	90.80	CO3=		HCO=		CAR=		HAR=	250.00
SE =		PHE=		CD =		CR =		AG =		P =		N =		ELE=	392.00

70 ID#=8-6048-02 TYP=WELL COU=HAWAII LOC=M KEA BCH HT LAT,LON= 200010. 1554855.00 DAT=1972.

PH =	7.60	SPG=		WED=	376.00	WAD=	4.50	TEM=	26.00	FLO=		EH =		SPC=	1500.00
ALK=	77.00	DIS=	838.00	SUS=		LI =		NA =	216.00	K =	15.00	RB =		MG =	34.00
CA =	21.00	SR =		BA =		MN =		FE =		FET=		F =	0.30	CU =	
ZN =		HG =		B =		AL =		PB =		AS =		SB =		U =	
CL =	390.00	BR =		I =		O2 =		CO2=		H2S=		NH4=		NO2=	
NO3=	3.20	PO4=		SIO=	51.00	SO4=	62.00	CO3=		HCO=	94.00	CAR=		HAR=	193.00
SE =		PHE=		CD =		CR =		AG =		P =		N =		ELE=	340.00

71 ID#=8-6049-01 TYP=WELL COU=HAWAII LOC=M KEA BCH HT LAT,LON= 200015. 1554920.00 DAT=1972.

PH =	8.10	SPC=		WED=	218.00	WAD=	2.00	TEM=	25.00	FLO=		EH =		SPC=	1520.00
ALK=	78.00	DIS=	838.00	SUS=		LI =		NA =	216.00	K =	15.00	RB =		MG =	34.00
CA =	21.00	SR =		BA =		MN =		FE =		FET=		F =	0.30	CU =	
ZN =		HG =		B =		AL =		PB =		AS =		SB =		U =	
CL =	390.00	BR =		I =		O2 =		CO2=		H2S=		NH4=		NO2=	
NO3=	1.90	PO4=		SIO=	51.00	SO4=	62.00	CO3=		HCO=	95.00	CAR=		HAR=	193.00
SE =		PHE=		CD =		CR =		AG =		P =		N =		ELE=	188.00

72 ID#=8-6049-02 TYP=WELL COU=HAWAII LOC=M KEA RESRT3 LAT,LON= 200034. 1554940.00 DAT=1972.

PH =	7.80	SPC=		WED=	76.00	WAD=		TEM=	26.00	FLO=		EH =		SPC=	5840.00
ALK=	87.00	DIS=	3300.00	SUS=		LI =		NA =	974.00	K =	50.00	RB =		MG =	119.00
CA =	58.00	SR =		BA =		MN =	0.05	FE =	0.04	FET=		F =	0.30	CU =	0.10
ZN =	0.10	HG =		B =		AL =	0.05	PB =	0.01	AS =	0.01	SB =		U =	
CL =	1740.00	BR =		I =		O2 =		CO2=		H2S=		NH4=		NO2=	0.02
NO3=	3.80	PO4=		SIO=	50.00	SO4=	249.00	CO3=		HCO=	106.00	CAR=		HAR=	635.00
SE =	0.01	PHE=	0.00	CD =		CR =		AG =		P =		N =		ELE=	40.00

73 ID#=8-6049-03 TYP=WELL COU=HAWAII LOC=M KEA RESRT4 LAT,LON= 200039. 1554940.00 DAT=1974.

PH =	7.30	SPC=		WED=		WAD=		TEM=	25.00	FLO=		EH =		SPC=	9500.00
ALK=	85.00	DIS=	7990.00	SUS=		LI =		NA =	2400.00	K =	110.00	RB =		MG =	270.00
CA =	120.00	SR =		BA =		MN =	110.00	FE =	60.00	FET=		F =	0.30	CU =	
ZN =		HG =		B =		AL =		PB =		AS =		SB =		U =	
CL =	3600.00	BR =		I =		O2 =		CO2=	8.30	H2S=		NH4=		NO2=	
NO3=	3.20	PO4=	0.37	SIO=	53.00	SO4=	580.00	CO3=		HCO=	104.00	CAR=		HAR=	1400.00
SE =		PHE=		CD =		CR =		AG =		P =	0.12	N =	1.10	ELE=	

74 ID#=8-6117-01 TYP=TUNNEL COU=HAWAII LOC=OOKALA SHAFT LAT,LON= 200108. 1551716.00 DAT=1972.

PH =	7.60	SPC=		WED=	600.00	WAD=	6.00	TEM=	17.80	FLO=		EH =		SPC=	599.00
ALK=	51.00	DIS=	338.00	SUS=		LI =		NA =	78.00	K =	4.90	RB =		MG =	14.00
CA =	11.00	SR =		BA =	0.10	MN =	0.03	FE =	0.03	FET=		F =	0.20	CU =	0.02
ZN =	0.02	HG =		B =		AL =	0.02	PB =	0.01	AS =	0.01	SB =		U =	
CL =	135.00	BR =		I =		O2 =		CO2=		H2S=		NH4=		NO2=	0.01
NO3=	1.00	PO4=		SIO=	43.00	SO4=	21.00	CO3=		HCO=	62.00	CAR=		HAR=	85.00
SE =	0.01	PHE=	0.00	CD =	0.00	CR =	0.01	AG =	0.01	P =		N =		ELE=	300.00

75 ID#=8-6147-01 TYP=WELL COU=HAWAII LOC=KAWAIHAE-3 LAT,LON= 200132. 1554711.00 DAT=1974.

PH =	7.10	SPC=		WED=	1046.00	WAD=	4.60	TEM=	31.00	FLO=		EH =		SPC=	1070.00
ALK=	81.00	DIS=	728.00	SUS=		LI =		NA =	132.00	K =	14.00	RB =		MG =	32.00
CA =	32.00	SR =		BA =		MN =	0.05	FE =	1.41	FET=		F =	0.20	CU =	0.10
ZN =	0.10	HG =		B =		AL =	0.20	PB =	0.01	AS =	0.01	SB =		U =	
CL =	253.00	BR =		I =		O2 =		CO2=		H2S=		NH4=		NO2=	0.00
NO3=	3.60	PO4=		SIO=	84.00	SO4=	52.00	CO3=		HCO=	105.00	CAR=	14.00	HAR=	331.00
SE =	0.01	PHE=	0.00	CD =		CR =		AG =		P =		N =		ELE=	982.00

76 ID#=8-6148-01 TYP=WELL COU=HAWAII LOC=KAWAIHAE-1 LAT,LON= 200122. 1554809.00 DAT=1973.

PH =	7.80	SPC=		WED=	620.00	WAD=	3.30	TEM=	27.00	FLO=		EH =		SPC=	1350.00
ALK=	66.00	DIS=	741.00	SUS=		LI =		NA =	180.00	K =	13.00	RB =		MG =	32.60
CA =	24.00	SR =		BA =	0.30	MN =	0.05	FE =	3.60	FET=		F =	0.30	CU =	0.03
ZN =	2.20	HG =		B =		AL =	0.10	PB =	0.16	AS =	0.05	SB =		U =	
CL =	360.00	BR =		I =		O2 =		CO2=		H2S=		NH4=		NO2=	0.01
NO3=	3.80	PO4=		SIO=	66.00	SO4=	42.00	CO3=		HCO=	82.00	CAR=		HAR=	192.00
SE =	0.00	PHE=	0.00	CD =	0.00	CR =	0.01	AG =	0.01	P =		N =		ELE=	579.00

77 ID#=8-6148-02 TYP=WELL COU=HAWAII LOC=KAWAIHAE-4 LAT,LON= 200121. 1554808.00 DAT=1970.

PH =	7.40	SPC=		WED=	626.00	WAD=	7.60	TEM=	26.40	FLO=		EH =		SPC=	1400.00
ALK=	69.30	DIS=		SUS=		LI =		NA =	168.00	K =	0.70	RB =		MG =	29.88
CA =	172.00	SR =		BA =		MN =	0.01	FE =	0.03	FET=		F =	0.07	CU =	0.02
ZN =	0.01	HG =		B =		AL =	0.02	PB =	0.01	AS =	0.00	SB =		U =	
CL =	460.00	BR =		I =		O2 =		CO2=		H2S=		NH4=		NO2=	0.01
NO3=	0.18	PO4=		SIO=	52.00	SO4=	0.09	CO3=		HCO=		CAR=		HAR=	172.00
SE =	0.01	PHE=	0.00	CD =		CR =		AG =		P =		N =		ELE=	582.00

78 ID#=8-6321-01 TYP=WELL COU=HAWAII LOC=PAAUILO MILL LAT,LON= 200314. 1552143.00 DAT=1972.

PH =	7.60	SPC=		WED=	217.00	WAD=	1.70	TEM=	18.00	FLO=		EH =		SPC=	806.00
ALK=	43.00	DIS=	429.00	SUS=		LI =		NA =	102.00	K =	5.60	RB =		MG =	19.00
CA =	16.00	SR =		BA =		MN =		FE =		FET=		F =	0.10	CU =	
ZN =		HG =		B =		AL =		PB =		AS =		SB =		U =	
CL =	195.00	BR =		I =		O2 =		CO2=		H2S=		NH4=		NO2=	
NO3=		PO4=		SIO=	37.00	SO4=	29.00	CO3=		HCO=	53.00	CAR=		HAR=	118.00
SE =		PHE=		CD =		CR =		AG =		P =		N =		ELE=	215.00

79 ID#=8-6321-02 TYP=TUNNEL COU=HAWAII LOC=PAAUILO SHFT LAT,LON= 200308. 1552157.00 DAT=1972.

PH =	7.60	SPC=		WED=	626.00	WAD=	3.39	TEM=	20.00	FLO=		EH =		SPC=	805.00
ALK=	43.00	DIS=	430.00	SUS=		LI =		NA =	80.00	K =	5.50	RB =		MG =	14.00
CA =	29.00	SR =		BA =	0.10	MN =	0.03	FE =	0.05	FET=		F =	0.20	CU =	0.02
ZN =	0.02	HG =		B =		AL =	0.11	PB =	0.01	AS =	0.01	SB =		U =	
CL =	320.00	BR =		I =		O2 =		CO2=		H2S=		NH4=		NO2=	0.01
NO3=	0.52	PO4=		SIO=	29.60	SO4=	28.00	CO3=		HCO=	53.00	CAR=		HAR=	118.00
SE =	0.01	PHE=	0.01	CD =		CR =		AG =	0.01	P =		N =		ELE=	273.00

80 ID#=8-7446-01 TYP=TUNNEL COU=HAWAII LOC=KOHALA SHAFT LAT,LON= 201428. 1554649.00 DAT=1974.

PH =	6.90	SPC=		WED=	135.00	WAD=	7.00	TEM=	22.50	FLO=		EH =		SPC=	2280.00
ALK=	80.00	DIS=	1740.00	SUS=		LI =		NA =	460.00	K =	19.00	RB =		MG =	73.00
CA =	65.00	SR =		BA =		MN =	10.00	FE =	100.00	FET=		F =	0.10	CU =	
ZN =		HG =		B =		AL =		PB =		AS =		SB =		U =	
CL =	920.00	BR =		I =		O2 =		CO2=	20.00	H2S=		NH4=		NO2=	
NO3=	3.70	PO4=	0.18	SIO=	43.00	SO4=	110.00	CO3=		HCO=	98.00	CAR=		HAR=	460.00
SE =		PHE=		CD =		CR =		AG =		P =	0.06	N =	1.00	ELE=	123.00

81 ID#=8-7448-04 TYP=WELL COU=HAWAII LOC=UNION MILL-1 LAT,LON= 201427. 1554822.00 DAT=1973.

PH =	7.30	SPC=		WED=	412.00	WAD=	7.10	TEM=	21.50	FLO=		EH =		SPC=	259.00
ALK=		DIS=		SUS=		LI =		NA =	27.00	K =	2.70	RB =		MG =	7.00
CA =	9.40	SR =		BA =		MN =		FE =		FET=		F =	0.20	CU =	
ZN =		HG =		B =		AL =		PB =		AS =		SB =		U =	
CL =	42.00	BR =		I =		O2 =		CO2=		H2S=		NH4=		NO2=	
NO3=	0.20	PO4=		SIO=	38.00	SO4=	8.90	CO3=		HCO=	62.00	CAR=		HAR=	
SE =		PHE=		CD =		CR =		AG =		P =		N =		ELE=	311.00

82 ID#=8-7448-05 TYP=WELL COU=HAWAII LOC=UNION MILL-2 LAT,LON= 201430. 1554841.00 DAT=1971.

PH =		SPC=		WED=	522.00	WAD=	7.10	TEM=	22.00	FLO=		EH =		SPC=	510.00
ALK=	96.80	DIS=		SUS=		LI =		NA =	43.00	K =	4.90	RB =		MG =	1.30
CA =	16.00	SR =		BA =	0.50	MN =	0.03	FE =	0.09	FET=		F =		CU =	0.02
ZN =	0.01	HG =		B =		AL =	0.14	PB =	0.01	AS =	0.00	SB =		U =	
CL =	129.00	BR =		I =		O2 =		CO2=		H2S=		NH4=		NO2=	0.01
NO3=	0.58	PO4=		SIO=	31.20	SO4=	13.00	CO3=		HCO=	118.00	CAR=		HAR=	88.00
SE =	0.01	PHE=	0.00	CD =	0.00	CR =	0.05	AG =	0.01	P =		N =		ELE=	420.00

83 ID#=8-7650-01 TYP=TUNNEL COU=HAWAII LOC=HOEA SHAFT LAT,LON= 201603. 1555022.00 DAT=1974.

PH =	6.90	SPC=		WED=	61.00	WAD=	2.00	TEM=	21.00	FLO=		EH =		SPC=	415.00
ALK=	75.00	DIS=	320.00	SUS=		LI =		NA =	92.00	K =	4.40	RB =		MG =	6.20
CA =	4.50	SR =		BA =		MN =	0.00	FE =	40.00	FET=		F =	0.30	CU =	
ZN =		HG =		B =		AL =		PB =		AS =		SB =		U =	
CL =	71.00	BR =		I =		O2 =		CO2=	18.00	H2S=		NH4=		NO2=	
NO3=		PO4=	0.89	SIO=	38.00	SO4=	26.00	CO3=		HCO=	91.00	CAR=		HAR=	37.00
SE =		PHE=		CD =		CR =		AG =		P =	0.29	N =	0.88	ELE=	52.00

84 ID#=8-7652-01 TYP=TUNNEL COU=HAWAII LOC=WAIKANE SHFT LAT,LON= 201603. 1555217.00 DAT=1974.

PH =	6.90	SPC=		WED=	42.00	WAD=	0.50	TEM=	22.00	FLO=		EH =		SPC=	2000.00
ALK=	118.00	DIS=	962.00	SUS=		LI =		NA =	290.00	K =	13.00	RB =		MG =	27.00
CA =	15.00	SR =		BA =		MN =	10.00	FE =	40.00	FET=		F =	0.40	CU =	
ZN =		HG =		B =		AL =		PB =		AS =		SB =		U =	
CL =	560.00	BR =		I =		O2 =		CO2=	29.00	H2S=		NH4=		NO2=	
NO3=		PO4=	1.10	SIO=	54.00	SO4=	63.00	CO3=		HCO=	144.00	CAR=		HAR=	150.00
SE =		PHE=		CD =		CR =		AG =		P =	0.36	N =	1.60	ELE=	33.00

TABLE 2 Maui

1	ID#=6-3925-01		TYP=WELL		COU=MAUI				LOC=MAKENA-68			LAT,LON=	203912.		1562559.00		DAT=1964.						
PH =	7.35	SPG=		WED=	382.00	WAD=	0.40	TEM=	20.00	FLO=		EH =		SPC=									
ALK=	200.00	DIS=	1110.00	SUS=		LI =		NA =	255.00	K =	23.00	RB =		MG =	64.20								
CA =	49.60	SR =		BA =		MN =	0.05	FE =	0.13	FET=		F =	0.10	CU =	0.10								
ZN =	0.10	HG =		B =		AL =	0.05	PB =	0.01	AS =	0.01	SB =		U =									
CL =	500.00	BR =		I =		O2 =		CO2=		H2S=		NH4=		NO2=	6.00								
NO3=	7.10	PO4=		SIO=	41.00	SO4=	50.00	CO3=		HCO=	244.00	CAR=	0.00	HAR=	388.00								
SE =	0.01	PHE=	0.00	CD =		CR =		AG =		P =		N =		ELE=	352.00								

2	ID#=6-4126-02		TYP=WELL		COU=MAUI				LOC=WAILEA-2			LAT,LON=	204128.		1562621.00		DAT=1974.						
PH =	8.10	SPG=		WED=	198.00	WAD=	2.00	TEM=	19.00	FLO=		EH =		SPC=	2000.00								
ALK=	100.00	DIS=	958.00	SUS=		LI =		NA =	280.00	K =	21.00	RB =		MG =	28.00								
CA =	21.00	SR =		BA =		MN =		FE =	20.00	FET=		F =	0.70	CU =									
ZN =		HG =		B =		AL =		PB =		AS =		SB =		U =									
CL =	460.00	BR =		I =		O2 =		CO2=	1.60	H2S=		NH4=		NO2=									
NO3=	17.00	PO4=	15.00	SIO=	45.00	SO4=	57.00	CO3=		HCO=	122.00	CAR=		HAR=	170.00								
SE =		PHE=		CD =		CR =		AG =		P =	4.80	N =	3.90	ELE=	181.00								

3	ID#=6-4627-14		TYP=WELL		COU=MAUI				LOC=TMK 3-9-01-3			LAT,LON=	204635.		1562701.00		DAT=1974.						
PH =	7.60	SPG=		WED=	200.00	WAD=		TEM=	22.50	FLO=		EH =		SPC=	1440.00								
ALK=	196.00	DIS=	799.00	SUS=		LI =		NA =	240.00	K =	20.00	RB =		MG =	18.00								
CA =	13.00	SR =		BA =		MN =	0.00	FE =	40.00	FET=		F =	0.30	CU =									
ZN =		HG =		B =		AL =		PB =		AS =		SB =		U =									
CL =	280.00	BR =		I =		O2 =		CO2=	9.60	H2S=		NH4=		NO2=									
NO3=	13.00	PO4=	0.89	SIO=	59.00	SO4=	44.00	CO3=		HCO=	239.00	CAR=		HAR=	110.00								
SE =		PHE=		CD =		CR =		AG =		P =	0.29	N =	3.50	ELE=	130.00								

4	ID#=6-4727-01		TYP=TUNNEL		COU=MAUI				LOC=KIHEI SHAFT			LAT,LON=	204721.		1562745.00		DAT=1973.						
PH =	7.00	SPG=		WED=	23.00	WAD=	3.50	TEM=	24.30	FLO=		EH =		SPC=	2850.00								
ALK=	295.00	DIS=	1600.00	SUS=		LI =		NA =	434.00	K =	23.00	RB =		MG =	64.00								
CA =	54.00	SR =		BA =		MN =		FE =		FET=		F =	0.40	CU =									
ZN =		HG =		B =	0.90	AL =		PB =		AS =		SB =		U =									
CL =	575.00	BR =	4.40	I =	0.04	O2 =		CO2=		H2S=		NH4=		NO2=									
NO3=	6.80	PO4=	0.00	SIO=	48.00	SO4=	93.00	CO3=	0.00	HCO=	559.00	CAR=		HAR=	298.00								
SE =		PHE=		CD =		CR =		AG =		P =		N =		ELE=	26.00								

5	ID#=6-4824-01		TYP=WELL		COU=MAUI				LOC=KIHEI EXPLOR			LAT,LON=	204827.		1562422.00		DAT=1971.						
PH =	7.70	SPG=		WED=	640.00	WAD=	2.80	TEM=	24.00	FLO=		EH =		SPC=	612.00								
ALK=	190.00	DIS=	408.00	SUS=		LI =		NA =	95.00	K =	11.00	RB =		MG =	18.00								
CA =	11.00	SR =		BA =		MN =		FE =		FET=		F =	0.80	CU =									
ZN =		HG =		B =		AL =		PB =		AS =		SB =		U =									
CL =	73.00	BR =		I =		O2 =		CO2=		H2S=		NH4=		NO2=									
NO3=	12.00	PO4=	0.00	SIO=	57.00	SO4=	16.00	CO3=	0.00	HCO=	232.00	CAR=		HAR=	102.00								
SE =		PHE=		CD =		CR =		AG =		P =		N =		ELE=	593.00								

6 ID#=6-4825-01 TYP=TUNNEL COU=MAUI LOC=KIHEI SHFT15 LAT,LON= 204845. 1562549.00 DAT=1972.

PH =	8.00	SPC=		WED=		WAD=	3.60	TEM=	23.00	FLO=		EH =		SPC=	1630.00
ALK=	273.00	DIS=	979.00	SUS=		LI =		NA =	275.00	K =	19.00	RB =		MG =	35.00
CA =	21.00	SR =		BA =		MN =		FE =		FET=		F =	0.80	CU =	
ZN =		HC =		B =	0.20	AL =		PB =		AS =		SB =		U =	
CL =	340.00	BR =	2.70	I =	0.04	O2 =		CO2=		H2S=		NH4=		NO2=	
NO3=	18.00	PO4=	0.00	SIO=	58.00	SO4=	53.00	CO3=		HCO=	333.00	CAR=		HAR=	197.00
SE =		PHE=		CD =		CR =		AG =		P =		N =		ELE=	325.00

ID#=6-4835-01 TYP=TUNNEL COU=MAUI LOC=UKUMEHAME LAT,LON= 204847. 1563558.00 DAT=1970.

	7.50	SPC=		WED=	143.00	WAD=	6.00	TEM=	33.00	FLO=		EH =		SPC=	
	108.00	DIS=	921.00	SUS=		LI =		NA =	180.00	K =	15.00	RB =		MG =	29.00
CA =	85.00	SR =		BA =		MN =		FE =		FET=		F =	1.20	CU =	
ZN =		HG =		B =	2.00	AL =		PB =		AS =		SB =		U =	
CL =	400.00	BR =	6.00	I =	0.04	O2 =		CO2=		H2S=		NH4=		NO2=	
NO3=	11.00	PO4=	0.05	SIO=	60.00	SO4=	50.00	CO3=		HCO=	130.00	CAR=		HAR=	330.00
SE =		PHE=		CD =		CR =		AG =		P =		N =		ELE=	79.00

8 ID#=6-4837-01 TYP=TUNNEL COU=MAUI LOC=OLOWALU LAT,LON= 204859. 1563709.00 DAT=1970.

PH =	7.60	SPC=		WED=	20.00	WAD=	2.00	TEM=	25.50	FLO=		EH =		SPC=	
ALK=	98.00	DIS=	956.00	SUS=		LI =		NA =	150.00	K =	5.00	RB =		MG =	67.00
CA =	90.00	SR =		BA =		MN =		FE =		FET=		F =	0.20	CU =	
ZN =		HG =		B =	0.90	AL =		PB =		AS =		SB =		U =	
CL =	460.00	BR =	4.00	I =	0.02	O2 =		CO2=		H2S=		NH4=		NO2=	
NO3=	5.90	PO4=	0.10	SIO=	45.00	SO4=	70.00	CO3=		HCO=	120.00	CAR=		HAR=	500.00
		PHE=		CD =		CR =		AG =		P =		N =		ELE=	20.00

9 ID#=6-4928-02 TYP=TUNNEL COU=MAUI LOC=PUUNENE AIRP LAT,LON= 204909. 1562814.00 DAT=1973.

PH =	7.80	SPC=		WED=	53.00	WAD=	4.30	TEM=		FLO=		EH =		SPC=	1890.00
ALK=	388.00	DIS=	1040.00	SUS=		LI =		NA =	277.00	K =	13.00	RB =		MG =	45.00
CA =	30.00	SR =		BA =		MN =		FE =		FET=		F =	0.40	CU =	
ZN =		HG =		B =		AL =		PB =		AS =		SB =		U =	
CL =	390.00	BR =		I =		O2 =		CO2=		H2S=		NH4=		NO2=	
NO3=	4.30	PO4=	0.00	SIO=	44.00	SO4=	53.00	CO3=	0.00	HCO=	334.00	CAR=		HAR=	260.00
SE =		PHE=		CD =		CR =		AG =		P =		N =		ELE=	50.00

10 ID#=6-4937-01 TYP=TUNNEL COU=MAUI LOC=OLOWALU S10 LAT,LON= 204931. 1563712.00 DAT=1974.

PH =	7.10	SPC=		WED=	300.00	WAD=	3.50	TEM=	25.00	FLO=		EH =		SPC=	4670.00
ALK=	116.00	DIS=	1900.00	SUS=		LI =		NA =	370.00	K =	14.00	RB =		MG =	120.00
CA =	160.00	SR =		BA =		MN =	0.00	FE =	10.00	FET=		F =	0.10	CU =	
ZN =		HG =		B =	1.00	AL =		PB =		AS =		SB =		U =	
CL =	1400.00	BR =	2.50	I =	0.03	O2 =		CO2=	18.00	H2S=		NH4=		NO2=	
NO3=	6.40	PO4=	0.21	SIO=	52.00	SO4=	110.00	CO3=		HCO=	141.00	CAR=		HAR=	890.00
SE =		PHE=		CD =		CR =		AG =		P =	0.07	N =	1.90	ELE=	165.00

11 ID#=6-5021-01 TYP=WELL COU=MAUI LOC=PUKALANI LAT,LON= 205014. 1562127.00 DAT=1972.

PH =	7.40	SPC=		WED=	1140.00	WAD=	8.00	TEM=	21.00	FLO=		EH =		SPC=	1850.00
ALK=	69.00	DIS=	1030.00	SUS=		LI =		NA =	116.00	K =	19.00	RB =		MG =	103.00
CA =	84.00	SR =		BA =		MN =		FE =		FET=		F =	0.10	CU =	
ZN =		HG =		B =		AL =		PB =		AS =		SB =		U =	
CL =	480.00	BR =		I =		O2 =		CO2=		H2S=		NH4=		NO2=	
NO3=	19.00	PO4=	0.00	SIO=	43.00	SO4=	55.00	CO3=	0.00	HCO=	79.00	CAR=		HAR=	634.00
SE =		PHE=		CD =		CR =		AG =		P =		N =		ELE=	1086.00

12 ID#=6-5128-02 TYP=TUNNEL COU=MAUI LOC=WAIKAPU LAT,LON= 205102. 1562825.00 DAT=1974.

PH =	7.40	SPC=		WED=	129.00	WAD=	4.20	TEM=	24.00	FLO=		EH =		SPC=	1880.00
ALK=	296.00	DIS=	1030.00	SUS=		LI =		NA =	300.00	K =	15.00	RB =		MG =	42.00
CA =	38.00	SR =		BA =		MN =	0.00	FE =	40.00	FET=		F =	0.00	CU =	
ZN =		HG =		B =	0.10	AL =		PB =		AS =		SB =		U =	
CL =	410.00	BR =	3.70	I =	0.02	O2 =		CO2=	23.00	H2S=		NH4=		NO2=	
NO3=	16.00	PO4=	0.06	SIO=	51.00	SO4=	53.00	CO3=		HCO=	361.00	CAR=		HAR=	270.00
SE =		PHE=		CD =		CR =		AG =		P =	0.02	N =	0.05	ELE=	126.00

13 ID#=6-5130-02 TYP=WELL COU=MAUI LOC=WAIKAPU-2 LAT,LON= 205154. 1563038.00 DAT=1974.

PH =	8.10	SPC=		WED=	1020.00	WAD=	10.30	TEM=	21.00	FLO=		EH =		SPC=	461.00
ALK=	194.00	DIS=	288.00	SUS=		LI =		NA =	74.00	K =	3.60	RB =		MG =	9.50
CA =	12.00	SR =		BA =		MN =	10.00	FE =	10.00	FET=		F =	0.50	CU =	
ZN =		HG =		B =		AL =		PB =		AS =		SB =		U =	
CL =	16.00	BR =		I =		O2 =		CO2=	3.00	H2S=		NH4=		NO2=	
NO3=		PO4=	1.00	SIO=	34.00	SO4=	9.00	CO3=	0.00	HCO=	236.00	CAR=		HAR=	69.00
SE =		PHE=		CD =		CR =		AG =		P =	0.34	N =	2.80	ELE=	518.00

14 ID#=6-5224-01 TYP=WELL COU=MAUI LOC=HAIKU DITCH LAT,LON= 205241. 1562429.00 DAT=1970.

PH =	7.30	SPC=		WED=		WAD=		TEM=	23.00	FLO=		EH =		SPC=	
ALK=		DIS=		SUS=		LI =		NA =	170.00	K =	15.00	RB =		MG =	36.00
CA =	22.00	SR =		BA =		MN =		FE =		FET=		F =	1.60	CU =	
ZN =		HG =		B =	0.10	AL =		PB =		AS =		SB =		U =	
CL =	287.00	BR =	2.80	I =	0.03	O2 =		CO2=		H2S=		NH4=		NO2=	
NO3=	13.00	PO4=	0.36	SIO=	59.00	SO4=	33.00	CO3=		HCO=	150.00	CAR=		HAR=	202.00
SE =		PHE=		CD =		CR =		AG =		P =		N =		ELE=	

15 ID#=6-5224-02 TYP=TUNNEL COU=MAUI LOC=PUUNENE-9 LAT,LON= 205243. 1562432.00 DAT=1972.

PH =	7.70	SPC=		WED=	202.00	WAD=	4.30	TEM=	23.80	FLO=		EH =		SPC=	1600.00
ALK=	171.00	DIS=	848.00	SUS=		LI =		NA =	230.00	K =	17.00	RB =		MG =	31.00
CA =	17.00	SR =		BA =		MN =		FE =		FET=		F =	0.50	CU =	
ZN =		HG =		B =	1.50	AL =		PB =		AS =		SB =		U =	
CL =	390.00	BR =	11.00	I =	0.04	O2 =		CO2=		H2S=		NH4=		NO2=	
NO3=	16.00	PO4=	0.15	SIO=	62.00	SO4=	48.00	CO3=		HCO=	208.00	CAR=		HAR=	170.00
SE =		PHE=		CD =		CR =		AG =		P =		N =		ELE=	207.00

16 ID#=6-5226-01 TYP=TUNNEL COU=MAUI. LOC=PUUNENE-5 LAT,LON= 205254. 1562658.00 DAT=1970.

PH =	7.30	SPC=		WED=	48.00	WAD=	4.60	TEM=	26.00	FLO=		EH =		SPC=	
ALK=	320.00	DIS=	1210.00	SUS=		LI =		NA =	275.00	K =	19.00	RB =		MG =	62.00
CA =	58.00	SR =		BA =		MN =		FE =		FET=		F =	2.70	CU =	
ZN =		HG =		B =	0.25	AL =		PB =		AS =		SB =		U =	
CL =	477.00	BR =	4.60	I =	0.04	O2 =		CO2=		H2S=		NH4=		NO2=	
NO3=	14.00	PO4=	0.62	SIO=	59.00	SO4=	44.00	CO3=		HCO=	390.00	CAR=		HAR=	398.00
SE =		PHE=		CD =		CR =		AG =		P =		N =		ELE=	40.00

17 ID#=6-5226-02 TYP=TUNNEL COU=MAUI LOC=PUUNENE-6 LAT,LON= 205201. 1562610.00 DAT=1970.

PH =	7.40	SPC=		WED=	176.00	WAD=	4.40	TEM=	23.50	FLO=		EH =		SPC=	
ALK=	148.00	DIS=	884.00	SUS=		LI =		NA =	230.00	K =	14.00	RB =		MG =	34.00
CA =	28.00	SR =		BA =		MN =		FE =		FET=		F =	2.20	CU =	
ZN =		HG =		B =	0.10	AL =		PB =		AS =		SB =		U =	
CL =	376.00	BR =	4.60	I =	0.04	O2 =		CO2=		H2S=		NH4=		NO2=	
NO3=	13.00	PO4=	0.74	SIO=	56.00	SO4=	38.00	CO3=		HCO=	180.00	CAR=		HAR=	208.00
SE =		PHE=		CD =		CR =		AG =		P =		N =		ELE=	182.00

18 ID#=6-5228-06 TYP=WELL COU=MAUI LOC=PASSION ACRE LAT,LON= 205203. 1562859.00 DAT=1962.

PH =	7.40	SPC=		WED=	250.00	WAD=	9.00	TEM=		FLO=		EH =		SPC=	
ALK=	175.00	DIS=	553.00	SUS=		LI =		NA =		K =		RB =		MG =	19.30
CA =	14.40	SR =		BA =		MN =	0.05	FE =		FET=		F =	0.15	CU =	0.10
ZN =	0.10	HG =		B =		AL =		PB =	0.01	AS =	0.01	SB =		U =	
CL =	113.00	BR =		I =		O2 =		CO2=		H2S=		NH4=		NO2=	0.00
NO3=	7.30	PO4=		SIO=	45.60	SO4=	39.00	CO3=		HCO=	268.00	CAR=		HAR=	115.00
SE =	0.02	PHE=	0.05	CD =		CR =		AG =		P =		N =		ELE=	143.00

19 ID#=6-5229-01 TYP=WELL COU=MAUI LOC=WAIALE LAT,LON= 205257. 1562944.00 DAT=1978.

PH =		SPC=		WED=		WAD=		TEM=	22.00	FLO=		EH =		SPC=	1170.00
ALK=	110.00	DIS=	648.00	SUS=		LI =		NA =	140.00	K =	8.40	RB =		MG =	32.00
CA =	26.00	SR =		BA =		MN =	20.00	FE =	10.00	FET=		F =	0.50	CU =	
ZN =		HG =		B =		AL =		PB =		AS =		SB =		U =	
CL =	260.00	BR =		I =		O2 =		CO2=		H2S=		NH4=		NO2=	
NO3=		PO4=	1.00	SIO=	61.00	SO4=	40.00	CO3=		HCO=	140.00	CAR=		HAR=	200.00
SE =		PHE=		CD =		CR =		AG =		P =	0.33	N =	2.30	ELE=	

20 ID#=6-5240-01 TYP=TUNNEL COU=MAUI LOC=MILL PUMP-C LAT,LON= 205255. 1564044.00 DAT=1970.

PH =	7.20	SPC=		WED=	39.00	WAD=	3.00	TEM=	24.50	FLO=		EH =		SPC=	
ALK=	159.00	DIS=	2040.00	SUS=		LI =		NA =	430.00	K =	25.00	RB =		MG =	111.00
CA =	130.00	SR =		BA =		MN =		FE =		FET=		F =	0.30	CU =	
ZN =		HG =		B =	0.50	AL =		PB =		AS =		SB =		U =	
CL =	980.00	BR =	12.00	I =	0.30	O2 =		CO2=		H2S=		NH4=		NO2=	
NO3=	22.00	PO4=	0.20	SIO=	55.00	SO4=	190.00	CO3=		HCO=	194.00	CAR=		HAR=	830.00
SE =		PHE=		CD =		CR =		AG =		P =		N =		ELE=	34.00

21 ID#=6-5240-03 TYP=TUNNEL COU=MAUI LOC=LAHAINA-B LAT,LON= 205227. 1564017.00 DAT=1970.

PH =	7.20	SPC=		WED=	31.00	WAD=	2.00	TEM=	28.00	FLO=		EH =		SPC=	
ALK=	202.00	DIS=	1370.00	SUS=		LI =		NA =	170.00	K =	15.00	RB =		MG =	109.00
CA =	140.00	SR =		BA =		MN =		FE =		FET=		F =	0.20	CU =	
ZN =		HG =		B =		AL =		PB =		AS =		SB =		U =	
CL =	600.00	BR =		I =		O2 =		CO2=		H2S=		NH4=		NO2=	
NO3=	15.00	PO4=		SIO=	60.00	SO4=	120.00	CO3=		HCO=	246.00	CAR=		HAR=	800.00
SE =		PHE=		CD =		CR =		AG =		P =		N =		ELE=	30.00

22 ID#=6-5321-01 TYP=TUNNEL COU=MAUI LOC=KAHEKA-18 LAT,LON= 205327. 1562132.00 DAT=1970.

PH =	7.70	SPC=		WED=		WAD=	6.20	TEM=	21.00	FLO=		EH =		SPC=	
ALK=	57.00	DIS=	279.00	SUS=		LI =		NA =	60.00	K =	4.30	RB =		MG =	11.00
CA =	9.00	SR =		BA =		MN =		FE =		FET=		F =	1.00	CU =	
ZN =		HG =		B =	0.10	AL =		PB =		AS =		SB =		U =	
CL =	76.00	BR =	0.72	I =	0.05	O2 =		CO2=		H2S=		NH4=		NO2=	
NO3=	8.60	PO4=	1.42	SIO=	53.00	SO4=	20.00	CO3=		HCO=	70.00	CAR=		HAR=	66.00
SE =		PHE=		CD =		CR =		AG =		P =		N =		ELE=	552.00

23 ID#=6-5323-01 TYP=TUNNEL COU=MAUI LOC=PAIA PUMP 2 LAT,LON= 205344. 1562346.00 DAT=1970.

PH =	7.20	SPC=		WED=		WAD=	3.90	TEM=	22.00	FLO=		EH =		SPC=	
ALK=	115.00	DIS=	964.00	SUS=		LI =		NA =	250.00	K =	14.00	RB =		MG =	46.00
CA =	25.00	SR =		BA =		MN =		FE =		FET=		F =	2.70	CU =	
ZN =		HG =		B =		AL =		PB =		AS =		SB =		U =	
CL =	448.00	BR =	3.30	I =	0.06	O2 =		CO2=		H2S=		NH4=		NO2=	
NO3=	14.00	PO4=	0.68	SIO=	56.00	SO4=	36.00	CO3=		HCO=	140.00	CAR=		HAR=	250.00
SE =		PHE=		CD =		CR =		AG =		P =		N =		ELE=	125.00

24 ID#=6-5328-01 TYP=WELL COU=MAUI LOC=CANNERY SHFT LAT,LON= 205320. 1562840.00 DAT=1975.

PH =	7.20	SPC=		WED=	28.00	WAD=	3.00	TEM=	22.00	FLO=		EH =		SPC=	
ALK=	183.00	DIS=	532.00	SUS=		LI =		NA =	96.00	K =	10.00	RB =		MG =	26.00
CA =	16.00	SR =		BA =	0.10	MN =	0.03	FE =	0.12	FET=		F =	0.25	CU =	0.02
ZN =	0.13	HG =		B =		AL =	0.10	PB =	0.01	AS =	0.01	SB =		U =	
CL =	159.00	BR =		I =		O2 =		CO2=		H2S=		NH4=		NO2=	0.01
NO3=	2.90	PO4=		SIO=	47.10	SO4=	28.00	CO3=		HCO=	140.00	CAR=	0.00	HAR=	182.00
SE =	0.00	PHE=	0.00	CD =	0.00	CR =	0.01	AG =	0.01	P =		N =		ELE=	20.00

25 ID#=6-5329-04 TYP=WELL COU=MAUI LOC=MEMORIAL GYM LAT,LON= 205333. 1562933.00 DAT=1967.

PH =	6.90	SPC=		WED=	110.00	WAD=		TEM=	22.00	FLO=		EH =		SPC=	
ALK=	128.60	DIS=		SUS=		LI =		NA =	153.00	K =	13.30	RB =		MG =	37.00
CA =	26.00	SR =		BA =		MN =	0.03	FE =	0.03	FET=		F =	0.06	CU =	0.01
ZN =	0.01	HG =		B =		AL =	0.01	PB =	0.01	AS =	0.00	SB =		U =	
CL =	300.00	BR =		I =		O2 =		CO2=		H2S=		NH4=		NO2=	0.14
NO3=	4.34	PO4=		SIO=	42.00	SO4=	41.00	CO3=		HCO=	140.00	CAR=	0.00	HAR=	217.40
SE =	0.01	PHE=	0.00	CD =		CR =		AG =		P =		N =		ELE=	80.00

26 ID#=6-5330-05 TYP=TUNNEL COU=MAUI LOC=WAILUKU SH33 LAT,LON= 205305. 1563043.00 DAT=1972.

PH =	7.60	SPC=		WED=		WAD=	26.00	TEM=	20.50	FLO=		EH =		SPC=	360.00
ALK=	74.00	DIS=	209.00	SUS=		LI =		NA =	26.00	K =	2.30	RB =		MG =	11.00
CA =	16.00	SR =		BA =		MN =		FE =		FET=		F =	0.20	CU =	
ZN =		HG =		B =		AL =		PB =		AS =		SB =		U =	
CL =	51.00	BR =		I =		O2 =		CO2=		H2S=		NH4=		NO2=	
NO3=	4.70	PO4=		SIO=	53.00	SO4=	12.00	CO3=		HCO=	90.00	CAR=		HAR=	85.00
SE =		PHE=		CD =		CR =		AG =		P =		N =		ELE=	400.00

27 ID#=6-5330-06 TYP=WELL COU=MAUI LOC=MOKUHAU TH-1 LAT,LON= 205336. 1563045.00 DAT=1968.

PH =	7.40	SPC=		WED=	431.00	WAD=	27.30	TEM=		FLO=		EH =		SPC=	
ALK=	83.00	DIS=		SUS=		LI =		NA =	28.00	K =	2.70	RB =		MG =	14.10
CA =	15.60	SR =		BA =		MN =	0.05	FE =	0.02	FET=		F =	0.10	CU =	0.01
ZN =	0.01	HG =		B =		AL =	0.01	PB =	0.01	AS =	0.00	SB =		U =	
CL =	42.00	BR =		I =		O2 =		CO2=		H2S=		NH4=		NO2=	0.00
NO3=	4.12	PO4=		SIO=	50.00	SO4=	16.00	CO3=		HCO=		CAR=		HAR=	97.00
SE =	0.01	PHE=	0.00	CD =		CR =		AG =		P =		N =		ELE=	310.00

28 ID#=6-5330-09 TYP=WELL COU=MAUI LOC=MOKUHAU-1 LAT,LON= 205329. 1563055.00 DAT=1970.

PH =	7.50	SPC=		WED=	600.00	WAD=	23.00	TEM=	23.00	FLO=		EH =		SPC=	470.00
ALK=	61.00	DIS=	198.00	SUS=		LI =		NA =	24.00	K =	2.30	RB =		MG =	10.00
CA =	23.00	SR =		BA =		MN =		FE =		FET=		F =	0.30	CU =	
ZN =		HG =		B =		AL =		PB =		AS =		SB =		U =	
CL =	85.00	BR =		I =		O2 =		CO2=		H2S=		NH4=		NO2=	
NO3=	4.60	PO4=		SIO=	31.00	SO4=	21.00	CO3=		HCO=	75.00	CAR=		HAR=	98.00
SE =		PHE=		CD =		CR =		AG =		P =		N =		ELE=	353.00

29 ID#=6-5330-10 TYP=WELL COU=MAUI LOC=MOKUHAU-2 LAT,LON= 205329. 1563055.00 DAT=1974.

PH =	7.60	SPC=		WED=	600.00	WAD=	21.00	TEM=	22.00	FLO=		EH =		SPC=	400.00
ALK=	78.00	DIS=	242.00	SUS=		LI =		NA =	31.00	K =	2.60	RB =		MG =	13.00
CA =	20.00	SR =		BA =		MN =	0.00	FE =	20.00	FET=		F =	0.10	CU =	
ZN =		HG =		B =		AL =		PB =		AS =		SB =		U =	
CL =	74.00	BR =		I =		O2 =		CO2=	3.80	H2S=		NH4=		NO2=	
NO3=		PO4=	0.25	SIO=	53.00	SO4=	16.00	CO3=		HCO=	95.00	CAR=		HAR=	100.00
SE =		PHE=		CD =		CR =		AG =		P =	0.08	N =	1.10	ELE=	353.00

30 ID#=6-5330-11 TYP=WELL COU=MAUI LOC=MOKUHAU-3 LAT,LON= 205330. 1563054.00 DAT=1972.

PH =	7.60	SPC=		WED=		WAD=		TEM=	22.00	FLO=		EH =		SPC=	350.00
ALK=	81.00	DIS=	253.00	SUS=		LI =		NA =	30.00	K =	2.20	RB =		MG =	13.00
CA =	18.00	SR =		BA =		MN =	0.05	FE =	0.02	FET=		F =	0.10	CU =	0.01
ZN =	0.01	HG =		B =		AL =	0.01	PB =	0.01	AS =	0.00	SB =		U =	
CL =	43.00	BR =		I =		O2 =		CO2=	4.00	H2S=		NH4=		NO2=	0.02
NO3=	4.43	PO4=		SIO=	76.00	SO4=	21.00	CO3=		HCO=	99.00	CAR=	81.00	HAR=	99.00
SE =	0.01	PHE=	0.00	CD =		CR =		AG =		P =		N =	2.60	ELE=	354.00

31 ID#=6-5339-01 TYP=WELL COU=MAUI LOC=LAHAINA-1 LAT,LON= 205320. 1563945.00 DAT=1972.

PH =	7.60	SPG=		WED=	497.00	WAD=	2.60	TEM=	21.50	FLO=		EH =		SPC=	1280.00
ALK=	119.00	DIS=	600.00	SUS=		LI =		NA =	120.00	K =	6.50	RB =		MG =	27.00
CA =	26.00	SR =		BA =		MN =	0.05	FE =	0.30	FET=		F =	0.20	CU =	0.10
ZN =	0.10	HG =		B =		AL =	2.90	PB =	0.01	AS =	0.01	SB =		U =	
CL =	290.00	BR =		I =		O2 =		CO2=	5.80	H2S=		NH4=		NO2=	0.00
NO3=	10.60	PO4=		SIO=	57.00	SO4=	29.00	CO3=		HCO=	145.00	CAR=	119.00	HAR=	176.00
SE =	0.03	PHE=		CD =		CR =		AG =		P =		N =	7.20	ELE=	441.00

32 ID#=6-5339-02 TYP=WELL COU=MAUI LOC=LAHAINA-2 LAT,LON= 205321. 1563930.00 DAT=1974.

PH =	7.60	SPG=		WED=	498.00	WAD=	1.80	TEM=	20.00	FLO=		EH =		SPC=	960.00
ALK=	110.00	DIS=	586.00	SUS=		LI =		NA =	120.00	K =	6.70	RB =		MG =	30.00
CA =	30.00	SR =		BA =		MN =	0.05	FE =	20.00	FET=		F =	0.20	CU =	0.10
ZN =	0.10	HG =		B =		AL =	0.05	PB =	0.01	AS =	0.01	SB =		U =	
CL =	200.00	BR =		I =		O2 =		CO2=	5.40	H2S=		NH4=		NO2=	0.01
NO3=	6.20	PO4=	0.55	SIO=	57.00	SO4=	39.00	CO3=		HCO=	134.00	CAR=		HAR=	200.00
SE =	0.01	PHE=	0.00	CD =		CR =		AG =		P =	0.18	N =	1.40	ELE=	441.00

33 ID#=6-5339-03 TYP=WELL COU=MAUI LOC=KANAHA-1 LAT,LON= 205344. 1563930.00 DAT=1977.

PH =	6.20	SPG=		WED=	642.00	WAD=	2.50	TEM=	20.00	FLO=		EH =		SPC=	960.00
ALK=	49.00	DIS=	547.00	SUS=		LI =		NA =	130.00	K =	6.30	RB =		MG =	19.00
CA =	26.00	SR =		BA =		MN =	10.00	FE =	20.00	FET=		F =	0.10	CU =	
ZN =		HG =		B =		AL =		PB =		AS =		SB =		U =	
CL =	260.00	BR =		I =		O2 =		CO2=	61.00	H2S=		NH4=		NO2=	
NO3=	3.20	PO4=	0.21	SIO=	42.00	SO4=	34.00	CO3=		HCO=	60.00	CAR=		HAR=	140.00
SE =		PHE=		CD =		CR =		AG =		P =	0.07	N =	0.01	ELE=	590.00

34 ID#=6-5339-04 TYP=WELL COU=MAUI LOC=KANAHA-2 LAT,LON= 205341. 1563923.00 DAT=1973.

PH =	8.00	SPG=		WED=	749.00	WAD=	3.20	TEM=	20.50	FLO=		EH =		SPC=	150.00
ALK=	56.00	DIS=	123.00	SUS=		LI =		NA =	11.00	K =	1.50	RB =		MG =	5.70
CA =	11.00	SR =		BA =		MN =		FE =	80.00	FET=		F =	0.10	CU =	
ZN =		HG =		B =		AL =		PB =		AS =		SB =		U =	
CL =	11.00	BR =		I =		O2 =		CO2=	1.10	H2S=		NH4=		NO2=	
NO3=		PO4=	0.34	SIO=	44.00	SO4=	3.70	CO3=		HCO=	68.00	CAR=		HAR=	51.00
SE =		PHE=		CD =		CR =		AG =		P =	0.08	N =	0.33	ELE=	654.00

35 ID#=6-5340-01 TYP=TUNNEL COU=MAUI LOC=WAIHKULI-1 LAT,LON= 205324. 1564057.00 DAT=1970.

PH =	7.40	SPG=		WED=	27.00	WAD=	1.50	TEM=	24.50	FLO=		EH =		SPC=	
ALK=	123.00	DIS=	900.00	SUS=		LI =		NA =	150.00	K =	10.00	RB =		MG =	62.00
CA =	70.00	SR =		BA =		MN =		FE =		FET=		F =	0.20	CU =	
ZN =		HG =		B =	0.10	AL =		PB =		AS =		SB =		U =	
CL =	410.00	BR =	5.00	I =	0.02	O2 =		CO2=		H2S=		NH4=		NO2=	
NO3=	14.00	PO4=	0.20	SIO=	45.00	SO4=	60.00	CO3=		HCO=	150.00	CAR=		HAR=	430.00
SE =		PHE=		CD =		CR =		AG =		P =		N =		ELE=	26.00

36 ID#=6-5340-02 TYP=TUNNEL COU=MAUI LOC=KAHOMA SH5 LAT,LON= 205343. 1564011.00 DAT=1972.

PH =	7.40	SPC=		WED=	323.00	WAD=	2.20	TEM=	25.00	FLO=		EH =		SPC=	3770.00
ALK=	75.00	DIS=	630.00	SUS=		LI =		NA =	160.00	K =	7.00	RB =		MG =	23.00
CA =	21.00	SR =		BA =		MN =		FE =		FET=		F =	0.20	CU =	
ZN =		HG =		B =	5.40	AL =		PB =		AS =		SB =		U =	
CL =	1100.00	BR =	2.00	I =	0.03	O2 =		CO2=		H2S=		NH4=		NO2=	
NO3=	3.10	PO4=	0.30	SIO=	61.00	SO4=	38.00	CO3=		HCO=	91.00	CAR=		HAR=	147.00
SE =		PHE=		CD =		CR =		AG =		P =		N =		ELE=	322.00

37 ID#=6-5420-01 TYP=WELL COU=MAUI LOC=MAUI HIGH LAT,LON= 205458. 1562034.00 DAT=1975.

PH =	6.90	SPC=		WED=	371.00	WAD=	4.00	TEM=	22.20	FLO=		EH =		SPC=	
ALK=	77.00	DIS=	323.00	SUS=		LI =		NA =	82.00	K =	5.50	RB =		MG =	4.70
CA =	4.00	SR =		BA =	0.10	MN =	0.03	FE =	0.15	FET=		F =	0.35	CU =	0.02
ZN =	0.08	HG =		B =		AL =	0.10	PB =	0.01	AS =	0.01	SB =		U =	
CL =	100.00	BR =		I =		O2 =		CO2=		H2S=		NH4=		NO2=	0.01
NO3=	3.50	PO4=		SIO=	53.30	SO4=	33.00	CO3=		HCO=	79.00	CAR=		HAR=	32.00
SE =	0.00	PHE=	0.00	CD =	0.00	CR =	0.01	AG =	0.01	P =		N =		ELE=	349.00

38 ID#=6-5423-02 TYP=TUNNEL COU=MAUI LOC=LOW PAIA-16 LAT,LON= 205449. 1562310.00 DAT=1970.

PH =	7.20	SPC=		WED=		WAD=		TEM=	25.00	FLO=		EH =		SPC=	
ALK=	115.00	DIS=	780.00	SUS=		LI =		NA =	185.00	K =	14.00	RB =		MG =	40.00
CA =	27.00	SR =		BA =		MN =		FE =		FET=		F =	1.30	CU =	
ZN =		HG =		B =	0.25	AL =		PB =		AS =		SB =		U =	
CL =	342.00	BR =	2.20	I =	0.02	O2 =		CO2=		H2S=		NH4=		NO2=	
NO3=	12.00	PO4=	0.40	SIO=	51.00	SO4=	37.00	CO3=		HCO=	140.00	CAR=		HAR=	230.00
SE =		PHE=		CD =		CR =		AG =		P =		N =		ELE=	25.00

39 ID#=6-5424-01 TYP=TUNNEL COU=MAUI LOC=SPRECKLESVIL LAT,LON= 205416. 1562443.00 DAT=1972.

PH =	7.60	SPC=		WED=		WAD=	3.50	TEM=	23.00	FLO=		EH =		SPC=	2270.00
ALK=	146.00	DIS=	1180.00	SUS=		LI =		NA =	340.00	K =	19.00	RB =		MG =	37.00
CA =	21.00	SR =		BA =		MN =		FE =		FET=		F =	0.50	CU =	
ZN =		HG =		B =	0.30	AL =		PB =		AS =		SB =		U =	
CL =	640.00	BR =	1.50	I =	0.03	O2 =		CO2=		H2S=		NH4=		NO2=	
NO3=	17.00	PO4=	0.40	SIO=	66.00	SO4=	72.00	CO3=		HCO=	178.00	CAR=		HAR=	205.00
SE =		PHE=		CD =		CR =		AG =		P =		N =		ELE=	430.00

40 ID#=6-5430-01 TYP=WELL COU=MAUI LOC=WAIEHU HTS-1 LAT,LON= 205430. 1563044.00 DAT=1975.

PH =		SPC=		WED=	675.00	WAD=	18.00	TEM=		FLO=		EH =		SPC=	405.00
ALK=	81.00	DIS=	272.00	SUS=		LI =		NA =	42.00	K =	3.10	RB =		MG =	11.00
CA =	18.00	SR =		BA =		MN =		FE =	20.00	FET=		F =	0.10	CU =	
ZN =		HG =		B =		AL =		PB =		AS =		SB =		U =	
CL =	53.00	BR =		I =		O2 =		CO2=		H2S=		NH4=		NO2=	
NO3=		PO4=	0.40	SIO=	54.00	SO4=	27.00	CO3=		HCO=	99.00	CAR=		HAR=	90.00
SE =		PHE=		CD =		CR =		AG =		P =	0.13	N =	3.20	ELE=	337.00

41 ID#=6-5519-02 TYP=WELL COU=MAUI LOC=HAIKU LAT,LON= 205550. 1561958.00 DAT=1974.

PH =		SPC=		WED=	228.00	WAD=	210.00	TEM=	0.00	FLO=		EH =		SPC=	
ALK=	67.00	DIS=	140.00	SUS=		LI =		NA =	96.00	K =	2.70	RB =		MG =	1.00
CA =	1.00	SR =		BA =	0.10	MN =	0.07	FE =	1.58	FET=		F =	0.80	CU =	0.02
ZN =	0.56	HG =		B =		AL =	0.07	PB =	0.01	AS =	0.01	SB =		U =	
CL =	21.00	BR =		I =		02 =		CO2=		H2S=		NH4=		NO2=	0.01
NO3=	1.20	PO4=		SIO=	40.80	SO4=	20.00	CO3=		HCO=		CAR=		HAR=	40.00
SE =	0.00	PHE=	0.00	CD =		CR =	0.00	AG =	0.01	P =		N =		ELE=	360.00

42 ID#=6-5522-01 TYP=TUNNEL COU=MAUI LOC=KUAU PUMP 12 LAT,LON= 205511. 1562221.00 DAT=1974.

PH =	6.90	SPC=		WED=		WAD=	4.00	TEM=	23.00	FLO=		EH =		SPC=	1260.00
ALK=	103.00	DIS=	710.00	SUS=	.	LI =		NA =	210.00	K =	11.00	RB =		MG =	17.00
CA =	14.00	SR =		BA =		MN =	10.00	FE =	230.00	FET=		F =	0.40	CU =	
ZN =		HG =		B =	0.10	AL =		PB =		AS =		SB =		U =	
CL =	300.00	BR =	2.80	I =	0.02	02 =		CO2=	25.00	H2S=		NH4=		NO2=	
NO3=	13.00	PO4=	0.34	SIO=	52.00	SO4=	46.00	CO3=		HCO=	125.00	CAR=		HAR=	110.00
SE =		PHE=		CD =		CR =		AG =		P =	0.11	N =	3.90	ELE=	156.00

43 ID#=6-5540-01 TYP=WELL COU=MAUI LOC=PUUKOLII LAT,LON= 205539. 1564028.00 DAT=1971.

PH =	7.70	SPC=		WED=	472.00	WAD=	1.40	TEM=	23.30	FLO=		EH =		SPC=	1490.00
ALK=	120.00	DIS=	833.00	SUS=		LI =		NA =	225.00	K =	14.00	RB =		MG =	34.00
CA =	16.00	SR =		BA =		MN =	0.01	FE =	0.02	FET=		F =	0.30	CU =	0.08
ZN =	0.01	HG =		B =		AL =	0.02	PB =	0.01	AS =	0.00	SB =		U =	
CL =	362.00	BR =		I =		02 =		CO2=		H2S=		NH4=		NO2=	0.01
NO3=	11.00	PO4=	0.19	SIO=	49.00	SO4=	50.00	CO3=		HCO=	146.00	CAR=		HAR=	180.00
SE =	0.01	PHE=	0.00	CD =		CR =		AG =		P =		N =		ELE=	444.00

44 ID#=6-5540-02 TYP=WELL COU=MAUI LOC=HAHAKEA-1 LAT,LON= 205514. 1564026.00 DAT=1971.

PH =	6.40	SPC=		WED=		WAD=		TEM=		FLO=		EH =		SPC=	1380.00
ALK=	87.00	DIS=	762.00	SUS=		LI =		NA =	192.00	K =	8.80	RB =		MG =	34.00
CA =	22.00	SR =		BA =		MN =		FE =		FET=		F =	0.40	CU =	
ZN =		HG =		B =		AL =		PB =		AS =		SB =		U =	
CL =	340.00	BR =		I =		02 =		CO2=		H2S=		NH4=		NO2=	
NO3=	6.40	PO4=		SIO=	54.00	SO4=	52.00	CO3=		HCO=	106.00	CAR=		HAR=	195.00
SE =		PHE=		CD =		CR =		AG =		P =		N =		ELE=	450.00

45 ID#=6-5540-03 TYP=WELL COU=MAUI LOC=HAHAKEA-2 LAT,LON= 205503. 1564018.00 DAT=1971.

PH =	7.00	SPC=		WED=	524.00	WAD=	2.70	TEM=		FLO=		EH =		SPC=	796.00
ALK=	136.00	DIS=	468.00	SUS=		LI =		NA =	122.00	K =	8.00	RB =		MG =	20.00
CA =	9.70	SR =		BA =		MN =		FE =		FET=		F =	0.30	CU =	
ZN =		HG =		B =		AL =		PB =		AS =		SB =		U =	
CL =	149.00	BR =		I =		02 =		CO2=		H2S=		NH4=		NO2=	
NO3=	5.30	PO4=	0.17	SIO=	46.00	SO4=	26.00	CO3=		HCO=	166.00	CAR=		HAR=	107.00
SE =		PHE=		CD =		CR =		AG =		P =		N =		ELE=	504.00

46 ID#=6-5640-01 TYP=TUNNEL COU=MAUI LOC=HONOKOWAI LAT,LON= 205651. 1564010.00 DAT=1974.

PH =	7.90	SPG=		WED=		WAD=		TEM=	20.50	FLO=		EH =		SPC=	969.00
ALK=	55.00	DIS=	475.00	SUS=		LI =		NA =	130.00	K =	5.90	RB =		MG =	14.00
CA =	12.00	SR =		BA =		MN =	0.00	FE =	10.00	FET=		F =	0.20	CU =	
ZN =		HG =		B =	1.50	AL =		PB =		AS =		SB =		U =	
CL =	250.00	BR =	5.00	I =	0.03	O2 =		CO2=	1.30	H2S=		NH4=		NO2=	
NO3=	4.60	PO4=	0.58	SIO=	45.00	SO4=	26.00	CO3=		HCO=	67.00	CAR=		HAR=	88.00
SE =		PHE=		CD =		CR =		AG =		P =	0.19	N =	1.80	ELE=	300.00

47 ID#=6-5641-01 TYP=TUNNEL COU=MAUI LOC=KAANAPALI-D LAT,LON= 205635. 1564131.00 DAT=1970.

PH =	7.10	SPG=		WED=	28.00	WAD=	1.50	TEM=	22.00	FLO=		EH =		SPC=	
ALK=	141.00	DIS=	1700.00	SUS=		LI =		NA =	440.00	K =	20.00	RB =		MG =	56.00
CA =	80.00	SR =		BA =		MN =		FE =		FET=		F =	0.40	CU =	
ZN =		HG =		B =	0.40	AL =		PB =		AS =		SB =		U =	
CL =	850.00	BR =	9.00	I =	0.04	O2 =		CO2=		H2S=		NH4=		NO2=	
NO3=	13.00	PO4=	0.50	SIO=	50.00	SO4=	100.00	CO3=		HCO=	172.00	CAR=		HAR=	430.00
SE =		PHE=		CD =		CR =		AG =		P =		N =		ELE=	27.00

48 ID#=6-5641-02 TYP=TUNNEL COU=MAUI LOC=HONOKOWAI-F LAT,LON= 205637. 1564106.00 DAT=1970.

PH =	7.70	SPG=		WED=	65.00	WAD=	2.00	TEM=	23.00	FLO=		EH =		SPC=	
ALK=	97.00	DIS=	1880.00	SUS=		LI =		NA =	550.00	K =	20.00	RB =		MG =	70.00
CA =	45.00	SR =		BA =		MN =		FE =		FET=		F =	0.20	CU =	
ZN =		HG =		B =		AL =		PB =		AS =		SB =		U =	
CL =	975.00	BR =	8.00	I =	0.04	O2 =		CO2=		H2S=		NH4=		NO2=	
NO3=	4.30	PO4=	0.40	SIO=	50.00	SO4=	100.00	CO3=		HCO=	118.00	CAR=		HAR=	400.00
SE =		PHE=		CD =		CR =		AG =		P =		N =		ELE=	65.00

49 ID#=6-5838-01 TYP=WELL COU=MAUI LOC=NAPILI-1 LAT,LON= 205837. 1563846.00 DAT=1971.

PH =	6.90	SPG=		WED=	893.00	WAD=	4.70	TEM=	21.00	FLO=		EH =		SPC=	670.00
ALK=	41.00	DIS=	350.00	SUS=		LI =		NA =	82.00	K =	5.30	RB =		MG =	13.00
CA =	10.00	SR =		BA =		MN =		FE =		FET=		F =	0.10	CU =	
ZN =		HG =		B =		AL =		PB =		AS =		SB =		U =	
CL =	148.00	BR =		I =		O2 =		CO2=		H2S=		NH4=		NO2=	
NO3=	0.80	PO4=		SIO=	51.00	SO4=	22.00	CO3=		HCO=	50.00	CAR=		HAR=	79.00
SE =		PHE=		CD =		CR =		AG =		P =		N =		ELE=	860.00

50 ID#=6-5840-01 TYP=WELL COU=MAUI LOC=ALAELOA LAT,LON= 205856. 1564001.00 DAT=1964.

PH =	7.24	SPG=		WED=	274.00	WAD=	2.70	TEM=	21.10	FLO=		EH =		SPC=	
ALK=	72.00	DIS=	755.00	SUS=		LI =		NA =	183.00	K =	12.00	RB =		MG =	10.80
CA =	29.50	SR =		BA =		MN =	0.08	FE =	0.02	FET=		F =	0.30	CU =	0.10
ZN =	0.10	HG =		B =		AL =	0.08	PB =	0.01	AS =	0.01	SB =		U =	
CL =	352.00	BR =		I =		O2 =		CO2=		H2S=		NH4=		NO2=	0.00
NO3=	3.80	PO4=		SIO=	53.00	SO4=	48.00	CO3=		HCO=	88.00	CAR=		HAR=	148.00
SE =	0.01	PHE=	0.00	CD =		CR =		AG =		P =		N =		ELE=	257.00

TABLE 3 Molokai

1	ID#=4-0449-01		TYP=WELL		COU=MOLOKAI				LOC=UALAPUE			LAT,LON=	210402.		1564958.01		DAT=1974.		
PH =	7.10	SPC=		WED=	43.00	WAD=	4.10	TEM=	20.00	FLO=		EH =				SPC=	360.00		
ALK=	57.00	DIS=	204.00	SUS=		LI =		NA =	39.00	K =	3.70	RB =				MG =	7.70		
CA =	9.20	SR =		BA =		MN =		FE =	10.00	FET=		F =	0.10			CU =			
ZN =		HG =		B =		AL =		PB =		AS =		SB =				U =			
CL =	65.00	BR =		I =		O2 =		CO2=	8.90	H2S=		NH4=				NO2=			
NO3=	3.50	PO4=	0.34	SIO=	47.00	SO4=	7.70	CO3=		HCO=	70.00	CAR=				HAR=	55.00		
SE =		PHE=		CD =		CR =		AG =		P =	0.11	N =	0.23			ELE=	40.00		

2	ID#=4-0457-01		TYP=TUNNEL		COU=MOLOKAI				LOC=KAWELA			LAT,LON=	210419.		1565705.01		DAT=1975.		
PH =	6.30	SPC=		WED=	38.00	WAD=	1.90	TEM=	22.50	FLO=		EH =				SPC=	280.00		
ALK=	39.00	DIS=	223.00	SUS=		LI =		NA =	38.00	K =	3.60	RB =				MG =	11.00		
CA =	13.00	SR =		BA =		MN =		FE =	20.00	FET=		F =				CU =			
ZN =		HG =		B =		AL =		PB =		AS =		SB =				U =			
CL =	58.00	BR =		I =		O2 =		CO2=	38.00	H2S=		NH4=				NO2=			
NO3=	0.10	PO4=	4.30	SIO=	32.00	SO4=	12.00	CO3=		HCO=	48.00	CAR=				HAR=	78.00		
SE =		PHE=		CD =		CR =		AG =		P =	1.40	N =	0.28			ELE=	36.00		

3	ID#=4-0603-01		TYP=WELL		COU=MOLOKAI				LOC=UMIPAA DW14			LAT,LON=	210638.		1570326.01		DAT=1975.		
PH =	7.70	SPC=		WED=	17.00	WAD=	1.10	TEM=	24.50	FLO=		EH =				SPC=	2850.00		
ALK=	176.00	DIS=	1320.00	SUS=		LI =		NA =	320.00	K =	28.00	RB =				MG =	55.00		
CA =	57.00	SR =		BA =		MN =	110.00	FE =	60.00	FET=		F =	0.20			CU =			
ZN =		HG =		B =		AL =		PB =		AS =		SB =				U =			
CL =	750.00	BR =		I =		O2 =		CO2=	6.80	H2S=		NH4=				NO2=			
NO3=		PO4=	3.10	SIO=	53.00	SO4=	63.00	CO3=		HCO=	214.00	CAR=				HAR=	370.00		
SE =		PHE=		CD =		CR =		AG =		P =	1.00	N =	0.75			ELE=	17.00		

4	ID#=4-0700-01		TYP=WELL		COU=MOLOKAI				LOC=KALUAKOI			LAT,LON=	210711.		1570005.00		DAT=1974.		
PH =	8.00	SPC=		WED=	1080.00	WAD=	8.00	TEM=	23.00	FLO=		EH =				SPC=	1700.00		
ALK=	34.00	DIS=	883.00	SUS=		LI =		NA =	240.00	K =	15.00	RB =				MG =	36.00		
CA =	22.00	SR =		BA =		MN =		FE =	50.00	FET=		F =	0.10			CU =			
ZN =		HG =		B =		AL =		PB =		AS =		SB =				U =			
CL =	440.00	BR =		I =		O2 =		CO2=	0.70	H2S=		NH4=				NO2=			
NO3=		PO4=	0.18	SIO=	49.00	SO4=	58.00	CO3=		HCO=	42.00	CAR=				HAR=	200.00		
SE =		PHE=		CD =		CR =		AG =		P =	0.06	N =	0.38			ELE=	982.00		

5	ID#=4-0801-01		TYP=WELL		COU=MOLOKAI				LOC=KAULUWAI			LAT,LON=	210856.		1570112.01		DAT=1975.		
PH =	8.00	SPC=		WED=	1095.00	WAD=	10.70	TEM=	21.00	FLO=		EH =				SPC=	310.00		
ALK=	39.00	DIS=	192.00	SUS=		LI =		NA =	30.00	K =	2.80	RB =				MG =	9.70		
CA =	8.80	SR =		BA =		MN =	10.00	FE =	130.00	FET=		F =	0.10			CU =			
ZN =		HG =		B =		AL =		PB =		AS =		SB =				U =			
CL =	62.00	BR =		I =		O2 =		CO2=	0.80	H2S=		NH4=				NO2=			
NO3=	1.50	PO4=	0.25	SIO=	44.00	SO4=	13.00	CO3=		HCO=	48.00	CAR=				HAR=	62.00		
SE =		PHE=		CD =		CR =		AG =		P =	0.08	N =	0.39			ELE=	1005.00		

6 ID#=4-0901-01 TYP=WELL COU=MOLOKAI LOC=KALUALOHE LAT,LON= 210903. 1570130.00 DAT=1975.

PH =	8.00	SPC=		WED=	1064.00	WAD=	10.60	TEM=	19.50	FLO=		EH =		SPC=	290.00
ALK=	37.00	DIS=	159.00	SUS=		LI =		NA =	21.00	K =	2.80	RB =		MG =	8.00
CA =	7.80	SR =		BA =		MN =		FE =	60.00	FET=		F =	0.10	CU =	
ZN =		HG =		B =		AL =		PB =		AS =		SB =		U =	
CL =	56.00	BR =		I =		O2 =		CO2=	0.70	H2S=		NH4=		NO2=	
NO3=		PO4=	0.25	SIO=	47.00	SO4=	7.10	CO3=		HCO=	45.00	CAR=		HAR=	52.00
SE =		PHE=		CD =		CR =		AG =		P =	0.08	N =	0.32	ELE=	981.00

7 ID#=4-0902-01 TYP=WELL COU=MOLOKAI LOC=KUALAPUU LAT,LON= 210929. 1570218.00 DAT=1954.

PH =	7.30	SPC=		WED=	963.00	WAD=	10.50	TEM=		FLO=		EH =		SPC=	
ALK=	32.00	DIS=	685.00	SUS=		LI =		NA =	66.00	K =		RB =		MG =	64.80
CA =	163.00	SR =		BA =		MN =		FE =	0.80	FET=		F =	0.10	CU =	0.01
ZN =	0.80	HG =		B =		AL =	1.60	PB =	0.01	AS =	0.01	SB =		U =	
CL =	340.00	BR =		I =		O2 =		CO2=		H2S=		NH4=		NO2=	
NO3=	0.80	PO4=		SIO=	38.80	SO4=	29.80	CO3=		HCO=	51.00	CAR=		HAR=	679.40
SE =	0.01	PHE=	0.01	CD =		CR =		AG =		P =		N =		ELE=	889.00

[illegible]#=4-1011-01 TYP=WELL COU=MOLOKAI LOC=KAHALELANI LAT,LON= 211020. 1571155.00 DAT=1945.

[illegible]LK=		SPG=		WED=	540.00	WAD=	5.60	TEM=	33.88	FLO=		EH =		SPC=	
[illegible]A =	393.00	DIS=	4764.00	SUS=		LI =		NA =	820.00	K =		RB =		MG =	395.00
[illegible]N =		SR =		BA =		MN =		FE =		FET=		F =		CU =	
CL =	2890.00	HG =		B =		AL =		PB =		AS =		SB =		U =	
NO3=		BR =		I =		O2 =		CO2=		H2S=		NH4=		NO2=	
SE =		PO4=		SIO=		SO4=	244.00	CO3=		HCO=	44.00	CAR=		HAR=	
		PHE=		CD =		CR =		AG =		P =		N =		ELE=	503.00

TABLE 4 Oahu

1	ID#=3-1749-08		TYP=WELL		COU=OAHU				LOC=KAPAHULU			LAT,LON=	211712.		1574912.00		DAT=1972.			
PH =	7.30	SPC=		WED=	411.00	WAD=	26.50	TEM=	22.00	FLO=		EH =		SPC=	834.00					
ALK=	49.00	DIS=	501.00	SUS=		LI =		NA =	160.00	K =	3.70	RB =		MG =	4.40					
CA =	3.60	SR =		BA =		MN =		FE =		FET=		F =	0.10	CU =						
ZN =		HG =		B =		AL =		PB =		AS =		SB =		U =						
CL =	208.00	BR =		I =		O2 =		CO2=		H2S=		NH4=		NO2=						
NO3=		PO4=		SIO=	55.00	SO4=	36.00	CO3=		HCO=	60.00	CAR=		HAR=	27.00					
SE =		PHE=		CD =		CR =		AG =		P =		N =		ELE=	11.00					

2	ID#=3-1849-10		TYP=WELL		COU=OAHU				LOC=MANOA VALLEY			LAT,LON=	211813.		1574952.00		DAT=1971.			
PH =	7.50	SPC=		WED=	315.00	WAD=	25.00	TEM=	25.00	FLO=		EH =		SPC=						
ALK=	121.00	DIS=	220.00	SUS=		LI =		NA =	50.00	K =	6.20	RB =		MG =	6.50					
CA =	5.60	SR =		BA =	0.10	MN =	0.03	FE =	0.02	FET=		F =	0.05	CU =	0.02					
ZN =	0.01	HG =		B =		AL =	0.15	PB =	0.01	AS =	0.00	SB =		U =						
CL =	18.00	BR =		I =		O2 =		CO2=		H2S=		NH4=		NO2=	0.01					
NO3=	0.99	PO4=		SIO=	29.70	SO4=	8.00	CO3=		HCO=	148.00	CAR=		HAR=	40.00					
SE =	0.01	PHE=	0.00	CD =	0.00	CR =	0.05	AG =	0.03	P =		N =		ELE=	36.00					

3	ID#=3-1851-09		TYP=WELL		COU=OAHU				LOC=KAWAIHAO CH			LAT,LON=	211829.		1575139.00		DAT=1972.			
PH =	9.00	SPC=		WED=	765.00	WAD=	24.70	TEM=	21.00	FLO=		EH =		SPC=	362.00					
ALK=		DIS=	265.00	SUS=		LI =		NA =	42.00	K =	4.00	RB =		MG =	8.00					
CA =	15.00	SR =		BA =		MN =		FE =		FET=		F =	0.10	CU =						
ZN =		HG =		B =		AL =		PB =		AS =		SB =		U =						
CL =	80.00	BR =		I =		O2 =		CO2=		H2S=		NH4=		NO2=						
NO3=		PO4=		SIO=	77.00	SO4=	12.00	CO3=		HCO=	35.00	CAR=		HAR=	71.00					
SE =		PHE=		CD =		CR =		AG =		P =		N =		ELE=	14.00					

4	ID#=3-1952-04		TYP=WELL		COU=OAHU				LOC=KAPALAMA			LAT,LON=	211950.		1575202.00		DAT=1976.			
PH =		SPC=		WED=	150.00	WAD=	20.80	TEM=	26.00	FLO=		EH =		SPC=						
ALK=		DIS=		SUS=		LI =		NA =		K =		RB =		MG =						
CA =		SR =		BA =		MN =		FE =		FET=		F =		CU =						
ZN =		HG =		B =		AL =		PB =		AS =		SB =		U =						
CL =	118.00	BR =		I =		O2 =		CO2=		H2S=		NH4=		NO2=						
NO3=		PO4=		SIO=		SO4=		CO3=		HCO=		CAR=		HAR=						
SE =		PHE=		CD =		CR =		AG =		P =		N =		ELE=	16.00					

5	ID#=3-2042-13		TYP=WELL		COU=OAHU				LOC=WAIMANALO			LAT,LON=	212002.		1574207.00		DAT=1975.			
PH =	7.40	SPC=		WED=	160.00	WAD=		TEM=	23.00	FLO=		EH =		SPC=	4900.00					
ALK=	184.00	DIS=	3300.00	SUS=		LI =		NA =	920.00	K =	36.00	RB =		MG =	110.00					
CA =	150.00	SR =		BA =		MN =	10.00	FE =		FET=		F =	0.20	CU =						
ZN =		HG =		B =		AL =		PB =		AS =		SB =		U =						
CL =	1500.00	BR =		I =		O2 =		CO2=	14.00	H2S=		NH4=		NO2=						
NO3=	26.00	PO4=	0.34	SIO=	26.00	SO4=	220.00	CO3=		HCO=	224.00	CAR=		HAR=	830.00					
SE =		PHE=		CD =		CR =		AG =		P =	0.11	N =	5.70	ELE=	50.00					

6 ID#=3-2043-01 TYP=WELL COU=OAHU LOC=WAIMANALO LAT,LON= 212059. 1574333.00 DAT=1970.

PH =	7.30	SPC=		WED=	730.00	WAD=	31.50	TEM=	30.00	FLO=		EH =		SPC=	218.00
ALK=	69.00	DIS=	138.00	SUS=		LI =		NA =	28.00	K =	1.10	RB =		MG =	2.80
CA =	14.00	SR =		BA =		MN =		FE =		FET=		F =	0.10	CU =	
ZN =		HG =		B =		AL =		PB =		AS =		SB =		U =	
CL =	24.00	BR =		I =		O2 =		CO2=		H2S=		NH4=		NO2=	
NO3=	0.10	PO4=		SIO=	22.00	SO4=	5.40	CO3=		HCO=	84.00	CAR=		HAR=	47.00
SE =		PHE=		CD =		CR =		AG =		P =		N =		ELE=	26.00

7 ID#=3-2043-02 TYP=WELL COU=OAHU LOC=WAIMANALO LAT,LON= 212012. 1574322.00 DAT=1971.

PH =	6.90	SPC=		WED=	280.00	WAD=	29.00	TEM=	25.00	FLO=		EH =		SPC=	
ALK=	121.00	DIS=		SUS=		LI =		NA =	36.00	K =	1.00	RB =		MG =	6.80
CA =	12.00	SR =		BA =	0.10	MN =	0.03	FE =	0.30	FET=		F =	0.05	CU =	0.02
ZN =	0.01	HG =		B =		AL =	0.19	PB =	0.02	AS =	0.00	SB =		U =	
CL =	27.00	BR =		I =		O2 =		CO2=		H2S=		NH4=		NO2=	0.01
NO3=	1.90	PO4=		SIO=	35.60	SO4=	10.00	CO3=		HCO=	148.00	CAR=		HAR=	60.00
SE =	0.01	PHE=	0.00	CD =	0.00	CR =	0.05	AG =	0.01	P =		N =		ELE=	142.00

8 ID#=3-2052-07 TYP=WELL COU=OAHU LOC=KAPALAMA AVE LAT,LON= 212016. 1575212.00 DAT=1971.

PH =	6.90	SPC=		WED=	321.00	WAD=	25.70	TEM=	26.00	FLO=		EH =		SPC=	
LK=	157.00	DIS=	512.00	SUS=		LI =		NA =	70.00	K =	5.00	RB =		MG =	36.00
=	28.80	SR =		BA =	0.10	MN =	0.03	FE =	0.02	FET=		F =	0.05	CU =	0.07
	0.01	HG =		B =		AL =	0.17	PB =	0.03	AS =	0.00	SB =		U =	
-	30.00	BR =		I =		O2 =		CO2=		H2S=		NH4=		NO2=	0.01
03=	1.20	PO4=		SIO=	20.20	SO4=	37.00	CO3=		HCO=	191.00	CAR=		HAR=	198.00
E =	0.01	PHE=	0.00	CD =	0.00	CR =	0.05	AG =	0.01	P =		N =		ELE=	80.00

9 ID#=3-2053-05 TYP=WELL COU=OAHU LOC=KALIHI LAT,LON= 212022. 1575317.00 DAT=1970.

PH =	6.60	SPC=		WED=	471.00	WAD=	23.80	TEM=	30.00	FLO=		EH =		SPC=	
ALK=	66.00	DIS=	660.00	SUS=		LI =		NA =	6.00	K =	3.40	RB =		MG =	11.00
CA =	14.40	SR =		BA =		MN =	0.05	FE =	0.02	FET=		F =	0.15	CU =	0.11
ZN =	0.13	HG =		B =		AL =	0.02	PB =	0.01	AS =	0.00	SB =		U =	
CL =	60.00	BR =		I =		O2 =		CO2=		H2S=		NH4=		NO2=	0.01
NO3=	0.35	PO4=		SIO=	41.60	SO4=	9.00	CO3=		HCO=	54.00	CAR=		HAR=	82.00
SE =	0.01	PHE=	0.00	CD =		CR =		AG =		P =		N =		ELE=	26.00

10 ID#=3-2054-03 TYP=WELL COU=OAHU LOC=PUULOA RD LAT,LON= 212013. 1575413.00 DAT=1965.

PH =	7.70	SPC=		WED=	668.00	WAD=	21.00	TEM=	32.00	FLO=		EH =		SPC=	1900.00
ALK=	32.00	DIS=		SUS=		LI =		NA =	58.00	K =	16.00	RB =		MG =	1.50
CA =	3.44	SR =		BA =		MN =	0.05	FE =	0.20	FET=		F =	0.10	CU =	0.10
ZN =	0.10	HG =		B =		AL =	9.05	PB =	0.01	AS =	0.01	SB =		U =	
CL =	620.00	BR =		I =		O2 =		CO2=		H2S=		NH4=		NO2=	0.00
NO3=	1.86	PO4=		SIO=	28.40	SO4=	25.50	CO3=		HCO=		CAR=		HAR=	14.80
SE =	0.01	PHE=	0.00	CD =		CR =		AG =		P =		N =		ELE=	6.00

11 ID#=3-2103-02 TYP=WELL COU=OAHU LOC=PUU MAKAKILO LAT,LON= 212139. 1580347.00 DAT=19[illegible]3.

PH =	7.40	SPG=		WED=	137.00	WAD=	15.20	TEM=	25.50	FLO=		EH =		SPC=	
ALK=		DIS=		SUS=		LI =		NA =		K =		RB =		MG =	
CA =		SR =		BA =		MN =		FE =		FET=		F =		CU =	
ZN =		HG =		B =		AL =		PB =		AS =		SB =		U =	
CL =	251.00	BR =		I =		O2 =		CO2=		H2S=		NH4=		NO2=	
NO3=		PO4=		SIO=		SO4=		CO3=		HCO=	144.00	CAR=		HAR=	
SE =		PHE=		CD =		CR =		AG =		P =		N =		ELE=	140.00

12 ID#=3-2142-03 TYP=WELL COU=OAHU LOC=BELLOWS AFB LAT,LON= 212103. 1574238.00 DAT=1962.

PH =		SPG=		WED=	41.00	WAD=	7.30	TEM=	26.10	FLO=		EH =		SPC=	
ALK=		DIS=		SUS=		LI =		NA =		K =		RB =		MG =	
CA =		SR =		BA =		MN =		FE =		FET=		F =		CU =	
ZN =		HG =		B =		AL =		PB =		AS =		SB =		U =	
CL =	238.00	BR =		I =		O2 =		CO2=		H2S=		NH4=		NO2=	
NO3=		PO4=		SIO=		SO4=		CO3=		HCO=		CAR=		HAR=	
SE =		PHE=		CD =		CR =		AG =		P =		N =		ELE=	20.00

13 ID#=3-2153-02 TYP=WELL COU=OAHU LOC=MOANALUA LAT,LON= 212106. 1575337.00 DAT=1928.

PH =		SPG=		WED=	289.00	WAD=	19.10	TEM=	21.50	FLO=		EH =		SPC=	400.00
ALK=	69.00	DIS=	255.00	SUS=		LI =		NA =	38.00	K =	3.10	RB =		MG =	12.00
CA =	17.00	SR =		BA =		MN =		FE =		FET=		F =		CU =	
ZN =		HG =		B =		AL =		PB =		AS =		SB =		U =	
CL =	74.00	BR =		I =		O2 =		CO2=		H2S=		NH4=		NO2=	
NO3=	0.40	PO4=		SIO=	63.00	SO4=	15.00	CO3=		HCO=	84.00	CAR=		HAR=	92.00
SE =		PHE=		CD =		CR =		AG =		P =		N =		ELE=	20.00

14 ID#=3-2153-07 TYP=WELL COU=OAHU LOC=MOANALUA LAT,LON= 212117. 1575346.00 DAT=1972.

PH =	7.60	SPG=		WED=	302.00	WAD=	20.00	TEM=	25.60	FLO=		EH =		SPC=	381.00
ALK=	51.00	DIS=	200.00	SUS=		LI =		NA =	38.00	K =	2.00	RB =		MG =	12.00
CA =	13.00	SR =		BA =		MN =	0.02	FE =	0.16	FET=		F =	0.10	CU =	
ZN =	0.03	HG =		B =		AL =	0.10	PB =		AS =		SB =		U =	
CL =	76.00	BR =		I =		O2 =		CO2=	2.50	H2S=		NH4=		NO2=	
NO3=	2.20	PO4=	0.07	SIO=	44.00	SO4=	12.00	CO3=		HCO=	62.00	CAR=		HAR=	82.00
SE =		PHE=		CD =		CR =		AG =		P =	0.00	N =	0.39	ELE=	28.00

15 ID#=3-2153-09 TYP=WELL COU=OAHU LOC=MOANALUA LAT,LON= 212127. 1575320.00 DAT=1968.

PH =	6.50	SPG=		WED=	115.00	WAD=	23.80	TEM=	25.00	FLO=		EH =		SPC=	3770.00
ALK=	226.00	DIS=	2100.00	SUS=		LI =		NA =		K =		RB =		MG =	203.00
CA =	122.00	SR =		BA =		MN =		FE =		FET=		F =		CU =	
ZN =		HG =		B =		AL =		PB =		AS =		SB =		U =	
CL =	1050.00	BR =		I =		O2 =		CO2=		H2S=		NH4=		NO2=	
NO3=		PO4=		SIO=		SO4=		CO3=		HCO=	275.00	CAR=		HAR=	1140.00
SE =		PHE=		CD =		CR =		AG =		P =		N =		ELE=	58.00

16 ID#=3-2202-03 TYP=WELL COU=OAHU LOC=HONOULIULI LAT,LON= 212220. 1580218.00 DAT=1964.

PH =	7.01	SPC=		WED=	304.00	WAD=	19.00	TEM=	22.20	FLO=		EH =		SPC=	
ALK=	87.00	DIS=	496.00	SUS=		LI =		NA =	100.00	K =	5.00	RB =		MG =	27.40
CA =	19.10	SR =		BA =		MN =	0.05	FE =	0.04	FET=		F =	0.10	CU =	0.10
ZN =	0.10	HG =		B =		AL =	0.05	PB =	0.01	AS =	0.01	SB =		U =	
CL =	145.00	BR =		I =		O2 =		CO2=		H2S=		NH4=		NO2=	0.00
NO3=	5.13	PO4=		SIO=	63.00	SO4=	42.00	CO3=		HCO=	73.00	CAR=		HAR=	132.00
SE =	0.01	PHE=	0.00	CD =		CR =		AG =		P =		N =		ELE=	50.00

17 ID#=3-2202-09 TYP=WELL COU=OAHU LOC=HONOULIULI LAT,LON= 212220. 1580218.00 DAT=1964.

PH =	7.00	SPC=		WED=	312.00	WAD=	11.70	TEM=		FLO=		EH =		SPC=	
ALK=	87.00	DIS=		SUS=		LI =		NA =	100.00	K =	5.00	RB =		MG =	27.40
CA =	19.10	SR =		BA =		MN =	0.05	FE =	0.04	FET=		F =	0.10	CU =	0.10
ZN =	0.10	HG =		B =		AL =	0.05	PB =	0.01	AS =	0.01	SB =		U =	
CL =	145.00	BR =		I =		O2 =		CO2=		H2S=		NH4=		NO2=	
NO3=	5.13	PO4=		SIO=	83.00	SO4=	42.00	CO3=		HCO=		CAR=		HAR=	132.00
SE =	0.01	PHE=	0.00	CD =		CR =		AG =		P =		N =		ELE=	50.00

18 ID#=3-2202-15 TYP=WELL COU=OAHU LOC=MILL PUMP-7A LAT,LON= 212204. 1580212.00 DAT=1968.

PH =	6.50	SPC=		WED=	468.00	WAD=	12.00	TEM=	25.50	FLO=		EH =		SPC=	2730.00
ALK=	10.00	DIS=	1530.00	SUS=		LI =		NA =	130.00	K =	4.00	RB =		MG =	59.00
CA =	108.00	SR =		BA =		MN =	0.05	FE =	0.04	FET=		F =	0.10	CU =	0.10
ZN =	0.10	HG =		B =		AL =	0.05	PB =	0.01	AS =	0.01	SB =		U =	
CL =	840.00	BR =		I =		O2 =		CO2=		H2S=		NH4=		NO2=	0.00
NO3=	4.61	PO4=		SIO=	82.00	SO4=	52.00	CO3=		HCO=	12.00	CAR=	502.00	HAR=	519.00
SE =	0.01	PHE=	0.00	CD =		CR =		AG =		P =		N =		ELE=	46.00

19 ID#=3-2255-07 TYP=WELL COU=OAHU LOC=HALAWA LAT,LON= 212221. 1575544.00 DAT=1967.

PH =	7.20	SPC=		WED=	391.00	WAD=	22.60	TEM=	21.70	FLO=		EH =		SPC=	0.00
ALK=	52.00	DIS=	358.00	SUS=		LI =		NA =	50.00	K =	2.80	RB =		MG =	14.00
CA =	12.80	SR =		BA =		MN =	0.05	FE =	0.01	FET=		F =	0.16	CU =	0.03
ZN =	0.10	HG =		B =		AL =		PB =	0.01	AS =	0.05	SB =		U =	
CL =	96.00	BR =		I =		O2 =	7.30	CO2=	18.00	H2S=		NH4=		NO2=	
NO3=	5.10	PO4=	0.30	SIO=	64.00	SO4=	18.00	CO3=		HCO=	63.00	CAR=		HAR=	112.00
SE =		PHE=		CD =		CR =	0.05	AG =		P =		N =		ELE=	21.00

20 ID#=3-2256-12 TYP=WELL COU=OAHU LOC=AIEA LAT,LON= 212238. 1575611.00 DAT=1976.

PH =		SPC=		WED=	182.00	WAD=	23.00	TEM=	27.00	FLO=		EH =		SPC=	580.00
ALK=		DIS=		SUS=		LI =		NA =		K =		RB =		MG =	
CA =		SR =		BA =		MN =		FE =		FET=		F =		CU =	
ZN =		HG =		B =		AL =		PB =		AS =		SB =		U =	
CL =	160.00	BR =		I =		O2 =		CO2=		H2S=		NH4=		NO2=	
NO3=		PO4=		SIO=		SO4=		CO3=		HCO=		CAR=		HAR=	
SE =		PHE=		CD =		CR =		AG =		P =		N =		ELE=	11.00

21 ID#=3-2300-02 TYP=WELL COU=OAHU LOC=WAIPAHU LAT,LON= 212327. 1580002.00 DAT= 9.

PH =	8.10	SPG=		WED=	214.00	WAD=		TEM=	23.00	FLO=		EH =		SPC=	666.00
ALK=		DIS=		SUS=		LI =		NA =	80.00	K =	3.60	RB =		MG =	23.00
CA =	19.00	SR =		BA =		MN =		FE =		FET=		F =	0.10	CU =	
ZN =		HG =		B =		AL =		PB =		AS =		SB =		U =	
CL =	135.00	BR =		I =		O2 =		CO2=		H2S=		NH4=		NO2=	
NO3=	5.10	PO4=		SIO=	66.00	SO4=		CO3=		HCO=	83.00	CAR=		HAR=	130.00
SE =		PHE=		CD =		CR =		AG =		P =		N =		ELE=	10.00

22 ID#=3-2300-07 TYP=WELL COU=OAHU LOC=WAIPAHU P6A LAT,LON= 212322. 1580038.00 DAT=1969.

PH =	7.00	SPG=		WED=		WAD=		TEM=	30.00	FLO=		EH =		SPC=	
ALK=	70.00	DIS=	504.00	SUS=		LI =		NA =	145.00	K =	0.20	RB =		MG =	6.40
CA =	44.00	SR =		BA =		MN =	0.01	FE =	0.06	FET=		F =	0.06	CU =	0.05
ZN =	0.08	HG =		B =		AL =	0.02	PB =	0.05	AS =	0.00	SB =		U =	
CL =	89.30	BR =		I =		O2 =		CO2=		H2S=		NH4=		NO2=	
NO3=	0.15	PO4=		SIO=	44.50	SO4=	5.60	CO3=		HCO=	51.00	CAR=		HAR=	116.00
SE =	0.01	PHE=	0.00	CD =		CR =		AG =		P =		N =		ELE=	60.00

23 ID#=3-2300-11 TYP=WELL COU=OAHU LOC=WAIPAHU LAT,LON= 212342. 1580012.00 DAT=1975.

PH =	6.80	SPG=		WED=	202.00	WAD=	21.50	TEM=	22.50	FLO=		EH =		SPC=	700.00
ALK=	73.00	DIS=	444.00	SUS=		LI =		NA =	96.00	K =	3.60	RB =		MG =	19.00
CA =	22.00	SR =		BA =		MN =		FE =	10.00	FET=		F =		CU =	
ZN =		HG =		B =		AL =		PB =		AS =		SB =		U =	
CL =	180.00	BR =		I =		O2 =		CO2=	23.00	H2S=		NH4=		NO2=	
NO3=		PO4=	0.55	SIO=	60.00	SO4=	31.00	CO3=		HCO=	89.00	CAR=		HAR=	130.00
SE =		PHE=		CD =		CR =		AG =		P =	0.18	N =	1.90	ELE=	18.00

24 ID#=3-2300-18 TYP=WELL COU=OAHU LOC=WAIPAHU LAT,LON= 212340. 1580019.00 DAT=1968.

PH =	6.80	SPG=		WED=	205.00	WAD=	24.20	TEM=	22.00	FLO=		EH =		SPC=	453.00
ALK=	44.00	DIS=	318.00	SUS=		LI =		NA =	65.00	K =	10.90	RB =		MG =	13.00
CA =	16.00	SR =		BA ◘		MN =	0.05	FE =	0.02	FET=		F =	0.32	CU =	0.01
ZN =	0.04	HG =		B =		AL =	0.01	PB =	0.01	AS =	0.00	SB =		U =	
CL =	96.00	BR =		I =		O2 =		CO2=		H2S=		NH4=		NO2=	
NO3=	8.86	PO4=		SIO=	60.00	SO4=	20.00	CO3=		HCO=	54.00	CAR=		HAR=	94.00
SE =	0.01	PHE=	0.00	CD ◘		CR =		AG =		P =		N =		ELE=	26.00

25 ID#=3-2301-01 TYP=WELL COU=OAHU LOC=WAIKELE P8IA LAT,LON= 212358. 1580109.00 DAT=1954.

PH =	8.20	SPG=		WED=	425.00	WAD=	19.80	TEM=	22.00	FLO=		EH =		SPC=	
ALK=	46.00	DIS=		SUS=		LI =		NA =		K =		RB =		MG =	10.70
CA =	32.60	SR =		BA =		MN =	0.00	FE =	0.10	FET=		F =	0.10	CU =	0.01
ZN =	0.60	HG =		B =		AL =	2.70	PB =	0.01	AS ◘	0.01	SB =		U =	
CL =	51.00	BR =		I =		O2 =		CO2=		H2S=		NH4=		NO2=	
NO3=	1.29	PO4=		SIO=	67.20	SO4=	31.20	CO3=		HCO=		CAR=		HAR=	129.50
SE =	0.01	PHE=	0.01	CD =		CR ◘		AG =		P =		N =		ELE=	21.00

26 ID#=3-2301-34 TYP=WELL COU=OAHU LOC=HOEAEA-1 LAT,LON= 212321. 1580137.00 DAT=1968.

PH =	7.05	SPG=		WED=	194.00	WAD=	17.00	TEM=	22.50	FLO=		EH =		SPC=	665.00
ALK=	72.00	DIS=	449.00	SUS=		LI =		NA =	85.90	K =	3.80	RB =		MG =	15.70
CA =	14.40	SR =		BA =		MN =	0.02	FE =	0.02	FET=		F =	0.20	CU =	0.02
ZN =		HG =		B =		AL =		PB =	0.02	AS =	0.02	SB =		U =	
CL =	120.00	BR =		I =		O2 =	7.70	CO2=	15.00	H2S=		NH4=		NO2=	
NO3=	9.20	PO4=	0.75	SIO=	71.00	SO4=	39.30	CO3=		HCO=	89.00	CAR=		HAR=	100.00
SE =	0.01	PHE=		CD =		CR =	0.01	AG =		P =		N =		ELE=	131.00

27 ID#=3-2302-01 TYP=WELL COU=OAHU LOC=KUNIA I LAT,LON= 212318. 1580208.00 DAT=1968.

PH =	7.10	SPG=		WED=	350.00	WAD=	23.80	TEM=	22.00	FLO=		EH =		SPC=	622.00
ALK=	88.00	DIS=	443.00	SUS=		LI =		NA =	80.00	K =	3.60	RB =		MG =	16.20
CA =	14.00	SR =		BA =		MN =	0.02	FE =	0.02	FET=		F =	0.25	CU =	0.02
ZN =	0.20	HG =		B =		AL =	0.60	PB =	0.02	AS =	0.02	SB =		U =	
CL =	103.00	BR =		I =		O2 =	7.80	CO2=	13.00	H2S=		NH4=		NO2=	
NO3=	8.40	PO4=	0.95	SIO=	73.00	SO4=	36.90	CO3=		HCO=	107.00	CAR=		HAR=	101.00
SE =	0.01	PHE=	0.01	CD =		CR =	0.01	AG =		P =		N =		ELE=	201.00

28 ID#=3-2302-02 TYP=WELL COU=OAHU LOC=KUNIA I LAT,LON= 212318. 1580208.00 DAT=1972.

PH =	7.70	SPG=		WED=	338.00	WAD=	22.30	TEM=	22.40	FLO=		EH =		SPC=	699.00
ALK=	89.00	DIS=	443.00	SUS=		LI =		NA =	96.00	K =	3.90	RB =		MG =	17.00
CA =	16.00	SR =		BA =		MN =		FE =		FET=		F =	0.20	CU =	
ZN =		HG =		B =		AL =		PB =		AS =		SB =		U =	
CL =	135.00	BR =		I =		O2 =		CO2=		H2S=		NH4=		NO2=	
NO3=	8.00	PO4=		SIO=	75.00	SO4=	39.00	CO3=		HCO=	108.00	CAR=		HAR=	110.00
SE =		PHE=		CD =		CR =		AG =		P =		N =		ELE=	201.00

29 ID#=3-2359-04 TYP=WELL COU=OAHU LOC=WAIPAHU LAT,LON= 212334. 1575916.00 DAT=1969.

PH =	8.00	SPG=		WED=	105.00	WAD=	16.00	TEM=	22.50	FLO=		EH =		SPC=	1510.00
ALK=		DIS=		SUS=		LI =		NA =	117.00	K =	7.20	RB =		MG =	71.00
CA =	66.00	SR =		BA =		MN =		FE =		FET=		F =		CU =	
ZN =		HG =		B =		AL =		PB =		AS =		SB =		U =	
CL =	395.00	BR =		I =		O2 =		CO2=		H2S=		NH4=		NO2=	
NO3=		PO4=		SIO=	68.00	SO4=		CO3=		HCO=	69.00	CAR=		HAR=	456.00
SE =		PHE=		CD =		CR =		AG =		P =		N =		ELE=	11.00

30 ID#=3-2359-05 TYP=WELL COU=OAHU LOC=WAIPAHU LAT,LON= 212334. 1575921.00 DAT=1975.

PH =	6.70	SPG=		WED=	150.00	WAD=	17.10	TEM=	22.50	FLO=		EH =		SPC=	1200.00
ALK=	53.00	DIS=	978.00	SUS=		LI =		NA =	159.00	K =	7.30	RB =		MG =	80.00
CA =	79.00	SR =		BA =		MN =		FE =	10.00	FET=		F =		CU =	
ZN =		HG =		B =		AL =		PB =		AS =		SB =		U =	
CL =	340.00	BR =		I =		O2 =		CO2=	21.00	H2S=		NH4=		NO2=	
NO3=	7.20	PO4=	0.40	SIO=	59.00	SO4=	63.00	CO3=		HCO=	65.00	CAR=		HAR=	530.00
SE =		PHE=		CD =		CR =		AG =		P =	0.13	N =	1.60	ELE=	9.00

31 ID#=3-2359-06 TYP=WELL COU=OAHU LOC=WAIPAHU LAT,LON= 212332. 1575924.00 DAT= 1969.

PH =	7.90	SPG=		WED=	127.00	WAD=	15.60	TEM=	22.50	FLO=		EH =		SPC=	1130.00
ALK=		DIS=		SUS=		LI =		NA =	106.00	K =	5.00	RB =		MG =	33.00
CA =	39.00	SR =		BA =		MN =		FE =		FET=		F =	0.10	CU =	
ZN =		HG =		B =		AL =		PB =		AS =		SB =		U =	
CL =	280.00	BR =		I =		O2 =		CO2=		H2S=		NH4=		NO2=	
NO3=	5.40	PO4=		SIO=	66.00	SO4=		CO3=		HCO=	72.00	CAR=		HAR=	254.00
SE =		PHE=		CD =		CR =		AG =		P =		N =		ELE=	6.00

32 ID#=3-2359-14 TYP=WELL COU=OAHU LOC=WAIPAHU LAT,LON= 212331. 1575930.00 DAT= 1969.

PH =	7.60	SPG=		WED=	171.00	WAD=	19.10	TEM=	21.60	FLO=		EH =		SPC=	2850.00
ALK=	46.00	DIS=		SUS=		LI =		NA =	220.00	K =	11.00	RB =		MG =	130.00
CA =	124.00	SR =		BA =		MN =		FE =		FET=		F =		CU =	
ZN =		HG =		B =		AL =		PB =		AS =		SB =		U =	
CL =	840.00	BR =		I =		O2 =		CO2=		H2S=		NH4=		NO2=	
NO3=	5.40	PO4=		SIO=	66.00	SO4=		CO3=		HCO=	56.00	CAR=		HAR=	844.00
SE =		PHE=		CD =		CR =		AG =		P =		N =		ELE=	8.00

33 ID#=3-2359-13 TYP=WELL COU=OAHU LOC=WAIPAHU LAT,LON= 212333. 1575923.00 DAT= 1969.

PH =	7.90	SPG=		WED=	191.00	WAD=	17.80	TEM=	22.00	FLO=		EH =		SPC=	3520.00
ALK=	49.00	DIS=		SUS=		LI =		NA =	320.00	K =	14.00	RB =		MG =	150.00
CA =	136.00	SR =		BA =		MN =		FE =		FET=		F =		CU =	
ZN =		HG =		B =		AL =		PB =		AS =		SB =		U =	
CL =	1050.00	BR =		I =		O2 =		CO2=		H2S=		NH4=		NO2=	
NO3=	4.10	PO4=		SIO=	64.00	SO4=		CO3=		HCO=	60.00	CAR=		HAR=	956.00
SE =		PHE=		CD =		CR =		AG =		P =		N =		ELE=	9.00

34 ID#=3-2359-16 TYP=WELL COU=OAHU LOC=WAIPAHU LAT,LON= 212332. 1575919.00 DAT= 1969.

PH =	7.70	SPG=		WED=	162.00	WAD=	16.80	TEM=	22.00	FLO=		EH =		SPC=	5320.00
ALK=	43.00	DIS=		SUS=		LI =		NA =	480.00	K =	21.00	RB =		MG =	240.00
CA =	210.00	SR =		BA =		MN =		FE =		FET=		F =	0.10	CU =	
ZN =		HG =		B =		AL =		PB =		AS =		SB =		U =	
CL =	1650.00	BR =		I =		O2 =		CO2=		H2S=		NH4=		NO2=	
NO3=	4.00	PO4=		SIO=	62.00	SO4=		CO3=		HCO=	53.00	CAR=		HAR=	1510.00
SE =		PHE=		CD =		CR =		AG =		P =		N =		ELE=	10.00

35 ID#=3-2359-17 TYP=WELL COU=OAHU LOC=WAIPAHU LAT,LON= 212333. 1575920.00 DAT= 1969.

PH =	7.90	SPG=		WED=	175.00	WAD=	17.20	TEM=	22.00	FLO=		EH =		SPC=	3680.00
ALK=	46.00	DIS=	2960.00	SUS=		LI =		NA =	295.00	K =	14.00	RB =		MG =	175.00
CA =	156.00	SR =		BA =		MN =		FE =		FET=		F =		CU =	
ZN =		HG =		B =		AL =		PB =		AS =		SB =		U =	
CL =	1110.00	BR =		I =		O2 =		CO2=		H2S=		NH4=		NO2=	
NO3=	5.40	PO4=		SIO=	65.00	SO4=		CO3=		HCO=	56.00	CAR=		HAR=	1110.00
SE =		PHE=		CD =		CR =		AG =		P =		N =		ELE=	11.00

36 ID#=3-2400-01 TYP=WELL COU=OAHU LOC=WAIPAHU LAT,LON= 212408. 1580026.00 DAT=1968.

PH =	7.35	SPG=		WED=	355.00	WAD=	17.40	TEM=		FLO=		EH =		SPC=	485.00
ALK=	72.00	DIS=	348.00	SUS=		LI =		NA =	73.30	K =	2.60	RB =		MG =	7.90
CA =	8.40	SR =		BA =		MN =	0.02	FE =	0.02	FET=		F =	0.35	CU =	0.02
ZN =		HG =		B =		AL =		PB =	0.02	AS =	0.02	SB =		U =	
CL =	80.00	BR =		I =		O2 =	8.00	CO2=	5.00	H2S=		NH4=		NO2=	
NO3=	7.60	PO4=	1.05	SIO=	57.00	SO4=	21.00	CO3=		HCO=	89.00	CAR=		HAR=	53.00
SE =	0.01	PHE=		CD =		CR =	0.01	AG =		P =		N =		ELE=	200.00

37 ID#=3-2402-01 TYP=WELL COU=OAHU LOC=KUNIA II LAT,LON= 212410. 1580231.00 DAT=1971.

PH =	7.20	SPG=		WED=	575.00	WAD=	20.60	TEM=		FLO=		EH =		SPC=	601.00
ALK=	87.00	DIS=	442.00	SUS=		LI =		NA =	79.00	K =	3.50	RB =		MG =	18.00
CA =	13.00	SR =		BA =		MN =	0.02	FE =	0.02	FET=		F =	0.30	CU =	0.02
ZN =		HG =		B =		AL =		PB =	0.02	AS =	0.02	SB =		U =	
CL =	105.00	BR =		I =		O2 =	8.20	CO2=	1.30	H2S=		NH4=		NO2=	
NO3=	8.30	PO4=	1.10	SIO=	71.00	SO4=	37.00	CO3=		HCO=	106.00	CAR=		HAR=	106.00
SE =	0.01	PHE=		CD =		CR =	0.01	AG =		P =		N =		ELE=	430.00

38 ID#=3-2458-01 TYP=WELL COU=OAHU LOC=PEARL CITY LAT,LON= 212407. 1575825.00 DAT=1958.

PH =	7.30	SPG=		WED=	102.00	WAD=	18.90	TEM=	21.50	FLO=		EH =		SPC=	
ALK=	68.00	DIS=	373.00	SUS=		LI =		NA =	99.00	K =		RB =		MG =	14.50
CA =	13.50	SR =		BA =		MN =	0.10	FE =	0.10	FET=		F =	0.30	CU =	0.10
ZN =	0.03	HG =		B =		AL =	0.30	PB =	0.03	AS =	0.01	SB =		U =	
CL =	172.00	BR =		I =		O2 =		CO2=		H2S=		NH4=		NO2=	
NO3=	0.80	PO4=		SIO=	61.60	SO4=	37.90	CO3=		HCO=	79.00	CAR=		HAR=	94.10
SE =	0.05	PHE=	0.01	CD =		CR =		AG =		P =		N =		ELE=	111.00

39 ID#=3-2459-19 TYP=WELL COU=OAHU LOC=WAIPIO HTS-1 LAT,LON= 212427. 1575952.00 DAT=1971.

PH =	7.20	SPG=		WED=	337.00	WAD=	18.50	TEM=		FLO=		EH =		SPC=	453.00
ALK=	66.00	DIS=	338.00	SUS=		LI =		NA =	63.00	K =	2.50	RB =		MG =	11.00
CA =	10.00	SR =		BA =		MN =	0.02	FE =	0.02	FET=		F =	0.20	CU =	0.02
ZN =		HG =		B =		AL =		PB =	0.02	AS =	0.02	SB =		U =	
CL =	82.00	BR =		I =		O2 =	8.40	CO2=	0.70	H2S=		NH4=		NO2=	
NO3=	8.20	PO4=	0.70	SIO=	60.00	SO4=	19.00	CO3=		HCO=	81.00	CAR=		HAR=	70.00
SE =	0.01	PHE=		CD =		CR =	0.01	AG =		P =		N =		ELE=	202.00

40 ID#=3-2501-01 TYP=WELL COU=OAHU LOC=WAIPAHU LAT,LON= 212523. 1580145.00 DAT=1926.

PH =		SPG=		WED=	455.00	WAD=	19.90	TEM=		FLO=		EH =		SPC=	
ALK=	192.00	DIS=		SUS=		LI =		NA =	76.00	K =		RB =		MG =	31.00
CA =	27.00	SR =		BA =		MN =		FE =		FET=		F =		CU =	
ZN =		HG =		B =		AL =		PB =		AS =		SB =		U =	
CL =	121.00	BR =		I =		O2 =		CO2=		H2S=		NH4=		NO2=	
NO3=		PO4=		SIO=	56.00	SO4=	4.50	CO3=		HCO=	234.00	CAR=		HAR=	195.00
SE =		PHE=		CD =		CR =		AG =		P =		N =		ELE=	242.00

41 ID#=3-2508-02 TYP=TUNNEL COU=OAHU LOC=LUALUALEI LAT,LON= 212501. 1580807.00 DAT=1971.

PH =	7.80	SPC=		WED=	175.00	WAD=	11.70	TEM=	27.50	FLO=		EH =		SPC=	1450.00
ALK=	258.00	DIS=	819.00	SUS=		LI =		NA =	92.00	K =	7.90	RB =		MG =	102.00
CA =	36.00	SR =		BA =		MN =		FE =	0.10	FET=		F =	0.20	CU =	0.01
ZN =		HG =		B =		AL =	1.90	PB =	0.01	AS =	0.01	SB =		U =	
CL =	280.00	BR =		I =		O2 =		CO2=		H2S=		NH4=		NO2=	
NO3=	8.50	PO4=	0.05	SIO=	92.00	SO4=	22.00	CO3=		HCO=	338.00	CAR=		HAR=	510.00
SE =		PHE=		CD =		CR =		AG =		P =		N =		ELE=	170.00

42 ID#=3-2558-10 TYP=WELL COU=OAHU LOC=WAIAWA LAT,LON= 212506. 1575823.00 DAT=1975.

PH =	6.80	SPC=		WED=	170.00	WAD=		TEM=	22.00	FLO=		EH =		SPC=	750.00
ALK=	51.00	DIS=	366.00	SUS=		LI =		NA =	78.00	K =	3.00	RB =		MG =	14.00
CA =	17.00	SR =		BA =		MN =		FE =	10.00	FET=		F =	0.10	CU =	
ZN =		HG =		B =		AL =		PB =		AS =		SB =		U =	
CL =	160.00	BR =		I =		O2 =		CO2=	16.00	H2S=		NH4=		NO2=	
NO3=		PO4=	0.58	SIO=	58.00	SO4=	19.00	CO3=		HCO=	62.00	CAR=		HAR=	190.00
SE =		PHE=		CD =		CR =		AG =		P =	0.19	N =	1.20	ELE=	150.00

43 ID#=3-2600-02 TYP=WELL COU=OAHU LOC=KIPAPA GULCH LAT,LON= 212601. 1580041.00 DAT=1974.

PH =	7.00	SPC=		WED=	401.00	WAD=	22.90	TEM=	25.00	FLO=		EH =		SPC=	
ALK=	79.00	DIS=	200.00	SUS=		LI =		NA =	19.00	K =	1.40	RB =		MG =	12.00
CA =	8.90	SR =		BA =	0.10	MN =	0.01	FE =	0.05	FET=		F =	20.00	CU =	0.01
ZN =	0.09	HG =		B =		AL =	0.10	PB =	0.01	AS =	0.01	SB =		U =	
CL =	35.00	BR =		I =		O2 =		CO2=		H2S=		NH4=		NO2=	0.01
NO3=	1.40	PO4=		SIO=	61.00	SO4=	12.00	CO3=		HCO=	87.00	CAR=		HAR=	72.00
SE =	0.00	PHE=	0.00	CD =	0.00	CR =	0.01	AG =	0.01	P =		N =		ELE=	297.00

4 ID#=3-2603-01 TYP=WELL COU=OAHU LOC=WAIKELE LAT,LON= 212618. 1580338.00 DAT=1975.

PH =	6.70	SPC=		WED=	991.00	WAD=	23.60	TEM=	22.00	FLO=		EH =		SPC=	360.00
ALK=	69.00	DIS=	261.00	SUS=		LI =		NA =	27.00	K =	2.20	RB =		MG =	15.00
CA =	20.00	SR =		BA =		MN =	5.00	FE =	20.00	FET=		F =	0.10	CU =	
ZN =		HG =		B =		AL =		PB =		AS =		SB =		U =	
CL =	46.00	BR =		I =		O2 =		CO2=	27.00	H2S=		NH4=		NO2=	
NO3=	9.60	PO4=	0.83	SIO=	74.00	SO4=	21.00	CO3=		HCO=	84.00	CAR=		HAR=	110.00
SE =		PHE=		CD =		CR =		AG =		P =	0.27	N =	2.30	ELE=	745.00

ID#=3-2607-01 TYP=WELL COU=OAHU LOC=LUALUALEI LAT,LON= 212656. 1580718.00 DAT=1972.

H =	7.50	SPC=		WED=	451.00	WAD=	35.70	TEM=	24.00	FLO=		EH =		SPC=	370.00
LK=	93.00	DIS=	246.00	SUS=		LI =		NA =	39.00	K =	2.80	RB =		MG =	12.00
A =	13.00	SR =		BA =		MN =	0.05	FE =	0.01	FET=		F =	0.30	CU =	0.03
N =	0.10	HG =		B =		AL =		PB =	0.01	AS =	0.05	SB =		U =	
L =	46.00	BR =		I =		O2 =	6.50	CO2=	38.00	H2S=		NH4=		NO2=	
03=	4.30	PO4=	0.25	SIO=	65.00	SO4=	8.50	CO3=		HCO=	113.00	CAR=		HAR=	82.00
E =		PHE=		CD =		CR =	0.05	AG =		P =		N =	0.97	ELE=	395.00

46 ID#=3-2703-01 TYP=WELL COU=OAHU LOC=KUNIA LAT,LON= 212741. 1580342.00 DAT=1974.

PH =	7.00	SPG=		WED=	976.00	WAD=	25.00	TEM=	23.00	FLO=		EH =		SPC=	
ALK=	69.00	DIS=	230.00	SUS=		LI =		NA =	25.00	K =	1.80	RB =		MG =	8.40
CA =	8.80	SR =		BA =	0.10	MN =	0.01	FE =	0.03	FET=		F =	0.80	CU =	0.01
ZN =	0.29	HG =		B =		AL =	0.10	PB =	0.01	AS =	0.01	SB =		U =	
CL =	37.00	BR =		I =		O2 =		CO2=		H2S=		NH4=		NO2=	0.01
NO3=	3.00	PO4=		SIO=	65.40	SO4=	11.00	CO3=		HCO=	85.00	CAR=		HAR=	56.00
SE =	0.00	PHE=	0.00	CD =	0.00	CR =	0.01	AG =	0.01	P =		N =		ELE=	847.00

47 ID#=3-2712-30 TYP=WELL COU=OAHU LOC=KAMAILE-1 LAT,LON= 212752. 1581202.00 DAT=1976.

PH =	7.10	SPG=		WED=	164.00	WAD=	9.00	TEM=	25.50	FLO=		EH =		SPC=	628.00
ALK=	150.00	DIS=	492.00	SUS=		LI =		NA =	55.00	K =	4.10	RB =		MG =	34.00
CA =	19.00	SR =		BA =		MN =	0.02	FE =	0.02	FET=		F =	0.20	CU =	0.02
ZN =		HG =		B =		AL =		PB =	0.02	AS =	0.01	SB =		U =	
CL =	97.00	BR =		I =		O2 =		CO2=	35.00	H2S=		NH4=		NO2=	
NO3=	8.40	PO4=	0.50	SIO=	75.00	SO4=	16.00	CO3=		HCO=	183.00	CAR=		HAR=	198.00
SE =	0.01	PHE=		CD =		CR =	0.01	AG =		P =	0.13	N =	2.20	ELE=	34.00

48 ID#=3-2800-01 TYP=WELL COU=OAHU LOC=MILILANI LAT,LON= 212803. 1580007.00 DAT=1972.

PH =	7.40	SPG=		WED=	1012.00	WAD=	35.10	TEM=	22.00	FLO=		EH =		SPC=	160.00
ALK=	48.00	DIS=	146.00	SUS=		LI =		NA =	14.00	K =	1.40	RB =		MG =	6.30
CA =	7.70	SR =		BA =		MN =	0.02	FE =	0.02	FET=		F =	0.10	CU =	0.02
ZN =		HG =		B =		AL =		PB =	0.02	AS =	0.02	SB =		U =	
CL =	18.00	BR =		I =		O2 =	7.85	CO2=	0.70	H2S=		NH4=		NO2=	
NO3=	0.90	PO4=	0.45	SIO=	63.00	SO4=	6.50	CO3=		HCO=	58.00	CAR=		HAR=	45.00
SE =	0.01	PHE=		CD =		CR =	0.01	AG =		P =		N =		ELE=	762.00

49 ID#=3-2800-03 TYP=WELL COU=OAHU LOC=MILILANI LAT,LON= 212803. 1580007.00 DAT=1972.

PH =	7.30	SPG=		WED=	1022.00	WAD=		TEM=	20.50	FLO=		EH =		SPC=	158.00
ALK=		DIS=		SUS=		LI =		NA =	14.00	K =	1.30	RB =		MG =	5.60
CA =	7.20	SR =		BA =		MN =		FE =		FET=		F =	0.10	CU =	
ZN =		HG =		B =		AL =		PB =		AS =		SB =		U =	
CL =	18.00	BR =		I =		O2 =		CO2=		H2S=		NH4=		NO2=	
NO3=	0.20	PO4=		SIO=	64.00	SO4=	3.50	CO3=		HCO=	53.00	CAR=		HAR=	
SE =		PHE=		CD =		CR =		AG =		P =		N =		ELE=	760.00

50 ID#=3-2808-01 TYP=WELL COU=OAHU LOC=NANAKULI LAT,LON= 212813. 1580802.00 DAT=1972.

PH =	7.80	SPG=		WED=	395.00	WAD=	441.30	TEM=	26.00	FLO=		EH =		SPC=	1350.00
ALK=	80.00	DIS=	711.00	SUS=		LI =		NA =	120.00	K =	3.40	RB =		MG =	28.00
CA =	66.00	SR =		BA =		MN =		FE =	0.24	FET=		F =	0.30	CU =	
ZN =		HG =		B =		AL =		PB =		AS =		SB =		U =	
CL =	160.00	BR =		I =		O2 =		CO2=	2.50	H2S=		NH4=		NO2=	
NO3=	0.30	PO4=		SIO=	63.00	SO4=	222.00	CO3=		HCO=	97.00	CAR=		HAR=	280.00
SE =		PHE=		CD =		CR =		AG =		P =		N =	0.07	ELE=	437.00

51 ID#=3-2809-05 TYP=WELL COU=OAHU LOC=WAIANAE VAL LAT,LON= 212801. 1580938.00 DAT=1969.

PH =	7.35	SPG=		WED=	335.00	WAD=	77.60	TEM=		FLO=		EH =		SPC=	
ALK=	62.40	DIS=		SUS=		LI =		NA =	63.00	K =	0.20	RB =		MG =	3.74
CA =	36.00	SR =		BA =		MN =	0.01	FE =	0.02	FET=		F =	0.05	CU =	0.32
ZN =	0.04	HG =		B =		AL =	0.02	PB =	0.01	AS =	0.00	SB =		U =	
CL =	67.72	BR =		I =		O2 =		CO2=		H2S=		NH4=		NO2=	0.01
NO3=	0.57	PO4=		SIO=	62.00	SO4=	0.10	CO3=		HCO=		CAR=		HAR=	100.00
SE =	0.01	PHE=	0.00	CD =		CR =		AG =		P =		N =		ELE=	303.00

52 ID#=3-2812-01 TYP=TUNNEL COU=OAHU LOC=MAKAHA SHAFT LAT,LON= 212857. 1581246.00 DAT=1969.

PH =	7.20	SPG=		WED=	168.00	WAD=	16.70	TEM=	26.50	FLO=		EH =		SPC=	560.00
ALK=	147.68	DIS=		SUS=		LI =		NA =	16.90	K =	0.40	RB =		MG =	4.91
CA =	34.00	SR =		BA =		MN =	0.01	FE =	0.05	FET=		F =	0.32	CU =	0.04
ZN =	0.05	HG =		B =		AL =	0.02	PB =	0.02	AS =	0.00	SB =		U =	
CL =	93.00	BR =		I =		O2 =		CO2=		H2S=		NH4=		NO2=	0.01
NO3=	0.75	PO4=		SIO=	66.00	SO4=	3.50	CO3=		HCO=		CAR=		HAR=	180.00
SE =	0.01	PHE=	0.00	CD =		CR =		AG =		P =		N =		ELE=	140.00

53 ID#=3-2901-01 TYP=WELL COU=OAHU LOC=SCHOFIELD B LAT,LON= 212927. 1580148.00 DAT=1972.

PH =	7.60	SPG=		WED=	80.00	WAD=		TEM=	21.60	FLO=		EH =		SPC=	174.00
ALK=	52.00	DIS=	157.00	SUS=		LI =		NA =	14.00	K =	1.20	RB =		MG =	7.20
CA =	8.80	SR =		BA =		MN =		FE =		FET=		F =	0.10	CU =	
ZN =		HG =		B =		AL =		PB =		AS =		SB =		U =	
CL =	19.00	BR =		I =		O2 =		CO2=		H2S=		NH4=		NO2=	
NO3=	1.60	PO4=		SIO=	69.00	SO4=	5.30	CO3=		HCO=	64.00	CAR=		HAR=	52.00
SE =		PHE=		CD =		CR =		AG =		P =		N =		ELE=	276.00

54 ID#=3-2901-02 TYP=WELL COU=OAHU LOC=SCHOFIELD B LAT,LON= 212927. 1580148.00 DAT=1975.

PH =	6.80	SPG=		WED=	28.00	WAD=	284.00	TEM=	23.00	FLO=		EH =		SPC=	180.00
ALK=	54.00	DIS=	162.00	SUS=		LI =		NA =	13.00	K =	1.70	RB =		MG =	7.40
CA =	17.00	SR =		BA =		MN =		FE =	30.00	FET=		F =	0.10	CU =	
ZN =		HG =		B =		AL =		PB =		AS =		SB =		U =	
CL =	18.00	BR =		I =		O2 =		CO2=	17.00	H2S=		NH4=		NO2=	
NO3=		PO4=	0.67	SIO=	64.00	SO4=	4.40	CO3=		HCO=	66.00	CAR=		HAR=	73.00
SE =		PHE=		CD =		CR =		AG =		P =	0.22	N =	0.64	ELE=	276.00

55 ID#=3-2901-07 TYP=TUNNEL COU=OAHU LOC=SCHOFIELD LAT,LON= 212927. 1580148.00 DAT=1972.

PH =	7.60	SPG=		WED=	1080.00	WAD=	550.10	TEM=	23.00	FLO=		EH =		SPC=	190.00
ALK=	52.00	DIS=		SUS=		LI =		NA =	14.00	K =	1.20	RB =		MG =	7.20
CA =	8.80	SR =		BA =		MN =		FE =		FET=		F =	0.10	CU =	
ZN =		HG =		B =		AL =		PB =		AS =		SB =		U =	
CL =	19.00	BR =		I =		O2 =		CO2=		H2S=		NH4=		NO2=	
NO3=	1.60	PO4=		SIO=	69.00	SO4=	5.30	CO3=		HCO=	64.00	CAR=		HAR=	52.00
SE =		PHE=		CD =		CR =		AG =		P =		N =		ELE=	850.00

56 ID#=3-2901-08 TYP=WELL COU=OAHU LOC=WAHIAWA LAT,LON= 212944. 1580143.00 DAT=1972.

PH =	7.30	SPG=		WED=	880.00	WAD=	275.40	TEM=	22.70	FLO=		EH =		SPC=	183.00
ALK=	52.00	DIS=	166.00	SUS=		LI =		NA =	17.00	K =	1.30	RB =		MG =	6.40
CA =	8.80	SR =		BA =		MN =	0.00	FE =	0.05	FET=		F =	0.10	CU =	
ZN =		HG =		B =		AL =	1.93	PB =		AS =	0.00	SB =		U =	
CL =	19.00	BR =		I =		O2 =		CO2=		H2S=		NH4=		NO2=	0.00
NO3=	2.80	PO4=		SIO=	72.00	SO4=	7.30	CO3=		HCO=	64.00	CAR=		HAR=	49.00
SE =		PHE=		CD =		CR =		AG =		P =		N =		ELE=	870.00

57 ID#=3-2901-09 TYP=WELL COU=OAHU LOC=WAHIAWA LAT,LON= 212945. 1580142.00 DAT=1971.

PH =	6.90	SPG=		WED=	990.00	WAD=	275.00	TEM=	21.50	FLO=		EH =		SPC=	200.00
ALK=	54.00	DIS=	204.00	SUS=		LI =		NA =	15.00	K =	1.40	RB =		MG =	7.80
CA =	9.10	SR =		BA =		MN =	0.02	FE =	0.02	FET=		F =	0.10	CU =	0.02
ZN =	0.10	HG =		B =		AL =	0.05	PB =	0.02	AS =	0.01	SB =		U =	
CL =	21.00	BR =		I =		O2 =	7.85	CO2=	11.50	H2S=		NH4=		NO2=	
NO3=	2.80	PO4=	0.50	SIO=	74.00	SO4=	4.80	CO3=		HCO=	66.00	CAR=		HAR=	55.00
SE =	0.01	PHE=	0.00	CD =		CR =	0.01	AG =		P =		N =		ELE=	873.00

58 ID#=3-2901-11 TYP=WELL COU=OAHU LOC=WAHIAWA LAT,LON= 212946. 1580141.00 DAT=1972.

PH =	7.50	SPG=		WED=	821.00	WAD=	272.90	TEM=	21.50	FLO=		EH =		SPC=	187.00
ALK=	54.00	DIS=	168.00	SUS=		LI =		NA =	16.00	K =	1.30	RB =		MG =	7.00
CA =	9.20	SR =		BA =		MN =	0.02	FE =	0.02	FET=		F =	0.10	CU =	0.02
ZN =		HG =		B =		AL =		PB =	0.02	AS =	0.02	SB =		U =	
CL =	19.00	BR =		I =		O2 =	7.60	CO2=	13.00	H2S=		NH4=		NO2=	
NO3=	3.80	PO4=	0.65	SIO=	74.00	SO4=	5.90	CO3=		HCO=	66.00	CAR=		HAR=	52.00
SE =	0.01	PHE=		CD =		CR =	0.02	AG =		P =		N =		ELE=	873.00

59 ID#=3-2902-01 TYP=WELL COU=OAHU LOC=WAHIAWA EXP1 LAT,LON= 212948. 1580218.00 DAT=1974.

PH =	7.20	SPG=		WED=	986.00	WAD=	275.80	TEM=	23.00	FLO=		EH =		SPC=	185.00
ALK=	52.00	DIS=	177.00	SUS=		LI =		NA =	16.00	K =	1.40	RB =		MG =	6.10
CA =	8.60	SR =		BA =		MN =		FE =	30.00	FET=		F =	0.10	CU =	
ZN =		HG =		B =		AL =		PB =		AS =		SB =		U =	
CL =	17.00	BR =		I =		O2 =		CO2=	6.40	H2S=		NH4=		NO2=	
NO3=		PO4=	0.71	SIO=	81.00	SO4=	11.00	CO3=		HCO=	63.00	CAR=		HAR=	47.00
SE =		PHE=		CD =		CR =		AG =		P =	0.23	N =	0.93	ELE=	866.00

60 ID#=3-2912-01 TYP=WELL COU=OAHU LOC=MAKAHA LAT,LON= 212852. 1581303.00 DAT=1976.

PH =	7.20	SPG=		WED=	640.00	WAD=	83.50	TEM=	25.00	FLO=		EH =		SPC=	530.00
ALK=	126.00	DIS=	344.00	SUS=		LI =		NA =	33.00	K =	4.10	RB =		MG =	30.00
CA =	27.00	SR =		BA =		MN =	10.00	FE =		FET=		F =	0.20	CU =	
ZN =		HG =		B =		AL =		PB =		AS =		SB =		U =	
CL =	92.00	BR =		I =		O2 =		CO2=	16.00	H2S=		NH4=		NO2=	
NO3=		PO4=	0.25	SIO=	66.00	SO4=	6.60	CO3=		HCO=	154.00	CAR=		HAR=	190.00
SE =		PHE=		CD =		CR =		AG =		P =	0.08	N =	1.90	ELE=	491.00

61 ID#=3-3013-09 TYP=WELL COU=OAHU LOC=OHIKILOLO LAT,LON= 213024. 1581333.00 DAT=1973.

PH =	7.30	SPC=		WED=	235.00	WAD=	184.00	TEM=	27.00	FLO=		EH =		SPC=	6240.00
ALK=	142.00	DIS=	3590.00	SUS=		LI =		NA =	960.00	K =	20.00	RB =		MG =	170.00
CA =	130.00	SR =		BA =		MN =		FE =		FET=		F =	0.30	CU =	
ZN =		HG =		B =		AL =		PB =		AS =		SB =		U =	
CL =	1900.00	BR =		I =		O2 =		CO2=		H2S=		NH4=		NO2=	
NO3=		PO4=	0.34	SIO=	77.00	SO4=	240.00	CO3=		HCO=	173.00	CAR=		HAR=	1000.00
SE =		PHE=		CD =		CR =		AG =		P =	0.11	N =	1.40	ELE=	186.00

62 ID#=3-3102-02 TYP=WELL COU=OAHU LOC=HELEMANO LAT,LON= 213146. 1580244.00 DAT=1973.

PH =	7.10	SPC=		WED=	977.00	WAD=		TEM=	21.10	FLO=		EH =		SPC=	187.00
ALK=	59.00	DIS=	170.00	SUS=		LI =		NA =	15.00	K =	1.60	RB =		MG =	7.70
CA =	8.80	SR =		BA =		MN =		FE =		FET=		F =	0.20	CU =	
ZN =		HG =		B =		AL =		PB =		AS =		SB =		U =	
CL =	18.00	BR =		I =		O2 =		CO2=	9.20	H2S=		NH4=		NO2=	
NO3=	0.80	PO4=	0.71	SIO=	72.00	SO4=	9.20	CO3=		HCO=	72.00	CAR=		HAR=	54.00
SE =		PHE=		CD =		CR =		AG =		P =	0.23	N =	0.19	ELE=	972.00

63 ID#=3-3203-01 TYP=WELL COU=OAHU LOC=HALEMANU P25 LAT,LON= 213216. 1580342.00 DAT=1974.

PH =	7.60	SPC=		WED=	1070.00	WAD=		TEM=	22.00	FLO=		EH =		SPC=	190.00
ALK=	48.00	DIS=	166.00	SUS=		LI =		NA =	17.00	K =	1.80	RB =		MG =	6.90
CA =	9.30	SR =		BA =		MN =		FE =	30.00	FET=		F =	0.10	CU =	
ZN =		HG =		B =		AL =		PB =		AS =		SB =		U =	
CL =	19.00	BR =		I =		O2 =		CO2=	2.40	H2S=		NH4=		NO2=	
NO3=		PO4=	0.64	SIO=	69.00	SO4=	11.00	CO3=		HCO=	59.00	CAR=		HAR=	52.00
SE =		PHE=		CD =		CR =		AG =		P =	0.21	N =	0.58	ELE=	860.00

64 ID#=3-3213-06 TYP=WELL COU=OAHU LOC=MAKUA LAT,LON= 213225. 1581359.00 DAT=1972.

PH =	7.40	SPC=		WED=	50.00	WAD=		TEM=	26.50	FLO=		EH =		SPC=	875.00
ALK=	87.00	DIS=	547.00	SUS=		LI =		NA =	132.00	K =	3.00	RB =		MG =	20.00
CA =	17.00	SR =		BA =		MN =		FE =		FET=		F =	0.20	CU =	
ZN =		HG =		B =		AL =		PB =		AS =		SB =		U =	
CL =	210.00	BR =		I =		O2 =		CO2=		H2S=		NH4=		NO2=	
NO3=	2.40	PO4=		SIO=	61.00	SO4=	36.00	CO3=		HCO=	106.00	CAR=		HAR=	125.00
SE =		PHE=		CD =		CR =		AG =		P =		N =		ELE=	26.00

65 ID#=3-3314-01 TYP=WELL COU=OAHU LOC=KEAWAULA LAT,LON= 213307. 1581427.00 DAT=1972.

PH =	7.50	SPC=		WED=	264.00	WAD=	5.00	TEM=		FLO=		EH =		SPC=	2010.00
ALK=	111.00	DIS=	1090.00	SUS=		LI =		NA =	224.00	K =	7.20	RB =		MG =	73.00
CA =	50.00	SR =		BA =		MN =	0.05	FE =	0.03	FET=		F =	0.30	CU =	0.10
ZN =	0.10	HG =		B =		AL =	0.05	PB =	0.00	AS =	0.01	SB =		U =	
CL =	510.00	BR =		I =		O2 =		CO2=		H2S=		NH4=		NO2=	
NO3=	3.00	PO4=		SIO=	69.00	SO4=	81.00	CO3=		HCO=	135.00	CAR=		HAR=	425.00
SE =	0.00	PHE=	0.01	CD =		CR =		AG =		P =		N =		ELE=	183.00

66 ID#=3-3314-02 TYP=WELL COU=OAHU LOC=KEAWAULA LAT,LON= 213307. 1581427.00 DAT=1972.

PH =	7.70	SPG=		WED=	278.00	WAD=	4.60	TEM=	25.70	FLO=		EH =		SPC=	1780.00
ALK=	111.00	DIS=	983.00	SUS=		LI =		NA =	188.00	K =	6.00	RB =		MG =	70.00
CA =	45.00	SR =		BA =		MN =		FE =		FET=		F =		CU =	
ZN =		HG =		B =		AL =		PB =		AS =		SB =		U =	
CL =	470.00	BR =		I =		O2 =		CO2=		H2S=		NH4=		NO2=	
NO3=	4.60	PO4=		SIO=	78.00	SO4=	55.00	CO3=		HCO=	135.00	CAR=		HAR=	401.00
SE =		PHE=		CD =		CR =		AG =		P =		N =		ELE=	174.00

67 ID#=3-3314-03 TYP=WELL COU=OAHU LOC=KEAWAULA LAT,LON= 213357. 1581417.00 DAT=1971.

PH =	7.00	SPG=		WED=	1178.00	WAD=	13.50	TEM=		FLO=		EH =		SPC=	1180.00
ALK=	69.00	DIS=	665.00	SUS=		LI =		NA =	116.00	K =	7.80	RB =		MG =	44.00
CA =	37.00	SR =		BA =		MN =		FE =	96.00	FET=		F =	0.20	CU =	
ZN =		HG =		B =		AL =	0.30	PB =		AS =		SB =		U =	
CL =	290.00	BR =		I =		O2 =		CO2=		H2S=		NH4=		NO2=	
NO3=	5.10	PO4=		SIO=	68.00	SO4=	56.00	CO3=		HCO=	84.00	CAR=		HAR=	274.00
SE =		PHE=		CD =		CR =		AG =		P =		N =		ELE=	1146.00

68 ID#=3-3404-02 TYP=TUNNEL COU=OAHU LOC=WAIALUA LAT,LON= 213432. 1580421.00 DAT=1975.

PH =	7.20	SPG=		WED=	235.00	WAD=	11.10	TEM=	21.10	FLO=		EH =		SPC=	
ALK=	69.00	DIS=	172.00	SUS=		LI =		NA =	24.00	K =	1.40	RB =		MG =	5.30
CA =	5.20	SR =		BA =	0.10	MN =	0.03	FE =	0.01	FET=		F =	0.15	CU =	0.02
ZN =	0.02	HG =		B =		AL =	0.10	PB =	0.01	AS =	0.01	SB =		U =	
CL =	25.00	BR =		I =		O2 =		CO2=		H2S=		NH4=		NO2=	0.01
NO3=	1.60	PO4=		SIO=	61.60	SO4=	12.00	CO3=		HCO=		CAR=		HAR=	40.00
SE =	0.00	PHE=	0.00	CD =	0.00	CR =	0.01	AG =	0.01	P =		N =		ELE=	249.00

69 ID#=3-3405-01 TYP=WELL COU=OAHU LOC=WAIALUA LAT,LON= 213428. 1580557.00 DAT=1957.

PH =	7.20	SPG=		WED=	337.00	WAD=	12.20	TEM=	21.80	FLO=		EH =		SPC=	
ALK=	91.00	DIS=		SUS=		LI =		NA =		K =		RB =		MG =	15.10
CA =	9.60	SR =		BA =		MN =	0.10	FE =	0.10	FET=		F =	0.15	CU =	0.01
ZN =	0.03	HG =		B =		AL =	2.30	PB =	0.03	AS =	0.01	SB =		U =	
CL =	94.00	BR =		I =		O2 =		CO2=		H2S=		NH4=		NO2=	
NO3=	8.24	PO4=		SIO=	63.20	SO4=	30.20	CO3=		HCO=		CAR=		HAR=	87.00
SE =	0.05	PHE=	0.01	CD =		CR =		AG =		P =		N =		ELE=	196.00

70 ID#=3-3405-02 TYP=WELL COU=OAHU LOC=WAIALUA LAT,LON= 213427. 1580557.00 DAT=1971.

PH =	7.00	SPG=		WED=	343.00	WAD=	12.20	TEM=	23.00	FLO=		EH =		SPC=	595.00
ALK=	78.00	DIS=	349.00	SUS=		LI =		NA =	68.00	K =	3.10	RB =		MG =	8.00
CA =	8.20	SR =		BA =		MN =	0.02	FE =	0.02	FET=		F =	0.15	CU =	0.02
ZN =	0.03	HG =		B =		AL =		PB =	0.02	AS =	0.01	SB =		U =	
CL =	120.00	BR =		I =		O2 =	8.00	CO2=	11.50	H2S=		NH4=		NO2=	
NO3=	2.40	PO4=	0.80	SIO=	70.00	SO4=	21.00	CO3=		HCO=	95.00	CAR=		HAR=	53.00
SE =	0.01	PHE=	0.01	CD =		CR =	0.01	AG =		P =		N =		ELE=	197.00

71 ID#=3-3406-02 TYP=WELL COU=OAHU LOC=WAIALUA LAT,LON= 213455. 1580647.00 DAT=1972.

PH =	7.30	SPG=		WED=	221.00	WAD=	11.60	TEM=	21.60	FLO=		EH =		SPC=	527.00
ALK=	82.00	DIS=	347.00	SUS=		LI =		NA =	75.00	K =	3.40	RB =		MG =	12.00
CA =	11.00	SR =		BA =		MN =		FE =		FET=		F =	0.20	CU =	
ZN =		HG =		B =		AL =		PB =		AS =		SB =		U =	
CL =	95.00	BR =		I =		02 =		CO2=		H2S=		NH4=		NO2=	
NO3=	2.10	PO4=		SIO=	70.00	SO4=	22.00	CO3=		HCO=	100.00	CAR=		HAR=	77.00
SE =		PHE=		CD =		CR =		AC =		P =		N =		ELE=	14.00

72 ID#=3-3406-03 TYP=WELL COU=OAHU LOC=WAIALUA LAT,LON= 213454. 1580627.00 DAT=1972.

PH =	7.70	SPG=		WED=	198.00	WAD=	10.80	TEM=	22.30	FLO=		EH =		SPC=	546.00
ALK=	85.00	DIS=	361.00	SUS=		LI =		NA =	80.00	K =	3.00	RB =		MG =	11.00
CA =	11.00	SR =		BA =		MN =		FE =		FET=		F =	0.20	CU =	
ZN =		HG =		B =		AL =		PB =		AS =		SB =		U =	
CL =	98.00	BR =		I =		02 =		CO2=		H2S=		NH4=		NO2=	
NO3=	8.90	PO4=		SIO=	74.00	SO4=	24.00	CO3=		HCO=	104.00	CAR=		HAR=	73.00
SE =		PHE=		CD =		CR =		AG =		P =		N =		ELE=	9.00

73 ID#=3-3406-05 TYP=WELL COU=OAHU LOC=WAIALUA LAT,LON= 213433. 1580652.00 DAT=1972.

PH =	7.50	SPG=		WED=	100.00	WAD=	11.00	TEM=	23.40	FLO=		EH =		SPC=	863.00
ALK=	80.00	DIS=	570.00	SUS=		LI =		NA =	116.00	K =	4.20	RB =		MG =	21.00
CA =	22.00	SR =		BA =		MN =		FE =		FET=		F =	0.10	CU =	
ZN =		HG =		B =		AL =		PB =		AS =		SB =		U =	
CL =	145.00	BR =		I =		02 =		CO2=		H2S=		NH4=		NO2=	
NO3=	84.00	PO4=		SIO=	79.00	SO4=	51.00	CO3=		HCO=	97.00	CAR=		HAR=	142.00
SE =		PHE=		CD =		CR =		AG =		P =		N =		ELE=	28.00

74 ID#=3-3406-06 TYP=WELL COU=OAHU LOC=WAIALUA LAT,LON= 213429. 1580638.00 DAT=1972.

PH =	8.00	SPG=		WED=	100.00	WAD=	11.00	TEM=	22.80	FLO=		EH =		SPC=	642.00
ALK=	85.00	DIS=	416.00	SUS=		LI =		NA =	92.00	K =	4.40	RB =		MG =	15.00
CA =	13.00	SR =		BA =		MN =		FE =		FET=		F =	0.20	CU =	
ZN =		HG =		B =		AL =		PB =		AS =		SB =		U =	
CL =	126.00	BR =		I =		02 =		CO2=		H2S=		NH4=		NO2=	
NO3=	9.60	PO4=		SIO=	75.00	SO4=	30.00	CO3=		HCO=	104.00	CAR=		HAR=	94.00
SE =		PHE=		CD =		CR =		AG =		P =		N =		ELE=	12.00

75 ID#=3-3406-08 TYP=WELL COU=OAHU LOC=CAPROCK-17 LAT,LON= 213459. 1580635.00 DAT=1973.

PH =	7.30	SPG=		WED=	67.00	WAD=		TEM=		FLO=		EH =		SPC=	536.00
ALK=		DIS=		SUS=		LI =		NA =	74.00	K =	3.40	RB =		MG =	12.00
CA =	12.00	SR =		BA =		MN =		FE =		FET=		F =	0.10	CU =	
ZN =		HG =		B =		AL =		PB =		AS =		SB =		U =	
CL =	94.00	BR =		I =		02 =		CO2=		H2S=		NH4=		NO2=	
NO3=	2.10	PO4=		SIO=	70.00	SO4=	23.00	CO3=		HCO=	102.00	CAR=		HAR=	
SE =		PHE=		CD =		CR =		AG =		P =		N =		ELE=	

76 ID#=3-3407-02 TYP=WELL COU=OAHU LOC=WAIALUA LAT,LON= 213437. 1580732.00 DAT=1972.

PH =	7.70	SPG=		WED=		WAD=	11.20	TEM=	22.30	FLO=		EH =		SPC=	587.00
ALK=	80.00	DIS=	380.00	SUS=		LI =		NA =	80.00	K =	4.60	RB =		MG =	14.00
CA =	13.00	SR =		BA =		MN =		FE =		FET=		F =	0.20	CU =	
ZN =		HG =		B =		AL =		PB =		AS =		SB =		U =	
CL =	112.00	BR =		I =		O2 =		CO2=		H2S=		NH4=		NO2=	
NO3=	9.60	PO4=		SIO=	72.00	SO4=	27.00	CO3=		HCO=	98.00	CAR=		HAR=	90.00
SE =		PHE=		CD =		CR =		AG =		P =		N =		ELE=	8.00

77 ID#=3-3407-07 TYP=WELL COU=OAHU LOC=WAIALUA II LAT,LON= 213435. 1580741.00 DAT=1975.

PH =	7.40	SPG=		WED=	261.00	WAD=	12.00	TEM=	22.00	FLO=		EH =		SPC=	1800.00
ALK=	103.00	DIS=	440.00	SUS=		LI =		NA =	78.00	K =	3.90	RB =		MG =	17.00
CA =	12.00	SR =		BA =	0.10	MN =	3.00	FE =	0.02	FET=		F =	0.15	CU =	0.06
ZN =	0.02	HG =		B =		AL =	0.10	PB =	0.01	AS =	0.01	SB =		U =	
CL =	41.00	BR =		I =		O2 =		CO2=		H2S=		NH4=		NO2=	0.01
NO3=	3.30	PO4=		SIO=	62.80	SO4=	30.00	CO3=		HCO=	104.00	CAR=		HAR=	119.00
SE =	0.00	PHE=	0.00	CD =	0.00	CR =	0.01	AG =	0.01	P =		N =		ELE=	30.00

78 ID#=3-3409-13 TYP=WELL COU=OAHU LOC=MOKULEIA LAT,LON= 213439. 1580954.00 DAT=1972.

PH =	7.50	SPG=		WED=	560.00	WAD=	17.70	TEM=	22.40	FLO=		EH =		SPC=	903.00
ALK=	94.00	DIS=	520.00	SUS=		LI =		NA =	86.00	K =	4.90	RB =		MG =	32.00
CA =	38.00	SR =		BA =		MN =		FE =		FET=		F =	0.10	CU =	
ZN =		HG =		B =		AL =		PB =		AS =		SB =		U =	
CL =	205.00	BR =		I =		O2 =		CO2=		H2S=		NH4=		NO2=	
NO3=	9.00	PO4=		SIO=	56.00	SO4=	32.00	CO3=		HCO=	114.00	CAR=		HAR=	227.00
SE =		PHE=		CD =		CR =		AG =		P =		N =		ELE=	10.00

79 ID#=3-3409-16 TYP=WELL COU=OAHU LOC=MOKULEIA LAT,LON= 213435. 1580911.00 DAT=1972.

PH =	7.90	SPG=		WED=	518.00	WAD=	19.70	TEM=	22.50	FLO=		EH =		SPC=	830.00
ALK=	98.00	DIS=	421.00	SUS=		LI =		NA =	56.00	K =	4.50	RB =		MG =	32.00
CA =	32.00	SR =		BA =		MN =		FE =		FET=		F =	0.10	CU =	
ZN =		HG =		B =		AL =		PB =		AS =		SB =		U =	
CL =	180.00	BR =		I =		O2 =		CO2=		H2S=		NH4=		NO2=	
NO3=	7.80	PO4=		SIO=	57.00	SO4=	23.00	CO3=		HCO=	120.00	CAR=		HAR=	212.00
SE =		PHE=		CD =		CR =		AG =		P =		N =		ELE=	8.00

80 ID#=3-3505-01 TYP=WELL COU=OAHU LOC=OPAEULA P3 LAT,LON= 213508. 1580545.00 DAT=1972.

PH =	7.50	SPG=		WED=	428.00	WAD=	10.50	TEM=	22.00	FLO=		EH =		SPC=	432.00
ALK=	75.00	DIS=	301.00	SUS=		LI =		NA =	64.00	K =	3.00	RB =		MG =	9.10
CA =	8.80	SR =		BA =		MN =		FE =	0.05	FET=		F =	0.20	CU =	
ZN =		HG =		B =		AL =	4.13	PB =		AS =		SB =		U =	
CL =	73.00	BR =		I =		O2 =		CO2=		H2S=		NH4=		NO2=	
NO3=	6.00	PO4=		SIO=	71.00	SO4=	21.00	CO3=		HCO=	92.00	CAR=		HAR=	60.00
SE =		PHE=		CD =		CR =		AG =		P =		N =		ELE=	60.00

81 ID#=3-3506-03 TYP=WELL COU=OAHU LOC=HALEIWA LAT,LON= 213512. 1580616.00 DAT=1972.

PH =	7.80	SPC=		WED=	101.00	WAD=	10.10	TEM=	21.50	FLO=		EH =		SPC=	540.00
ALK=	82.00	DIS=	306.00	SUS=		LI =		NA =	62.00	K =	3.10	RB =		MG =	10.00
CA =	11.00	SR =		BA =		MN =		FE =		FET=		F =	0.20	CU =	
ZN =		HG =		B =		AL =		PB =		AS =		SB =		U =	
CL =	98.00	BR =		I =		O2 =		CO2=		H2S=		NH4=		NO2=	
NO3=	7.40	PO4=		SIO=	72.00	SO4=	21.00	CO3=		HCO=	101.00	CAR=		HAR=	69.00
SE =		PHE=		CD =		CR =		AG =		P =		N =		ELE=	24.00

82 ID#=3-3506-06 TYP=WELL COU=OAHU LOC=HALEIWA LAT,LON= 213504. 1580635.00 DAT=1972.

PH =	7.70	SPC=		WED=	250.00	WAD=		TEM=	22.10	FLO=		EH =		SPC=	519.00
ALK=	85.00	DIS=	345.00	SUS=		LI =		NA =	70.00	K =	3.80	RB =		MG =	13.00
CA =	13.00	SR =		BA =		MN =		FE =	0.10	FET=		F =	0.20	CU =	0.10
ZN =	0.03	HG =		B =		AL =	0.70	PB =	0.03	AS =	0.01	SB =		U =	
CL =	92.00	BR =		I =		O2 =		CO2=		H2S=		NH4=		NO2=	0.00
NO3=	0.10	PO4=		SIO=	71.00	SO4=	23.00	CO3=		HCO=	104.00	CAR=		HAR=	86.00
SE =	0.05	PHE=	0.01	CD =		CR =		AG =		P =		N =		ELE=	7.00

83 ID#=3-3605-03 TYP=WELL COU=OAHU LOC=KAWAILOA-4 LAT,LON= 213636. 1580537.00 DAT=1972.

PH =	7.80	SPC=		WED=	38.00	WAD=		TEM=	21.00	FLO=		EH =		SPC=	2400.00
ALK=	61.00	DIS=	1120.00	SUS=		LI =		NA =	328.00	K =	13.00	RB =		MG =	33.00
CA =	18.00	SR =		BA =		MN =		FE =		FET=		F =	0.20	CU =	
ZN =		HG =		B =		AL =		PB =		AS =		SB =		U =	
CL =	590.00	BR =		I =		O2 =		CO2=		H2S=		NH4=		NO2=	
NO3=	4.00	PO4=		SIO=	64.00	SO4=	82.00	CO3=		HCO=	74.00	CAR=		HAR=	181.00
SE =		PHE=		CD =		CR =		AG =		P =		N =		ELE=	8.00

84 ID#=3-3605-15 TYP=WELL COU=OAHU LOC=KAWAILOA-4 LAT,LON= 213636. 1580537.00 DAT=1972.

PH =	7.60	SPC=		WED=	45.00	WAD=		TEM=	21.60	FLO=		EH =		SPC=	1460.00
ALK=	64.00	DIS=	813.00	SUS=		LI =		NA =	228.00	K =	9.10	RB =		MG =	24.00
CA =	14.00	SR =		BA =		MN =		FE =		FET=		F =	0.20	CU =	
ZN =		HG =		B =		AL =		PB =		AS =		SB =		U =	
CL =	370.00	BR =		I =		O2 =		CO2=		H2S=		NH4=		NO2=	
NO3=	6.00	PO4=		SIO=	64.00	SO4=	60.00	CO3=		HCO=	78.00	CAR=		HAR=	134.00
SE =		PHE=		CD =		CR =		AG =		P =		N =		ELE=	7.00

85 ID#=3-3605-16 TYP=WELL COU=OAHU LOC=KAWAILOA-4 LAT,LON= 213636. 1580537.00 DAT=1972.

PH =	7.90	SPC=		WED=	45.00	WAD=		TEM=	21.50	FLO=		EH =		SPC=	1610.00
ALK=	65.00	DIS=	902.00	SUS=		LI =		NA =	252.00	K =	9.80	RB =		MG =	23.00
CA =	17.00	SR =		BA =		MN =		FE =		FET=		F =	0.20	CU =	
ZN =		HG =		B =		AL =		PB =		AS =		SB =		U =	
CL =	420.00	BR =		I =		O2 =		CO2=		H2S=		NH4=		NO2=	
NO3=	5.60	PO4=		SIO=	64.00	SO4=	66.00	CO3=		HCO=	79.00	CAR=		HAR=	158.00
SE =		PHE=		CD =		CR =		AG =		P =		N =		ELE=	7.00

86 ID#=3-3605-21 TYP=WELL COU=OAHU LOC=KAWAILOA-4 LAT,LON= 213636. 1580537.00 DAT=1972.

PH =	8.00	SPG=		WED=	48.00	WAD=	4.50	TEM=	21.50	FLO=		EH =		SPC=	1650.00
ALK=		DIS=	755.00	SUS=		LI =		NA =	212.00	K =	8.40	RB =		MG =	22.00
CA =	14.00	SR =		BA =		MN =		FE =		FET=		F =	0.20	CU =	
ZN =		HG =		B =		AL =		PB =		AS =		SB =		U =	
CL =	390.00	BR =		I =		O2 =		CO2=		H2S=		NH4=		NO2=	
NO3=	5.60	PO4=		SIO=	65.00	SO4=	54.00	CO3=		HCO=	80.00	CAR=		HAR=	126.00
SE =		PHE=		CD =		CR =		AG =		P =		N =		ELE=	6.00

87 ID#=3-3605-23 TYP=WELL COU=OAHU LOC=KAWAILOA P4 LAT,LON= 213636. 1580537.00 DAT=1972.

PH =	8.00	SPG=		WED=	46.00	WAD=	4.50	TEM=	21.60	FLO=		EH =		SPC=	1320.00
ALK=	66.00	DIS=	755.00	SUS=		LI =		NA =	212.00	K =	8.40	RB =		MG =	22.00
CA =	14.00	SR =		BA =		MN =		FE =		FET=		F =	0.20	CU =	
ZN =		HG =		B =		AL =		PB =		AS =		SB =		U =	
CL =	335.00	BR =		I =		O2 =		CO2=		H2S=		NH4=		NO2=	
NO3=	5.60	PO4=		SIO=	65.00	SO4=	54.00	CO3=		HCO=	80.00	CAR=		HAR=	126.00
SE =		PHE=		CD =		CR =		AG =		P =		N =		ELE=	6.00

88 ID#=3-3704-01 TYP=TUNNEL COU=OAHU LOC=MEADOW GOLD LAT,LON= 213734. 1580448.00 DAT=1972.

PH =	7.50	SPG=		WED=	36.00	WAD=	2.60	TEM=	21.80	FLO=		EH =		SPC=	1880.00
ALK=	64.00	DIS=	1020.00	SUS=		LI =		NA =	292.00	K =	12.00	RB =		MG =	35.00
CA =	15.00	SR =		BA =	0.10	MN =	0.03	FE =	0.02	FET=		F =	0.10	CU =	0.08
ZN =	0.02	HG =		B =		AL =	0.02	PB =	0.01	AS =	0.01	SB =		U =	
CL =	490.00	BR =		I =		O2 =		CO2=		H2S=		NH4=		NO2=	0.01
NO3=	1.60	PO4=		SIO=	64.00	SO4=	74.00	CO3=		HCO=	78.00	CAR=		HAR=	182.00
SE =	0.01	PHE=	0.00	CD =	0.00	CR =	0.01	AG =	0.01	P =		N =		ELE=	32.00

89 ID#=3-4158-12 TYP=WELL COU=OAHU LOC=KAHUKU AIRB LAT,LON= 214136. 1575846.00 DAT=1972.

PH =	7.00	SPG=		WED=	250.00	WAD=	12.20	TEM=	25.00	FLO=		EH =		SPC=	1260.00
ALK=	86.00	DIS=	1100.00	SUS=		LI =		NA =	90.00	K =	3.00	RB =		MG =	52.60
CA =	54.00	SR =		BA =	0.10	MN =	0.03	FE =	0.10	FET=		F =	0.10	CU =	0.02
ZN =	0.25	HG =		B =		AL =	0.02	PB =	0.01	AS =	0.01	SB =		U =	
CL =	350.00	BR =		I =		O2 =		CO2=		H2S=		NH4=		NO2=	0.01
NO3=	1.50	PO4=		SIO=	48.00	SO4=	28.40	CO3=		HCO=	84.00	CAR=		HAR=	380.00
SE =	0.01	PHE=	0.00	CD =	0.00	CR =	0.01	AG =	0.01	P =		N =		ELE=	60.00

TABLE 5 Kauai

1	ID#=2-0021-01		TYP=WELL		COU=KAUAI				LOC=KALEPA RIDGE			LAT,LON=	220054.		1592104.00		DAT=1967.		
PH =	7.43	SPC=		WED=	276.00	WAD=	15.00	TEM=	25.30	FLO=		EH =				SPC=			
ALK=	134.40	DIS=		SUS=		LI =		NA =	80.00	K =	11.20	RB =				MG =	8.40		
CA =	6.90	SR =		BA =		MN =	0.05	FE =	0.12	FET=		F =	0.04			CU =	0.01		
ZN =	0.01	HG =		B =		AL =	0.01	PB =	0.01	AS =	0.00	SB =				U =			
CL =	29.00	BR =		I =		O2 =		CO2=		H2S=		NH4=				NO2=	0.00		
NO3=	5.60	PO4=		SIO=	66.00	SO4=	20.50	CO3=		HCO=		CAR=				HAR=	52.20		
SE =	0.01	PHE=	0.00	CD =		CR =		AG =		P =		N =				ELE=	166.00		

2	ID#=2-0044-03		TYP=WELL		COU=KAUAI				LOC=KAUNALEWA-2			LAT,LON=	220008.		1594442.00		DAT=1977.		
PH =	7.20	SPC=		WED=	195.00	WAD=	5.10	TEM=	23.50	FLO=		EH =				SPC=	10600.00		
ALK=	115.00	DIS=	5950.00	SUS=		LI =		NA =	910.00	K =	14.00	RB =				MG =	610.00		
CA =	400.00	SR =		BA =		MN =	20.00	FE =	60.00	FET=		F =				CU =			
ZN =		HG =		B =		AL =		PB =		AS =		SB =				U =			
CL =	3500.00	BR =		I =		O2 =		CO2=	14.00	H2S=		NH4=				NO2=			
NO3=		PO4=	0.40	SIO=	65.00	SO4=	380.00	CO3=		HCO=	140.00	CAR=				HAR=	3500.00		
SE =		PHE=		CD =		CR =		AG =		P =	0.13	N =	1.00			ELE=	8.00		

3	ID#=2-0044-04		TYP=WELL		COU=KAUAI				LOC=KAUNALEWA-3			LAT,LON=	220008.		1594442.00		DAT=1977.		
PH =	8.40	SPC=		WED=		WAD=	5.00	TEM=	28.00	FLO=		EH =				SPC=	1700.00		
ALK=	160.00	DIS=	765.00	SUS=		LI =		NA =	110.00	K =	2.90	RB =				MG =	82.00		
CA =	57.00	SR =		BA =		MN =	60.00	FE =	10.00	FET=		F =	0.10			CU =			
ZN =		HG =		B =		AL =		PB =		AS =		SB =				U =			
CL =	350.00	BR =		I =		O2 =		CO2=	1.20	H2S=		NH4=				NO2=			
NO3=		PO4=		SIO=	31.00	SO4=	38.00	CO3=	0.00	HCO=	190.00	CAR=				HAR=	480.00		
SE =		PHE=		CD =		CR =		AG =		P =		N =				ELE=	9.00		

4	ID#=2-0044-10		TYP=WELL		COU=KAUAI				LOC=KAUNALEWA-12			LAT,LON=	220017.		1594447.00		DAT=1977.		
PH =	7.10	SPC=		WED=	210.00	WAD=	11.30	TEM=	23.50	FLO=		EH =				SPC=	4100.00		
ALK=	110.00	DIS=	2170.00	SUS=		LI =		NA =	320.00	K =	4.50	RB =				MG =	220.00		
CA =	170.00	SR =		BA =		MN =	250.00	FE =	20.00	FET=		F =	0.10			CU =			
ZN =		HG =		B =		AL =		PB =		AS =		SB =				U =			
CL =	1200.00	BR =		I =		O2 =		CO2=	17.00	H2S=		NH4=				NO2=			
NO3=		PO4=		SIO=	50.00	SO4=	140.00	CO3=		HCO=	130.00	CAR=				HAR=	1300.00		
SE =		PHE=		CD =		CR =		AG =		P =		N =				ELE=	8.00		

5	ID#=2-0044-12		TYP=WELL		COU=KAUAI				LOC=KAUNALEWA-11			LAT,LON=	220005.		1594445.00		DAT=1977.		
PH =	7.50	SPC=		WED=	213.00	WAD=		TEM=	22.50	FLO=		EH =				SPC=	6300.00		
ALK=	150.00	DIS=	3650.00	SUS=		LI =		NA =	600.00	K =	10.00	RB =				MG =	360.00		
CA =	240.00	SR =		BA =		MN =	100.00	FE =	40.00	FET=		F =	0.00			CU =			
ZN =		HG =		B =		AL =		PB =		AS =		SB =				U =			
CL =	2000.00	BR =		I =		O2 =		CO2=	9.10	H2S=		NH4=				NO2=			
NO3=		PO4=		SIO=	72.00	SO4=	280.00	CO3=		HCO=	180.00	CAR=				HAR=	2100.00		
SE =		PHE=		CD =		CR =		AG =		P =		N =				ELE=	4.00		

6 ID#=2-0044-13 TYP=WELL COU=KAUAI LOC=KAUNALEWA-7 LAT,LON= 220019. 1594448.00 DAT=1972.

PH =	7.70	SPG=		WED=	244.00	WAD=	10.60	TEM=	22.00	FLO=		EH =		SPC=	3990.00
ALK=		DIS=		SUS=		LI =		NA =	250.00	K =	4.70	RB =		MG =	228.00
CA =	172.00	SR =		BA =		MN =		FE =		FET=		F =	0.10	CU =	
ZN =		HG =		B =		AL =		PB =		AS =		SB =		U =	
CL =	1180.00	BR =		I =		O2 =		CO2=		H2S=		NH4=		NO2=	
NO3=	0.80	PO4=		SIO=	70.00	SO4=	143.00	CO3=		HCO=	138.00	CAR=		HAR=	
SE =		PHE=		CD =		CR =		AG =		P =		N =		ELE=	8.00

7 ID#=2-0045-01 TYP=WELL COU=KAUAI LOC=CAMP 2 KS19 LAT,LON= 220053. 1594520.00 DAT=1972.

PH =	8.10	SPG=		WED=	192.00	WAD=	11.80	TEM=	22.50	FLO=		EH =		SPC=	1230.00
ALK=		DIS=		SUS=		LI =		NA =	49.00	K =	2.20	RB =		MG =	76.00
CA =	59.00	SR =		BA =		MN =		FE =		FET=		F =	0.20	CU =	
ZN =		HG =		B =		AL =		PB =		AS =		SB =		U =	
CL =	290.00	BR =		I =		O2 =		CO2=		H2S=		NH4=		NO2=	
NO3=	1.00	PO4=		SIO=	67.00	SO4=	43.00	CO3=		HCO=	150.00	CAR=		HAR=	
SE =		PHE=		CD =		CR =		AG =		P =		N =		ELE=	8.00

8 ID#=2-0045-03 TYP=WELL COU=KAUAI LOC=CAMP 2 KS5 LAT,LON= 220055. 1594520.00 DAT=1972.

PH =	7.70	SPG=		WED=	262.00	WAD=	18.60	TEM=	21.40	FLO=		EH =		SPC=	760.00
ALK=		DIS=		SUS=		LI =		NA =	40.00	K =	1.70	RB =		MG =	47.00
CA =	32.00	SR =		BA =		MN =		FE =		FET=		F =	0.20	CU =	
ZN =		HG =		B =		AL =		PB =		AS =		SB =		U =	
CL =	145.00	BR =		I =		O2 =		CO2=		H2S=		NH4=		NO2=	
[illegible]=	0.90	PO4=		SIO=	71.00	SO4=	26.00	CO3=		HCO=	156.00	CAR=		HAR=	
		PHE=		CD =		CR =		AG =		P =		N =		ELE=	10.00

9 ID#=2-0120-01 TYP=WELL COU=KAUAI LOC=KALEPA RIDGE LAT,LON= 220136. 1592055.00 DAT=1975.

PH =	7.70	SPG=		WED=	240.00	WAD=	10.00	TEM=	25.50	FLO=		EH =		SPC=	860.00
ALK=	169.00	DIS=	530.00	SUS=		LI =		NA =	94.00	K =	2.40	RB =		MG =	33.00
CA =	32.00	SR =		BA =		MN =	20.00	FE =	40.00	FET=		F =	0.10	CU =	0.10
ZN =	0.03	HG =		B =		AL =	0.60	PB =	0.03	AS =	0.01	SB =		U =	
CL =	160.00	BR =		I =		O2 =		CO2=	6.60	H2S=		NH4=		NO2=	
NO3=	0.40	PO4=	0.28	SIO=	77.00	SO4=	32.00	CO3=		HCO=	206.00	CAR=		HAR=	220.00
SE =	0.05	PHE=	0.01	CD =		CR =		AG =		P =	0.09	N =	1.80	ELE=	12.00

10 ID#=2-0120-02 TYP=WELL COU=KAUAI LOC=KALEPA RIDGE LAT,LON= 220134. 1592054.00 DAT=1972.

PH =	7.60	SPG=		WED=	312.00	WAD=	10.00	TEM=	27.50	FLO=		EH =		SPC=	722.00
ALK=	166.00	DIS=	457.00	SUS=		LI =		NA =	95.00	K =	2.60	RB =		MG =	23.00
CA =	8.00	SR =		BA =		MN =	0.05	FE =		FET=		F =	0.20	CU =	0.01
ZN =	0.01	HG =		B =		AL =	0.01	PB =	0.01	AS =	0.00	SB =		U =	
CL =	110.00	BR =		I =		O2 =		CO2=		H2S=		NH4=		NO2=	0.01
NO3=	13.00	PO4=		SIO=	73.00	SO4=	23.00	CO3=		HCO=	202.00	CAR=		HAR=	140.00
SE =	0.01	PHE=	0.00	CD =		CR =		AG =		P =		N =		ELE=	12.00

11 ID#=2-0145-08 TYP=WELL COU=KAUAI LOC=MANA-4 LAT,LON= 220148. 1594535.00 DAT=1972.

PH =	7.80	SPG=		WED=	266.00	WAD=	11.00	TEM=	22.50	FLO=		EH =		SPC=	717.00
ALK=		DIS=		SUS=		LI =		NA =	41.00	K =	1.50	RB =		MG =	44.00
CA =	30.00	SR =		BA =		MN =		FE =		FET=		F =	0.20	CU =	
ZN =		HG =		B =		AL =		PB =		AS =		SB =		U =	
CL =	122.00	BR =		I =		O2 =		CO2=		H2S=		NH4=		NO2=	
NO3=	1.20	PO4=		SIO=	67.00	SO4=	22.00	CO3=		HCO=	183.00	CAR=		HAR=	
SE =		PHE=		CD =		CR =		AG =		P =		N =		ELE=	29.00

12 ID#=2-0145-09 TYP=WELL COU=KAUAI LOC=MANA-5 LAT,LON= 220148. 1594535.00 DAT=1972.

PH =	7.90	SPG=		WED=	283.00	WAD=	10.80	TEM=	22.50	FLO=		EH =		SPC=	847.00
ALK=		DIS=		SUS=		LI =		NA =	58.00	K =	1.80	RB =		MG =	46.00
CA =	35.00	SR =		BA =		MN =		FE =		FET=		F =	0.20	CU =	
ZN =		HG =		B =		AL =		PB =		AS =		SB =		U =	
CL =	152.00	BR =		I =		O2 =		CO2=		H2S=		NH4=		NO2=	
NO3=	1.40	PO4=		SIO=	66.00	SO4=	29.00	CO3=		HCO=	192.00	CAR=		HAR=	
SE =		PHE=		CD =		CR =		AG =		P =		N =		ELE=	29.00

13 ID#=2-0145-10 TYP=WELL COU=KAUAI LOC=MANA-6 LAT,LON= 220148. 1594535.00 DAT=1972.

PH =	7.90	SPG=		WED=	270.00	WAD=	10.60	TEM=	22.50	FLO=		EH =		SPC=	2150.00
ALK=	141.00	DIS=	356.00	SUS=		LI =		NA =	31.00	K =	1.40	RB =		MG =	38.00
CA =	25.00	SR =		BA =		MN =		FE =		FET=		F =	0.20	CU =	
ZN =		HG =		B =		AL =		PB =		AS =		SB =		U =	
CL =	350.00	BR =		I =		O2 =		CO2=	3.50	H2S=		NH4=		NO2=	
NO3=	4.40	PO4=		SIO=	65.00	SO4=	16.00	CO3=		HCO=	172.00	CAR=		HAR=	220.00
SE =		PHE=		CD =		CR =		AG =		P =		N =	1.00	ELE=	31.00

14 ID#=2-0145-11 TYP=WELL COU=KAUAI LOC=MANA-7 LAT,LON= 220148. 1594535.00 DAT=1972.

PH =	7.70	SPG=		WED=	275.00	WAD=	10.80	TEM=	22.50	FLO=		EH =		SPC=	893.00
ALK=	143.00	DIS=	491.00	SUS=		LI =		NA =	51.00	K =	1.70	RB =		MG =	52.00
CA =	36.00	SR =		BA =		MN =		FE =		FET=		F =	0.10	CU =	
ZN =		HG =		B =		AL =		PB =		AS =		SB =		U =	
CL =	175.00	BR =		I =		O2 =		CO2=	5.60	H2S=		NH4=		NO2=	
NO3=	4.00	PO4=		SIO=	59.00	SO4=	27.00	CO3=		HCO=	174.00	CAR=		HAR=	300.00
SE =		PHE=		CD =		CR =		AG =		P =		N =	0.90	ELE=	30.00

15 ID#=2-0145-12 TYP=WELL COU=KAUAI LOC=MANA-8 LAT,LON= 220148. 1594535.00 DAT=1972.

PH =	8.00	SPG=		WED=	272.00	WAD=	10.70	TEM=	22.00	FLO=		EH =		SPC=	856.00
ALK=		DIS=		SUS=		LI =		NA =	50.00	K =	1.60	RB =		MG =	50.00
CA =	33.00	SR =		BA =		MN =		FE =		FET=		F =	0.20	CU =	
ZN =		HG =		B =		AL =		PB =		AS =		SB =		U =	
CL =	165.00	BR =		I =		O2 =		CO2=		H2S=		NH4=		NO2=	
NO3=	1.00	PO4=		SIO=	64.00	SO4=	26.00	CO3=		HCO=	172.00	CAR=		HAR=	
SE =		PHE=		CD =		CR =		AG =		P =		N =		ELE=	31.00

16 ID#=2-0145-13 TYP=WELL COU=KAUAI LOC=MANA-9 LAT,LON= 220148. 1594535.00 DAT=1972.

PH =	7.70	SPC=		WED=	251.00	WAD=	10.70	TEM=	22.00	FLO=		EH =		SPC=	523.00
ALK=		DIS=		SUS=		LI =		NA =	24.00	K =	1.40	RB =		MG =	35.00
CA =	23.00	SR =		BA =		MN =		FE =		FET=		F =	2009.00	CU =	
ZN =		HG =		B =		AL =		PB =		AS =		SB =		U =	
CL =	72.00	BR =		I =		O2 =		CO2=		H2S=		NH4=		NO2=	
NO3=	9000.00	PO4=		SIO=	62.00	SO4=	13.00	CO3=		HCO=	165.00	CAR=		HAR=	
SE =		PHE=		CD =		CR =		AG =		P =		N =		ELE=	31.00

17 ID#=2-0145-16 TYP=WELL COU=KAUAI LOC=MANA-12 LAT,LON= 220148. 1594535.00 DAT=1972.

PH =	7.70	SPC=		WED=	262.00	WAD=	10.70	TEM=	22.00	FLO=		EH =		SPC=	490.00
ALK=		DIS=		SUS=		LI =		NA =	24.00	K =	1.30	RB =		MG =	34.00
CA =	22.00	SR =		BA =		MN =		FE =		FET=		F =	0.20	CU =	
ZN =		HG =		B =		AL =		PB =		AS =		SB =		U =	
CL =	65.00	BR =		I =		O2 =		CO2=		H2S=		NH4=		NO2=	
NO3=	1.00	PO4=		SIO=	65.00	SO4=	12.00	CO3=		HCO=	170.00	CAR=		HAR=	
SE =		PHE=		CD =		CR =		AG =		P =		N =		ELE=	31.00

18 ID#=2-0245-02 TYP=TUNNEL COU=KAUAI LOC=MANA SHAFT LAT,LON= 220210. 1594525.00 DAT=1972.

PH =	7.60	SPC=		WED=	105.00	WAD=		TEM=	23.00	FLO=		EH =		SPC=	537.00
ALK=		DIS=		SUS=		LI =		NA =	23.00	K =	1.90	RB =		MG =	36.00
CA =	22.00	SR =		BA =		MN =		FE =		FET=		F =	0.00	CU =	
ZN =		HG =		B =		AL =		PB =		AS =		SB =		U =	
CL =	70.00	BR =		I =		O2 =		CO2=		H2S=		NH4=		NO2=	
NO3=	1.20	PO4=		SIO=	66.00	SO4=	12.00	CO3=		HCO=	181.00	CAR=		HAR=	
SE =		PHE=		CD =		CR =		AG =		P =		N =		ELE=	102.00

19 ID#=2-0320-01 TYP=WELL COU=KAUAI LOC=NONOU-A LAT,LON= 220354. 1592056.00 DAT=1975.

PH =	7.80	SPC=		WED=	240.00	WAD=	20.00	TEM=	23.00	FLO=		EH =		SPC=	390.00
ALK=	79.00	DIS=	253.00	SUS=		LI =		NA =	34.00	K =	1.70	RB =		MG =	15.00
CA =	9.20	SR =		BA =	0.10	MN =	0.03	FE =	0.01	FET=		F =	0.09	CU =	0.02
ZN =	0.01	HG =		B =		AL =	0.10	PB =	0.01	AS =	0.01	SB =		U =	
CL =	45.00	BR =		I =		O2 =		CO2=		H2S=		NH4=		NO2=	0.01
NO3=	0.90	PO4=		SIO=	63.40	SO4=	15.00	CO3=		HCO=		CAR=		HAR=	91.00
SE =	0.00	PHE=	0.00	CD =	0.00	CR =	0.01	AG =	0.01	P =		N =	0.36	ELE=	155.00

20 ID#=2-0320-02 TYP=WELL COU=KAUAI LOC=WAILUA LAT,LON= 220346. 1592053.00 DAT=1960.

PH =	7.40	SPC=		WED=	230.00	WAD=	55.00	TEM=		FLO=		EH =		SPC=	
ALK=	96.00	DIS=	219.00	SUS=		LI =		NA =	30.00	K =		RB =		MG =	12.00
CA =	14.00	SR =		BA =		MN =		FE =		FET=		F =	0.00	CU =	
ZN =		HG =		B =		AL =		PB =		AS =		SB =		U =	
CL =	25.00	BR =		I =		O2 =		CO2=		H2S=		NH4=		NO2=	
NO3=	0.40	PO4=		SIO=	59.00	SO4=	21.00	CO3=	0.00	HCO=	117.00	CAR=		HAR=	83.00
SE =		PHE=		CD =		CR =		AG =		P =		N =		ELE=	90.00

21 ID#=2-0326-03 TYP=WELL COU=KAUAI LOC=NONOU#9-1B LAT,LON= 220354. 1592056.00 DAT=1974.

PH =	6.90	SPC=		WED=	302.00	WAD=	21.20	TEM=	24.50	FLO=		EH =		SPC=	342.00
ALK=	115.00	DIS=	248.00	SUS=		LI =		NA =	38.00	K =	2.30	RB =		MG =	8.40
CA =	12.10	SR =		BA =	0.30	MN =	0.03	FE =	0.05	FET=		F =	0.13	CU =	0.02
ZN =	0.03	G =		B =		AL =	0.02	PB =	0.01	AS =	0.01	SB =		U =	
CL =	48.00	BR =		I =		O2 =		CO2=		H2S=		NH4=		NO2=	0.01
NO3=	1.30	PO4=		SIO=	51.10	SO4=	14.00	CO3=		HCO=	118.00	CAR=		HAR=	94.00
SE =	0.00	PHE=	0.00	CD =	0.00	CR =	0.01	AG =	0.01	P =		N =		ELE=	157.00

22 ID#=2-0321-01 TYP=WELL COU=KAUAI LOC=WAILUA-3 LAT,LON= 220333. 1592105.00 DAT=1971.

PH =	7.20	SPC=		WED=	275.00	WAD=	17.40	TEM=	24.20	FLO=		EH =		SPC=	432.00
ALK=	105.00	DIS=	287.00	SUS=		LI =		NA =	39.00	K =	1.70	RB =		MG =	20.00
CA =	16.00	SR =		BA =		MN =		FE =		FET=		F =	0.20	CU =	
ZN =		HG =		B =		AL =		PB =		AS =		SB =		U =	
CL =	64.00	BR =		I =		O2 =		CO2=		H2S=		NH4=		NO2=	
NO3=	5.30	PO4=		SIO=	68.00	SO4=	10.00	CO3=		HCO=	128.00	CAR=		HAR=	123.00
SE =		PHE=		CD =		CR =		AG =		P =		N =		ELE=	72.00

23 ID#=2-0345-04 TYP=TUNNEL COU=KAUAI LOC=SAKI MANA SH LAT,LON= 220341. 1594539.00 DAT=1975.

PH =	7.80	SPC=		WED=	62.00	WAD=		TEM=	23.00	FLO=		EH =		SPC=	1750.00
ALK=	135.00	DIS=	742.00	SUS=		LI =		NA =	120.00	K =	3.90	RB =		MG =	65.00
CA =	39.00	SR =		BA =	0.10	MN =	0.03	FE =	10.00	FET=		F =	0.10	CU =	0.02
ZN =	0.11	HG =		B =		AL =	0.10	PB =	0.01	AS =	0.01	SB =		U =	
CL =	460.00	BR =		I =		O2 =		CO2=	4.20	H2S=		NH4=		NO2=	0.01
NO3=	1.20	PO4=	0.34	SIO=	72.00	SO4=	46.00	CO3=		HCO=	165.00	CAR=		HAR=	370.00
SE =	0.00	PHE=	0.00	CD =	0.00	CR =	0.01	AG =	0.01	P =	0.11	N =	0.96	ELE=	57.00

24 ID#=2-0421-01 TYP=WELL COU=KAUAI LOC=WAILUA HMSTD LAT,LON= 220416. 1592136.00 DAT=1972.

PH =	7.70	SPC=		WED=	568.00	WAD=	29.10	TEM=	24.50	FLO=		EH =		SPC=	360.00
ALK=	116.00	DIS=	270.00	SUS=		LI =		NA =	21.00	K =	1.00	RB =		MG =	21.00
CA =	18.00	SR =		BA =		MN =		FE =		FET=		F =	0.20	CU =	
ZN =		HG =		B =		AL =		PB =		AS =		SB =		U =	
CL =	41.00	BR =		I =		O2 =		CO2=		H2S=		NH4=		NO2=	
NO3=	4.60	PO4=		SIO=	83.00	SO4=	7.50	CO3=		HCO=	142.00	CAR=		HAR=	132.00
SE =		PHE=		CD =		CR =		AG =		P =		N =		ELE=	462.00

25 ID#=2-0545-01 TYP=WELL COU=KAUAI LOC=KAULAULA W59 LAT,LON= 220530. 1594507.00 DAT=1975.

PH =	7.30	SPC=		WED=	138.00	WAD=	6.20	TEM=	25.00	FLO=		EH =		SPC=	810.00
ALK=	174.00	DIS=	492.00	SUS=		LI =		NA =	76.00	K =	1.60	RB =		MG =	42.00
CA =	27.00	SR =		BA =		MN =	10.00	FE =	20.00	FET=		F =	0.10	CU =	0.01
ZN =	0.01	HG =		B =		AL =	0.01	PB =	0.01	AS =	0.00	SB =		U =	
CL =	170.00	BR =		I =		O2 =		CO2=	17.00	H2S=		NH4=		NO2=	0.01
NO3=	4.47	PO4=	0.21	SIO=	57.00	SO4=	17.00	CO3=		HCO=	212.00	CAR=		HAR=	240.00
SE =	0.01	PHE=	0.00	CD =		CR =		AG =		P =	0.07	N =	1.40	ELE=	81.00

26 ID#=2-0618-05 TYP=WELL COU=KAUAI LOC=KEALIA-7 LAT,LON= 220615. 1591837.00 DAT=1972.

PH =	7.00	SPG=		WED=	225.00	WAD=	6.00	TEM=	24.50	FLO=		EH =		SPC=	260.00
ALK=	66.00	DIS=	169.00	SUS=		LI =		NA =	21.00	K =	0.90	RB =		MG =	12.00
CA =	13.00	SR =		BA =		MN =		FE =		FET=		F =	0.20	CU =	
ZN =		HG =		B =		AL =		PB =		AS =		SB =		U =	
CL =	40.00	BR =		I =		O2 =		CO2=	13.00	H2S=		NH4=		NO2=	
NO3=	0.40	PO4=		SIO=	36.00	SO4=	6.30	CO3=		HCO=	80.00	CAR=		HAR=	82.00
SE =		PHE=		CD =		CR =		AG =		P =		N =	0.10	ELE=	6.00

27 ID#=2-0620-01 TYP=WELL COU=KAUAI LOC=KAPAA CANNER LAT,LON= 220604. 1592014.00 DAT=1972.

PH =	7.30	SPG=		WED=	466.00	WAD=	11.60	TEM=	26.50	FLO=		EH =		SPC=	276.00
ALK=	80.00	DIS=	177.00	SUS=		LI =		NA =	26.00	K =	1.80	RB =		MG =	12.00
CA =	12.00	SR =		BA =		MN =	0.05	FE =		FET=		F =	0.20	CU =	0.01
ZN =	0.04	HG =		B =		AL =	0.01	PB =	0.01	AS =	0.00	SB =		U =	
CL =	28.00	BR =		I =		O2 =		CO2=	7.90	H2S=		NH4=		NO2=	0.07
NO3=	0.90	PO4=		SIO=	30.00	SO4=	18.00	CO3=		HCO=	98.00	CAR=		HAR=	79.00
SE =	0.01	PHE=	0.00	CD =		CR =		AG =		P =		N =	0.20	ELE=	249.00

28 ID#=2-0622-01 TYP=TUNNEL COU=KAUAI LOC=AKULIKULI LAT,LON= 220631. 1592213.00 DAT=1973.

PH =	7.60	SPG=		WED=		WAD=	360.00	TEM=	19.00	FLO=		EH =		SPC=	151.00
ALK=	64.00	DIS=	105.00	SUS=		LI =		NA =	9.00	K =	0.44	RB =		MG =	7.40
CA =	5.60	SR =		BA =	0.10	MN =	0.03	FE =	0.01	FET=		F =	0.05	CU =	0.02
ZN =	0.01	HG =		B =		AL =	0.10	PB =	0.01	AS =	0.01	SB =		U =	
CL =	15.00	BR =		I =		O2 =		CO2=		H2S=		NH4=		NO2=	0.01
NO3=	0.14	PO4=		SIO=	33.60	SO4=	4.80	CO3=		HCO=		CAR=		HAR=	50.00
SE =	0.00	PHE=	0.00	CD =	0.00	CR =	0.01	AG =	0.01	P =		N =		ELE=	360.00

29 ID#=2-0623-01 TYP=TUNNEL COU=KAUAI LOC=MAKALEHA-6 LAT,LON= 220628. 1592331.00 DAT=1975.

PH =	7.20	SPG=		WED=		WAD=	574.00	TEM=	19.10	FLO=		EH =		SPC=	143.00
ALK=	62.00	DIS=	100.00	SUS=		LI =		NA =	8.00	K =	0.59	RB =		MG =	7.00
CA =	5.70	SR =		BA =	0.10	MN =	0.03	FE =	0.01	FET=		F =	0.05	CU =	0.02
ZN =	0.01	HG =		B =		AL =	0.10	PB =	0.01	AS =	0.01	SB =		U =	
CL =	14.00	BR =		I =		O2 =		CO2=		H2S=		NH4=		NO2=	0.01
NO3=	0.10	PO4=		SIO=	31.50	SO4=	4.30	CO3=		HCO=	58.00	CAR=		HAR=	46.00
SE =	0.00	PHE=	0.00	CD =	0.00	CR =	0.01	AG =	0.01	P =		N =		ELE=	574.00

30 ID#=2-0818-01 TYP=WELL COU=KAUAI LOC=ANAHOLA-A LAT,LON= 220825. 1591854.00 DAT=1973.

PH =	7.30	SPG=		WED=	433.00	WAD=	12.50	TEM=	23.50	FLO=		EH =		SPC=	265.00
ALK=	66.00	DIS=	312.00	SUS=		LI =		NA =	40.00	K =	2.80	RB =		MG =	16.00
CA =	14.00	SR =		BA =	0.10	MN =	0.03	FE =	0.12	FET=		F =	0.34	CU =	0.01
ZN =	0.04	HG =		B =		AL =	0.02	PB =	0.01	AS =	0.01	SB =		U =	
CL =	25.00	BR =		I =		O2 =		CO2=	7.00	H2S=		NH4=		NO2=	0.01
NO3=	1.50	PO4=		SIO=	36.00	SO4=	81.20	CO3=		HCO=	87.00	CAR=		HAR=	88.00
SE =	0.01	PHE=	0.00	CD =	0.00	CR =	0.01	AG =	0.01	P =		N =	0.20	ELE=	270.00

31 ID#=2-0818-02 TYP=WELL COU=KAUAI LOC=ANAHOLA-B LAT,LON= 220826. 1591854.00 DAT=1975.

PH =	6.80	SPC=		WED=	486.00	WAD=	14.00	TEM=	23.50	FLO=		EH =		SPC=	282.00
ALK=	86.00	DIS=	151.00	SUS=		LI =		NA =	20.00	K =	1.50	RB =		MG =	11.00
CA =	9.90	SR =		BA =	0.10	MN =	0.03	FE =	0.01	FET=		F =	0.21	CU =	0.03
ZN =	0.01	HG =		B =		AL =	0.10	PB =	0.01	AS =	0.01	SB =		U =	
CL =	24.00	BR =		I =		O2 =		CO2=		H2S=		NH4=		NO2=	0.01
NO3=	0.11	PO4=		SIO=	29.80	SO4=	25.00	CO3=		HCO=	96.00	CAR=		HAR=	76.00
SE =	0.00	PHE=	0.00	CD =	0.00	CR =	0.00	AG =	0.01	P =		N =		ELE=	270.00

32 ID#=2-1020-02 TYP=WELL COU=KAUAI LOC=MOLOAA-1 LAT,LON= 221030. 1591928.00 DAT=1972.

PH =	7.40	SPC=		WED=	581.00	WAD=	12.50	TEM=	21.50	FLO=		EH =		SPC=	213.00
ALK=		DIS=		SUS=		LI =		NA =	15.00	K =	0.60	RB =		MG =	11.00
CA =	10.00	SR =		BA =		MN =		FE =		FET=		F =	0.20	CU =	
ZN =		HG =		B =		AL =		PB =		AS =		SB =		U =	
CL =	19.00	BR =		I =		O2 =		CO2=		H2S=		NH4=		NO2=	
NO3=		PO4=		SIO=	35.00	SO4=	3.40	CO3=		HCO=	88.00	CAR=		HAR=	
SE =		PHE=		CD =		CR =		AG =		P =		N =		ELE=	400.00

33 ID#=2-1020-03 TYP=WELL COU=KAUAI LOC=MOLOAA-2 LAT,LON= 221038. 1592038.00 DAT=1972.

PH =	7.60	SPC=		WED=	700.00	WAD=	136.60	TEM=	22.00	FLO=		EH =		SPC=	210.00
ALK=	72.00	DIS=	139.00	SUS=		LI =		NA =	14.00	K =	0.70	RB =		MG =	11.00
CA =	11.00	SR =		BA =		MN =		FE =		FET=		F =	0.20	CU =	
ZN =		HG =		B =		AL =		PB =		AS =		SB =		U =	
CL =	15.00	BR =		I =		O2 =		CO2=	3.50	H2S=		NH4=		NO2=	
NO3=		PO4=		SIO=	36.00	SO4=	3.40	CO3=		HCO=	88.00	CAR=		HAR=	73.00
SE =		PHE=		CD =		CR =		AG =		P =		N =	0.00	ELE=	358.00

34 ID#=2-1020-04 TYP=WELL COU=KAUAI LOC=ALIOMANU LAT,LON= 221006. 1592002.00 DAT=1974.

PH =		SPC=		WED=	600.00	WAD=	41.00	TEM=	20.80	FLO=		EH =		SPC=	217.00
ALK=	73.00	DIS=	147.00	SUS=		LI =		NA =	14.00	K =	0.70	RB =		MG =	11.00
CA =	11.00	SR =		BA =		MN =	0.00	FE =	0.00	FET=		F =	0.00	CU =	
ZN =		HG =		B =		AL =		PB =		AS =		SB =		U =	
CL =	22.00	BR =		I =		O2 =		CO2=		H2S=		NH4=		NO2=	
NO3=		PO4=	0.15	SIO=	39.00	SO4=	4.30	CO3=		HCO=	89.00	CAR=		HAR=	73.00
SE =		PHE=		CD =		CR =		AG =		P =	0.05	N =	0.13	ELE=	307.00

35 ID#=2-1120-01 TYP=TUNNEL COU=KAUAI LOC=MOLOAA TUN-3 LAT,LON= 221111. 1592031.00 DAT=1973.

PH =	6.50	SPC=		WED=		WAD=	250.00	TEM=	23.50	FLO=		EH =		SPC=	251.00
ALK=	33.00	DIS=	168.00	SUS=		LI =		NA =	33.00	K =	1.10	RB =		MG =	7.00
CA =	2.80	SR =		BA =		MN =		FE =	0.10	FET=		F =	0.10	CU =	0.01
ZN =	0.10	HG =		B =		AL =	6.50	PB =	0.01	AS =	0.01	SB =		U =	
CL =	25.00	BR =		I =		O2 =		CO2=		H2S=		NH4=		NO2=	
NO3=	15.00	PO4=		SIO=	13.00	SO4=	14.00	CO3=	0.00	HCO=	6.00	CAR=		HAR=	36.00
SE =	0.01	PHE=	0.01	CD =		CR =		AG =		P =		N =		ELE=	250.00

36 ID#=2-1125-01 TYP=WELL COU=KAUAI LOC=KILAUEA-1 LAT,LON= 221141. 1592525.00 DAT=1972.

PH =	7.10	SPC=		WED=	790.00	WAD=	16.50	TEM=	24.50	FLO=		EH =		SPC=	150.00
ALK=	54.00	DIS=	112.00	SUS=		LI =		NA =	10.00	K =	0.90	RB =		MG =	6.80
CA =	8.90	SR =		BA =		MN =		FE =		FET=		F =	0.00	CU =	
ZN =		HG =		B =		AL =		PB =		AS =		SB =		U =	
CL =	13.00	BR =		I =		O2 =		CO2=		H2S=		NH4=		NO2=	
NO3=	0.70	PO4=	0.00	SIO=	39.00	SO4=	1.00	CO3=		HCO=	66.00	CAR=		HAR=	50.00
SE =		PHE=		CD =		CR =		AG =		P =		N =		ELE=	390.00

37 ID#=2-1126-01 TYP=WELL COU=KAUAI LOC=ECDC-1 LAT,LON= 221150. 1592645.00 DAT=1969.

PH =	6.70	SPC=		WED=	763.00	WAD=	27.00	TEM=		FLO=		EH =		SPC=	
ALK=	68.60	DIS=	125.00	SUS=		LI =		NA =	6.00	K =	0.20	RB =		MG =	2.50
CA =	26.00	SR =		BA =		MN =	0.01	FE =	0.02	FET=		F =	0.14	CU =	0.01
ZN =	0.02	HG =		B =		AL =	0.02	PB =	0.01	AS =	0.00	SB =		U =	
CL =	17.30	BR =		I =		O2 =		CO2=		H2S=		NH4=		NO2=	0.01
NO3=	0.11	PO4=		SIO=	32.80	SO4=	2.00	CO3=		HCO=	83.00	CAR=		HAR=	60.00
SE =	0.01	PHE=	0.00	CD =		CR =		AG =		P =		N =		ELE=	347.00

38 ID#=2-1126-02 TYP=WELL COU=KAUAI LOC=ECDC2 HANALE LAT,LON= 221150. 1592650.00 DAT=1975.

PH =	7.70	SPC=		WED=	760.00	WAD=		TEM=	23.50	FLO=		EH =		SPC=	200.00
ALK=	68.00	DIS=	143.00	SUS=		LI =		NA =	12.00	K =	0.90	RB =		MG =	8.70
CA =	13.00	SR =		BA =		MN =	0.05	FE =	40.00	FET=		F =	0.00	CU =	0.04
ZN =	0.01	HG =		B =		AL =	0.02	PB =	0.01	AS =	0.00	SB =		U =	
CL =	17.00	BR =		I =		O2 =		CO2=	2.60	H2S=		NH4=		NO2=	0.01
NO3=	0.50	PO4=	0.28	SIO=	47.00	SO4=	2.60	CO3=		HCO=	83.00	CAR=		HAR=	68.00
SE =	0.01	PHE=		CD =		CR =		AG =		P =	0.09	N =	0.20	ELE=	333.00

39 ID#=2-1229-03 TYP=WELL COU=KAUAI LOC=MAKA RIDGE LAT,LON= 221201. 1592934.00 DAT=1975.

PH =	7.50	SPC=		WED=	466.00	WAD=	12.80	TEM=	24.00	FLO=		EH =		SPC=	220.00
ALK=	72.00	DIS=	146.00	SUS=		LI =		NA =	14.00	K =	0.90	RB =		MG =	9.90
CA =	14.00	SR =		BA =	0.10	MN =	0.03	FE =	10.00	FET=		F =	0.20	CU =	0.02
ZN =	0.01	HG =		B =		AL =	0.02	PB =	0.01	AS =	0.01	SB =		U =	
CL =	22.00	BR =		I =		O2 =		CO2=	4.50	H2S=		NH4=		NO2=	0.01
NO3=	0.24	PO4=	0.25	SIO=	38.00	SO4=	4.10	CO3=	0.00	HCO=	88.00	CAR=		HAR=	76.00
SE =	0.01	PHE=	0.00	CD =	0.00	CR =		AG =	0.01	P =	0.08	N =	0.22	ELE=	119.00

40 ID#=2-1327-01 TYP=TUNNEL COU=KAUAI LOC=ANINI TUNNEL LAT,LON= 221335. 1592748.00 DAT=1972.

PH =	7.20	SPC=		WED=		WAD=	28.00	TEM=	23.00	FLO=		EH =		SPC=	205.00
ALK=	57.00	DIS=	140.00	SUS=		LI =		NA =	20.00	K =	1.10	RB =		MG =	7.70
CA =	7.50	SR =		BA =		MN =		FE =		FET=		F =	0.20	CU =	
ZN =		HG =		B =		AL =		PB =		AS =		SB =		U =	
CL =	23.00	BR =		I =		O2 =		CO2=		H2S=		NH4=		NO2=	
NO3=	2.00	PO4=		SIO=	36.00	SO4=	8.90	CO3=		HCO=	69.00	CAR=		HAR=	50.00
SE =		PHE=		CD =		CR =		AG =		P =		N =		ELE=	28.00

41 ID#=2-1333-01 TYP=WELL COU=KAUAI LOC=HAENA DEEP LAT,LON= 221318. 1593339.00 DAT=1975.

PH =	7.40	SPG=		WED=	159.00	WAD=	14.20	TEM=	22.50	FLO=		EH =		SPC=	210.00
ALK=	74.00	DIS=	139.00	SUS=		LI =		NA =	18.00	K =	1.10	RB =		MG =	9.00
CA =	11.00	SR =		BA =	0.10	MN =	0.00	FE =	20.00	FET=		F =	0.10	CU =	0.02
ZN =	0.01	HG =		B =		AL =	0.04	PB =	0.01	AS =	0.01	SB =		U =	
CL =	19.00	BR =		I =		O2 =		CO2=	5.70	H2S=		NH4=		NO2=	
NO3=	0.50	PO4=	0.15	SIO=	33.00	SO4=	3.20	CO3=		HCO=	90.00	CAR=		HAR=	65.00
SE =	0.01	PHE=	0.00	CD =	0.00	CR =	0.01	AG =	0.01	P =	0.05	N =	0.20	ELE=	83.00

42 ID#=2-5426-04 TYP=WELL COU=KAUAI LOC=KOLOA-C LAT,LON= 215418. 1592604.00 DAT=1977.

PH =	7.00	SPG=		WED=	393.00	WAD=	25.10	TEM=		FLO=		EH =		SPC=	366.00
ALK=	91.00	DIS=	252.00	SUS=		LI =		NA =	36.00	K =	1.40	RB =		MG =	17.00
CA =	13.00	SR =		BA =		MN =	10.00	FE =	20.00	FET=		F =	0.10	CU =	
ZN =		HG =		B =		AL =		PB =		AS =		SB =		U =	
CL =	55.00	BR =		I =		O2 =		CO2=	18.00	H2S=		NH4=		NO2=	
NO3=		PO4=	0.40	SIO=	58.00	SO4=	12.00	CO3=	0.00	HCO=	111.00	CAR=		HAR=	100.00
SE =		PHE=		CD =		CR =		AG =		P =	0.13	N =	1.00	ELE=	157.00

43 ID#=2-5427-01 TYP=WELL COU=KAUAI LOC=KOLOA-A LAT,LON= 215454. 1592742.00 DAT=1975.

PH =	7.60	SPG=		WED=	455.00	WAD=	43.20	TEM=	23.00	FLO=		EH =		SPC=	250.00
ALK=	71.00	DIS=	179.00	SUS=		LI =		NA =	21.00	K =	1.40	RB =		MG =	10.00
CA =	9.80	SR =		BA =	0.10	MN =	0.03	FE =	10.00	FET=		F =	0.10	CU =	0.02
ZN =	0.03	HG =		P =		AL =	0.10	PB =	0.01	AS =	0.01	SB =		U =	
CL =	27.00	BR =		I =		O2 =		CO2=	3.50	H2S=		NH4=		NO2=	0.01
NO3=	0.49	PO4=	0.43	SIO=	59.00	SO4=	5.80	CO3=		HCO=	86.00	CAR=		HAR=	66.00
SE =	0.00	PHE=	0.00	CD =	0.00	CR =	0.01	AG =	0.01	P =	0.14	N =	0.43	ELE=	245.00

44 ID#=2-5427-02 TYP=WELL COU=KAUAI LOC=KOLOA-B LAT,LON= 215455. 1592742.00 DAT=1973.

PH =	7.50	SPG=		WED=	503.00	WAD=	45.00	TEM=	23.00	FLO=		EH =		SPC=	
ALK=	58.00	DIS=	170.00	SUS=		LI =		NA =	16.00	K =	1.50	RB =		MG =	15.00
CA =	7.20	SR =		BA =	0.10	MN =	0.03	FE =	0.05	FET=		F =	0.11	CU =	0.02
ZN =	0.03	HG =		B =		AL =	0.02	PB =	0.01	AS =	0.01	SB =		U =	
CL =	30.00	BR =		I =		O2 =		CO2=		H2S=		NH4=		NO2=	0.01
NO3=	0.54	PO4=		SIO=	36.80	SO4=	4.90	CO3=		HCO=	93.00	CAR=		HAR=	70.00
SE =	0.01	PHE=	0.00	CD =	0.00	CR =	0.01	AG =	0.01	P =		N =		ELE=	245.00

45 ID#=2-5530-02 TYP=WELL COU=KAUAI LOC=LAWAI CANNER LAT,LON= 215524. 1593030.00 DAT=1956.

PH =	7.30	SPG=		WED=	750.00	WAD=	124.00	TEM=	22.00	FLO=		EH =		SPC=	250.00
ALK=	60.00	DIS=	187.00	SUS=		LI =		NA =	20.00	K =	0.80	RB =		MG =	8.90
CA =	5.80	SR =		BA =		MN =	0.10	FE =	0.10	FET=		F =	0.20	CU =	0.10
ZN =	0.03	HG =		B =		AL =	0.30	PB =	0.03	AS =	0.01	SB =		U =	
CL =	26.00	BR =		I =		O2 =		CO2=		H2S=		NH4=		NO2=	0.00
NO3=	4.00	PO4=		SIO=	52.00	SO4=	16.40	CO3=		HCO=	88.00	CAR=		HAR=	51.70
SE =	0.05	PHE=	0.01	CD =		CR =		AG =		P =		N =		ELE=	440.00

46 ID#=2-5530-03 TYP=WELL COU=KAUAI LOC=LAWAI DEEP W LAT,LON= 215535. 1593026.01 DAT=1975.

PH =	7.90	SPG=		WED=	695.00	WAD=	53.30	TEM=	22.50	FLO=		EH =		SPC=	220.00
ALK=	60.00	DIS=	170.00	SUS=		LI =		NA =	19.00	K =	1.40	RB =		MG =	9.40
CA =	5.80	SR =		BA =	0.10	MN =	0.03	FE =	10.00	FET=		F =	0.01	CU =	0.02
ZN =	0.01	HG =		B =		AL =	0.10	PB =	0.01	AS =	0.01	SB =		U =	
CL =	23.00	BR =		I =		O2 =		CO2=	1.50	H2S=		NH4=		NO2=	0.01
NO3=	0.54	PO4=	0.37	SIO=	59.00	SO4=	8.70	CO3=		HCO=	73.00	CAR=		HAR=	61.00
SE =	0.00	PHE=		CD =	0.00	CR =	0.01	AG =	0.01	P =	0.12	N =	0.51	ELE=	600.00

47 ID#=2-5531-01 TYP=WELL COU=KAUAI LOC=KALAHEO 24 LAT,LON= 215503. 1593117.00 DAT=1968.

PH =	9.80	SPG=		WED=	952.00	WAD=	43.00	TEM=	25.00	FLO=		EH =		SPC=	
ALK=	113.30	DIS=		SUS=		LI =		NA =	46.00	K =	10.90	RB =		MG =	1.10
CA =	2.60	SR =		BA =		MN =	0.05	FE =	0.03	FET=		F =	0.38	CU =	0.01
ZN =	0.01	HG =		B =		AL =	0.06	PB =	0.01	AS =	0.00	SB =		U =	
CL =	46.00	BR =		I =	0.00	O2 =		CO2=		H2S=		NH4=		NO2=	0.02
NO3=	8.59	PO4=		SIO=	59.00	SO4=	8.00	CO3=		HCO=		CAR=		HAR=	10.90
SE =	0.01	PHE=	0.00	CD =		CR =		AG =		P =		N =	0.00	ELE=	630.00

48 ID#=2-5533-01 TYP=WELL COU=KAUAI LOC=HANAPEPE LAT,LON= 215543. 1593345.01 DAT=1974.

PH =		SPG=		WED=	190.00	WAD=	9.90	TEM=	21.50	FLO=		EH =		SPC=	251.00
ALK=	73.00	DIS=	179.00	SUS=		LI =		NA =	22.00	K =	1.40	RB =		MG =	13.00
CA =	12.00	SR =		BA =		MN =	5.00	FE =	40.00	FET=		F =	0.10	CU =	
ZN =		HG =		B =		AL =		PB =		AS =		SB =		U =	
CL =	23.00	BR =		I =		O2 =		CO2=		H2S=		NH4=		NO2=	
NO3=		PO4=	0.12	SIO=	49.00	SO4=	9.30	CO3=		HCO=		CAR=		HAR=	84.00
SE =		PHE=		CD =		CR =		AG =		P =	0.04	N =	0.02	ELE=	98.00

49 ID#=2-5534-03 TYP=WELL COU=KAUAI LOC=HANAPEPE VAL LAT,LON= 215524. 1593424.00 DAT=1975.

PH =	7.30	SPG=		WED=	109.00	WAD=	10.50	TEM=	22.50	FLO=		EH =		SPC=	465.00
ALK=	129.00	DIS=	325.00	SUS=		LI =		NA =	93.00	K =	2.00	RB =		MG =	5.10
CA =	3.70	SR =		BA =	0.10	MN =	0.03	FE =	10.00	FET=		F =	0.30	CU =	0.02
ZN =	0.01	HG =		B =		AL =	0.10	PB =	0.01	AS =	0.01	SB =		U =	
CL =	37.00	BR =		I =		O2 =		CO2=	13.00	H2S=		NH4=		NO2=	0.01
NO3=	0.71	PO4=	0.77	SIO=	50.00	SO4=	25.00	CO3=		HCO=	183.00	CAR=		HAR=	30.00
SE =	0.01	PHE=	0.00	CD =	0.00	CR =	0.01	AG =	0.01	P =	0.25	N =	4.50	ELE=	78.00

50 ID#=2-5631-01 TYP=WELL COU=KAUAI LOC=KALAHEO LAT,LON= 215629. 1593141.01 DAT=1974.

PH =	7.00	SPG=		WED=	1125.00	WAD=	33.00	TEM=	20.70	FLO=		EH =		SPC=	201.00
ALK=	64.00	DIS=	142.00	SUS=		LI =		NA =	15.00	K =	1.00	RB =		MG =	9.00
CA =	9.20	SR =		BA =		MN =	0.00	FE =	10.00	FET=		F =	0.10	CU =	
ZN =		HG =		B =		AL =		PB =		AS =		SB =		U =	
CL =	22.00	BR =		I =		O2 =		CO2=	9.10	H2S=		NH4=		NO2=	
NO3=		PO4=	0.15	SIO=	42.00	SO4=	3.70	CO3=		HCO=	57.00	CAR=		HAR=	60.00
SE =		PHE=		CD =		CR =		AG =		P =	0.05	N =	0.25	ELE=	887.00

51 ID#=2-5635-01 TYP=TUNNEL COU=KAUAI LOC=MANIENIEULA LAT,LON= 215635. 1593350.01 DAT=1975.

PH =	7.80	SPC=		WED=	364.00	WAD=	20.00	TEM=	22.50	FLO=		EH =		SPC=	725.00
ALK=	111.00	DIS=	456.00	SUS=		LI =		NA =	100.00	K =	7.70	RB =		MG =	16.00
CA =	6.10	SR =		BA =	0.10	MN =	0.03	FE =	0.04	FET=		F =	0.37	CU =	0.02
ZN =	0.01	HG =		B =		AL =	0.10	PB =	0.01	AS =	0.01	SB =		U =	
CL =	140.00	BR =		I =		O2 =		CO2=	3.10	H2S=		NH4=		NO2=	0.01
NO3=	0.55	PO4=		SIO=	43.30	SO4=	37.00	CO3=	0.00	HCO=		CAR=		HAR=	96.00
SE =	0.00	PHE=	0.00	CD =	0.00	CR =	0.01	AG =	0.01	P =		N =	1.30	ELE=	376.00

52 ID#=2-5638-01 TYP=TUNNEL COU=KAUAI LOC=MAHINAULI LAT,LON= 215612. 1593810.01 DAT=1973.

PH =	8.00	SPC=		WED=	56.00	WAD=	9.00	TEM=	23.00	FLO=		EH =		SPC=	380.00
ALK=	148.00	DIS=	261.00	SUS=		LI =		NA =	48.00	K =	3.30	RB =		MG =	15.00
CA =	9.80	SR =		BA =		MN =		FE =		FET=		F =	0.20	CU =	
ZN =		HG =		B =		AL =		PB =		AS =		SB =		U =	
CL =	20.00	BR =		I =		O2 =		CO2=	2.90	H2S=		NH4=		NO2=	
NO3=	9.70	PO4=		SIO=	52.00	SO4=	14.00	CO3=	0.00	HCO=	180.00	CAR=		HAR=	86.00
SE =		PHE=		CD =		CR =		AG =		P =		N =	2.20	ELE=	43.00

53 ID#=2-5725-01 TYP=TUNNEL COU=KAUAI LOC=KOKOLAU TUN LAT,LON= 215747. 1592534.00 DAT=1975.

PH =		SPC=		WED=	300.00	WAD=	300.00	TEM=	21.50	FLO=		EH =		SPC=	260.00
ALK=	85.00	DIS=	158.00	SUS=		LI =		NA =	9.60	K =	1.20	RB =		MG =	11.00
CA =	8.60	SR =		BA =	0.10	MN =	0.03	FE =	0.01	FET=		F =	0.16	CU =	0.02
ZN =	0.01	HG =		B =		AL =	0.10	PB =	0.01	AS =	0.01	SB =		U =	
CL =	19.00	BR =		I =		O2 =		CO2=		H2S=		NH4=		NO2=	0.01
NO3=	0.44	PO4=		SIO=	36.60	SO4=	4.70	CO3=		HCO=		CAR=		HAR=	
SE =	0.00	PHE=	0.00	CD =	0.00	CR =	0.01	AG =	0.01	P =		N =		ELE=	300.00

54 ID#=2-5823-01 TYP=TUNNEL COU=KAUAI LOC=GARLINGHOUSE LAT,LON= 215845. 1592321.00 DAT=1977.

PH =	6.80	SPC=		WED=		WAD=	187.00	TEM=	22.00	FLO=		EH =		SPC=	181.00
ALK=	50.00	DIS=	132.00	SUS=		LI =		NA =	16.00	K =	1.30	RB =		MG =	8.60
CA =	6.70	SR =		BA =	0.30	MN =	10.00	FE =	10.00	FET=		F =	0.10	CU =	0.02
ZN =	0.15	HG =		B =		AL =	0.02	PB =	0.01	AS =	0.01	SB =		U =	
CL =	22.00	BR =		I =		O2 =		CO2=	15.00	H2S=		NH4=		NO2=	0.01
NO3=	0.90	PO4=	0.25	SIO=	32.00	SO4=	11.00	CO3=	0.00	HCO=	61.00	CAR=		HAR=	52.00
SE =	0.00	PHE=	0.00	CD =	0.00	CR =	0.01	AG =	0.01	P =	0.08	N =	0.88	ELE=	187.00

55 ID#=2-5840-02 TYP=WELL COU=KAUAI LOC=WAIMEA-26 LAT,LON= 215803. 1594012.01 DAT=1975.

PH =	7.90	SPC=		WED=	190.00	WAD=	5.60	TEM=	24.50	FLO=		EH =		SPC=	650.00
ALK=	97.00	DIS=	363.00	SUS=		LI =		NA =	84.00	K =	3.50	RB =		MG =	12.00
CA =	8.60	SR =		BA =	0.10	MN =	10.00	FE =	50.00	FET=		F =	0.12	CU =	0.02
ZN =	0.01	HG =		B =		AL =	0.10	PB =	0.01	AS =	0.01	SB =		U =	
CL =	120.00	BR =		I =		O2 =		CO2=	2.40	H2S=		NH4=		NO2=	0.01
NO3=	0.95	PO4=	0.64	SIO=	73.00	SO4=	17.00	CO3=		HCO=	118.00	CAR=		HAR=	71.00
SE =	0.00	PHE=	0.00	CD =	0.00	CR =	0.01	AG =	0.01	P =	0.21	N =	1.40	ELE=	167.00

56 ID#=2-5842-02 TYP=TUNNEL COU=KAUAI LOC=KEKAHA PLS11 LAT,LON= 215854. 1594246.00 DAT=1975.

PH =		SPC=		WED=	57.00	WAD=	0.00	TEM=	24.50	FLO=		EH =		SPC=	750.00
ALK=	160.00	DIS=	416.00	SUS=		LI =		NA =	66.00	K =	4.00	RB =		MG =	26.00
CA =	15.00	SR =		BA =	0.10	MN =	0.03	FE =	0.01	FET=		F =	0.10	CU =	0.02
ZN =	0.05	HG =		B =		AL =	0.10	PB =	0.01	AS =	0.01	SB =		U =	
CL =	140.00	BR =		I =		O2 =		CO2=		H2S=		NH4=		NO2=	0.01
NO3=	1.20	PO4=		SIO=	40.20	SO4=	23.00	CO3=		HCO=		CAR=		HAR=	154.00
SE =	0.00	PHE=	0.00	CD =	0.00	CR =	0.01	AG =	0.01	P =		N =		ELE=	60.00

57 ID#=2-5842-03 TYP=TUNNEL COU=KAUAI LOC=HULUHULUNUI LAT,LON= 215843. 1594228.00 DAT=1977.

PH =		SPC=		WED=	48.00	WAD=	8.90	TEM=	25.00	FLO=		EH =		SPC=	1250.00
ALK=		DIS=		SUS=		LI =		NA =		K =		RB =		MG =	
CA =		SR =		BA =		MN =		FE =		FET=		F =		CU =	
ZN =		HG =		B =		AL =		PB =		AS =		SB =		U =	
CL =	310.00	BR =		I =		O2 =		CO2=		H2S=		NH4=		NO2=	
NO3=		PO4=		SIO=		SO4=		CO3=		HCO=		CAR=		HAR=	
SE =		PHE=		CD =		CR =		AG =		P =		N =		ELE=	45.00

58 ID#=2-5843-01 TYP=TUNNEL COU=KAUAI LOC=KEKAHA SHAFT LAT,LON= 215857. 1594301.00 DAT=1975.

PH =	7.40	SPC=		WED=	53.00	WAD=	8.20	TEM=	24.00	FLO=		EH =		SPC=	571.00
ALK=	149.00	DIS=	294.00	SUS=		LI =		NA =	54.00	K =	2.20	RB =		MG =	19.00
CA =	9.00	SR =		BA =	0.10	MN =	0.03	FE =	0.01	FET=		F =	0.27	CU =	0.02
ZN =	0.01	HG =		B =		AL =	0.10	PB =	0.01	AS =	0.01	SB =		U =	
CL =	67.00	BR =		I =		O2 =		CO2=		H2S=		NH4=		NO2=	0.01
NO3=	0.94	PO4=		SIO=	56.10	SO4=	14.00	CO3=		HCO=	164.00	CAR=		HAR=	112.00
SE =	0.00	PHE=	0.00	CD =	0.00	CR =	0.00	AG =	0.01	P =		N =		ELE=	57.00

59 ID#=2-5921-01 TYP=WELL COU=KAUAI LOC=KALAPA RIDGE LAT,LON= 215958. 1592143.00 DAT=1954.

PH =	7.20	SPC=		WED=	540.00	WAD=	16.00	TEM=	23.00	FLO=		EH =		SPC=	
ALK=	134.00	DIS=	266.00	SUS=		LI =		NA =		K =		RB =		MG =	12.80
CA =	39.10	SR =		BA =		MN =	0.00	FE =	0.40	FET=		F =	0.20	CU =	0.01
ZN =	0.01	HG =		B =		AL =	38.80	PB =	0.01	AS =	0.01	SB =		U =	
CL =	23.00	BR =		I =		O2 =		CO2=		H2S=		NH4=		NO2=	0.70
NO3=	0.10	PO4=		SIO=	32.00	SO4=	52.70	CO3=		HCO=	163.00	CAR=		HAR=	151.10
SE =	0.01	PHE=	0.01	CD =		CR =		AG =		P =		N =		ELE=	302.00

60 ID#=2-5923-02 TYP=WELL COU=KAUAI LOC=KILOHANA LAT,LON= 215901. 1592353.02 DAT=1977.

PH =	6.80	SPC=		WED=	180.00	WAD=	225.90	TEM=	23.30	FLO=		EH =		SPC=	190.00
ALK=	54.00	DIS=	136.00	SUS=		LI =		NA =	18.00	K =	1.30	RB =		MG =	9.30
CA =	7.40	SR =		BA =		MN =	0.00	FE =	20.00	FET=		F =	0.10	CU =	
ZN =		HG =		B =		AL =		PB =		AS =		SB =		U =	
CL =	24.00	BR =		I =		O2 =		CO2=	17.00	H2S=		NH4=		NO2=	
NO3=		PO4=	0.55	SIO=	33.00	SO4=	6.60	CO3=	0.00	HCO=	66.00	CAR=		HAR=	57.00
SE =		PHE=		CD =		CR =		AG =		P =	0.08	N =	0.72	ELE=	371.00

61 ID#=2-5939-01 TYP=TUNNEL COU=KAUAI LOC=WAIMEA-9 LAT,LON= 215906. 1593956.00 DAT=1975.

PH =	7.30	SPC=		WED=	43.00	WAD=	9.00	TEM=	24.50	FLO=		EH =		SPC=	480.00
ALK=	138.00	DIS=	218.00	SUS=		LI =		NA =	33.00	K =	1.90	RB =		MG =	20.00
CA =	12.00	SR =		BA =	0.10	MN =	0.07	FE =	0.12	FET=		F =	0.21	CU =	0.02
ZN =	0.03	HG =		B =		AL =	0.10	PB =	0.01	AS =	0.01	SB =		U =	
CL =	74.00	BR =		I =		O2 =		CO2=		H2S=		NH4=		NO2=	0.01
NO3=	0.60	PO4=		SIO=	36.10	SO4=	7.90	CO3=		HCO=		CAR=		HAR=	118.00
SE =	0.00	PHE=	0.00	CD =	0.00	CR =	0.01	AG =	0.01	P =		N =		ELE=	40.00

62 ID#=2-5942-01 TYP=WELL COU=KAUAI LOC=PAUA VALLEY LAT,LON= 215911. 1594247.00 DAT=1970.

PH =	7.60	SPC=		WED=	210.00	WAD=	7.50	TEM=	24.00	FLO=		EH =		SPC=	418.00
ALK=	138.00	DIS=	275.00	SUS=		LI =		NA =	55.00	K =	1.80	RB =		MG =	17.00
CA =	10.00	SR =		BA =		MN =		FE =		FET=		F =	0.20	CU =	
ZN =		HG =		B =		AL =		PB =		AS =		SB =		U =	
CL =	41.00	BR =		I =		O2 =		CO2=		H2S=		NH4=		NO2=	
NO3=	9.10	PO4=		SIO=	48.00	SO4=	10.00	CO3=		HCO=	168.00	CAR=		HAR=	95.00
SE =		PHE=		CD =		CR =		AG =		P =		N =		ELE=	191.00

63 ID#=2-5943-01 TYP=TUNNEL COU=KAUAI LOC=WAIAWA SHAFT LAT,LON= 215937. 1594342.01 DAT=1975

PH =	7.50	SPC=		WED=	57.00	WAD=		TEM=	24.50	FLO=		EH =		SPC=	1150.00
ALK=	164.00	DIS=	570.00	SUS=		LI =		NA =	98.00	K =	5.20	RB =		MG =	43.00
CA =	25.00	SR =		BA =		MN =	10.00	FE =	30.00	FET=		F =	0.10	CU =	
ZN =		HG =		B =		AL =		PB =		AS =		SB =		U =	
CL =	340.00	BR =		I =		O2 =		CO2=	10.00	H2S=		NH4=		NO2=	
NO3=		PO4=	0.49	SIO=	77.00	SO4=	33.00	CO3=		HCO=	200.00	CAR=		HAR=	240.00
SE =		PHE=		CD =		CR =		AG =		P =	0.16	N =	2.10	ELE=	57.00