Waipalu weels III Station

BOARD OF WATER SUPPLY

CITY AND COUNTY OF HONOLULU 630 SOUTH BERETANIA STREET HONOLULU, HAWAII 96843 PHONE (808) 527-6180 FAX (808) 533-2714



JEREMY HARRIS, Mayor

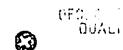
WALTER O. WATSON, JR., Chairman EDDIE FLORES, JR. KAZU HAYASHIDA JAN M. L. Y. AMII FORREST C. MURPHY JONATHAN K. SHIMADA, PhD

May 22, 1998 PEOPLY ED BARBARA KIM STANTON

BROOKS H. M. YUEN, Acting Manager and Chief Engineer

'98 MAY 27 P2:31

Mr. Gary Gill, Director State of Hawaii Office of Environmental Quality Control 235 South Beretania Street, Suite 702 Honolulu, Hawaii 96813



Dear Mr. Gill:

Subject:

Finding of No Significant Impact for the Board of Water Supply's Proposed Waipahu Wells III Station, Waipahu, Oahu, Hawaii, TMK: 9-4-05: 74

The Board of Water Supply has reviewed the comments received during the public comment period which began on November 8, 1997. We have determined that the environmental impacts of this project have been adequately addressed as discussed in the final environmental assessment (EA) and are therefore, issuing a finding of no significant impact. We request that the proposed project be published as finding of no significant impact in the next Office of Environmental Quality Control (OEQC) Bulletin.

Attached are the completed OEQC bulletin publication form and four copies of the final EA for your review.

If you have any questions, please contact Barry Usagawa at 527-5235.

Very truly yours,

BROOKS H. M. YUEN

Acting Manager and Chief Engineer

Attachments

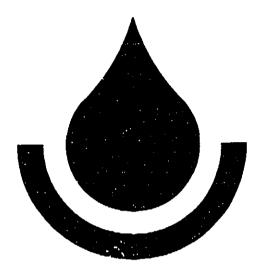
cc: Anna Lee, GMP Associates, Inc.

1998-06-08-0A-FEA- Waipahu Wells III

Station

FILE JUNY

WAIPAHU WELLS III STATION



FINAL ENVIRONMENTAL ASSESSMENT

PROPOSING AGENCY:

BOARD OF WATER SUPPLY CITY AND COUNTY OF HONOLULU



MAY 1998

ASSOCIATES, INC. Engineers/Architects

TABLE OF CONTENTS

<u>Section</u>		Title	<u>Page</u>
1	PUR	POSE AND NEED FOR ACTION	1-1
	1.1	PURPOSE	1-1
	1.2	NEED FOR ACTION	1-1
	1.3	LIST OF NECESSARY PERMITS AND APPROVALS	1-1 1-1 1-2 1-2
	1.4	APPLICANT	1-2
	1.5	APPROVING AGENCY	1-2
2	PRO	POSED ACTION	2-1
3	ALT	ERNATIVES TO THE PROPOSED ACTION	3-1
	3.1	NO ACTION	3-1
	3.2	DELAYED ACTION	3-1
	3.3	ALTERNATE SITE	3-1
	3.4	ALTERNATE SOURCE	3-1
4	AFFI	ECTED ENVIRONMENT	4-1
·	4.1	PHYSICAL SETTING 4.1.1 Geology and Topography 4.1.2 Soils 4.1.3 Climate 4.1.4 Flood Hazards 4.1.5 Earthquake Hazards	4-1 4-1 4-1 4-4 4-4 4-4
	4.2	FLORA AND FAUNA	4-4
	4.3	ARCHAEOLOGY/CULTURAL RESOURCES	4-4

TABLE OF CONTENTS, Continued

Section		Title	<u>Page</u>
	4.4	RECREATIONAL RESOURCES	4-5
	4.5	LAND USE	4-5
	4.6	GROUND AND SURFACE WATER HYDROLOGY 4.6.1 Well Recharge	4-5 4-13 4-13 4-13
	4.7	POTENTIAL SOURCES OF CONTAMINATION	4-15
	4.8	AESTHETICS	4-15
	4.9	PUBLIC UTILITIES	4-15
5		RONMENTAL CONSEQUENCES HE PROPOSED PROJECT	5-1
	5.1	SHORT TERM IMPACTS 5.1.1 Physical Setting 5.1.2 Air Quality 5.1.3 Noise Impacts 5.1.4 Flora and Fauna 5.1.5 Archaeological/Cultural Resources 5.1.6 Land Use 5.1.7 Water Quality/Hydrogeology 5.1.8 Aesthetics 5.1.9 Traffic 5.1.10 Public Health and Safety 5.1.11 Socioeconomic	5-1 5-1 5-1 5-2 5-2 5-2 5-2 5-3 5-3 5-4 5-4
	5.2	LONG TERM IMPACTS 5.2.1 Physical Setting 5.2.2 Noise Impacts 5.2.3 Flora and Fauna 5.2.4 Archaeological/Cultural Resources 5.2.5 Land Use 5.2.6 Water Quality/Ground and Surface Water Hydrology 5.2.7 Aesthetics	5-4 5-4 5-4 5-5 5-5 5-5 5-6

TABLE OF CONTENTS, Continued

Section	<u>Title</u>			
		5.2.8	Socioeconomic	5-6
		5.2.9	Public Utilities	5-6
6		ICE OF F		
	OF N	io signi	FICANT IMPACT	6-1
	6.1	SIGNIF	ICANCE CRITERIA	6-1
		6.1.1	Involves an Irrevocable Commitment to Loss or Destruction of Any Natural or Cultural Resources	6-1
		6.1.2	Curtails the Range of Beneficial	0-1
			Uses of the Environment	6-1
		6.1.3	Conflicts With the State's Long-Term Environmental Policies or Goals and Guidelines as Expressed in	
			Chapter 344, HRS; and Any Revisions Thereof	
			and Amendments Thereto, Court Decision, or	
		6.1.4	Executive Orders	6-2
		0.1.1	Welfare of the Community or State	6-2
		6.1.5	Substantially Affects Public Health	6-2
		6.1.6	Involves Substantial Secondary Impacts, Such as	6-3
		6.1.7	Population Changes or Effects on Public Facilities Involves a Substantial Degradation of	0-0
		0.1.7	Environmental Quality	6-3
		6.1.8	Is Individually Limited But Cumulatively Has	
			Considerable Effect on the Environment, or	
			Involves a Commitment for Larger Actions	6-3
		6.1.9	Substantially Affects a Rare, Threatened or	
			Endangered Species or Its Habitat	6-4
		6.1.10	Detrimentally Affects Air or Water Quality or	6-4
		6.1.11	Ambient Noise Levels	0-4
		0.1.11	Affects or is Likely to Suffer Damage by Being Located in an Environmentally Sensitive Area,	
			Such as a Flood Plain, Tsunami Zone, Beach,	
			Erosion-Prone Area, Geologically Hazardous	
			Land, Estuary, Freshwater, or Coastal Waters	6-4
		6.1.12	Substantially Affects Scenic Vistas and View Planes	
			Identified in County or State Plans or Studies	6-4
		6.1.13	Requires Substantial Energy Consumption	6-5

TABLE OF CONTENTS, Continued

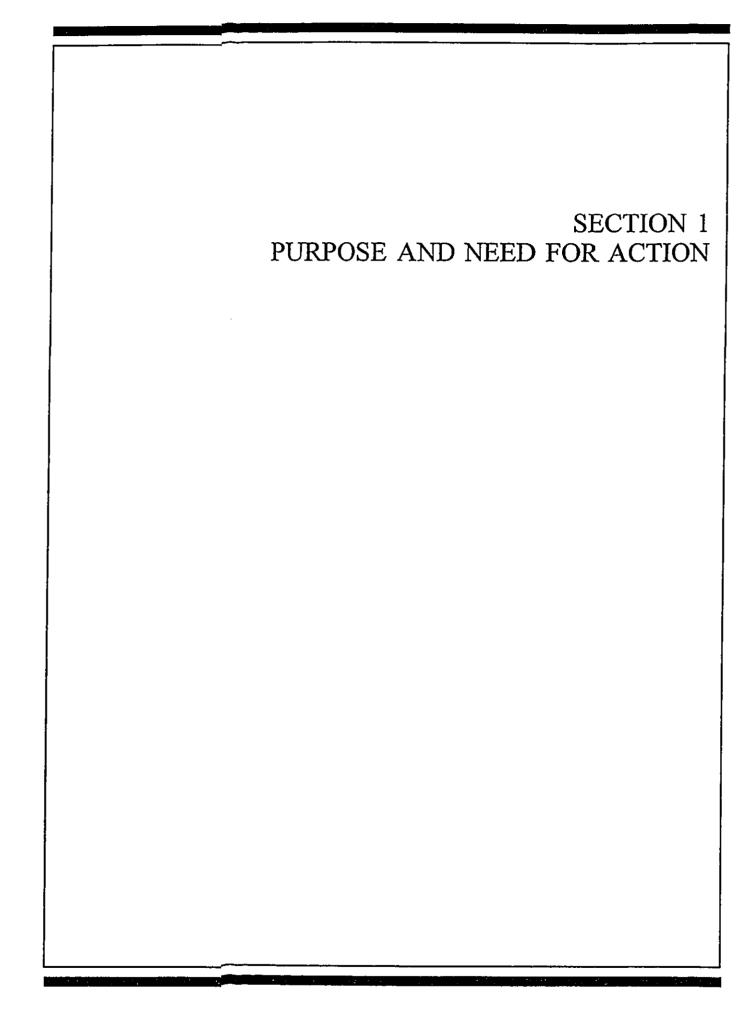
Section		Title	<u>Page</u>
7	AGE	NCIES CONSULTED IN THE PREPARATION OF THE EA	. 7-1
	7.1 7.2 7.3 7.4	Federal Government	. 7-1 . 7-1
REFERENC	CES	•	
APPENDIC	ES		
A B C D E F G H I		WATER USE PERMITS SUBMERSIBLE PUMPS WELL INFORMATION FOR WELLS #1, #2, #3, #4, AND #5 WATER QUALITY DATA DRAINAGE REPORT LANDSCAPING PLAN PARTIAL CONSTRUCTION PLANS - "PART A" PARTIAL CONSTRUCTION PLANS - "PART B" AGENCY CORRESPONDENCE DURING THE PRE-ASSESSMENT CONSULTATION PERIOD	
J		AGENCY CORRESPONDENCE DURING THE 30-DAY COMME PERIOD	AN I

LIST OF FIGURES

<u>Figure</u>	Title	Page
2-1	SITE PLAN	2-2
2-2	VICINITY MAP	2-3
2-3	TYPICAL GAC TREATMENT UNIT	2-4
2-4	PROPOSED CONNECTION TO SDOT DRAINAGE SYSTEM	2-5
2-5	CROSS SECTION OF WELL NO. 1	2-7
4-1	ISLAND MAP	4-2
4-2	TOPOGRAPHIC MAP	4-3
4-3	WAIOLA PARK AND SPORTS COMPLEX-CONCEPTUAL PLAN	4-6
4-4	LOCATION OF WAIKELE NEIGHBORHOOD PARK AND WAIKELE COMMUNITY PARK	4-7
4-5	STATE LAND USE DESIGNATIONS	4-8
4-6	CITY AND COUNTY ZONING MAP	4-9
4-7	CITY AND COUNTY LAND USE MAP	4-10
4-8	WAIPAHU-WAIAWA AQUIFER BOUNDARY MAP	4-12
4-9	EXISTING AND PLANNED BWS SOURCES FOR THE PEARL HARBOR DISTRICT	4-14
4-10	GROUNDWATER CONTAMINATION MAP FOR OAHU	4-16
4-11	PROPOSED ELECTRICAL SITE PLAN	4-17

LIST OF TABLES

Table	Title	Page
4.1	WAIPAHU-WAIAWA AQUIFER - PERMITTED USES	
4.2	WAIPAHU-WAIAWA AQUIFER - ACTUAL USE	4-11



1"3

1.0

13

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SECTION 1 PURPOSE AND NEED FOR ACTION

1.1 Purpose

The purpose of developing the Waipahu Wells III site is to increase the water supply for the Honolulu Board of Water Supply's (BWS) 395' Waikele-Waipio system and the 228' low service water system. The 228' low service water system serves the Ewa, Waipahu, Kapolei, Nanakuli, Waianae, and Honolulu areas.

1.2 Need for Action

The State Housing Finance and Development Corporation (HFDC) was required to provide a water source for their development in Kapolei based on the area's anticipated potable water demand of two mgd (BWS). In cooperation with the Honolulu Board of Water Supply, they elected to participate in developing the Waipahu Wells III site to fulfill this water source requirement. In addition, the Department of Hawaiian Home Lands (DHHL) elected to participate in the project to provide potable water for its Princess Kahanu Estates subdivision in Lualualei, and Hawaiian homestead areas in Nanakuli, Papakolea, and Waianae. Copies of the Water Use Permits are included in Appendix A.

The BWS is proposing to develop the Waipahu Wells III project to produce the permitted amount of 2.684 mgd of potable water. This amount is expected to meet HFDC's and DHHL's water needs in addition to accommodating incremental growth in the BWS service areas. The cost of the project will be shared proportionately between BWS, HFDC, and DHHL. Of the total 2.684 mgd, 2.014 mgd is allocated to HFDC while 0.17 mgd is allocated for DHHL use. The remaining 0.5 mgd is reserved for the incremental growth in other BWS service areas. In this interim period before a water source can be developed, Kapolei, Papakolea, Waianae, Lualualei, and Nanakuli are using existing BWS potable water capacity reserves. The proposed development of Waipahu Wells III has been incorporated into the City and County of Honolulu's Water Use and Development Plan and is needed to permanently, and more adequately supply the Leeward region with water.

1.3 List of Necessary Permits and Approvals

The following permits and approvals are anticipated for the development of the proposed well station:

1.3.1 Miscellaneous Permits/Approvals

- Utility Company Approvals HECO, HTEL, Cable TV
- Dirt Road Relocation Plan Review Castle & Cooke

1.3.2 City and County Permits/Approvals

- Plan Approval Department of Public Works
- Plan Approval Honolulu Board of Water Supply
- Grading, Grubbing, Stockpiling Permit Department of Public Works
- Building Permit Department of Public Works, Building Department
- Discharge Permit Department of Public Works

1.3.3 State of Hawaii Permits/Approvals

- Plan Approval State Department of Transportation, Highways
- Plan Approval State Commission of Persons with Disabilities
- Connection Permit State Department of Transportation
- Discharge Permit State Department of Transportation
- NPDES General Permit, Hydrotesting State Department of Health, Clean Water Branch
- Well Construction Permit State Department of Land and Natural Resources
- Pump Installation Permit State Department of Land and Natural Resources
- Water Use Permit State Department of Land and Natural Resources

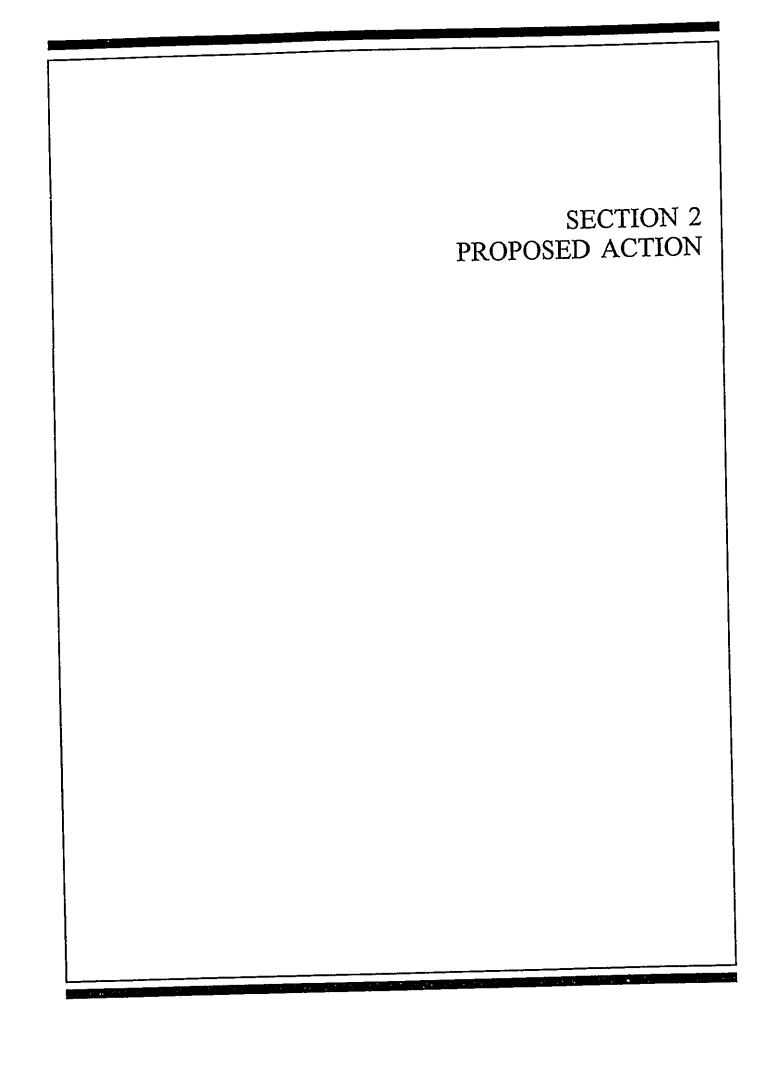
1.4 Applicant

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City and County of Honolulu, Board of Water Supply

1.5 Approving Agency

City and County of Honolulu, Board of Water Supply



SECTION 2 PROPOSED ACTION

The proposed project involves the installation of five (5) 1,000 gpm pumps, ten (10) Granular Activated Carbon (GAC) water treatment units, a 50,000-gallon backwash tank, a control building, transmission mains, access road, landscaping, fencing, irrigation system, electrical equipment, drainage improvements, and appurtenances as shown in Figure 2-1. Additional GAC units may be added in the future to centrally treat other Waipio source waters.

In addition, the proposed project includes approximately 2,417 feet of new 24-inch transmission main along Kamehameha Highway; approximately 1,089 feet of new 16-inch transmission main along Lumiaina Street to convey water to be pumped from the proposed Waipahu Wells III station; and a new transmission main that will connect the Waipahu Wells II, 395' system to the Waipahu Wells I, 228' system along Lumiaina Street for transmission to the Leeward region via an existing 36" main along the H-1 Freeway. The proposed layout of these new transmission lines are shown in Figure 2-2.

The five pumps will have a total maximum pump capacity of 7.5 mgd. Additional pumping above the 2.684 mgd allocation is sized to accommodate peak demand and fire flows with one pump as standby. The elevation of the Waipahu Wells III site is approximately 312 feet above mean sea level. The water level at the site varies from approximately 17 feet to 20 feet above mean sea level. The pump's suction will be set at approximately 28 feet below mean sea level. This value will vary slightly from pump to pump. Information on the submersible pumps can be found in Appendix B.

GAC treatment units are required to remove Ethylene Dibromide (EDB) which has been detected by water quality analyses performed by the BWS. GAC has an excellent adsorptive capacity for most organic and synthetic organic chemicals, such as EDB. Each pump is proposed to have two GAC contactors that can be operated in series or in parallel.

The pressurized GAC contactors are downflow fixed bed units, where untreated well water enters the top of the vessel and flows down through the bed of activated carbon. Treated water leaves the unit at the bottom. A schematic of a typical GAC unit is shown in Figure 2-3.

Before the GAC is installed, the contactor must be cleaned and disinfected. Once installed, the GAC bed needs to be defined, cleansed of carbon fines, stratified, forward flushed to adjust the pH, and consolidated. To conserve water, BWS purchases pre-washed carbon. These start-up processes typically use approximately 530,000 gallons of water per contactor. The actual amount of water used will depend on the characteristics of the carbon used. Upon approval from the State Department of Transportation (SDOT), the water generated from the start-up processes will be discharged through a blow-off discharge line (BDL) which will connect to the existing SDOT storm drain system along Kamehameha Highway as shown in Figure 2-4.

The BWS will typically hire a private contractor to periodically remove and dispose of the GAC once it is exhausted. The spent carbon is removed from the contactor as a slurry and pumped

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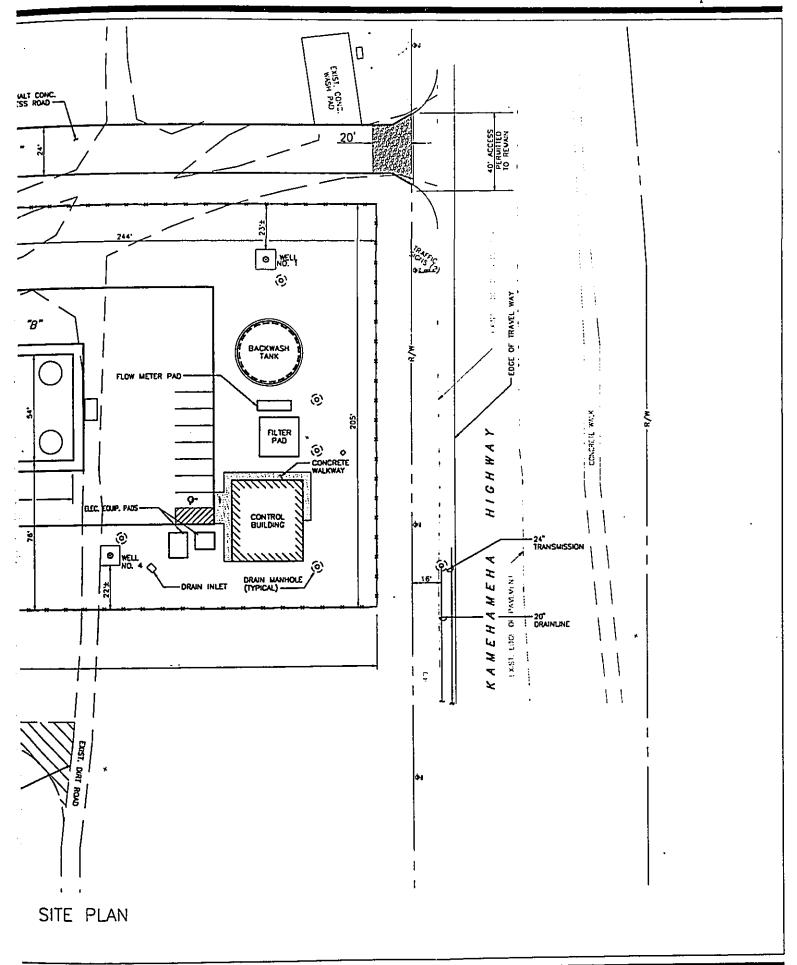
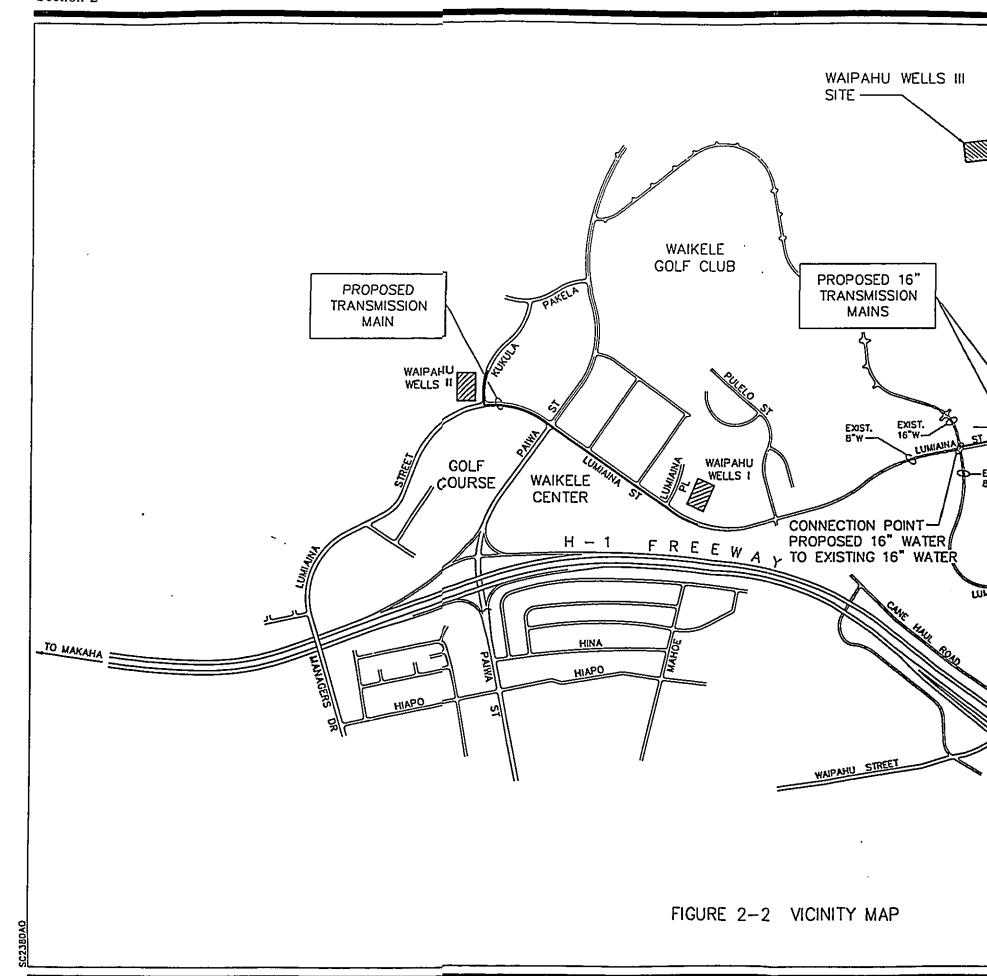


FIGURE 2-2 VICINITY MAP

Waipahu Wells III Station Final Environmental Assessment

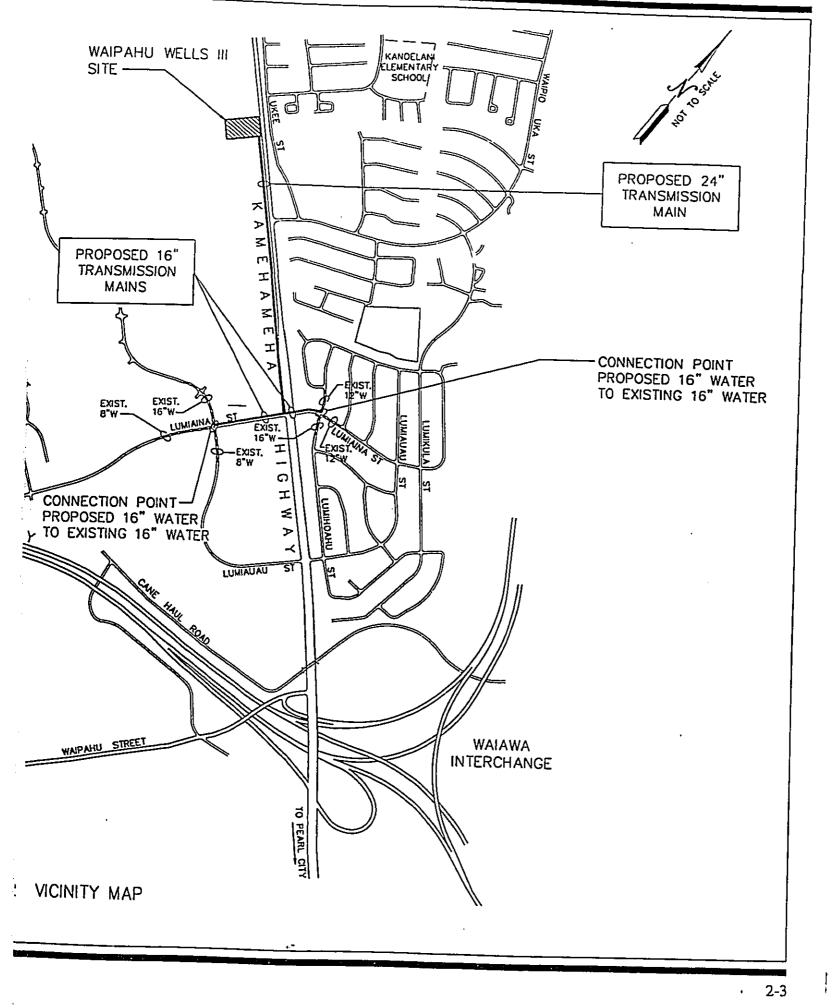
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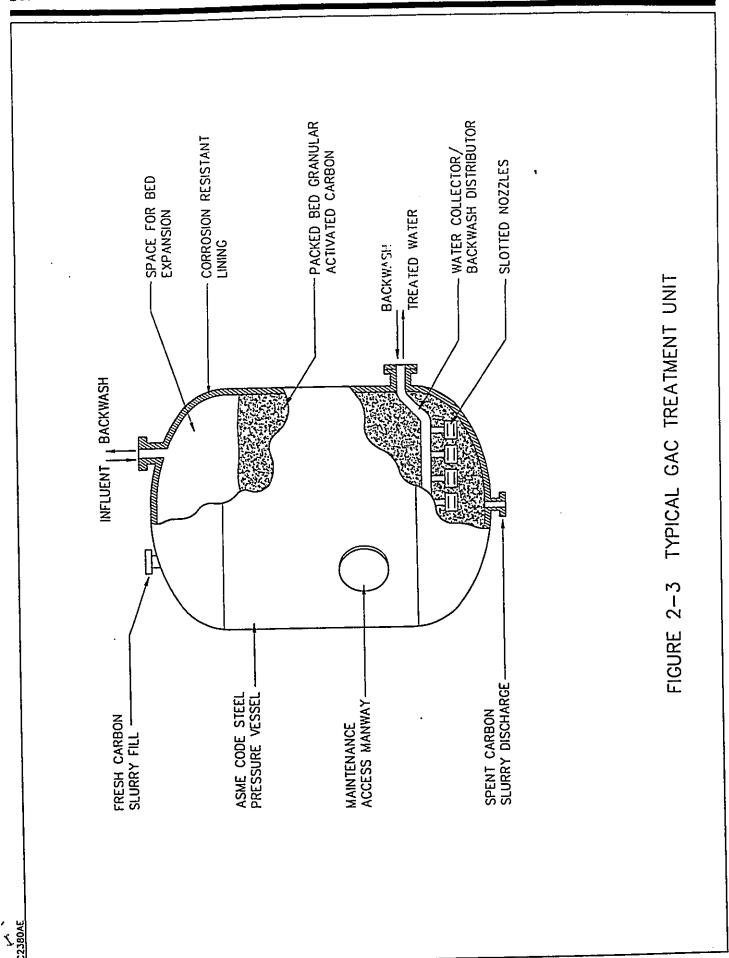
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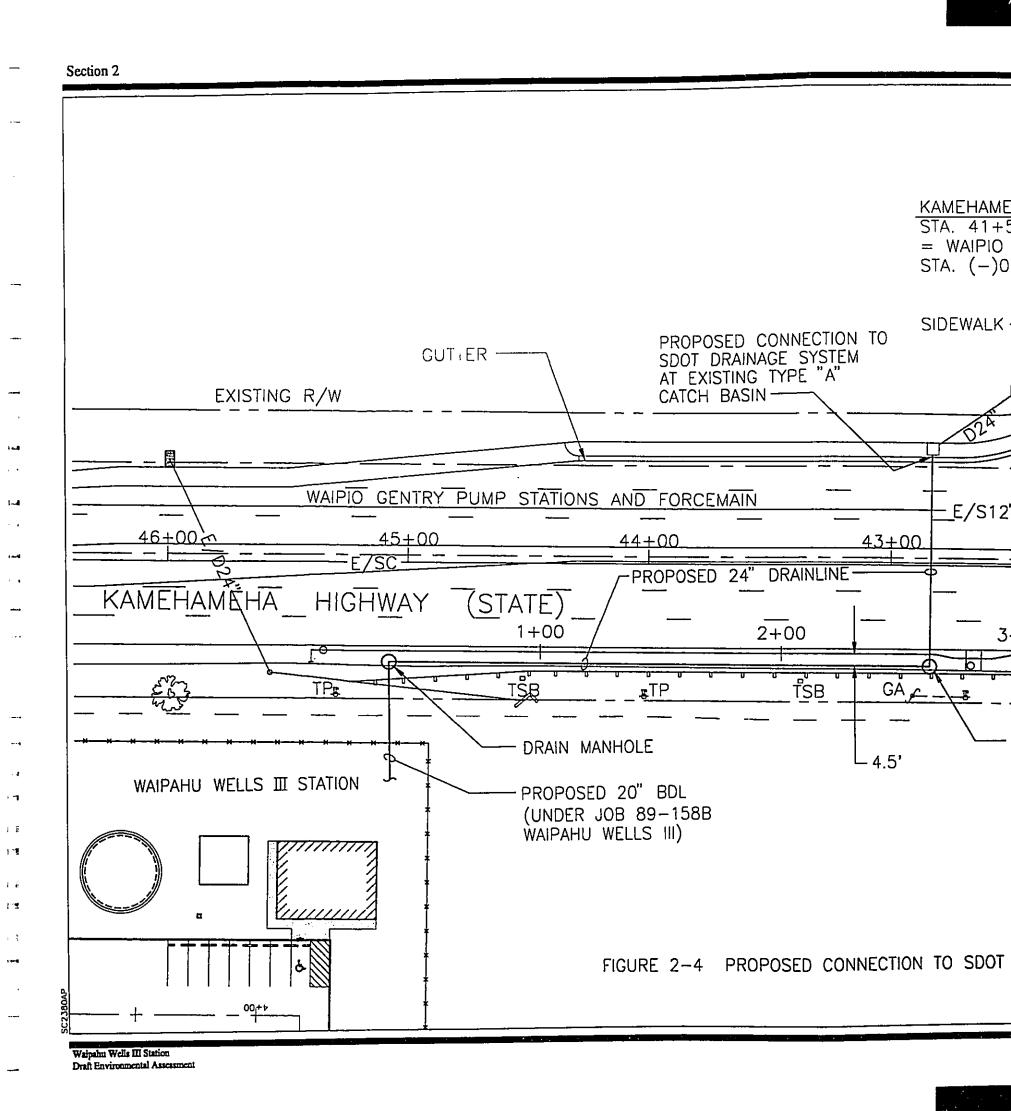


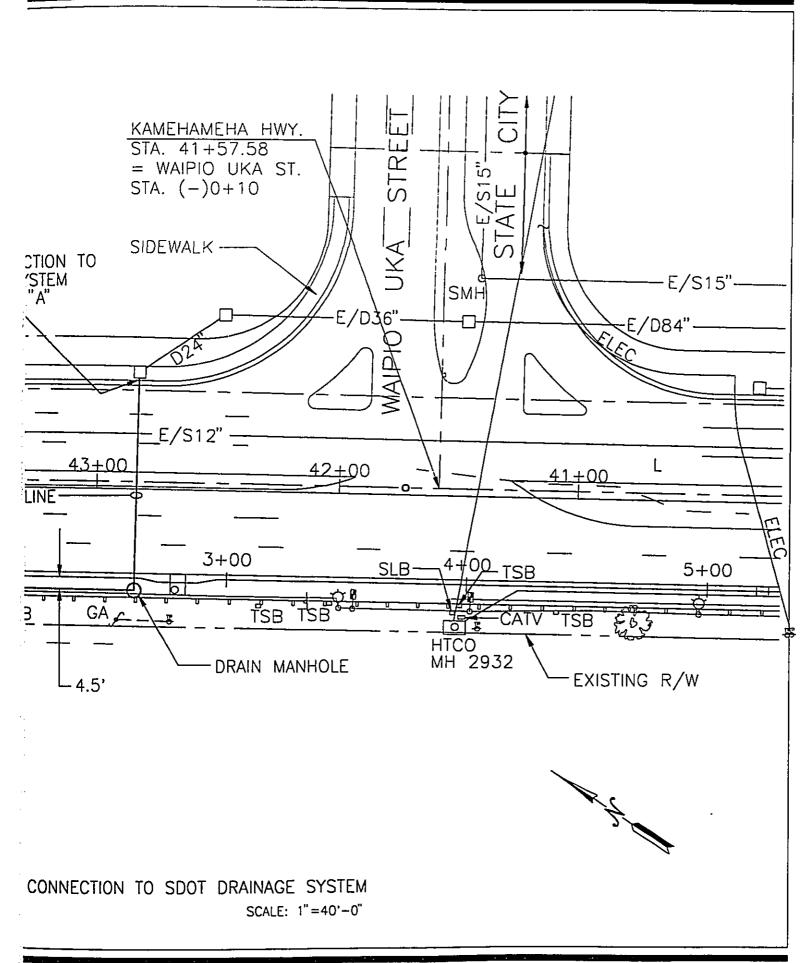
Waipahu Wells III Station Final Environmental Assessment

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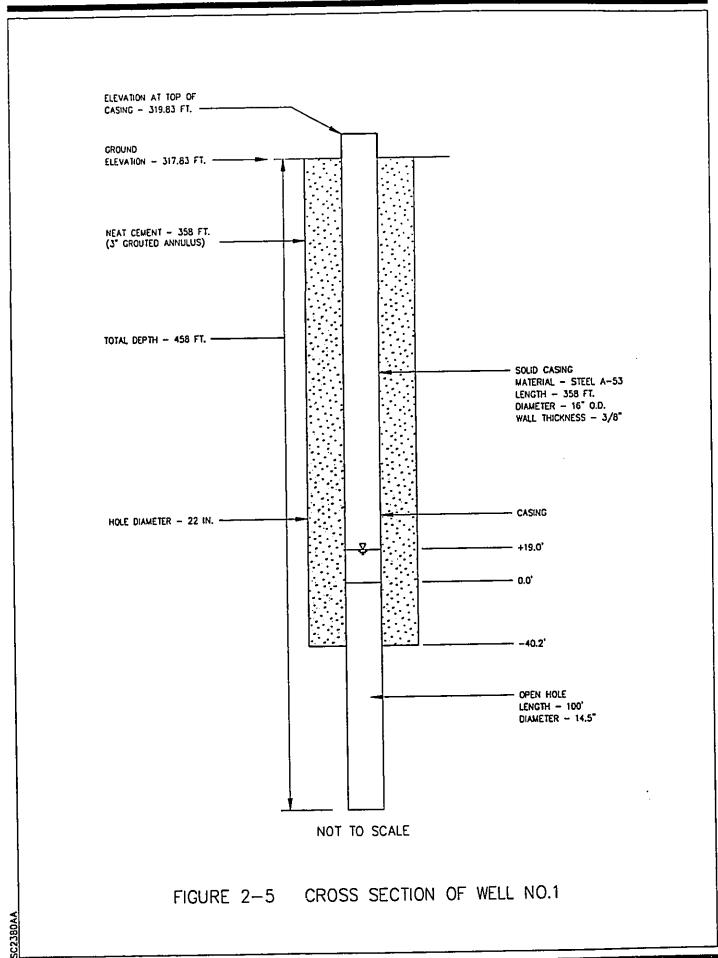
into a tanker truck, where it is dewatered. The contractor will be responsible for the proper treatment and disposal of the decanted water, as well as for obtaining the necessary discharge permits. The spent carbon from the Waipahu Wells III GAC treatment facility will most likely be landfilled in accordance with approved procedures. Spent carbon from the BWS's existing GAC facilities on Oahu has never been classified as a hazardous waste based on the results of a toxicity characteristic leaching procedure (TCLP) test. The TCLP test is used to determine the "mobility of both organic and inorganic analytes present in liquid, solid and multiphasic wastes" (40 CFR 261, Appendix II).

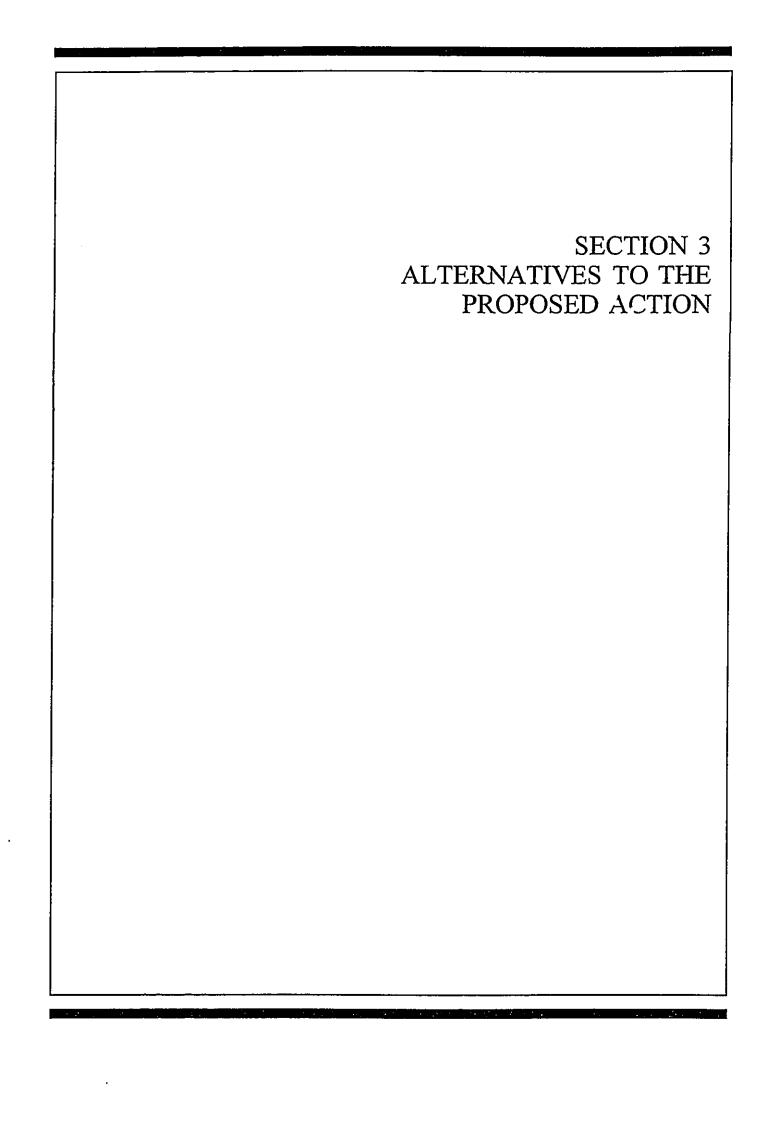
Contactors that are on stand-by will also need to be periodically refreshed to prevent stagnation. The refreshing process uses approximately 50,000 gallons of water per contactor.

The five wells, numbered 2400-09 through 2400-13, extend to a depth of between 453 and 458 feet from ground elevation of between 311 and 318 above MSL to an elevation of between 140 and 144 below MSL. The coordinates for all five wells are Latitude 24° 24' 57" and Longitude 157° 00' 15". Figure 2-5 shows a well section for Well #1 and is typical of all five wells. Appendix C contains information on wells No. 1-5, including well completion reports, cross sections, and pump test results. The wells need to be flushed before being put into service. This will amount to approximately 5,000 gallons of water per well. The proposed GAC contactors, pumps, and backwash tank are estimated to cost approximately \$7.9 million.

The new Kamehameha Highway 24-inch transmission main, approximately 2,417 feet in length, will begin at the well site and connect to a new 16-inch transmission main at Lumiaina Street, where it will extend west to Lumiauau Street and east to Lumihoahu Street, for a total length of approximately 1,089 feet. The new transmission main that will connect the Waipahu Wells II, 395' system to the Waipahu Wells I, 228' system will run south along Kukula Street and east along Lumiaina Street. The new transmission line will be ultimately connected to the existing 36" main along the H-1 Freeway so that additional water can be provided to the Leeward area. The specific size and length of the new transmission line will be determined by the BWS following further system design.

All transmission mains, all process piping, and the GAC tanks will need to be hydrotested. A NPDES general permit for hydrotesting, as well as any other applicable discharge permits will be secured before any hydrotesting water is discharged. The new 24-inch and 16-inch transmission mains are estimated to cost approximately \$1.25 million.





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SECTION 3 ALTERNATIVES TO THE PROPOSED ACTION

The alternatives to the proposed action are the no action alternative, delayed action, alternate sites, and alternate sources.

3.1 No Action

The no action alternative is not a viable option. The Waipahu Wells III Station and transmission main project is intended to add to the municipal water supply to meet the potable water needs of Kapolei, Waianae, Nanakuli, Papakolea, and Lualualei. Waipahu Wells III is also needed to provide for the incremental growth in water demand in other BWS service areas. Currently BWS is using its reserve capacity to meet the demands of these areas resulting in loss of flexibility to provide water for future area developments and to provide adequate supplies to ensure adequate pressure for fire fighting flows. Therefore, the no action alternative does not satisfy the need for meeting water demands in these areas. In addition, the BWS would lose the capital invested in the five exploratory wells at the Waipahu Wells III Station site.

3.2 Delayed Action

The delayed action is not considered a feasible option. Connection of the developments in Kapolei, Lualualei, and Hawaiian homestead areas to the BWS potable water system was contingent on the HFDC and DHHL providing a proportionate amount of resources for BWS to develop the Waipahu Wells III Station. BWS has lost some of its reserve capacity to provide potable water for these areas until Waipahu Wells III can be completed. Loss of this reserve capacity limits BWS's ability to provide potable water to new and existing service areas and insure adequate supplies for fire fighting flows. Therefore, delayed action is not a practical alternative.

3.3 Alternate Site

The current proposed location was selected due to its hydrogeologically favorable conditions, accessibility, hydraulic adequacy for integration into the existing water system, land acquisition, and water quality data based on nearby wells. The suitability of other sites for Waipahu Wells III station was investigated by the BWS and included locating the station near the Waikele Center. However, BWS hydrogeologist determined that pumping from this location would impact production rates at the nearby Waipahu Wells I and Waipahu Wells II sites.

3.4 Alternate Source

Alternate sources of potable water are currently not considered viable due to public perception problems, being technical infeasible, or not cost effective. The BWS has considered several alternate potable water sources such as desalination, utilization of surface water or brackish water,

and recycling of wastewater in the Oahu Water Management Plan as well as other specific studies.

Desalination will be implemented as groundwater withdrawals approach sustainable yields. A site and technology study is currently in progress. While the capital cost of a large scale desalination plant per gallon is equivalent to groundwater development in rural areas, the operation and maintenance (O&M) costs at \$3.00 per thousand gallons is 10 times the cost of pumping groundwater. The high O&M costs of desalination can directly affect water rates which the BWS aims to keep as low as possible.

The BWS has also investigated surface water as an alternate water source in a 1996 report titled, "Surface Water Study." The study indicated that surface water development for potable use was not feasible due to the small, variable flows, environmental impact, and the intense regulatory process involved with the instream flow standards, as well as the monitoring requirements of the Safe Drinking Water Act.

The reuse of wastewater effluent is a promising alternative resource that is being actively pursued by the City and County of Honolulu. Reclaimed water could not only help to replace potable use for irrigation and industrial process water, but could also relieve the development pressure for high quality groundwater supplies. However, public health concerns and high costs for dual water system infrastructure limit the extent of water reuse. The City is currently focussing their reuse efforts in the Ewa Plains, where dual water systems can be master planned into new developments rather than the more costly alternative of redeveloping existing urban areas with dual systems. The City is also planning to reuse the effluent from the Honouliuli Wastewater Treatment Plant (WWTP), located in the Ewa region, since the chloride content of the effluent is well suited for irrigation. Effluent from other facilities such as the Sand Island WWTP, located in the Honolulu area, have chloride contents that are too high for irrigation purposes.

High cost prohibits desalination from being a viable option, and use of surface or brackish waters are considered to have potentially damaging hydrogeological effects. In addition, current negative public perception and high cost make wastewater recycling infeasible. BWS is aggressively pursuing water conservation practices such as using dual water systems to extend the high quality potable water resource. Despite efforts by BWS to implement water conservation projects, demand for potable water is growing. The BWS continues to promote water conservation to all of its customers. Conservation efforts include: leak detection, installing low flow water fixtures, accelerating the BWS's pipeline replacement program islandwide, public education, and inverting residential water rates. While conservation efforts reduce average day demand, the ability to accommodate peak demand is also a function of available pump capacity, storage, and pipeline infrastructure. Until alternate potable water sources become feasible, groundwater will remain the primary source of Oahu's potable water.

SECTION 4 AFFECTED ENVIRONMENT

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SECTION 4 AFFECTED ENVIRONMENT

The proposed Waipahu Wells III Station and transmission main project is located in Waipahu, on the island of Oahu, as shown in Figure 4-1. The well site is a relatively flat piece of abandoned pineapple land located on Kamehameha Highway, approximately one mile north of the Waiawa Interchange and above the Waikele and Crestview subdivisions, as shown in Figure 2-2. The site was chosen by the Board of Water Supply based upon availability, elevation, access, topography, hydrogeological characteristics, and constructability.

The elevation of the proposed well site is approximately 320 feet above sea level. The property is identified by Tax Map Key 9-4-05:74 and is currently owned by Castle & Cooke Homes Hawaii, Inc. The BWS, however, is planning to purchase the property in fee. The approximate size of the well site within the fence line is 200 feet x 385 feet with an additional easement for the access road of approximately 45 feet x 311 feet.

To convey water from the proposed well, a 24-inch transmission main will be constructed along Kamehameha Highway from the well site to Lumiaina Street. A 16-inch transmission main will be constructed along Lumiaina Street, between Lumiauau Street and Lumihoahu Street, to convey the water from the Waipahu Wells III Station to the existing water mains. The proposed project also includes a new transmission main to connect the Waipahu Wells II, 395' system to the Waipahu Wells I, 228' system along Lumiaina Street. The transmission mains will be installed underground within the road right-of-way.

4.1 Physical Setting

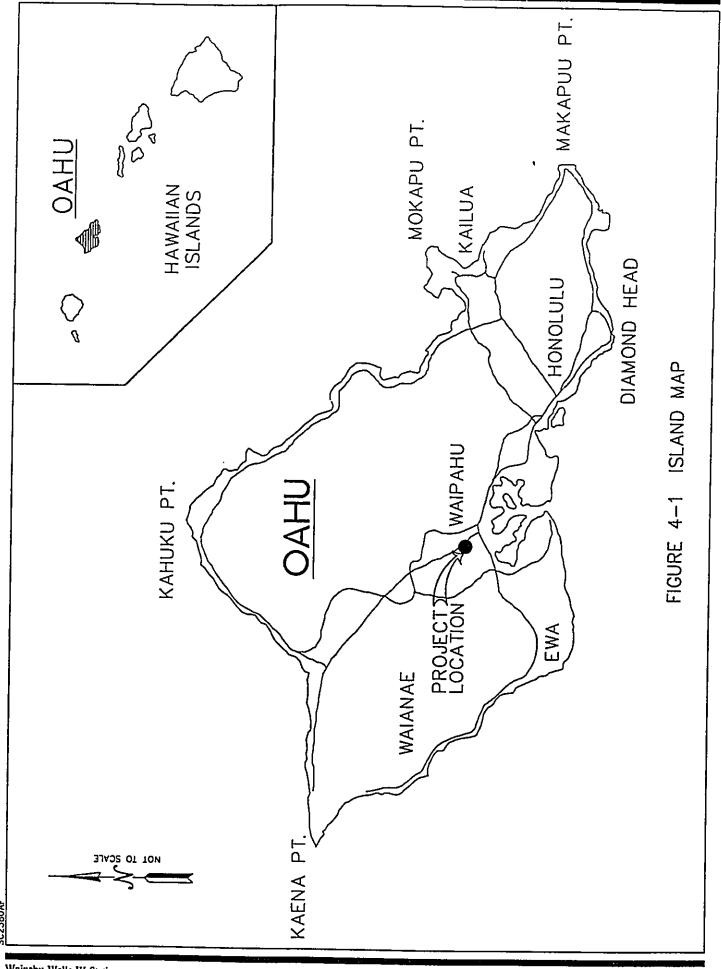
4.1.1 Geology And Topography

The central Oahu plateau was formed by the overlap of the Koolau volcano lava flows over the Waianae flank. The plateau was elevated by successive lava flows from the Koolau shield volcano. Subsequently, very hard volcanic rock formed bedrock in the project area.

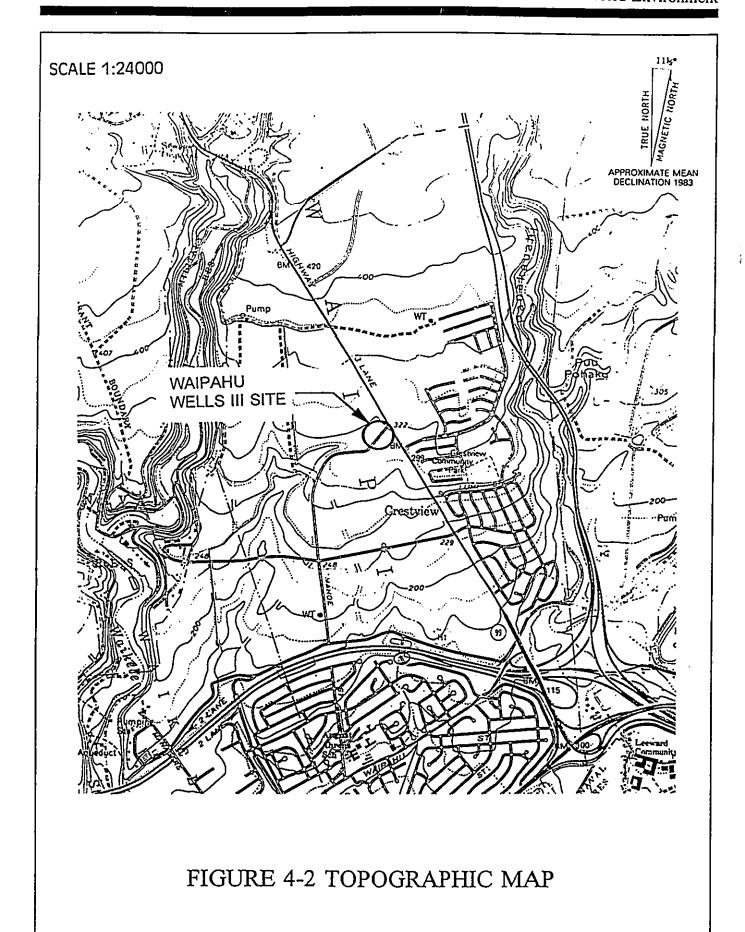
According to the U.S. Geological Survey (USGS) Topographic Map, the land surface of the well site is relatively flat with a gentle slope of approximately 5 percent from the north to the south. Kipapa Gulch, a major drainage way, is located approximately 3/4 of a mile to the west of the project site. The topography of the area is shown in Figure 4-2.

4.1.2 Soils

Soil at the well site is classified by the U.S. Department of Agriculture Soil Conservation Service as Molokai silty clay loam with slopes of 3 to 15 percent. The Molokai series consists of well-drained soils formed by the weathering of igneous rock. Runoff is slow to medium and the erosion hazard is slight to moderate. Small areas of this soil were found as dark reddish-brown silty clay loams approximately 7 inches thick, which overlie fine, gravelly alluvium. This soil can be used for sugar cane, pineapple, pasture or wildlife habitat.



Waipahu Wells III Station



4.1.3 Climate

The mean rainfall in the Waipio area is approximately 30 to 35 inches per year. Most of this precipitation occurs during the winter months of October through April. The summer months of May through September are relatively drier.

The temperature in the area is consistent with areas of medium to higher elevations on Oahu and is influenced by the cooling effects of the prevailing north-northeast trade winds. The average year round temperature ranges from 66 degrees to 84 degrees Fahrenheit.

4.1.4 Flood Hazards

According to the Flood Insurance Rate Map by the Federal Emergency Management Agency, the well site and the transmission mains are in Zone "D", which means that flood hazards in the area are undetermined.

4.1.5 Earthquake Hazards

The island of Oahu is classified as a Seismic Zone 2B area as per the Uniform Building Code, 1988. Given that the least active zone is Zone 0, and the most active zone is Zone 4, the possibility of an earthquake occurring on Oahu is considered remote. The Board of Water Supply, however, has adopted the more conservative Zone 3 design standards for all of its structures, which offer a higher stability in the event of an earthquake.

4.2 Flora And Fauna

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The project area has been under agricultural cultivation since the early 1900's when its original vegetation was removed. The majority of the existing project site consists of abandoned pineapple fields. The remaining vegetation consists mostly of introduced or exotic nuisance species of grasses, shrubs, and trees. No rare, endangered, or threatened plant species were found on the project site. Similar surveys done of neighboring sites have also found no rare or endangered species. The animals populating the site are mainly insects, birds and mammals most of which are not unique to the Hawaiian islands. Common bird species which may frequent the site are the barred dove, the lace-necked dove, the Japanese white-eye and the red-crested cardinals. Pests such as the house mouse, the Polynesian rat and the Indian mongoose also frequent the site.

4.3 Archaeology/Cultural Resources

The Waipahu Wells III station site is located in abandoned pineapple fields that were previously used for extensive agricultural use. Some archaeological sites were found in nearby gulch areas, but none at the proposed project site. It is unlikely that a new historic site will be found at the well site.

The transmission mains will be located underground within the road right-of-way. Due to the previous work performed on the site, it is unlikely that new historic sites will be uncovered during the construction of the transmission mains.

4.4 Recreational Resources

The City is currently proposing to develop a regional park and a sports complex on a 269-acre site adjacent to the Waipahu Wells III site. This development, called the Waiola Park and Sports Complex, would accommodate sports facilities which include baseball/softball fields, tennis courts, basketball/volleyball courts, skateboard bowls, in-line hockey courts, multipurpose fields, a boxcar racing course, an aquatic center, a community center, and a training field house. Bicycle/pedestrian paths, restrooms, parking and internal circulation roads are also proposed within the park. A conceptual plan of the park is shown in Figure 4-3.

The existing City parks near to the project site include the Waikele Neighborhood Park and the Waikele Community Park as shown in Figure 4-4. The Waikele Neighborhood Park is located east of the Lumiaina Street and Lumiauau Street intersection. The Waikele Community Park is located along the north side of Lumiaina Street and adjoins the easterly and northerly sides of the

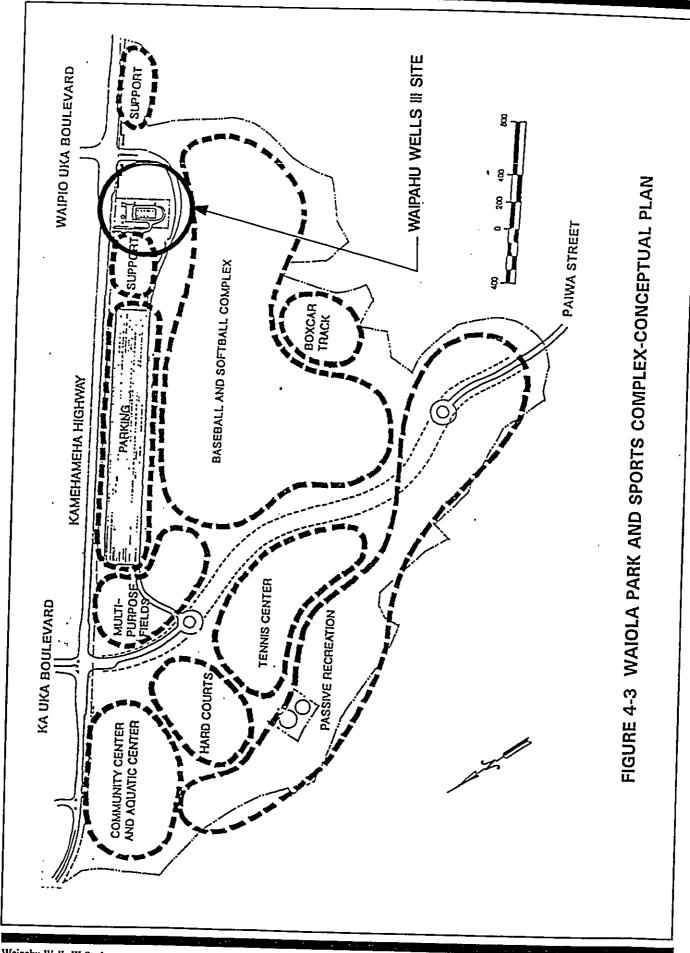
4.5 Land Use

The Waipahu Wells III Station and transmission main project boundaries fall within the State Agricultural and Urban Land Use Districts and outside of any designated Special Management Areas (SMA). A State Special Use Permit is not required because the proposals are considered a permissible use within the agricultural district under Section 205-4.5(a)(7), Hawaii Revised Statutes. A Conservation District Use permit is also not required. The existing state land use

The proposed well site is zoned AG-1 on the City and County of Honolulu Zoning Map as shown in Figure 4-6. A Development Plan Land Use Map for the area is shown in Figure 4-7.

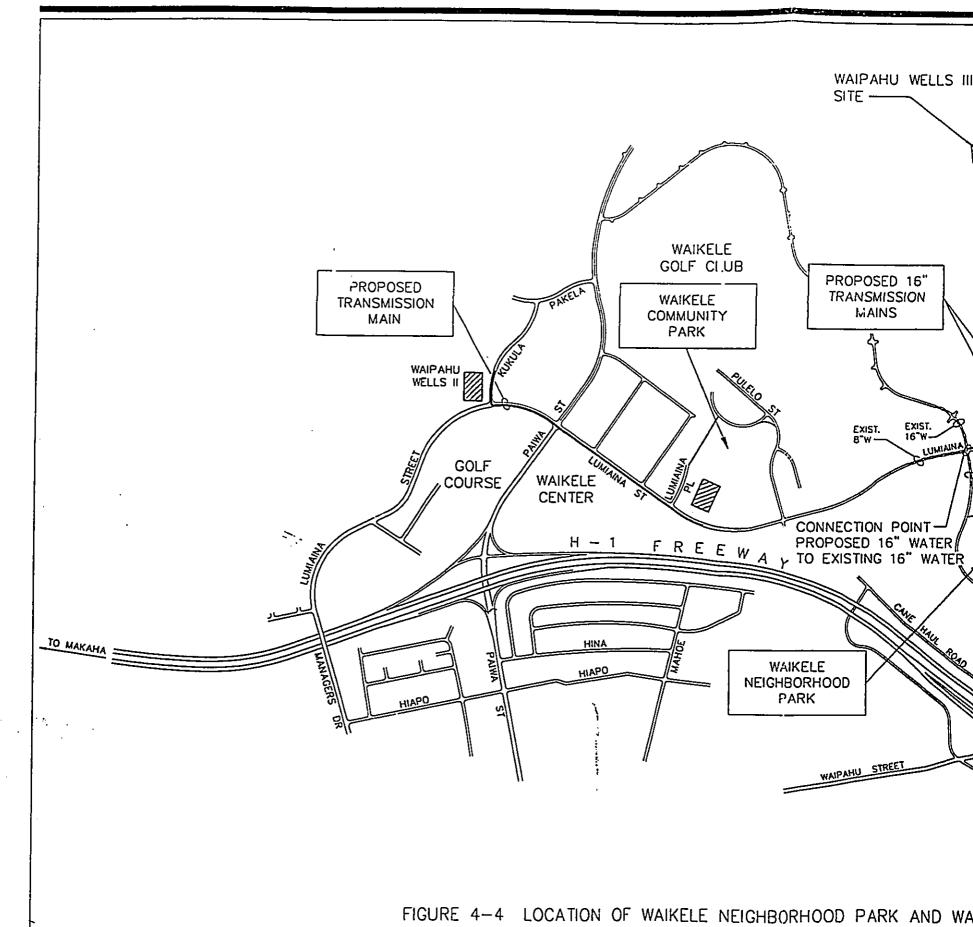
Ground and Surface Water Hydrology 4.6

The island of Oahu depends upon three types of ground water sources for most of its potable drinking water. Basal water sources are the largest of the three, and underlie most of the southern and northern portions of the island. The second largest source is high-level dike water, which is found between impermeable vertical rock structures along the Koolau and Waianae ranges. The third type of water source is perched water, which is held up on horizontal impermeable lava flows or volcanic ash. Dike and perched water, both of which occur in mountainous regions, are of excellent quality and, unlike basal water, are not subject to saline

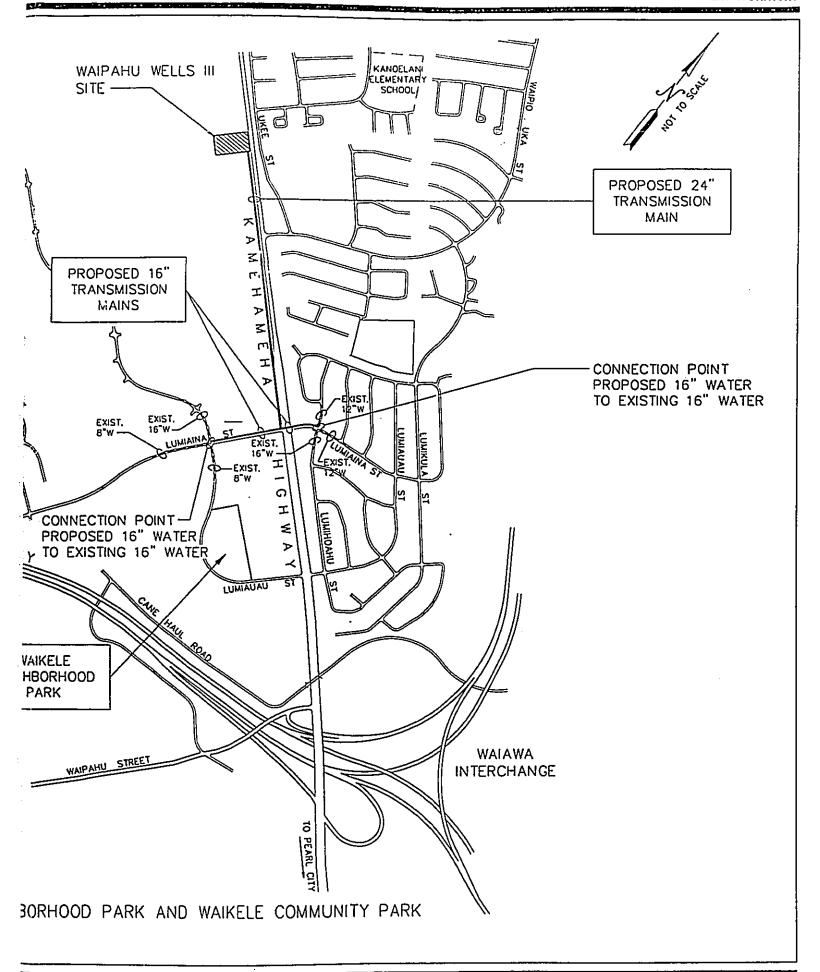


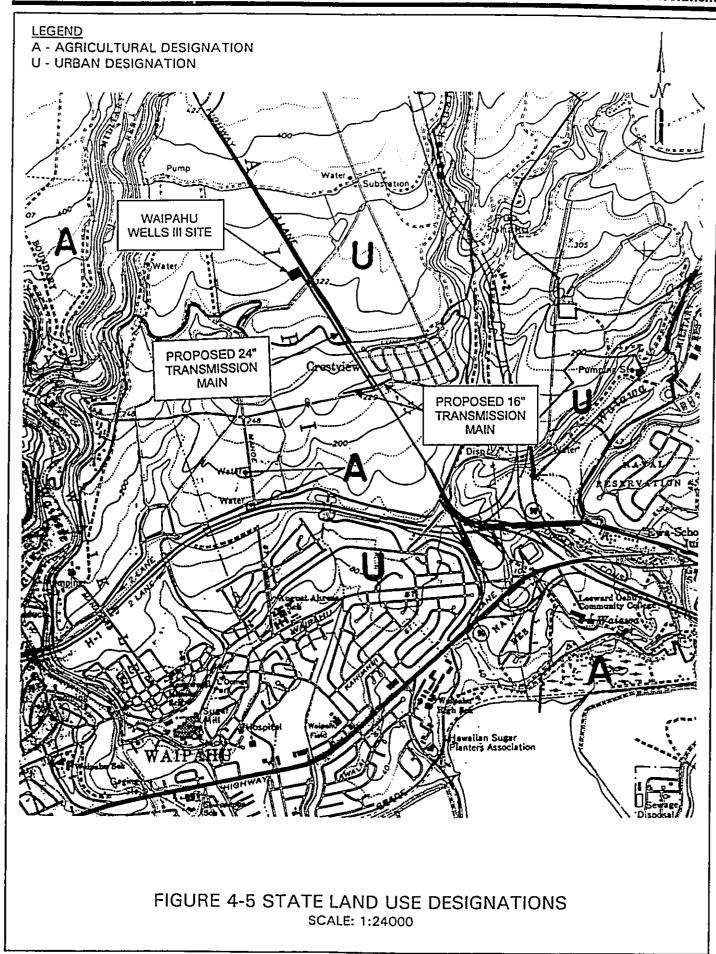
Waipahu Wells III Station Final Environmental Assessment

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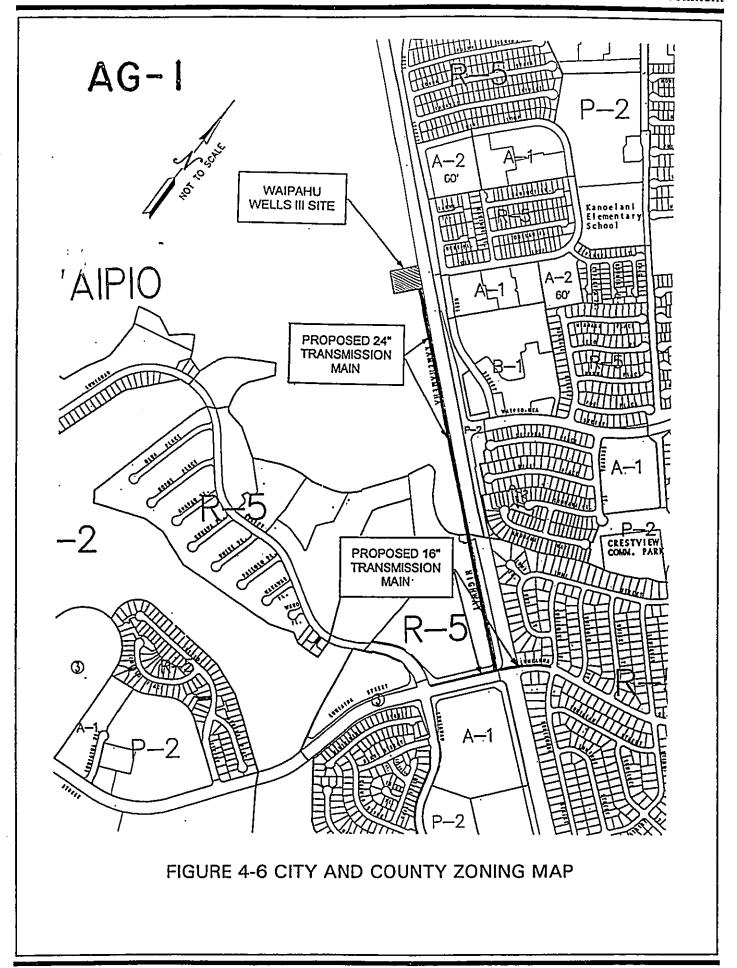


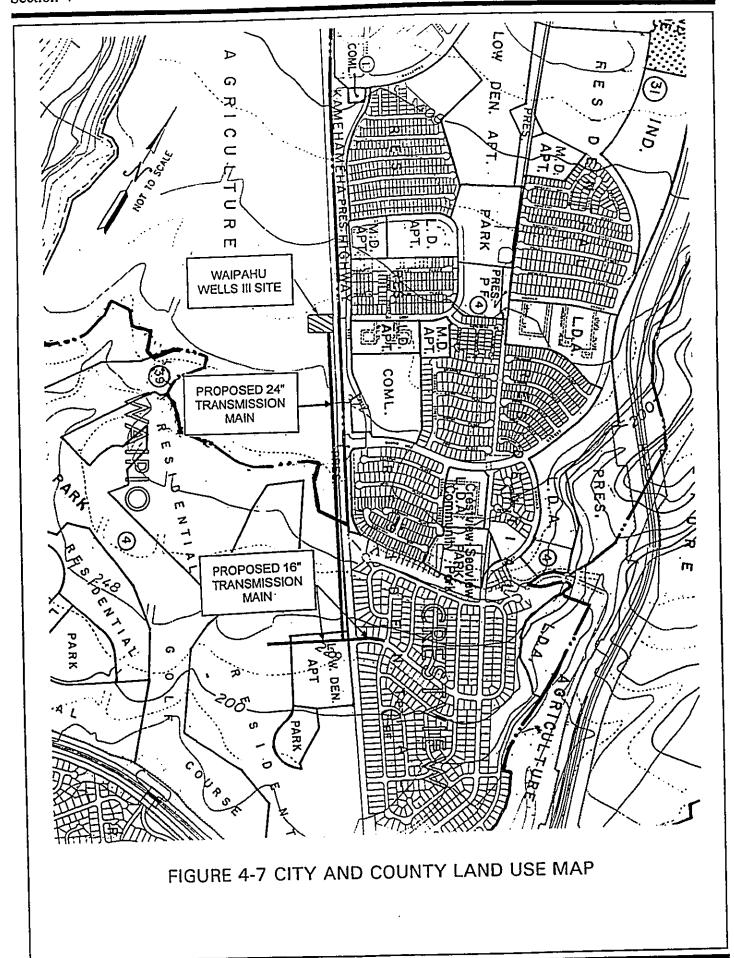
Waipahu Wells III Station





Waipahu Wells III Station





The Commission on Water Resource Management (CWRM) has established six groundwater sectors for the island of Oahu which include the Honolulu, Pearl Harbor, Waianae, Central, North, and Windward. These sectors are further divided according to the underlying aquifer boundaries. The Waipahu Wells III station will draw water from the Waipahu-Waiawa aquifer, which is a part of the Pearl Harbor groundwater sector as shown in Figure 4-8.

The sustainable yield established for the Waipahu-Waiawa aquifer by the CWRM is 119 million gallons per day (mgd). The sustainable yield is the estimated amount of groundwater that can be withdrawn from the aquifer without adversely impacting the quality or quantity of the aquifer. Current CWRM allocations for the Waipahu-Waiawa aquifer are presented in the following table.

Table 4.1 Waipahu-Waiawa Aquifer - Permitted Uses

PERMITTEE	ALLOCATION (MGD)
Campbell Estates	21.571
Oahu Sugar Company	10.151
Board of Water Supply	41.601
U.S. Navy	14.977
Others	11.336
TOTAL:	99.636

Approximately 83.7 percent of the total sustainable yield has been allocated. However, less than 55 percent of the allocated amount is actually being drawn from the Waipahu-Waiawa Aquifer. Table 4.2 compares the actual water use recorded by CWRM in the past two years with the amount allocated.

Table 4.2 Waipahu-Waiawa Aquifer - Actual Use

PERMITTEE	1996 (MGD)	1997 (MGD)	ALLOCATION (MGD)
Campbell Estates	1.200	1.559	21.571
Oahu Sugar Company	1.729	0.563	10.151
Board of Water Supply	31.735	28.920	41.601
U.S. Navy	17.269	15.493	14.977
Others	2.690	2.355	11.336
TOTALS:	54.623	48.890	99.636

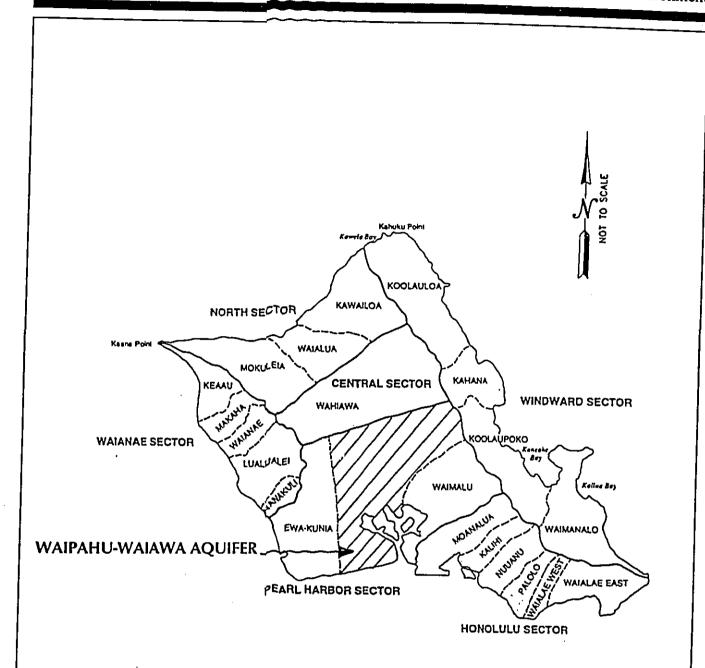


FIGURE 4-8 - WAIPAHU-WAIAWA AQUIFER BOUNDARY MAP (Reference: Mink et.al, 1997)

4.6.1 Well Recharge

The Waipio area sits on the Pearl Harbor basal aquifer which is recharged by rainfall and the Schofield high-level aquifer. The Pearl Harbor aquifer consists of extensive permeable lavas and is contained by caprock in the coastal area. Together, these two geological features provide southern Oahu with high quality basalt water.

The water table at Waipahu Wells III varies from approximately 19 to 20 feet above MSL.

4.6.2 Wells in the Vicinity

The Waipahu Wells III Station is surrounded by five other well stations which are:

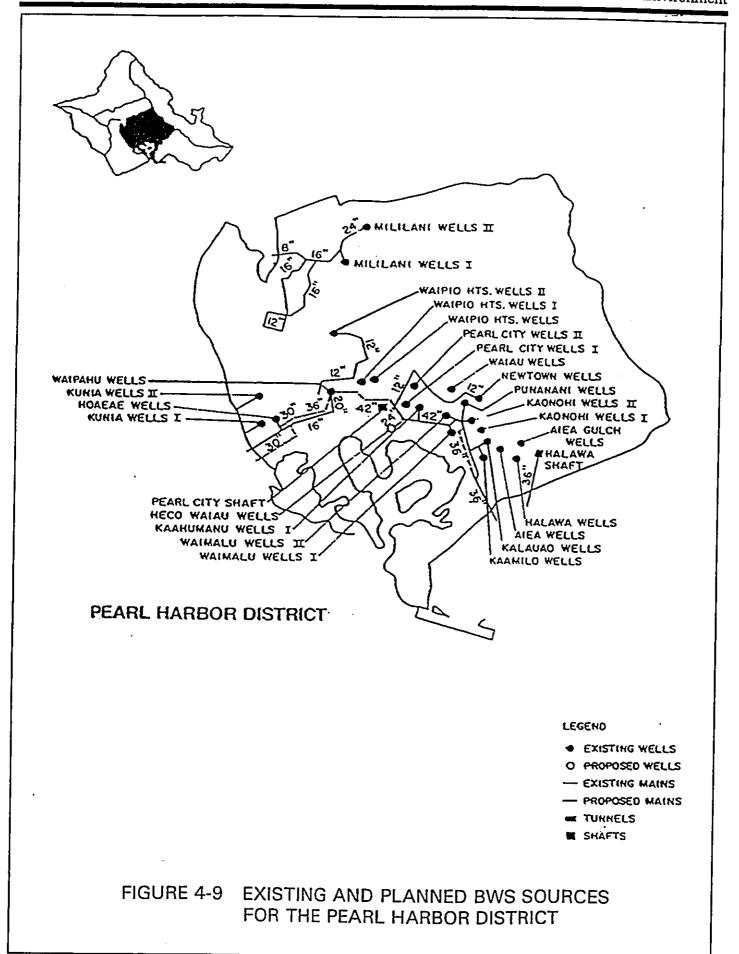
WELLS	NUMBER OF PUMPS	GPM	HD (FT)
Waipio Hts. Wells	2	· 1500	420
Waipio Hts. Wells I	2	1050	420
Waipio Hts. Wells II	2	1050	630
Waipahu Wells I	2	1900	230
Waipahu Wells II	2	1900	230

The approximate locations of these wells, except Waipahu Wells II, are shown in Figure 4-9.

4.6.3 Water Quality

To date, water samples from all five wells at the Waipahu Wells III Station have been collected and tested, and are included in Appendix D. The results indicate the presence of Ethylene Dibromide (EDB) in all five of the wells. Well Nos. 1 and 2 have concentrations of 30 parts per trillion (ppt) of EDB, while Well Nos. 3, 4, and 5 have concentrations of 20 ppt. The Maximum Contaminant Level (MCL) for EDB is 40 ppt based on the Hawaii Administrative Rules, 11-20-4. Although the concentrations of EDB are below the MCL, GAC treatment units are being installed by the BWS to ensure that the level of EDB is maintained below the MCL.

Lab results from Well No. 1 also indicated 70 ppt of Pentachlorophenol (PCP) and 6 ppt of cyanide. MCL's for PCP and cyanide, according the Primary Drinking Water Standards 40 CFR 141, are 1,000 ppt and 200,000 ppt, respectively. Arrangements will be made to re-sample and validate these initial findings. Lab results from Well No. 4 indicated the presence of 0.6 parts per billion (ppb) of Di-n-Butylphthalate. This initial finding will also be verified prior to distribution.



Wailani Stream is the nearest down grade surface water that may receive runoff from the Waipahu Wells III station. It is located approximately 0.9 miles from the site and receives discharge from the State Department of Transportation and the City and County Department of Public Works drainage systems.

4.7 Potential Sources of Contamination

Since 1982, several pesticides have been detected in the drinking water supply in central Oahu. The primary pesticides of concern are EDB (ethylene dibromide) and DBCP (dibromochloropropane) both of which are volatile organic carbons. The wells found with EDB and/or DBCP concentrations > 40 parts per trillion, the State Maximum Contaminant Level (MCL), are the Mililani, Del Monte Kunia, Kunia II, Waipahu and Waikele wells. Activated carbon units have been installed or are being installed to treat the water at all wells which exceed the MCL. Since the Waipahu Wells III Station is in the vicinity of wells which have been contaminated with EDB and/or DBCP and the proposed project site was formerly used for sugarcane cultivation, the presence of EDB at Waipahu Wells III was anticipated. A groundwater contamination map showing the latest contaminated groundwater wells on Oahu is shown in Figure 4-10.

The Waipahu Wells III Engineering Report, which will be submitted to the Department of Health, will identify all potential sources of contamination and evaluate alternative control measures that would be implemented to reduce or eliminate the potential for contamination, including the treatment of the water source.

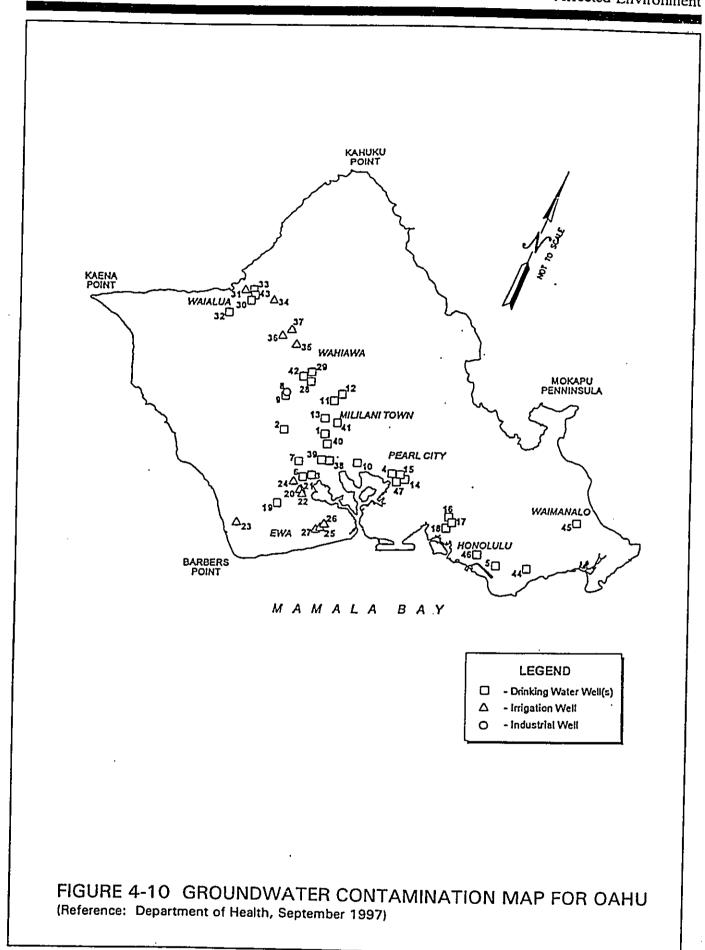
4.8 Aesthetics

The Waipahu Wells III Station site is a relatively flat piece of undeveloped, abandoned pineapple field. Existing flora consists of nuisance species of grasses, shrubs and trees.

4.9 Public Utilities

The existing utilities along the route of the proposed 24-inch transmission main on Kamehameha Highway include a cable TV line, a Hawaiian Telephone Company ductline, a street light and traffic signal duct, a 24-inch drain line and a 12-inch sewer force main. Hawaiian Electric Company also has existing overhead lines along Kamehameha Highway. However, a section of the existing poles will be removed and replaced to support the additional electrical lines that will feed the well site as shown in Figure 4-11.

The utilities existing along the portion of Lumiaina Street, where the proposed 16-inch transmission main will be installed include a 24-inch drain line, a 12-inch water line, and a 6-inch gas line.



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FIGURE 4-11 PROPROSED ELECTRICAL SITE PLAN

CONNECTION POINT
TO EXISTING ELECTRICAL UTILITY

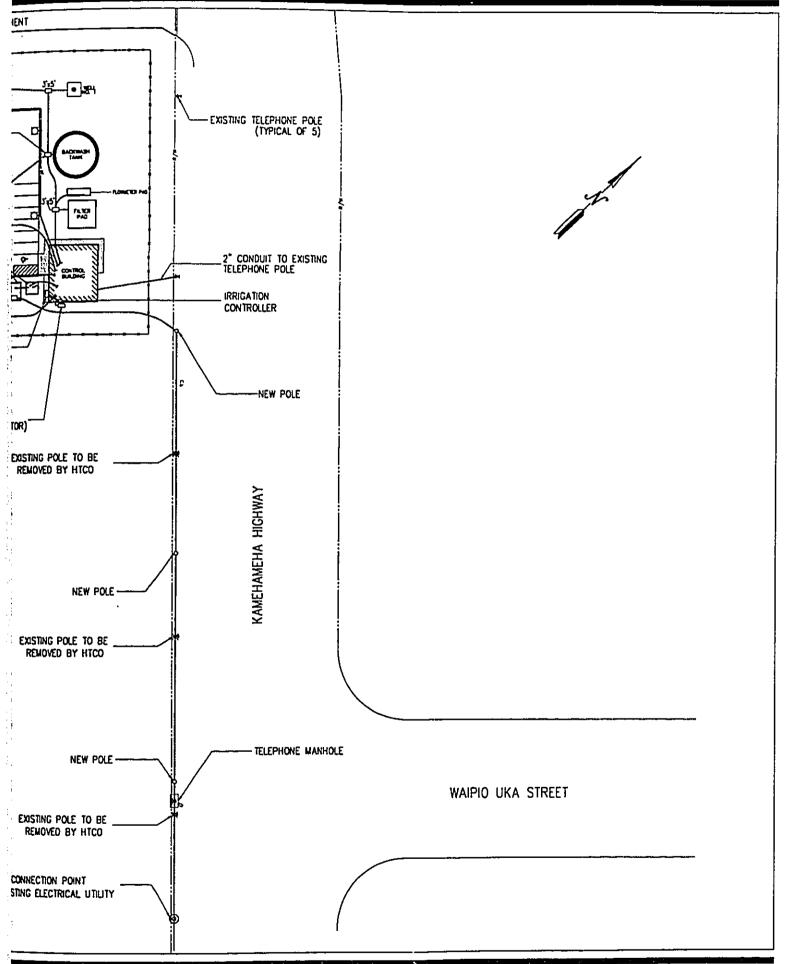
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Waipahu Wells III Station Final Environmental Assessment

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SECTION 5 ENVIRONMENTAL CONSEQUENCES OF THE PROPOSED PROJECT

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SECTION 5 ENVIRONMENTAL CONSEQUENCES OF THE PROPOSED PROJECT

The following section describes the short term and long term impacts that the project will have on the surrounding environment and the mitigative measures to minimize these impacts.

5.1 Short Term Impacts

Short-term impacts will result from site clearing, grubbing and grading; well installation; building construction; landscaping; and transmission waterline installation. These activities will be limited to the project site during the construction period of a year. The following sections discuss the short-term impacts and their mitigative measures.

5.1.1 Physical Setting

Construction of the Waipahu Wells III site is not expected to affect the soils, geology, or climate of the area. Although grading will modify the existing topography, no significant impacts are expected due to the relatively small size of the site. Drainage impacts during construction are also expected to be minimal. Details of the site's drainage report can be found in Appendix E.

During construction activities, temporary erosion control measures such as drainage swales, grassing, and silt fences shall be implemented as necessary. Such erosion control measures will help to minimize soil loss.

5.1.2 Air Quality

Short term air pollution impacts from dust/dirt may result from clearing, grubbing, and grading activities (which involve vehicle movement and soil excavation). Such dust/dirt impacts can be reduced by the frequent watering of the site. In addition, the necessary erosion control measures and best management practices (BMPs) shall be taken to prevent foreseeable dust problems from construction activities. Areas which have been graded should be grassed as soon as possible to prevent dust from becoming a nuisance.

Emissions from trucks and construction equipment with diesel engines could also cause short term air pollution impacts. All construction equipment and trucks shall be kept in good operating condition and equipped with adequate emission controls. All open bed trucks shall be covered when transporting materials that have the potential to become airborne.

5.1.3 Noise Impacts

Noise is defined as any unwanted sound occurring in the ambient environment which may create short term or long term impacts to nearby populated areas or wildlife habitats. Noise levels at the site and in nearby residential areas are expected to increase due to waterline excavation and transporting of equipment and materials. Where residences line both sides of the highway, noise impacts are expected to be the most significant during construction of the new transmission main.

The contractor will be required to minimize any construction noise impacts that may inconvenience any residences near to the project site. In order to mitigate noise impacts, the necessary BMPs will be implemented. The use of muffled construction equipment is recommended and construction equipment is also expected to be properly maintained. The proposed project will comply with the provisions of the Hawaii Administrative Rules (H.A.R.), Title 11, Chapter 46, "Community Noise Control." Construction activities will be limited to the standard working hours as specified in these regulations. In addition, heavy vehicles must be in compliance with H.A.R. Title 11, Chapter 42, "Vehicular Noise Control for Hawaii."

5.1.4 Flora and Fauna

No known rare or endangered species of flora or fauna have been found at the site. Surveys of adjacent areas have also reported no known rare or endangered species. Therefore, no significant short-term impacts to flora and fauna are expected.

5.1.5 Archaeological/Cultural Resources

No significant archaeological or historic sites are known to exist at the proposed Waipahu Wells III Station site. Consultations with the State Historic Preservation Division (SHPD) noted that the parcel along Kamehameha Highway was previously used for agriculture. Thus, since the land surface has already been disturbed, the presence of archaeological or historic sites at the proposed Waipahu Wells III site is unlikely. The SHPD has determined that there will be "no effects" on historic sites from the proposed project. As a result, no significant short-term impacts to archaeological or cultural resources are expected.

In the event that evidence of historic sites are encountered during construction, work shall be stopped and the SHPD shall be notified. The SHPD shall be provided sufficient time to assess the situation and recommend appropriate mitigation measures. Any archaeological data recovery work that may be recommended by the Division shall be completed by a qualified archeologist prior to the commencement of work. Completion of mitigation work shall be confirmed by the SHPD, and a report of the findings shall be prepared and submitted to the SHPD for review and approval.

5.1.6 Land Use

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The proposed Waipahu Wells III station is considered a permissible use within the current land designation as an agricultural district under Section 205-4.5 (a)(7). Therefore, the land use that is permitted under the specified land designations will not change.

5.1.7 Water Quality/Hydrogeology

The wells will not be in service during construction of the Waipahu Wells III station. Therefore, construction is not expected to have any short term affects on the hydrogeology of the area. The

nearest surface water is Wailani Stream located approximately 0.9 miles away. Wailani Stream receives discharge from both the SDOT and DPW drainage systems. The only anticipated impact on surface water is from stormwater runoff and silt which can be mitigated by erosion control measures. Erosion control measures will include: building berms around the project site to contain stormwater runoff; installing silt fences, if necessary; immediately landscaping areas that have been graded; and grading during dry weather.

5.1.8 Aesthetics

Construction of the Waipahu Wells III facility is anticipated to begin in May of 1998 and span a period of approximately one year. During that time the existing vegetation consisting of nuisance species of grasses, shrubs, and trees will be removed. The well site is currently surrounded by fallow pineapple fields. Construction of the Waipahu Wells III facility will not significantly impact the aesthetics of the area.

The transmission mains will be located along Kamehameha Highway and Lumiaina Street. The trees and landscaping along Lumiaina Street may be temporarily impacted because of the construction activity. However, once construction of the transmission mains have been completed, the transmission main will be buried underground within the road right-of-way.

5.1.9 Traffic

Traffic congestion along Kamehameha Highway, Lumiaina Street, and Paiwa Street, as well as in the neighboring communities of Waipio Gentry, Waikele, and Crestview, is expected to increase, especially during construction of the 24-inch and 16-inch waterlines. Construction is expected to proceed in increments, with each stage having its own State Highways-approved or City-approved traffic control plan. The contractor is responsible for following the control plan to regulate the flow of traffic, especially during the morning and afternoon rush hours when traffic along Kamehameha Highway is the heaviest. Working hours will be restricted to 8:30 a.m. to 3:30 p.m. and possibly nights, upon approval by the SDOT.

In addition to the traffic control plans, diversion of traffic to the H-2 freeway through the Ka Uka Boulevard will alleviate some of the congestion that is expected on Kamehameha Highway. Movement of heavy construction equipment should be restricted to periods of light traffic. Newspaper notices will be used as necessary, to inform the public of any impacts to traffic due to project construction.

In addition to traffic congestion, some bus stops, crosswalks and sidewalk ramps along Kamehameha Highway and Lumiaina Street will be temporarily relocated during the construction of the transmission mains. BWS will insure that affected bus riders will be notified of any changes to bus schedules as well as locations of the temporarily relocated bus stops. BWS will work with MTL to provide acceptable temporary bus shelters and bus stop locations in accordance with ADA requirements. The temporary relocation of crosswalks and sidewalk ramps will also be in compliance with ADA requirements. Following the completion of the construction

activities, the bus stops, crosswalks and sidewalk ramps will be re-installed.

5.1.10 Public Health and Safety

The project site is located nearby roads, residential homes, shopping centers, schools, parks and golf courses where vehicular and pedestrian traffic will be heavy. The Contractor shall be responsible for implementing appropriate measures to ensure public safety and health during the construction period. Construction areas will be delineated with appropriate signs. Highway right-of-way construction will be coned and signed to enhance automobile and pedestrian safety. During construction activities, provisions will be made to ensure public health while providing safe access to homes, schools and recreational facilities in the area. At the end of each work day, the construction site and equipment shall be secured. All open trenches shall be covered and secured to ensure the safety of the public. Water trucks will be used to reduce dust migration and all construction vehicles will have sound attenuating devices to minimize noise impacts to nearby residential areas.

5.1.11 Socioeconomic

Construction of the Waipahu Wells III Station and 24-inch and 16-inch transmission mains is expected to provide a small number of temporary jobs for local workers. The purchase of materials from local suppliers will also help the local economy.

5.2 Long Term Impacts

5.2.1 Physical Setting

Operation of the Waipahu Wells III station is not expected to affect the soils, geology or climate of the area. The topography will change very little from the existing topography. Due to the size of the site and the minimal amount of grading planned for the site, no significant impacts are expected. Any additional runoff that is created by the proposed project will also be directed to a new drain inlet as described in the drainage report. This drainage report has been prepared in accordance with the Drainage Report Ordinance 96-34 and is included in Appendix E.

5.2.2 Noise Impacts

Noise generated from the Waipahu Wells III facility will be minimal. Operation of the pumps will be the primary source of noise at the facility. To minimize the noise generated from the pumps, submersible pumps will be used to draw water from the wells. The pumps will be located approximately 375 feet below the surface. Any noise generated from the pumps will be muffled by the depth of the well.

5.2.3 Flora and Fauna

No known rare or endangered species of flora or fauna have been found at the site. Surveys of

adjacent areas have also reported no known rare or endangered species. Therefore, no significant long-term impacts to flora and fauna are expected.

5.2.4 Archaeological/Cultural Resources

Since no significant archaeological or historic sites are known to exist at the proposed Waipahu Wells III Station, no significant long-term impacts to archaeological or cultural resources are expected.

5.2.5 Land Use

The proposed Waipahu Wells III station is considered a permissible use within the current land designation as an agricultural district under Chapter 205-4.5 (a) (7). The Waipahu Wells III Station will serve to supplement the water supply in the rapidly developing Waikele, Waipahu, Ewa, Waianae, and Kapolei areas.

5.2.6 Water Quality/Ground and Surface Water Hydrology

No adverse effects to the aquifer are anticipated. The sustainable yield of the Waipahu/Waiawa aquifer is estimated at 119 mgd. In 1996, the BWS was permitted to draw 106.2 mgd of potable water from the aquifer of which 2.684 mgd is allocated to the Waipahu Wells III Station.

No significant impact to surface waters in the area are expected due to draw down from the Waipahu Wells III Station. The nearest surface waters are Wailani Stream, Panakauahi Gulch, and Waiawa Stream. These natural waterways are ephemeral which flow only during rains.

Minimal impacts to the quality of surface waters are expected from discharges resulting from forward flushing and defining activities. These discharges will be routed to the SDOT drainage system along Kamehameha Highway, Route 99. The SDOT drainage system eventually connects to the City DPW drainage system at the intersection of Kamehameha Highway and Lumiaina Street. The City DPW system runs west along Lumiaina Street and then south along Paiwa Street, until it is eventually discharged into Wailani Stream, which outlets Middle Loch. All discharges will be treated by either sedimentation or filtration, in accordance with the applicable discharge permit prior to disposal.

Contractors retained to maintain the GAC contactors will be responsible for the proper treatment and disposal of the water produced during the change-out of the activated carbon. The contractor will also be responsible for obtaining the necessary discharge permits for the disposal of these waters. Should the contractor elect to discharge any water produced during the carbon change-out procedure into a storm water collection system or an open body of water, then the contractor will treat the water in accordance with the applicable discharge permit prior to disposal. Thus, no significant long-term impacts should occur to the quality of the receiving water body.

Increased runoff generated by the well station will be taken care of by an area drain as specified

in the drainage report (Appendix E). The drain inlet will be connected to the new 20" drain line for the blow off discharge, which in turn will be connected to an existing catch basin that leads to the SDOT drainage system along Kamehameha Highway. The blow off discharge line is provided for the discharge of the initial water that is produced from the start-up of each well.

5.2.7 Aesthetics

The existing vegetation consisting of nuisance species of grasses, shrubs, and trees will be removed and replaced during the construction of the Waipahu Wells III station. Once completed, the site will be landscaped with ground cover which will consist of Golden Glory. Visual barriers will be provided by trees, shrubs, and vines consisting of Royal Poinciana, Podocarpus 'Maki', and Prince Kuhio Vine, respectively. A permanent landscape plan for the site is presented in Appendix F. In addition, BWS will use a paint scheme for the ten GAC contactors that will blend with the surrounding area.

Construction of the transmission mains will be performed within the road right-of-way. Once construction is complete, the transmission mains will be buried underground. The transmission mains should not impact the aesthetics of the trees and landscaping located along the northerly side of Lumiaina Street and the easterly and northerly sides of the existing Waipahu Wells I site.

5.2.8 Socioeconomic

The BWS is responsible for providing safe drinking water to the people of the City and County of Honolulu. As the number of residents in Leeward Oahu increases, so should the BWS's capacity to serve them.

The increase in water availability will provide support for both residential communities and commercial developments within the Leeward area. The area of Kapolei is currently under significant development. Several subdivisions have already been built, as well as a school, and further development of this area is expected. In order to sustain this development, adequate resources must be constructed to meet the directed growth requirements of the Ewa and Central Oahu development plans. The additional 2.684 mgd of water from the Waipahu Wells III Station will contribute to the feasibility of increased development in the Leeward area.

The proposed GAC contactors, pumps and backwash tank are estimated to cost \$7.9 million. The new transmission mains are estimated to cost \$1.25 million. Funding of the project will be shared proportionately between the BWS, HFDC, and DHHL.

5.2.9 Public Utilities

No significant impacts to the existing public utilities are expected during the construction of the well site and installation of the transmission mains. The existing utilities within the road right-of-way will be identified and staked prior to construction. In order to prevent any disruption of existing services, construction activities will be coordinated with the appropriate

private and government agencies. If disruptions cannot be avoided, then those persons in the affected area will be given advance notice to help minimize inconveniences. Should any of the existing utilities be accidentally damaged during construction, repair crews will be notified immediately so that service may be promptly restored.

SECTION 6 NOTICE OF FINDING OF NO SIGNIFICANT IMPACT

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SECTION 6 NOTICE OF FINDING OF NO SIGNIFICANT IMPACT

This document constitutes a Notice of Finding of No Significant Impact (FONSI). Although several potential negative impacts are expected from the proposed project during construction, these impacts are temporary and can be mitigated through measures identified in Section 5. The benefits from the proposed project are expected to outweigh the short term negative impacts. As a result, an Environmental Impact Statement is not anticipated for the proposed Waipahu Wells III Station.

6.1 SIGNIFICANCE CRITERIA

The FONSI determination was made in accordance with the Hawaii Revised Statutes, Chapter 343 and the "Significance Criteria" listed in the Department of Health Rules (11-200-12). The proposed project would have a significant impact on the environment if it meets any one of the following "Significance Criteria":

6.1.1 Involves an Irrevocable Commitment to Loss or Destruction of Any Natural or Cultural Resources

The Waipahu Wells III station site is located on a piece of undeveloped, abandoned pineapple field. Vegetation in the area consists of abandoned pineapple fields and introduced or exotic nuisance species of grasses, shrubs, and trees. No rare, endangered, or threatened plant species were found within the project site. The site was not found to be the habitat for endangered or threaten species of native birds or mammals. Animals populating the area consist primarily of insects, birds and mammals most of which are not unique to the Hawaiian islands.

There were no findings of significant archaeological or historical sites within the project site. The State Historic Preservation Division (SHPD) has determined that there will be "no effects" on historic sites from the proposed project and that the presence of archaeological or historical sites is unlikely. If archaeological artifacts or bones are discovered during construction, work in the area will cease. The Department of Land and Natural Resources will be notified immediately to access the find and recommend the appropriate mitigative measures to be taken.

6.1.2 Curtails the Range of Beneficial Uses of the Environment

The proposed project boundaries are within the State Agriculture and Urban Land Use Districts and outside of any designated Special Management Area. Although, the project site is suitable for agricultural use, the City is currently proposing to develop a regional park and sport complex on a 269-acre site adjacent to the Waipahu Wells III site. There are no plans in the future for using the project site or adjacent areas for agricultural use. The growing demand for potable water in the area will offset the potential agricultural benefit from the land.

6.1.3 Conflicts With the State's Long-Term Environmental Policies or Goals and Guidelines as Expressed in Chapter 344, HRS; and Any Revisions Thereof and Amendments Thereto, Court Decisions, or Executive Orders

The proposed project is consistent with the State's Long-Term Environmental Policies established in Chapter 344, HRS.

6.1.4 Substantially Affects the Economic or Social Welfare of the Community or State

The proposed project will provide a significant contribution to the Ewa and Central Oahu areas by developing a potable water supply to meet the growing demand in those areas. Currently, the Board of Water Supply (BWS) is using its reserve capacity to meet these demands, and thus reducing its ability to provide potable water to new and existing service areas and sustaining adequate pressure for fire fighting flows. The demand for potable water will continue to increase with the population growth within the existing BWS service areas and new developments planned by the State Housing Finance and Development Corporation (HFDC) and Department of Hawaiian Home Lands (DHHL). The Waipahu Wells III station and transmission main project will generate and convey potable water needed for the HFDC's development in Kapolei, the DHHL's subdivision in Lualualei and Hawaiian homestead areas in Nanakuli, Papakolea, and Waianae, and the incremental growth expected for the BWS existing service areas.

The proposed project will help to improve the local economy. Construction of the Waipahu Wells III station and the 24-inch and 16-inch transmission mains is expected to provide a small number of temporary jobs for local workers. Also, the purchase of materials from local suppliers will help the State's economy.

6.1.5 Substantially Affects Public Health

During construction, the ambient air quality and noise levels near the project site will be temporarily affected. Particulates in the air will increase due to the dust and dirt resulting from clearing, grubbing, and grading activities. Emissions from trucks and construction equipment with diesel engines could also cause short term air pollution. Noise levels will increase due to the waterline excavation and transporting of equipment and materials. These short term impacts can be mitigated through compliance with the applicable Federal, State, and City and County regulations. Following the completion of the Waipahu Wells III station and transmission mains, the environment around the project site should return to its normal condition.

Benefits resulting from the proposed project are expected to outweigh the short term construction impacts. Delaying the project or proceeding with the "no action" alternative will stress the current supply of potable water require for the existing and future service areas.

6.1.6 Involves Substantial Secondary Impacts, Such as Population Changes or Effects on Public Facilities

The purpose of the proposed project is to produce potable water to accommodate the incremental growth of the BWS service areas as well as the HFDC and DHHL planned developments in Kapolei, Lualualei, Nanakuli, Papakolea, and Waianae. Currently, BWS is using its reserve capacity to accommodate the current demand for water. This project will alleviate the stress on the existing facilities as well as accommodate future demands. This project in itself will not generate an increase in population, but will support the expected growth in the area.

6.1.7 Involves a Substantial Degradation of Environmental Quality

The proposed project is not expected to substantially degrade the environmental quality of the area. Construction of the treatment facility and transmission mains will affect the air quality and noise levels in the area and the quality of nearby surface waters. The short term impacts anticipated during construction include: nuisance dust; increase in construction equipment emissions; increase noise due to construction activities; and added debris in the runoff entering nearby surface waters. These short term impacts can be mitigated through compliance with the applicable Federal, State, and City and County regulations. Once construction is complete, these problems will diminish and conditions should return to normal.

During the operation of the treatment facility, the water quality of Wailani Stream will be affected due to the discharge related to the maintenance of the granular activated carbon (GAC) contactors. The discharge water will be disposed through the existing State Department of Transportation (SDOT) and City and County Department of Public Works (DPW) drainage systems, which discharges into Wailani Stream. Prior to discharge, the contractor retained to maintain the GAC contactors will be responsible for the proper treatment of the discharge water to minimize the impact on Wailani Stream. Other sources of discharge water generated from the facility includes pump blow off water and increased on-site storm water runoff. Pump blow off water is the initial water produced by the start-up of each well and will be essentially clean. Therefore, treatment will not be required prior to the discharge of pump blow off water. The on-site storm water runoff may contain debris from the site. Mitigative measures will be taken to minimize the impact of the runoff into Wailani Stream.

6.1.8 Is Individually Limited But Cumulatively Has Considerable Effect on the Environment, or Involves a Commitment for Larger Actions

The proposed project is in response to the incremental growth of the BWS service area and new developments planned by HFDC and DHHL. BWS is using its reserve capacity to meet the current water demands. By tapping into the reserve capacity, BWS losses its flexibility to provide water for future areas and does not ensure adequate pressure for fire fighting flows.

6.1.9 Substantially Affects a Rare, Threatened or Endangered Species or Its Habitat

The proposed Waipahu Wells III site is located on a relatively flat piece of abandoned pineapple land on Kamehameha Highway, approximately one mile north of the Waiawa Interchange above the Waikele and Crestview subdivisions. The transmission mains will be located along Kamehameha Highway and Lumiaina Street to convey the water from the new Waipahu Wells III station and the existing Waipahu Wells I and II stations to the service areas. No rare, endangered, or threatened plant species were found within the project site and the site was not found to be the habitat of endangered or threaten species of native birds or mammals.

6.1.10 Detrimentally Affects Air or Water Quality or Ambient Noise Levels

Air quality, water quality, and noise levels will be temporarily impacted during the construction of the facility and transmission mains. These impacts can be mitigated through compliance with Federal, State, and City and County regulations. Once construction is complete, air quality and noise levels should return to normal. Operation and maintenance of the Waipahu Wells III GAC facility will generate discharge water that will be disposed through existing SDOT and City and County DPW drainage systems. These drainage systems eventually discharge into Wailani Stream. The contractor retained to maintain the GAC contactors will be responsible for the proper treatment of the discharge water to minimize the impact on the receiving waters.

6.1.11 Affects or is Likely to Suffer Damage by Being Located in an Environmentally Sensitive Area, Such as a Flood Plain, Tsunami Zone, Beach, Erosion-Prone Area, Geologically Hazardous Land, Estuary, Freshwater, or Coastal Waters.

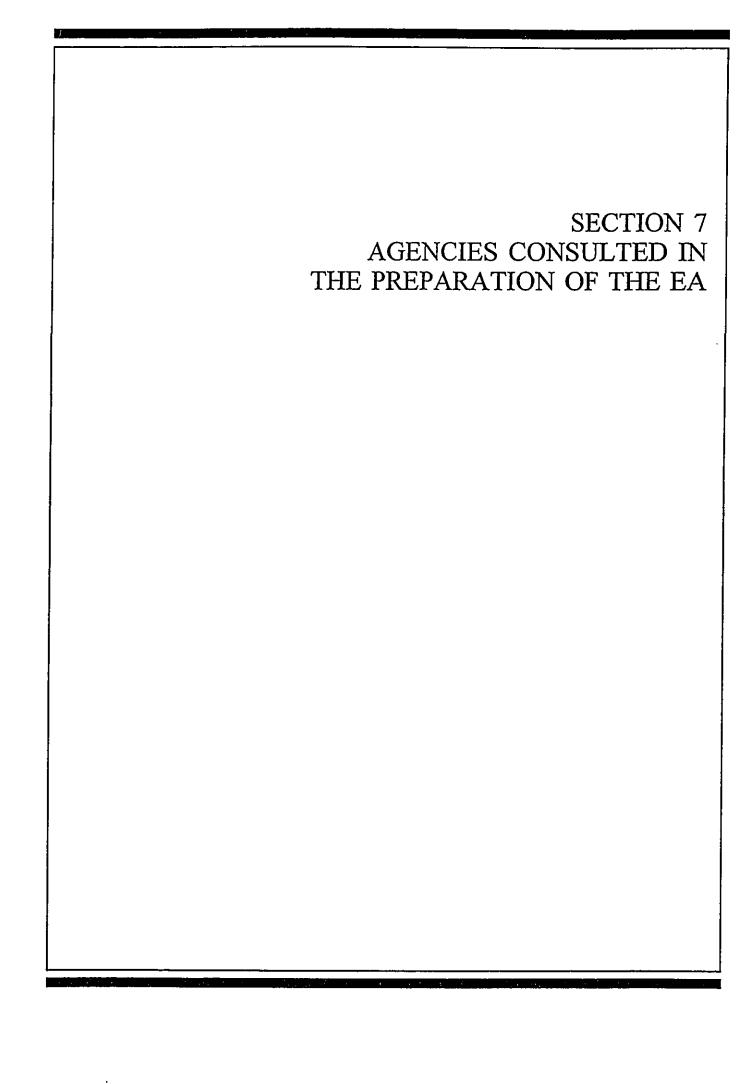
The proposed project is located in Waipahu, on the island of Oahu. The Waipahu Wells III site is located on a relatively flat piece of abandoned pineapple land. The transmission mains are located along Kamehameha Highway and Lumiaina Street. The project site is not located in an environmentally sensitive area.

6.1.12 Substantially Affects Scenic Vistas and View Planes Identified in County or State Plans or Studies

The Waipahu Wells III site is located on a relatively flat piece of abandoned pineapple land and the transmission mains are located along Kamehameha Highway and Lumiaina Street. Once completed, the Waipahu Wells III station will be landscaped and visual barriers will be provided to blend the facility with the surrounding area. The transmission mains will be installed underground and within the road right-of-way. Therefore, the transmission mains will not visually impact the surrounding area. The project will not affect any scenic vistas and view plans identified in County or State plans or studies.

6.1.13 Requires Substantial Energy Consumption

Construction of the Waipahu Wells III station and transmission mains will not require a substantial amount of energy. Once in operation, the facility will not consume an excess amount of energy. Consumption will be typical to other similar types of treatment facilities.



1:1

SECTION 7 AGENCIES CONSULTED IN THE PREPARATION OF THE EA

The following agencies were consulted in the preparation of the EA. Those agencies that responded with comments are indicated by an " * ". A copy of all agency correspondence during the pre-assessment consultation period as well as the 30-day comment period has been included in Appendix I and J, respectively.

Federal Government 7.1

- *Department of Agriculture, State Conservationist
- *Department of the Army, U.S. Army Corps of Engineers

Department of the Interior, U.S. Geological Survey, Water Resources Division

7.2 State Government

- *Department of Accounting and General Services, State Public Works Engineer
- *Department of Budget and Finance, Housing Finance and Development Corporation
- *Department of Business, Economic Development and Tourism, Land Use Commission
- *Department of Health, Environmental Management Division, Safe Drinking Water Branch Department of Health, Environmental Management Division, Clean Water Branch
- Department of Land and Natural Resources, Commission on Water Resource Management
- *Department of Land and Natural Resources, State Historic Preservation Office Department of Land and Natural Resources, Office of Conservation and Environ. Affairs
- *Department of Transportation, Highways Division
- *Office of Environmental Quality Control

City and County of Honolulu 7.3

- *Building Department
- *Department of Land Utilization
- *Department of Parks and Recreation
- *Department of Public Works
- Department of Transportation Services
- *Department of Wastewater Management
- *Planning Department

7.4 Other Organizations / Parties

Castle & Cooke Homes, Inc.

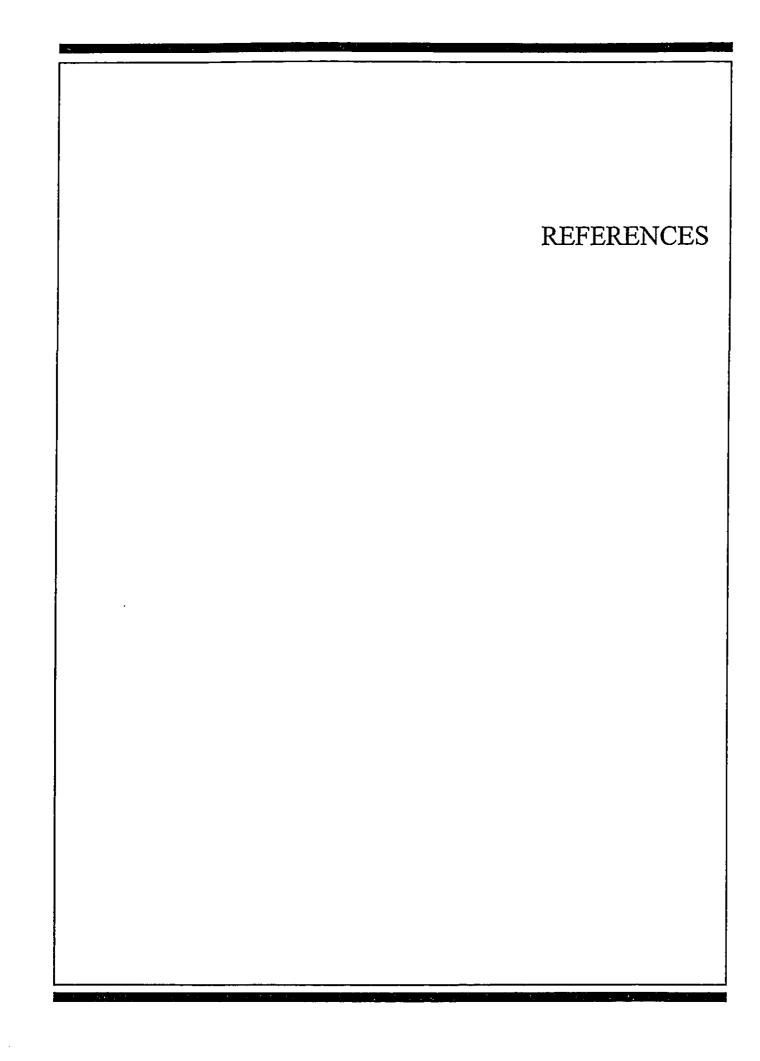
*Hawaiian Electric Company, Inc.

Honolulu City Council, Honorable Rene Mansho
Honolulu City Council, Honorable John DeSoto

*Office of Hawaiian Affairs

State Senator, Nineteenth Senatorial District, Honorable Calvin Kawamoto
State Representative, Thirty-sixth Representative District, Honorable Roy Takumi
Waipahu Neighborhood Board No. 22

University of Hawaii, Environmental Center



1.2

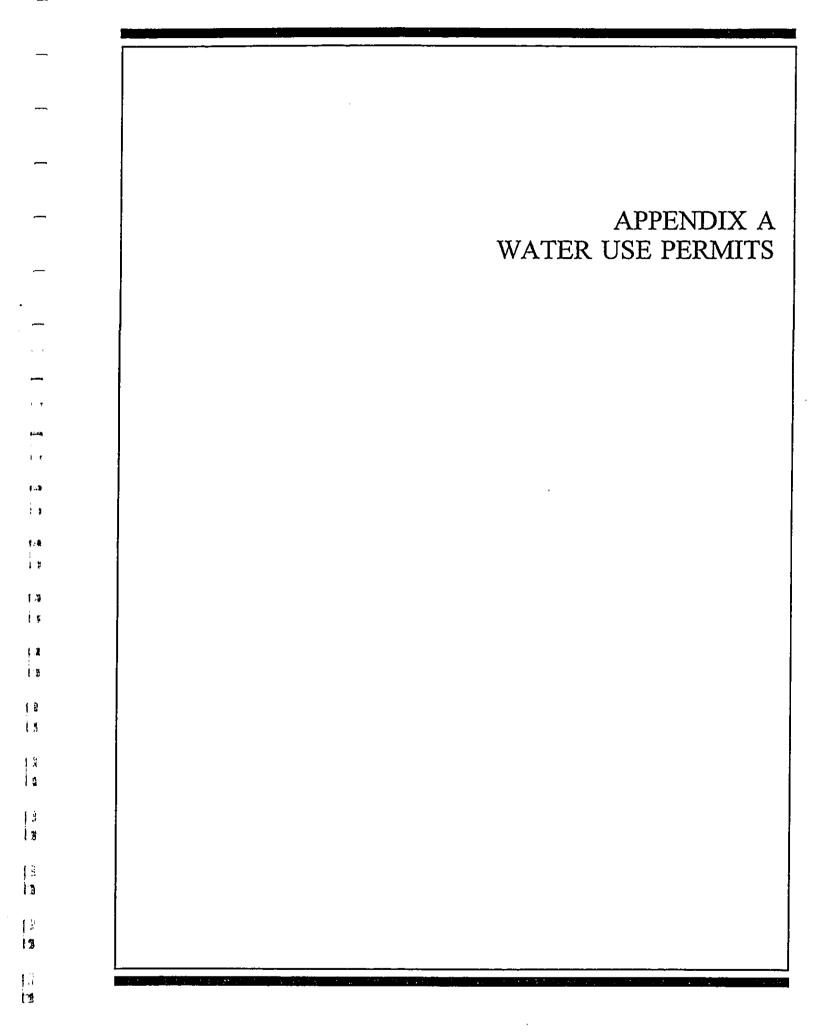
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REFERENCES

- 1. Annual Report and Statistical Summary, July 1, 1992 June 30, 1993. Honolulu Board of Water Supply, City and County of Honolulu.
- 2. Final Environmental Assessment Proposed Exploratory Wells Waipahu Wells IV. George A.L. Yuen & Associates, Inc. March, 1997.
- 3. Final Environmental Impact Statement of Gentry 515, Waiawa, Central Oahu District, Island of Oahu, Hawaii. (March 1987).
- 4. Kamehameha Highway Widening, Central Oahu, Hawaji, TMK: 9-4-42,44,56 Environmental Assessment. Highways Division, Department of Transportation, State of Hawaji.
- 5. Kamehameha Highway Widening, Lumiaina Street to Waipio Uka Street, Ewa, Hawaii Negative Declaration. Highways Division, Department of Transportation, State of Hawaii (May 1992).
- 6. Oahu Water Plan. Board of Water Supply, City and County of Honolulu (July 1982).
- 7. Rainfall Atlas of Hawaii. State of Hawaii, Department of Land and Natural Resources.
- 8. Soil Survey of Islands of Kauai, Oahu, Maui, Molokai, and Lanai, State of Hawaii. U.S. Department of Agriculture, Soil Conservation Service (Aug. 1972).
- 9. Waiola Estates Subdivision Final Environmental Impact Statement. City and County of Honolulu, Department of Housing and Community Development. (Sept. 1986).
- 10. Waiola Regional Park and Sports Complex Environmental Impact Statement Preparation Notice. Plan Pacific, Inc. January 23, 1998.



State of Hawaii
COMMISSION ON WATER RESOURCE MANAGEMENT
Department of Land and Natural Resources
Honolulu, Hawaii

October 19, 1994

Fax to: Suzette Hokama GMP 538 3269

Chairperson and Members Commission on Water Resource Management State of Hawaii Honolulu, Hawaii

Gentlemen:

Department of Hawaiian Home Lands Application for Water Use Permit Waipahu Wells III (Well Nos. 2400-09 to 13) Waipahu-Waiawa Ground Water Management Area, Oahu

Applicant:

Landowner

Dept. of Hawaiian Home Lands P.O. Box 1879 Honolulu, HI 96805 Castle & Cooke Homes, Inc. P.O. Box 2780 Honolulu, HI 96803

Background

The Department of Hawaiian Home Lands (DHHL) filed an application for water use permit on August 16, 1994 to transfer a portion of the 1,724 million gallons per day (mgd) of ground water reserved from state lands in the Waipahu-Waiawa Aquifer System for use in the Papakolea, Nanakuli, and Waianae-Lualualei Hawaiian homestead areas by HAR 13-171-61.

The water is to be supplied by the Waipahu III Wells (Well Nos. 2400-09 to 13). A combined well construction/pump installation permit was issued to the Honolulu Board of Water Supply (BWS) on December 29, 1993 to construct, test, and install 1,000 gpm capacity pumps in up to five Waipahu III Wells. A well completion report and pump test data have been received for Well No. 2400-09, and construction of the remaining wells is currently underway.

Specific information regarding the proposed source, use, notification, objections, and field investigation(s) are described in Attachment A and the attached exhibits.

Analysis & Issues

By letter agreement dated July 22, 1994, use of this BWS source by DHHL is conditioned on a confirmation from the Commission that the water use permit be transferred to BWS once all other terms of the agreement have been met. The water will be used to supply the municipal needs of the Princess Kahanu Estates. The location of this DHHL development is consistent with homestead areas identified in HAR 13-171-61 and is also consistent with the justification provided by DHHL for the reserved quantity.

Development of Hawaiian homestead areas is in the public interest, as evidenced by the approval of DHHL's petition for reservation and the creation of Rule 13-171-61. Demand projections were made in accordance with the guideline developed by the county and used by the Commission for determination of reasonable use quantities. DHHL is afforded exemption from county zoning requirements. No objections or concerns have been raised to this proposed permit.

p.1

AGENDA 1

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Chairperson and Members Commission on Water Resource Management Minutes of October 19, 1994

All written testimonies submitted at the meeting are filed in the Commission office and are available for review by interested parties.

AGENDA I HEM 1

MINUTES OF THE SEPTEMBER 15 AND 28, 1994 MEETINGS

Ununimously approved (Nobriga/Ing).

OLD BUSINESS/ANNOUNCEMENTS ITEM.2

None.

DEPARTMENT OF TRANSPORTATION, APPLICATION FOR A STREAM CHANNEL ALTERATION PERMIT. BRIDGE WIDENING AND CULVERT CROSSING, PIREA STREAM, KAU, HAWAII IIEM.3

Unanimously approved (Girald/Nobriga).

DEPARTMENT OF ACCOUNTING AND GENERAL SERVICES, APPLICATION FOR A STREAM CHANNEL ALTERATION PERMIT, INSTALLATION OF A SEWER CROSSING, WAJAKEA STREAM, HILO, HAWAII <u>∏EM 4</u>

Unanimously approved (Ing/Sybinsky).

ITT SHERATON HOTELS, KYO-YA CO., LID., APPLICATION FOR A WATER USE PERMIT, KOKUSAI KOGYO WELL (WELL NO. 1749-19), PALOLO GROUND WATER MANAGEMENT AREA, OAHU TEM 5

The representative from the Board of Water Supply said they did not have any objections to the staff recommendations.

Mr. Marty Heede, representing ITT Sheraton Hotels, asked if the matter could be worked out administratively rather than going into a public hearing.

Unanimously approved the staff's recommendations to initiate public hearing proceedings (Ing/Sybinsky).

DEPARTMENT OF HAWAIIAN HOMES LANDS, APPLICATION FOR WATER USE PERMIT, WAIPAHU WELLS III (WELL NOS, 2400-09 TO 13), WAIPAHU-WAIAWA GROUND WATER MANAGEMENT AREA, OAHU) HEM 6

Unanimously approved .(Nobriga/Girald).

DEPARTMENT OF HOUSING AND COMMUNITY DEVELOPMENT.
APPLICATIONS FOR WELL CONSTRUCTION AND WATER USE PERMITS.
KUNIA WELLS III (WELL NOS. 2301-40 TO 42), WAIPAHU-WAIAWA TEM Z GROUND WATER MANAGEMENT AREA. OAHU

Ms. Nakama added the following recommendation:

Cluirperson and Members Commission on Water Resource Management

October 19, 1994

STANDARD WATER USE PERMIT CONDITIONS

- The ground water described in the water use permit may only be taken from the location described, used for the reasonable-beneficial use described, and at the location described above and in the attachments. Reasonable-beneficial use means "the use of water in such a quantity as is necessary for economic and efficient utilization, for a purpose, and in a manner which is not wasteful and is both reasonable and consistent with the state and county land use plans and the public interest." (HAR \$13-171-2).
- The right to use ground water is a shared use right.
- The water use must at all times meet the requirements set forth in HAR \$13-171-13 which means that it:
 - Can be accommodated with the available water source;
 - Is a reasonable-beneficial use as defined in section \$13-171-2; ь.
 - Will not interfere with any existing legal use of water;
 - Is consistent with the public interest;
 - is consistent with state and county general plans and land use designations; £.
 - is consistent with county land use plans and policies; and
 - Will not interfere with the rights of the Department of Hawaiinn Home Lands as provided in section 221 of the Hawalian Homes Commission Act and 174C-101(a), HRS.
- The ground water use approved must not interfere with surface or ground water rights or reservations.
- The ground water use approved must not interfere with interim or permanent instream flow standards or policies as determined by the Commission. If it does, then:
 - A separate water use permit for surface water must be obtained in the case an area is also designated as a surface water management area;
 - The interim or permanent instream flow standard, as applicable, must be amended.
- The water use permit is subject to the requirements of the Hawaiian Homes Commission Act, as amended, if applicable. 6.
- The water use permit application and staff submittal approved by the Commission at its October 19, 1994 meeting are incorporated into the permit by reference.
- Any modification of the permit terms, conditions, or uses can only be made with the express written consent of the Commission on Water Resource Management.
- The water use permit may be modified by the Commission and the amount of water initially granted to the permittee may be reduced if the Commission determines it is
 - Protect water sources in quantity, quality, or both:
 - Meet other legal obligations including other correlative rights;
 - Insure adequate conservation measures;
 - Require efficiency of water uses;
 - Reserve water for future uses, provided that all legal existing uses of water as of June 1987, shall be protected;
 - Meet legal obligations to the Department of Hawaiian Homes, if applicable; or f.
 - Carry out such other necessary and proper exercise of the State's and the Commissions's police powers under law as may be required.

ATTACHMENT B

September 16, 1994

Mr. Keith Ahue, Chairperson
Commission on Water Resource
Management
Department of Land and Natural
Resources
State of Hawaii
P. O. Box 621
Honolulu, Hawaii 96809

Dear Mr. Ahue:

Subject:

27

Your Letter of August 29, 1994 Regarding Department of Hawaiian Home Lands' (DHHL) Application for a Water Use Permit for Waipahu Wells III (2400-09 to 13)

Thank you for the opportunity to comment on this application which is a transfer of allocation to us from DHHL. We request favorable action on this application.

If you have any questions, please contact Herbert Minakami at 527-6183.

Very truly yours,

KAZU HAYASHIDA

Manager and Chief Engineer

Attachment

CL:do

cc: K. Hayashida, R. Lao

94-2362

JOHN WAIKEE COVERNOR OF N

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KETTH WLANKE

DR. PETER SYBINDRY ROBERT S. NAKATA J. DOUGLAS BIG, ESQ. ROBERT CL CIRALD DAVID NOSPICA

RAE H. LOUL P.E.

STATE OF HAWAII

DEPARTMENT OF LAND AND NATURAL RESOURCES COMMISSION ON WATER RESOURCE MANAGEMENT

REF:WRM:SS

P.O. BOX EXT HONOLULLI, HANKA 96800

AUG 29 1884

TO:

Dr. Peter A. Sybinsky, Director

Department of Health

Claytor H. W. Hee, Chairperson Office of Hawaiian Affairs

√ Kazu Hayashida, Manager & Chief Engineer Honoiulu Board of Water Supply

Donald A. Clegg, Director Department of Land Utilization

Robin Foster, Chief Planning Officer Planning Department

FROM:

Keith W. Ahue, Chairperson

Commission on Water Resource Management

SUBJECT:

Water Use Permit Application

Waipahu-Waiawa Ground Water Management Area, Oahu

Transmitted for your review and comment is a copy of a water use permit application for the Department of Hawaiian Home Lands for Well Nos. 2400-09 to 13. Public notice of this application will be published in the Honolulu Star Bulletin issues of September 6, 1994 and September 13, 1994.

We would appreciate your review of the attached application for any conflicts or inconsistencies with the programs, plans, or objectives specific to your organization or department only. Please return this cover memo form by September 27, 1994.

If you have any questions regarding this application, please contact Lenore Nakama at 587-0218.

Atta	<u>chm</u>	ent	S

Response:

() We have no comments

the We have no objections

() Comments attached

() Additional information requested () Extended review period requested

Contact person:

Herbert H. Minakami

527-6183 Phone:

Signed:

KAZU HAYASATDA

Date:

Manager and Chief Engineer

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HOALIKU L. DRAKE CHAIRMAN HAWAIIAN HOMES COMMISSION

STATE OF HAWAII DEPARTMENT OF HAWAIIAN HOME LANDS P. O. BOX 1879 HONOLULIL HAWAII 96808

AUGUST 12, 1994

TO:

The Honorable Keith W. Ahue, Chairperson Department of Land and Natural Resources Commission on Water Resource Management

FROM:

Foaliku L. Drake, Chairman

Hawaiian Homes Commission

V.

SUBJECT:

Request to Transfer Water Allocation, Princess Kahanu Estates, Lualualei, Oahu

Thank you for your correspondence dated July 19, 1994, regarding our request to transfer water allocation from the Department of Hawaiian Home Lands to the Honolulu Board of Water Supply for the Princess Kahanu Estates subdivision. While our amended request dated July 7, 1994 identified a transfer of 143,000 gallons per day, we were informed by the Board of Water Supply that 143,500 gallons would be necessary. Their letter of July 22, 1994 is attached. Our water use permit application which is also attached reflects this change.

We are aware that the process for review and consideration of our request takes approximately three months. Your assistance to expedite the review period will be appreciated. Currently, five model homes are under construction and the mass building of homes will start in october. We are hopeful that the first homeowners can move into their homes by January 1994.

Should you have any questions, please call me at 586-3800 or your staff may call Stewart Matsunaga, Land Development Division, at 586-3844.

HLD:sm:5659B

Attachment

CC: Kazu Hayashida, Board of Water Supply Craig Watase, Princess Kahanu Development Corporation AND COUNTY OF HONOLULU

10 SOUTH BERETANIA STREET

DLULU, HAWAII 96843



July 22, 1994

JEREMY HARRIS, Mayor

nicultation WAISCH, Life Chermon MAURICE H. YAMASATO, VICE CTIBETTES SISTER M. DAVEYN AH CHICK OS.F. REX D. JOHINSON: MEUSSAYJ LUKA FORREST C. MURPHY KENNETH E. SPRAGUE

KÁZU HAYASHIDA Manager and Chief Engineer

Mr. Mark H. Tagami Calvin Kim & Associates, Inc. 1050 Queen Street, Suite 300 Honolulu, Hawaii 96814

Dear Mr. Tagami:

Your Letter of July 8, 1994 Regarding the Proposed Princess Kuhanu Estates Subject: Subdivision, TMK: 8-7-07: 4, 8-7-33: 14 & 19

Thank you for your letter regarding the proposed development. We have the following comments on the Princess Kahanu Estates water master plan and water demand calculations:

- 1. The total water requirements should be 143,500 gallons per day.
- The Department of Hawaiian Home Lands (DHHL) is required to:
 - Confirm that the State Commission on Water Resource Management will approve the assignment transfer of permitted use from DHHL to the Board of Water Supply.
 - Pay a proportionate share of our Waipahu Wells III project. The current Ъ. estimated cost is \$3.60 per gallon. The final cost will be established when we complete construction of the project.
 - Pay a proportionate share of our proposed Nanakuli 242-foot Reservoir: The current estimated storage cost for the proposed reservoir is \$4.20 per Esllor
 - d. Pay our Water System Facilities Charges for transmission.
 - Submit construction drawings for our review and approval.

The availability of water will be confirmed when the construction drawings are submitted for our review and approval.

If you have any questions, please contact Joseph Kankua at 527-6123.

Very truly yours,

Manager and Chief Engineer

Water . . . man's greatest need - use it wisely



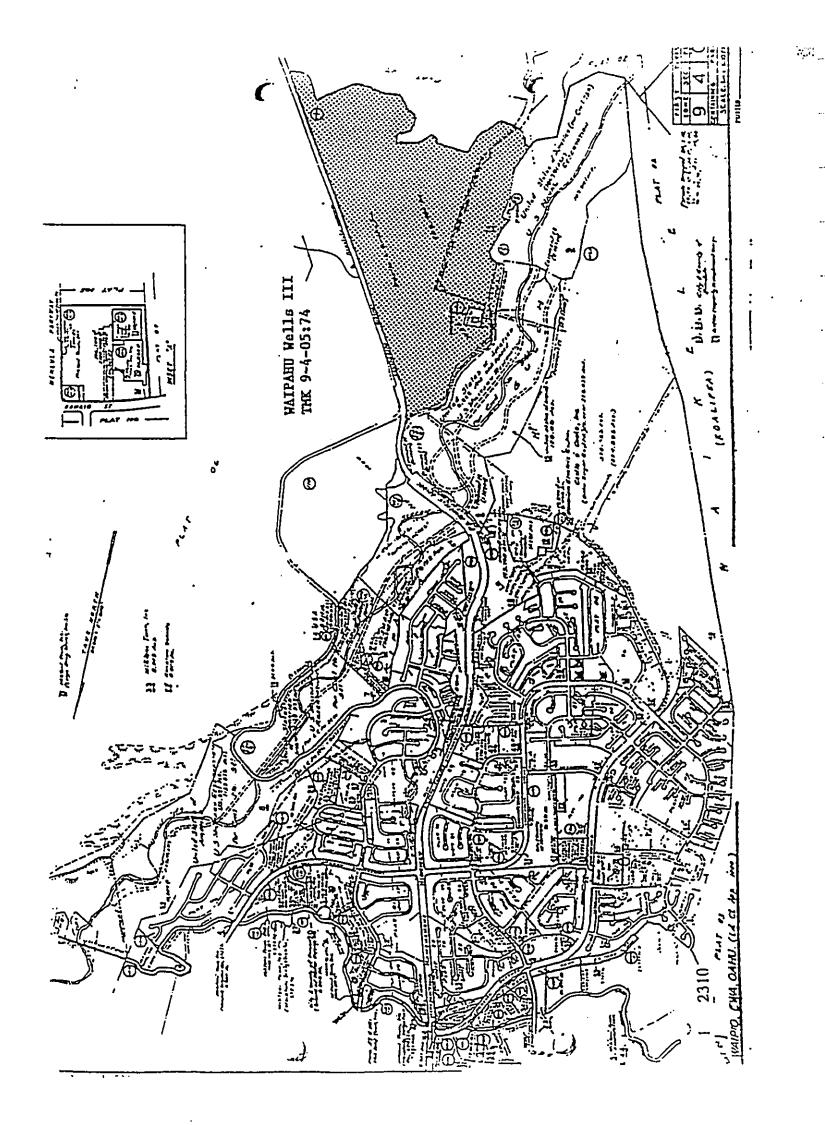
State of Hawall
COMMISSION ON WATER RESOURCE MANAGEMENT
Department of Land and Natural Resources: 10

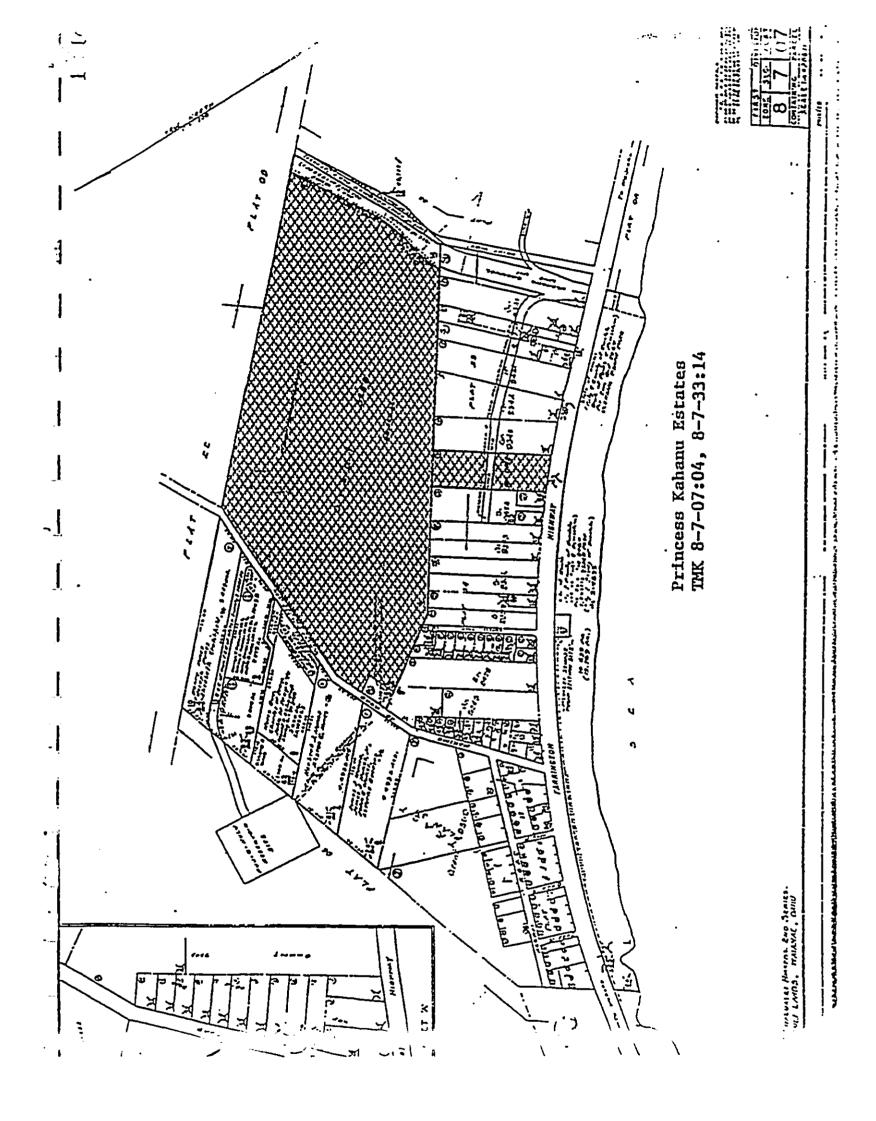
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Th	is water use allocation is to be transferred to the Honolulu Board of Water	-
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BOARD OF WATER SUPPLY

CITY AND COUNTY OF HONOLULU

330 SOUTH BERETANIA STREET

HONOLULU, HAWAII 96843



August 28, 1992

FRANK F. FASI, Mayor

WALTER O. WATSON, JR., Chairman MAURICE H. YAMASATO, VICE Chairman SISTER M. DAVILYN AH CHICK, O.S.F., JOHN W. ANDERSON, JR. REX D. JOHNSON MELISSA Y.J., LUM C. MICHAEL STREET

KAZU HAYASHIDA Manager and Chief Engineer

Mr. William W. Paty, Chairperson
Department of Land and Natural
Resources
State of Hawaii
P. O. Box 621
Honolulu, Hawaii 96809

Attention: Ms. Rae Loui

Dear Mr. Paty:

Subject: Amendment to Our Water Use Permit Application for Proposed Waipahu III Wells

We wish to amend the subject application by adding the drilling of two new wells each equipped with a 1.5 million gallon per day (mgd) pump at the Waipahu III site. The proposed change will result in a total of five wells at the Waipahu III site. A 1.5 mgd pump will be installed at each well.

The additional wells are for peaking purposes. The "Permitted Use" request from 3 mgd will remain the same.

Your assistance in amending our Water Use Permit Application to reflect the change is appreciated.

If you have any questions, please call George Hiu at 527-6134.

Very truly yours,

KAZU HAYASHIDA

Manager and Chief Engineer

Attachment

Water . . . man's greatest need - use it wisely



COMMISSION ON WATER RESOURCE MANAGEMENT Department of Land and Natural Resources

APPLICATION FOR WATER USE PERMIT

.0	Ground Water or D Surface Water irructions: Please print in ink or type and send completed application with stachments to the Commission on Water Resource Management b. Box 821, Honoluty, Hawait seaco. Application must be accompanied by a non-refundable filing (see of \$25.00 payable to the Dept. of Land and arral Resources. The Commission may not accept incompilete application.
	To absorber, Can the Herchardon Branch at 887-0225.
•	(a) APPLICANT (b) LANDOWNER Hole Food Company, Inc., fka Firm/Name Castle and Cooke, Inc.
	Contact Person Read Tray a Strate Par 32/-01 BU Common George Vim
	Address P.O. Box 2990
_	Honolulu, Hawaii 96802
	WATER MANAGEMENT AREA: Pearl Harbor ISLAND: Oahu
	(a) EXISTING SOURCE NAME AND STATE NUMBER: [well or str am diversion name/number]
	(b) PROPOSED (NEW) SOURCE NAME: Waipahu Wells III
	SOURCE LOCATION: Address
	(Attach a USGS map, scale 1"=2000", and a property tex map showing source location referenced to established property boundaries.)
	SOURCE TYPE (check one): Stream Dasel Dike-confined Perched Caprock
	METHOD OF TAKING WATER (check one): Atselsn Flow West & Pump Diversed Surface Flow Other (explain)
	LOCATION OF PROPOSED WATER USE: (If possible, show on same maps as source location. Otherwise, attach similar maps) (a) Address Municipal System Tax Map Key
	(b) Land Use Districtioneck one): Urban
	QUANTITY OF WATER REQUESTED: 3.0 million gallons per day
	METHOD OF MEASUREMENT:
	QUALITY OF WATER REQUESTED: III Fresh
	PROPOSED USE: Municipal (including hotols, stores, etc.) Domestic (individual, noncommercial, etc.) Infigation
	☐ Industrial ☐ MRtary ☐ Other(expialn)
	NUMBER AND TYPE OF UNITS TO BE SERVED (explain):
	TOTAL ACRES PROPOSED FOR IRRIGATION AND TYPE OF CROP: (6000) (000p)
	PROPOSED TIME OF WATER WITHDRAWAL OR DIVERSION: 24 hours
	(Indicate hours of operation)
	APPLICANT MUST BRIEFLY DESCRIBE FOLLOWING POTENTIAL RESTRICTIONS ON USE: (a) Impact on Sustainable yield (?): Reduce sustainable yield
	(b) Permenant or Interim
	Instream Flow Standards affected (7): N/A
	(c) Hawaiian Home Land uses affected (?): N/A (d) Other existing legal uses affected (?): N/A N/A
	(e) Other:
	each for proposed well field.
_	(If more space is needed, continue on back side)
	Signing below indicates that the applicant understands that, if a vector use permit is granted by the Commission on Water Resource Management, a permit is subject existing permit of uses, changes in sustainable yields and theirs and subject to the commission, and Hermalin Home Lands Saars
_	Applicant (print) Board of Water Supply Landowner (print) Castle and Cooke, Inc., fka
	Signature Signature Signature Onto application. Date Date
-	
	For Official Use Only: Onte Received 4/14/12 + 4/1/12 Hydrologic Unit No. 30205 Olversion Works No. State Well No.
	Notice Colors

ATER SUPPLY

OF HONOLULU

ETANIA STREET

/HAWAII 96843

RECEIVED AUG 18 PI2: 53

August 14, 1992 ET LUI LAND & NATURAL RESOURCES STATE OF HAWAII FRANK F. FASI, Mayor

WALTER O. WATSON, JR., Chairman MAURICE H. YAMASATO. VICE Chairman SISTER M. DAVILYN AH CHICK, O.S.F. JOHN W. ANDERSON, JR. REX D. JOHNSON MELISSA Y.J. LUM C. MICHAEL STREET

KAZU HAYASHIDA Manager and Chief Engineer

anager and Chel Engineer

RESOLUTION PS. 21

RESOLUTION PS. 21

Mr. William W. Paty, Chairperson
Department of Land and Natural Resources
State of Hawaii
P. O. Box 621
Honolulu, Hawaii 96809

Attention: Ms. Rae Loui

Dear Mr. Paty:

...

Subject: Water Use Permit Application For Proposed Waipahu III Wells

We submit our application for wells which we propose to drill and to install pumps at the location shown on the map attached to our application.

The proposed project will be constructed jointly with the State Housing Finance and Development Corporation for the State Kapolei housing development in Ewa. The Corporation indicated that they need about 2.0 million gallons per day (mgd) for their planned developments at Kapolei. We need about 1.0 mgd to handle the smaller developments that will need water in the next six years in the Ewa area.

If you have any questions, please contact Herbert H. Minakami at 527-6183.

Very truly yours,

KAZU HAYASHIDA

Manager and Chief Engineer

Attachment



State of Hawaii State of Hawaii COMMISSION ON WATER RESOURCE MANAGEMENT Department of Land and Natural Resources

APPLICATION FOR WATER USE PERMIT

inst	ructions: Please p	wint in ink or type and	around Wa	ter or c	Surface	Water		
atu	rai Resources. The	wint in ink or type and a Hawai seace. Applica Commission may not	numbered i	application with	ACISTIONS &	the Contribut	on on Water	gaaa
1.	(a) APPLICA	CE CONTINUE NOT	icospt incomple	le applications.	EOL SARATEUC	or can the Seco	3.00 payable	is the Dept of Lan
••				. (Б)	LANDOW	MED.	and the same of	at 587-0225.
		Board of Wat Kazu Hayashida		Y Flor	n/Name Ca	NER Istied of Ceorge Y	mpary.	Inc. fkn
	Address	one South Bere	rania es	780 Co.	sct Person	Ceorge Y	un COOKE	, Inc. pp. 548-6
		Honolulu, Hawa	11 96843	Add	// ———	Honelink	<u> </u>	p ₁ , 340-6
2.	WATER MANA		2			Honolulu,	Hawaii	96802
	THIER MANA	GEMENT AREA: _	Pearl H	arbor			***	Cob
	(a) EXISTING S	SOURCE NAME AN	ID 07455				- ISLAND:.	Oahu
			DSINENU	MBER:				
	(D) PHOPOSED	(NEW) SOURCE I	VAME:	Waipahu	Wells I	eralon name/n	vmber)	
4.	SOURCE LOCA	TION.						
	(Attach a USGS me	ap, scale 1°e2000', and		<u> </u>			Tay Use Van	9-4-07-
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'. Lo	OCATION OF P	ROPOSED WATER	110.7			C) 01/01/00	SURECE Flow	Other (explain
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(0	o) Cand Use District	(check one): Urban	☐ Agricu		noorvation	1	EX MED Key	
٠	, extend (c	describe)		- DG	USOLATIOU	□ Rurat		
QL	JANTITY OF W	ATER REQUESTED	:	3.0 m	illion,	72/1000		
ME	THOD OF MEA	SUREMENT			· /	Amiouz bet (fay	
			El Flowmaler	Open-pipe	□ Wolf	☐ Ortfice	Other (ex	Piain)
		ER REQUESTED:		☐ Bracklish	C) Sat	Potable	_	-
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(b)	Permenant or I	tainable yield (?):	Re	duction	of avai	MICHS ON	USE: US tā ina	د ده ده ده
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		egal uses affected	(4): — 117					
(e) (Other:		(1)					
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Ca Dala					O. 144.	State Well No.		
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State of Hawaii COMMISSION ON WATER RESOURCE MANAGEMENT Department of Land and Natural Resources

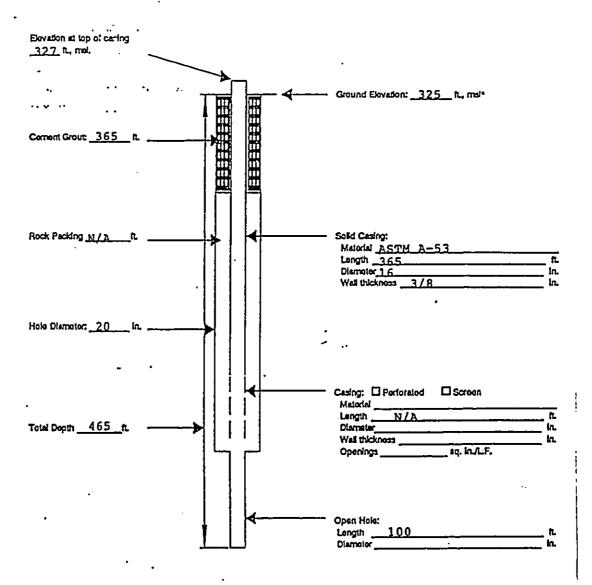
APPLICATION FOR PERMIT Well Construction or D Pump Installation

Instructional: Please print in link or type and send completed application with attachments to the Commission on Water Resource Management, P.O. Box 621, Honokulu, Newsii 96809. Application must be accompanied by a non-refundable filing lee of \$25.00 payable to the Dept. of Land and Natural Resources. The Commission may not accept incomplete applications. For assistance, call the Regulation Branch at 587-0225.

1.	(a) WELL OWNER Firm/Name Board of Contact Person Kazii H Address 630 S Bo	e, b, or c, but all must Water Supply avashides: 527-1 retanta Street Hawaii 96843	(b) LANDO Firm/Name S 51.80 Contact Person	Ame Pr	
	(c) CONTRACTOR Firm/Name_To_br = Jr Address		h: Co	ntractor's C-57 Lloense No	
2.	WELL LOCATION/NAM		•	Island Oahu Tax Map Key 9-4-5:74	
a.	(Attach a USGS map, scale (a) PROPOSED WORK	C: O Orill New Well O Modify Existing Well Install New Pump	After Location Redrill Replace Pump	elerenced to established property boundaries.) "O Deepen	
	(b) WELL TYPE:	Oug Bored le this well a part of a bat (Briefly describe and fill in	☐ Driven ☐ Drilled tery of wells? ☐ YA2 the diagram on the back of	☐ Radial ☐ No. I this form.)	
4.	PROPOSED PUMP INF	ORMATION: Rated P	ump Capacity: 1.0	0.0 gallons per minute	
	Pump Type: II Deep Well Turbine II Submersible II Centifugal	☐ Rotary ☐ Rotary-Displacement ☐ Rotary-Gear	☐ Propetter ☐ Reciprocating ☐ Impulse	Motor: Diesel Gas Electric, rated horsepower of	
i.	PROPOSED USE:	Municipal (notuding ho Domestic (individual, no Irrigation (crop) State Land Use Clatrict: County Zoning (describe)	oncommercial water sys.) Urban	☐ Military ☐ Industrial ☐ Other (explain) ☐ Rural ☐ Conservation continue below under remerks, explanations.)	-
i .	(a) PROPOSED AMOU (b) METHOD OF FLOV		3 Million	gallons per day	Woir
.	PENDING ACTIONS:	□CDUA □SMA	□ ES □ EA	□ NONE □ Other(explain) .	
L,	REMARKS, EXPLANATION	ONS: _Drill_up_	to 5 wells		_
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2) yeu dete bi d perm	rs of the approval deta, in addition I the perinticed work. The applicant of ahall not constitute a determined	 The contractor what express the talea understands that monthly we are exceptible water rights and 	the Commission is well complete steruse data shallbe submitted to shall not guarantee the pump or	in report, well abandonment report, or both, within 30 to Commission. The applicant further understands 8 pacity or future use up to the permitted pump capacity. Continector	net approve
ner.	10800 E/	Signature		Signature	
e Rece e Acce	cked By	Langhude Lanude		Aquifor System Name State Well No.1	92 WCPI Fo

2,013,700	ations (cont'd): _gpd_and_for	peaking a	nd stan	d by p	urpose	s.	STIIA CC	eu use	<u> </u>	<u> </u>
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9. PROPOSED WELL SECTION .



Approximate elevation at time of filing application. Ground elevation above mean soa level (msl) by a surveyor licensed by the State must be submitted at tart of construction. Final elevations of well components shall be submitted in the well completion/well abandonment reports.

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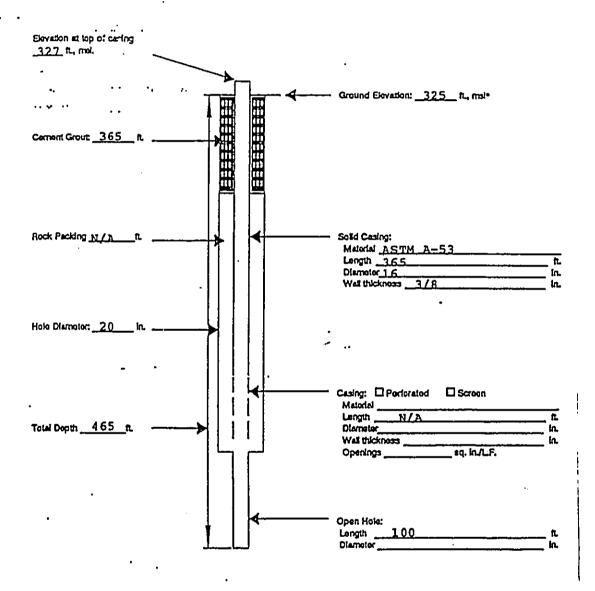
CORRECTION

THE PRECEDING DOCUMENT(S) HAS
BEEN REPHOTOGRAPHED TO ASSURE
LEGIBILITY
SEE FRAME(S)
IMMEDIATELY FOLLOWING

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- amarks, Explai	nations (cont'd):	<u>Drill up</u> or peaking	to 5 we	lls fo	r HFDC	for p	<u>ermitte</u>	<u>đ use o</u>	£
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9. PROPOSED WELL SECTION .



Approximate elevation at time of filing application. Clound elevation above mean sea level (mpl) by a surveyor licensed by the State must be submitted at test of construction. Final elevations of well components shall be submitted in the well completion/well abandonment reports.

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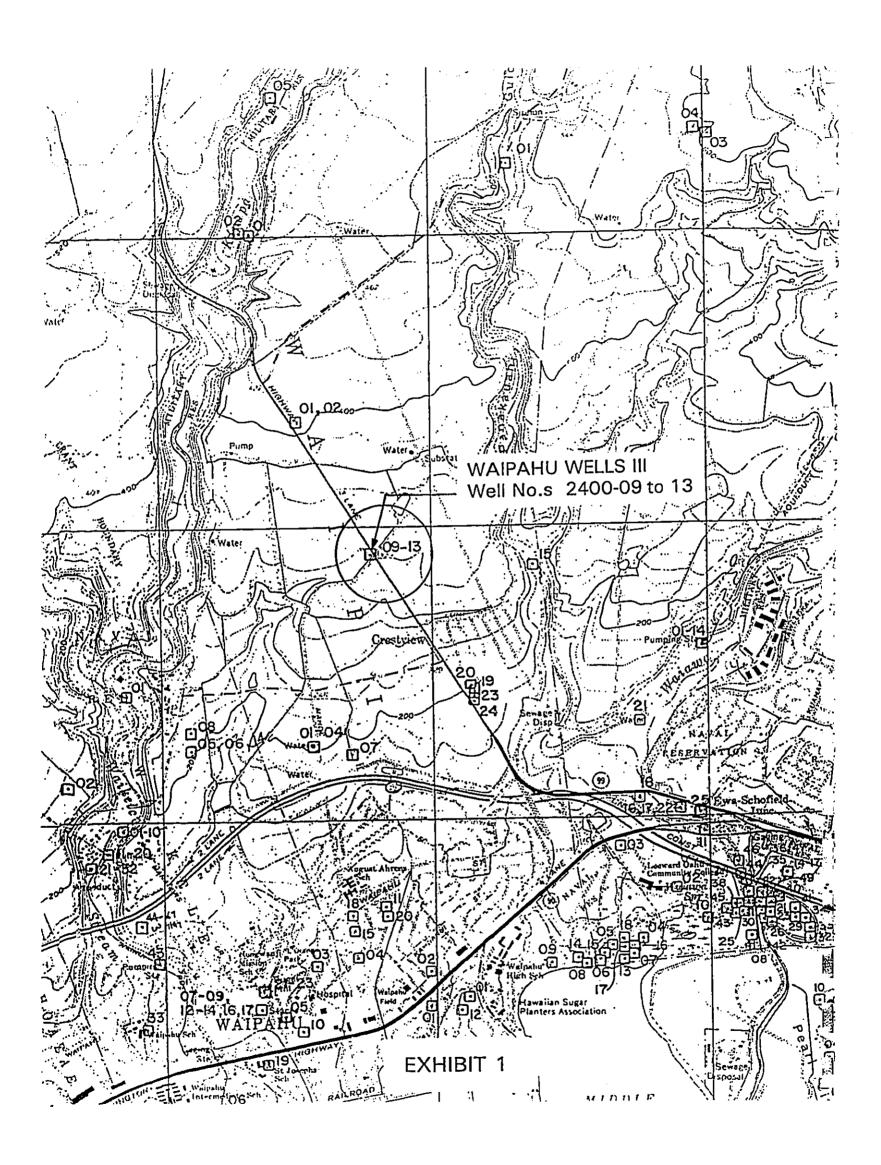
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APPENDIX C WELL INFORMATION FOR WELLS #1, #2, #3, #4, AND #5

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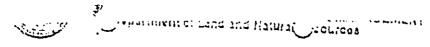
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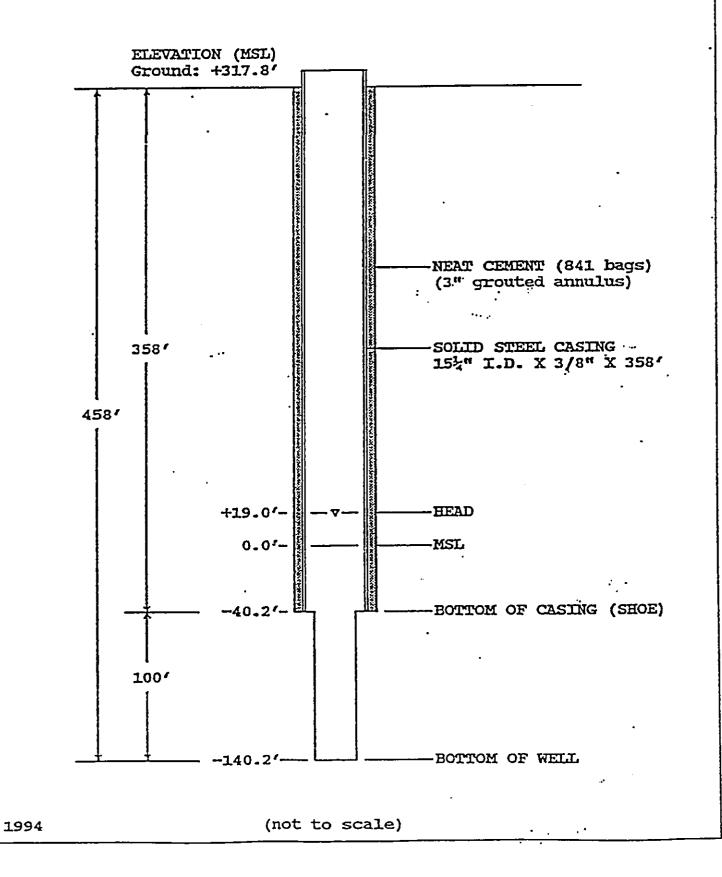


WELL COMPLETION REPORT

Instructional Passes print or type and submit companies Management, P.O. Box acri, Honoluli, Hawai \$8000. An ex- sal the Commission Reculation Statement of Management and the Commission Reculation of Management and the Commission Reculation of Management and the Commission Reculation of Management and Commission Reculation	report which 30 days after well completion to the Contribution on Water Resource will drawing of the well and chartest ensigne should see be subtitled. For making no
1. STATE WELL NO 2400-08 WELL	to accident for market
2. LOCATION: Addings Sam view acros	IAME WAIPAHU III 11 18LAND OAHU
3. DRILLING OR PUMP INSTALLATION COM	BS FROM WAIPIO GENTRY TEX Map Key 9-4-05:74 RACTOR ROSCOB MOSS HAWAII, INC.
4 CONTRACTOR'S GLS9 I ICENSE LY II FROM	C-16673
A MALIE OF BOULER HELD BOOK	
7. DATE OF WELL DRILLING COMPLETION	1/22/94
8. GROUND ELEVATION (mei) 317.83 Top of Ordling Platform (mai) Height of Ordling Platform above Or Bench Mark and Method Used to D	ft.
Top of Ordling Platform (mai)	<u> </u>
Hench Mark and Marked House on	ound suitage
0.00015000100	THE STORE CHANGE THE SOUNTE
Depth (ft.) Pock Description, Permarks, Dates	Printing (P.) Capth (R.) 163 to 290 BLUE GREY VERY HARD 190 to 117 BLUE GREY LITTLE BROWN 312 to 136 GREY BROWN LOOSE 299 158 to 169 GREY BROWN LOOSE 299 169 to 461 GREY & BROWN LAYERS 299 441 to 458 GREY & BROWN BOFT 299 On himsdad, commune on beau.
D D 11 RED VERY SOFT	163 to 290 BLUE CARY TERM (A.)
28 b 78 BROWN MEDIUM HAPD	790 m 312 BLUE GREY LITTLE BROWN
78 to 138 BROWN GREY MAD HARD	312 % 338 GREY BROWN MED BARD 299
153 m 153 BLUE ROCK YERY HARD	169 5 441 GREY & BROWN LOOSE 299
M more so	GREY 6 BROWN BOFT 299
10. TOTAL DEPTH OF WELL BELOW GROUND	45R a
11. HOLE SIZE: 22 Inch die, fro	## 458 ft.
14 3/4 Inch dle, fro	m 358 h to 458
inch dia, tro	m this to below ground
12. CASING INSTALLED:	ic below glound
h. 10 v	in wall solid section to 358 ft. below ground
Type of Perforation N/A	in, wall solid section to 358 ft. below ground in, wall perforated section to ft. below ground
10. ANNULUS: Ground from 0	it, below ground toit, below groundit, below groundit, below groundit, below groundit, below groundit.
Grayel backed from	boluoto wokad, al accompany wokad, al
14. INITIAL WATER LEVEL 200 A balance	pround. Date and time of measurement 7/7/94 Date and time of sampling 7/14/94 P Date and time of sampling 7/14/94
15. INITIAL CHLORIDE 34	pround. Date and time of measurement 7/7/94
18. INITIAL TEMPERATURE 70.6"	All Date and the or sampling 7/14/94
17. DATE OF PUMP INSTALLATION	Date and bith of sampling 7/14/94
18. PUMP INSTALLATION:	
Pump Type, Make, Berlai No.	Capacitygpm
Decth of Pump Intels dealer	ypin ypin
Depth of bottom of siding	Capachy gpm the below , which elevation is the fit. the below , which elevation is oint (R.P.) used: , which elevation is
Pumping Head is ft.	in balow, which devation isn.
19. PUMPING TESTS: Reference P	olnt (R.P.) used:, which elevation ish.
Date 7/14/94 Start water level h. below	
End water level 1. below	R.P. Start water level 1. below R.P.
	te party 1/2
	h, bolow R.P.
nerse fronts) (State) costs (IT) (DSUI) •	TIP. Bapeed fixe Craw Ci. Temp. F Tirtle (nours) (apm) down (it.) (apm) * F
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Signature Tracer Lung lo	
- AMERIC RESIDENCE	Oate 9/9/94
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ON GOL ON GOL	For Critical Use: Well Ho, Lateuce
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WAIPAHU WEILS III NO. 2400-09 (WEIL #1)
WAIPIO, OAHU, HAWAII
T.M.K.: 9-4-05:74

As-Built Section
Drilling Completed: July 9, 1994
Drilling Contractor: Roscoe Moss, Hawaii, Inc.



WAIPAHU WELLS III NO. 2400-09 Well #1

Plumbness Test: July 11, 1994
Ground Elevation: 317.8± ft. (msl)
Casing Length: 358.0 ft.
Casing Diameter: 15½ inches I.D.
Pulley Height: 20.00 ft.
Maximum allowable drift/any 100': 10.17"

Depth (ft.)	Drift (inches)	Drift (inches per any 100 ft.)
0		• ,
20	. 1.00	·•
40	. 1.66	
60	2.41	
"' 80	3.51	•
100	4.54	4.54
120	5.30	4.35
140	6.12	4.55
160	6.99	* 4.67
180	7.43	4.22
. , 200	8.18	3.80
220	8.92	3.83
240	9.66	3.73
260	10.66	3.90
280	10.74	3.55
300	11.45	3 . 57
320	12.17	3.60
340	12.89	3.60
358	13.53	3.10 (per 98 ft.)

^{*} The maximum drift of 4.67 inches per any 100 feet of depth occurs between 60 feet and 160 feet.

WAIPAHU WELLS III NO. 2400-09 WELL #1

Location : THK: 9-4-05:74 Elevation at ground : +317.8 ft. Elevation at bottom of well: -140.2 ft. : +317.8 ft. Elevation at end of casing : -40.2 ft. Diameter of casing 15% in. I.D. Head : +19.0 ft. Airline Depth 340 ft. Pump Depth (Suction) 351 ft. Drilling completed Drilling company : July 1994 = Roscoe Moss Hawaii, Inc. Date of Yield-Drawdown test: July 14, 1994

Q Drawdown Cl Temperature Time (abus) (ft.) (mqq) (°F) Remarks 1115 (17.85 psi static) started pumping · ·· 1120 1140 683 2.54 34 70.8 agmble 1150 690 2.08 70.7 1200 692 2.08 32 70.7 gample 1205 changed rate 1210 890 3.00 70.7 1220 896 70.6 3.00 902 1235 3.00 70.7 1250 906 3.00 70.7 1300 903 3.00 32 70.7 sample 1305 changed rate 1310 1073 3.92 70.6 1320 1070 3.92 70.6 1335 1059 70.6 3.92 1345 1059 3.92 34 70.7 sample 1350 changed rate 1405 1298 5.66 70.6 1420 1302 5.66 70.5 1435 1294 5.66 70.6 1445 1294 5.66 . 34 70.6 sample 1450 stopped pumping 1451 4.50 1453 4.27 1454 3.69 1455 3.58 1457 -11 cleared airline

recovered

-00

1458

WAIPAHU WELLS III NO. 2400-09

SPECIFIC CAPACITY

s.o.	
1 1.5 2 2.5 3 4 5 600 700 800 900 1.5 2	2.5 3 4 5 6 7 8 9 1

(mqp) Ú

WAIPAHU WELLS III NO. 2400-09 WELL #1 LONG TERM PUMPING TEST: 7/15/94 to 7/20/94

		• •			
Date Time		Draudoun	cı	Temperature	
		TET.	(DDm)	<u>•</u> F	Remarks
7/15/9					
0945 1000					17.70 psi
1020	_				(static) started pumping
1030		3.24	. 34	70.7	first sample
1045		3.47 3.47		70.7	
1100	1026	3.47		70.7	
1115	1019	3.47		70-7	
1130 1145	1019	3.47		70.7 70.7	
1200	1019	3.47		70.7	
1300	. 1014 1026	3.47		70.6	
1400	2019	3.47 3.47		70.6	
1500	1012	3.47		70.6	•
1800	1007	3-47		70.7 70.7	
2100 2400	1012	3-24		70.7	
7/16/94	1014 (Sat)	3-47		70-7	
0300	1014	7 70		70.7	•
0600	1012	3-70 3-70		70.7	
0900	1019	3.24		70.7	
1000	1026	3.58	34	70.7 70.6	•
1200 1500	998	3.58	•	70.7	average rate:
1800	997 998	3-58		70.7	1006 gpm
2100	1000	3-14		70.7	
2400	T 000	3.14 3.14		70_7	
7/17/94				70.7	
0600	1000	3.14	••'	70.7	
0900	1000	3.14		70.7	
1000	1000 995	3-03		70-7	
1200	984	3.70 4.05	34	70-6	average 2 day
1500	984	4.05		70.7	rate: 998 gpm
1800	984	2.66		70-7	36-
2100 2400	984	2.66		70.7 70.7	
7/18/94	984 (Hon)	2.66		70.7	
0300	968	2 66			
0600	952	2.66 2.66		70.7	
0900	984	2.89		70.7	
1000 1200	979	2.77	34 •	70.7 70.6	
1500	978 970	3.01		70.7	average 3 day
1800	979 999	3.01		70.7	rate: 986 gpm
2100	1013	3.01 3.01		70.7	
2400	1014	3.0î		70-7	
7/19/94	(Tue)	-, -	•	70.7	
0600	1009	3.01		70.7	
0900	1014 1004	3-12		70.7	
1000	995	3.01 3.01		70.7	
1200	1000	2.89	34	70.6	average 4 day
1500	. 986	2.89		70.7	rate:989 gpm
1800 2100	1003	3.12		70.7 70.7	
2400	1006 1008	3-01		70.7	
7/20/94 (Wedi	3.12		70.7	
0300	1010	3.12			•
0600	1022	3.24		70.7	
0955	995	3.01	34	70.7 70.6	
1000 1001				70.6	
1002		2.54			stopped pumping average 5 day
1003		2.54 1.16			rate: 992 gpm
1004	-	-16 -70			335 dbm
1005		-12			
1006		-00			ation 9. St.
Total -	IMP266 /266 -				full recovery
Average	impage (120 h	iours): 7,143	.900 gallo	ns	

Total pumpage (120 hours): 7,143,900 gallons Average pumpage per day: 1,428,780 gallons per day Average pumpage rate: 992 gallons per minute

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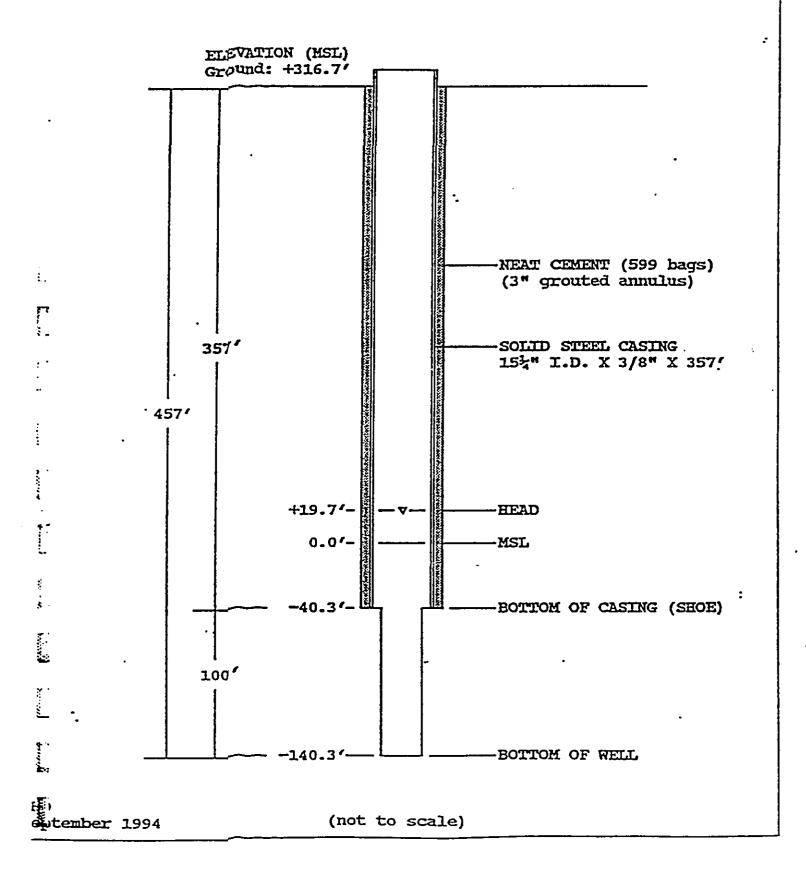
COMMISSION ON WATER RESUURCE MANAGEMENT Department of Land and Natural Resources

WELL COMPLETION REPORT

Instructions: Please print or tips and subtrit completed report with Management, P.O., Bot 621, Honolulu, Hewalt 3600s, An air-built drawing call the Commission Regulation Branch et 847—6025.	1 30 days that well completion to the Commission on Weter Recourse of the well and chemical analysis should also be submitted. For assistance
	MAIPAUU III #2 ISLAND OAHU
3. ORILLING OR PLIMP INSTALL ATION CONTRACTOR	WAIPIO GENTRY Tax Map Kay 9-4-05:74
3. DRILLING OR PUMP INSTALLATION CONTRACTOR 4. CONTRACTORS C-57 LICENSE NUMBER C-16	MODEOU MODS RANALL, INC.
* 11111 A A A A A A A A A A A A A A A A	
THE THE PERSON OF THE PERSON O	OHN CARROLL Ø
THE THE PERSON NAMED IN THE PARTY OF THE PAR	R ROTARY 5
7. DATE OF WELL DRILLING COMPLETION 8/26/	94 SA 17
8. GROUND ELEVATION (men. 316.88 h	
Top of Drilling Platform (msl)	
Top of Orilling Platform (msl) Height of Orilling Platform above Ground sur	ace n
A server surely and sustition about to detaillille	Ground Elivation BWS SURVEYTH.
9. DRILLER'S LOG: , Water Level	Wast Chang
Cepts (N.) Rock Description, Remarks, Dates (N.) O to 23 RED SOFT DIRT	Depth (ft.) Pock Description, Permarie, Dales (ft.)
23 m 63 BROWN GREY HED HARD	180 6189 RED MEDIUM SOFT
63 W 70 RED BROWN MED SOFT	189 0220 BLUE GREY VERY HARD 220 0234 RED BROWN MEDIUM SOFT
70 146 BROWN GREY MED HARD	214 6348 BROWN GREY MED HARD 298
146 to 163 BLUE GREY VERY HARD	348 9381 BLUE CREY MED HARD 798
163 to 180 BROWN GREY MED HARD	181 6442 GREY BROWN MED HARD 298
10. TOTAL DEPTH OF WELL BELOW GROUND _ 457	442 457 BROWN BLUE MED SOFT
11. HOLE SIZE: 22 Inch dia, from 0	 :" :
	is to to below globing
Inch da, from	7 ft. 10 457 ft. below ground
12. CASING INSTALLED!	
15.25 In I.D. x . 375 In wall	solid section to 357 ft. below ground
N/A In. I.D. x in. wall	perforated section to it, below ground
Type of Perforation N/A	
IJ. ANNULUS: Grouted from 0 m	below ground to 357 ft. below ground
Gravel packed from N/A n	below ground to N/A it, below ground
in solution	Date and time or measurement 07/28/04
	Date and time of sampling 08/17/94
17. OATE OF PUMP INSTALLATION	Date and time of sampling 08/17/94
18. PUMP INSTALLATION:	į
	C
Pump Type, Make, Serial No. Motor type, H.P., Voluge, rpm	Capacitygpm
	below, which elevation is if.
Depth of bottom of eldine to be	in the several
Pumping Head tott.	. WINCH AND THE
19. PUMPING TESTS: Reference Point (R.	P.) used:, which elevation is n
Data no ser so	
Date <u>na/17/94</u> Slant water level ft. below R.P.	Date 08/24/94 Start water level ft. bolow R.P.
End water level It. below R.P.	' End water level
Depth of well to below R.P.	Depth of workft. below R.R.
Elepsed Pros Draw Ch Terrig.	Elepsed Peas Drew Ci- Temp.
Time (hours) (gpm) down (ft.) (ppm) °F	Trive (hours) (gorn) down (ft.) (poin) "f"
BWS DATA ATTACHED	
*	BHS DAWA ATTACHED
;	
been at soage erom (t)	d, continue en back.)
Remarks:	
, (II more spane is need	
Contractor (prim) ROSCOE MOSS HAWAII, INC.	THO FIELD SUPERINTENDENT :
Signature Teach Tunnel	Oate 10/18/94
For Dreer's Use:	For Official Use: Well No. 2400-10 (

WAIPAHU WELLS III NO. 2400-10 (WELL #2)
WAIPIO, OAHU, HAWAII
T.M.K.: 9-4-05:74

As-Built Section
Drilling Completed: August 8,1994
Drilling Contractor: Roscoe Moss, Hawaii, Inc.



WAIPAHU WELLS III NO. 2400-10 Well #2

Plumbness Test: August 9, 1994
Ground Elevation: 316.7± ft. (msl)
Casing Length: 357.0 ft.
Casing Diameter: 15½ inches I.D.
Pulley Height: 20.00 ft.
Maximum allowable drift/any 100': 10.17*

	Depth	Drift	Drift (inches per
	(ft-)	(inches)	any 100 ft.)
		•	
og.	0		
	20	.42	
	40	1.38	
•	60	2.00	
	80.	2.50	- 4-
	100	. 3.42	3-42
	120	3.99	3.58
	140	4.56	3.17
_	160	4.63	2.68
	180	4.92	2.58
	200	6.07	3.50
	220	. 7.22	5.17
1.50	240	7.80	4.73
	260	9.21	* 6.35
٠;و	280	8.28	4.52
	300	. 8 .04	2.37
1.4	320	8.54	1.43
	340	9.00	1.24
; •	357	9.42	1.41 (per 97 ft.)

^{*} The maximum drift of 6.35 inches per any 100 feet of depth occurs between 160 feet and 260 feet.

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WAIPAHU WELLS III NO. 2400-10 WELL #2

Location : THK: 9-4-05:74

Elevation at ground : +316.7 ft.

Elevation at bottom of well: -140.3 ft.

Elevation at end of casing : -40.3 ft.

Diameter of casing : 15k in. I.D.

Head : +19.7 ft.

Airline Depth : 340 ft.

Pump Depth (Suction) : 354 ft.

Drilling completed : August 1994

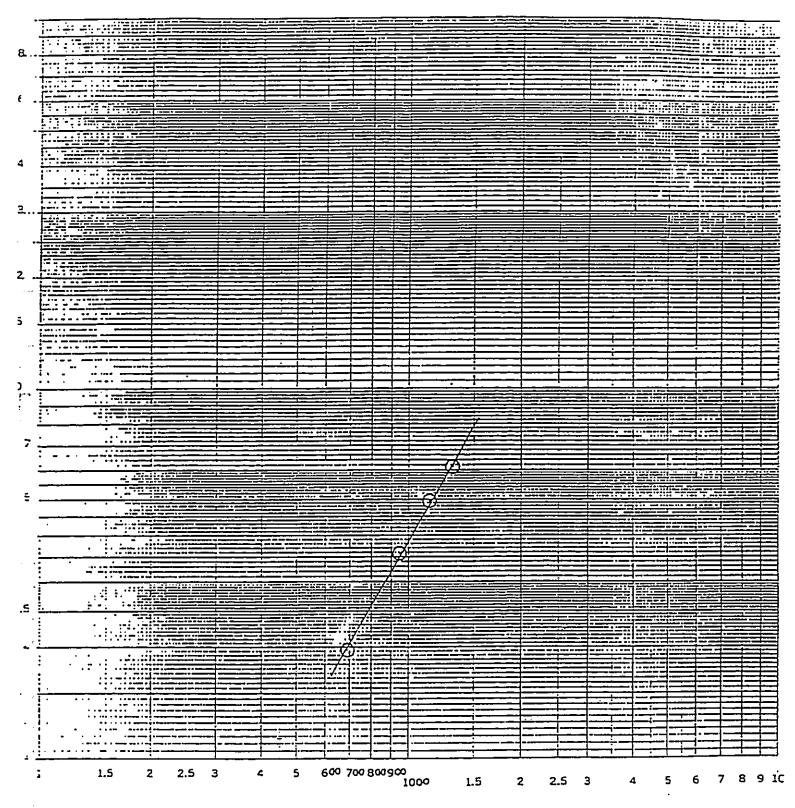
Drilling company : Roscoe Moss Hawaii, Inc.

Date of Yield-Drawdown test: August 17, 1994

	Time	(<u>dbw)</u> 6	Drawdown (ft.)	(ppm)	Temperature (°F)	Remarks
***	0845 0850	•				(18.10 psi static) started pumping
	0900	695	1.96			•
• •	0910	683	1.96			
	0930	700	1.96			
	0945 0950	690	1.96	34	70.6	sample f l changed rate
	0955	956	3.58			
	1010	956	3.58			
	1025	956	3.58			
• •	1045 1050	951	3.58	34	70.6	sample #2 changed rate
	1055	1148	4.97			
	1110	1150	4.97			
	1125	1148	4.97			
.~	1145 1150	1148	4.97	34	70.6	sample #3 changed rate
<u>. </u>	1155	1327	6-12			
	1210	1309	6.12		•	
	1225	1322	6.12	•	•	
	1245 1250	1313	6.12	34	70.6	sample #4 stopped pumping
	1255		-35			
	1300		-11			
:	1305		-11			

WAIPARU WELLS III NO. 2400-10

SPECIFIC CAPACITY

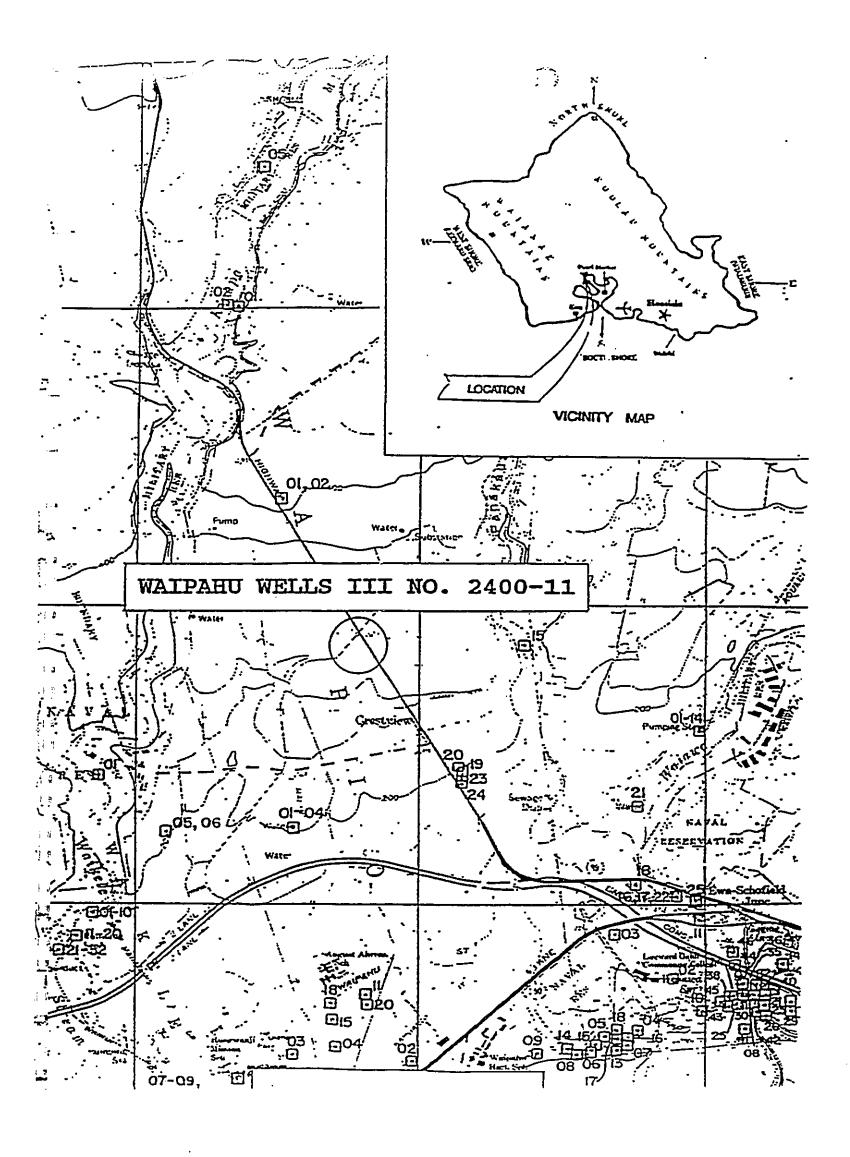


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WAIPAHU WELLS III NO. 2400-10 WELL #2 LONG TERM PUMPING TEST: 8/22/94 to 8/25/94

Date Time	(dbm) g	Drawdown (ft.)	Cl (mad)	Temperature P	Remarks
	(Mon) 1014	2.35	34	70.7	18.10 psi (static) started pumping samplo
1020 1030 1040 1050 1100 1110	1017 1033 1033 1034 1034 1031 1029	1.35 1.46 1.46 1.46 1.46 1.35			-
1130 1140 1150 1200 1300 1400 1500	1020 1014 1014 1018 1008 1002	3.35 3.23 3.23 3.23 3.12 3.23			-
1800 1830 2100 2400	1000 1000 1000 1000	3.35 3.35 3.23 3.23			
8/23/94 0100 0300 0600 0800 0900 1000	(Tue) 1000 1000 1000 1000 1000	2.25 2.25 2.25 2.25 2.25 2.25	34	70.6	average rate: 1012 gpm sample
1005 1100 1200 1300 1400 1500 2100 2400	1005 1000 1000 1000 1000 1000 1000	3.23 3.35 3.23 3.23 3.23 3.23 3.23	-		•
8/24/94 0300 0600 0800 0900 1000 1200 1500 2100	(Wed) 1000 1000 1000 1000 1010 1000 1000 10	23 23 246 21.45 21.25 21.25 21.25 21.25 21.25	34	70 . 6	average 2 day rate: 1005 gpm sample
8/25/94 0300 0600 0900 0950	(Thur) 1000 1000 1000 988	3.35 3.35 3.35 3.23	34	70.6	average 3 day rate: 1000 gpm sample stopped pumping
1000 1001 1003 1004 1005 1006 1009 1010 1011	•	2.42 2.38 2.96 1.85 1.50 1.50 1.10 2.92	• •		clear airline
1013 1015		.11			Clude wasange

Total pumpage (72 hours): 4,219,300 gallons Average pumpage par day: 1,439,767 gallons Average pumpage rate: 1,000 gallons per minute





State of Hawaii COMMISSION ON WATER RESOURCE MANAGEMENT Department of Land and Natural Resources

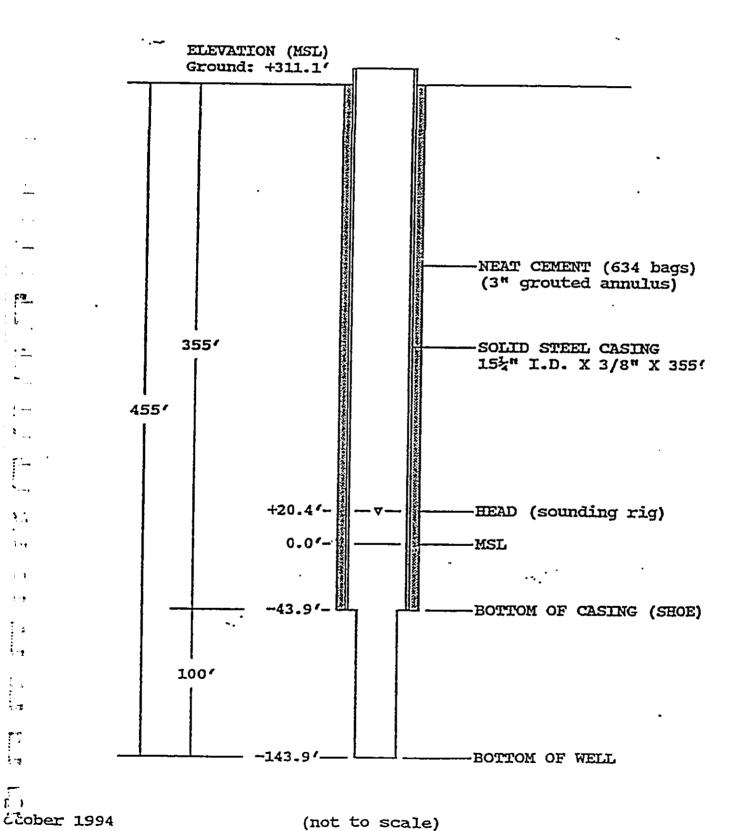
WELL COMPLETION REPORT

Instructionat	Please print or type and sub	DE NYINW TOORS DEMOCROS TOT	days even med completion to th	o Commission on Water Resource
Minacomant	P.O. Box 621, Hombill, Hewil	\$6600, At sa-built drawing of th	Met for connect for Name and	id also be submitted. For exertance
cut the Corner	ission Regulation Branch at 68	7-0223.		

	•
1. STATE WELL NO. 2400-11 WELL NAME	WATDAHIL WELLS TILT 3 ISLAND GAHU
	WAIPIO GENTRY Tex Map Key 9-4-05:74
2. LOCATION: Address KAM HWY ACROSS FROM	POSCOE MOSS HAWAII. INC.
1. DRILLING OR PUMP INSTALLATION CONTRACTO	17 ROSCE TIOSS THE RESERVED TO THE ROSC
4. CONTRACTORS C-57 LICENSE NUMBER C-164	*AUU AARRAI 1
5. NAME OF DRILLER WHO PERFORMED WORK	JOHN CARROLL
6. TYPE OF RIG/CONSTRUCTION FAILING 150	ALE KUTAKT
7. DATE OF WELL DRILLING COMPLETION 09/2	<u>3/94 </u>
	•
8. GROUND ELEVATION (mal) 311.1 t.	
Too of Driting Platform (mai) 313.1	
Haloht of Dolling Platform above Ground:	surtaca 2 ft
Bench Mark and Method Used to Determi	ne Ground Elevation BWS SURVEY to
	444 4
	Down M.) Dowle Description, Remarks, Cates (ft.)
O to 31 RED BROWN SOFT (IL.)	aci - aco GREY RROWN VERY HARD
	1200 to 314 RHDWN UNET MEU.HANU 2422.
147 to 164 BLUE GREY HARD	314 = 400 BLUE GREY LITTLE BROWN 242
164 to 201 GREY MED HARD	400 8455 BUE ORY LINE BIES STE
201 to 227 RILLE GREY HARD TO MED HARD	
227 m 251 OREY RROWN HARD LODSE	\ \ \ \ \ \ \ \ \ \ \ \ \ \ \
	needed, continue on back.)
10. TOTAL DEPTH OF WELL BELOW GROUND	- R
4. HOLE 0175. 99 Inch die 'from	n R. to 355 TL DOLOW GROUND
13 Inch die, from	355 ft. to 455 ft. below ground
Inch die from	355 ft. to 455 ft. below ground ft. to the below ground
	wall solid section to 55 ft. below ground
In I.D. x	wall perforated section tott. below ground
. Type of Perforation N/A	wall perforated section tott. below ground
ASSESSED LIGHT Control from	tr. below ground to 355 ft. below ground
13. ANNULUS: Grouted from 0 Gravel packed from N/A .	the below ground to N/A it below ground
Gravel packed from	It's DRIOM BLOGIST TO THAN THE COOK BLOGIST
44 INITIAL WATER LEVEL 202 1 It, below once	and. Date and time of measurement09/23/94
14. INITIAL WATER LEVEL 293.1 It. below grow	and. Date and time of measurement 09/23/94 09/23/94
15. INITIAL CHLORIDE 30 ppm	Date and time of sampling
15. INITIAL CHLORIDE 30 ppm 16. INITIAL TEMPERATURE 70.5	Date and time of sampling 09/23/94 F Date and time of sampling 09/23/94 Page and time of sampling 09/23/94
18. INITIAL CHLORIDE 30 ppm 18. INITIAL TEMPERATURE 70.5 17. DATE OF PUMP INSTALLATION	Date and time of sampling
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15. INITIAL CHLORIDE 30 ppm 16. INITIAL TEMPERATURE 70.5 17. DATE OF PUMP INSTALLATION 18. PUMP INSTALLATION: Pump Typo, Make, Serial No.	Date and time of sampling 09/23/94 09/23/94
15. INITIAL CHLORIDE 30 ppm 16. INITIAL TEMPERATURE 70.5 17. DATE OF PUMP INSTALLATION 18. PUMP INSTALLATION: Pump Typo, Make, Serial No.	Pate and time of sampling 09/23/94 Capacity gpm
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15. INITIAL CHLORIDE 30 ppm 18. INITIAL TEMPERATURE 70.5 17. DATE OF PUMP INSTALLATION 18. PUMP INSTALLATION: Pump Type, Make, Serial No. Motor type, H.P., Votage, rpm Depth of Pump Intake Setting Depth of bottom of airline Pumping Heed is	Date and time of sampling 09/23/94 F Date and time of sampling 09/23/94 Capacity gpm It. below which devation is to below the several of t
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15. INITIAL CHLORIDE 30 ppm 16. INITIAL TEMPERATURE 70.5 17. DATE OF PUMP INSTALLATION 18. PUMP INSTALLATION: Pump Typo, Make, Serial No. Motor type, H.P., Voltage, rpm Depth of Pump Intake Setting Depth of bottom of airline Pumping Heed is ft. 19. PUMPING TESTS: Reference Politics Date 9/30/94 Start water level 293.1 ft. below R. End water level 293.1 ft. below R. Depth of well 455 ft. below R. Time (nours) (apm) down (tt.) (ppm) "F	Date and time of sampling 09/23/94 Capacity gpm The below which alevation is the first several sever
15. INITIAL CHLORIDE 30 ppm 18. INITIAL TEMPERATURE 70.5 17. DATE OF PUMP INSTALLATION 18. PUMP INSTALLATION: Pump Typo, Make, Serial No. Motor type, H.P., Voltage, rpm Depth of Pump Intake Setting Depth of bottom of airline Pumping Head is 19. PUMPING TESTS: Reference Policater water level 293.1 ft. below R. End water level 293.1 ft. below R. Depth of well 455 ft. below R. 19. Pumping Tests: Correct Company of the policy R. 19. Pumping Tests: Reference Policy R. 19. Pumping	Date and time of sampling 09/23/94 Capacity gpm It. bolow which devation is the process of the
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WAIPAHU WELLS III NO. 2400-11 (WELL #3)
WAIPIO, OAHU, HAWAII
T.M.K.: 9-4-05:74

As-Built Section
Drilling Completed: September 23, 1994
Drilling Contractor: Roscoe Moss Hawaii, Inc.



WAIPAHU WELLS III NO. 2400-11 WELL #3

Location : TMK: 9-4-05:74

Elevation at ground : +311.1 ft.

Elevation at bottom of well: -143.9 ft.

Elevation at end of casing : -43.9 ft.

Diameter of casing : 15k in. I.D.

Head : +18.0 ft.

Airline Depth : 340 ft.

Pump Depth (Suction) : 352 ft.

Drilling completed : September 23, 1994

Drilling company : Roscoe Hoss Hawaii, Inc.

Date of Yield-Drawdown test: September 30, 1994

-		Q	Drawdown	Cl	Temperature	
3.5	Time	(disa)	(ft.)	(magg)	(°F)	Remarks
						17.97' static
	0855					head (airline)
	0905					started pumping
	0910	715	2.31	30	70.5	sample #1
	0920	692	2.31		70.5	
٠.	0935	705	2.31		70.4	
:	0950	697	2.31		70.4	
	1000		2.54			
• •	1005	692	2.42		70.4	
	1020	691	2.31		70.4	
•	1030	692	2.31	30	70.4	sample #2
	1035					changed rate
<u> </u>	·1050	922	3.46		70.3	
	1105	917	3.46		70.3	
_	1120	906	3.35		70.3	•
	1130	912	3.35	30	70.3	_ sample #3
•	1135					changed rate
:	1140	1113	4.50		70.2	_
175.	1155	1101	4.50		70.2	
	1215	1105	4.50		70.2	· ·
5	1230	1105	4-50	30	70.2	sample #4
basa.	1235					changed rate
<u>.</u>	1240	1285	6.00		70.2	_
	1255	1330	6.00		.70.3	
-	1320	1319	6-00		70.2	
	1340	1325	6-00		70.3	
<u>:-</u>	1345	1325	6.00		70.3	sample #5
	1350				•	stopped pumping
3 5.'	1351		1.50			<u></u>
*	1352		2122			well recovered
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WAIPAHU WELLS III NO. 2400-11

WFLL #3 SPECIFIC CAPACITY

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WAIPAHU WELLS III NO. 2400-11 Well #3

Plumbness Test: September 26, 1994
Ground Elevation: 311.1± ft. (msl)
Casing Length: 355.0 ft.
Casing Diameter: 15½ inches I.D.
Pulley Height: 20.00 ft.
Maximum allowable drift/any 100': 10.17"

Depth (ft.)	Drift (inches)	Drift (inches per any 100 ft.)
0		
20	. 30	
40	1.28	
60	2.13	
80	3.01	
100	3.61	3.61
120	4.21	4.02
140	5.66	* 4 . 53
160	5.42	3.53
180	6.40	3.40
200	7.17	3.64
220	8.34	, 4.28
240	8.14	3.14
260	8.77	3.68
280	8.75	2.58
300	8.94	2.00
320	8.37	. 98
340	8.49	1.10
350	8.27	1.10 (per 90 ft.)

^{*} A maximum drift of 4.53 inches per 100 feet of casing occurs between 40 feet and 140 feet.

WAIPAHU WELLS III NO. 2400-11 WEIL #3 LONG TERM PUMPING TEST: 10/17/94 to 10/20/94

	Date <u>Time</u>	(<u>dbm)</u>	Drawdown <u>(ft.)</u>	Cl (mgm)	Temperature <u>°F</u>	Remarks
	10/17/94 0955 1000	(Monday)				18.20' static head started pumping
- - -	1011 1025 1045	1043 1073 1043	3.69 3.81 3.58	30	70.2 70.3 70.3	sample #1
. 	1100 1120 1145	1045 1042 1042	3.58 3.58 3.58 3.58		70.3 70.2 70.2	
	1200 1500 1800 2100	1034 1026 997 990	3.58 3.58 3.58 3.35	: •		
1 3	2400 10/18/94 0300	991 (Tuesday) 989	3.35 3.35			
7 2	0600 0900 1000 1200	989 982 985 982	3.92 3.81 3.46 3.81	32		sample #2 average rate:
1.5	1500 1800 2100	979 997 995	3.81 3.46 3.46		•	1001 gpm
kat Tar	2400 10/19/94 0300	993 (Wednesday) 990	3.46 3.46			
	0600 0900 1000 1200	986 986 1054 1020 ··	3.46 3.58 3.69 - 3.69	32	·	sample #3 average 2 day
•.• •	1500 1800 2 1 00	1020 1031 1026	3.69 3.92 3.81			rate: 995 gpm
1 ff	2400 10/20/94 0300	1045 (Thursday) 1025	3.81 3.81			
' 3 	0600 0900 0930 0950	1032 1040 1043 1045	3.81 3.69 3.58 3.58	- 32	70.3 70.3	sample #4
T	1000	<u></u>				stopped pumping

Total pumpage (72 hours): 4,366,000 gallons
Average pumpage per day: 1,455,333 gallons
Average pumpage rate: 1,011 gallons per minute





ENGINEERING BRANCH

PLANNING BRANCH

WAIPAHU WELLS III NO. 2400-13

date

FEB. 2, 1995

Enclosed are results of the Waipahu Wells III No. 2400-13 (well #4) plumbness test which was performed on November 7, 1994. A maximum drift of 6.92 inches per any 100 ft. of casing occurs between 0 ft. and 100 ft. The maximum allowable drift per any 100 ft. of casing for this well is 10.17 inches. This well meets our plumbness specifications.

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Other attachments include the data obtained during construction and subsequent pumping test. The yield-drawdown test was conducted at rates of 700, 900, 1100, and 1300 gpm which produced corresponding drawdowns of 2.08, 3.00, 3.46, and 4.27 ft., respectively.

Pumpage rate in the long term test averaged 1003 gpm producing an eventual drawdown of 5.08 ft. The increasing trend of drawdown over the course of the test may have resulted from problems attendant in the use of a weighted small diameter plastic airline. Although drawdown in both tests were characteristic of previous wells, recovery was abbreviated and cropped. A drawdown of 3.46 ft., achieved prior to the onset of airline deviation in the sustained test, approximates the 3.15 ft. at 1,000 gpm obtained from the step test. This value would be more representative of the achievable result of pumpage at the proposed rate.

Test pumping shows that well #4, with the exception of well #5, is more efficient than the other wells. Recovery abnormalities are not believed to be associated with aquifer properties but are probably mechanical in nature. Well #4 can be expected to meet the proposed pump capacity of 1,000 gpm.

Attachment

GHO:rk

cc: Plant Operations H. Minakami

Engineering (A. Okada)

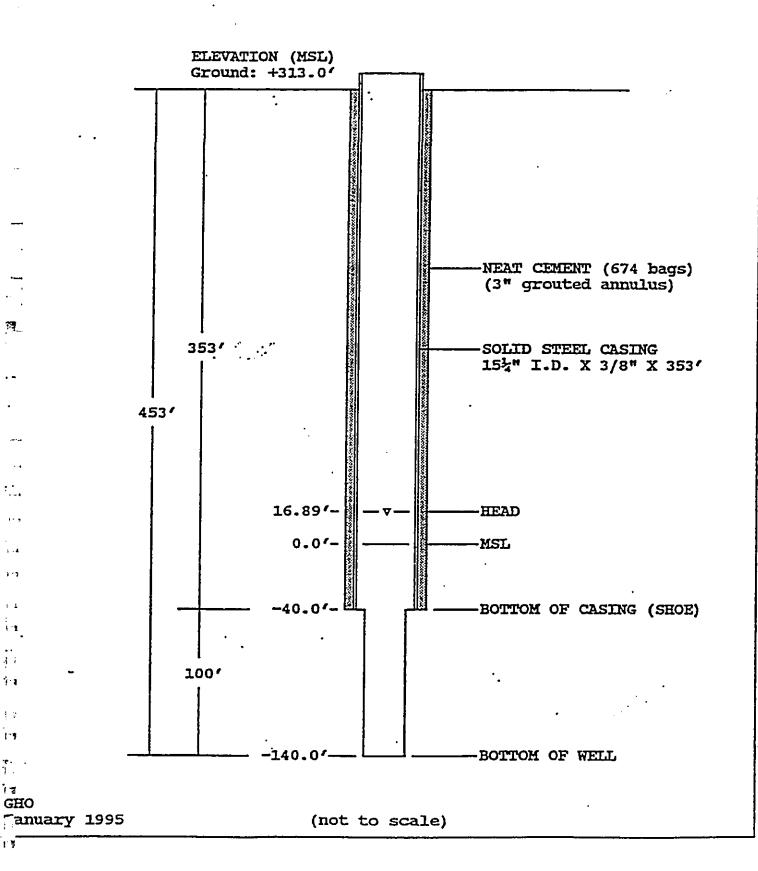
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WAIPAHU WELLS III NO. 2400-13 (WELL #4) WAIPIO, OAHU, HAWAII T.M.K.: 9-4-05:74

As-Built Section Drilling Completed: November 7, 1994 Drilling Contractor: Roscoe Moss Hawaii, Inc.



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WAIPAHU WELLS III NO. 2400-13 Well #4

Plumbness Test: November 7, 1994
Ground Elevation: 313.0± ft. (msl)
Casing Length: 353.0 ft.
Casing Diameter: 15½ inches I.D.
Pulley Height: 20.00 ft.
Maximum allowable drift/any 100': 10.17

Depth (ft_)	Drift (inches)	Drift (inches per any 100 ft.)			
0					
20	1.73				
40	3.24				
60	4.95				
80	6.19				
100	6.92	* 6.92			
120	7.87	6.19			
140	9.14	5.96			
160	8.49	4.29			
180	8.14	3.54			
200	8.25	4.21			
220	9.37	4.07			
240	10.15	4.04			
260	11.40	3.62			
280	11.25	3.49			
300	10.77	3.28			
320	9.62	2.16			
340	8.91	2.83			
345	8.41	3.01 (per 85 ft.)			

^{*} A maximum drift of 6.92 inches per 100 feet of casing occurs between 0 feet and 100 feet.

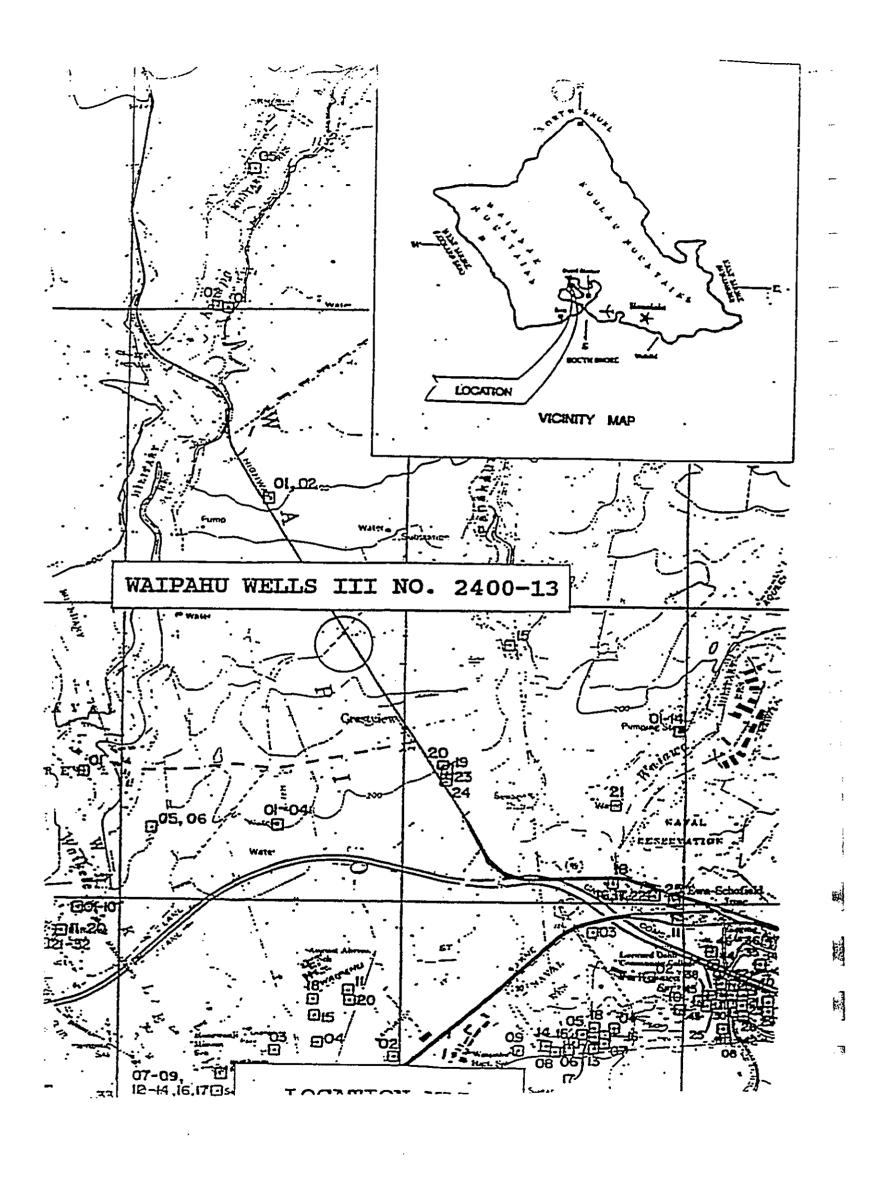




State of Hawaii COMMISSION ON WATER RESOURCE MANAGEMENT Department of Land and Natural Resources

WELL COMPLETION REPORT

			ASTI	- COMPL	ETION RE	PORT			
(nitro	ctions: Please programmer, P.O. Box se Commission Rec	het or type and e							
en in	perment, P.O. Box 6 4 Commission Rec	ulation Branch at	141 96800. An I 587-0225.	M-buil drawing	of the well and ch	ACTION SURVEYS	to the Commu should also be	won on W	ator Recoul For excister
1.	STATE WELL	NO. 2400-	ra With	NAME (•			
2.							ISLAND	_UHAO	
•		COWE INSTAL		いんてひょうてつっ	ROSCOE HO	SS HAUAT	AX MAD Key	9-4-05	:74
							1 1110,		
đ.	NAME OF DRI	COMMENT OF	RFORMED	WORK J	OHN CARROLL				
					AIR ROTARY				
	DATE OF WEL	e summed worth 3	OWLTE HO	01720	795				
8.	GROUND ELE	/ATION (msl)	313.0	ft.					
	.000		നു (നെപ്പി)	31 ፍ ሰ	ft.				
	Bench J	of Drilling Plati Mark and Mark	om above	Ground aun	ace	2 ft.			
9. (DRILLER'S LOC	Mark and Meth	va veta la	netermine	Ground Elevat	ion BHS St	IRVEY t		
Dep		Description, Plemi	erke, Detec	Vator Lavel (ft.)	B				Water Lav
- 19	₩ 141 GRE	BROWN MED	SOFT		362 1037) Pock Do	red brown	Vki, Detas	th.)
_141	10 10 CDE	V VEDV HADO	MINISTER STATE		_375_ 1 0.39	2 RITE	COEV MEN !	14.00	297
- 381	-11A -11HE	Y RIME MEDV	UADD	297	-192 0.5	3 GPFY	BROWN MED	HARO	297 297
373	# 362 GRE	Y BORWN MED	HARD	297	 				
		ALUF MED		297					
10. Te	OTAL DEPTH (OF WELL BELL	IIIAII IIJ 21 NOS WA	NORON IN DANCE In	d, continue on bu	ick.)			
11. H	OLE SIZE:	22	_ Inch dia.	<u> </u>			•		
		14 1/2	_ lock dis	from0		353	fr. belor	v ground	1
			inch die	from 35		_ 457	R. Balau	u arana	ì
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13. AN	NULUS: : ;	space recon		<u></u>					
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15. INI	TIAL WATER L	EVEL 297	h. belov	y ground. C	and time	of measurer	nant in		
16. INI	TIAL TEMPER			FF'''	OTOL OT IT I I I I MAIL		• • • •	C /AC	~~~
17. DA	TE OF PUMP I	NSTÁLLATION	71.20	°F 0	ate and time o	onigmas k	1/5/0	<u> </u>	
18. PU	MP INSTALLA	יאסוג	`		*			·	
	Pump Typ	e, Make, Seria	il No.		•				
	Motor type	H.P., Voltag	a. rom				Capacit	y	gpm
	Debty & P	UMD intaka Sa	etion .	ft. by	day	s, Alaka			
	Depth of b		o	It belo	wok_	ا WIICH ر	MENTROU IS _		ft.
19. PUA	4 polemus	lead is			·		Manou ta	·	tt.
THE PUN	APING TESTS:		Reference	Point (R.P.)	Used:	, whi	h elevation i		
Star Star	e 1/5/95 rt water level	•			. Date	/10/05	~= -uv~! (•	·h.
End	water level	297	it, below	V R.P.	Start wi	tter level	297	n be	XOW R.P.
Dec	Xh of well	<u>297</u> 453	n belov	v R.P.	End wa	ter level 📑	297	—ft. be	How R.P.
Espeed			n. belov		- Dapth c	Kew k	453	ft. be	Now R.P.
Time (hou		Orane down (ft.)		emp. • p	Bapeed	Pest	Orane	<u>.</u>	Temp.
%					Time (hours)	(spm)	down (ft.)	(ppm)	• •
					: <u></u>	·			
~_	STEP	TEST DATA A	TTACHED			ONG TERM	DATA_ATTA	CUCO	
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WATPAHU WELLS III NO. 2400-13 WELL #4

Location : TMK: 9-4-05:74

Elevation at ground : +313.0 ft.

Elevation at bottom of well: -140.0 ft.

Elevation at end of casing : -40.0 ft.

Diameter of casing : 15% in. I.D.

Head : 16.89 ft.

Airline Depth : 340 ft.

Pump Depth (suction) : 352 ft.

Drilling completed : November 7, 1994

Drilling company : Roscoe Hoss Hawaii, Inc.

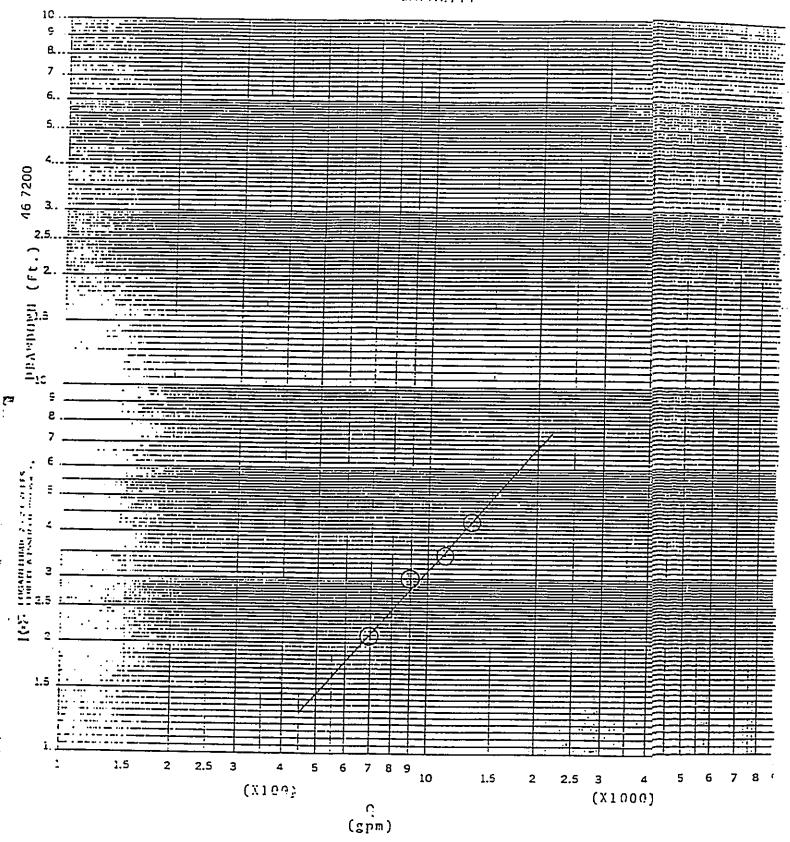
Date of Yield-Drawdown test: January 5, 1995

1 -4	Time	(gpm)	Drawdown (ft.)	(bba)	Temperature	Remarks
<u>-</u>						16.89° static head (airline)
	0850					started pumping
ı i	0905			36	71.2	sample #1
	0917	710	1.73	20	71.4	Bempac Fa
	0923	706	1.73		71.4	
(se <mark>t</mark>	0930	706	2.08			•
	0945	697	1.85		71.4	
. •	1000	699	2.08		71.4	10 #2
	1010	697	2.08	36		sample #2
3 cod	1015					changed rate
. •	1017	898	2.66		71-1	
. 7	1025	889	3.00		71.1	
	1029	920				
	1035	935	3.00		71.1	
	1040	901				
** T	1050	906	3.00		71.2	
	1110	896	3.00	36	71.2	sample #3
	1115		•		.c.	changed rate
	1119	1105	3.35		71.0 :	
1.6	1140	1093	3.46		71.0	•
	1200	1101	.: 3.46		71.0	
, \$	1210	1101	3.46	36	70.9	sample ≢4
	1215	1141			•	changed rate
	1219	1307	4.27		71.0	_
	1230	1319	4.27		70.9	
	1250	1310	4.27		70-8	
	1310	1310	4.27		70-8	
! ?* ♦			4.27	36	70-8	sample # S
	1330 1335	1310	4.27		.0.0	stopped pumping
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WAIPAPU WELLS III No. 2400-13 (Well #4)

SPECIFIC CAPACITY



WAIPAHU WELLS III NO. 2400-13 WELL #4 LONG TERM PUMPING TEST: 1/10/95 to 1/13/95

Date <u>Time</u>	(dbm) G	Drawdown (ft.)	C1 (ppm)	Temperature <u>°</u> E	<u>Remarks</u>
1/10/95	(Tuesday)				
0950 1000 1010 1030 1050 1110 1200 1300 1400 1500 1600 1700 1800 2000 2100	995 1008 1015 1008 1015 1008 1008 1008 100	22-657 2-657 2-657 2-88 2-78 2-78 2-78 3-35 3-46 3-58 3-81 4-04	36	70.9 71.0 70.9 71.0 71.0	16.54' static head (airline) started pumping sample #1
2200 2300 2400 1/11/95 0100 0200 0300 0400 0500 0600 0700 0800 1000 1100 1200 1300 1400 1500 1600 1700 1800 2200 2200 2300 2400	1005 1005 1005 1000 1000 1000 1000 1000	4.27 4.27 4.27 4.27 4.27 4.27 4.27 4.27	38	71.0	sample #2 average rate: 1006 gpm

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0900 1000 5.08 0940 1007 5.08 71.0 0955 1002 5.08 38 71.5 sample #4 1000 stopped pumping	1/12/95 0100 0200 0300 0400 0500 0600 0700 1100 1200 1300 1400 1500 1700 1800 2200 2300 2400 1/13/95 0100 0500 0600 0700 0800	(Thursday) 1002 1002 1000 1017 1018 1010 1003 999 998 996 1000 1001 1001 1001 1001 1001 1000 1001 1001 1009 1010 1009 1010 1002 1003 1002 1003 1002 1003 1002 1009	3355553333366665555555668888 96888888 44444444444444455555555555555555	38	71.0	sample #3 average 2 day rate: 1004 gpm
	0940 0955	1007	5.08	38		

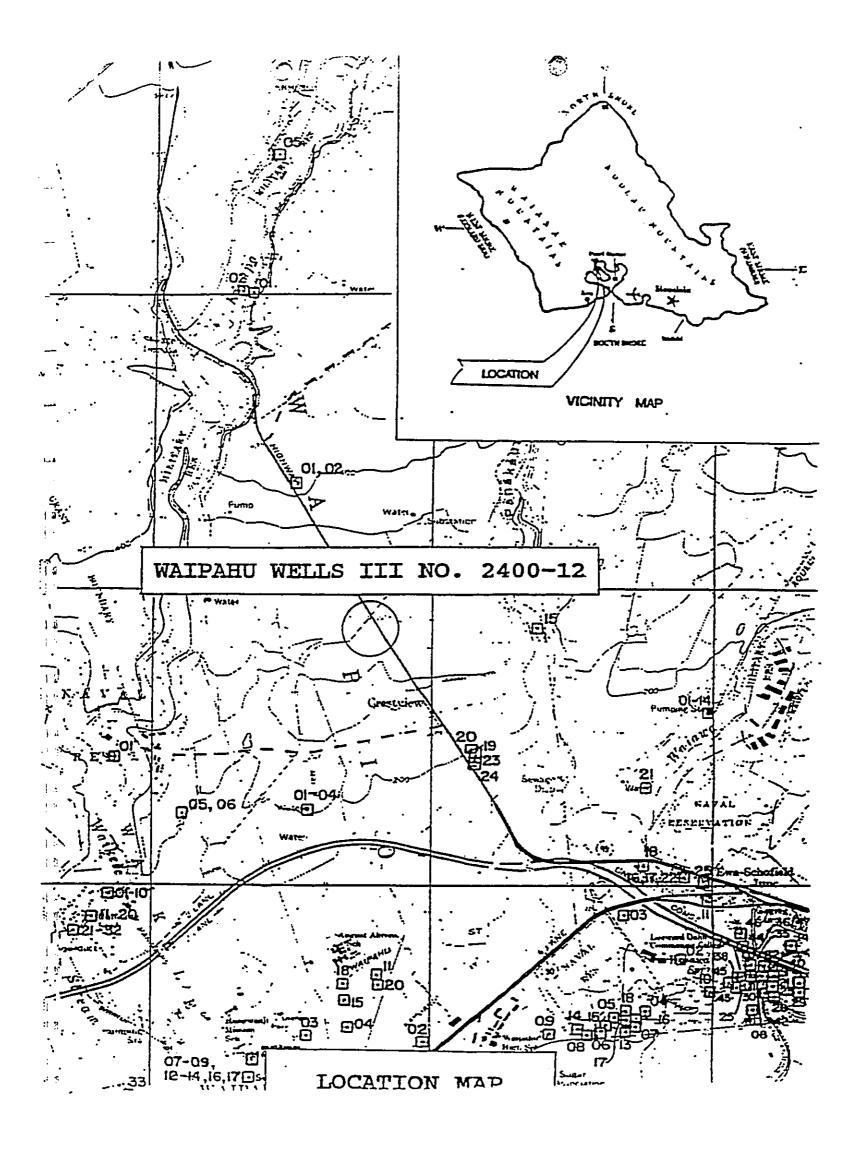
Total pumpage (72 hours): 4,331,000 gallons Average pumpage per day: 1,443,667 gallons Average pumpage rate: 1,003 gallons per minute

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COMMISSION ON WATER RESOURCE MANAGEMENT Department of Land and Natural Resources

WELL COMPLETION REPORT

	WELL	COMPLETION	REPORT	智慧 曹	'n
instructions: Please print or type and sur Management, P.O. Box 621, Honoluts, Havel call the Commission Regulation Branch at St	PITE COMPleted	report which so days	effer had one-line		· ›
instructions: Please print or type and sur Management, P.O. Box 121, Honouts, Hawai cal the Commission Regulation Branch at su	1 96800, An au- 87-0225,	built crawing of the west	and charries analysis	n to the Codingsion on	Water Resource
1. STATE WELL NO. 2400-12 2. LOCATION: Address KAN HI 3. DRILLING OR PUMP INSTALL	WETT	NAME WATPAHIL	III 45	ISLAND	
3. DRILLING OR PLIND INCTALL	AT ACROSS	FROM WAIPIO GI	NTRY	IST MED KOV O' 4 O	<u> </u>
DRILLING OR PUMP INSTALL CONTRACTORS C-67 LICENSE	ATION CON	TRACTOR_ROSCOE	HOSS HAWAII	INC.	57/4
4. CONTRACTOR'S C-67 LICENS	E NUMBER	C-16437			
A THE OF THE PERSON AND A PERSO	FORMED W	ORK JOHN CAR	ROLL		
7. DATE OF WELL DRILLING CO	WALELLON	10/22/94			
8. GROUND ELEVATION (msl)					
Ton of Difflion Blades	+314.4	ft.			
Top of Drilling Platform	(ine) 316	<u>14 t</u>			
Height of Orilling Platfor	d llood to G	ound surface			
Bench Mark and Metho 9. DRILLER'S LOG:	g 0390 10 D	etermine Ground E	avation BAS S	URVEY A.	
Depth (ft.) Pook Description, Permen	Wat	H CIVII			
_0 to _37 RED BROWN SOFT	nt, Detre	(ft.) De	PT (RL) Poor D	eroription, Pemarks, Dete	Water Level
1/. B KK ADOUN COEV UPA	114.00		~ 10h Billh	GREY MED HADD	297
	HARD		14 10 MILE	COLA HIERO	297
			~491_ HI IIF	GREY MED WARD	297'
288 to 319 BLUE GREY VERY	HARD		#	BROWN MED HARD	297
	No	<u></u>	·-		
10. TOTAL DEPTH OF WELL BELOV		ce la needed, continue	On back.)		
11. HOLE SIZE: 22	טאַטטאט	456	ît.		
	inchi dia, me	(7	A 4-	ft. below groun	
14_8	inch dia fro	m356	ft. to455	tr polow groun	KI M
12. CASING INSTALLED: .	inch dia, ho	m	ft. to	tr palaw dionu	KI L
15 25 h ID	~ ~~		***************************************	in page float	KQ.
WA IN IO	<u>,3/2 -</u> -	in Asil adig aocti	on to356_	ir polow groun	d
Type of Badastel	<u>^</u>	in wall perforated	section to	tr pajow duonu	.
13. ANNULUS: Groufed from	αι <u></u> μ	<u> </u>			•
Come analysis		ir palow du	20nd to 356	ft bolow ground	4
dravu packud m	NA	יד אסן סאי טונ	ound to	It below around	-
14. INITIAL WATER LEVEL 295.2 15. INITIAL CHLORIDE	_ft_bolow o	round. Date and s	ima of mossumes	none.	•
15. INITIAL CHLORIDE 18. INITIAL TEMPERATURE 70	38ps	XII Date and t	ins of semaline	10/10/94	
18. INITIAL TEMPERATURE 70) <u>.</u> ç.	*F Dete and t	ime of sempling	10/10/94 10/10/94	
17. DATE OF PUMP INSTALLATION			and or semipting	10/10/94	
18. PUMP INSTALLATION:					
Pump Type, Make, Serial I Motor type, H.P., Votage	No.			<u>.</u> .	
Motor type, H.P., Voltage,	rpm			Capacity	gpm
Motor type, H.P., Votinge, Depth of Pump Imake Settl Depth of bottom of airline	ing _	it bolow	n de la b		
Depth of bottom of airline Pumping Head is	-	/L bolow	WRICH	orevation is	n.
Pumping Head is	îz.		, which so	CAGROUP #	n.
19. PUMPING TESTS:	Reference Pi	olra (R.P.) used:		alkaria ara	
V410 10/10/04	•		wind	ch elevation is	ft.
Start water level	_ft. below f	1.P. 91	to 11/28/94 ut water level		
End Water level	It below i		d water level		olow R.P.
Depth of well	_ft. bolow f		och of Meg n water 16Aei	n,	XIOW R.P.
Elspeed From Drawn	C. Ten			n. t	xlaw R P.
Time (hours) (ppm) down (ts.) to	open) • #	ірі — Варна Піта фо		Cram Cr.	Temp.
½			ura) (gpm)	down (IL) (ppm)	٠,۴
		<u></u> <u>10</u>			
— E — AIA AII AC	HE O		— 7		
<u></u>				I TACH	E-D
	T more man	to needed, continue on			
	······································	e namoed, collective ou	beat.)		
Remarks:			•		
(1	f more space !	meded, commue on	bect.)		
•			-		-
	HWALL STAN	<u> </u>	TitleFIEL	D SUPERINTENDEN	
gnature Tracel Line	well the	-	Oats 12/1		
//				14.76	
of Dreams Use:			- 141		
DO No Joo No	1)	For Citie	# UH: # 158 OO 13	Wet No. 2400)- (2

WAIPAHU WELLS III NO. 2400-12 Well #5

Plumbness Test: October 21, 1994 Ground Elevation: 314.4± ft. (msl)

Casing Length: 356.0 ft.
Casing Diameter: 15% inches I.D.
Pulley Height: 20.00 ft.

Maximum allowable drift/any 100': 10.17"

Depth	Drift	Drift (inches per
(ft.)	<u>(inches)</u>	any 100 ft.)
1,4,5,4,1	1,00	
0		·*
20	.72	
40	· 1.75	
60	. 2.34	
80	2.71	
100	3.19	3.19
120	3.50	2.83
140	4.88	3.35
160	5.87	4.25
180	. 7.91	5.46
200	8.70	5.54
220	8.86	5.42
240	10.48	5.65
	12.04	6.21
260	13.52	5.63
280	14.42	5.73
300	15.13	* 6.63
320	16.02	5.90
340	16.47	4.49 (per 90 ft.)
350	10-47	12 12 \P 12

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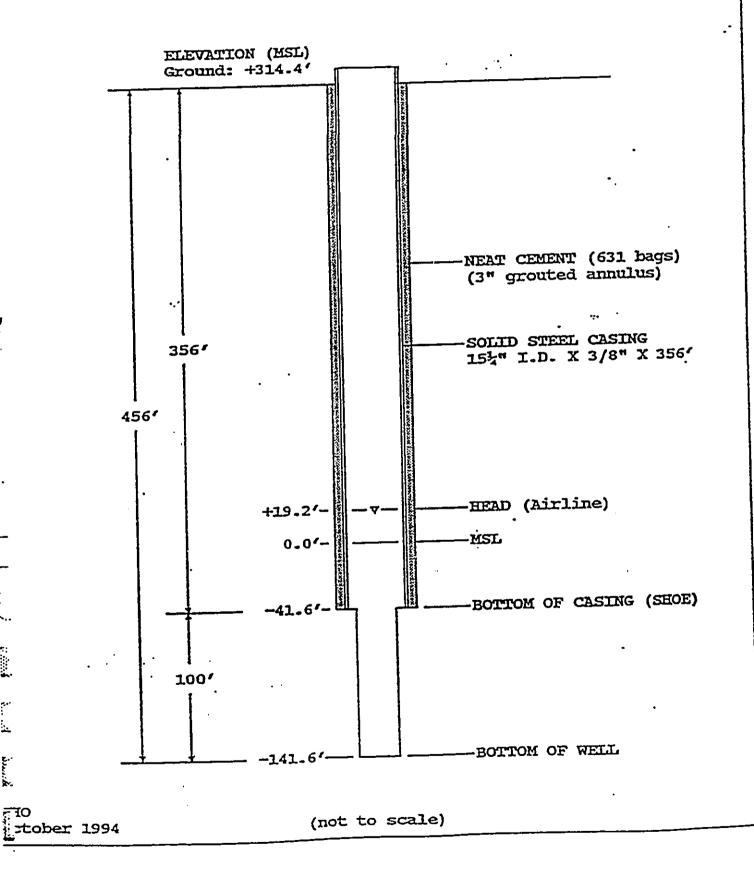
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A maximum drift of 6.63 inches per 100 feet of casing occurs between 220 feet and 320 feet.

WAIPAHU WELLS III NO. 2400-12 (WELL #5)
WAIPIO, OAHU, HAWAII
T.M.K.: 9-4-05:74

As-Built Section
Drilling Completed: October 22, 1994
Drilling Contractor: Roscoe Moss Hawaii, Inc.



WAIPAHU WELLS III NO. 2400-12 WELL #5

Location : THK: 9-4-05:74

Elevation at ground : +314.4 ft.

Elevation at bottom of well: -141.6 ft.

Elevation at end of casing : -41.6 ft.

Diameter of casing : 15½ in. I.D.

Hend : +19.2 ft.

Airline Depth : 340 ft.

Pump Depth (suction) : 352 ft.

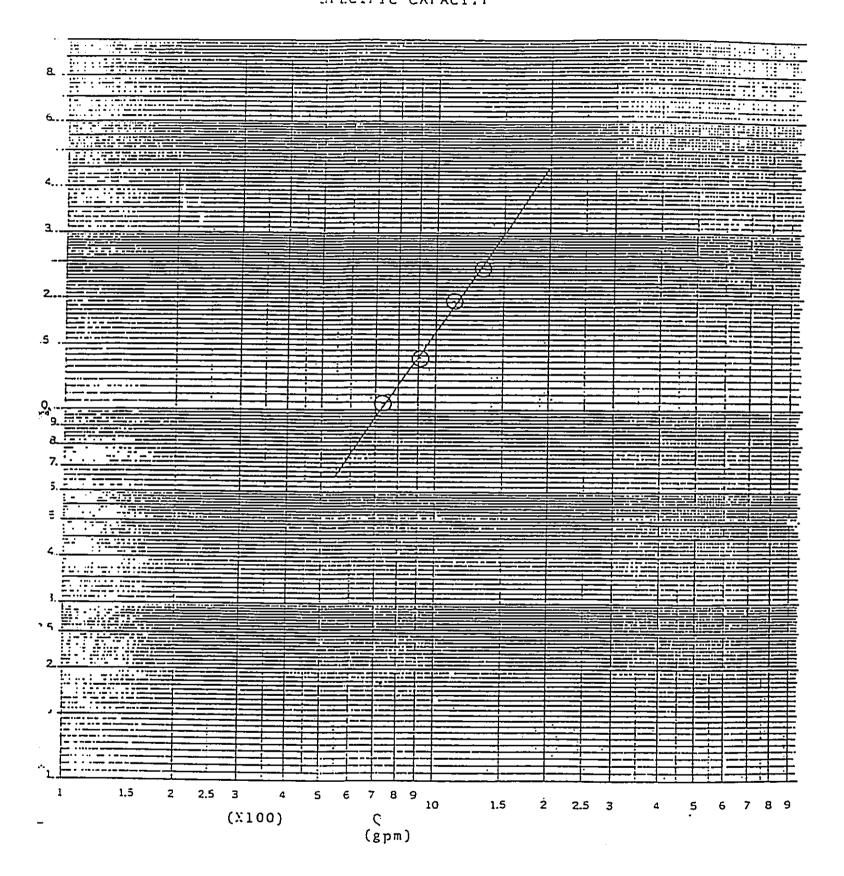
Drilling completed : October 22, 1994

Drilling company : Roscoe Hoss Hawaii, Inc.

Date of Yield-Drawdown test: November 10, 1994

73 1.44	Time	Q (qpm)	Drawdown (ft-)	(ppm)	Temperature	Remarks -
٠,	-	7 dbm.	1 1, 2 2 .]	There	وكسطيسيان	
_	0905	(19.40	psi, 44-81	ft.)		19.2° static
15	0928	eame a	above			head (airline)
	0930					started pumping
٠, ٠	0936	705	1.04	38	70.9	sample # 1
	0945	787	1.15		70.8	
1 4	1000	711	1.15		70.8	
	1015	726	1.15		70.8	
1 E	1025	726	1.15	38	-	sample #2
	1030				•	changed rate
1 5	1034	908	1.38		70.7	
	1045	910	1.38		70 -7	
1 4	1100	901	1.38		70.7	
	1115	902	1.38		70.7	
1.4	1125	902	1.38	36		sample ≠ 3
	1130					changed rate
. 1	1134		1.84			
	1137	1095	1.96		70.7	
i i	1145	1095	1.96		70.7	
	1200	1105	1.96		70.7	
r 1	1215	1089	1.96		70.7	
	1225 .	1109	1.96	36	70.6	sample #4
	1230				1	changed rate
٠ د	1236	1345	.2-42		70.6	
("4	1255	1333	2:42		70.7	
	1315	1336	2-42		70.7	
•	1325	1333	2-42	36	70-7	sample ≴ 5
<u>.</u>	1330					stopped pumping
~, ~,	1331		-80			
	1332		-00			

WAIPARE WELLS-III NO. 2406-12 SPECIFIC CAPACITY



WAIPAHU WELLS III NO. 2400-12 WELL #5 LONG TERM PUMPING TEST: 11/28/94 to 12/01/94

					.*
Date	Q	Drawdown	cı	Temperature	
Time	(qpm)	(ft-)	(mqq)	°F	Remarks
11/28/94	(Monday)				19.2' static
0945	•	••		:	head (airline)
1000 1004	1027	1.38	38	70.8	started pumping
1009	1038	1.00	20	,0-0	sample #1
1015	1038	1.84		70.7	• .
1030	1045	1.84		70.7	•
1045	1045	1.84		70-7	
1100 1130	1045	1-61		70 ₋ 7	
1200	1038 1034	1.61 1.61		70.6 70.7	•
1330	1022	1.61	•	70.7	
1500	1000				
1800	1000	1.50	• • •		
2100	1035	1.61			
2400	1043	1.73			, ,
11/29/94 0300	(Tuesday)	7 77	•		
0600	1043 1043	1.73 1.73			
0900	1034	1.64			
1000	1027	1.61	36	70.7	sample #2
1200	1000	1.68	_ -		average rate:
1500	1026	08.E	1	•	1036 gpm -
1800	1034	1.73			- -
2100	1017	1.61			
2400 11/30/94	1026 (Wednesday)	1.64			
0300	1026	1.84			
0600	. 1034	1.84			
0900	1053	1.73			
1000	1031	1.61	36	70.7	sample #3
1200	1034	1.66			average 2 day
1500	1026	1.73			rate: 1035 gpm
1800 2100	1017	1.66 1.59			
2400	1026 1008	1.82			
12/01/94	(Thursday)	4.02		- '	
0300	1000	1.80			
0600	1008	1.61			
0900	1017	1.80			
0945	1017	1.50			
1005	1017	1.61	36	70.7	sample #4
1010 1011		a ~			stopped pumping
1012		-46 -00			
	page (72.17	hours) = 4.4	452 .000 cal	lons	•
	~ \ · ~ · .		/ 904		

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Total pumpage (72.17 hours): 4,452,000 gallons
Average pumpage per day: 1,480,667 gallons
Average pumpage rate: 1,028 gallons per minute

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APPENDIX D WATER QUALITY DATA

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555 East Walnut Street Pasadena, California 91101 818 568 6400; FAX 818 568 6324; 1 800 566 LABS (1 800 566 5227)

Laboratory Report

for

Honolulu, City of Board of Water Supply Lab 630 S Beretania St

Honolulu, HI 96843

Attention: Ron Fenstemacher

MONTGOMERY LABORATORIES Submitted on

pij6 2.5 1994

HDS

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555 East Walnut Streat
Pasadena, California 91101
818 568 6400; FAX 818 568 6324;
1 800 566 LABS (1 800 566 5227)

Sample # 940816017 Sample 10 WAIPANU III (940721008)

Project
Sample Type Water Sampled 20-101-1994 Received 21-101-1994 Reported 23-009-1994

Laboratory Report

Honolulu, City of Board of Water Supply Lab 630 S Beretania St

ATTM: Ron Fenstemacher Honotutu

Parameter Parameter Physical Sy Analyzed By Analyzed B								
Parameter *hallium 8F								



555 East Walnut Street Pasadena, California 91101 818 568 6400; FAX 818 568 6324; 1 800 566 LABS (1 800 566 5227)

Laboratory Report

Honolulu, City of Board of Water Supply Lab 630 S Beretania St

Honolulu , HI 96843 ATTN: Ron Fenstemacher

Sample # <u>940816017</u>	Sample ID <u>WAIPAHU 111 (940721008)</u>	Project
Sample Type Water	Sampled 20-jul-1994 Received 21-	Ful-1994 Reported 23-aug-1994

Single Determination Analytes Quality Control

Control (CST)	Parameter That lish Gr	Units Por le	Actual 0:040	Found 0.0446	#Recv
LCS2	Thallium, GF	mg/l	0.040	0.0462	116
EK	erthelbium egi	9 (re/19	e Alo	S HD	
HS HSD	Thallium, GF	mg/l	0.040	0.0463	116
HSD2	Cibalition ACE	2 mg/1 / 24 / 2	08040	0.0450	\$15

555 East Walnut Street
Pasadena, California 91101
818 568 6400; FAX 818 568 6324;
1 800 566 LABS (1 800 566 5227)
Sample # 940721008 Sample 1D WAIPARU 111
Sample 1799 Water Sampled 20-101-1994 Received 21-101-1994 Reported 17-809-1994

Laboratory Report

Honolulu, City of Board of Water Supply Lab 630 S Beretania St

96843 ATTM: Ron Fenstemacher ¥, Honolulu

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Pre		65	22		·-i.o	25- Jul								
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		Total		otal	101	90								
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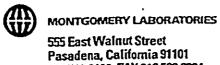
555 East Walnut Street Pasadena, California 91101 818 568 6400; FAX 818 568 6324; 1 800 566 LABS (1 800 566 5227)

Laboratory Report

Returning to your files. I wale copies for myself. Thouler. Lab acher

WUNTGOVERY LABORATORIES extramenton

4116 1 * 1994



555 East Walnut Street Pasadena, California 91101 818 568 6400; FAX 818 568 6324; 1 800 566 LABS (1 800 566 5227)

Laboratory Report

Honolulu, City of Board of Water Supply Lab 630 S Beretania St

, ні 96843 Honolulu ATTN: Ron Fenstemacher

Sample # 940721008	Sample ID WAIPAHU_III	Pr	oject
Sample Type Water		Received <u>21-jul-1994</u>	Reported 17-aug-1994

Single Determination Analytes Quality Control

CEST						
LCS2	Control	Parameter	Units	Actual		XRecv
RELY Recylition storal CAP Regular R	1CS1	Beryi Isum, Total, ICAP	mg/l	0.05	0,0492	98
Beryllium Total, ICAP	LCS2	Beryllium, Total, ICAP	mg/l	0.05	0.0504	101
Beryllium Total	MBLK:	Berylitum Total ICAP	mg/1 "	NO S	HD :	
Cadmium, Total, GF	KS	Beryllium, Total, ICAP	mg/l	0.05	0.0496	99
Cachellan, Total, GE	\$HS0	Beryilium Total, ICAP	mg/l	0:05	0:0491	98
NBLK Cadmium, Total, GF mg/l ND ND	LCS1	Cadmium, Total, GF	mg/l	0.0100	0.0102	102
Cadmillen, Total, GF	(CSZ)	Codmicer Total GF	ng/L	0:0100	0.0079	99
NSD Cadmium, Total, GF mg/t 0.0100 0.0098 98 CS1 Narcury Ug/t 1.50 1.42 95 LCS2 Mercury Ug/t 1.50 1.49 99 NBLK Hercury Ug/t 1.50 1.57 105 NSS Mercury Ug/t 1.50 1.56 104 LCS1 Nickel, Total, ICAP mg/t 0.5 0.495 99 LCS2 Nickel Tatal ICAP mg/t 0.5 0.500 100 NBLK Nickel, Total, ICAP mg/t ND ND NSS Nickel, Total, ICAP mg/t 0.5 0.486 97 NSS Nickel, Total, ICAP mg/t 0.5 0.486 97 LCS1 Antimory, Total, GF mg/t 0.040 0.042 105 NBLK Antimory, Total, GF mg/t 0.040 0.040 0.042 105 NBLK An	KBLK	Cadmium, Total, GF	mg/l	***************************************	x 2000000000000000000000000000000000000	**********
CS1 Mercury Ug/t 1.50 1.42 95 LCS2 Mercury Ug/t 1.50 1.49 97 MELK Mercury Ug/t 1.50 1.49 97 MS Mercury Ug/t 1.50 1.57 105 MSD Mercury Ug/t 1.50 1.57 105 MSD Mercury Ug/t 1.50 1.56 104 LCS1 Nickel, Total, ICAP mg/t 0.5 0.495 99 LCS2 Nickel, Total, ICAP mg/t 0.5 0.500 100 MBLK Nickel, Total, ICAP mg/t ND ND MSS Nickel, Total, ICAP mg/t 0.5 0.486 97 MSD Nickel, Total, ICAP mg/t 0.5 0.486 97 LCS1 Aritmony, Total, GF mg/t 0.040 0.042 105 LCS2 Antimony, Total, GF mg/t 0.040 0.042 105 MSS Antimony, Total, GF mg/t 0.040 0.040 0.042 105 MSS Antimal MSS M	H5	Cadmium, Total GF	J. Can	0.0100	0:0104	
LCS2 Mercury Ug/l 1.50 1.49 99	HSD	Cadmium, Total, GF	mg/l	0.0100	MAY 646450000000000000000000000000000000000	**************
NELK Mercury Ug/L ND ND	LCS1	Hercury	ug/t	1.50	<i>~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~</i>	***************************************
HS Hercury Ug/L 1.50 1.57 105 HSD Hercury Ug/L 1.50 1.55 104 LCS1 Hickel, Total, ICAP mg/L 0.5 0.495 99 LCS2 Hickel, Tatal, ICAP mg/L 0.5 0.500 100 HBLK Hickel, Total, ICAP mg/L ND ND HSS Hickel, Total, ICAP mg/L 0.5 0.486 97 HSD Hickel, Total, ICAP mg/L 0.5 0.486 97 LCS1 Antimony, Total, GF mg/L 0.040 0.042 105 HSC2 Antimony, Total, GF mg/L 0.040 0.042 105 HSS HSS Antimony, Total, GF mg/L 0.040 0.042 105 HSS HSS Antimony, Total, GF mg/L 0.040 0.042 105 HSS HSS Antimony, Total, GF mg/L 0.040 0.042 105 HSS HSS Antimony, Total, GF mg/L 0.040 0.042 105 HSS HSS Antimony, Total, GF mg/L 0.040 0.042 105 HSS HSS Antimony, Total, GF mg/L 0.040 0.042 105 HSS HSS Antimony, Total, GF mg/L 0.040 0.042 105 HSS HSS Antimony, Total, GF mg/L 0.040 0.040 0.042 105 HSS HSS Antimony, Total, GF mg/L 0.040 0.040 0.042 105	LCS2	Hercury	ug/l	1.50	1.49	99
MSD Mercury MSD Mercury MSD Mickel, Total, ICAP MSD MICKEL Tatal, ICAP MSD MICKEL Tatal, ICAP MSD MICKEL Total, ICAP MSD MICKEL, TOTAL, ICAP MSD	HBLK	Негсигу	Ug/l	*******************	******************************	
LCS1 Nickel, Total, ICAP mg/l 0.5 0.495 99 LCS2 Nickel, Tatal, ICAP mg/l 0.5 0.500 100 MBLK Nickel, Total, ICAP mg/l NO NO MS Nickel, Total, ICAP mg/l 0.5 0.486 97 MSD Nickel, Total, ICAP mg/l 0.5 0.486 97 LCS1 Antimony, Total, GF mg/l 0.040 0.042 105 LCS2 Antimony, Tatal, GF mg/l 0.040 NO MSLKS Antimony, Tatal, GF mg/l 0.040 0.042 105	HS	Hercury	***********	******************************	*******************	*****************
CS2	\$4SD	Hercury	ug/l		*************	62.424.644.444.
HBLK Nickel, Total, ICAP mg/l ND ND MS Nickel, Total, ICAP mg/l 0.5 0.486 97 MSD Nickel, Total, ICAP mg/l 0.5 0.486 97 LCS1 Antimony, Total, GF mg/l 0.040 0.042 105 MSD Antimony, Total, GF mg/l ND ND MSD Antimony, Total, GF mg/l ND ND MSD Antimony, Total, GF mg/l 0.040 0.042 105	LCS1	\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\	mg/l	0.5	announced with the contract of	***************
MS Nickel Total ICAP mg/t 0.5 0.486 97 MSD Nickel, Total, ICAP mg/t 0.5 0.486 97 LCS1 Antimony, Total, GF mg/t 0.040 0.042 105 MSLKY Antimony Tatal, GF mg/t 0.040 MD MSLKY Antimony, Total, GF mg/t 0.040 0.042 105 MSLKY Antimony, Total, GF mg/t 0.040 0.042 105	acsz ·	Nickel; Total; ICAP	_mg/1	0.5	***************************************	100
MSD Nickel, Total, ICAP mg/L 0.5 0.486 97	HBLK		******************	****************************	acurateceanos/26465;0066345700	
LCS1	1 5	Mickel, Total, ICAP	mg/l	***************************************	*****************	**************************************
LCS2 Antimony, Total, GF mg/l 0.040 0.042 105 MSK Antimony, Total, GF mg/l N0 ND MS Antimony, Total, GF ng/l 0.040 0.042 105	HSD		******************	emermen management (1995)	************************	***************
MS Antimony, Total, GF 19/1 0.040 0.042 105	LCS1	Aritimony, Total, GF	ng/l	0.040		************
MS Antimony, Total, GF 19/1 0.040 0.042 105	LCS2		mg/l	NAMES OF THE PROPERTY OF THE P	********************	105
Antimony, total, ur	MBLK ****	Antimony, Tatal, GF	***********			
HSDS PARTIEORY, TOTAL, SF NIGHT 0:040 0:042 105	MS	Antimony, Total, GF	1/g/l	******************	*****	**************
	#SD	Antimony, Total, 6F	mg/1	0.040	0.042	105
			******************************	2010-1010-1010-1010-1010-1010-1010-1010		**************
	***************************************			***************************************		
	accommencer:		E-1004 340 X 100 X	************		
A 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1						

Report 14571 Comment Page

Group Validation Comments

Result for TCDD analysis is submitted by Pace, Inc.

lample# 940721008
lource: WAIPAHU III

Validation Test Comments

Sample needs to be analyzed for Tl-low rather than TL-GF. M (TL-GF) artin will correct in database. Please rerun and re-enter w (TL-GF) ith 1 ppb dl.



555 East Walnut Street Pasadena, California 91101 818 568 6400; FAX 818 568 6324; 1 800 566 LABS (1 800 566 5227)

Laboratory Report

for

Honolulu, City of Board of Water Supply Lab 630 S Beretania St

Honolulu, HI 96843

Attention: Ron Fenstemacher

MONTGOMERY LABORATORIES Submitted on

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AUG 19 1994

HDS / E +

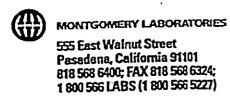


535 East Walnut Street Pasadene, Galifornia 91101 818 563 6400; FAX 818 563 6324; 1 800 566 LABS (1 800 565 5227)

Honolulu, City of Board of Water Supply Lab 630 S Beretania St

Laboratory Report

osu s Beretania St	Konolulu , Hi 96843 ATTH: Ron Fenstemacher		Oflution Det.Limit Prepared By	0.01 02-eug-1994 hth 02-eug-1994 hth	. 02 aug. 1994 hth 02 aug. 1994							
Pro St.	- 1	(ML/EPA 504) . (ML/EPA 504)	Units Result Conc. XRec		08/03/94							
Semple 10 MAIPARU 111	אלאן-זהן-אל balduse	AB1803 - EDB and DBCP (ML/EPA 504)	Parameter Units	Ethylene Dibromide (EDB)	bata Entry							



Laboratory Report

Honolulu, City of Board of Water Supply Lab 630 S Beretania St

Honolulu , HI 96843 ATTH: Ron Fenstemacher

Sample # 940721006	Sample ID WATPAHU III	Project
Sample Type Water	Sampled 20-jul-1994	Received 21-jul-1994 Reported 09-aug-1994

AB1803 - EDB and DBCP (ML/EPA 504
Quality Control

			4-01	Found	X Recv
Control	Parameter	Units	Actual DZIQ	F00112	100
reși	OU Exempe Nove Pro-Sine (DEC		0.10	0.10	100
LCS1	Ethylene Dibromide (EDB)	ug/l	0.10	0.10	100
6652	Olbromochlogophopans, CBC		0.10	0.10	100
LCS2	Ethylene Dibromide (EDB)	ng/f	*****	U.IU	
WELK.	Olbronochkoropropane, sobC		HD.	NA	
HBLK	Ethylene Dibromide (EDB)	ug/l	KD 0210	NA NA	
4 5	Dibromositoropropens (085		0.10	NA	
KS	Ethylene Dibrogide (EDB)	ug/l	U.10	NA.	

	2.00				



555 East Wainut Street Pasadene, Californie 91101 818 568 6400; FAX 818 568 6324 4 on ese i APS (1 on ses 577)

Laboratory Report

Honolulu, City of

Paradana. California 51101	Bound of Uniter Standis Lab
818 568 6400; FAX 818 568 6324;	St St
1 800 566 LABS (1 800 566 5.27) Project	
	ATTN: Ron fenstemacher
525 Semivolatiles by GC/MS (ML/EPA 525.1)	
Loft Land Linds and Linds	
Inits Result Conc. XRec	Ву
O(F) (1/2) (1/2) (1/2)	
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(A)	26- jut-1994
1) ===	26-Jul-1994 IIJ

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) /80	TUIL
	26-1u1-1994 [1] 29-Ju1-1994
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ate ug/l	7001-1111-00
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	440 7661-10[-652 [1]] 7661-10[(722- c)]
1/60	26-Jul-1994 11J
	101
Trillatory	26-Jul-1994 ILJ
01021non	·
1/00	26-Jul-1994 (1)
natate	-
1/44	26-Jul-1994 IIJ
Yiphthalate	26-101-1994 (111) 29-101-1994 (111) 29-101-1994 (110)
	15 26- Jul-1994 LLJ
1/61	0.05 26-jul-1994 IIJ 29-jul-1994 crw
	70 764 11 26- 11



(III) MONTGOMERY LABORATORIES

555 East Walnut Street Pasadena, California 91101 818 568 6400; FAX 818 568 6524; 1 800 566 LABS (1 800 566 5227)

Sample # 940721006 Sample 10 WAIPAHU III Project Sample Type Water Sampled 20-1ul-1994 Received 21-1ul-1994 Reported 09-aug-1994

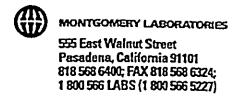
(ML/EPA 525.1) 525 Semivolatiles by GC/MS

hanoratory harort

Honolulu, City of Board of Water Supply Lab 630 S Beretania St

Honolulu , HI ATTH: Ron Fenstemacher

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ter	Heptachlor 🐥	hlor E	2 P	rone		ychlor	uzi	te	CHIO	Nonach	hord	threne	Š	hlor		e	900	ratin				
Parameter	Hept Be	Heptoc	Indenaci yeza je, d) Pyzatje se sa	Isopho	Independent The Control of the C	Hethox	Hatelbuzin 1871	Holinate Ug/l	(etota	trans-	Pańtachi brophanol sy do pada pod	henan	Prodettyn.	Propac	Pyrems	Simazine ug/l	90 H	Triftu				
	·		,		•	'				•										 	 	



Laboratory Report

Horolulu, City of Bodrd of Water Supply Lab 630 S Beretania St

Honotulu , HI 96843 ATTM: Ron Fenstemacher

				14	
Sample # <u>940721006</u>	Sample ID <u>WAIPAHU 111</u>		Project		
Sample Type <u>Water</u>	Sampled <u>20-jul-1994</u>	Received 21-jul-19	94 Reported	09-aug-1994	
505					
525	Semivolatiles by		(ML/EPA	525.1)
	_	te Summary			
	tere magning what member 30 to a property party average. These t		tom the property of the same		n Create maneralli
Parameter			.a.m.s	4	1- 0
Perylene di2		Percent Re(^a)	VELY	Acceptab 70 330	ie kange

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555 East Walnut Street Pasadena, California 91101 818 568 6400; FAX 818 568 6324; 1 800 566 LABS (1 800 566 5227)

Laboratory Report

Honolulu, City of Board of Water Supply Lab 630 S Beretania St

Honolulu , HI 96843 ATTN: Ron Fenstemacher

Sample # <u>940721006</u>	Sample ID WAIPAHU III	Pr	oject
Sample Type Mater	Sampled 20-jul-1994	Received 21-jul-1994	Reported 09-aug-1994

525 Semivolatiles by GC/MS Quality Control

(ML/EPA 525.1)

Control	Parameter	Units	Actual	Found	XRecv
LCS1	zalpha-Chlordare	e exp/loss	Constant Constant	(2.29)	251
LCS1	Acenaphthylene	ug/(2	2.12	106
LEST:	Alechion	19/L	2.8	72/07	
LCS1	Aldrin	ug/(2	1.95	98
eesi/	Anthraceness	- \$4p/1 ***		80 S 100	\$ 8,5104
LCS1	Atrazine	ug/(2	2.17	108
ucs)	Benz(e)Anthracere	49/40	200	1.77	
LCS1	Benzo(a)pyrene	ug/l	. 5	2.03	102
ies	Benzo(b)f(Upranthene	60 SQ / 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1		2:12:	106
LCS1	Benzo(g,h,i)Perylene	ug/l	2	2.02	101
CSI	Benzo (k) Fluoranthene	1700	2.26	225	612
LCS1	Di(2-Ethylhexyl)phthalate	ug/t	2	2.36	118
.csi	Elitylbenzylphthalate	(447) U	3	(47/	78
LCS1	Chrysene	ug/l	2	1.98	99
LCSI .	Oibenz(a;h)Anthracene	De/L	2	200	100
LCS1	Di-(2-Ethylhexyl)adipate	ug/l	2	2.08	104
es)	Colethyliphthalare	Up/U	200	-257	72A
LCS1	Dimethylphthalate	ug/l	2	2.34	117
<u>Kesj</u>	DI-n-Eutylphthelate	1974	2	2.23	106
LCS1	Endrin	ug/l	2	1.88	94
SEST CONTRACTOR	c por ene	270	3	236	303
LCS1	gama-Chlordane	ug/l	2	2.35	118
<u>es</u> i	Hoxach Lorrobarozane	colys	2	* \$1 535	97
LCS1	Hexachlorocyclopentadiene	ug/l	2	2.03	102
<u>(</u> S)	limpted) or	, yt	3	2.09	£03
LCS1	Heptachlor Epoxide	ug/l	2	2.31	116
les)	(Udeno(1,252 c.d)) viene	9970	2	- 9555	100
LCS1	Lindane	ug/l	2	2.17	108
(65)	Britistychter	en/U	66 3 0 (1964)	2.5	1277
LCS1	Holinate	ug/l	2	2.38	119
LCSI.	trens-Monachilor	39/L	2	2.50	116



555 East Walnut Street Pasadena, California 91101 818 568 6400; FAX 818 568 6324; 1 800 566 LABS (1 800 566 5227)

Laboratory Report

Honolulu, City of Board of Water Supply Lab 630 S Beretania St

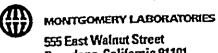
Honolulu , HI 96843 ATTH: Ron Fenstemacher

 Sample # 940721006
 Sample ID WAIPAHU III
 Project

 Sample Type Water
 Sampled 20-jut-1994
 Received 21-jut-1994
 Reported 09-aug-1994

525 Semivolatiles by GC/MS (ML/EPA 525.1)
Quality Control

Control	Parameter				
(CH)	Victoria di Corpolano I S	Units	Actual	Found	X Recv
LCS1	Phenanthrene	ug/l		9.7	ંડિ
LEST) AND	PARTO CONTRACTOR	57/	2	2.10	105
LCS1	Simazine	J\En	The second secon	<i>0.</i> 10	EU
(CS)	Janobareana		2	1.78	89
MBLK	alpha-Chlordane	ug/l	ND		0.00
MILKS	Acerephtiylere			ND (HD)	
HBLK	Alachior	ug/l	ND NO	ND	
NO LA	AGBIB		10	AD MD	
MBLK	Anthracene	ug/l	KD	ND	
MBLK	Valuation .	:mh	25	30 S	
ABEK CONTRACT	Benz(a)Anthracene	ug/l	KD	KD	
MBLK	Bearzoca) pyrene	(3/4)	(50)	in second	
BIK .	Benzo(b)Fluoranthene Benzo(b)ficiper/lend	ug/(KD	KD	
MBLK	Benzo(k)Fluoranthene	9/1	10	HD STATE	
SEC	U.C. Edity Gray (Chicke)	ug/l	ND .	N D	
HBLK	Butylbenzylphthalate	***************************************	100	(0)	
38 (\$	Stope: 1	ug/l	KD	ND	
HBLK	Butachlor	55/1	D.	CiD - Ci	
KEEK .	© Promo	ug/(ND	KD ·	
HBLK	Dibenz(a,h)Anthracene	Ug/L	4	(i)	
	DIFER BUDGESON OF THE	23 (G/L)	KD	ND .	
MBLK	Diethylphthalate	ug/ (100	Ð	\$25 V. C. L. S.
STEE STEELS	(Morrows)		KD	KO	
HBLK	Dieldrin	ug/t ·	KD		
al 3	STIME TO STANK			KD	
KBLK	Dimethoate	Ug/[ND	(D)	
Klek ()	ં એક્સમાં મુક્તિમાં મુક્તિ કર્યા છે. આ માના માના મુક્તિમાં માના મુક્તિમાં માના મુક્તિમાં માના મુક્તિમાં માના માના માના માના માના માના માના મ			ND	MIZERIO PROPERTO
KBLK	Endrin	ug/i	ND	40	
ZIK	ALC: NO.	57/6		ND ND	Mercury en
		1.44.44.44.44.44.44.44.44.44.44.44.44.44			



555 East Walnut Street Pasadena, California 91101 818 568 6400; FAX 818 568 6324; 1 800 566 LABS (1 800 566 5227)

Laboratory Report

Honolulu, City of Board of Water Supply Lab 630 S Beretania St

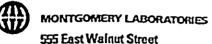
Honolulu , HI 96843 ATTN: Ron Fenstemacher

Sample # 940721006	Sample ID WAIPAHU III		oject
Sample Type Water	Sampled <u>20-jul-1994</u>	Received 21-jul-1994	Reported <u>09-aug-1994</u>

525 Semivolatiles by GC/MS Quality Control

(ML/EPA 525.1)

					8 10
Control	Parameter	Units	Actual	Found	XRecv
HELK	TANTO CHI (GEOLOGO	- C//	HD	- 10 E	
HBLK	Hexachtorobenzene	ug/l	ND	ND	****
BLK	Siexachtorocyclopeniaciene		10	AD AND	
KBLK	Heptachlor	ug/l	KD	ND	***************************************
BUK	Heptechlor Localdess		(D)	(0)	
KBLK	Indeno(1,2,3,c,d)Pyrene	ug/l	KD	ND	
er.	stsophorone state	29/1	C. C.	HD.	
HBLK	Lindane	ug/l	KD	ND'	
BLK COL	Methoxychtor	27/	-00		
MBLK	Hetribuzin	บ g/โ	KD .	KD.	
ek S	Hol mater	((-)/	, ID	(D)	
HBLK	Hetolachlor	ug/l	Ю	ND	
HELK	trans-Nonachlor	00/0	80		
HBLK	Pentachlorophenol	ug/l	KD	MD	
MBLK	Phenanthrene	og/L	HD)	ID.	
HBLK	Prometryn	mg/L	KD	ND CH	
HBLK	Propaction	00/1	20 NO 32	.	
MBLK	40.40-00-00-00-00-00-00-00-00-00-00-00-00-0	ug/(HD	ND	
*******************	Pyrene Sigazina	07/1	40 %	(10)	
SIL.	Thiobencarb	ug/l	KD	ND	••••
MBLK	Trifffratio		100 × 100	10	
ELK	alpha-Chlordane	ug/l	2	2.16	108
HS	Acersphthylere		7	2.03	0.5
		U2/L	2 .	2.32	116
HS	Alachlor			SW 51 91 00 00	
45	ACGP 17	ug/l	2	1.92	96
HS	Anthracene				2000
S S S S S S S S S S S S S S S S S S S	Attoribe	K48004000000000000000000000000000000000	2	1.61	80
HS	Benz(a)Anthracene	ug/l			100 EG
	Benzo(a)pyzone	######################################	2	1.68	84
MS	Benzo(b)Fluoranthene	ug/l			
V 5	Benzo(g.ii i Nerylend	-tre/L			



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Laboratory Report

Honolulu, City of Board of Water Supply Lab 630 S Beretania St

Honolulu , HI 96843 ATTN: Ron Fenstemacher

Sample # <u>940721006</u>	Sample ID WAIPAHU III		oject
Sample Type <u>Water</u>	Sampled <u>20-jul-1994</u>	Received 21-jul-1994	Reported 09-aug-1994

525 Semivolatiles by GC/MS (ML/EPA 525.1) Quality Control

Control	Parameter	Units	Actual	Found	XRecv
E .	tienzo(so); Coranthene	ŒM.		1.95	78
KS	Di(2-Ethylhexyl)phthalate	ug/l	2	1.91	96
	Butylberzylphthalakov	الاجئ	2	0.88	92
HS	Chrysene	ug/l	2	1.83	92
(5)	Ulbenz(e,h)Anthracene	974,64	3	159	78
KS	Di-(2-Ethylhexyl)adipate	ug/l	2	1.95	98
S N	- Diathylphtheluze	0970	2	2.37	198
KS	Dimethylphthalate	ug/t	2	2.24	112
KS ₁	Ulca-Buty(phibalate	CT/AL	a a	8:00	104
KS	Endrin	ug/l	2	2.09	104
S	Filterene	GHL	2	2.0	106
KS	gama-Chlordane	ug/l	2	2.16	108
HS S	Hazach Lorobenzene St	(U9/U)	H-1121-5-10-10-1	1.97	977
MS	Hexachlorocyclopentadiene	ug/l	2	1.41	70
MS STATE	Heptachton	LYPU	2	1978	62
KS	Heptachlor Epoxide	ug/[. 2	2.12	106
S	Indeno(I) 2/3/6/d) Pyrene	U9/L		1650	75
MS	Lindane	પ્લ/(2	2.05	102
Section	(Hethorychiler)	L/gu	2.00	2:05	102
KS	Holinate	ug/t	2	2.34	117
15	transchonachlan	0.00/4		2.20	9.00
KS	Pentachlorophenol	ug/L	8	10.0	125
	Phenenthrene	09/4	2	2.05	102
KS	Pyrene	ug/l	Z	2.09	104
15 800	Simozires	OF OF		1.57/	600
NS	Thiobencarb	ug/l	<u>2</u>	2-16	108
3036775-5553-56		TIPPOTTERIOR CONTRACTOR CONTRACTO	**************************************		747740777999999999999



555 East Walnut Street Pasadena, California 91101 818 568 6400; FAX 818 568 6324; 1 800 566 LABS (1 800 566 5227)

Sample # 940721006 Sample 10 WAIPARU III Project Sample 7 Sample 70-141-1994 Received 21-141-1994 Reported 09-aug-1994

SDWA Pesticides

(ML/EPA 508

Laboratory kepurt

Honolulu, City of Board of Water Supply Lab 630 S Beretania St Honolulu , NI 96843 ATTM: Ron Fenstemacher

SDWA Pesticiones SDWA P				The state of the s								
	47,47	. + (III)	. Conc.	XRec Dilution	ion	t.Limit	Prepared	By	_	Inalyzed	ΒY	
	UIILES	Nesser a			0		23 · JUL-	994 kat		14-eug-195	4 keh	
pcB 1016 Arachian and a second and a second					0	*	23- Iul -	1994 kah		34-aug-195	24 keh	_
	1/60	e e			10		101:33	oot Kat		34.aug-19	¢⊗kah	
	W97.1	9			0.	3	23-1ul	1994 kal		04-aug-19	74 Keh	-
	1/80	du VV			10		-In(-62	1994 KA		04 r e lug - 19	A. Kal	
	,	202 01			0	3000 S	23- jul-	1994 kal		04-aug-19	34 kah	-
pcB 1254 Arochlor	1/20	2			0		23 - 101	1974 KB		91-bu8-70	e kal	
pcs 1260 Arguhloh	775	5			0		- ' ES	1,94 ka		04-aug-19	94 kal	_
) /6n				0)D, 52	1994 Ka		04-AUG-19	94 ×6	
or (Alanox)	// J.		SOUTH STATE OF THE SOUTH STATE O		0		23-Jul-	1994 ka		04-aug-19	94 ke	Æ
//drin) / E	OI VI			0 -		23: [0]	1994-ak		04-aug-19	8X 76	
Bate: BHC	**************************************		CONTRACTOR		0		23- Jul	1994 ka		04-8ug-19	94 ka	ے
	1/6n	NO			4		, H. W.	7001		91-808-30	94 × 76	, V
Chiorthalonii (Orconii) Stavo) 200 - 121 - 200	17. 17. 17. 18. 18. 18. 18. 18. 18. 18. 18. 18. 18	W T				×	23 - Tell	1007	360	04-eug-19	94 ka	
	1/6n	2			, L	run.	766191111933	1004 Kah		04-aug-1994	94 Kah	100
		na.			0		23- Jul	1994 ke		04-aug-15	74 kg	÷.
	rg/(ND.			A STATE OF THE STA			7001		04-609-15	97 × K	Į.
	1707	W.					23-14	1994 k	3	04-aug-19	74 Ke	- L
Dieldrin .	\/g5	2			•			1001		1-210-70	1 70	
Endnith Aldehyde	1760	ON.			, ·		111	7001		06 - ning - 10	700	the second
Endrín	ug/l	CX					֓֞֜֜֜֜֜֜֜֜֓֓֓֓֓֓֓֓֓֜֜֜֜֓֓֓֓֓֓֓֓֡֜֜֜֜֓֓֓֓֡֓֜֜֜֡֓֓֡֓֜֜֜֡֓֡֓֡֓֡֡֓֜֡֓֡֓֡֡֓֜֡֡֡֡֓֡֓֡֡֡֡֓֡֓֡֡֡֓֜֡֡֓֡֓֜֡֡֓֜֡֡֓֜֡֡֡֡֡֡	1774 N		10 PM	13 00	
Enddøbiliansii (alphala)	1,00/	JAD.					144 CO	100%		1-DIN-70	70	
Endosulfan 11 (beta)	տ ց/Լ	유					3 *	3 2000		07.6.14.1	4 700	
Endobul (an sulfate as a second water	(00/18)	HO.						7,77		126202170	700	4.
Hentachlor	ug/l	오					m7	1 yy 4 K		- 500-to		
Hentach Lon Book (de)	8 8 9/BT	S. OH					T (-2)	1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1		128082468		
Enders (Comma-BHC))/§n ·	£	***************************************	***************************************)	****	73-Ju	-1994 K		1-508-50	774 K	an State
	3 1/60	100			X		23 JU	1994 K				800 m
	1/80	요				****	12-Jul	-1994 k	Aveed	04-aug-1	× *	e)
notablene nota Entry		46/S0/80				***	22-10	£1994 K	en .	.04-at 1 9-1	%4x	ah .
PART AND THE CONTRACTOR OF THE												



555 East Walnut Street Pasadena, California 91101 818 568 6400; FAX 818 568 6324; 1 800 566 LABS (1 800 566 5227)

Laboratory Report

Konolulu, City of Board of Water Supply Lab 630 S Beretania St

Honolulu , HI 96843 ATTM: Ron Fenstemacher

Sample # 940721006 Sample ID MAIPANN III Project
Sample Type Mater Sample ZO-Jul-1994 Received 21-Jul-1994 Reported 90°-200-1994

SDWA Pesticides Surrogate Summary

Percent Recovery Acceptable Range
Discreption of the Percent Recovery Acceptable Range

Percent Recovery Rec



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Laboratory Report

Honolulu, City of Board of Water Supply Lab 630 S Beretania St

Honolulu , HI 96843 ATTN: Ron Fenstemacher

 Sample # 940721006
 Sample ID WAIPAHU III
 Project

 Sample Type Water
 Sampled.20-jul-1994
 Received 21-jul-1994
 Reported 09-aug-1994

SDWA Pesticides (ML/EPA 508)
Quality Control

Control	Parameter	Units	Actual	Found	*Recv
(E)	Alarin	TA	0603	0.03	20
LCS1	p,p' DDT	ug/l	0.10	0.08	80
icsi	Oloffedia	27/1	0.10	0.07	90
LCS1	Endrin	ug/l	0.10	0.08	80
(cn	Germanatic (Lindense)	07/0	0.05	0.00	(ED)
LCS1	Heptschlor	นฐ/ไ	0.05	0.04	80
6692	Aldeiro	Un/l	0.05	(899)	(60
LCS2	p,p' DDT	ug/l	0.10	0.08	80
(E-3)	Digidan	0//05	0.00	0.02	90
LCS2	Endrin	ug/l	0.10	0.09	90
t CS2-	Ceana-BHC (Landane)	ug/L	0.05	0.06	801.
rcss	Heptachlor	ug/l	0.05	0.04	80
HBLK.	PCB 1016 Arochlot	Op/U	MD .	(NO	
MBLK	PCB 1221 Arochlor	ug/l	ND	ND	
MBLK	PCB 1Z32/ArockLop	· ug/L	NO.	HD2	
KBLK	PCB 1242 Arochlor	ug/l	DA CONTRACTOR OF THE CONTRACTO	ND	************
RELK	CPCB 1248/Arochton	Q7/4	10)	300 300	
KBLK	PCB 1254 Arochlor	ug/l	KD	ND	*************
MELK	PCB 1260 Arachion	2007/L	ND.	(ID	
MBLK	Alpha-BHC	ug/l	KD	ND	*******************************
:BEX	Alachton (Alerex)	100/05/201		10 mil 1	
HBLK	Aldrin	ug/l	HD	ND	***************************************
MBLK.	Chicardanes de la companya de la co	67/156		ND SECTION	
KBLK	Chlorthalonil (Drconil, Bravo)	ug/l	CH STREET STREET	ND	TOTAL EXCHANGES
(UES	Ual terBHC		(D)	(O)	
MBLK	p,p' DDD	ug/l	KD	ND	
:B18	PP-P'DDEA	0.07192		ADD ASSESSMENT	
HBLK	p,p' DDT	ug/l	KD	ND	
CELK	01e(drin	26/A			
HBLK	Endrin Aldehyde	ug/l	ND	ND	
ELK	Endrin	3574	NO.	P. P. St.	



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Laboratory Report

Honolulu, City of Board of Water Supply Lab 630 S Beretania St

Honolulu , HI 96843 ATTN: Ron Fenstemacher

 Sample # 940721006
 Sample ID WAIPARU III
 Project

 Sample Type Water
 Sampled 20-jul-1994
 Received 21-jul-1994
 Reported 09-aug-1994

SDWA Pesticides (ML/EPA 508) Quality Control

Control	Parameter	Units	Actual	Found	ZRecv
HELK	(arcounterpi (atpin)	07/0	ED	(0)	
******************	Endosulfan II (beta)	ug/l	KD.	KD .	,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,
HBLK	Ércosultan sultaro	0g/t	ND 4	S HD	
MBLK	Garma-BHC (Lindane)	ug/l	ND	KD	*******************************
~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~	Sideptection	op/Uses	ED.	NO.	
HBLK	Keptachlor Epoxide	ug/l	ND	KD	***************************************
4	Helboxychitor	200/4	Ab .	ID.	
HBLK	Toxaphene	ug/l	ko	KD	***************************************
S	Aldein	C7/(	0.05	2.14	
HS	p,p' DDT	ug/l	0.10	KA	
E	Dieldon	.09/1	0.40	SE NATURAL DESCRIPTION OF THE PROPERTY OF THE	
KS	Endrin	ug/l	0.10	NA .	***************************************
45	Garma-Billo (Urindene)	Sup/Last	0.05	NA P	
HS	Heptachlor	ug/l	0.05	HA	
***************************************					
Passassassassassassassassassassassassass		****	•		Mada
YIIII YARAN MARKANIA					
	1				

Report #: 14569



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Project | Samp

# Laboratory Report

Honolulu, City of Board of Water Supply Lab 630 S Beretania St

	12 162 (MT./EDA 524.2 )		
Regulated VOCS plus Libes Les			
		7	Se Forestern
Parameter		let.Limit Prepared by	25216121994 661
1 (11) 2-fetrachlordellhäfe	(9)		25- Jul - 1994 col
1,1,1-Trichloroethane	MO (1971)		25.  4  -  994   20
1.172;2 Tathachlorouthans		0.5	25- Jul-1994 col
1,1,2-Trichtoroethane	ny 1/6n		25- Jul - 1994 col
inipientonathane and a second and a second	nu m		25- Jul-1994 col
1,1-Dichloroethylene	AND Silb		25- jut-1994 col
1/1-01ahlasanapana	GI.		25-jul-1994 col
1,2,3-Trichlorobenzene		32.30	25-161-1994 col
(2)3:111Chtorophopara	110		25-jul-1994 col
1,2,4-Trichlorobenzene	ND	0.5	25:  ul-1994 col
1,2,4-re/meth/lbenzene	NU N		25- Jul-1994 col
1,2-Dichloroethane	KU		155-101-1994 661
1,2201ch(olopiopsins.	nu m	0.5	25- Jul-1994 col
1,3,5-Trimethylbenzene	n 1/8n		25 - Juli - 1994 cal
1,350 ichi dropropulie iz iz za	AV.		25-jul-1994 col
p-Dichlorobenzene (1,4-DCB)	MD MD		25 - [11 - 1992 - en
2,2401ch(orgpropana)			25-jul-1994 col
2-Butanone (HEK)		100	25-Jul-1994, col
		0.5	25- Jul-1994 co
o-chlorotoluene		0.5	25-Jul-1994 co
preniotototolenn		5	25-jul-1994 co
4-Hethyl-2-Pentanone (MIBK)		(0.5)	25-Jut-1994, 60
Banterie		0.5	25-jul-1994 co
Bromobenzene	UR V/RO	\$10.	
Brononbthates (Hathy MBhomide). The	<b>32</b>	0.5	25-jul-1994 co
roethylene		610	55-Jul-1994 co
		0.5	25- Jul-1994 co
		A WATER CONTRACTOR CON	Many and in the commendation of the contract of



555 East Walnut Street Pasadene, California 91101 818 568 6400; FAX 818 568 6324; 1 800 566 LABS (1 800 566 5227)

1800506 LABS [18005027]
Sample # 940721006 Sample 10 WAIPANU III
Sample Fype Water Sampled 20-jul-1994 Received 21-jul-1994 Reported 09-aug-1994

Regulated VOCs plus Lists 1&3 (ML/EPA 524.2 )

Laboratory Report

Honolulu, City of Board of Water Supply Lab 630 S Beretania St Honolulu , HI 96843 ATTH: Ron Fenstemacher

Ctrichtoromethans)  a to the compethans of the c		THE RESERVE OF THE PARTY OF THE		THE RESERVE TO SHARE THE PARTY OF THE PARTY					
ug/1 :         nD         0.5           ug/1 :<	(1000) (1000) (1000) (1000)		QP.			310		25-Jul-1994	
1971 HD 0.5  1971	hloroform (Trichloromethane)	. 1/8n	웊			0.5		25- Jul - 1994	
ug/t         kin         0.5           ug/t         kin	ronocii lotoni tiana	All Wells and a second	(10)			410		25 - Jul - 1994	
UP/LI         ND         0.5           UP/LI         ND	hloroethane	1/6n	욧			0.5		25- Jul - 1994	
up/1         km         0.5	Merchanalitification (SNO) (SO)	1/61	QV			0.15		25 - Jul - 1994	
USE IN THE PROPERTY OF	hlorodibromomethana	ነ/ይባ	운			0.5		25- Jul - 1994	
ug/l         ND         0.5	Dromonicelland	100	OR:			3910		25-Jul-1994	
ug/L         ND         0.5	romodichloromethans		운			0.5		25-Jul-1994	
ug/l         HD         0.5           ug/l         MD         0.5	lehtoramethings.		(d)			5.0		25 / [6] -1994	
ug/L         MD         0.5	thyl benzene		운			0.5		25- Jul - 1994	
ug/l         ND         0.5	folitopodistication things		qh			0.15		25-101-1994	
usy(1)         ND         0.5           usy(1)<	luorotrichloromethane(Freoni)		윷	-		0.5		25- Jul - 1994	
ug/L         ND         0.5	ekadhlakobutadlene	Viet.	GH			570		25* [0] -1994	
ug/L     ND     0.5	sopropylbenzene	\ <u>√</u> \$0	£			0.5		25- Jul - 1994	
ug/L         ND         0.5	(Oldhiorabanzana (d) Sydda) 🔭 💮	1/603	10			0.5		25 Jul : 1994	
ug/L         ND         0.5	p-Xylenes,	1/8n	£			0.5		25- Jul - 1994	
ug/L         ND         0.5	apithketin	(1/8)	HD			918		25- 301-1994	ાજ
ug/L     ND     0.5	-Butylbenzene ·	Υġ⁄.	운		•	0.5		25- Jul - 1994	
ug/1         ND         0.5	se repolitionments	1/61	dt					25-Jul-1994	
Ug/L     ND     0.5	-Xylene	א/פט	£			0.5		25- Jul - 1994	
Ug/L . ND . 0.5  Ug/L ND . 0.5  Ug/L ND . 0.5  Ug/L ND . 0.5	totelilakosmusiis (diyzkiji) y	3	GH			5,0		25-   61-1994	
1971 ND 0.5  1971 ND 0.5  1971 ND 0.5	etrachloroethylene (PCE)	ا/ھ	운			0.5		25- Jul -1994	
ug/1 NO 0.5  Ug/1 NO 0.5  Ug/1 NO 0.5	A september of trends and trends to	W60 ::	Oh.			6.5		25 Jul - 1994	
10.5 NO 0.5 (10.5) NO 0.5 (10.5) NO 0.5 (10.5) NO 0.5 (10.5) NO (1		1/8n	오			0.5		25- Jul -1994	
ug/l ND 0,5		1/63	QR			519		25-101-1994	
100 A 170 B 170		1/gn	£			0.5		25- Jul - 1994	
	Special of Economic	$\gamma$ $\gamma$	QH.			015		25* [0] * 1504	
0.5 OH 1/gu	richloroethylene (TCE)	<b>₩</b>	오			0.5		25- Jul - 1994	



1...

# MONTGOMERY LABORATORIES

555 East Walnut Street
Pasadena, California 91101
818 568 6400; FAX 818 568 5524;
1 800 566 LABS (1 800 566 5227)
Sample # 940721006 sample to HAIPAHU III
Sample Type Hater Sampled 20-Iul-1994 Received 21-Iul-1994 Reported 09-aug-1994

# Laboratory Report

Honolulu, City of Board of Water Supply Lab 630 S Beretania St

96843 ATTK: Ron Fenstenacher Ħ, Konolulu

) Estantation	
524.2	
(ML/EPA	
18 183	
List	
plus	
VOCB 1	
Regulated	



## Laboratory Report

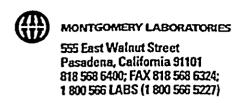
Honolulu, City of Board of Water Supply Lab 630 S Beretania St

Honolulu , HI 96843 ATIN: Ron Fenstemacher

Sample # 940721006	Sample ID WAIPAHU_III	Project
Sample Type <u>Water</u>	Sampled <u>20-jul-1994</u>	Received 21-jul-1994 Reported 09-aug-1994

Regulated VOCs plus Lists 1&3 (ML/EPA 524.2 )
Surrogate Summary

Parameter   Citizener dB	Percent Recovery	Acceptable Range 2008 120
1,2-Dichloroethane-d4 4-Bromoffforobbenzeness	101 505	80 - 120 80 - 120
·		



## Laboratory Report

Honolulu, City of Board of Water Supply Lab 630 S Beretania St

Honolulu , HI 96843 ATTN: Ron Fenstemacher

Sample # <u>940721006</u>	Sample ID WAIPARU III	Pr	oject
Sample Type Water	Sampled 20-jul-1994	Received 21-jul-1994	Reported 09-aug-1994

# Regulated VOCs plus Lists 123 (ML/EPA 524.2 ) Quality Control

Control	Parameter	Units	Actual	Found	XRecv
ica)	UTVOICHIGFORTHYLERE	GHZ(L S)	4		0.00
LCS1	1,2,4-Trichlorobenzene	ug/l	4	4.56	114
icsi 🗼	p Mentarobanzara (6.4-469)	37/1	e generale	(3 <del>2</del> )	107
LCS1	p-Chlorotoluene	ug/l	4	4.68	117
LCS1	Bertzerie	G7/0	3	?≟ઇ	(09
LCS1	Chlorobenzene	ug/l	4	4.76	119
LESI	Citoroform((Intaltorometriene))	20971	4	3899	100
LCS1	Trichloroethylene (TCE)	ug/l	4	4.61	115
LCS1	(Taluere	e Cip. L		4.55	100
LCS2	1,1-Dichloroethylene	ug/L	4	3.31	83
2.52	1,2 cylrichlorobenzene	Tio/L	4	3.3	108
LCS2	p-Dichlorobenzene (1,4-DCB)	ug/l	4 ************************************	3.91	98
LCS2	pichlorotoluene	Q0/U		4 <u>=</u> 19	105
CCSZ	Benzene	ug/l	4	3.99	100
LCS2	Chlorobenzene	1/g/L		(\$0 <u>0</u>	101
CG2	Chloroform (Trichloromethane) Jinichloromitylene (ICE)	ug/l	<u> </u>	3.55	89
LCS2	Taluene	899/U		93.80	2500
MIK	1812 Selection of there	ug/l /bg/b	4	3.84	96
HBLK	1,1,1-Trichloroethane	ug/t	ND	ND .	
HELK	UI 2/2 Jetrachleroethere	on/A	KO MD	NU.	
HELK	1,1,2-Trichloroethane	ug/l	KD CA	NO	
B(K)	Lindichloroethane of	in/L	XO SECTION	310	CONTRACTOR OF STREET
HBLK	1,1-Dichloroethylene	ug/l	ND .	ND	HATTER SHOWER
#0 EX	LES CELOCOPROPERE		4.0		
KBLK	1,2,3-Trichlorobenzene	ug/l	ND	ND	
	URS STATEMENT CONTROL OF THE CONTROL	S15074	5.0	0.00	*X *** ***
KBLK	1,2,4-Trichlorobenzene	ug/l	KD	ND	Note: Property of
(BEK	AVZ-4F Le leet by Lberzene	GT//U	80	10	
MBLK	1,2-Dichloroethane	ug/l	ND	ND	<del>van.r18.0133390309033</del> (
ets.	1/CrDickloropropane	vg/L	ίσ	(AD)	



555 East Walnut Street Pasadena, California 91101 818 568 6400; FAX 818 568 6324; 1 800 566 LABS (1 800 566 5227)

## Laboratory Report

Honolulu, City of Board of Water Supply Lab 630 S Beretania St

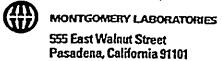
Honolulu , HI 96843 ATTN: Ron Fenstemacher

Sample # 940721006	Sample ID WAIPAHU III	Project	
Sample Type Water		Received 21-jul-1994 Reported 09-aug-199	74

# Regulated VOCs plus Lists 1&3 (ML/EPA 524.2 ) Quality Control

Control	Parameter	Uni ts	Actual	Found	%Recv
KUK.	415 Patrimetry benzens	27/0		000	
HBLK	1,3-Dichloropropane	ug/l	KD	KO	******************
muk.	p-Oleklarobanzana (4X=0eB)	UNIO CONTRACTOR	Ð	(D)	W. X. (2.2)
HBLK	2,2-Dichloropropane	ug/(	ND	KO	
ELK	Z-Butanone (KEK)	Q7/1	<b>©</b>	(D	
HBLK	2-Chloroethylvinylether	ug/l	KO	ND .	
HEIK.	o Cilomolismo	<b>UTAL</b>	(D)	TD:	
KBLK	p-Chlorotoluene	ug/l	KD	KD	
BIK	G-Bathyl S-Paricanore (BIRIC)	@###	<b>(D</b>	<b>(10)</b>	
HBLK	Benzene	ug/l	KD	KD	
EK.	(Bromober)zene	COV.	D)	SD 5	
HBLK	Bromomethane (Hethyl Bromide)	ug/l	KD	ND .	
SEEK	iclasi Zalcilarootiyleno	07/0	OD:	(0)	
HBLK	Chlorobenzene	ug/L	KD	KD	
BLK	Carbon effection to a	C0g/JU 23	30	HD .	
MBLK	cis-1,3-Dichloropropene	ug/(	ND .	ND	**************
MBLK	Bromofocu	QP/U	ED	<b>.</b> 00	
HBLK	Chloroform (Trichloromethane)	ug/l	KD	KD	******
	Bromochtoromethane	167/1	(0)	GD.	
HBLK	Chloroethane	<u>ug/l</u>	KD	KD	
	(Chloromethane(Nethylathio);(de)	Up/At		(ii)	
HBLK	Chlorodibromomethane	ug/l	ND	ND	
	Olbronomethara.	CHL		aDrivensor (co	
HBLK	Bromodichloromethane	ug/l	ND .	HD .	
SUK .	Uledarocadama	CA.		<b>@</b>	
HBLK	Ethyl benzene	ug/L	和	ND .	
***************************************	DiehleredifAlterenethane	<b>107/JEEP 10</b>	ADJOURNAL OF THE	LD.	
HBLK	Fluorotrichloromethane(Freon1)	ug/l	NO.	KO	***************************************
BLK	lizacilorobijadieje	27/0		<b>0</b>	
MBLK	Isopropylbenzene	ug/l	ND .	KD _.	
	Edicionalenzare (C.F. (168)	::::::::::::::::::::::::::::::::::::::		NO PERSONAL PROPERTY.	

Report #= 14569



# Laboratory Report

ATTN: Ron Fenstemacher

Honolulu, City of Board of Water Supply Lab 630 S Beretania St

, HI

96843

		••
Sample # <u>940721006</u>	Sample ID <u>WAIPAHU 111</u>	Project
Sample Type <u>Water</u>	Sampled <u>20-jul-1994</u>	Received 21-jul-1994 Reported 09-aug-1994

# Regulated VOCs plus Lists 1&3 Quality Control (ML/EPA 524.2 )

Control	Parameter	Units			
HBLK .	F.P.Aylones L.	un/(	Actual ND	Found	XRecv
HBLK	Naphthalene	ug/l	ND	KO	
ELK SOCI	santButy(benzere)	1971	AC AC	UNITED TO SERVICE STATE OF THE	MINISTER CONTROL
MBLK	n-Propylbenzene	ug/l	ND C	KD	
HBLK	o-XyLane		40	ND ND	
HBLK	o-Dichlorobenzene (1,2-DCB)	ug/l	ND	ND	
#BLK	(GL) actiforce (thy leno) (PGE)	324.571	NO SECTION	HD SEE	
HBLK	p-Isopropyltoluene	ug/l	ND	ND	
e Blak	Esc-Eutylberzme	09/0-00	10	The second	
HBLK	Styrene	યવ/દ	ND	ND	
HELK.	a transal v zati leti karce krivilene	(57/1)	liu e	HD 246	
MBLK	tert-Butylbenzene	ug/l	KD	KD	
HBCK-	Lyichlorosthylene (ICE)	4.70	80)	10	
MBLK	Trichlorotrifluoroethane(Freon	ug/(	NO	KD .	THE PERSON NAMED AND PARTY.
MELK.	trans 1,340 ich Loropropene	(597)	10	HD at least	
HBLK	Toluene	ug/l	KD	KD	e-ensemment e-ensemble
HELK	VinyLichtorida (Vo)	0.00	00	in see	
HS HS	1,1-Dichlaroethylene	ug/l	4	NA	***************************************
HS	1.2.9. In chlorobenzano	19/4	3	6A	
HS	p-Dichlorobenzene (1,4-008)	ug/l	4	KA	
HS	p-Ditorotaltime	200/1		W.	
is the	Benzene	ug/l	4	KA	
HS	Chlorocontane	0.71	4.0	GIA .	
STATE	Chloroform (Trichloromethane)	ug/l	4 ************************************	HA	
HS	If it is to the common of the	0.00	4)	er (UA) sa sa sa sa	9850
	All Dicilosomy Co.	US:/{ !!!!!!!!	4	NA	****************
HSD	1,2,4-Trichlorobenzene				
<b>(5)</b>	Endicatopenzene ((5,450es))	ug/l	4	KA	•
HSD	p-Chlorotoluene	an op/(seles		es l'Assessions	
KSO PER SE	Benzene	ug/l	4	KA	***********
***************************************		19/1			



## Laboratory Report

Honolulu, City of Board of Water Supply Lab 630 S Beretania St

Honolulu , HI 96843 ATTN: Ron Fenstemacher

Sample # <u>940721006</u>	Sample ID WAIPARU III	Pr	oject
Sample Type <u>Water</u>	Sampled <u>20-jul-1994</u>	Received 21-jul-1994	Reported 09-aug-1994

# Regulated VOCs plus Lists 1&3 (ML/EPA 524.2 ) Quality Control

Control	Parameter	************	Units	Actual	Found	XRecv
MSD MSD	Chlorobenzene		up/le	4	¥A.	
KSD	Chloroform (Trichloron Trichloroethylene (TC	nethane)	ug/L Ug/L	4	NA NA	***************************************
HSD	Toluene		ug/l	4	NA	

## Report 14569 Comment Page

role# 940721006

1.4

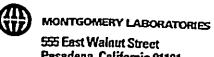
1 4

13

13

# Data Entry Comments

The spike recoveries of bromoform and 1,2,4-Trichlorobenzene (@VOASDWA) are above the control limit of 120%(at 122%)in the LCS (@VOASDWA) analyzed on 7/25/94. No significant impact on sample data. (@VOASDWA) Reference QIR-MS-94-032. (@VOASDWA)



Laboratory Report

for

Honolulu, City of Board of Water Supply Lab 630 S Beretania St

Honolulu, HI 96843

Attention: Ron Fenstemacher

MONTGOMERY LABORATORIES on Submitted

40년 - 로 1994

HDS Maton



Sampled 21-1ul-1994 Received 21-1ul-1994 Reported 04-aug-1994 Sample 10 WAIPARU III Pasadena, California 91101 818 568 6400; FAX 818 568 6324; 1 800 566 LABS (1 800 566 5527) 555 East Walnut Street Sample # 940721007 Sample Type Mater

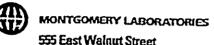
Laboratory Report

Board of Water Supply Lab 630 S Beretanía St Honolulu, city of

ATTN: Ron Fenstemache Ξ Honolulu

Project

03-849-1994 cru 28-jul-1994 ndothall Dilution Det.Limit Prepared 웃 Units 755 ~ (HL/EPA 547 yphosate



## Laboratory Report

Honolulu, City of Board of Water Supply Lab 630 S Beretania St

Honolulu , HI 96843 ATTN: Ron Fenstemacher

Sample # <u>940721007</u>	Sample ID WAIPAHU III	Project
Sample Type <u>Water</u>	Sampled <u>21-jul-1994</u>	Received 21-jul-1994 Reported 04-aug-1994

# Single Determination Analytes Quality Control

Control	Parameter	Units	Actual	Found	*Recv
CEST COLUMN	gendothal (v. v.			28.78	115
LCS2	Endothal (	ug/l	25	KA	
HBLKS.	Endotriall	0.771	ID.	- GD	
lesi .	Endothall Glyphosate	ug/l	25	30.1	120
LCS2	Glyphosate	97/155	50	55.63	10.10
es K	Glypholate	ug/L	50 Atī	45.7 ND	91
			***************************************		***************************************
			***************	T2401746****************************	***************************************
			Marian Marian Marian	STATE OF THE PERSON NAMED	\$1000000000000000000000000000000000000
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					2000000000000000000000
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555 East Weinut Street Pasadene, Californis 91101 818 568 6400; FAX 818 568 5324; 1 800 566 LABS (1 800 566 5227)

Sample # 940721007 Sample 1D WAIPANU 111 Project Sample Type Water Sampled 21-1ul-1994 Received 21-1ul-1994 Reported 04-aug-1994

Diquat and Paraquat

קבסקפיי עליטיפצסעמו

Honolulu, City of Board of Water Supply Lab 630 S Beretania St

56843 Honolulu , HI ATTH: Ron Fenstemacher

E E E E E E E E E E E E E E E E E E E								
Analyzed ( 26-jul-1994 ( 26-jul-1994 (								
Analyz 26-jul 26-jul								
By 4 [1] 7 11 7								
epared - Jul - 199								
init Pr 24 24			ŀ					
Det.L 014					٠		B	
Hutfon								
XRec (								
Conc.								
ilt								
Resul HD ND								
Unit 109/1								
Parameter Units Oigust E19/1 Paraquat Ug/1								
Para Digu Para								



555 East Walnut Street Pasadena, California 91101 818 568 6400; FAX 618 568 6324; 1 800 566 LABS (1 800 566 5227)

Sample # 940721007 Sample ID WAIPAHU III

## Laboratory Report

Honolulu, City of Board of Water Supply Lab 630 S Beretania St

Project _

Honolulu , HI 96843 ATTH: Ron Fenstemacher

Sample Ty	/pe <u>Water</u>	Sampl	ed <u>21-jul-199</u>	4 Received <u>21</u>	<u>-jul-1994</u> Repo	rted <u>04-aug-199</u>	<u> 24</u>
	Diquat	and	Paraquat Qual:	ty Contr	(EPA	549	)
Control	Parameter			Units	Actual	Found	<b>XRecv</b>
(en	Vigue:			177	(560	<i>65</i> 6	91
LCS1	Paraquat	***********	*******************************	ug/l	10.0	8.37	84
<b>1</b> 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	Olean			U77/L1	9.0	<b>(</b> ()	
LCS2	Paraquat	0500000000000000000		ug/l	10.0	HA.	*
KO DK	Olquat			(200/A)	(0)	(0)	
MBLK	Paraquat	************	\$2\$00000000000000000000000000000000000	ug/(	MD THE STREET STREET	ND	00.000000000000000000000000000000000000
	Diquat			9/15	5.0	\$53 <b>5</b>	(9)
HS HSD - SA	Paraquat	*******		ug/l	10.0	7_14	71
	Digunt 3			9/4	5.0	WAY 1	
KSD	Paraquat			ug/l	10.0	HA	
	****						· · · · · · · · · · · · · · · · · · ·
***************************************		******	****************				
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623 <b>0384833488</b>		**************************************	M22000				



555 East Walnut Street Pasadena, California 91101 818 568 6400; FAX 818 568 6324; 1 800 566 LABS (1 800 566 5227)

Sample # 940721007 Sample 1D MAIPAHU III Sample Type Hater Sampled 21-jul-1994 Received 21-jul-1994 Reported 04-aug-1994

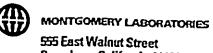
Aldicarbs

(ML/EPA 531.1

# Laboratory keport

Honolulu, City of Board of Water Supply Lab 630 S Beretania St

96843 Honolulu , HI ATIH: Ron Fenstemacher



# Laboratory Report

Honolulu, City of Board of Water Supply Lab 630 S Beretania St

Honolulu , HI 96843 ATTN: Ron Fenstemacher

Sample # § Sample Typ	940721007 De <u>Water</u>	Sample ID <u>W</u>			1 <u>21- jul-1</u>	Project 994 Report	ed <u>04-au</u>	<u>-1994</u>	
	Aldica		Surrog	ate Su	mmary	(ML/EP	A 531	.1 )	East 1:50 H
Parameter EDHO				All Market Artist Market and	rcent Reco	very	Ac 80	eptable	Range
			•						
			-						
						V (10.00)			

# MONTGOMERY LABORATORIES 555 East Walnut Street Pasadena, California 91101

818 568 6400; FAX 818 568 6324; 1 800 566 LABS (1 800 566 5227)

# Laboratory Report

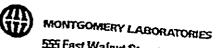
Honolulu, City of Board of Water Supply Lab 630 S Beretania St

**Honolulu** , HI 96843 ATTN: Ron Fenstemacher

Sample # 940721007 Sample ID WAIPAHU III Project _ Sample Type Water Sampled 21-jul-1994 Received 21-jul-1994 Reported 04-mug-1994

> Aldicarbs (ML/EPA 531.1 ) Quality Control

Control	Remedes	Units	4.44	<b>6</b>	***
CONTROL	Parameter	*****	Actual 20:0	Found	ZRecv
LCS1	Schologycarboturen	249/A		************************	108
£30444400207743444404204	Aldicarb (Temik)	ug/l	20.0	20.3	102
CCS1	Aldicarb sulfone says	1 (g/1 2)	2010	22.2	
LCS1	Aldicarb sulfoxide	ug/l	20.0	23.9	120
Lost	Ваудоп	305/1-21/63	20.0	818 SO (6) - 1818	203(3)
LCS1	Carbofuran (Furadan)	ug/l	20.0	20.4	102
LCS1	CarbacyU	\$ \$09/13	20.0	22.6	
LCS1	Hethiocarb	ug/l	20.0	22.7	114
(CS1)	Methonyl	QD/U	20:01	2902	71D3
LCS1	Oxamyl (Vydate)	ug/l	20.0	21.1	106
052	3° Rydroxyearbofuran	07/1	20.0	21-9	(10)
LCSZ	Aldicarb (Temik)	ug/l	20.0	19.2	96
LCS2	## Aldicarbiaulfone	up/la	20:08:	. 8.22.6	114
LCS2	Aldicarb sulfoxide	ug/l	20.0	25.2	126
CC52	ваудор	09/1	20.0	20.9	104
LCS2	Carbofuran (Furadan)	ug/l	20.0	20.5	102
LCS2	Cerbaryli	up/19 - 11	20.0	72.7	116
LCSZ	Heth i ocarb	ug/l	20.0	22.3	112
LCS2	Harbonyl	CP/I	2010	Z02:0	102
LC\$2	Oxamyi (Vydate)	ug/l	20.0	22.0	110
<b>K</b> ULK	Selficionyemboruran	27/	(0)	300	
HBLK	Aldicarb (Temik)	ug/t	KO	KD.	
BUK	Altifetto sultone	69/L	120	SD	
HBLK	Aldicarb sulfoxide	ug/l	<b>KD</b>	KO	
SEEK	607(00)	00/0	10 - 5 - 10	800	
HBLK	Carbofuran (Furadan)	ug/l	ND	ND	
ES.	Calbaryle	(G/L)	40	ALL HOLD STATE	
HBLK	<b>Methiocarb</b>	ug/(	<b>K</b> D	KD	
NE CK	Kathomyi	2007(8)	COND.	100000000000000000000000000000000000000	
MBLK	Oxemyl (Vydate)	ug/l	ND	KD	<del>,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,</del>
Section	35 Hydroxycarboffirm (1886)	19/15	20	21-1	106
***************************************		**************************************	***************************************		H634-4504



# Laboratory Report

Honolulu, City of Board of Water Supply Lab 630 S Beretania St

Honolulu , H1 96843 ATTH: Ron Fenstemacher

Sample # 940721007 Sample 10 WAIPAHU 111 Sample Type Water Sampled 21-jul-1994	Project Project Received 21-jul-1994 Reported 04-aug-1994
	Acceived 21-jul-1994 Reported 04-aug-1994

# Aldicarbs Quality Control

(ML/EPA 531.1 )

			and a second of the second		-01		
Control	Parame	rtan				the form that he has seen the same the	The state of the s
55		Digital (Sec.	**************************************	Units	Anto-1		
. HS	Aldica	rb sulfone		S-8KU-/186	Actual	Found	XRecy
S		D EULTONE	Machan	ug/l	20		21069000
MS	Baygon	Dell (oxidey)		7.0	2011 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	20,7	104
		*****		ug/(	20	230 T	
HS	Carbary	ero ((Granda))			20	20.7	104
				. Ug/(	20	20%	102
HS	Rethroe Hethomyl				20	22.4	112
450	nethomy			ug/(	20	22.0	68.00
KSD		Weato)	f Yaren		20	20.2	101
	2-nyarex	ycarbofuran	***************************************	ug/l	GU .	8872	06
HSD	A A College	(Omily)		2007 PM	20	21.0	105
HSD 1	Aldicarb	<b>sulfone</b>		V9/(	20		105
HSD	a delicario	6966 <del>565</del> 55		Q5/110	20	20.8	The second secon
150855	Baygon	MONTH OF THE PARTY			20	26.0	104
MSD	was reachorung	2 (dzuradan)		Ug/{	20	20.7	380
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HSD	Se acompeni			ug/(	20	22.6	\$ 102 857
150	Hethomyl			GDV()	<b>30</b>		113
		(000)		ug/(	20	20.3	4222
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	######################################	100000000000000000000000000000000000000				No.	W2022
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555 East Walnut Street Pasadena, California 91101 818 568 6400; FAX 818 568 6224; 1 800 566 LABS (1 800 566 5227)

Sample # 240721007 Sample 10 WAIPARU III
Sample 1ype Water Sampled 21-Iul-1994 Received 21-Iul-1994 Reported 04-aug-1994

Chlorinated Adids in Water (ML/EPA 515.1

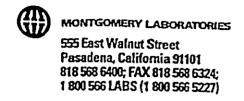
Laboratory Report

Honolulu, City of Board of Hater Supply Lab 630 S Beretania St

Honolulu , HI 96843 ATTH: Ron Fenstemacher

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Laboratory Report

Honolulu, City of Board of Water Supply Lab 630 S Beretania St

Honolulu , HI 96843 ATTN: Ron Fenstemacher

Sample # 940721007 Sample Type Water	mple ID <u>WAIPAHU III</u> Sampled <u>21-jul-1994</u> Rec	Feived <u>21-jul-199</u>	Project	 ug-1994
Chlorina	ated Acids in W Surrogate	ater () Summary	ML/EPA 51	5.1)
Parameter	acid.	Percent Recove	@?~100#350#################################	Acceptable Range

	97			

MONTGOMERY LABORATORIES 555 East Walnut Street Pasadena, California 91101 818 568 6400; FAX 818 568 6324; 1 800 566 LABS (1 800 566 5227)

Laboratory Report

Honolulu, City of Board of Water Supply Lab 630 S Beretania St

Honolulu , HI 96843 ATTN: Ron Fenstemacher

	Sample ID WAIPARU III		oject
Sample # 940/2100/	Saubte to Mariana	1 00 111 100/	peneted 04-aug-1994
Sample Type Water	Sampled 21-jul-1994	Received Si-Int-1884	Kebot ted 64 664 404

Chlorinated Acids in Water Quality Control

(ML/EPA 515.1)

		Units	Actual	Found	%Recv
Control	Parameter	un/l	0.500	0.62	124
Lest.	2,0,5=TP (ST(VeX)		1.00	0.98	98
LCS1	2,4-D	ug/l	1.00	1.01	101
LCS1	Bentazon	na\(\)	0.500	NA	Q
LCS2	2,4,5-TP (Silvex)	ug/l	1:00	NA.	
1 CS2	2,4-0	U0/Å	1.00	HA	***************************************
LCSZ	Bentazon	ug/l	ND ND	HD.	
MBLK	<u>2,4 S.T. (88) (88) (88) (88) (88) (88) (88) (88</u>	. Neu	KD	KD	274550387340387404
HBLK	2,4,5-TP (Silvex)	ug/l	HD HD	¥D.	
HELK	774-02	Sup/Cot 24	\$256. \$22	ND	***************************************
HBLK	2,4-DB	ug/l	ND	ND.	
Filk	Dichlorprop. Co. Co. Co.		WD	ND	
KBLK	5-Hydroxydicamba	ug/l	ND	NO NO	
HELK	Activoriens (qualitative)	U9/L	Ю	KD	
MBLK	Bentazon	ug/l	MD.	HD KD	
BBLK:	Chioramben (qualitative)		NO CH	ND	
HBLK	Dalapon (qualitative)	ug/l	ND	ND	
HELK	3 S-Dichlarobanzoic acid	<u>0</u> 9/L	ND .	***************	
MBLK	DCPA	ug/l	HD.	ND	
948LK	Dicamba	ug/L	ND .	ND	
HBLK	Dinoseb	ug/l	KD.	ND	
KELK	Pentachi brophenol	uo/l	HD)	340	
MBLK	Picloram	ug/l	MD.	ND	
WELK-	(-Witrophenol (qualitative)	ug/L-	KO .	HD	84
KS	2,4,5-TP (Silvex)	ug/L	0.500	0.42	*********************
KS 200	2.46	ug/t	1:00	0.95	95
MS	Bentazon	ug/l	1.00	0.77	77
#00900000099999999999999	Z/GSTP(SIIVe)	1 /gu	0.500	HA*	
MSD MSD	2.4-D	ug/l	1.00 -	NA	
HSD.	Bentezon	ug/i	1:00	, NA	

Report #: 14570

13



555 East Walnut Street Pasadena, California 91101 818 568 6400; FAX 818 568 6324; 1 800 566 LABS (1 800 566 5227)

Laboratory Report

for

Honolulu, City of Board of Water Supply Lab 630 S Beretania St

Honolulu, HI 96843

Attention: Ron Fenstemacher

MONTGOMERY LABORATORIES
Submitted on

AUG # 2 1994

HDS



MONTGOMERY LABORATORIES
555 East Walnut Street
Pasadena, California 91101
818 568 6400; FAX 818 568 6324;
1 800 566 LABS (1 800 566 5227)
Sample # 940721009 Sample 10 WAIPARU II

Laboratory keport

Pasadena, California 91101 818 568 6400; FAX 818 568 6324; 1 800 566 LABS (1 800 566 5227)	Konolulu, City of Board of Water Supply Lab 630 S Beretania St
Sample # 940721009 Sample ID WAIPARU III Project Project Sample Type Water Sampled 20-jul-1994 Received 21-jul-1994 Reported 02-aug-1994	Honolulu , HI 96843 ATTH: Ron Fenstemacher
Parameter Conc. XRec Dilution Cyanide TEPA/SH335%3 Mg/lith 02006	on Det.Limit Prepared By Analyzed By



555 East Walnut Street Pasadena, California 91101 818 568 6400; FAX 818 568 6324; 1 800 566 LABS (1 800 566 5227)

Laboratory Report

Honolulu, City of Board of Water Supply Lab 630 S Beretania St

Honolulu , HI 96843 ATTN: Rom Fenstemacher

					**	
Sample #	940721009 Sample II	WAIPAHU III		Project _	<u> </u>	
	pe <u>Water</u> Sample	d 20-jul-1994	Received 21-j	ul-1994 Reporte	d <u>02-aug-1994</u>	
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_						
i	Sing	le Determ				Secretary.
- {		Qualit	y Contro	1		
Bernaman II	Proprietario de la compania de la c					
				_1	r Passad	4 0 a and
Control	Parameter		Units	Actual	Found 0:0483	XRecv 97
icsi .	Cyanide		mg/l	0.05	0.0565	113
LCS2	Cyanide		mg/l	0.05	HD.	
HBĽK () HS	Cyarnde Cyanide		mg/L mg/l	0.05	0.0531	106
HSD	Cyanide		mg/ t	0.05	0.0486	97
	72.1105					
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	ACTE 18602-19408-1940-1940-1940-1940-1940-1940-1940-1940					
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555 East Walnut Street Pasadena, California 91101 818 568 6400; FAX 818 568 6324; 1 800 566 LABS (1 800 566 5227)

Sample # 940721009 Sample 1D WAIPAHU 111 Project Sample Type Water Sampled 20-101-1994 Received 21-101-1994 Reported 02-809-1994

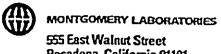
Laboratory Report

Honolulu, City of Board of Water Supply Lab 630 S Beretanía St

96843 Honolulu , Hi ATTH: Ron Fenstemacher

Gross Alpha and Beta Radiation (ML/EPA 900.0

Parameter Units Result Conc. Alpha, Orosa F.7 2.6 Alpha, Two Sigma Error pCI/1 1.4 Bata, Two Sigma Error pCI/1 6.0 Beta, Two Sigma Error pCI/1 1.0	XRec Dilutio	n Det.Limit .55 0 .5	Prepared By	Analyzed By 28 Jul-1994 gub 28 Jul-1994 gub 28 Jul-1994 gub 28 Jul-1994 gub	
					Ö



Laboratory Report

Honolulu, City of Board of Water Supply Lab 630 S Beretania St

Honolulu , HI 96843 ATTN: Ron Fenstemacher

Sample	# 940721009	Sample ID <u>WAIPAHU III</u>	Pr	oject
ample	Type <u>Water</u>	Sampled <u>20-jul-1994</u>	Received 21-jul-1994	Reported 02-aug-1994

Gross Alpha and Bata Radiation (ML/EPA 900.0) Quality Control

Control LCS1	Parameter Alpha Gross	Units -pci/l	Actual 9:2	Found	XRecv 109
LCS1	Beta, Gross	pCi/l	28.1	31.2	111
rc25	Alpha Gross Beta, Gross	pci/l pci/l	9:2 28.1 ·	958 29.8	107 106
	=======================================				

Report 14572 Comment Page

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Laboratory Report

for

Honolulu, City of Board of Water Supply Lab 630 S Beretania St

Honolulu, HI 96843

Attention: Ron Fenstemacher

BEP 0 6 1994

VOTELLY CLASS NAMES

HDS

Hillory)



555 East Walnut Street
Pasadena, California 91101
818 568 6400; FAX 818 568 6324;
1 800 566 LABS (1 800 566 5227)
Sample # 940826082 sample 10 MAIPAHU 111, HOLE #2

. naboraudry mujoru

Honolulu, City of Board of Water Supply Lab 630 S Beretania St

Project	Parameter Parameter Diblobach Organiste Conc. XRec Dilution Det.Limit Prepared By Analyzed By Diblobach Organiste CEDB) Ethylene Dibromide (EDB) Data Entry Data Entr											
---------	--	--	--	--	--	--	--	--	--	--	--	--



555 East Walnut Street Pasadena, California 91101 818 568 6400; FAX 818 568 6324; 1 800 566 LABS (1 800 566 5227)

Laboratory Report

Honolulu, City of Board of Water Supply Lab 630 S Beretania St

Honolulu , HI 96843 ATIN: Ron Fenstemacher

 Sample # 940826082
 Sample ID WAIPAHU III HOLE #Z
 Project

 Sample Type Water
 Sampled 25-aug-1994
 Received 26-aug-1994
 Reported 06-sep-1994

AB1803 - EDB and DBCP (ML/EPA 504)
Quality Control

Control	Parameter					
CS1			Units	Actual	Found	*Recv
LCS1	Dibromochtoropropane		TA:	0.00	0510	100
C52	Ethylene Dibromide (E	DB)	ug/l	0.10	0.10	100
LCS2	Dibromocitoropropens	(0802)		0.00	0.10	100
WELK .	Ethylene Dibromide (E	22 59 22 98688886 2628269 0000 0	*****	0.10	0.12	120
HBLK	(Ulbramoch Lorapropana)			MD.	NO /	
AS .	Ethylene Dibromide (E	98) ************************************	200440404044444444AAAAAAAAAA	ND	ND	*****
HS	Dibromocritoropropens			0.40	0.07	20
	Ethylene Dibromide (E)B) Waxaanaanaanaanaanaanaanaanaanaanaanaanaa	19/1	0.10	0.09	90
Position						
			V71 000000000000000000000000000000000000	***************************************	17101111	
			Paris de la companya			
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			PRESERVE AND	********************	***************************************	••••••
		Maria de la companya	200000000000000000000000000000000000000	000000000000000000000000000000000000000		***************************************
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			W2274-6-7-2000-200-200-200-200-200-200-200-200-	#71/-#5872000000000000000000000000000000000000		

555 East Walnut Street Pasadena, California 91101 818 568 6400; FAX 818 568 6324; 1 800 566 LABS (1 800 566 5227)

Sample # 940826082 Sample ID WAIPANU III HOLE #2 Project Sample Type Water Sampled 25-aug-1994 Received 26-aug-1994 Reported 06-sep-1994

525 Semivolatiles by GC/MS (ML/EPA 525.1

Honolulu, City of

Laboratory Report

Board of Water Supply Lab 630 S Beretania St

96843 Honolulu , HI ATIM: Ron Fenstemacher

Ву	Çek	csk 01-sep-1994	Sek	csk 01-sep-1994	cak 01.5ep.1994	csk 01-sep-1994	ćsk	csk 01-sep-1994	csk	csk 01-sep-1994	csk 01-sep-1994	csk 01-sep-1994	.csk	csk 01-een-1002	CoV 01-e60-1002	30-aug-1994 csk 01-sep-1994 rru	EBK 01-sen-1002	csk 01-sep-1994	csk 01-sep-1994	csk	CSK 01-88p-1994	csk 01-sep-1994	csk	csk 01-sep-1994	csk 01-sep-1994	csk 01-sep-1994	csk	csk 01-sep-1994	csk 01-ken-1902
·imit																0.02 30-		***************************************											-02 30-0
s Result Conc.		UH CH		******				(Carathan Control		***************************************)Andrabadabada								A STATE OF THE STA				***************************************		A general may 6.		ex.	OH Comments
Units	Accordate to Land	1/60	Alachton: Ug/L	1/6n	Anthracane ug/L	1/Bn	Bont(a)Ahthracenb)/6n	Benzo(b)Filtdranthens	1/6n	Bantol P.) El totanthane	slate ug/l	Butylbanzylphthalata	1/6n	Butathior 1971	1/6n	Olbant (ash)Anthracene	Di-(2-Ethylhexyl)adipate ug/l	(1/6)	0 iazinon	1/6/	1/6n	b metroata (1971)	1/Bn	Endrin: (1971)	Fluorene ug/l	1760	1/Bn	Hexachiarocyclopantadiane es es es es es es es es
Parameter	Aceses to the same	Accusping tene	A Lachton:	Aldrin	Anthracane	Atrazine	Bonzto/Antintacent	genzo(a)pyrene	Benzo(b) Eludranthene	Benzo(g,h,i)Perylene	Bantol R) Ettotanthane	01(2-Ethylhexyl)phtha	Buty(banzy)phthalata	Bromacil	Butachtor	Chrysene	Dibert (ash)Anthracene	Di-(2-Ethylhexyl)adip	Diethylphthalate	Diszinon	Distolin	Oimethylphthalate	o methoata	01-n-Butylphthalate	Endrin	Fluorene	gamnaschi ordene	Hexachlorobenzene	Hexachidrouyeropantad



555 East Walnut Street Pasadena, California 91101 818 568 6400; FAX 818 568 6324; 1 800 566 LABS (1 800 566 5227)

Sample # 940826082 Sample 10 MAIPAKU III HOLE #2 Project
Sample Type Water Sampled 25-819-1994 Received 26-819-1994 Reported 06-869-1994

525 Semivolatiles by GC/MS (ML/EPA 525.1)

Laboratory Report

Honolulu, City of Board of Water Supply Lab 630 S Beretania St Honolulu , HI 96843 ATTH: Ron Fenstemacher

30-aug-1994 csk	
Units Result Conc. XRec billution bet.Lini Us/L ND 0.02 Us/L ND 0.02 Us/L ND 0.05 Us/L ND	
Parameter Heptachlor Heptachlor Epoxide Indecaclizate dipyelli Isophorone Indecaclizate dipyelli Isophorone Indecaclizate dipyelli Hethoxychlor Hethoxychlor Hethoxychlor Hethoxychlor Hethoxychlor Fattlbuzh Holinate Metoidanhor Pentachlor Pentachlor Propachlor Sinazine Sinazine Indexent	



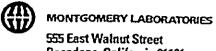
555 East Walnut Street Pasadena, California 91101 818 568 6400; FAX 818 568 6324; 1 800 566 LABS (1 800 566 5227)

Laboratory Report

Honolulu, City of Board of Water Supply Lab 630 S Beretania St

Honolulu , HI 96843 ATTH: Ron Fenstemacher

Sample # 940826082 Sample ID <u>WAIPAHU III HOLE #2</u> Project
525 Semivolatiles by GC/MS (ML/EPA 525.1) Surrogate Summary
Parameter Percent Recovery Acceptable Range Perylenesd12 88 70 3150 44



Laboratory Report

Honolulu, City of Board of Water Supply Lab 630 S Beretania St

Honolulu , HI 96843 ATTN: Ron Fenstemacher

Sample # <u>940826082</u>	Sample ID WAIPARU III HO	DLE #2 Pr	oject
Sample Type <u>Water</u>	Sampled <u>25-aug-1994</u>	Received 26-aug-1994	Reported 06-sep-1994

525 Semivolatiles by GC/MS (ML/EPA 525.1) Quality Control

Control	Parameter	Units	Actual	Found	Z Recv
(E)	elpha-Chlordane	1971	73	2_50	125
LCS1	Acenaphthylene	ug/l	2	1.93	96
LCSI Section	Alachian St. 4	\$ 09/19 ₆ \$	200	2.61	120
LCS1	Aldrin	ug/(2	2.13	106
LCS1	Anthrecene	2002		1.75	.69
LEST	Atrazine	ug/l		2.28	114
LCS1	8enz(@Anthracene	209/11.	2	d.81	90.4
	Benzo(a)pyrene	ug/l	2	1.76	88
LCS1	Renzo(b)htuoranthene Benzo(g,h,i)Perytene	go/At-	2	41-898	94
LESTON	Benzo(K)Fluorantiene	ug/l	2	1.98	99
LCS1	Di(Z-Ethylhexyl)phthalate	LUG/L	_	2.03	102
Cest to 100	Sury Denzy (phthalate)	ug/l cun/i	2	2.27	114
LCS1	Chrysene	ug/į		1590	25
(CS)	Diberz(a:h)Anthracene	ug/(2	1.84	92 ************************************
LCS1	Di-(Z-Ethylhexyl)adipate	ug/l	2	1.96	98
(CS)	Diethylphthalata	3 0/1		7.70	70
LCS1	Dimethylphthalate	ug/l	2	2.11	106
Lesi	DI nButylpathalata	671	2	267	
LCS1	Endrin	ug/l	2	1.71	86
LCSU	(*Uotene	ud/les de la	2 (4) (4)	2208	104
LCS1	ganna-Chlordane	ug/i	2	2.29	114
	Hexaci Laroberzene	iseyi.	2	1992 3 3 35 3 7	564
LCS1	Hexachlorocyclopentadiene	ug/l	2	1.32	66
	Hisponishing	(#)/ ((ā.	957	96
LCS1	Heptachlor Epoxide	ug/l	····	2.18	109
	linderott 25% Oppose	09/4		0.775	87.
LCS1	Lindane	ug/(2	1.94	97
LCS1	Bathoxychloc	cup/L		8209	104
CSI S	Molinate	ug/(2	2.31	116
	error Voyachi of	ler/L	2	2.16	107



Laboratory Report

Honolulu, City of Board of Water Supply Lab 630 S Beretania St

Honolulu , HI 96843 ATTN: Ron Fenstemacher

 Sample # 940826082
 Sample 1D WAIPAHU III HOLE #2
 Project

 Sample Type Water
 Sampled 25-aug-1994
 Received 26-aug-1994
 Reported 06-sep-1994

525 Semivolatiles by GC/MS Quality Control

(ML/EPA 525.1)

Control	Parameter	Units	Actual	Found	ZRecv
œ	Parte al toropiero I	6/15/1	844	8 79	A TOLOR
LCS1	Phenanthrene	ug/[2	2.03	102
CCSI :	& Pyrane Process Commission	09/1	124	2.32	116.8
LCS1	Simazine	ug/l	2	2.31	116
LCS1	Intobercarb	0.00	284	-9° (2.338 °C)	2719
MBLK	alpha-Chlordane	ug/(ND	KD	***************************************
MBLK	AceraphthyLene	A LOCAL COLOR	10	AD	
HBLK	Alachlor	ug/l	ND	KD	
HBLIK	Aldrin	Qp/Ls. s	(0)		
HBLK	Anthracene	ug/l	ND	ND	
	Atrazine	09/1	AD STATE	GD-	
MBLK	Benz(a)Anthracene	ug/l	. KD	KD	
HELK	Benzo(a)pyrene		HD	1 Mil	
MBLK MBLK	Benzo(b)Fluoranthene	ug/l	ND	KD	***************************************
MBLK	Benzo(p)h jiPerylene	Ue/4*	, NO	HD 1	
HELK	Benzo(k)fluoranthene	ug/l	ND	KD.	***************************************
MBLK	DICZ-Ethythexylophthat Butylbenzylphthalate		(U)	S KOLLS	
YELK	Bronse (ug/l	MD	KD	(00000000000000000000000000000000000000
MBLK	Butachlor	<u> 1971</u>	, MD	. HD	
HBLK SIZE	Character	ug/l	ND	KD	************
MBLK	Dibenz(a,h)Anthracene	964	0	300	
elk zer	D1362 Ethylhexyl)adipa	wg/l Lat ug/l	ND ND 30	ND	200200200000000000000000000000000000000
HBLK	Diethylphthalate		Action to the collection of th	HD	
HELKE	Juni non Les de	ug/l	ND	ND	
KBLK	Dieldrin	ug/l ·	ND ND		
BEKY	Directly (pithaletes)		(E)	ND	
HBLK	Dimethoate	ug/l	ND	4D	
eeks.	Disa-Buty(pathalatese		ND ND	KD	
HBLK	Endrin	J/Bn	ND		
BLK.	Fluorene	67/	un u	ND	X157.002
				eHD .	



Laboratory Report

Honolulu, City of Board of Water Supply Lab 630 S Beretania St

Honolulu , H1 96843 ATTN: Ron Fenstemacher

- 4. # 0/003/083	Sample ID WAIPARU III H		Project
Sample # A40050005	Sampled 25-aug-1994	Descrived 26-219-199	4 Reported 06-sep-1994
Sample Type <u>Water</u>	Sampled 25-aud-1994	Kecelaed Forgod 133	

525 Semivolatiles by GC/MS (MI Quality Control

(ML/EPA 525.1)

		_	4	Found	XRecv
Control	Parameter	Units	Actual	1087	
HELK	gamma Calorderio	C7/A	40	ND	EXCEPTION CONTRACTOR
HBLK	Hexach Lorobenzene	ug/l	ND		
BUS .	Statech Lorocyclopen Lediene	100 (00/1% 154)	407, S. J. 188) Days	#12761115516216555
MBLK	Heptachlor	ug/l	ND	ND	
HULK	Hisptochion Epoxide and a	0.77	10.2	100 C	
HBLK	Indeno(1,2,3,c,d)Pyrene	ug/l	ND	ND	
es i	Isopiorane	· · · · · · · · · · · · · · · · · · ·	10	nD	
MBLK	Lindane	ug/l	KD	KD	
e de company	Mathavyehlore 2018	377A	OD WAR	100	
HBLK	Hetribuzin	ug/l	ND	ND	
els.	Holimate	CHL	, KU	HD., 10	
HBLK	Netolachior	ug/l	ND	KD	
WELK SERVE	transellonachtor	270	но эт	100	
MBLK	Pentachlorophenol	ug/L	KD	CH CHARLES	
MELK	Phenanthrene	(097)	HO =	HD.	
MBLK	Prometryn	mg/L	ND	KD WWW.WWW.WWW.WWW.WW.WW.WW.WW.WW.WW.WW.WW	***************************************
BLK	Propadil 9r	. UM	HD	10	
MBLK	Pyrene	ug/l	KD	KD	
BIK	S1822109	(57)	AU SE	(1)D	
MBLK	Thiobencarb	ug/l	ND	KD	CHICLOSOFT THE STATE OF THE STA
NSCK CO	Triffication and		w e	0.00	
HS	alpha-Chlordane	ug/l	2	1_88	94
6	Acensoluptere	Vecal	2	0.65	
NS	Alachlor	ug/l	2	2.34	117
15 A S	XX (47)7		9		2000
•	Anthracene	ug/l	2	1.03	52
HS	Arrestos	Carlo Carlo	10 B	20 E	3300
	Benz(a)Anthracene	ug/l	2	1.62	81 ************************************
HS			7.30: 7	(1270)	
to make	Benzo(B) pyzene Benzo(b) Fluoranthene	ug/l	2	2.19	110
HS		7/1		222	185
13	Herro(G)(A)(Res/Lenc	A SHADOW THE STREET OF THE STR	APRILO 1984 MAINTANA NA		

MONTGOMERY LABORATORIES SEE East Walnut Street

555 East Walnut Street Pasadena, California 91101 818 568 6400; FAX 818 568 6324; 1 800 566 LABS (1 800 566 5227)

Laboratory Report

Honolulu, City of Board of Water Supply Lab 630 S Beretania St

Honotulu , HI 96843 ATTN: Ron Fenstemacher

Sample # <u>940826082</u>	Sample ID WAIPAHU III HOLE #2	Project
Sample Type Water		26-aug-1994 Reported 06-sep-1994

525 Semivolatiles by GC/MS Quality Control

(ML/EPA 525.1)

	_	11-1	a caucal	Found	ZRecv
Control	Parameter	Units	Actual	70072	710
KS	&Bertzo(k) Fluorenthene				142
KS	Di(Z-Ethylhexyl)phthalate	ug/l	2	2.84	****************
MSC 350	Butylberrylpythalate	na\r	_	2:40	1203.55
HS	Chrysene	ug/l		1.95	98
Y SEE	Dibenz(a,h)Anthracena	.ug/.l		(2.3)	116
HS	Di-(2-Ethylhexyl)adipate	ug/l		2.48	124
S	Diethylphthalate	09/15/2	2	3 2.13	1063
HS	Dimethylphthalate	ug/i	2	2.16	108
15	Other Busylanthalate	25/AF # 32 /		25:50	015
HS	Endrin	ug/l	2	2.12	106
75 0	Fluorene	1971		1500	
KS	gamma-Chlordane	ug/l	2	2.18	109
45	Hexachiloropenzene	(J5/L)		1291	26
HS	Hexachlorocyclopentadiene	ug/l	2	1.30	65
MS	Heptachtor	(bg/d	92	1, 96	20
KS	Heptachlor Epoxide	ug/l	2	2.05	102
H S	Indehoti 2.3 c di Pyrene	up/U		2-24	2112
KS	Lindane	ug/l	2	1_87	94
is.	Kathoxychlar	99/0	2	2.387.6	119
HS	Kolinate	ug/l	2	2.20	110
H S	constaniellos	957R		2.09	20062
HS	Pentachlorophenol	ug/l	8 .	10.3	129
rs.	Phenanthrene	Light State	2	15.96	370
HS	Pyrene	ug/l	2	2.16	108
KS .	Simarine	CTAL STATE	3	307	104
KS	Thiobencarb	ug/l	2	2.31	116
######################################	######################################				
~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~					



555 East Walnut Street Pasadena, California 91101 818 568 6400; FAX 818 568 5324; 1 800 566 LABS (1 800 566 5227)

Sample # 940826082 Sample 10 WAIPANU III HOLE #2 Project
Sample Type Water Sampled 25-aug-1994 Received 26-aug-1994 Reported 06-sep-1994

### Laboratory Report

Honolulu, City of Board of Water Supply Lab 630 S Beretania St Honolulu , HI 96843 ATTK: Ron Fenstemacher

(ML/EPR. 524.2

Regulated VOCs plus Lists 1&3

			0.15				Mining.
,1,1-Trichloroethene	)/bn	CA CA	20	And the second second		-50c@ugc1594	ိုးလ
1.2.7. A A PARCHI A PORTRAIN CONTRACTOR			C-0			30-aug-1994	ဥ
1 1 2-Trichlorostens	7.7		C10		Š.	30-eug-1994	× 00
1/6n Bilbing loving in E///	1/8n	KD	0.5			30-aug-1994	5
1-Dichionethylese	1780	HD.	510			30-aug-1994	ျစ္
	1/60	HD	0.5			30-aug-1994	5
2 2 Teleblers	3760	ND.	6.0			30-aug-1994	193
	Ug/L	KD	0.5			30-aug-1994	100
2 /atelah emakananan	740k	HD.	015	2.0		30-aug-1994	ा००
	1/60 1/60	KD	0.5			30-aug-1994	100
Zelifi Zelifi	2176	NO.	d.5			30-eug-1994	103
i,z-Vicnioroetnane	/Bn	KD	0.5			30-aug-1994	2
1/5/miantoropropants and 1997 (Carlon and 1997)	179 ST 179	HD.	5.0			30-atta-1992	col
1,3,5-Trimethylbenzene	ig/l	ND	0.5	AND THE PARTY OF T	AMERICAN POLICE	30-aug-1994	
3501dhlaroprophe st. st.	1/6	- OR	910			30-014-1007	
p-Dichlorobenzene (1,4-DCB)	1/En	KD	0.5	mental and the second s	September 1	30-8-1006	3 6
2, 2: bibliotoptopana, s	1/8	gH.	2510			1641 - Spp - or	
2-Butanone (HEK),	18/I	KD	5	S		20 02	
2.chtoroéthylvinylethán		10				MAN - BUB - UC	100
o-Chlorotoluene .	m/!	S	3.0	Section of the second section of the second section of the second section sect		3661-6ng-nc	100
bich (oratol Dena Hills Commented to the Commenter of the		G.	0.0		***************************************	30-eng-1994	၂၀၁
Hethvi-2-Pentanone (MIBK)		10	Con			30- aug-1994	်(ဝ)
18 STATEMENT	. /5	ON STATE	<u> </u>	The second secon	-	30-aug-1994	loo
9rombensens		1 m				30-aug-1994	းစ
D. S. L. Cli Br. C. L. L. S. C. L. C.	1/80	KD .	0.5			30-aug-1994	100
	71 C.	HD	0.5			30-aug-1994	les
s-1,z-vicilioi detilytelle	1/80	KD	0.5			30-eug-1994	5
	176	HO.	0,5			30-elig-1994	163
ug/l	ng/(	NO.	0.5			30-aug-1994	700
	W. V.	THE PROPERTY OF THE PROPERTY O					



555 East Walnut Street
Pasadena, California 91101
818 568 6400; FAX 818 568 6324;
1 800 566 LABS (1 800 566 5227)
Sample # 940826082 · Sample 10 WAIPARU III HOLE #2
Sample Type Hater Sampled 25-aug-1994 Received 26-aug-1994

Regulated VOCs plus Lists 1&3 (ML/EPA 524.2

### Laboratory Report

Board of Water Supply Lab 630 S Beretania St Honolulu, city of

M ATTM: Ron Fenstemacher

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Bý	<u>ါ</u>	col	103	loo	100	col		100	]00	col	100	col	)99	loo	100	) 00	ာစ	col	100	100	ါတ	100	100	loo	190	sot Sot	: 100	io S	
Analyzed	30-aug-1994	30-aug-1994	30-end-1565	30-aug-1994	30-aug-1994	30-aug-1994	30-aug-1994	30-sug-1994	30-aug-1994	30-aug-1994	30-aug-1994	30-aug-1994	30-aug-1994	30-aug-1994	30-aug-1994	30-sug-1994	30-aug-1994	30-aug-1994	30-aud-1994	30-aug-1994	30: aug+1994	30-aug-1994	30- aug- 1994	30-eug-1994	30- aug-1994	30-aug-1994	30- aug- 1994	30-aug-1994	30-aug-1994
By																						•							
t Prepared																													
:	5.0.5	0.5	5.0	0.5	510	0.5	0.5	0.5	510	0.5	6.0	0.5	5.0	0.5	610	0.5	510	0.5	910	0.5	5.0	0.5	610	0.5	5.0	0.5	6.5	0.5	5.0
XRec Dilution																													
Conc.																													
Result	(QH	£	QH	NO NO	- ID	NO	qn	욧	gji	욧	GR	æ	gH	£	94	윤	9	ex ex	ON	욙	QIF 3	AD CH	Q.	욡	GH	운	QN	£	QH
Units	1760	)/gn		ug/l	178n	1/6n	* 1/6n *	1/6n	1787	'ug/l	. 1/60	ug/l	1/61	∪g/1	1/60	ug/l	1/61	1/6n	176p	1/6n	. 1781 a	\gu	1/60	\g	1287	1/8n		\go	1/80
																						**************************************						***************************************	
		omethane)			ch toride);						otte e 👙 💮 🗜	ne(Freon1)			13:008)						72-00B5r	(PCE)				thylene		ICE)	hahacEteor
er	Browdform	Chloroform (Trichioromethane)	Bromochlonomathans	thane	Chloromathane(Hethyllichlonide), S. 1971.	Chlorodibronomethane	Dibrononnthane	Bromodichloromethane	olchionamethana igylu	enzene	Dichiarodifluoromethane: 72	Fluorotrichloromethane(Freoni)	llexachtorobutadiens 1971	Isopropylbenzene	m-Olthiobeniena (1,3:DGB)	enes	Habithal ene.	benzene .	तः शर्वकृत्रारिकतर्रेषार 💎 👉 👍 😍 😅	)e	o-bichidrobantane (172408). A	Tetrachioroethylene (PCE)	p-isopropyltolisere	sec-Butylbenzene	Styrena	',2-Dichloroe	tart-Bury (Benzana	richloroethylene (TCE)	talchlonothi.titorobthanacebaom m
Parameter	Bronoft	Chlorot	Bronoct	Chloroe	chloro	Chloroc	Olbrone	Bromodi	DICHIO	Ethyl benzene	D leh lor	Fluorot	Hexachi	Isoprop	m=0 cb(	m,p-Xylenes	Hepith	n-Butyl	(doJa:u	o-Xyler	o o c	Tetrack	p-fsop	. sec-But	Styren	trans-1	tenten	Trichle	Te felt



555 East Walnut Street
Pasadena, California 91101
818 568 6400; FAX 818 568 6324;
1 800 566 LABS (1 800 566 5227)

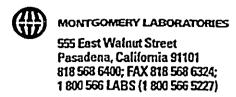
Sample # 940826082 Sample ID WAIPARU III HOLE #2 Project
Sample Type Water Sampled 25-aug-1994 Received 26-aug-1994 Reported 06-sep-1994

Regulated VOCs plus Lists 1£3 (ML/EPA 524.2 )

### Laboratory Report

Honolulu, City of Board of Water Supply Lab 630 S Beretania St Honolulu , HI 96843 ATIN: Ron Fenstemacher

Analyzed By 30-aug-1994 col 30-aug-1994 col 30-aug-1994 col 30-aug-1994 col						
Prepared By						
0flution Det.Limit 1 0.5 0.5 0						
it Conc. XRec						
Units Resul						
trans. 1310 chtoroaroperie to table  trans. 1310 chtoroaroperie to table  Toluene ug/t Vin/Cohldcide (VC)						
Parameter trans 1930 o Toluene Virvi chlarid Data Entry						



### Laboratory Report

Honolulu, City of Board of Water Supply Lab 630 S Beretania St

Honolulu , HI 96843 ATTN: Ron Fenstemacher

 Sample # 940826082
 Sample ID WAIPAHU III HOLE #2
 Project

 Sample Type Water
 Sampled 25-aug-1994
 Received 26-aug-1994
 Reported 06-sep-1994

Regulated VOCs plus Lists 1&3 (ML/EPA 524.2 )
Surrogate Summary

Parameter Tollerneed8 1,2-Dichloroethane-d4	Percent Recovery  95 100	Acceptable Range 808-0120 - 80 80 - 120
AnBromot ( Morobenzera)	eloz.	P803-3120



### Laboratory Report

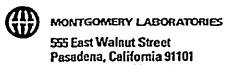
Honolulu, City of Board of Water Supply Lab 630 S Beretania St

Honolulu , HI 96843 ATTN: Ron Fenstemacher

Sample # <u>940826082</u>	Sample ID <u>VAIPAHU III_HOLE #2</u>	Project
Sample Type <u>Water</u>	Sampled 25-aug-1994 Received 26	<del></del>

### Regulated VOCs plus Lists 1&3 (ML/EPA 524.2 ) Quality Control

Control	Parameter	Units	Actual	Found	**Recv
iesi.	Int Utchioroethytens	<b>37/J</b>		337	84.2
LCS1	1,2,4-Trichlorobenzene	ug/l	4	4.80	120
<u>esi</u>	prolichlarobertzene (4/4/00%)	En/L		3.76	
LCS1	p-Chlorotoluene	ug/[	4	3.72	93 .
icsi.	Воптавле	- Up/U	3	4.10	SULL
LCS1	Chlorobenzene	ug/l	4	4.18	104
CCS1	(Chilorotom)(Trichibromethano)	b9/		9.75	931
LCS1	Trichloroethylene (TCE)	ug/l	4	3.84	96
LCSI	Tallane	44p/(l===	200	4-02	100
LCS2	1,1-Dichloroethylene	ug/l	4	4.09	102
Average Application (Control of Control of C	LE States the Constitution of the Constitution	19/J		4.6	910
LCS2	p-Dichlorobenzene (1,4-DCB)	ug/i	4	4.15	104
LCS2	p:Chlorotaluene	200/0		4,35	109
ECS2	Benzene	ug/l	4	4.39	110
	Chlarobenzene	1974		*57,52	1935
LCS2	Chloroform (Trichloromethane)	ug/(	4	4.21	105
~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~	Elitichtorophytens (CE)	. up/l	4.0	4248	- 3115
LCS2	Toluene	ug/(4	4.48	112
MBLK	Mal/1/2ct agrach to conthere		10	ND .	
40040404 3404044444444444	1,1,1-Trichloroethane	ug/l	ND .	KD	
C	LES EXECUTED TO COMPANY OF THE SECOND COMPAN	00/0	(0)	Min.	
MBLK	1,1,2-Trichloroethane	Ug/(LD CO	KD	
tels.	18 Pulciflorpethane suppose	A LOZE	AD STREET	MD.	
HBLK	1,1-Dichloroethylene	ug/l	KD	KD	
HELK	alla l'Olichia ropropene de la	407/4	SD	(D)	
BLK	1,2,3-Trichlorobenzene	ug/(ND	KD	
HBLK	Description of the second	0.00710-000	(Atr)	(AD)	
NO.	1,2,4-Trichlorobenzene	ug/l	KO CH	KD	
HBLK	L/4 CHRETTY/De Transfer	(Q/I)	\$10 mm	\$400 cc.	
**************	1,2-Dichloroethane	ug/l	ND .	ND	
	1,52-0 tch for opening five	ug/CT+	NO.	10	



Laboratory Report

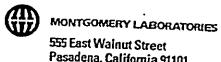
Honolulu, City of Board of Water Supply Lab 630 S Beretania St

Konolulu , HI 96843 ATTN: Ron Fenstemacher

Sample # <u>940826082</u>	Sample ID WAIPAHU III HOLE #2	Project
Sample Type Water	Sampled 25-aug-1994 Received 2	26-aug-1994 Reported 06-sep-1994

Regulated VOCs plus Lists 1&3 Quality Control (ML/EPA 524.2

Control	Parameter	Units	Actual	Found	X Recv
HBLK:	1,3,5-Tr (methy) benzene	de//l	80	(III)	
HBLK	1,3-Dichloropropane	ug/l	KD	KD	
MBLK .	p-01chLarobenzene (1,4-008)	ra\t	NO .	ED.	
MBLK	2,2-Dichloropropane	ug/l	ND	ND	
HBLK	- Z-Butagone (MEK)	up/L	ND .	Œ.	
HBLK	2-Chloroethylvinylether	ug/l	ND	ND	
MBLK	orChloratoluene	.ue/L	ktī .	ND	
HBLK	p-Chlorotoluene	ug/(KD	KD	
HBLK	4-Hothy (#P.Pentengre (HIBK)#	Up/U	ID)	(0)	4.4
KBLK	Benzene .	ug/l	KD	NO	
MBLK	Bronocerzene	. 09/L	No.	HD.	
HBLK	Bromomethane (Hethyl Bromide)	ug/l	ND	ND	
MBLK	clast 2-Dichlaroethylene	op/l-	(O) 1	10	
HBLK	Chlorobenzene	ug/l	מא	KD	
MBLK	Carbon Tetrachloride	υσ/lbs	ND .	HD	
MBLK	cis-1,3-Dichloropropene	ug/l	KD	ND	
MBLK:	Bronoform	up/l	MD)	io.	
MBLK	Chloroform (Trichloromethane)	ug/l	ИD	KD	
MELK	Bramochtoromethane	ug/L	N UT	AD-	
HBLK	Chloroethane	ug/l	KD	ND	
HBLK(Chloracethine (Hethyl) Chloride)	eug/Atament ((II)	TO	
HBLK	Chlorodibromomethane	ug/l	ND	ND	
MBLK IN THE	Dithomomethare	ug/Luciae	NO.	5 D	
KBLK	BromodichLoromethane	ug/l	HD	KD	
HBLK, SI	(Dichterogathane	da/i	10	The state of the s	
HBLK	Ethyl benzene	ug/t	ND	ND	
HBLK	Dichlorodifluoromethaner	rug/4	NO 7	CD .	
MBLK	Fluorotrichloromethane(Freon1)	ug/l	ND	KD	
HELK	diexechtonobutadiene	Q8/A-	Œ	w.	
KBLK	Isopropylbenzene	ug/(ND	ND	
MBEK .	B:Ulchloroberizere (1.3-008)	LG/L	165	65	



Laboratory Report

Honolulu, City of Board of Water Supply Lab 630 S Beretania St

Honolulu , H1 96843 ATTN: Ron Fenstemacher

Sample	# 940826082	Sample ID WAIPAHU III H	101 E 413	
Sample	Type Water	Sampled 25-pur-100/	ULE #2	Project
			Received 26-aug-199	Reported <u>06-sep-1994</u>

Regulated VOCs plus Lists 1&3 (ML/EPA 524.2) Quality Control

Control	Parameter	Uni	•-		
H ELE.	E/PXXXI en es F	ONT	70027776627309220404Cc2200400444	26220200000000000000000000000000000000	nd XRecv
MBLK	. Kaphthalene	l)gu		0.68	
BIK	sandury/benzene			KD.	***************************************
MBLK	n-Propylbenzene	ug/[**************************************	MD.	
PE LK:	SV6-XVICTO	7-21		ND	PTT-C-00070000-00-00-00-00-00-00-00-00-00-00-
MBLK	o-Dichlorobenzene (1,2	-DCB) UC/I	ND ND	\$10	
elk.	wildtrachiopoethylenn (p	5)	***************************************	KD.	
HBLK	p-Isopropyltoluene	Ug/L	СИ	3,4D2	
HBUK	sec-Bucylbenzene	06/1	NO ND	KD.	-
MBLK	Styrene	11971	KD	100	
auk Sylves	Attoroal) Zabienie zoethy	ene legil	AU 840	KD	20000000000000000000000000000000000000
HBLK	tert-Butylbenzene	110/1	KD	CHD **	
euk.	MINChlocoschylene (765)			ND	National Control of the Control of t
HBLK	Trichlorotrifluoroethan	e(freen un/I	KD	40 e	
SELX:	tress (Stotchlaroprope	19 1971	10	ND	(T) 250
HBLK	Toluene	ug/l	ND	HD.	
WELK :	Vinys catacide (vc)	Q7/1	100	KD	
				(A)	
Estate de la constitución de la					

					Maria Service Commence



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Laboratory Report

for

Honolulu, City of Board of Water Supply Lab 630 S Beretania St

Honolulu, HI 96843

Attention: Ron Fenstemacher

MONTGOMERY LABORATORIES Submitted on

Report#: 15300

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555 East Walnut Street
Pasadena, California 91101
818 558 6400; FAX 818 568 6324;
1 800 566 LABS (1 800 566 5227)
Sample # 940826083 sample 10 WAIPARU 111 HOLE #2 Project
Sample 7 ype Water sampled 25-aug-1994 Received 26-aug-1994 Reported 09-sep-1994

Laboratory Report

Honolulu, City of Board of Water Supply Lab 630 S Beretania St Honolulu , Hi 96843 AITH: Ron Fenstemacher

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Laboratory Report

Honolulu, City of Board of Water Supply Lab 630 S Beretania St

Honolulu , HI 96843

ATTN: Ron Fenstemacher

	e # 940826083 Sample 10 <u>UA</u> e Type <u>Water</u> Sampled <u>2</u>	1PAHU 111 HOL 5-aug-1994 K	E #2 eccived <u>26</u> -	Project - <u>aug-1994</u> Reporte	ed <u>09-sep-1994</u>	
	Single	Determi Quality	nation Contr	Aualytes ol		
Contr		***	Units	Actual 0:01	Found Grojat	%Recv 101
csi	Cadmilm, Total, Gr		. mo/lis		0.0111	111
LCS2	Cadmium, Total, GF		ng/l	0.01	0.0111 WD	
alk:	Codmun, lotal, CF		mg/L	NO.	0.0114	114
HS	Cadmium, Total, GF		ng/l	0.01	www.com.com.com.com.com.com.com.com.com.com	**********
HSD	Cedmium, fotal, Gr		mg/l	0.01	0:01(6)	00
LCS1	Kercury	***************************************	ug/l	1.50	1.35	90
LCSZ)	Mercuny		na\r	1250	1.28	85
HBLK	Hercury		ug/i	ND	ND .	
HS .	Mercury		09/1	71-50	1.52	101
HSD	Kercury	_	ug/l	1.50	1.45	97
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Pasadena, California 91101 818 568 6400; FAX 818 568 6324, 1 800 566 LABS (1 800 566 5227) 555 East Walnut Street

Sampled 25-aug-1994 Received 26-aug-1994 Reported 09-sep-1994 **Project** Sample # 940826083 Sample ID WAIPANU III HOLE #2 Sample Type Water

Aldicarbs

Aldicarbs

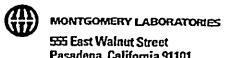
Laboratory Report

Board of Water Supply Lab 630 S Beretania St Honolulu, City of

ATTM: Ron Fenstemacher Ξ Honolulu

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_ @ C 23 2	<b>S</b> 5	<u> </u>	<b>3</b>	
Parameter 3.19deoxycahbofurah Aldicarb (Temik) Aldicarb aulfoxide	Baygon: Carbofuran (Furadan)	<u>Carbufyl</u> Hethlocarb	Héthoayl Oxamyl (Vydate)	
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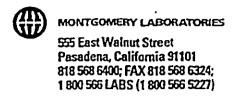


### Laboratory Report

Honolulu, City of Board of Water Supply Lab 630 S Beretania St

Honolulu , HI 96843 ATTH: Ron Fenstemacher

Sample # 940		nple ID <u>WAI</u>	PAHU III	HOLE #	2	P	roject			
Sample Type	Water	Sampled 25	-aug-1994	Rece	ived <u>26-</u>	aug-1994	Reported	09-sep-199	4	
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	Aldicarl					(1	IL/EPA	531.1	)	3
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Parameter	•				Percen	t Recover	У	Accepta	ble Rar	)ge
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### Laboratory Report

Honolulu, City of Board of Water Supply Lab 630 S Beretania St

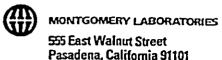
Honolulu , HI 96843 ATTN: Ron Fenstemacher

 Sample # 940826083
 Sample ID WAIPAHU III HOLE #2
 Project

 Sample Type Water
 Sampled 25-aug-1994
 Received 26-aug-1994
 Reported 09-sep-1994

Aldicarbs (ML/EPA 531.1 )
Quality Control

Control	Parameter	Units	Actual	Found	*Recv
CS1	3-Hydroxycarboturan	ug/l	20.0	द्धाः <b>।</b>	7105
LCS1	Aldicarb (Temik)	ug/l	20.0	19.9	100
CSI TO THE	Aldicarb sulfone	1/60	20:0	21.6	108
LCS1	Aldicarb sulfoxide	ug/l	20.0	23.6	118
Lest .	Baygon	Op/A	20:0	2052	101
LCS1	Carbofuran (Furadan)	ug/l	20.0	20.0	100
CEST	CarbanyC	ত্যে/(	20.0	2018	*104
LCS1	Kethiocarb	ug/l	20.0	19.7	98
uest .	Rechange	ting).	20:0	1988	99
LCS1	Oxamyl (Vydate)	ug/l	20.0	20.5	102
£052	- Extraconventacionen	SP/A	20.0	26.	100
LCS2	Aldicarb (Temik)	ug/l	20.0	19.7	98
1032	Aldicarb sulfone	UBAU	50:01	24.8	109
LCS2	Aldicarb sulfoxide	ug/l	20.0	23.9	120
LCSZ	Baygon	ug/L	50:0	2013	102-
LCS2	Carbofuran (Furadan)	ug/l	20.0	20.2	101
LCS2	Carbanyl	up/A	20.0	731 <i>6</i> 7	110
LCS2	Hethiocarb	ug/l	20.0	21-1	106
CS2	Heibonyl	1997J	20.0	2011	100
LCS2	Oxamyl (Vydate)	ug/l	20.0	20.9	104
BIK	23-Bydroxycarbofurant**********	cip/le leek 6.5	NO SERVICE PROPERTY	ND Page 100	
HBLK	Aldicarb (Temik)	ug/l	KD .	ND	
	Aldicarb sultone	Ue/l	40	SD -	
HBLK	Aldicarb sulfoxide	<b>પ્</b> લ/(	ND	KD	
301K	Boygen	97/18	40	(ID	
MBLK	Carbofuran (Furadan)	ug/l	KD	KD	
<b>2015</b>	Senant V	ig/l	NO STATE OF THE ST	SDR	
HBLK	<b>Methiocarb</b>	ug/l	KO .	KD .	
<b>HELK</b>	Seriemy)	COLUMN TO THE STATE OF THE STAT	100	(0)	
HBLK	Oxamyl (Vydate)	ug/l	KD	KD	
	5-Bythoxycarboluren	<b>1</b> 9/0	5010	2045	102



### Laboratory Report

Honolulu, City of Board of Water Supply Lab 630 S Beretania St

, HI 96843 **Honolulu** ATTN: Ron Fenstemacher

Sample # <u>940826</u>	083 Sample ID	WAIPAHU III H	OLE #2	Рго	ject	
Sample Type <u>Wate</u>	<u>er</u> Sampled	25-aug-1994	Received 2	6-aug-1994	Reported <u>09-sep-199</u>	4

Aldicarbs			(ML/EPA	537 7	1	7
			(1227) 22.72	JJ	,	- 18
j	Quality	Control				F3
	200220					- 13
A particular has deed according to the designation of the designation	data dan ini mana dan mana da kadalah dan mana	THE PARTY OF THE P				

Control	Parameter	Units	Actual	Found	*Recv
<b>H</b> S	Aldicarb ((emik)	Ng/A	20.0	20.1	100
MS	Aldicarb sulfone	ug/l	20.0	20.6	103
MS	Aldicarb sulfoxide	1/20	20:0	2041	100
KS	Baygon	ug/l	20.0	20.6	103
es line	: Carbofuran (Filmadan)	eg/l	20:0	2005	200
HS	Carbaryl	ug/l	20.0	20.6	103
MS.	. Methiocarb	99/1	20-0	21년	106
HS	Hethomyl	· ug/l	20.0	20.3	102
HS	Oxemyl (Vydate) =	ug/L	20:0	20.5	501
KSD	3-Kydroxycarbofuran	ug/l	20.0	20.7	104
150	Staldicarb (Jemik)	e elektrisk i bg/lb	20.0	20-4	1072
KSD	Aldicarb sulfone	ug/l	20.0	20.5	102
HS0	Aldicare sulfaxide	40/1	20.0	50-1	100
HSD	Baygon	ug/l	20.0	20.5	102
MSD	Corbotução (Furadao)		20.05	20.4	102
HSD	Carbaryl	ug/l	20.0	20.8	104
HSD	- : Kethiocarb	200/1	20.0	7.15	108
HSD	Hethomyl	ug/l	20.0	20.2	101
X20	Dxemyl (Vydare)		20.0	2025	102
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555 East Weinut Street Pasadena, California 91101 818 568 6400; FAX 818 568 6324; 1 800 566 LABS (1 800 563 5227)

Sample # 940826083 Sample ID <u>MAIPANU III NOLE #2</u> Project Sample Type <u>Water</u> Sampled <u>25-aug-1994</u> Received <u>26-aug-1994</u> Reported <u>99-sep-1994</u>

Laboratory Report

Honolulu, City of Board of Water Supply Lab 630 S Beretania St Honolulu , HI 96843 ATTH: Roh Fenstemacher

Chlorinated Adids in Water (ML/EPA 515.1 )

				;	í			***************************************													
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ğ	1661	-1994	7661	-1994	02-sep-1994	-1994	7661-	1994	-1994	1994	02-sep-1994	-1994	8	-1994	133	3-1994	02-sep-1994	-1994			
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<u>=</u>																		76/90			
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**																					
Units	(8)	755	1/50	1/gn		7gs		785	¥6.	78	7693	/g5	100	785	613	/Bn	101	:			
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				Tank America																	
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ieter	1/Bit 1/Sin 2000 11/5/1/2	-TP (	2.1.1.1.1.1.1.1.1.1.1.1.1.1.1.1.1.1.1.1		Dichlot bron	froxva	Aciditan tan (coalitativa) S. C. and	1ZOD	Childranbens (guellitefile) a some seemen and seemen seemen	30 CC	3.5.0 jeni probenzaje, 40 jeja 3.5.7 maga 3.5.0	- Committee Character	Olicenton	eh.	Pantachi (Vobiland)		2-11/6-1-12 Cabilities (autilities) (autilities)	Entr			
Parameter	2.4.5	2.4.5	2	2.4-D	Officer	S-Hvc	ACT T	Bente	SH S	Dalar	3.5	DCPA	010		500	Picl		Data			



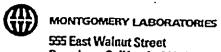
555 East Walnut Street Pasadena, California 91101 818 568 6400; FAX 818 568 6324; 1 800 566 LABS (1 800 566 5227)

### Laboratory Report

Honolulu, City of Board of Water Supply Lab 630 S Beretania St

Honolulu , HI 96843 ATTN: Ron Fenstemacher

Sample # 9 Sample Typ		Sample ID <u>WAI</u> Sampled <u>25</u>	PAHU III HO -aug-1994	LE #2 Received <u>2</u>	6-aug-199	Project <u> </u>	d <u>09-sep-19</u>	<u>94</u>	
	Chlori	nated Ac	ids in Surroga	Water te Sum		(ML/EPI	515.1	)	12110000001
Parameter 2,4-Dichio	copieny acc	ic acid		Perc 105	ent Recov	егу	Accep 70	table Ra	inge



### Laboratory Report

Honolulu, City of Board of Water Supply Lab 630 S Beretania St

Honolulu , HJ 96843 ATTN: Ron Fenstemacher

Sample # 940826083 Sample ID WAIPAHU III HOLE #2 Project
Sample Type Water Sampled 25-aug-1994 Received 26-aug-1994 Reported 09-sep-1994

Chlorinated Acids in Water (ML/EPA 515.1 )
Quality Control

Control	Parameter	Units	Actual	<b></b>	<b>a.</b> _
CONTRACT	20519/611560	0,71	ACCORT	Found 0258	XRecv
LCS1	2,4-0	ug/l	1.00	1.01	101
LESI:	Bentezon	30/1	00	1 17	117
FC25	2,4,5-TP (Silvex)	ug/l	0.500	NA.	
ics?	2,50	7/1	1:00	NATE OF THE PARTY	
LCS2	Bentazon	ug/l	1.00	KA	
BLK	22050	0.9/1	NO.	ND .	
KBLK	Z,4,5-TP (Silvex)	ug/l	<b>K</b> D	<b>K</b> D	
HELK	2,500	$\sigma A$	1 ND	40.	
HBLK	2,4-DB	ug/l	NO	KD	COCCONDINUIS OF THE PROPERTY O
2013	Dicalon-rop		19	<b>N</b> D	
KBLK	5-Hydroxydicamba	ug/l	HD CH	KD	***************************************
POLK	Actilluonien (cumi itative)	99/1	Œ	<b>.</b>	
HBLK	Bentazon	ug/(	KD	KD	
HBLK	, Chloromben (qualitative)	1971s sa	AD	iiD	
HELK	Dalapon (qualitative)	ug/l	ND	ND CN	
MBLK	DCPA	CD/A	MD	(iii)	
	DICAMO	ug/(	ND	ND	
HBLK	Dinoseb	1974	<b>(</b> 0)	HD.	
CO.	Rentacilorophenoles	ug/l	ND	MD	***************************************
HELK	Pictoram	(CV)	AMOLE	<b>10</b>	
	(Sulficialistic (contactor)	ug/l	ND	DA CONTRACTOR OF THE CONTRACTO	000000000000000000000000000000000000000
HS	2,4,5-TP (Silvex)	/		HD.	
TS SEE SEE		ug/l	0.500	0.72	144
HS	Bentazon	/Pn	0000	M 123	630235
ED 4	EZGESTE (GILVOV)	6/1	1.00	1.33	133
KSD	2,4-D	ug/l	1.00		
Ted of the	Rentation		1.00	NA	
	A CONTRACTOR OF THE PROPERTY O				
	The second secon				



555 East Walnut Streat Pasadena, California 91101 818 568 6400; FAX 818 568 5324; 1 800 566 LABS (1 800 566 5227)

Sample # 940826083 Sample ID WAIPARU 111 HOLE #2 Project
Sample Type <u>Hater</u> Sampled 25-aug-1994 Received 26-aug-1994 Reported 09-sep-1994

SDWA Pesticides

(ML/EPA 508

Laboratory Report

Honolulu, City of Board of Water Supply Lab 630 S Beretania St Honolulu , HI 96843 ATTH: Ron Fenstemacher

	7661-das-20	7001-008-20	703007-	27.04 TO 00.00	1994 - 1994	07-555-1007	1001-dag 1007	07-sen-100k	07 - s ep - 1994 Pah	07-sep-1994	07-sep-1994	07-sep-1994	07.5ep-1994	07-991-1007	1001 1001	- 173 ep-1794	9441-3eb-194	OZ 100:	07-sep-1994	- 07-80D-1994	U/-sep-1994	OT 155:	7.4 seb-1994	07-sep-1995	07-sep-1994	07-sep-1994	07-sep-1994	07-sep-1994	07-sep-1994	
imit Prepared By									01-8ep-1994 csk																					₹ 01-8ep-1994 - 68k
Rec Dilution Det.L	110	0.1		0.1	110	0.1	110	0.01	5010	0.01	10.0	0.1	1010	0.01	1010) 844 97 31	0.01	1010	0.01	i du	0.01	TOTO TOTO	0.01	10.00	100		**************************************	0.01	C 0105	0.5	
sult Conc.	HD.	웃	gr.	£	AD THE STREET	KD	0)		- The state of the	KD	AD	KD	Q.	£	91	QH QH	2	<b>Q</b>	9)	AD		<b>\$</b>	0.00	- Q.	l e e e e e e e e e e e e e e e e e e e		0.0		C)	35,107,07,0
		***************************************		:				****				*********												No.					)/Bn	
Parameter Units			PCB 1232 Arocide 110/11/2		PGB 1248 Araclor 35 119/17		PCB 1260 Aroclor		ALACRIBOR (ALBOBY)	Atarin ug/l			Uniorithatonia (Urcontil Brayo))	Delta-BHC Delta-BHC			p.p. 001		Erdhfin Aldehyde S SI SE Erdhfin Aldehyde		Endostilian I. (albhala	a)	Erzosulkan suktataral i 🚰 🔭 🤫 🤫 📅 🚻		leptachlor Epoxida a ser ser ser ser ser ser ser		Hat Indyven I on			
Parameter org 1014 at 22152	00 1331 Apples	ree izzi Alucior	PCB 1232 Aroclor	PCB 1242 Aroclor	PCB 1248 Angelon	PCB 1254 Araclor	PCB 1260 Arocloc	Alpha-BHC	ALACTION (ALADOX)	Atarin 6. t. Alla	Chlordeno	cittoi dalle	יחומינים משנים וויינים	verta-bac	6, Pt 000	p,p'·DDE	P, P' 001	Dieldrin	Endrin Aldehyde	Endrin	Endosul (an 1 (alph	Endosulfan II (beta)	Encosultan sultate	· Heptachlor	Heptachlor Epoxida	Lindene (gemma-BHC	Mathbrychlon	Tovorbone		Paraseuri X



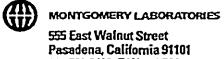
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### Laboratory Report

Honolulu, City of Board of Water Supply Lab 630 S Beretania St

Honolulu , H1 96843 ATTN: Ron Fenstemacher

Sample # 940826083 Sample ID WAIPAHU 111 HOLE #2 Project  Sample Type Water Sampled 25-aug-1994 Received 26-aug-1994 Reported 09/sep-1994  SDWA Pesticides (ML/EPA 508 )  Surrogate Summary
The state of the s
Parameter Percent Recovery Acceptable Range



### Laboratory Report

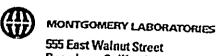
Honolulu, City of Board of Water Supply Lab 630 S Beretania St

Konolulu , HI 96843 ATTN: Ron Fenstemacher

Sample # 940826083 Sample ID WAIPAHU III HOLE #2 Project Sample Type <u>Vater</u> Sampled <u>25-aug-1994</u> Received <u>26-aug-1994</u> Reported <u>09-sep-1994</u>

SDWA Pesticides (ML/3PA 508 Quality Control

Control	Parameter	Units	Actual	Found	<b>%</b> Recv
Lest	Adrin	(4) (00/I	0.054	0105	700
LCS1	p,p' DDT	<b>હ્</b> યુ/(	0.10	0.10	100
C6515	Distric	09/6	0.40	0-10	100
LCS1	Endrin	ug/l	0.10	0.09	90
LCS1	Gamar#HCE(UIndane)	tin .	0.05	0.05	100
LCS1	Heptachlor	υg/l	0.05	0.04	80
COSS	Aldrin	<b>1</b> 09/1	0.0S	HA - H	
LCS2	p,p' DDT .	us/l	0.10	НА	***************************************
rcs:	Vieldrin	9/1	0.00	* ALA) * A	
LCS2	Endrin	ug/(	0.10	NA .	***************************************
CC523	German BBC (Exindane)	UG/L	0.05	HA	
LCS2	Heptachlor	ug/l	0.05	KA	************
<b>H</b> ELK	PCE 1016 Aroctor	U7/I	BD)	\$2,440,000	
HBLK	PCB 1221 Aroclor	ug/(	HD	ND	
#BLK	PCB_TZ32/AFactor.	ug/L	NO.	HD	
HBLK	PC8 1242 Aroclor	ug/l	ND	ND	************************
HBLK (	PCB 1248*Aroctor	3509/1	ND 9	(KO)	
HBLK	PCB 1254 Aroclor	ug/(	KD	KD	**********
entks	PCB 1260 Aractor	0 - 0 0 / C	KU .	HD.	
MBLK	Alpha-BHC	ug/l	KD	D)	***************
RELK	AALBCHLOT (ALBHEX)	e pylosia	ED :	MD	
MBLK	Aldrin	ug/l	ND	ND	Market Market Market Market
MOLKS:	Chlordane	2007LT	(0)	HD.	
HBLK	Chlorthaionil (Drconil, Bravo)	ug/l	KD	D CO	
HELK SAME	SUCCESSION OF STREET	esug/tees o	(m)	340 m	
MBLK	p,p' DDD	ug/(	KD	ND	****************
	P P 2006	99/4	, HO	(HD)	
MBLK MBLX	p,p' 00T	ug/l	ND	CA Server server	
	Dieldrin	Eroevi -	10	2,00	
MBLK	Endrin Aldehyde	ug/l	KD.	KD	
TOLK IN THE	Endrin'	* Tug/Live	NO was the	HD *****	



### Laboratory Report

Honolulu, City of Board of Water Supply Lab 630 S Beretania St

Honolulu , HI 96843 ATTN: Ron Fenstemacher

Samp	le # 940826083 Sample ID WAIPAHU III	. HOLE #3		**		
Sampt	le Type Water Sampled 25-aug-1992	Pagainad 2	Project			
	le Type <u>Water</u> Sampled <u>25-aug-199</u> 2	s verelaged Si	5-809-1994 Repo	rted <u>09-sep-1</u>	994	
_						
- 1	SDWA Pesticides		(367 /			
	_	ty Contr	(ML/E	PA 508	)	eneme.
· Res		cy conti	.01			3
Contro	ol Parameter	Unics				
HBLK	Endosulfan i (alpha)	ug/!	Actual	Found	***	ecv
HBLK	Endosulfan II (beta)		MD	+10		
BLK	Endosultan sulfate (+)	ug/l	KD.	KD	MAAAAAA	
HBLK	Gamma-BHC (Lindane)	Lig/I	NO .	ND.		
HBLK	Reptaction	U3/L	KD .	ND		
MBLK	Keptachlor Epoxide	-doXf	ND:	NO.		
MBLK	Hethoxychion	ug/l	KD	ND	••••	
HBLK	Toxaphene	1/60	ND .	HD		
HS	Aldnin	Ug/l	MD	ND		***************************************
HS	P,P' 00T	Up/( * * *	0.05	0.05	00	
MS .	Dieldrin	ug/l	0.10	0.10	100	)
KS	Endrin	17971	0.10	0.11	190	
45	Ganna SHC (Uindana)	ug/l	0.10	0.09	90	~~~~~
45	Heptachlor	Ug/L	0.05	0.05	100	W
		ug/(	0.05	0.04	- 80	***********
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### MINERAL ANALYSES

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AREA		·	
LOCATION	Whiphhy III - (Uc/14/ (2400-09)	WAIPANU III- WHI 47-(2400-10)	
Year	1994	1994	
Date c. llected	July 20		
Time collected		149.25	<del></del>
Laboratory number	1940	0125	
TADOLICOLY HEMOUR STREET, STRE			
Regional head, feet	<u>-</u>		
micromhos @ 25°C	289	372	
pH value	7.37	7.53	
Turbidity	0.09	016	
Color	<del>1100 .</del> .	0	
IN PARTS PER MILLION.			
IN ARRIG I ER MIMMON	····	·····	
Dissolved oxygen			
Free carbon dioxide			
Silica	40 6.2 6.9 38 2.1	. 44	
Calcium	6.2	. 44 66	
Magnesium	6.9	700 70 47 222 43 14 34 0,10	<del></del>
Sodium	- <del>37</del>	47	
Potassium	2.1	<del>7/</del>	·
Bicarbonate	-X0 :-	- Va	<del></del>
Sulfate	15	<del></del>	
Chloride	<u> 15 :</u> 36 :	<del>-74-</del>	
Fluorido	9:10-	· 311_	<del></del>
Nitrato		0,10	
Phosphato	13		
Iron (	0.85	0.80	
Manganese ).	0.01	0,01	
	101	<u></u>	
Copper ) loss than (		01	
	01_	<u>_,0}</u>	
Arsonio )	<u>01</u>	<u>.01</u>	
Selenium }	<u>,01</u> .	101	
Chromium ^a ) (	101	101	
Total dissolved solids	220	248	
Alkalinity	<u>.51.</u>	76	
Total hardness	· <u>44</u>	_ <i>45</i>	
IN EQUIVALENTS PER MILLION:			•
Calcium (Ca)	0.309	0.379	
Lagnesium (Mg)	1507	.576	
Sodium (Na)	1.655	2,054	
Potassium (K)	.05H	1057	·
Bicarbonate (ECO3)		1.525	<del></del>
Mulfate (SO4)	1,016 .312		
Chloride (Cl)b		<u>1291</u> .	
Mitrato (NO3)	1.047	<u>-989</u>	
·	.210	.2/0	<u> </u>
TOTALS	. <u>5.170</u> ·	4.030	
7	· · · · · · · · · · · · · · · · · · ·		<u> </u>
Hexavalent only. Includes fluoride and phosphate as PO4.			
Silver)	101	.,01	
	;		
BARIUM ) - · · · · · less than · -	. ( .01		
Chdmium)	( 101	.01	•

(Chamium)

#3

555 East Walnut Street Pasadena, California 91101 818 568 6400; FAX 818 568 6324; 1 800 566 LABS (1 800 566 5227)

Laboratory Report

for

Honolulu, City of Board of Water Supply Lab 630 S Beretania St

Honolulu, HI 96843

Attention: Ron Fenstemacher

MONTGOMERY LABORATORIES

NOV 0 4 1994



555 East Walnut Street Pasadena, California 91101 818 568 6400; FAX 818 558 6224; 1 800 566 LABS (1 800 556 5221)

Sample # 941021265_ Sample 10 MAIPANU WELL 111 G#1 Sample Type Water

Sample 10 HAIPAHU WELL III G#1 Project Sampled 20-0ct-1994 Received 21-oct-1994 Reported 04-nov-1994

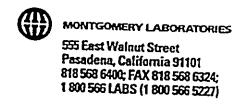
Board of Water Supply Lab 650 3 Beretania St Honolulu, city of

manoratory manore

96843 ATTN: Ron Fenstemacher Ξ, Honolulu

AB1803 - EDB and DBCP (ML/EPA 504 )

Analyzed By 23-66 <u>t-1994 hth</u> 23-0ct-1994 hth 23-0ct-1994 hth					
By A					
Det.limit Prepared 0101 22:006:1994 0.01 22:00t-1994 0-101 22:00t-1994					
XRec · Dilution					
Result Conc. HD 0.02 10/22/95					
Units <u>19/1</u> 1 ug/1					
idD).					
Parameter Units DiblomocnionOppoparat(UBGD): A 100/16 Ethylene Dibromide (EDB) DataEntry					
Dion Ethy Data					



### Laboratory Report.

Honolulu, City of Board of Water Supply Lab 630 S Beretania St

Honolulu , HI 96843 ATTN: Ron Fenstemacher

Cample # Ottobenen			••
souple # <u>941021265</u>	Sample ID WAIPAHU WELL	III c#1	•
Sample Type Water		<u> онт</u>	roject
saibre Tabe agret	Sampled <u>20-oct-1994</u>	Received 21-age-100/	0
			Keported U4-nov-199/

AB1803 - EDB and DBCP (ML/EPA 504 )
Quality Control

			· · · · · · · · · · · · · · · · · · ·		161 A PROPERTY OF THE PARTY OF
Control	Parameter	Units	4		
(5)	CUXERSICENSORESIONESIO	(CP)	Actual	Found	*Recv
LCS1	Ethylene Dibromide (EDB	) ug/l	0.30	0.07	90
£1592 ::	Dibromochi (aregrepane) (0	802)	0.10	0.11	110
rcss	Ethylene Dibromide (EDB		0.410	0.00	20
CUEK	Vibromoch (orepropane) (0	)	0.10	0.09	90
MBLK	Ethylene Dibromide (EDB		- NO	× 40	
	in protocol (arobiobana) (n	) vg/l 352) vg/(	KD	KD	***************************************
KS	Ethylene Dibromide (EDB)		0-10	HA.	
		) ug/l	0.10	NA .	
				**************************************	•••••
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555 East Walnut Street Pasadena, California 91101 818 563 6400; FAX 818 563 6324; 1 800 566 LABS (1 800 565 5227)

Sample # 941021265 Sample ID WAIPARU WELL III G#1
Sample Type Mater Sampled 20-oct-1994 Received 21-oct-1994 Reported 04-nov-1994 Sample # 941021265 Sample 10 WAIPANU WELL 111 G#1

525 Semivolatiles by GC/MS (ML/EPA 525.1

Board of Water Supply Lab 630 S Beretanía St Honolulu, City of

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Honolulu , HI ATTH: Ron Fenstemacher

Ву	994 efu	994 CFW	- C.	, <b>.</b>	1000.0	æ	3 × X	5	2.00	ŧ.	1.00	3	* · · ·	ý.	100	33	7,000		1.00	3	<b>*</b> 33	ě	23.1	3	1	y .	3	ě	794 eru
Anelyzed	27-oct-1	27-oct-1	27-octs1	27-oct-1	27-oct-1	27-oct-1	27-oct-1	27-oct-1	27-0ct-1	27-oct-1	27-octs	27-oct-1	27-oct-1	27-oct-1	27-064-1	27-oct-1	27-oct-1	27-oct-1	27-6ct-1994	27-oct-1	27-det=1	27-oct-1	27-0ct-1	27-oct-1	27-det-1	27-oct-1	27-oct-1	27-oct-1	27-act-1
B,	x ~ > x		20	,							e. 355		3.	2	2.3.3		2.23		994 csk		*****						26. (1)	•	20:00
Prepared	324-cet-1	24-oct-1	24.0ct.1	24-oct-1	124-0¢[-1	24-oct-1	.24.0ct-1	24-oct-1	24-001-1	24-oct-1	24-061-1	24-oct-1	24-00E-1	24-oct-1	124:0cf:1	24-oct-1	\$24-0ef-1	24-oct-1	24-0ct-1994	24-oct-19	24-001-1	24-oct-19	130-32	24-oct-19	24-001-10	24-oct-19	24-bet-19	24-oct-19	1-130-72
Det.Limit	50.0	0.1	90.0	0.05	2010	0.05	\$0.0	0.02	0102	0.05	0105	9.0	SIO	~	\$010	0.02	0.05	9.0	913	0:1	10.2	0.5	(0)	0.5	110	0.05	0.05	0.05	5010
Dilution																													
c. XRec																													
lt Conc.												***************************************		•															
Resu	HD.	£	OP.	QX .	Q)	2	SO S	2	Q.	운	Q)	운	Q)	운	Or	운	-Ok	웊	an	운	Q)	ድ	AD.	£	Q	윤	O.	오	HD.
Units	1944	\ <u>@</u>	1760	ng/1	1700	ug/l	11776	1/En	1944	ug/1	397(	ng/(	178	ug/1	. 1703	<b>₩</b> /1	3176	₩/I	1761	1/Bn	7785	<b>1/8</b> 1	201780	. ]/Bn	787	<b>₩</b> /[	1761	1/ga	3776
- 1	1707																												
												ACONTAINED TO THE																	
							OB SECTION OF THE PERSON OF TH		thens:	rlene	thane	phthalate	1816				acerte : .	l)adipate				te 		late				18	sented lette.
Parameter	alphaichlotdann	Acenaphthylene	Alsehlor et al. 1907	In	Anthracens	itrazine ug/l	(a)Anthrace	Benzo(a)pyrene ug/l	S(6) Flubran	Benzo(g,h,i)Perylene	1 K) Eltoten	Di(2-Ethylhexyl)phthalate	Butylberty/Iphthelate a recommendation	icf(	Butachtor.	lene	olbehatayhyAnthracenferestere in a see	-Ethylhexy	blethylpithalate	lnon	olatidrin	Olmethylphthalate ug/l	hoate	Butylphtha	Endrin	ene	gamtaktihi ordana	Hexachlorobenzene	lekachtokocyclobentedlette
Para	d S	Acen	Al Bc	Aldrin	Anth	Atrazine	BART	Benzi	Benz	Benze	Berri	0 (2	en ex	Bromacfl	BDtat	Chrysene	en id	?)-ja	DIET	Diazinon	Sier.	Ofmet	9 2 2	01-h	EVE	Fluor	Bemil	Hexac	Некас



555 East Walnut Straet Pasadena, California 91101 818 568 6400; FAX 818 568 5524; 1 800 566 LABS (1 800 566 5227)

Sample # 241021265 Sample ID HAIPAHU WELL III G#1 Project
Sample Type Hater Sampled 20-oct-1994 Received 21-oct-1994 Reported 04-nov-1994

525 Semivolatiles by GC/MS (ML/EPA 525.1

### Laboratory Raport

Honolulu, City of Board of Water Supply Lab 630 S Beretania St

96843 Honolulu , HI ATTH: Ron Fenstemacher

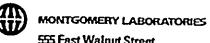


### Laboratory Report

Honolulu, City of Board of Water Supply Lab 630 S Beretania St

Honolulu , HI 96843
ATTH: Ron Fenstemacher

Sample # <u>9</u> Sample Typ		<u>WAIPAHU WE</u> d <u>20-oct-19</u>	LL III G# 94 Recei	1 <u>21-0</u> 0	Pr et-1994	oject Reporte	d <u>04-nov</u>	<u></u> <u>/-1994</u>		
		atiles Surro	gate :	Summa:	гy	L/EPA	525	.1	)	
Parameter Parylenesc				Percent	Recover	у			le Ran	
					·					
										02.E
								37.755		
no no constitution	and the second second	(0100000000000000000000000000000000000								



### Laboratory Report

Honolulu, City of Board of Water Supply Lab 630 S Beretania St

Honolulu , HI 96843 ATTN: Ron Fenstemacher

Sample # <u>941021265</u>	Sample ID WAIPAHU WELL	<u> III G#1 Рг</u>	oject
Sample Type <u>Water</u>	Sampled <u>20-oct-1994</u>		

525 Semivolatiles by GC/MS (ML/EPA 525.1 )
Quality Control

Control	Denimatas	#4- Pa-			
CONCION AND	Parameter atpuschlordene	Units	Actual	Found	XRecv
LCS1	Acenaphthylene	00/0		(0.00)	33196 <u>1</u>
122	Attactor	ug/l	2	1.90	95 .
LCS1	Aldrin	9/15	25-10-1	98	
LOST CONTRACT	Arthracen	ug/l	2	1.88	94
LCS1		Q9/15		3.65	92
ESI S	Atrazine	ug/l	2	1.92	96
LCS1	Benz (e) Anthracere	177/14	-7.2	0.77	86)
(S)	Benzo(a)pyrene	ug/l	2	1.92	96
	Berro(b) filtiol anthere:	97/U	es G	199	9898
LCS1	Benzo(g,h,i)Perylene	ug/l	2	1.95	98
155	Senzo(k)) Luggen then a	07/1	9. 2	0.00	204
LCS1	Di(2-Ethylhexyl)phthalate	ug/l	2	1.73	86
(e)	Survibenzylphtmalate	09/0	8	1.60	90
LCS1	Chrysene	ug/l	· 2	1.82	91
LESI.	Dibanz(a)h)Anthraeana	. ∪g/,L	2	7.65	<b>∵</b> 72
LCS1	Di-(2-Ethylhexyl)adipate	ug/l	2	2.20	110
LC17	Ulethylphthalate	<b>CP/(U</b>	2 (B)	1.50	75
LCS1	Dimethylphthalate	ug/l	2	1.96	98
£91-5-1	Olege Eury (partie) at a	1.4/1	2	78	36
LCS1	Endrin	ug/l	2	1.67	84
(C)	Gleeric	C:Ni	3 2 2 2	1-4/16z	6 3 2 1 A 1 C 1 A
LCS1	gamma-Chlordane	ug/l	2	1.92	96
	Jakaci Kurchinzaro	57/1	2	1.85	92
LCS1	Hexachlorocyclopentadiene	ug/L	2	1.61	80
Rest in the	VIOLENCE CONTRACTOR	· come		2021 757 ES	
LCS1	Heptachlor Epoxide	ug/l	2	1.90	95
<u></u>	Mark 25 Galleria	STILL ST	(6)2	00 01 03 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	8 8 92 mag at
LCS1	Lindane	ug/l	2	1.87	94
(S)	- Bighoweker	N. O. W.	33	7.00	
LCS1	Kolinate	ug/(	2	1.93	96
ESI 2	SPERSY BARRELLIGE	57/1×3	2/2/2/2	28.11.00	

### MONT

### MONTGOMERY LABORATORIES

555 East Walnut Street Pasadena, California 91101 818 568 6400; FAX 818 568 6324; 1 800 566 LABS (1 800 566 5227)

### Laboratory Report

Honolulu, City of Board of Water Supply Lab 630 S Beretania St

Honolulu , HI 96843 ATTH: Ron Fenstemacher

semple # 941021265	Sample ID WATPAHU WELL	III_G#1 Pr	oject
Sample Type Water	Sampled 20-oct-1994	Received 21-oct-1994	Reported <u>04-nov-1994</u>

525 Semivolatiles by GC/MS Quality Control (ML/EPA 525.1 )

				Farmed	#Recv
Control	Parameter	Units	Actual	Found	<u> </u>
	Partachlocophanol.	20/A		1.89	94.
LCS1	Phenanthrene	ug/l	2	1.09	74: 496:
LCS)	Pyrere	org/L	2 60 76	1.88	94
LCS1	Simazine	ug/l	2	1.00	92
(CS)	Thiobercarb : 1	Up/Um.S.A.		NO	
HBLK	alpha-Chlordane	ug/l	ND	************************	
60EK	Acenspothylene	19/1	3 1 10 E	HP MD	
HBLK	Alachlor	ug/l	ND	KD	
<b>CELK</b>	Aldolin		HO	S (NO)	
HBLK	Anthracene	ug/l	ND	ND	
MUS.	Atrazina	09/45	(P)	HO.	
HBLK	Benz(a)Anthracene	ug/l	ND	KD	
48EK	Earto(a)pyrone	09/4	80	10	
HBLK	Benzo(b)Fluoranthene	ug/l	ND	KO.	
Milk .	Benzo(B) II Japeny Lene	(g/L)	¥0	HD.	
HBLK .	Benzo(k)Fluoranthene	ug/l	HD.	KD	
MELEK	01(2:Ethythexylyphthelate	09/0-	: (MD		
HBLK	Butylbenzylphthalate	ug/l	KD	HD	
2003	Brotter!	09/46	, AD	HP and the	
KBLK	Butachlor	ug/l	ND	ND	
<b>1003</b>	Chipson	47/4	(ED)	10 8	Control of the Contro
KBLK	Dibenz(a,h)Anthracene	ug/l	ND	<b>K</b> D	
Meles	Dir cz-EthylbexyDadipeles	09/45	PARKO SA PARKA	(D)	
HBLK	Diethylphthalate	ug/l	MD Marketon and the contraction of the	ND	2473877777
3023	Olitaliza	0.7/	/ CO	<u> </u>	
HBLK	Dieldrin	ug/l	ND	ND CM	
18 8	District Control of the Control of t	SIG/A	HORSE SE	COPPER DE	
HBLK	Dimethoate	ug/l	ND	KD	
TO BE SEED OF THE	Dispersional districts	05/4	80 <u>.</u>	0.00	
HBLK	Endrin	ug/{	DA	ND	
misk.	Fluorens	09/0	140.4	(iD	

Report #: 16364

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555 East Walnut Street Pasadena, California 91101 818 568 6400; FAX 818 568 6324; 1 800 566 LABS (1 800 566 5227)

### Laboratory Report

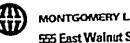
Honolulu, City of Board of Water Supply Lab 630 S Beretania St

Honotulu , HI 96843 ATTN: Ron Fenstemacher

Sample # <u>941021265</u>	Sample ID VAIPAHU WELL III GA	#1 Project
Sample Type <u>Water</u>	Sampled <u>20-oct-1994</u> Recei	ived 21-oct-1994 Reported 04-nov-1994

### 525 Semivolatiles by GC/MS (ML/EPA 525.1 ) Quality Control

Control	Parameter	Units	- Actual	Found	*Recv
<b>1913</b>	Parinte en l'archite				
KBLK	Hexachlorobenzene	ug/l	<b>K</b> D	₩D	•
	(fexacit (probye) opensed take	2000	<b>(</b> 10)	e de la companya de	
MBLK	Heptachlor	ug/l	KO	ND .	
ELK.	a lieptechior Epoxide species	T ctio	Œ	(C)	
MBLK	Indeno(1,2,3,c,d)Pyrene	ug/l	ND ·	ND .	
1815X	(Isopiorare)	09/1	LD.	and and a	
HBLK	Lindane	ug/l	KO	ND .	
KOLK	Bedlaychton	C/A	· · · · · · · · · · · · · · · · · · ·	(II)	
MBLK	Ketribuzin	ug/l	桕	KO .	
	Holdrate	09/4	300	ാന്ത്ര	
KBLK	Ketolachlor	ug/l	HD.	ND .	
<b>SELK</b>	ErenscHonachter	CD/U	D .	CO .	
KBLK	Pentachlorophenol	ug/l	<b>K</b> D	ND	
	Phenanthrene	U9/L	(0)	GD	
HBLK	Prometryn	ng/l	KD	<b>N</b> D	
HEEK.	Propeditor	Q7/U	(D)	(0) (2.23)	
MBLK	Pyrene	ug/l	ND NO	ND	
ZIKS .	Signation	97/1	102	⇒ GD ≧××	
MBLK	Thiobencarb	ug/l	IKD .	ND CN	•
SERV	o pi Moral in	0.000	(C)	(II)	
KS	alpha-Chlordane	` ug/l	2	2.04	102
	Accreptionsland	159/L		50.576	
HS	Alachlor	ug/l	2	2.18	109
(\$7)	ANG III	17/0		1978	
KS	Anthracene	ug/l	2	0.37	. 18
	Occupios de la company de	CMC		2.00	## (O)
MS	Benz(a)Anthracene	ug/l	2 .	1.39	70
	genzote)(Marc.	2.000		0.00	
HS	Benzo(b)Fluoranthene	ug/i	2	2.05	102
E	Benzo(g)h (1) e y lener (garage)	197L	24 3	or Company	Z.



555 East Walnut Street Pasadena, California 91101 818 568 6400; FAX 818 568 6324; 1 800 566 LABS (1 800 566 5227)

### Laboratory Report

Honolulu, City of Board of Water Supply Lab 630 S Beretania St

, HI 96843 Honolulu ATTH: Ron Fenstemacher

Sample # 941021265 Sample ID WAIPAHU WELL III G#1 Project Sample Type Water Sampled 20-oct-1994 Received 21-oct-1994 Reported 04-nov-1994

525 Semivolatiles by GC/MS Quality Control

(ML/EPA 525.1 )

Control	Parameter	Units	Actual	Found	XRecv
CONTE OF	Samo(O) (Coranthere	07A)	3	A50	25
MS .	Di(2-Ethylhexyl)phthalate	ug/l	2	1.90	95 ·
K	s Burylberry/pithulate	Ua/L	2		20.4
MS	Chrysene	ug/l	2	1.89	94
No.	Ulbenz(a,b)Andiracene	up/l	3	11.02	78
HS	Di-(2-Ethylhexyl)adipate	ug/l	2	1.57	109
VS.	Orethylphthalaide	J.19/14		2/18	110
HS	Ofmethylphthalate	ug/l	2	2.20	2028
<b>K</b> S	Of the But y Unit half a Co.	e7/\$		1.69	84
KS	Endrin	ug/l	2	1.07	102
S	Fluorene	evo/Le		2.06	103
KS	gama-Chlordane	ug/l	2	2.00	01
E	Haxacht or obenzene	5600//		0.36	18
HS	Hexachlorocyclopentadiene	ug/l	2	10.72	88
es de la companya de	Heptachton		2	1.98	99
KS	Heptachlor Epoxide	ug/l			60
45	Indendica, E.S., c. d) Pyrane,		2	1_94	97
KS	Lindane	ug/l			88
3	Mothoxychilor	ug/L	2	2.23	112
KS	Hol Inate			11 FC	22,93
es a serie	errens (Seccillor	ug/l	8	8.04	100
KS	Pentachlorophenol			330-208	(S)
S	A Priorienthicate as a second second	ug/l	Z	1.98	99
KS	Pyrene			2.00	<b>(05</b> )
MS CALL	Simerice	ug/l	2	1.97 .	98
HS	Thiobencarb				
			1944114 44 44 Friday 14 44 44 44 44 44 44 44 44 44 44 44 44		
		Springs: (523) (1043) (530) (530) (530)			



555 East Walnut Street
Pasadena, California 91101
818 568 6400; FAX 818 568 5524;
1 800 556 LABS (1 800 505 5527)
Sample # 241021265 Sample 10 HAIPAHU MELL 111 G#1 Project
Sample Type Mater Sampled 20-oet-1994 Received 21-oot-1994

Regulated VOCE plus Lists 1&3 (ML/EPA 524.2 )

### Laboratory Report

Honolulu, City of Board of Water Supply Lab 630 S Beretania St

96843 Honolulu , HI ATIM: Ron Fenstemacher

		01*nov-1994 col 01-nov-1994 col 01-nov-1994 col 01-nov-1994 col 01*nov-1994 col
t Prepared By		
XRec Dilution Det.Limi	0.5 0.5 0.5 0.5 0.5 0.5	0.5 0.5 5 5 0.5 6.5 7 0.5 0.5 0.5
ut conc.	40 40 40 40 40 40 40 40	요 원 원 전 전 전 전 전 전 전 전 전 전 전 전 전 전 전 전 전
- Unites 1947 1971 1971 Us/1	1/6n 1/6n 1/6n 1/6n 1/6n	1/6n 1/6n 1/6n 1/6n 1/6n 1/6n 1/6n 1/6n
Parameter  (a) 11/2/2/16/factionoathane  (a) 1.2-17/16/10/10/10/10/10/10/10/10/10/10/10/10/10/	1,2,3-Trichlorobental 1,2,3-Trichlorobenzene 1,2,4-Trichlorobenzene 1,2,4-Trichlorobenzene 1,2-Olchloroethane 1,2-Olchloroethane 1,2-Olchloroethane 1,3-Trichloropana	p-Dichlorobenzene (1,4-DCB)  21220[chlorobenzene (1,4-DCB)  2-Butanone (MEK). 2-Chlorobenzene  p-Chlorobenzene  Banzene  Bromobenzene  Bromobenzene  Ca-1,2-Dichloroethylene  Chiotobenzene  Carbon Tetrachlorida  Clarbon Tetrachlorida  Clarbon Tetrachlorida
Parameter 1,1,1-Trich 1,1,2-Trich 1,1,2-Trich 1,1-Dichler	7.2.3-Trichloroben 1,2,3-Trichloroben 1,2,4-Trichloroben 1,2,4-Trichloroben 1,2-Dichloroethane 1,2-Dichloroethane 1,3,5-Trimethylben 1,3,5-Trimethylben	P-Dichlorobenzene (1 2/2/01/6/10/6/1/6/10/6/6/6/6/6/6/6/6/6/6/6/



(III) MONTGOMERY LABORATORIES

555 East Walnut Street Pasadene, California 91101 818 568 6400; FAX 818 568 6324; 1 800 566 LABS (1 800 566 5227)

Sample 10 MAIPANU WELL 111 G#1 Project Sampled 20-oct-1994 Received 21-oct-1994 Reported 04-noy-1994 Sample # 941021265 Sample 10 WAIPAHU WELL 111 G#1
Sample Type Water Sampled 20-oct-1994 Received

Honolulu, City of Board of Water Supply Lab 630 S Beretania St

Laboracory keport

96843 Ξ, ATTM: Ron Fenstemacher Honolulu

# Regulated VOCs plus Lists 1&3 (ML/EPA 524.2 )

					The second secon				
	1777	MD						01-nov-1994	
Chloroform (Trichloromethane)	/gn	웊		0.5			**************************************	01-004-1006	
Bronbchi bronbthane	1/60×2×	No.		3.0					
Chloroethane	1/50	Ş			######################################		American Suppose	3641-X0U-10	
Chicomethene (Vathy) Chicathe Ver				0.0		Carry Carry Comment (a) birth	-	01-nov-1994	
Ch. 1 can d. 1 can an a		Some of the second second second		0.5				01:nov:1994	
	7/8n	ex	***************************************	0.5				01-nov-1994	
U.D. Consona transfer	1/60	AD.		90				01-nov-1994	
Bronodichloromethane	1/6n	웊		0.5			in second conditions and second	01-000	
Dichtoramethane	1/01	S S		Y U				1994	
Ethyl benzene	1/60	M CM						7	
bidh landdi filadramathane	100	Name of the second seco		0.0			and a service with the coloristic bids	01-nov-1994	
Financial chi competence (Cocced)				223				01-nov-1994	
	1/50	ND		0.5				01-nov-1994	
l skacni drobutaci ana	1/61	ON.		S'0				01-1004-1007	
sopropylbenzene	1/gn	운		2.0			en electrical designations	01-20-100/	
m:Dithlotobenzenn (4/3:048)	1/60	ND ST		8.0				01-1104-1994	
m;p-Xylenes	1/8h	CN.	****	10			***************************************	*XX 2001230	
Jank the Jane						esercitors suspensive	***************************************	01-nov-1994	
		40						01-nov-1994	
- parkinglikelle	) /Bn	CX		. 0.5				01-nov-1994	
ntProby/containe	1/60	ON.		510				11-000-1006	
o-Xylene	\/gu	<b>£</b>		0.5					
o: Dicht drobanzang a (4) 2) DGB)	1/01/2							01-NoV-1994	
etrachloroethylene (PCF)	// // // // // // // // // // // // //						7.	012nov-1994	
	1/80	ND.		0.5	***************************************			01-nov-1994	
				630				)1-nov-1994	
sec-butytbenzene	1/80	CX CX		5.0			Ū	01-nov-1994	
rYrenb	17/04	QN		\$10				31-nov-1994	
trans-1,2-Dichloroethylene	ا/gu	옾		0.5				11-200-1006	
tent Butylbenzens	1/60	gh gh		6(0)				01-nov-1992	201
richloroethylene (TCE)	ا/ۋە	皇	•	0.5		and the second s		orania de la company de la com	
					A TOTAL CONTRACTOR OF THE PARTY	*************		**************************************	



Pasadena, California 91101 818 568 6400; FAX 818 568 6324; 1 800 566 LABS (1 800 566 5227) 555 East Walnut Street

mple 10 MAIPANU MELL 111 G#1 Project Sampled 20-oct-1994 Received 21-oct-1994 Reported 04-nov-1994 Sample # 941021265_ Sample 10 MAIPANU WELL 111_G#1 Sample Type Mater

# Honolulu, City of

Board of Water Supply Lab 630 S Beretania St

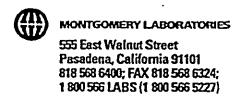
Laboratory Report

ATTM: Ron Fenstemacher Honotutu

telensi i su l'enterence de la company de Regulated VOCs plus Lists 1&3 (ML/EPA 524.2 Data Entry

01-nov-1994 col

Analyzed



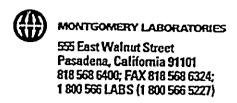
Honolulu, City of Board of Water Supply Lab 630 S Beretania St

Honolulu , HI 96843 ATTN: Ron Fenstemacher

Sample # <u>941021265</u>	Sample ID <u>WAIPAHU WELL III G#1</u>	Project
Sample Type <u>Water</u>	Sampled <u>20-oct-1994</u> Received <u>21</u>	-oct-1994 Reported 04-nov-1994

### Regulated VOCs plus Lists 1&3 (ML/EPA 524.2 ) Surrogate Summary

Parameter	Percent Recovery	Acceptable Range
C-Brono) Lucroberizena 8		50 = \$20
Toluene-d8		80 <b>- 1</b> 20 ·
Ziblichtercethanerd4	507	(O) 5-920 (S
		•
		NACHOROGODOLICO ACAMORISMOSTO.



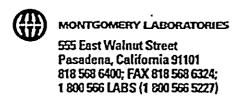
Honolulu, City of Board of Water Supply Lab 630 S Beretania St

Honolulu , HI 96843 ATTN: Ron Fenstemacher

Sample # <u>941021265</u>	Sample ID WAIPAHU WELL	III G#1	Project
Sample Type <u>Water</u>	Sampled 20-oct-1994	Received 21-oct-199	4 Reported 04-nov-199

Regulated VOCs plus Lists 1&3 (ML/EPA 524.2 )
Quality Control

Control	Parameter	Units	Actual	Found	<b>X</b> Recv
tesi .	il al distriction chiene	Gi/L	2	310	76
LCS1	1,1,2,2-Tetrachloroethane	ug/t	4	3.87	97.
<u>Test</u>	1-2 dirichtore there	0971	4	-3.70	95
LCS1	1,1-Dichloroethane	ug/l	4	4.11	103
CS	MISC, 4016 Left brobenzeer Property	( <del>49/</del> 1	14	3577	95
LCS1	1,2-Dichloroethane	ug/l	4	3.92	98
<u>1651</u>	2:Dichloropropune :	Sig/III	6-2-1	3-84	<b>9</b> 8
LCS1	1,3-Dichloropropane	ug/l	8	7.45	93
LCS1	(protentorobenzene (4,40cs) Benzene	29/0		3355	200
CET	GIS-I/S-DIENOROETHYLON	ug/l	4	4.13	103
LCS1	Chlorobenzene	<i>15</i> 07.1		23.83	20.
0.00	Cerbon set reacht on ide	0g/(	4	3.86 3.92	96
LCS1	Bromoform	ug/l	4	3.60	98
LCS J N. JOSEPH	Chloroform (Injohloromethane)			3.60	90
LCS1	Bromodichloromethane	ug/l	4	3_39	85
CEST VALUE	Ulchioremethane	0671		4210	1020
LCS1	Ethyl benzene	ug/L	4	4.22	106
-51	Elugrotarich Locomethane (Freorit)	1707/L 1	4	4-80	120
LCS1	m,p-Xylenes	ug/l	8	8.02	100
<u>(es)</u>	co XVI area a comment of the second	e7/Ω	4	3.60	972-00
LCS1	o-Dichlorobenzene (1,2-DCB)	ug/{	4	3.53	88
	ifetrachtororthy(end(etc))	19/4		380	25
LCS1	Styrene	ug/l	4	4.04	101
LCS1	atemboly south the control of the co	CONTRACTOR OF STREET	6	692	1981
	Trichloroethylene (TCE)	ug/l	4	3.87	97
LCS1	Maldilerotristagroetians(Frace)	<b>U</b> 071		5:30	
S12232	Virvincial arries (va)	ug/l	4	4.00	100
MBLK	1,1,1,2-Tetrachloroethane	ug/l ug/l	ND .	***************************************	4106)
2000143043040000000000000000000000000000	Lipizació cogniero	97712821777444040444444	ND	ND ND	
		7.1		The Control of the Co	



Honolulu, City of Board of Water Supply Lab 630 S Beretania St

Honolulu , HI 96843 ATTN: Ron Fenstemacher

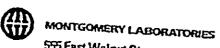
Sample # <u>941021265</u>	Sample ID WAIPARU_WELL	III_G#1	Project
Sample Type Water	Sampled 20-oct-1994	Received 21-oct-19	94 Reported 04-nov-1994

### Regulated VOCs plus Lists 1&3 (ML/EPA 524.2 ) Quality Control

Control	Parameter	Units	Actual	Found XRecv
HELK	1002 Zerrechloroethane	σ ₇ /L	MD .	<b>(a)</b>
HBLK	1,1,2-Trichloroethane	ug/l	ND	KD .
BEK	1 1-D1chloroethage	Ve/A	ND:	ND .
MBLK	1,1-Dichloroethylene	ug/l	ND	KD .
MBLK	1 1501chløropropene	<b>49/</b> (	10	10
KBLK	1,2,3-Trichlorobenzene	ug/l	KD	KD
BLK.	172.35 Trich Loropropane	Gg/(\$	ΝŪ	ND.
MBLK	1,2,4-Trichlorobenzene	ug/i	HD	ND .
KELK	2/4-trimethylbenzone	Cg//)	90 m	NO *****
HBLK	1,2-Dichloroethane	ug/l	KD	ND .
mik.	1,2;01chtoropropene	19/1	HO.	ND COMPANY
HBLK	1,3,5-Trimethylbenzene	ug/(	ND	HD
HELK	13:01chLoropropure	φ/A	10	10
KBLK	p-Dichlorobenzene (1,4-DCB)	ug/l	KD	KD
MELK.	2,2;01chloropropaner	ρ <u>0</u> 11	*NO	HD
HBLK	2-Butanone (KEK)	ug/(	KD	ND .
HELK	Z:Chloroethylvinylethar	.φ/ <b>.</b> ξ	ID ST	<b>10</b>
MBLK	o-Chlorotoluene	ug/l	KD	KD
MBCK	p Chilorato Luche	1971	NO.	HD .
HBLK	4-Hethyl-2-Pentanone (HIBK)	ug/l	KD	KD
<b>HBLK</b>	Banzerje (1988) 18. julija 20. julija 18. ju	55/17	HD.	102.00
HBLK	Bronobenzene	ug/l	ND.	ND .
MELKS.	Bronomethane (Hathy L Broakta)	(avg/L	JU 2	HD2
HBLK	cis-1,2-Dichloroethylene	ug/l	KD	KD
FERK.	Citorobenzeno esse essera a la caraca	4/(04	(DAY)	00
HBLK	Carbon Tetrachloride	ug/l	KD	KD .
HBEI'S	Cikal Subjection openion in the	etri/L	NO MARKET TO	KD.
KBLK	Bronoform	ug/l	KD	KD
LUL .	Chloroform (Frichloromethane)	(d)/(b)	ED .	(II)
KBLK	Bromochloromethane	ug/l	KD	ND
elk.	Cilloroethane	09/0	NO.	<b>(D</b>

Report #: 16364

33



### Laboratory Report

Honolulu, City of Board of Water Supply Lab 630 S Beretania St

Honolutu , HI 96843 ATTN: Ron Fenstemacher

Sample # 941021265 Sample Type Water	TO WALLE	111 G#1 P	roject
	Sampled <u>20-oct-1994</u>	Received 21-oct-1994	Reported 04-nov-1994

### Regulated VOCs plus Lists 1&3 (ML/EPA 524.2 ) Quality Control

Control	Parameter				
NUCK	Coloromethane(Hethy) Ch	Units	Actual	Found	er.
HBLK	Chloredibromomethane	(Oluge)	(4)	\$10 P	XRecv
	u.a. Olbronomethana	Ug/(	, KD	<b>K</b> D	
KBLK	Bromodich (promethere	-1/9/	D.	15	
SOURCE SE	Dichlorowonano	ug/i	ND	KD	
HBLK	Ethyl benzene	€/1/2	100	and the second	S2000000000000000000000000000000000000
ABLX.	Dichloradif Corameinana	ug/l	KO	ND	
HBLK	FluorotrichLoromethane(F		(10)	i di	
SEEK	tiezachteroputadiene %	40000 PV 80000000000000000000000000000000	KD	KD .	
HBLK	leopropylbenzene	- 1	(D)		Name of the last o
884X	and calorocarrago (403-00	ug/(	ND	KO	
HBLK	m,p-Xylenes	0.77	ko .	NO NO	STREET,
HELK	a Reputhal ene	ug/[	KO	KO	
HBLK	n-Butylbenzene		10	NO NO	***************************************
MBI K	0.00py (benzen)	ug/l	КО	ND	
HBLK	o-Xylene	057/	7.640 83.55	ND ND	27277777777777
(Str	oplicatorapenzenns(dg250cs	ug/(	ND	KO	
KBLK	Tetrachloroethylene (PCE)	A STORY		10	***************************************
	P LopropyLtoluene	ug/l	ND	KD	
HELK	sec-Butylbenzene	1771	Sec. 10.	NU	700004094040404
E K	y exe	ug/l	КО		
HBLK	trans-1,2-Dichloroethylene			KD	100771010000000000000000000000000000000
	consultry (benzare)	ug/l	ND		
HBLK	Trichloroethylene (TCE)	(27)		NO	POPULATION AND ADMINISTRATION AN
No.	(TCE)	ug/l	KD	D.	
HBLK	trace-1 Louisian			KO	•
	trans-1,3-Dichloropropene	ug/l	HD		
HBLK		0.11		KO	<b>Man</b>
	Vinyl chloride (VC)	ug/l	KD.		
				ND	
			-		
	Company of the Compan				



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MONTGOMERY LABORATORIES

555 East Walnut Street Pasadena, California 91101 818 568 6400; FAX 818 568 6324; 1 800 566 LABS (1 800 566 5227)

Laboratory Report

for

Honolulu, City of Board of Water Supply Lab 630 S Beretania St

Honolulu, HI 96843

Attention: Ron Fenstemacher

MONTGOMERY LABORATORIES

NOV 04 1994

HDS ADS



555 East Walnut Street
Pasadena, California 91101
818 568 6400; FAX 818 568 6524;
1 800 566 LABS (1 800 566 5227)

Sample # 941021266 Sample 10 MAIPARU WELL 111 G#2 Project
Sample Type Water Sampled 20-oct-1994 Received 21-oct-1994 Reported 04-nov-1994

## Laboratory Report

Honolulu, City of Board of Water Supply Lab 630 S Beretania st

96843  By Analyzed By 27************************************		
27-oct-1994 31-act-1994 26-oct-1994 27-oct-1994 29-oct-1994	qr)B	
	quit	



### Laboratory Report

Honolulu, City of Board of Water Supply Lab 630 S Beretania St

Honolulu . HI 96843 ATTH: Ron Fenstemacher

Sample # <u>941021266</u>	Sample ID WAIPAHU WELL	III G#2 pr	oject
	Sampled <u>20-oct-1994</u>		Reported 04-nov-1994

### Single Determination Analytes Quality Control

Control	Parameter	Units		<b>-</b>	
esi.	C. Heriam dotal (CAP)	oni es	Actual	Found	ZRecv
LCS2	Barium, Total, ICAP	***************************************	3.0	Seminary Control of the Control of t	22
18 K	Bentin Foret Sign	ng/l	1.0	1.00	100
HS	Barium, Total, ICAP	mg/l	40 e	AL HOLES	
HSD residen	E Bacita plotal TCAP ( ) ( )	mg/(	1.0	0.943	94
LCS1	Beryllium, Total, ICAP	***************************************	8.00	\$2,01918	22.5
CS2	Meryllium crote (capes	mg/L	0.05	0.0471	94
HBLK	Beryllium, Total, ICAP	mg/L	0.05	0.0577430	92 e
<b>A</b> SS	Serviction solety (Copy)	***********************	HD	KD	
HSD	Beryllium, Total, ICAP	70/4	0.05	- <u> </u>	200
Lesi	Cadmun Total III	mg/ <b>l</b> mg/1845	0.05	0.0449	90
LCS2	Cadalum, Total, GF	***********************	0.01	0.0101	2.55101.66
HELK	Codmitte Total GF	mg/l	0.01	0.0102	102
HS	Cedmium, Total, GF	//	MO.		
450	Cadmium, Total, GF	ng/l	0.01	0.0087	87
LCS1	Hercury	Zmg/L	0.00	0.0080	84
icsa s	Marcury	ug/l	1.50	1.41	94
HBLK	Kercury	00/1	0.50	1850	92
AS P. S. S.	Hercury	ug/l	ND	KD	***************************************
HSD	Kercury	5974	0.50		8.832
CS1	Microb forder (M)	ug/l	1.50	1.49	99
LCS2	Nickel, Total, ICAP	49/4	0.5	20.526	
	zwiekel storal sirve we	tog/[	0.5	0.493	99
MS	Hickel, Total, ICAP		e eku	ENDAMENT OF	
KSU TRACES	esterational of Capacitan	mg/L	0.5	0-462	92
LCS1	Antimony, Total, GF		0.5	0.597	201
CS2	Anishony, paraji kapangan	mg/l	0.04	0.0365	91
HBLK	Antimony, Total, GF	22710/12/20	0.00	0.0352	20
	Antimony total Gr	mg/l	KD	KD	***************************************
MSD	Antimony, Total, GF	av.	0.040	0.000	2012
COST	Thattaum of	mg/l	0.040	0.0465	116
		20/1	0.008	0.000ca	207



555 East Walnut Street Pasadena, California 91101 818 568 6400; FAX 818 568 6324; 1 800 566 LABS (1 800 566 5227)

### Laboratory Report

Honolulu, City of Board of Water Supply Lab 630 S Beretania St

Honolulu , HI 96843
ATIN: Ron Fenstemacher

Sample # 941021266_	Sample ID WAIPARU WELL I	11_G#2	Project
Sample Type Water	Sampled 20-oct-1994	Received 21-oct-199	4 Reported <u>04-nov-1994</u>

### Single Determination Analytes Quality Control

	•			_	
Control	Parameter	Units	Actual	Found	XRecv
	Thritten, c.	ET/U	0.0035	0.00828	XX104
MBLK	Thellium, GF	mg/l	KD	NO	
	india c	7771	0.009	0.00072	- 103
MSO	Thallium, GF	ng/l	0.008	0.00810	101
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\$*************************************					
220000000000000000000000000000000000000					
					000000000000000000000000000000000000000



555 East Walnut Straet Pasadena, California 91101 818 558 6400; FAX 818 558 6224; 1 800 566 LABS (1 800 566 5227)

Sample 10 WAIPANU WELL 111 G#2 Project Sampled 20-oct-1994 Received 21-oct-1994 Reported 04-nov-1994 Sample # 241021266 Sample 10 WAIPANU WELL 111 G#2 Sample Type <u>Mater</u>

Aldicarbs

Aldicarbs

Aldicarbs

Aldicarbs

Aldicarbs

Aldicarbs

nadoratory marort

Honolulu, City of Board of Water Supply Lab 630 S Beretania St

96843 Honolulu ATIN: Ron Fenstemacher

Analyzed By  24-oct-1994 [[]			
ed By			
Init Prepar		<b>B</b>	
01 lution Det.  28 0.5 0.5 28 28 29 29 2			
, %Rec			
Result Conc.			
Unite  Ug/1  Ug/1  Ug/1  Ug/1  Ug/1  Ug/1  Ug/1  Ug/1			
Parameter         Units           3.Hydroxycarbofuran         10/1           Aldicarb (Temik)         0g/1           Aldicarb sulfore         0g/1           Aldicarb sulfoxide         0g/1           Baydon         0g/1           Carbofuran (Furadan)         0g/1           Carbofuran         0g/1           Carbofuran         0g/1           Edfbanyli         0g/1           (ethonyli         0g/1           (ethonyli         0g/1           (bthonyli         0g/1			
Parameter 3.Hydroxyca Aldicarb (T Aldicarb su Aldicarb su Baydon Carbofuran Carbofuran Garbinyll Hethiocarb Hethiocarb			



Honolulu, City of Board of Water Supply Lab 630 S Beretania St

Honolulu , HI 96843 ATTH: Ron Fenstemacher

								••		
Sample	# 941021266	Sample ID y	JAIPAHU WELL	III G#2		Proi	ect			
	Type Mater		20-oct-1994	Receive	d 21-oct-1	1994 R	eported	04-nov-19	94	
		,								
	Aldic	arbs				(MT.	/EDA	531.1	<u> </u>	1
	-		Surrog	ate Si	1111111 2 7*** <i>7*** 7</i>	(	,	~~~~	•	estestes.
-			COLLOG		<u></u>			W 21		
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Paramet				_						
BOYO				NOTES TO SERVED SER	ercent Rec	#30##W0##21#P##	**********		table Ra	
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### Laboratory Report

Honolulu, City of Board of Water Supply Lab 630 S Beretania St

Honolulu , HI 96843 ATTN: Ron Fenstemacher

 Sample # 941021266
 Sample ID WAIPAHU WELL III G#2
 Project

 Sample Type Water
 Sampled 20-oct-1994
 Received 21-oct-1994
 Reported 04-nov-1994

### Aldicarbs (ML/EPA 531.1 ) Quality Control

Control	Parameter	Units	Actual	Found	XRecv
TEN	Shibahaayearbatusun	C70	50x0	1059	
LCS1	Aldicarb (Temik)	ug/l	20.0	18.7	94
<u> </u>	Althoritions	con.	2050	19.0	<b>3</b>
LCS1	Aldicarb sulfoxide	ug/l	20.0	15.4	77
<b>163</b> 0	Beygon	rent .	30:0	70.0	9
LCS1	Carbofuran (Furadan)	ug/l	20.0	19.6	98
esi.	Catalan (C	57/1	20.0	986	<b>9</b> 5
LCS1	Hethiocarb	ug/l	20.0	16.7	84
1CH	Methonyl	G-10	20:0	· (63)	77
LCS1	Oxamyl (Vydate)	ug/l	20.0	18.0	90
16:53	5-thydroxycarbofuran	37/L	20.0	W.	
LCS2	Aldicarb (Temik)	ug/l '	20.0	KA	
CCS2	Addicarb adiffore	egs.	30.0	SHA:	
LCS2	Aldicarb sulfoxide	ug/l	20.0	NA	
CCS2+	Baygon	9970	20.0	BA:	
LCS2	Carbofuran (Furadan)	ug/l	20.0	HA	
LC52/2-2-3	Carbery	Q7A	5040	(13)	
LCS2	<b>Hethlocarb</b>	ug/l	20.0	NA	
052	Bittica)	₩.	20:0		
LCS2	Oxamyl (Vydate)	ug/l	20.0	NA	
PELK	a Hiparoxy and a statement	27/0	CD	<b>3</b> 0'	
KBLK	Aldicarb (Temik)	ug/l	KD	KD	<b></b>
<b>2033</b>	Aldread sulters	ēiλ.	(O) (Telephone)	<b>(D</b> )	
HBLK	Aldicarb sulfoxide	ug/l	ND	KD .	
(E)LK	COVICE	0.00	<b></b>	<b>30</b> 00	
HBLK	Carbofuran (Furadan)	ug/L	KD .	ND .	
BLK	Entered	(cn/)	<b>(3</b> )	CD.	
HBLK	Kethiocarb	ug/l	KD	KD	
SUEX	(Inchang)	.cm	<b>(</b> 0)	<b>(</b> (1)	# 07 to 37 to
MBLK	Oxemyl (Vydate)	ug/l ·	KD	KD	
B	Skiváliox campojúren	07/8	20.03	20(3)	100



### Laboratory Report

Honolulu, City of Board of Water Supply Lab 630 S Beretania St

Honolulu , HI 968 ATTN: Ron Fenstemacher

Sample # <u>941021266</u>	Sample ID WAIPAHU WELL	111_G#2 pr	roject
Sample Type <u>Water</u>	Sampled <u>20-oct-1994</u>		-

### Aldicarbs (ML/EPA 531.1 ) Quality Control

Control	Parameter	Units	Actual	Found	<b>X</b> Recv
HS	ાંધીલાક સંભાઇ	67/	20.0	10/6	20078
KS	Aldicarb sulfone	ug/l .	20.0	19.3	96
S	Aleiten autorie	10/1	20.0	19.6	
HS	Baygon	ug/i	20.0	20.1	100
S	Carboturen (Auredan)	27 - 2 - 2 G/15	£20 0	19.9	100
HS	Carbaryl	ขฐ/ไ	20.0	20.3 -	102
Sec. 1	Pothtoesie	segg/feets	2010	7815	700 P
HS	Hethomyl	ug/l	20.0	18.5	92
HS S	Oxamy(c)((ydate))	0//	20.0	8.7	
HSD	3-llydroxycarbofuran	ા પ્લ/ા	20.0	20.2	101
SD.	Aldlenb (Kmiš)		2010	70 S	382
KSD	Aldicarb sulfone	ug/l	20.0	19-5	98
<b>8</b> 50 <b>8 8</b>	Release out to decide	Section 1974	120:00	9 9 7	0.00
HSD Ferrorense	Baygon .	ug/l	20.0	20.3	102
k2D	(Parbofurar) (Furacian)	0.70	2010	20.2	301
KSD	Carbaryl	ug/(	20.0	20.4	102
KSD	(Retitional)	07/0	20/0	203	5002
HSD	<b>Methomyl</b>	ug/l	20.0 ,	18.6	93
	DXBIV (VVdate)	43 (2000) 19 <b>/4</b> (2016)	20:0	(40.7)	***********
PARAMETER SERVICE	****				
E0000000000000000000000000000000000000	Martin 2007				
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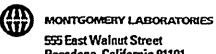
Sample 10 <u>MAIPANU WELL 111 G#2</u> Project sampled <u>20-oct-1994</u> Received <u>21-oct-1994</u> Reported <u>04-nov-1994</u> Sample # 941021266 Sample 10 WAIPANU WELL 111 G#2 Sample Type Water

Chlorinated Acids in Water (ML/EPA 515.1 · )

HANOTHULY MULOIL

Honolulu, City of Board of Water Supply Lab 630 S Beretania St 96843 ATTM: Ron Fenstemacher # , Konolula

Parameter	Units	sult	Conc. XRec	ec Dilution	- 8	Prepared	- 1	Analyzed	ВУ
	W. W	AP. CARLES			270	26-0ct-199	9. 1	30-act-1994	dst
ip (Silvex)	1/Bn	웊			0.2	26-oct-1994		30-oct-1994	dst
2,450	1971	a a			Į.	26-oct-199	P/J	30-oct-1994	15P
	րց/լ	윤	***************************************		23	26-oct-1994		30-oct-1994	dst
THE RESERVE THE PERSON	19/15	HD SE			SIO	7601-1-30-92	PA188	30-oct-1994	dst
5-Hydroxyd[camba	תש/ן	오			0.2	26-001-199	i	30-oct-1994	dst
Acifilionfan (qualit <b>ati</b> vo) <b>s</b>	1760	116			2.0	26.bct-199	PA1	30-oct-1994	. Hat
an	ug/l	오			0.5	26-oct-1994		30-oct-1994	dst
Chlanenban (qualitativa) 27 2 29 19/14	1878	нб.			510	26-oct-199	Em n	30-act-1994	dst
n (qualitative)	<b>1/8</b> 0	웊			-	26-oct-199	ì	30-oct-1994	dst
3,5:0 ichlarobanzold acida 🦛 15:0 ichlarobanzold acida i	11/0	HD.			910	26.oct:199	1000	30-oct-1994	150
٠	ug/l	£			0.2	26-oct-199	§ .	30-oct-1994	dst
0 certa	17/64	OH.			270	26-oct-199	PA1	30-oct-1994	dst
Dinoseb	ነ/ጀ	全			0.2	26-oct-199	ĕ	30-oct-1994	dst
Pentachionophanol	TE - 101/91	1 0H			7010	26-001:1994	200	30-oct-1994	dst
пв	<b>1/8</b> 0	오			0.1	26-oct-199	_	30-oct-1994	dst
4-Hitrophenal (qualiferive) - 4-8 - 41 (19)	109/USS	ND:			186	26-001-199	2	30-oct-1994	dst
Data Entry		11/03/94		•	0	26-oct-1994	_	30-oct-1994	dst

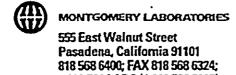


### Laboratory Report

Honolulu, City of Board of Water Supply Lab 630 S Beretania St

Honolulu , HI 96843 ATTH: Ron Fenstemacher

Sample #	941021266 s	ample ID <u>WAIP</u>	AHU WELL III	c#2	Project		_	
	pe <u>Vater</u>	Sampled 20-	oct-1994 Rec	ceived <u>21-oc</u>	t-1994 Repo	rted <u>04-nov</u>	<u>-1994</u>	
	Chloria	nated Ac	ida in W	lator	(MT./E	PA 515.	1 )	1
i	CHICLI		ırrogate				_ ,	201100.00
المحسيدين					American in the Comments	فيدسخ عسدته زعدو سامعت		
Parameter				Percent	Recovery		eptable	
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1 800 566 LABS (1 800 566 5227)

### Laboratory Report

Honolulu, City of Board of Water Supply Lab 630 S Beretania St

Honolulu , HI 96843 ATTM: Ron Fenstemacher

 Sample # 941021266
 Sample ID WAIPAHU WELL III G#Z
 Project

 Sample Type Water
 Sampled 20-oct-1994
 Received 21-oct-1994
 Reported 04-nov-1994

### Chlorinated Acids in Water (ML/EPA 515.1 ) Quality Control

Control	Parameter	Units	Actual	Found	%Recv
<u> </u>	39-5-17 (51600)	et/A	90,500	0.52	104
LCS1	2,4-D	ug/l	1.00	1.01	101
LEST).	BRICEZOR	05/4	1.00	0.00	104
LCS2	2,4,5-TP (Silvex)	ug/t	0.500	NA	
1003	27450	up/l	1,00	14 (4)	
rc25	Bentazon	บฐ/ไ	1.00	NA	*****
BLK.	24,50	Ugrtb.	ARD	See ND 40	
HBLK	2,4,5-TP (Silvex)	ug/L	ND .	<b>HD</b>	
HELKS	0-245	and //least	Sea HD Life City	w iú	
KBLK	2,4-DB	ug/l	ND -	KD .	
erk.	Dichlorpcop	Us/!	(D)	HD:	
HBLK	, 5-Hydroxydicamba	ug/l	KD	KD .	
<b>H</b> BLKS	:::Actfloorfen)(qualitative);	up/A	s sND	0.00	
KBLK	Bentazon	ug/l	HD	ND.	
BLK.	Chloramben (quhi italiyo)	u ug/L	NO.	HD See se	
KBLK	Dalapon (qualitative)	ug/l	KD	ND	
KSIEK	3 S-Dichlarobrizole tactel	00//	D :	re di	
HBLK	DCPA	ug/l	KD	ND	
2015 S	D (combo		( <u>-</u>	ŒĎ	
HBLK	Olnoseb	ug/l	<b>ND</b>	NO	
<b>RELK</b>	Certain Componerol	e vál	Œ	D.	
HBLK	Picloram	<b>ug/</b> โ	ND	ND	
	<ul> <li>Statistical (qualitative)</li> </ul>	ŒΝ!	间	D.	
KS	2,4,5-TP (Silvex)	ug/l	0.500	0.53	106
19:44	300	25/0	0320	1006	196
KS	Bentazon	ug/l	1.00	1.14	114
	2050 (GWD)	67/8	roeden s		
HSO	2,4-D	ug/l	1.00	KA	
HSD Vice V	A Sentazon	C7/0	1500	100	
					***************************************

9.9

Pasadena, California 91101 818 568 5400; FAX 818 568 5224; 1 800 566 LABS (1 800 565 5227) 555 East Walnut Street

Sample 10 WAIPANU WELL 111 G#2 Project Sampled 20-oct-1994 Received 21-oct-1994 Reported 04-nov-1994 Sample # 941021266 Sample 10 WAIPARU WELL 111 G#2 Sample Type Water

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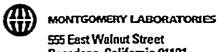
SDWA Pesticides (ML/EPA 508 )

Laboratory Report

Board of Water Supply Lab 630 S Beretania St Honolulu, City of

Konolutu , HI ATIN: Ron Fenstemacher

Analyzed By	l 30-oct-1994 dst	30-oct-1994	30.0t-1007	30-0-1006	30-oct-1994	30-oct-1994		30-oct-1994	30-oct-1994	30-oct-1994		30-oct-1994	30-oct-1994 dat	30-001-1007	10-0+-100	38.7.1.7.88. 3.1.1.1.1.1.1.1.1.1.1.1.1.1.1.1.1.1.1.	30-001-1994	30-001-1007	dans.	30-001-100/		30-oct-1994			30-oct-1994 dst	•	30-oct-1994 dat	ξ	
ait Prepared By	\$24-act-1994 the	24-oct-1994 rvd	33	<b>š</b> –	\$24-0¢1-1994 1vd	ě	24- oct-1994 rvd		1.24-oct-1994 - rvd		24-bot-1994 hvd		24-oct-1994 rvd	3	\$24-061-1004 FVH	8	Ph. 1807 - 100-72	200	PA 7001-190-72	9	24-oct-1994 FW	[ ]	124-pot-1994 rvd	24-oct-1994 rvd	24-0ct-1994; rvd	24-oct-1994 rvd	24.oct-1994: FVd	24-0ct-1994 rvd	124-0ct-1994 FU
Dilution Det.Lin	0.1	0.1	140 314	0.1	10 11	0.1	100	0.01	5010	0.01	1070	0.1	1010	0.01	1010	0.01	1010	. 0.01	1010	0.01	1010	0.01	1000	. 0.01	1010	0.01	0102	<b>4.3</b>	30 13 27
ilt Conc. XRec																													1996
					10/ 10/ 10/ 10/ 10/ 10/ 10/ 10/ 10/ 10/							***************************************	0H7 01/B1				OH 201/Br		gh: 1/60		GH?							12°C	11/0
													Vo) 2.56	1/Bn				_											
Parameter PGB 1016 Ardelor	DER 1221 Aracian	בו עוסרוסי	PCB 1232 Aroclon	PCB 1242 Arocior	PCB 1248 Atdelor	PCB 1254 Arcelor	ou Argelon	BAL	or (Atanax)		00187000	ane	hatonii (Orconiii, Bri	BHC	00	DE .	01	· uj	Endein Aldéhyde 💮 🐔		Enddaulfan I (alpha)	Endosulfan II (beta)	Endosul fan súl fate	hlor	Heptachlor Epoxide x	Lindane (gamma-8HC)	yentor	Ene	056%
Parameter PCB 1016	ora 12		PC8.12	PCB 12	PCB 12	PCB 12	FLE SEOU	Atpha-bac	, Alacmi	Atarin	DELEGIO	Chlorodane	Ghlorthalon	Delta-8HC	000 ,d d	p,p' DDE	p, p. 001	Dieldrin	Enderin	Endrin	Endogu	Endosu	Engoau	Heptachlor	Heptac		Methoxychio	Taylor Taylor	Data Entry



### Laboratory Report

Honolulu, City of Board of Water Supply Lab 630 S Beretania St

Honolulu , HI 96843 ATTN: Ron Fenstemacher

Sample # 941021266	Sample ID <u>VAIPAHU VI</u>	ELL_III G	#2	Project			
Sample Type Water		<u>994</u> Rece	ived <u>21-oct-19</u>	994 Reported	04-nov-1994	<u>4</u>	
SDWA	. Pesticides	•		(ML/EPA	508	)	13
	Surr	ogate	Summary		_		
Parameter				overy			ge Temmer
Dibucybie ilorendate			CO:			U. Salar	
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Programme (1997)							
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555 East Walnut Street Pasadena, California 91101 818 568 6400; FAX 818 568 6324; 1 800 566 LABS (1 800 566 5227)

### Laboratory Report

Honolulu, City of Board of Water Supply Lab 630 S Beretania St

Honolulu , HI 96843 ATTH: Ron Fenstemacher

 Sample # 941021266
 Sample ID WAIPAHU WELL 111 G#2
 Project

 Sample Type Water
 Sampled 20-oct-1994
 Received 21-oct-1994
 Reported 04-nov-1994

SDWA Pesticides
Quality Control

(ML/EPA 508

(ML/EPA 508

Control	Parameter	Units	Actual	Found	XRecv
rest.	Attinio 2	U7/8	0:05	0.C	0.00
LCS1	p,p' DDT	ug/l	0.10	0.09	90.
LC5122	Dieldriff	Ug/(	0.40	0.0	100
LCS1	Endrin	ug/l .	0.10	0.10	100
(ES)	GamnerBHC (E) ridane)	NUP/LICENSE	0.05	0.05	310000
LCS1	<b>Heptachlor</b>	ug/l	0.05	0.03	60
£552	Aleinto	279/4/2004 SE	0.05	MA.	
LCSZ	p,p' 00T	ug/l	0.10	KA	***************************************
(62)	Utoldinio	200/2012	0.00	VA.	
LCS2	Endrin	ug/l	0.10	KA.	***************************************
1052	Gostos RHO (Espelane)		0-05	SHA SEE	
LCS2	<u> Meptachlor</u>	ug/l	0.05	KA	
HELK	RCB 0016 Arrocker	A49/4 11 / 12 / 12 / 12 / 12 / 12 / 12 / 1	ND .	10	
HBLK	PCB 1221 Aroclor '	ug/l	ND	GA	******************
BLK	PCB /1232 Articlibr	ug/L**	, AU	HD	
HBLK	PCB 1242 Aroclor	ug/l	ND	KD	
HEIK	PER 1248 Arcelon	egup/Uses sees	80)	40	
HBLK	PCB 1254 Aroctor	ug/l	KD	ND	***************************************
EBS:	Res 1260 / Arcellene	09/0	J.D.	HD.	
HBLK	Alpha-BHC	ug/l	ND .	ND	
TER.	Alachton (Alterex)	C7/3	<b>(D)</b>	(U)	
HBLK	Aldrin	ug/i	KD	KD	*******************************
2008	Chilardene	09/Dry35-/6	AD <b>X</b>	MD .	
KBLK	Chlorthalonil (Drconil, Bravo)	ug/l	ND	AD	***************************************
SEEK.	Delta-BIC	SPACE.			
HBLK	p,p' DDD	ug/l ·	ND	KD	
<b>11</b> 5	PAP DUE		AD COMME	(D)	
HBLK	p,p' 00T	ug/l	ND .	KD	
( Pre	DOM:	TT//	(10)		
HBLK .	Endrin Aldehyde	ug/l	ND .	KD	10 H2 H2 10 12 H2 12
20193	Exterio	100/4	NO .	ND .	



555 East Walnut Street Pasadena, California 91101 818 568 6400; FAX 818 568 6324; 1 800 566 LABS (1 800 566 5227)

### Laboratory Report

Honolulu, City of Board of Water Supply Lab 630 S Beretania St

Honolulu , HI 96843 ATTN: Ron Fenstemacher

Sample	# 941021266 Sample ID WAIPAHU L	ISII III OUD				
Sample		99/ Page 1 1 4	Project	·		
		994 Received 21-	oct-1994 Repo	rted <u>04-nov-1</u>	994	
_						
1	SDWA Pesticides					_
		liter de-	_ (WT\E	PA 508	)	
Part .		lity Contro	)1			1
				عد منات تعدد		<u>.j</u>
Control	Parameter	44.4				
HELK	Endosulfan J. (alpha)	Units	Actual	Found	*Rec	v
HBLK	Endosulfan II (beta)		NO.	10		
MBLK	Encosultan sulfare	ug/l	KD	KD	*****************	
HBLK	Gamma-BHC (Lindane)	Lig/(	NO NO	MD	***************************************	
HBLK	Heptachlor	ug/L	ND .	ND	*****************	
HBLK	Heptachlor Epoxide		ND	KO.		
BLK	Methoxychlor	ug/l	KD	ND		302
MBLK	Toxaphene		ND.	ND.		<b></b>
<b>H</b> S	Aldrin	ug/l	ND	ND		
HS .	P.P' DOT	up/(	0.05	0.04	80	333
ks .	Dieldriff	ug/l	0.10	0.10	100	<u> </u>
HS	Endrin	U9/I	0.10	0.33	110	2000
MS .	Garma-BHC (Undene)	ug/(	0.10	0.10	100	
HS ·	Heptachlor	7071	0.05	0.05	100	
	icptacitor.	ug/l	0.05	0.05		
*********					100	222
		***************************************			-	2
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### Report 16365 Comment Page

### Group Validation Comments

(508) Heptachlor reported as NA due to QC failure on LCS, use 525.1 results for heptachlor. Reference QIR-GC-94-150.

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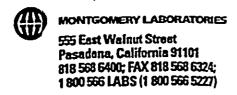
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for

Honolulu, City of Board of Water Supply Lab 630 S Beretania St

Honolulu, HI 96843

Attention: Ron Fenstemacher

MONTGOMERY LABORATORIES
Submitted on

FEB 14 1995

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Report#: 17843

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MONTGOMERY LABORATORIES

### Fast Walnut Street
 Pasadena, California 91101
 818 568 6400; FAX 818 568 6324;
 1 800 566 LABS (1 800 566 5227)
 Sample # 950118021 Sample 1D WAIPARU 111-WELL 4 (2400-13) Project
 Sample # 950118021 Sample 0 WAIPARU 111-WELL 4 (2400-13) Sample 1/995 Received 18-18n-1995

Laboratory Report

Homolulu, City.of Board of Water Supply Lab 630 S Beretania St

96843	
H	ATTM: Ron Fenstemacher
Horolulu	ATTM: Ron F

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2		
Prepared 30-16111995 30-181-1995 30-181-1995 30-1640-1995 235-180-1995		
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Det.Limi 0.02 0.001 0.2 0.2 0.005 0.005		
Dilution		
XRec 1		
Con		
ult		
2 2 2 2 2 2 2 3 3 3 3 3 3 3 3 3 3 3 3 3		
thits may! may! may! may! may! may! may! may!		
Units    CAP		
0.2200 0.2200 245.1 245.1 200.9 200.9		
17,601 17,601 17,601 17,604 17,604		
8		
tal, E		
Units Barium Total, ICAP (ML/2010/2007) mg/I Beryllium, Total, ICAP (ML/2010-200.7) mg/I Cadillim, Total, ICAP (ML/ED/200.7) mg/I Mercury Michael Total, GF (ML/ED/200.7) mg/I Antimory, Total, GF (ML/ED/200.9) mg/I Thailliam (ML/ED/200.9) mg/I Thail		
Beryllium Beryllium GGAILUM Hercury Antimony,		

### MONTGOMERY LABORATORIES 555 East Walnut Street Pasadena, California 91101 818 568 6400; FAX 818 568 6324; 1 800 566 LABS (1 800 566 5227)

### Laboratory Report

Honolulu, City of Board of Water Supply Lab 630 S Beretania St

Honolulu , HI 96843 ATTH: Ron Fenstemacher

Sample # <u>950118021</u>	Sample ID WAIPAHU 111-WELL 4 (2400-13)	Project
Sample Type Water	Sampled 13-jan-1995 Received 18-jan-19	95 Reported 14-feb-1995

### Single Determination Analytes Quality Control

Control	Parameter	Units	Actual	Found	XRecv
C0 .	Barrier Forel ICAP	eq/L	110	0.92	92.
LCS2	Barium, Total, ICAP	ng/L	1.0	1.06	106
2013	onie, ich ien	77/1	<b>10</b>	(D)	
KS	Barium, Total, ICAP	ng/l	1.0	0.88	88
<b>(S)</b>	Parities Detail (CAP)		iaw - San	0.00	
LCS1	Beryllium, Total, ICAP	mg/l	0.05	0.0485	97
052	denyiliter fotal 1949	are//L	0.09	0.096	956
MBLK	Beryllium, Total, ICAP	mg/L	ND	KD	
HS TO THE REAL PROPERTY.	deputation format (1949)	ΞØ	0.05	0.0.20	
MSD	Beryllium, Total, ICAP	mg/l	0.05	0.0482	96
Les I	Cadmium Fotal, Gr	<del>- 7</del> 1	0.01	0.010%	102
LCS2	Cadmium, Total, GF	mg/l	0.01	0.0117	117
MBLK	Cednium, Total, Gre	eg/l	Ю	100	
MS	Cadmium, Total, GF	mg/l	0.01	0.0105	105
rSD.	Cadmium, fotal, GF	mg/1	0.01	0.0106	106
LCS1	Hercury	ug/l	1.52	1.38	91
CC2	Mercury	tup/IS	1.53	1240	92
MBLK	Hercury	ug/l	ND .	nd	
rs	Renduny	Ŭα/L	0.52	71,44	95
MSD	Hercury	ug/l	1.52	1.50	99
			0.5	802498	100
LCSZ	Nickel, Total, ICAP	rag/l	0.5	0.536	107
8855 S	Mickel to poly alpha	woll was	NOTE:	MD TO MAKE	
MS .	Nickel, Total, ICAP	mg/l	0.5	0.485	97
<b>HSTARRAGE</b>	Clevision (4)		09	OCCUPATION OF THE PARTY OF THE	<b>66</b>
LCS1	Antimony, Total, GF	mg/L	0.04	0.0380	95
XX-2	Printerno de Co	(T) (E)	0.04	10-(ISYD	
MBLK	Antimony, Total, GF	mg/l	<b>KD</b>	14D	•
See	And many a total will		0.040	020372-06	75
HSD	Antimony, Total, GF	mg/l	0.040	0.0358	90
100	STATE ( I two or state of the s	· //	0.000	0.00027	(177)

Report #: 17843 -



### Laboratory Report

Honolulu, City of Board of Water Supply Lab 630 S Beretania St

Honolulu , HI 96843 ATTH: Ron Fenstemacher

 Sample # 950118021
 Sample ID WAIPAHU III-WELL 4 (2400-13)
 Project

 Sample Type Water
 Sampled 13-jan-1995
 Received 18-jan-1995
 Reported 14-feb-1995

### Single Determination Analytes Quality Control

Control	Parameter	Units	Actual	Found	XRecv
CETA WILLIAM	Challellan, co.	<b>TU</b> /L	0.008		. जार
MBLK	Thallium, GF	ng/l	ND .	<b>K</b> D 0-00827	
E.	The Uture, GF	EQ.	0.008		105
MSD	Thallium, GF	ng/l	800.0	0.00822	103
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***************************************			man takan manasari		

Report #: 17843 -



555 East Walnut Street Pasadena, California 91101 818 553 6400; FAX 818 558 6524; 1 800 566 LABS (1 800 566 5527)

Sample # 95018021 Sample 1D WAIPARU 111-WELL & (2400-13) Project
Sample Type Water Sampled 13-ian-1992 Received 18-ian-1992 Reported 14-feb-1992

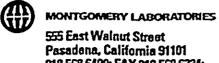
AB1803 - EDB and DBCP (ML/EPA 504

### Laboratory Report

Honolulu, City of Board of Water Supply Lab 630 S Beretania St

96843 Honolulu , HI ATTM: Ron Fenstemacher

By Mar mer Angr						
Analyzed 31-jan-1995 31-jan-1995 31-jan-1995						
By Gran						
Prepared 24-Jan-1995 24-Jan-1995 24-Jan-1995						
Det.Limit Dioi						
Dilution						
t Conc.						
Resul 100.02						
Unite 1971 1971						
Parameter Units DIStance II Units DIStance Dibromide (EDB) US/I DATA ENTRY AND THE UNITS US/I						
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Parameter OJGGGGER Ethylene I Oata Ehrib						



### Laboratory Report

Honolulu, City of Board of Water Supply Lab 630 S Beretania St

Honolulu , HI ATTN: Ron Fenstemacher

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Sample # 950118021 Sample ID WAIPAKU III-WELL 4 (2400-13) Project Sample Type Water Sampled 13-Jan-1995 Received 18-Jan-1995 Reported 14-feb-1995

> AB1803 - EDB and DBCP (ML/EPA 504 Quality Control

Control	Parameter		Units	Actual	Found	XRecv.
LCS1	Dibromochioropropane) Ethylene Dibromide (E		<b>99/0</b> 3	0,30 0.10	0.13	150
EGS2	Dibromochiteropropens		ug/l	0.10	U.12	120
LCS2	Ethylene Dibromide (E			0.10		
HELK	Dibronochicropropane		ug/l	0.10 MD	KA NO	
KBLK	Ethylene Dibromide (E		***	ND	ND	
MS 45	Dibromoch Loropropens		ug/l ug/!	************	HA STATE	
KS	Ethylene Dibromide (E	***********	***************************************	0.10	NA .	
13	Ediyeare Dibloatee (E		<b>0</b> 27 (	0.10	NA.	
F						
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Report #: 17843 -

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555 East Welnut Street Pasadena, California 91101 818 558 6400; FAX 818 553 6524; 1 800 556 LABS (1 800 556 5227)

Sample # 950118021 : Sample 1D WAIPARU !!!-HELL 4 (2400-13) Project Sample Type Hater Sampled 13-180-1992 Received 18-180-1992 Reported 14-feb-1992

(ML/EPA 525.2 525 Semivolatiles by GC/MS

# Laboratory Report

Monolulu, City of Board of Water Supciy Lab 630 S Beretanía 😋

96843 ATTN: Ron Fenstemacher Ξ, Honolulu

Analyzed By  30-jan-1995 cry
Imit Prepared By   26- Jan-1995 csk   26- Jan-199
C. Xee bilution bet., 0.15  0.10  0.05  0.05  0.05  0.05  0.05  0.05  0.05  0.05  0.05  0.05  0.05  0.05  0.05  0.05  0.05  0.05  0.05  0.05  0.05  0.05  0.05  0.05  0.05  0.05  0.05  0.05
However the concession of the
Unite  Unit  Unit
Alpha-chlordena Acenaphthylene (Eachlordena Aldrin Aldrin Atrazine Benzo(a) John House Benzo(a) John House Chrysene Olection Olection Olection Olection Olection Olection Hexachlorobenzene Hexachlorobenzene Hexachlorobenzene Hexachlorobenzene Hexachlorobenzene Hexachlorobenzene Hexachlorobenzene Hexachlorobenzene Hexachlorobenzene Hexachlorobenzene

### CORRECTION

THE PRECEDING DOCUMENT(S) HAS
BEEN REPHOTOGRAPHED TO ASSURE
LEGIBILITY
SEE FRAME(S)
IMMEDIATELY FOLLOWING

Control of the Contro



555 East Walnut Street Pasadena, California 91101 818 568 6400; FAX 818 568 6324; 1 800 566 LABS (1 800 566 5227)

### Laboratory Report

Honolulu, City of Board of Water Supply Lab 630 S Beretania St

Honolulu , HI 96843 ATTN: Ron Fenstemacher

)

Sample # <u>950118021</u>	Sample ID WAIPARU III-W	ELL 4 (2400-13) Pr	oject_
Sample Type <u>Water</u>	Sampled <u>13-jan-1995</u>		

AB1803 - EDB and DBCP (ML/EPA 504)
Quality Control

	•				
Control	Parameter	Units	Actual	Found	XRecv
se51	Dibramoch (propropane (DECP))	CO/A	0.0	0 E	150
LCS1	Ethylene Dibrozide (EDB)	ug/l	0.10	0.12	120
1652	Dibromoditaropropens (USCP)	1974	ಂತಿಯ ಕ್ರಾ	200	
LCS2	Ethylene Dibromide (EDB)	ug/l	0.10	NA .	
HELK -	Dibranachtorapropana (DECP)	up/i	<b>D</b> / T	<b>(II</b> )	
HBLK	Ethylene Dibromide (EDB)	ug/l	KD.	ND DA	
MS SEC.	(D) bromoch Laropropene (GBCP)	11,600	0.10	HA.	
HS	Ethylene Dibromide (EDB).	ug/l	0.10	HA	
		<del>231-221-241-22-2-2-2-2-2-2-2-2-2-2-2-2-2-2</del>	*****	***************************************	*************
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					and the same of
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400000000000000000000000000000000000000					
•					
•					
					1755 CO. VIV. NO. VIV. 1

Report #: 17843 -



# (III) MONTGOMERY LABORATORIES

555 East Walnut Street Paradena, California 91101 818 558 6400; FAX 818 558 6224; 1 800 566 LABS (1 800 566 5227)

Somple # 950118021 Sample 1D WAIPARU III-WELL 4 (2400-13) Project
Somple Type Mater Sampled 13-18n-1995 Received 18-18n-1995 Reported 14-feb-1995

525 Semivolatiles by GC/MS

(ML/EPA 525.2

### Laboratory Report

Board of Water Supply Lab 630 S Beretanía 🚉 Honolulu, city of

96843 ATTN: Ron Fenstemacher ₩, Honolulu

ult Conc. The Dilution Det.Limit Prepared By	un	0.1 26-Jan-1995 csk 30-jan-1995	26-141/1905 28k 30:141-1905	0.05 26-jan-1995 csk 30-jan-1995	101 (101) (101) (101) (101) (101) (101) (101) (101) (101) (101) (101) (101) (101) (101) (101) (101)	100 1 100 100 100 100 100 100 100 100 1	201 July 201	CO. 0 24.14.157. 1975. 1975. 1975. 1975. 1975. 1975. 1975. 1975. 1975. 1975. 1975. 1975. 1975. 1975. 1975. 1975. 1975. 1975. 1975. 1975. 1975. 1975. 1975. 1975. 1975. 1975. 1975. 1975. 1975. 1975. 1975. 1975. 1975. 1975. 1975. 1975. 1975. 1975. 1975. 1975. 1975. 1975. 1975. 1975. 1975. 1975. 1975. 1975. 1975. 1975. 1975. 1975. 1975. 1975. 1975. 1975. 1975. 1975. 1975. 1975. 1975. 1975. 1975. 1975. 1975. 1975. 1975. 1975. 1975. 1975. 1975. 1975. 1975. 1975. 1975. 1975. 1975. 1975. 1975. 1975. 1975. 1975. 1975. 1975. 1975. 1975. 1975. 1975. 1975. 1975. 1975. 1975. 1975. 1975. 1975. 1975. 1975. 1975. 1975. 1975. 1975. 1975. 1975. 1975. 1975. 1975. 1975. 1975. 1975. 1975. 1975. 1975. 1975. 1975. 1975. 1975. 1975. 1975. 1975. 1975. 1975. 1975. 1975. 1975. 1975. 1975. 1975. 1975. 1975. 1975. 1975. 1975. 1975. 1975. 1975. 1975. 1975. 1975. 1975. 1975. 1975. 1975. 1975. 1975. 1975. 1975. 1975. 1975. 1975. 1975. 1975. 1975. 1975. 1975. 1975. 1975. 1975. 1975. 1975. 1975. 1975. 1975. 1975. 1975. 1975. 1975. 1975. 1975. 1975. 1975. 1975. 1975. 1975. 1975. 1975. 1975. 1975. 1975. 1975. 1975. 1975. 1975. 1975. 1975. 1975. 1975. 1975. 1975. 1975. 1975. 1975. 1975. 1975. 1975. 1975. 1975. 1975. 1975. 1975. 1975. 1975. 1975. 1975. 1975. 1975. 1975. 1975. 1975. 1975. 1975. 1975. 1975. 1975. 1975. 1975. 1975. 1975. 1975. 1975. 1975. 1975. 1975. 1975. 1975. 1975. 1975. 1975. 1975. 1975. 1975. 1975. 1975. 1975. 1975. 1975. 1975. 1975. 1975. 1975. 1975. 1975. 1975. 1975. 1975. 1975. 1975. 1975. 1975. 1975. 1975. 1975. 1975. 1975. 1975. 1975. 1975. 1975. 1975. 1975. 1975. 1975. 1975. 1975. 1975. 1975. 1975. 1975. 1975. 1975. 1975. 1975. 1975. 1975. 1975. 1975. 1975. 1975. 1975. 1975. 1975. 1975. 1975. 1975. 1975. 1975. 1975. 1975. 1975. 1975. 1975. 1975. 1975. 1975. 1975. 1975. 1975. 1975. 1975. 1975. 1975. 1975. 1975. 1975. 1975. 1975. 1975. 1975. 1975. 1975. 1975. 1975. 1975. 1975. 1975. 1975. 1975. 1975. 1975. 1975. 1975. 1975. 1975. 1975. 1975. 1975. 1975. 1975. 1975. 1975. 1975. 1975. 1975. 1975. 1975. 1975. 1975. 1975. 1975. 1	CA 1/80 1/80 1/80 1/80 1/80	100 201 11 201 11 30-1 an 1995	19/1 ND	100/101/101/101/101/101/101/101/101/101	UZ/1 NO	(1971) 110 30-jan-1995 csk 30-jan-1995	1995 1995 1995 1995 1995 1995 1995 1995	0.04 26-jan-1995 cak 30-jan-1995	Up/1 ND 30-18n-1995	0.6 26-jan-1995 csk 30-jan-1995	1971 un 106/1871 1995	0.1 26-jan-1995 csk 30-jan-1995	m 105 tak 30 jan-1998	0.5 26-jan-1995 cak 30-jan-1995	0.6	0.5 26-jan-1995 csk 30-jan-1995	1971 1975 CEK 30/Jun: 1995	0.05 26-jan-1995 csk 30-jan-1995	26. Jan 1995 csk 30. Jan 1995	0.05 26-Jan-1995 csk 30-Jan-1995
	ine	(lachlor lateral and lateral a			100		no.	benzo(a)pyrene		Benth (K) Fill of enthere is		ayipithal atal.		Hilfschiof of the same of the				Methylattielate		bleidein and a second s	Dimethylphthalate	Unditioned and the state of the	Di-n-Butyiphthalate		Fluorene		***************************************	

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# MONTGOMERY LABORATORIES

555 East Walnut Street Pasadene, California 91 iO1 818 568 6400; FAX 818 568 5524; 1 800 566 LABS (1 800 566 5227)

Sample # 950118021 Sample 1D WAIPAKU 111-WELL 4 (2400-13) Project
Sample Type Water Sampled 13-lan-1995 Received 18-lan-1995 Reported 14-feb-1995

(ML/EPA 525.2

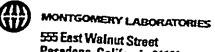
525 Semivolatiles by GC/MS

## Laboratory Report

Board of Water Supply Lab 630 S Beretania St Honolulu, city of

ATTM: Ron Fenstemacher Honolulu

India	By Gsk Gsk	csk csk csk	26-Jan-1995 cak 30-Jan-1995 ctru 26-Jan-1995 cak 30-Jan-1995 cru 26-Jan-1995 cak 30-Jan-1995 cru 26-Jan-1995 cak 30-Jan-1995 cru 26-Jan-1995 cak 30-Jan-1995 cru	csk 30-jan-1995 ( 53k 30-jan-1995 ( csk 30-jan-1995 c csk 30-jan-1995 c	
### Inits ### ### #############################	t Conc.				
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### Laboratory Report

Honolulu, City of Board of Water Supply Lab 630 S Beretania St

Honolulu , HI 96843 ATTN: Ron Fenstemacher

Sample # <u>950118021</u>	Sample ID WAIPARU 111-WELL 4 (2400-13) Project
Sample Type <u>Water</u>	Sampled 13-jan-1995 Received 18-jan-1995 Received 1/4-5-4 4005

525 Semivolatiles by GC/MS
Surrogate Summary

(ML/EPA 525.2

Parameter Penylone.di2	Percent Recovery	Acceptable Range
		3.50
	AND THE RESERVE OF THE PARTY OF	

Report #: 17843 -



555 East Walnut Street Pasadena, California 91101 818 568 6400; FAX 818 568 6324; 1 800 566 LABS (1 800 566 5227)

### Laboratory Report

Honolulu, City of Board of Water Supply Lab 630 S Beretania St

Honolulu , HI 96843 ATTN: Ron Fenstemacher

 Sample # 950118021
 Sample ID <u>WAIPAHU III-WELL 4 (2400-13)</u>
 Project

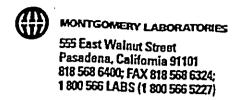
 Sample Type <u>Water</u>
 Sampled <u>13-jan-1995</u>
 Received <u>18-jan-1995</u>
 Reported <u>14-feb-1995</u>

### 525 Semivolatiles by GC/MS Quality Control

(ML/EPA 525.2 )

	_				
Control	Parameter	Units	Actual	Found	≭Recv
<u>(Ci</u>	alpia Chlordare	G/A		29B	08:20 <b>:</b> 00:243
LCS1	Acenaphthylene	ug/(	2	1.87	94
i si sa	Abrillo:	100 L		2.5	102
LCS1	Aldrin	ug/( ;	2	1.64	82
	Anthraceog	QP/A	3	9-73	
LCS1	Atrazine	Ug/(	2	2.01	100
	Ent(e/Anthresso	1971	2	্ৰহেট	
LCS1	Benzo(a)pyrene	ug/l	2	1.99	100
ices)	Senzo(b) Fluorenthere		3 3 3 3	2.0	50102
LCS1	Benzo(g,h,i)Perylene	ug/[	2	2.07	104
EES)	Benzo(K)F(Uoranthena)	1976	2.72	2.05	1021
LCS1	D1(2-Ethylhexyl)phthalate	Ug/L	2	1.99	100
(est	Butylbenzylphthalate - 1	07/0	2	1.75	BC
LCS1	Chrysene	ug/(	2	1.81	90
tCS)	Ofbenz(e:h)Anthraceire	, igyti	2	11.771	136
LCS1	Di-(2-Ethylhexyl)adipate	ug/t	2	1.87	94
LEST.	Diethylphthelate	U7/0	2.00	(1.77)	100
LCS1	Dimethylphthalate	ug/l	2	1.69	84
	OF THE PERSONS	(51) (5	2	777	A CANADA
LCS1	Endrin	ug/[	2	1.55	78
test.	(Moreo	75/0		200 E 200 E 200 E	
LCS1	ganna-Chlordane	ug/L	2	1.92	96
<u>4</u> 57	Constitution of the second		<b>2</b>	777	
LCS1	Hexachlorocyclopentadiene	· ua/l	2	1.49	74
	a tracenter			50.5	
LCS1	Heptachlor Epoxide	ug/L	2	1.89	94
EES)			4-7 CHARLES		
LCS1	Lindane	ug/l	2	1.78	89
	Minuscellor	(c) (c) (T/)	_ ***		93.00
LCS1	Kolinate	ug/l	2	1.82	91
10S)	trens (korech) ors	500/			

Report #: 17843 -



Honolulu, City of Board of Water Supply Lab 630 S Beretania St

Honolulu , HI 96843 ATTN: Ron Fenstemacher

525 Semivolatiles by GC/MS
Quality Control

(ML/EPA 525.2 )

Control	Parameter				
LOST SALES	Fantach (prophero)	Units	Actual	Found	XRecy
LCS1	Phenanthrene		8	799	700
Lesis	Core Core	Ug/l	2	1.80	90
LCS1	Simazine	(7)/1	į.		110
(CS)	1 th tobercarb	·ug/l	2	2.20	110
HBLK				4 <i>9</i> 0	
BICSER	alpha-Chlordane	ug/(	KD	KD	***************************************
MBLK	era Acemphthylme	0.00	10.0	W 22	
	Alachtor	ug/l	KD	Ю	
MBLK	Attini	TO STORE			
BLK	Anthracene	ug/(	ND	KD	
	Atrazine	07/	10 AD	16	
MBLK	Benz(a)Anthracene	ug/l	Ю	Ю	
HELK)	- (Benzo(a) pyrane			10	
MBLK	Benzo(b)Fluoranthene	ug/l	KD	ND ND	
HELK .	Senzo(g) in the sylence	1971	No.	ND ND	***************************************
MBLK	Benzo(k)Fluoranthene	14/	KD.	ND	
HELK SEE	-DICCLERRY Unexylorentie	Ate Supplied		\$2000000000000000000000000000000000000	***************************************
MBLK	Butylbenzylphthalate	ug/L	ND .		
<b>111</b> 8.7	Oreme#8	674		KD	9991932300939006600004
MBLK	Butachlor .	ug/i	<b>K</b> D	12 MD 5	
<b>GIK</b>	Sirvers .		KD	KD	***************************************
HBLK .	Dibenz(a,h)Anthracene	ug/l	***************************************	<b>1</b> 0	
1015	Districtly bery Dadipa		MD	AID .	
HBLK	Diethylphthalate	ug/L			
S. LEC	MALLI ET LOON AND AND AND AND AND AND AND AND AND AN	THE RESERVE OF THE PERSON OF T	MD	KD	
MBLK	Dieldrin		es Obsession	Section and section is	
	Districtive (this late)	ug/L	MD	ND .	,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,
HBLK	Dimethoate			(D)	
HEAT OF THE PARTY		ug/l	KD	MD	
HBLK	Endrin				
		ug/L	KD CM	NO.	
······································				S (d)	
					CARCO DO PORTO CONTRACTOR

Report #: 17843 .



555 East Walnut Street Pasadena, California 91101 818 568 6400; FAX 818 568 6324; 1 800 566 LABS (1 800 566 5227)

### Laboratory Report

Honolulu, City of Board of Water Supply Lab 630 S Beretania St

Honolulu , HI 96843 ATTN: Ron Fenstemacher

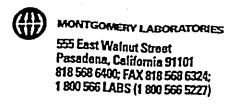
Sample # 950118021 Sample ID WAIPAHU III-WELL 4 (2400-13) Project _ Sample Type Water Sampled 13-jan-1995 Received 18-jan-1995 Reported 14-feb-1995

### 525 Semivolatiles by GC/MS Quality Control

(ML/EPA 525.2 )

Control	Parameter	11-14-			
MIX COM	game;Chlordene	Units Units	Actual	Found	XRecv
MBLK	Hexachlorobenzene	ug/l	<u> </u>	0.00	
HELKS.	wherechiscocyclopentediene	***************************************	KO	ND	
MBLK	Heptachlor	ug/l	NO .	<u> </u>	
MULK	displacition Epoxide	<b>G</b> 7	NU D	ND	
HBLK	Indeno(1,2,3,c,d)Pyrene	Ug/l	kD	MO	
MIX'S	Isoptotone			ND ND	
HBLK	Lindane .	ug/l	ND	KD	
HE LK	Mathoxychlor			in S	
MBLK	Ketribuzin	ug/l	ND	ND .	
MEK	Holimate	tg/i	NO.	1D	
HBLK	Ketolachlor	ug/l	KD	ND	
HELK	frans-sonachlor	20071 335.25			
MBLK	Pentachlorophenol	ug/l	ND	MD	
BLK-1	Phenanthrene	19/1	NO.	HD as	
HBLK	Prometryn	mg/L	HD	ND	
<b>B</b> LL	«Propeditor»	<b>Op/</b> L	ND:	40	
HBLK	Рутепе	ug/l	ND	KD	
MIR	Simazine	(5)	(AD)	AD .	
HBLK	Thiobencarb	ug/l	KD	Ю	***************************************
ELK	Striktura (In				
HS	alpha-Chlordane	ug/l	2	2.23	112
	Acete (Crylene)	357/1	2	4.563×00	
KS .	Alachlor	. ภอ\เ	2	2.22	111
K	-Nacin	G//	3	1629	72
HS .	Anthracene	ug/l	2	1.13	56
MS	Attecine	57/10	32-28-32	# <b>2</b> 30	107
AS	Benz(a)Anthracene	ug/(-"	2	1.72	86
HS	(Uffice(a)pyrens	57/1		240	463
ns S	Benzo(b)Fluoranthene	ug/(	2	2.09	104
	Benzo (g) in the Ry (ene	<b>1</b> 0/L	2	256	310

Report #: 17843 -



Honolulu, City of Board of Water Supply Lab 630 S Beretania St

Honolulu , HI 9684 ATTM: Ron Fenstemacher

Sample # 950118021 Sample ID WAIPAHU III-WELL 4 (2400-13) Project _______ Sample Type Water _____ Sampled 13-jan-1995 Received 18-jan-1995 Reported 14-feb-1995

## 525 Semivolatiles by GC/MS Quality Control

(ML/EPA 525.2

				<u> </u>	
Control	Parameter	Units	Actual	Found	2Recy
HS	Control(s) (dependents	C-M		272	AKCCY 106
	Di(2-Ethylhexyl)phthalate	ug/l	2	6.15	
MS	and the moter of the force			220	308
64.1	Chrysene	<b>45/</b> ℓ .	2	1.80	103
MS	U benz (e ju) kritimacene stosse	()		22.28	90
8	Di-(2-Ethylhexyl)adipate	ug/l	2	2.18	
HS	a Diethylphthalars			22.10	109
Sime	Dimethylphthalate	ug/l	2	1.90	
HS	A CONTRACTOR CONTRACTO	(F)()		3613	95
ns	Endrin	us/l	2	1.72	300
NS	Flüorene	07/6		1325	86
NS	gamma-Chlordane	ug/l	2	2.14	20
HS	linxachitorobenzene	U-Al		2.14	107
· EVEKSTEIGERFEINERE	Hexachlorocyclopentadiene	na\f	2	0.86	2
HS	Septachlor	(17)	7. 2	7:61	43
rs.	Heptachlor Epoxide	ug/l	2	2.00	80 2
HS	indenc(U,225,c/d)/y/cire	T (N	7.00	2.00	100
3	Lindane	ug/l	2	1.90	£3120
MS	e s Helboxychi o'r	10//	2	2.10	95
	,Holinate	ug/L	2	1.93	105
KS	transelonachtap	7.7		1.73	96
	Pentachlorophenol	ug/l	8	10.1	0200
MS	Sitements was				126
rs E	Pyrene	ug/l	2	2.25	0.02
	SEED			2.0	112
n3	Thiobencarb	ug/l	Z		
All the second second				2.13	106
	390344: ***********************************				
20.00.720.00					
		P\$000000000000000000000000000000000000			

Report #: 17843 .



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MONTGOMERY LABORATORIES

555 East Walnut Street Pasadens, California 91101 818 558 6400, FAX 818 568 5524; 1 800 556 LABS (1 800 556 5227)

Sample # 950118021 Sample 1D MAIPANU 111-WELL 4 (2400-13) Project
Sample Type Water Sempled 13-Ian-1995 Received 18-Ian-1995 Reported 14-feb-1995

Aldicarbs

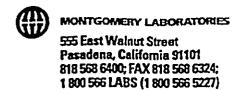
(ML/EPA 531.1 )

## Laboratory Report

Honolulu, City of Board of Water Supply Lab 630 S Beretania St

Honolulu , Hi 96843 ATIN: Ron Fenstemacher

408   268   348   268   348   268   348   269   348   269   348   269   348   269   348   269   348   269   348   269   348   269   348   269   348   269   348   269   348   269   348   269   348   269   348   269   348   269   348   269   348   269   348   269   348   269   348   269   348   269   348   269   348   269   348   269   348   269   348   269   348   269   348   269   348   269   348   269   348   269   348   269   348   269   348   269   348   269   348   269   348   269   348   269   348   269   348   269   348   269   348   269   348   269   348   269   348   269   348   269   348   269   348   269   348   269   348   269   348   269   348   269   348   269   348   269   348   269   348   269   348   269   269   269   269   269   269   269   269   269   269   269   269   269   269   269   269   269   269   269   269   269   269   269   269   269   269   269   269   269   269   269   269   269   269   269   269   269   269   269   269   269   269   269   269   269   269   269   269   269   269   269   269   269   269   269   269   269   269   269   269   269   269   269   269   269   269   269   269   269   269   269   269   269   269   269   269   269   269   269   269   269   269   269   269   269   269   269   269   269   269   269   269   269   269   269   269   269   269   269   269   269   269   269   269   269   269   269   269   269   269   269   269   269   269   269   269   269   269   269   269   269   269   269   269   269   269   269   269   269   269   269   269   269   269   269   269   269   269   269   269   269   269   269   269   269   269   269   269   269   269   269   269   269   269   269   269   269   269   269   269   269   269   269   269   269   269   269   269   269   269   269   269   269   269   269   269   269   269   269   269   269   269   269   269   269   269   269   269   269   269   269   269   269   269   269   269   269   269   269   269   269   269   269   269   269   269   269   269   269   269   269   269   269   269   269   269   269   269   269   269			
Det.Limit Prepared By 42.2			
Conc. Rec Dilution			
Units Result  US/U NO			
Parameter  SHydroxycerbofilien  Aldicarb (Temik)  (Idicarb (Temik)  Aldicarb sulfoxe  Aldicarb sulfoxide  Laylon  Earbofuran (Furadan)  Carbofuran (Furadan)  Laylon  Carbofuran (Furadan)  Laylon  La			Report 4: 178.1
Parameter  SHEATOXYCATESTUFAN  Aldicarb (Temik)  (Edicarb autforde Baygon (Furadan) Carbofuran (Furadan) Earbary)  Hethiocarb  Methiocarb  Methiocarb  Methiocarb  Methiocarb  Methiocarb  Methiocarb  Methiocarb  Methiocarb			Report #: 17847



Honolulu, City of Board of Water Supply Lab -630 S Beretania St

Honolulu , HI 96843 ATTN: Ron Fenstemacher

 Sample # 950118021
 Sample ID <u>WAIPAHU III-WELL 4 (2400-13)</u>
 Project

 Sample Type <u>Water</u>
 Sampled <u>13-jan-1995</u>
 Received <u>18-jan-1995</u>
 Reported <u>14-feb-1995</u>

Aldicarbs
Surrogate Summary

(ML/EPA 531.1 )

Report #: 17843 -



Honolulu, City of Board of Water Supply Lab 630 S Beretania St

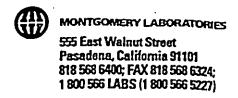
Honolulu , HI 96843 ATTN: Ron Fenstemacher

Aldicarbs
Quality Control

(ML/EPA 531.1 )

Control	Parameter	Units	Actual	Found	*Recy
LEST	deliveroxycarbo(dren	Op/170	20:0	70.5	
LCS1	Aldicarb (Temik)	ug/l	20.0	18.1	90
LEST	Alcient autono	Section 100/1000	2010	0778868	
LCS1	Aldicarb sulfoxide	ug/(	20.0	19.0	95'
ICI)	(BEYFE)	- 1	20 O - N	W. 1915	9844
LCS1	Carbofuran (Furadan)	ug/l	20.0	19.2	96
EST I	perbanyt	367)	20.0		70
LCS1	<b>Kethiocarb</b>	ug/l	20.0	18.8	94
LCSI	Mathonyl	Control Control	20.0	193	
LCS1	Oxamyl (Vydate)	ug/l	20.0	19.3	96
652	3: Bythoxycarbo(tren)		20.0		
LCS2	Aldicarb (Yemik)	ug/l	20.0	KA	
FG5,-	Atdicariosultore	G/A	20.0		
LCS2	Aldicarb sulfoxide	ug/l	20.0	KA	***************************************
£552	Baygon	top/(see each	20:0	E IA Harris	
LCSZ	Carbofuran (Furadan)	ug/l	20.0	КА	
ECS2	Carbaryl	10/1	20 n 2 s		
LCS2	Methiocarb	ra\f	20.0	HA	
20.572	Hethony	10/1	20.0		
LCS2	Oxemyl (Vydate)	ug/l	20.0	NA.	
<b>FUIX</b>	2 Hydroxycarboruran	The state of the s			
HBLK	Aldicarb (Temik)	ug/(	KD	ND	
	Attended to the	1071	NO.	10.11	
HBLK	Aldicarb sulfoxide	ug/į	ND .	ND	
E EXCE	Bayen				
MBLK	Carbofuran (Furadan)	ug/l	KD	KD	
	Eletrá .	17/(-27			
MBLK .	<b>Methfocarb</b>	ug/l	KD	KO	
EK	Perificult				
MBLK	Oxamyl (Vydate)	ug/l	ND	ND	
	zalydrovyca toguran		ZILO	70-5	502
•			MECHEN MENT		

Report #: 17843 .



Honolulu, City of Board of Water Supply Lab 630 S Beretania St

Honolulu , HI 96843 ATTN: Ron Fenstemacher

 Sample # 950118021
 Sample ID WAIPAHU III-WELL 4 (2400-13)
 Project

 Sample Type Water
 Sampled 13-jan-1995
 Received 18-jan-1995
 Reported 14-feb-1995

## Aldicarbs (ML/EPA 531.1 ) Quality Control

Control	Parameter	Units	Actual	Found	<b>X</b> Recv
	AMERICAN COMPANY	CVA	<u> </u>	ે જિલ્લ	
KS	Aldicarb sulfone	ug/(	20.0	20.4	102
2	Adjete ellection		20.0	6 F 7 2 1 5 F 8 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	112
MS	8aygon	· ug/l	20.0	20.4	102
	Corpolaren (furadan)		i0.00	20.7	401
KS	Carbaryl	ug/l	20.0	21.6	108
	(CEDICER)	CALL CALL	20.0	<u> </u>	
MS	Kethomyl	ug/l	20.0	19.7	98
19	COXETYLE (Nydate)	e de la companya de	60.0	790	
HSD	3-Hydroxycarbofuran	ug/l	<b>20.0</b> .	20.7	104
50.2	Aldienby (fimility)	~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~	2040	120°	<b>3</b> 51
- KSD	Aldicarb sulfone	ug/l	20.0	20.6	103
HSD T	Aldiesch sulfacide		0.0	7220	0.0
HSD	Baygon	ug/l	20.0	20.4	102
MSD.	Carporaran (Auradan)	(7)/1	2010	20.5	902
HSD	Carbaryl	ug/l	20.0	21.4	107
HSD2	20Gileste	=	20:0	213	<b>#108</b>
HSD	Kethoayl	<b>પ્</b> લ/દ	20.0	20.1	100
	DXBD/L(CXd(Cd)		20:0	70.0	100
	•		······································	***************************************	
#27 CO					
				31311 63 F 100 100 100 100 100 100 100 100 100 1	expenses and the second
				2 (3 - 2 ) 2 (2 ) 2 (3 ) 2 (4 ) 2 (4 ) 2 (4 ) 2 (4 ) 2 (4 ) 2 (4 ) 2 (4 ) 2 (4 ) 2 (4 ) 2 (4 ) 2 (4 ) 2 (4 ) 2	
		_		The state of the second	
					a month are office.

Report #: 17843 -

555 East Welmut Street Pasadena, California 91101 818 563 6400; FAX 818 558 6224; 1 800 566 LABS (1 800 556 5227)

Sample # 9<u>20118021</u> Sample 1D WAIPARU III-WELL 4 (2400-13) Project Sample Type Water Sampled 13-ian-1992 Received 18-ian-1995 Reported 14-feb-1995

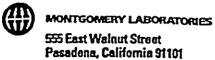
Chlorinated Acids in Water (ML/EPA 515.1

## Laboratory Report

Honolulu, City of Board of Water Supply Lab 630 S Beretania St Konolulu , HI 96843 ATTM: Ron Fenstemacher

Analyzed By  29: Jan: 1995 dat	
Prepared By 19, 18m-1995 red 18, 18m-199	
t.t.timit	
Dilution De 0.0.0.0.0.0.0.0.0.0.0.0.0.0.0.0.0.0.0.	
Conc. Rec	
sult	
Unita  Ug/1	
C S S S S S S S S S S S S S S S S S S S	
Parameter 2,4,5-TP (Silvax) 2,4,5-TP (Silvax) 2,5-DB 2,4-DB 2,4-D	
Ben Bale Bale Bale Bale Bale Bale Bale Bale	

Report #: 17843



818 568 6400; FAX 818 568 6324; 1 800 566 LABS (1 800 566 5227)

## Laboratory Report

Honolulu, City of Board of Water Supply Lab 630 S Beretania St

, ні **Honolulu** 96843 ATTN: Ron Fenstemacher

(ML/EPA 515.1 )

Sample # 950118021 Sample ID <u>WAIPAHU III-WELL 4 (2400-13)</u> Project Sample Type <u>Vater</u> Sampled <u>13-jan-1995</u> Received <u>18-jan-1995</u> Reported <u>14-feb-1995</u>

> Chlorinated Acids in Water Surrogate Summary

Parameter Percent Recovery
2:4-Dichtorophenylaceris/acid
89 Parameter Acceptable Range 70 - 030

Report #: 17843 -



555 East Walnut Street Pasadena, California 91101 818 568 6400; FAX 818 568 6324; 1 800 566 LABS (1 800 566 5227)

## Laboratory Report

Honolulu, City of Board of Water Supply Lab 630 S Beretania St

Honolulu , HI 96843 ATTH: Ron Fenstemacher

 Sample # 950118021
 Sample ID UAIPARU III-WELL 4 (2400-13)
 Project

 Sample Type Vater
 Sampled 13-jan-1995
 Received 18-jan-1995
 Reported 14-feb-1995

## Chlorinated Acids in Water Quality Control

(ML/EPA 515.1 )

ontrol	Parameter	Units	Actua( 0.500	Found 0.52	XRecv 104
SI S	2,4,75.1E (0115e/01	<b>4</b> €/1	*******************************	0.90	90
:S1	2,4-D	ug/l	1.00	0.90	70
51	Sentazori		\$1.00		
SZ	2,4,5-TP (Silvex)	. ug/l	0.500	KA	
	2,00	ψj/( s	1.00	NA .	
:S2	Bentazon	ug/l	1.00	KA.	
LK C	2,4,571,272,232,232	1971	3 KO	- kD	
BLK	2,4,5-TP (Silvex)	ug/l	KD	ND	
LK	3 2/6 0 4	up/l	W)	<b>200</b>	
LK	2,4-DB	ug/l	ND	ND	
BS.	Dichlorprop	19/1	NO.	HD .	
LK	5-Hydroxydicamba	ug/L	KD	ND	
LK.	Acifluorfan (qualitative)	1974	W. W.	WD	
LK	Bentazon	ug/t	, KD	Ю	****
ES.	Chloramben (qualitative)	1971	MD.	, ND	
BLK	Dalapon (qualitative)	ug/l	KD.	KD	******
B.C.	3 Stilchterobenzold, acid	440/1	L HD	240 S	
3LK	DCPA	ug/l	ND	ND .	***
	0 (Cambo	55 - 69/L - F	SECTION SECTION	L SHD	
LK	Dinoseb .	ug/l	ND .	KD	
ik o	Partecutoropheral		Œ	340 s	
3LK	Picloram '	ug/l	ND .	ND .	
	Sectification (qualified to)	577	Description of the second	er (Dec	
	2,4,5-TP (Silvex)	<i>บ</i> ฏ/ไ	0.500	0.49	98
		<b>G</b> /()	1.00	1063	
in in the second	Bentazon	ca/l	1.00	0.99	99
6	20570 (810/2)	10/1	0.500		
::::::::::::::::::::::::::::::::::::::	2,4-D	1\eu	1.00	<b>XA</b>	
5	Bentavan				

Report #: 17843 -



East Wainut Street
Pasadena, California 91101
818 558 6400; FAX 818 558 6324;
1 800 566 LABS (1 800 566 5227)
Sample # 250118021. Sample 10 MAIDANU 111-WELL 4 (2400-13)
Project
Sample Type Water Sampled 13-180-1995 Received 18-180-1995

SDWA Pesticides

(ML/EPA 508

## Laboratory Report

Board of Water Supply Lab 630 S Beretania 5: Honolulu, city of

96843 Honolulu , Hi ATIM: Ron Fenstemacher

By dst	dst dst	dst dst	dst	dst	dst dst	det	dst	dst	199	dst	dst	det	dit	dst	199	dst	dst	184	ost Bt
	25- Jan-1995																		
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90000	203 203 204 203 203 203 203 203 203 203 203 203 203	450,000	2000	702 <b>2</b> 03	52%	54,2002	3/- 10		50.35	20.752		3235	15988	- 2		527	8 T %	) 25 cf	95 cff
Prepared 18-jan-1	18 Jan 1995	18: Jen-1	18- Jan-1	18- Jan-1	18- Jan-1	(8: Jan: )	B-18n-1	18-Jan-19	18 - Ienes	B-166.4	18-jen-19	18- Jan-19	18. Jen. 1	18-Jan-19	16: Jan 15	18 Jen-19	18- Jan-19	18: Jane 19 18: Jane 19	18-Jan-19
Limit	100																		
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h8clar troctor	roclor Iroclor	Foolor	Poe tong	Alehen			o I I I Tores				and the second	ndrin		AULTON.		EXXIDE:	SAME OF SAME		
Parameter PCB 1016 Angeler PCB 1221 Aroclor	PCB 1242 Aroclor PCB 1242 Aroclor	PCB 1254 Aroclor	PCB 3 12 60 A FOC TO PR	A CHICAGO	Aldrin	Chlordane	Chidrenato Del ta-AHC	Mary Male	, p' DDE	Pipkopik	ERACT HEATER	Endrin	Endosulfan 11	EPAGE DI CALFE ALL	Heptachlor		Hellories	oxaphene	DATESENTEN
			,	+47- <b></b>	~ ***	<b>-</b> x		. *****	-	: C	. <del>43</del> 435	ш <b>Ж</b>	л <b>г</b> ( Ш		- 3E S	≠-	a TOC	<b></b> ¥	<b>c</b> i



555 East Walnut Street Pasadena, California 91101 818 568 6400; FAX 818 568 6324; 1 800 566 LABS (1 800 566 5227)

## Laboratory Report

Honolulu, City of Board of Water Supply Lab 630 S Beretania St

Honolulu , HI 96843 ATTN: Ron Fenstemacher

Sample # 950118021 | Sample ID WAIPAHU 111-WELL 4 (2400-13) | Project |
Sample Type Water | Sampled 13-jan-1995 | Received 18-jan-1995 | Reported 14-feb-1995

SDWA Pesticides

(ML/EPA 508

Surrogate Summary

Parameter O[bity][Chlorendate	Percent Recovery	Acceptable Range

Report #: 17843 -

## MONTGOMERY LABORATORIES 555 East Walnut Street Pasadena, California 91101 818 568 6400; FAX 818 568 6324; 1 800 566 LABS (1 800 566 5227)

## Laboratory Report

Honolulu, City of Board of Water Supply Lab 630 S Beretania St

Honolulu , HI 96843 ATTN: Ron Fenstemacher

 Sample # 950118021
 Sample ID <u>WAIPAHU III-WELL 4 (2400-13)</u>
 Project

 Sample Type <u>Water</u>
 Sampled <u>13-jan-1995</u>
 Received <u>18-jan-1995</u>
 Reported <u>14-feb-1995</u>

## SDWA Pesticides (ML/EPA 508 ) Quality Control

Control	Parameter	Units	Actual	Found	XRecv
les)	acen .	(17)	0.03	0.05	100
LCS1	p,p' 00T	ug/l	0.10	0.10	100
153	Oleken.	17741	0.0	0.6	760
LCS1	Endrin	· ug/l	0.10	0.12	120
CS1)	Genneralie (Circlene)	4.00	. 0.03	- BES	F20
LCS1	Heptachlor	ug/l	0.05	0.05	100
£652	Atleio		.065	$\sim$ $\sim$	
LCS2	p,p' DDT	ug/l	0.10	KA	
ress	<b>Vocán</b>	1570	050	(E)	
LCS2	Endrin	ug/(	0.10	KA	
£222	Commercial Concurrence	LT/L	0.63		
LCS2	Heptachlor	us/l	0.05	KA	•
M8CK	PER SIDIO Arvelor		CD .	<b>.</b>	
MBLK	PCB 1221 Aroclor	ug/l	KD CN	ND .	`
MBLK	PCB/1232 Argeton	- U/A	a CD	e e e e e e e e e e e e e e e e e e e	
MBLK	PCB 1242 Aroclor	ug/l	ND	HD.	
HBLK	SEE TEXAMERICA	t5/Al	<u>(0.50</u>	<u>u</u>	
HBLK	PCB 1254 Arocior	ug/l	NO NO	. ND	
BLX	PC6 (260 Appella)	:::17 <u>0</u>	120	E)	
HBLK	Alpha-BHC .	ug/l	₩D	ND	
BEK	Altentos (Alexas)	CHALL.			
HBLK	Aldrin	ug/l	<b>N</b> D	ND ND	
JIS.	500X6TO	es CAL	Section 3	. LD	
KBLK	Chlorthalonil (Drconil, Bravo)	ug/l	₩D .	ND	
Sel K	313-316	EXTREME TO		ria <b>o</b>	
MBLK	p,p' DD0	ug/l	, <b>N</b> O	ND .	
	- Provide			D.	
MBLK	p,p ^e 001	ug/l	<b>K</b> D	<b>K</b> D	
SEK	<b>DOGH</b>	1770	CD		
MBLK	Endrin Aldehyde	ug/l	NO.	<b>K</b> O	•
els.	ention.	ang -	, ju	HD.	

Report #: 17843 ·



Honolulu, City of Board of Water Supply Lab 630 S Beretania St

Honolulu , HI 96843 ATTM: Ron Fenstemacher

 Sample # 950118021
 Sample ID WAIPAHU III-WELL 4 (2400-13)
 Project

 Sample Type Water
 Sampled 13-Jan-1995
 Received 18-Jan-1995
 Reported 14-feb-1995

SDWA Resticides (ML/EPA 508 )
Quality Control

Control	Parameter	Units	Actual	Found	XRecv .
RE K	Encosul fer ( (5 (ers)	- va/l	10	100	
HBLK	Endosulfan II (beta)	ug/l	NO	NO CA	
BLK	SEndorul fanteuil fore	1771	<b>10</b> 0 - 7	45	
HBLK	Garma-BHC (Lindane)	ug/l	NO.	KD	***************************************
<b>ELK</b>	Heptachlor	0.00	· 10	E C	
KBLK	Heptachlor Epoxide	ug/l	KO .	ND ND	
eck .	Hethoxychiler	5.09/3		CD .	
HBLK	Toxaphene .	ug/l	<b>K</b> D	kD .	
<b>A</b> C	Aldolfi.	<b>υ</b> φ/(\$	0.05	0.05	100
HS	p,p' DDT	ug/l	0.10	0.10	100
AS HS	Dieldrin	Ug/L	0.10	0-16	<b>E</b> 0
MS	Endrin	ug/l	0.10	0.12	120
MS	GarmendilC (C. Inciene)	up/li	0.05	.0.06	120
na	Heptachlor	ug/l	0.05	0.06	120
•		V.			

Report #: 17843 -



555 East Walnut Street Pasadens, California 91101 818 558 6400; FAX 818 558 6224; 1 800 566 LABS (1 800 566 5227)

Sample # 950118021 Sample 1D MAIPAHU III-WELL 4 (2400-13) Project Sample Type Water Sampled 13-18n-1992 Received 18-18n-1992 Reported 14-feb-1995

## Laboratory Report

Board of Water Supply Lab 630 S Beretanía St Honolulu, city of

96843 Ħ, Honolutu

(MIL/RPA 524.2 ) AITH: Ron Fenstemacher	Color   State   Dilution Det.Linit Prepared   Sy   Analyzed   By   National Property   District   District
Regulated VOCs plus Lists 1&3	



555 East Walnut Street Pasadene, California 91101 818 568 6400, FAX 818 568 6324; 1 800 566 LABS (1 800 566 5227)

Sample # 950118021 Sample ID MAIPANU III-WELL 4 (2400-13) Project
Sample Type Mater Sampled 13-jan-1995 Received 18-jan-1995 Reported 14-feb-1995

Regulated VOCs plus Lists 1&3 (ML/EPA 524.2

## Laboratory Report

Honolulu, City of Board of Water Supply Lab 630 S Beretania St Honolulu , HI 96843 ATTN: Ron Fenstemacher

Analyzed By	27- Jan-1993 you	27-Jan-1995 yom	27-Jen-1995 year	27-jan-1995 yom	27* Jan-1995 you	27-Jan-1995 yom	27- lan-1995 you	27-jan-1995 yom	27* Jan-1995 year	27-jan-1995 yom	27* Jan-1995 yon	27-jan-1995 yom	27-Jan-1995 you	27-Jan-1995 yom	27- Jun-1995 you	27-jan-1995 yom	27-18n-1995 you	27-Jan-1995 yon	27: Jan: 1995 year	27-jan-1995 yon	27-14n-1995 yes	27-jan-1995 yom	27-Jan-1995 yan	27- Jan-1995 yon	272 Jany 1995 you	27-jan-1995 yom	27- Jun-1995 you	27: Jan-1995 yon	a market the south of the second of the seco
Init Prepared By																													
XRec Dilution Det.	210	0.5	200	0.0	10000	6.0	E 1193	6.5	0.15	· 0.5	0.5	0.5	5/0.2	0.5		0.5		0.5		C.U	200	5*0	200	20.0	0.5	A COLUMN	0.5	2510 A. 1	
Result Conc.	GR GR	91	ę.	ND Section 1	£	110	Ş	The second secon	5	No.	9	OD TO	5	OU UI	S	01			Q.	0 N	오		CY CY	and the second	æ	100	. E	JHD.	
. Units	1/80	1/40	1/8n	13/00	1/5n		)/5n	11/90	1/B0		1/6/1		1/00		1/60		1/60		1/50	100	1/65		1/Bn	1976	1/8n		1/61	7/607	•
arameter oroform	Chloroform (Trichloromethane)	Brookillerohitlere	Chloroethane	phidronething (Activition to 1347)	chlorodibromomethane	Olivonometriene	Bronodichioromethane	olentorizmethine	Ethyl benzene	Dichidrod (* Lidromethane	Fluorotrichloromethane(Freon1)	I BY GOLD BRIGHE	sopropy lbenzene	midiciliotebetrene (1350m)	lenes	Stembolic State of St	n-Butylbenzene	Haras X Baladaha 🔹 🕦	*	oldich brokenterey (1) ZajiB)	Tetrachloroethylene (PCE)	is leadingly to beneat the same of	sec-Butylbenzene	317 3 4 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	trans-1,2-Dichloroethylene	Ident Buryliseldera	irichloroethylene (TCE)	TOTAL STATE OF STATE STATE STATES	
Parameter Bromoform	Chlor	O C	Chlor	CHION	Chlor		Bronoc	DICHE	Ethyl		Fluoro	10.00	Isopro	101	m,p-Xylenes	Stress (Stress)	n-Buty		o-Xylene	900	Tetrac	11100	sec-Bu		trans-	はは	Trichit	Mile III	44000



535 East Walnut Street
Pasadena, California 91101
818 568 6400; FAX 818 568 6324;
1 800 566 LABS (1 800 566 5227)
Sample # 950118021 Sample 10 HAIDAMU 111-WELL 4 <2400-13) Froject
Sample Type Water Sampled 13-180-1992 Received 18-180-1995

Regulated VOCs plus Lists 1&3 (ML/EPA 524.2

## Laboratory Report

Nonolulu, City of Board of Water Supply Lab 630 S Beretania St

96843 Honolulu , HI ATTM: Ron Fenstemacher

Result Conc.		
Parameter  Italia (13:0)chlarobioperie (11:1) (11:1)  Toluene ug/t Vin/L'ellafica (vp) / / / / / / / / / / / / / / / / / / /		Report #: 17843



Honolulu, City of Board of Water Supply Lab 630 S Beretania St

Honolulu , HI 96843 ATTN: Ron Fenstemacher

 Sample # 950118021
 Sample ID WAIPAHU III-WELL 4 (2400-13)
 Project

 Sample Type Water
 Sampled 13-jan-1995
 Received 18-jan-1995
 Reported 14-feb-1995

Regulated VOCs plus Lists 1&3 (ML/EPA 524.2 ) Surrogate Summary

Parameter		
4-Bromof Lucrobenzene	Percent Recovery	Acceptable Range
Toluene-d8	96	<u>80 - 120</u> 80 - 120
	ins	80 - 120
		4.
	•	
1)		

Report #: 17843 -



Honolulu, City of Board of Water Supply Lab 630 S Beretania St

Honotulu , HI 9684 ATTN: Ron Fenstemacher

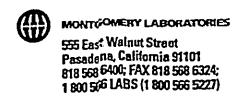
Sample # 950118021 Sample ID <u>WAIPAHU III-WELL 4 (2400-13)</u> Project

Sample Type <u>Water</u> Sampled <u>13-jan-1995</u> Received <u>18-jan-1995</u> Reported <u>14-feb-1995</u>

## Regulated VOCs plus Lists 1&3 (ML/EPA 524.2 ) Cuality Control

Control	Parameter	Units			
<u>(65)</u>	and it is clarify to the control of	Units	Actual	Found	Жесу
LCS1	1,1,2,2-Tetrachloroethane	ug/l		6.07	SUL
<u>es</u>	1.12 Trichtoroschere (%)	0.7	4	4.37	109
LCS1	1,1-Dichloroethane	· ua/l	,		107
LCSI	i di Ulcillaro attivi erro a di di di	G/(6	4	4.06	102
LCS1	1,2,4-Trichlorobenzene	ug/l		4.30	108
CEST.	I ZeDichloroethage	0/1 16/L	4	4.01	100
LCS1	1,2-Dichloropropane	ug/L		3.17	105.6
(65)	1-20 Childropropere		4	3.92	98
LCS1	p-Dichlorobenzene (1,4-DC8)	ug/l	,	7:73	77.00
LCS18	Benzene	09/1	4	4.10	. 102
LCS1	cis-1,2-Dichloroethylene	ug/l		<b>C</b> 10	85403
LCS1	Chioropeniene		4 5	4.06	102
LCS1	Carbon Tetrachloride	ug/l		3.93	
LCSI	Bromoform	16/L	4	4.24	106
LCS1	Chloroform (Trichloromethane)	ua/l		3592	98
(Est	Cilorodibromomethare	09/6	4	4.06	102
LCS1	Bromodichloromethane	ug/l		6 <b>5 6</b> 7 7 8	62.33
£53	Dichicromethane	00/t	4	3.55	89
LCS1	Ethyl benzene	**************************************			22
(6)	Sidden and Side of the Side of	ug/(	4 \$77900000000000000000000000000000000000	4.23	106
LCS1	m,p-Xylenes	2.70		6-16	TES ST
		ug/l	8	. 8.56	107
LCS1	o-Dichlorobenzene (1,2-DC8)				4503 S
TEN .	CORRECTIONS OF THE PROPERTY OF	ug/l	4	4.13	103
LCS1	Styrene			6 (7) (A)	3 (E)
(F)		ug/l	4	4.16	104
LCS1	Trichloroethylene (TCE)	20//		GO.	(1)2
keji e	Enchicronal furnerhane (Free)	ug/l	4	4.05	101
LCS1	Toluene	<b>4</b> /2 <b>3</b>		3.2	Per la
CST SEEDING	Livi Cionde (Vo)	ug/(	4	4.02	100
		10/10		\$ 10	105

Report #: 17843 .



Honolulu, City of Board of Water Supply Lab 630 S Beretania St

Honolulu , HI 96843 ATTN: Ron Fenstemacher

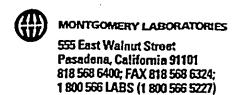
 Sample # 950118021
 Sample ID WAIPAHU III-WELL 4 (2400-13)
 Project

 Sample Type Water
 Sampled 13-Jan-1995
 Received 18-Jan-1995
 Reported 14-feb-1995

Regulated VOCs plus Lists 1&3 (ML/EPA 524.2 )
Quality Control

Control	Parameter	Units	Actual	Found	XRecv
MBLX .	1.1.122 Jetrachloroethave	TO A	() (D)	MO	
HBLK	1,1,1-Trichloroethane	ug/l	KD .	KD	
MES TO	12 Cletrachlorosthene	/L	10 a s	D.	
HBLK	1,1,2-Trichloroethane	. ug/l -	KD	KD	PARTITION AND ADDRESS OF THE PARTITION O
WELK .	1.1 Otchi proethend		<b>10</b>	(D)	
HBLK	1,1-Dichloroethylene	ug/l	KD	KD	***************************************
elik 💮	( 1-0 ich ler opropene i de de de de	- Co/(Dec.)		440) e e e e	
HBLK	1,2,3-Trichlarobenzene -	ug/l	ND	D CH	
JEG CONTRACT	[c2,55] r[chloropropens);	<u> </u>	D.	- 10 c	
HBLK	1,2,4-Trichlorobenzene	ug/l	KD	~ KD	************
HIS.	12,621 cinethylbenzere	69/1	li i	HD:	
KBLK	1,2-Dichloroethane	ug/t	ND	KO	
(E)EK	41.2 Dichteropropere	<b>4</b> 07/1505	0.0000000000000000000000000000000000000	ko e	
(BLK	1,3,5-Trimethylbenzene	ug/l	MD	HD	***************************************
BLK	3.3-Dichloropropane	Les Du/Les	and the second		
18LK	ρ-Dichlorobenzene (1,4-DCB)	ug/l	KD	KO	
CLK	2,2 Dichloropropere	09/1	NO.	10	
BLK	2-Butanone (HEK)	ug/l	ND	KO	
BLK .	2 ChloroethylVirylether	issa Un/L	HU SANGE	(D) (d)	
(BLK	p-Chlorotoluene	ug/l	KD	(D)	
CkK	p Cittorocol uere	ΦÆ			
(BLK	#-Hethyl-2-Pentanone (HIBK)	ug/l	KO	MD Harriston	
	Semerie .	<i>U)</i> /	NO.	Jan	
KBLK .	βromobenzene	ug/l	KD	, KD	**************************************
Elik-	septomomethave (Herby (Growlde))			6 (40)	E CARLES
IBLK .	pis-1,2-Dichloroethylene	ug/l	D. CA	ND	
@\$3.00 mil	gally companies and a companies	3. U//		cale and a series	
<b>BLK</b>	Carbon Tetrachloride	ug/l	KD	KD	······
	e is a suited language of				
KBLK	βromoform	ug/l	KD	MD THE THE THE THE THE THE THE THE THE THE	BASHAMATATAK
BERTHE	control of the contro	5 ( <b>Ú 17 1</b> 1 1 1 1	7 D 7	fore (LD) = 2 m also	

Report #: 17845 -



Honolulu, City of Board of Water Supply Lab 630 S Beretania St

Honolulu , HI 96843 ATTH: Ron Fenstemacher

 Sample # 950118021
 Sample ID <u>WAIPAHU III-WELL 4 (2400-13)</u>
 Project

 Sample Type <u>Water</u>
 Sampled 13-jan-1995
 Received 18-jan-1995
 Reported 14-feb-1995

## Regulated VOCs plus Lists 1&3 (ML/EPA 524.2 Quality Control

Control	Parameter	Units	Actual	Found	XRecv
HELK	Bromochiloromethane	ועשט	MD	lo .	
HBLK	Chloroethane	ug/l	KD	KD	***************************************
MBLK .	Chloropethane(Mathy) Chloride	rug/l	KD.	IÐ.	
MBLK	Chlorodibromomethane	ug/l	. KD	ND .	
MBLK	01bronometrane	ug/l	ND	¥10	
HBLK	Bromodichloromethane	ug/i	ND	ND.	***************************************
MBLK	Dichloromethane	Ue/I	NO	AD.	
MBLK	Ethyl benzene	ug/l	<b>N</b> D	KD	
MBEK	0 ichlorodifiuorounthere	09/1	ND:	<b>1</b> 00	
MBLK	Fluorotrichloromethane(Freon1)	ug/l	KD .	HD.	***************************************
BLK	Rekach Lorobut ad Lene	Ug/I	MD .	HD.	
MBLK	Isopropylbenzene	ug/(	ND	MD	
<b>MBIX</b>	अ-Dichlorabenzene (1:3-b(B)	項八	ND .	NO.	
MBLK	m,p-Xylenes	ug/l	ND	HD	
MBLK	Naphtha Lene 11	mug/L	NO Second	HĎ	
HBLK	n-Butylbenzene	úg/l	NO	KD	***************************************
HBLK	n-Propylbenzene	Up/Al	MD	kO .	
MBLK	o-Xylene	ug/l	ND	<b>K</b> D	***************************************
MELK	o:01ch(probenzere (1,2-009)	υσ/ <b>i</b>	NO	HD.	***************************************
HBLK	Tetrachloroethylene (PCE)	ug/l	<b>K</b> D	<b>N</b> D	
KELK	prisopropyltaliane	∵up/t-===	TO MD	ND	
MBLK	sec-Butylbenzene	ug/l	ND	ND	
Half Service	Styrene	1/00	NO.	HD .	
KBLK	trans-1,2-Dichloroethylene	ug/l	ND	KO	***************************************
PELIC .	icason Mentere	in/l	NO.	10	
MBLK	Trichloroethylene (TCE)	<b>પદ્ય/</b> દે	KD	KO	
BLK.	Intelligence (Fueroe trans (Freon	ang/l	NO.	ND	
MBLK	trans-1,3-Dichloropropene	ug/l	<b>N</b> D	NO.	
BIK	Tolume	up/l ¹	ND -		
HBLK	Vinyl chloride (VC)	ug/l	ND	MD	
				*****	

Report #: 17843 .

#5

Laboratory Report

for

Honolulu, City of Board of Water Supply Lab 630 S Beretania St

Honolulu, HI 96843

Attention: Ron Fenstemacher

MONTGOMERY LABORATORIES

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HDS .

## port Summary of positive results, PR17105

		Result	MDL	UNITS
nalyzed	941202078 WAIPAHU WELL III	HOLE #5		_
2/09/94 2/09/94 2/12/94 2/10/94 2/02/94	Data Entry Ethylene Dibromide (EDB) Data Entry Data Entry Data Entry	12/12/94 0.02 12/15/94 12/19/94 12/09/94 ··	.010	UGL _



MONICOMENT LABORATORIES	1		
555 East Walnut Street Pasadena, California 91101 818 568 6400; FAX 818 568 6324; 1 800 556 1 ARS (1 800 566 5227)	Ronolulu, City of Board of Water Supply Lab 630 S Beretania St	da.	
Sample # 941202078 Sample ID MAIPANU WELL III HOLE #5 Project Sample Type Water Sampled 01-dec-1994 Received 02-dec-1994 Reported 30-dec-1994	Honolulu , HI ATTH: Ron Fenstemacher	96843	
Units	Dilution	Ву	Analyzed
¥ .	1 0.001		3330
	12-de:	E I	S23
Hercury (HL/EPA 245.1 ) ug/l ND	0,2 09. میرد ا	1994 eyu	10-dec-1994 gub 09-dec-1994   pm
		wim BUB	<b>3. €</b> 00,00%

## MONTGOMERY LABORATORIES 555 East Walnut Street Pesadena, California 91101 818 568 6400; FAX 818 568 6324; 1 800 566 LABS (1 800 566 5227)

## Laboratory Report

Honolulu, City of Board of Water Supply Lab 630 S Beretania St

Honolulu , HI 96843 ATTN: Ron Fenstemacher

 Sample # 941202078
 Sample ID WAIPARU WELL III HOLE #5
 Project

 Sample Type Water
 Sampled 01-dec-1994
 Received 02-dec-1994
 Reported 30-dec-1994

## Single Determination Analytes Quality Control

Control	Parameter	Units	Actual	Found	XRecv
CSI STATE	Barling Totaly ICAP	m://le/2	10	0-994	99
LCSZ	Barium, Total, ICAP	ng/l	1.0	0.982	98
<b>BUK</b>	Surium Siotal Micapes	are7/L	AD) 11	ND %	
HS	Barium, Total, ICAP	mg/l	1.0	1.01	101
HS0	Barriom (Total) (TCAP	ae/!	HCO	1.03	103
LCS1	Beryllium, Total, ICAP	ug/l	0.05	0.0473	95
ucs2	Berylliam Stotal, ICAP	πe//L	0.05	0:0462	702
KBLK	Beryllium, Total, ICAP	mg/l	KD	KD	
<b>1</b> 5	Remyletion Total (1049)	aÿ/l	0.03	0.0474	95
HSD	Beryllium, Total, ICAP	mg/l	0.05	0.0495	99
<u>Gest</u>	Cadmium, Iptal , Ci	trg/L	0.01	0:0115	113
LCS2	Cadmium, Total, GF	mg/L	0.01	0.0113	113
<b>WELK</b>	Cedmium, Total Gi	me/(L	AD - 444	<b>X</b> ()	
HS	Cadmium, Total, GF	ag/l	0.01	0.0096	96
1SD	Cadmitte Total GF	ing//L	0:012	0:0104	404
LCS1	Hercury :	ug/l	1.50	1.30	87
KESSE	Mercury	0.00	1,50	(1529)	86-
HBLK	Hercury	ug/l	ND D	KD	
6	Security	(6)/4	0 <b>±</b> 50	19 <b>27</b>	<b>285</b>
HSD	Hercury	ug/l	1.50	1.27	85
(ES)	Metal, real, RP	COM .	0.9	@499	700
LCS2	Nickel, Total, ICAP	ag/l	0.5	0.484	97
	Control (Carlotte Control)	79 <b>/</b> 1		GD	
KS	Nickel, Total, ICAP	mg/l	0.5	0.509	102
TED	Jistor, istor, isto	á:A	0.9	OSW	303
LCS1	Antimony, Total, GF	mg/t	0.04	0.0457	114
10 <del>5</del> 2	Austria, Toull Co	<i>39</i> 1.	0:05	0.030	110
HBLK	Antimony, Total, GF	mg/l	NO ON	KD	
KS.	(division), fotal, 67	mr/l	0.040	0.0600	700
KSD	Antimony, Total, GF	mg/l	0.040	0.0479	120
<b>(5)</b>	That Group Gr	TESTA S	0.008	0.00985	112

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## Laboratory Report

Honolulu, City of Board of Water Supply Lab 630 S Beretania St

96843 , HI Honolulu ATTN: Ron Fenstemacher

	Sample ID WAIPAHU WELL		roject
Sample # 941202078	Sample ID WAIPARO WELL Sampled 01-dec-1994	Received 02-dec-1994	Reported 30-dec-1994
Sample Type Water	Sampled <u>01-dec-1994</u>	Received 32	•

## Single Determination Analytes Quality Control

			Actual	Found	XRecv
Control	Parameter	Units	10	02994	799
Jest .	Barium, Total, ICAP	900/	MANAGEMENT	0.982	98
LCS2	Barium, Total, ICAP	mg/l	1.0	ND TO	
MILES S	Sarium STotel, ICAP	mg/L	KO .	1.01	101
KS	Barium, Total, ICAP	mg/l	1.0	1203	1035
HSD .	Barium Jotal ICAP	mg/L	1.0	The second secon	95
***************************************	Beryllium, Total, ICAP	/\Em	0.05	0.0473	*********************
LCS1	Bery Units, Total, ICAV	mg/A	0505 4	0:0462	92
CC25/11-200	Beryllium, Total, ICAP	mg/l	KD	ND	***************************************
MBLK	Beryltium, total,	mg/A	0:05	0.0474	
es este es	Berrittun total ICAP	mg/l	0.05	0.0495	99
HSD	Beryllium, Total, ICAP	mg/L	0.00	0:01:15	(0.3)
LCSJ 2	Codmun stocat St	ng/L	0.01	0.0113	113
LCS2	Codmium, Total, GF	mg/l	ND.	<b>50</b>	
<b>PELK</b>	Cadnium, Total, GF	ng/l	0.01	0.0096	96
MS	Cadmium, Total, GF	ABCADAGOODOSCOCCOSS 18955 1895 1895 1895 1895 1895 1895 189	0.01	0.01042	(0.5
SD	Codmitty Ciotal, Gi	mg//1	1.50	1.30	87
LCS1	Hercury	ug/l	1.50	1991	869
1658	Mercury	00/4		ND	***************************************
MBLK	Hercury	ug/l	ND	27.	1285
	Nercury	U9/Les :::	4250/Aerosia	1.27	85
HSD	Hercury	ug/l	1.50	02(55)	700
30000000044000000044219909	Nickel (Invel, ICA)	F9/4	0.5	\$\$49000 <del>00*****</del> *************	97
LCST.	Hickel, Total, ICAP	mg/l	0.5	0.484	
LCS2	HICKOL PEOLAL MICAR STARR	C07/I	4004	SAIDLAND.	
MILE	Nickel, Total, ICAP	mg/t	0.5	0.509	102
MS	Ricket, total,	mg/11/	0.9	0.577	103
4SU 5 1 5 5	MERCAL TO COLL LEAD	mg/L	0.04	0.0457	114
LCS1	Antimony, Total, GF	James / Decomposition	0.0%	0.020	1000
LCS2	Antimony halotaly GG and a	mg/l	ND	ND	*
MBLK	Antimony, Total, GF	\$20000C\$22009C\$2909C\$C\$2025\$\$\$\$\$	0.40	0.040	0.00
(5)	Antimony (foliaty (Glassia)		0.040	0.0479	120
HSD	Antimony, Total, GF	mg/l	0.003	0:00983.3	123
ccsi	(The Usum, GF. #	2.000/150			
***************************************	***************************************		•		



555 East Walnut Street Pasadena, California 91101 818 568 6400; FAX 818 568 6324; 1 800 566 LABS (1 800 566 5227)

## Laboratory Report

Honolulu, City of Board of Water Supply Lab 630 S Beretania St

Honolulu , HI 96843 ATTN: Ron Fenstemacher

Sample # 941202078_	Sample ID WAIPAHU WELL	III HOLE #5 P	roject
Sample Type Water	Sampled 01-dec-1994	Received 02-dec-1994	Reported 30-dec-1994

## Single Determination Analytes Quality Control

Control	Parameter	Units	Actual	Found	*Recv
LCSZ	The Class (6)	G7/0	0:008	0.00916	304
KBLK	Thallium, GF	mg∕l	KD	ND	********
5	That Usum, of	Serg/Levil	0.000	0.003	1672
HSD	Thattium, GF	ng/l	0.008	0.0107	134
·					
ermonions-en-el-el-el-el-el-					· · · · · · · · · · · · · · · · · · ·
***************************************		***************************************	*******************************		000000000000000000000000000000000000000
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Zapromatical National Control					***************************************
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Mark Andrews Andrews		**************************************		***********************	STREET STREET STREET STREET STREET
		***********			



AB1803 - EDB and DBCP (ML/EPA 504

## Laboratory Report

Board of Water Supply Lab 630 S Beretania St Honolulu, city of

96843 Konolulu , HI .ATIN: Ron Fenstemacher

By Analyzed By  1th 00-dec-1994 hth  1th 09-dec-1994 hth  1th 09-dec-1994 hth				
Result Conc. XRec D 410 0.02 812/12/94				
Unites 1971 Ug/I				
Parameter Dibionochidooptopamagobbp Sthylene Dibromide (EDB) Date Entry				



555 East Walnut Street Pasadena, California 91101 818 568 6400; FAX 818 568 6324; 1 800 566 LABS (1 800 566 5227)

## Laboratory Report

Honolulu, City of Board of Water Supply Lab 630 S Beretania St

Honolulu , HI 96843 ATTN: Ron Fenstemacher

Sample # 941202078 Sample ID WAIPAHU WELL I Sample Type Water Sampled 01-dec-1994	11 HOLE #5 Received <u>02-dec</u>	Project	30-dec-199	<u>«</u>	
AB1803 - EDB and DBC	y Control	(ML/EPA	504	}	Lanconne de la contraction de
Control Parameter	Units	Actual 0:10	Found	ZRe 110	cv
CS1 Dibromochloropropana (DBCP)  LCS1 Ethylene Dibromide (EDB)	ا/ور	0.10	0.11	110	-
ms2. Dibronochimcopropunes (USCP)	dU	0.40	<0.00 ×	100	
LCS2 Ethylene Dibromide (EDB)	رو/ا	0.10	0.10	100	- 
MBLK: 05 Dibromoch Coropropane (CDBCP) 5 S	0.07/2	NO 22	40)		
HBLK Ethylene Dibromide (EDB)	ارور	ND .	HD		
es Dibronoci Locopropene (USCP)	19/L	0 10	NA NA		
MS Ethylene Dibromide (EDB)	ug/L	0.10	NA.		
					77



555 East Walnut Street Pasadena, Cellfornia 91101 818 558 6400; FAX 818 568 6324; 1 800 566 LABS (1 800 566 5227)

Sample # 941202078 Sample ID WAIPAHU WELL III HOLE #5 Project - Sample Type Water Sampled 01-dec-1994 Received 02-dec-1994 Reported 30-dec-1994

525 Semivolatiles by GC/MS (ML/EPA 525.1

## Laboratory Report

Honolulu, City of Board of Water Supply Lab 630 S Beretania St Honolulu , Hi 96843 ATTH: Ron Fenstemacher

Parameter	Units	Result	Conc. Akec	ec Dilution	Det.Limit	rrepared		08-466-1002	2,7
alcharchioldana	1/61	A A			coro.	02-0ec-17		ALC CARLED	
A DESCRIPTION DOS	78	윤			0.1	05-dec-199	74 CSK	08-dec-1994	
VicingAllin Vicine	10 May 19	0.0			2010s	05-dac-199	A csk	08-dec-1994	Ŧ.
		CN			0.05	05-dec-199	74 csk	08-dec-1994	
Aldrin (III)		100			0,02	05 - dec-195	24 ESK	08-dec-1994	ctx
nracana	110/1	CH CH			0.05	05-dec-195	74 csk	08-dec-1994	
Atrazine (1)	1/80	00			0103	05-dae-19	74. csk	08-dec-1994	
t(d)Anthracene	10.1	£			0.02	05-dec-199	94 csk	08-dec-1994	
Benzo(a)pyrene		QH.			0,02	* 05-dec-19	94. csk	08-dec-1997	7
ZO(D) FUNDERINIEN EN E		S	***************************************		0,05	05-dec-19	94 csk	08-dec-1994	
Benzo(g,h,1)Perylene	Y/ED	un.			0102	05-dec-19	94 csk	08-dec-199	ALQ .
Itolic) Fluodentinene	1/011	9			0.6	05-dec-19	94 csk	08-dec-1994	7
01(2-Ethylnexyl)phthalate	7/85	TO TO			0.5	03-dec-19	94csk	08-dec-199	ς Σίο
Niben19/Entherage	77.	9			2	05-dec-19	94 csk	08-dec-199	:
Bromacil US/1	7/80	SI VI			50.0	05-dec-1994	94 csk	28-dec-1994	Crt
achtor.	1/60	S			0.02	05-dec-19	94 csk	08-dec-199	:
Chrysene Carlon (1971)		AUN SERVICE			97.0	05-dec-19	94° tsk	08-dec-199	COL
Santi (a) hadrini acutora		CX			9.0	05-dec-19	794 csk	08-dec-199	:
01-(2-Ethylnexyl)adipate	) /ED	210			0.5	05-dec-19	74 csk	08-dec+199	, orw
athytontdatate	1/01/	2	SAN		0.1	05-dec-19	794 csk	08-dec-199	
Diazinon XI: 1130	785	MD			510	05-dec-15	794 csk	08-dec-199	7. 7.
	1/5/1	£			0.5	05-dec-19	794 csk	08-dec-199	
Ulmetrilytprinalate		10			. 01	05-dac-19	994. csk	08+dec+199	( X
TOTO DESCRIPTION OF THE PROPERTY OF THE PROPER	1/61	æ			0.5	05-dec-15	794 csk	08-dec-199	
01-n-Bury/phrnalate	. //2	HD:			1.0	\$05-dec-1	994 csk	08-dec-195	****
4010	1,641	QX	King kendak Kinamah Indon		0.05	05-dec-19	994 csk	08-dec-1994	
Fluorene	1/91	J. N.			6,05	.05-dec-19	994 csk	08-dec-1990	H 10 9
martintofusity.	110/1	CX			0.05	•	1994 csk	08-dec-1994	_
Hexachlobenzene	, (6)	CONTRACTOR		Carrow Contract Contr		Carried Mark Species		A CONTRACTOR OF THE CONTRACTOR	



Sample # 941202078 Sample 10 WAIPAKU WELL 111 HOLE #5 Project
Sample Type Water Sampled 01-dec-1994 Received 02-dec-1994 Reported 30-dec-1994 555 East Walnut Street Pasadena, California 91101 818 568 6400; FAX 818 568 6324; 1 800 566 LABS (1 800 566 5227)

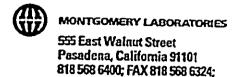
525 Semivolatiles by GC/MS (ML/EPA 525.1

Board of Water Supply Lab 630 S Beretanía St Honolulu, City of

hanoracury haport

ATTN: Ron Fenstemacher Ξ, Honolulu

Parameter	Units	Result	Conc. %	%Rec D	Dilution	Det.Limi	t Prepared	ž.	<b>~</b>	Analward	à
Heptachlor	300/1317	gt.				. 1010			Ker	AR 2 days 100	3.5
Heptachlor Epoxide	ng/l	£			or and a second second	0.02	05-4			A CAMPAGA	٣.
Indenois/1/2/3/c/d)Pypena	1 (A) (A)	1.6				71111111111111111111111111111111111111	Jan-Co		CSK	08-dec-19	- 3
Isopharone	110/1		Selection of the Control of the Cont				Seo-co		.3K.	08-dec-19	F. Crts
indani		2				0.5	05-dec		csk	08-dec-199	
Hethoxychlor		100 S				0102	05-dec-1994		Cok.	08;dec-1994	f, cty
Hetelbusin and The State of the		1				0.05	05-dec		csk	08-dec-195	3
						2010	% (05: dec		Sec	08:dec-195	, Pro 4
	1/80	ND				0.2	05-dec		csk	08-dec-195	
	**************************************	HD. Te				0105	105-deb		sk	08-dec-195	4 cru
	1/8n	£				0.05	05-dec		csk	08-dec-199	<u> </u>
hanol		No.					*05-cec		245	08245-10	£33
	ug/l	유				0.02	05-dec		csk	08-dec-100	35
Prometryn St.	15,1/60	ND.				5:0	3.052.465		2/1	200 200	***
	1/ga	£	And Andrews (A. Andrews)			0.05	A Parket		7.0V	20,000,000	133
Pyrend Services	17.01	3.0							S.K.	03-dec-199	- 3
Simplifie						~ car	no, dec		, X65	08÷dec+195	CHN C
	1/8n	ND.		***********		0.05	05-dec		csk	08-dec-1994	
ATTIONAL CONTROL OF THE PROPERTY OF THE PROPER	27 17BTS	NO GR				7	305-466		Č.S.K	08-dec-1992	C. CPD
irit(uratin ·	ug/l	£				0.1	05-dec		mm.c.	08-dec-100/	Š.,
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1 800 566 LABS (1 800 566 5227)

### Laboratory Report

Honolulu, City of Board of Water Supply Lab 630 S Beretania St

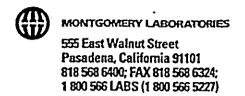
Honolulu , HI 96843 ATTM: Ron Fenstemacher

Sample # 941202078 Sample ID WAIPAHU WELL III HOLE #5 Project

Sample Type Water Sampled 01-dec-1994 Received 02-dec-1994 Reported 30-dec-1994

525 Semivolatiles by GC/MS Surrogate Summary

(ML/EPA 525.1



Honolulu, City of Board of Water Supply Lab 630 S Beretania St

96843

, HI Konatutu

ATTN: Ron Fenstemacher

Sample # 941202078 Sample ID WAIPAHU WELL III HOLE #5 Project Sample Type <u>Water</u> Sampled <u>01-dec-1994</u> Received <u>02-dec-1994</u> Reported <u>30-dec-1994</u>

### 525 Semivolatiles by GC/MS (ML/EPA 525.1 ) Quality Control

Control	Parameter	Units	Actual	Found	*Recv
FC-1	atpha_Chiordane			1918	96
LCS1	Acenaphthylene	ug/l	2	1.82	91
LCS1	(A) action	- 69/1	2	2 08	100
LCS1	Aldrin	ug/l	2	1.83	92
icsi/	Anthracene	ug/l	21.	1.71	886¥
LCS1	Atrazine	ug/l	2	1.86	93
. LCSJ	Benz(e)Anthracene	-tig/\$	2	1:77	87
LCS1	Benzo(a)pyrene	ug/l	2	1.78	89
Lest :	rtBenzo(b) EU oranthene	ug/().	e e e e e e e e e e e e e e e e e e e	1296	77
LCS1	Benzo(g,h,i)Perylene	ug/l	2	1.87	94
1057	Benzo(K)Fluorentheno	. U9/L	2	1,79	20
LCS1	Di(2-Ethylhexyl)phthalate	ug/l	2	2.00	100
icst.	Butylbenzylphthalate	edatification	(2)	(1274	*87
LCS1	Chrysene	ug/l	2	1.81	90
ccsi	Diberz(a/h)Anthracere ()	09/1	_		189
LCS1	Di-(2-Ethylhexyl)adipate	ug/l	2	1.56	78
Ecst	Viethylphthalatek			197	
LCS1	Dimethylphthalate	ug/l	2	1.89	94
LCS1	OlonsButy/phthalate(). Endrin		2		
(CS)	Closure	ug/l	2	1-95	98 196
LCS1	gamma-Chlordane	ug/l	S	1.90	95
	Miexach Larobenzene			668	
LCS1	Hexachlorocyclopentadiene	ug/l	2	1.18	59
PER PROPERTY	Reptachtor 2			1202	27738233
LCS1	Keptachlor Epoxide	ug/l	2	1_86	93
es)	sindero(0.25,e-d)Pyroni	00/11	2.0	(1) 81 (A) (A)	3000 See
LCS1	Lindane	ug/l	2	1.76	88
iesi.	Visition yellor	eup/U		192	66
LCS1	Holinate	ug/l	2	1_90	95
LES)	trens korechlor	1971	2	1.85	72



Honolulu, City of Board of Water Supply Lab 630 S Beretania St

Honolulu , HI 96843 ATTN: Ron Fenstemacher

Sample # <u>941202078</u>	Sample ID WAIPAHU WELL	III HOLE #S Pr	oject
Sample Type Water	Sampled 01-dec-1994	Received 02-dec-1994	Reported 30-dec-1994

## 525 Semivolatiles by GC/MS (ML/EPA 525.1 ) Quality Control

Control LCS1	Parameter Pentachiopophenol	Units un/l	Actual	Found	ZRecv E0
LCS1	Phenanthrene	ug/l	2	1.79	90
LCS1	Pyrema	10g/L	2	2.01	100%
LCS1	Simazine	ug/l	2	1.90	95
LCS1	Thiobercarb	οφ/1 <del>1</del>	2	11289	94
HBLK HBLK	alpha-Chlordane	ug/L ug/L	KD KD	KD KD	
MBLK	Acensphinylene	~~~~~~ <del>~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~</del>	NO NO	ND ND	
HBLK	Aldein	ug/l ug/l	KD.	10	
HBLK	Anthracene	ug/l	KD	ND	
BLK-015-19	Atrazines	67/	10	TD S	
HBLK	Benz(a)Anthracene	ug/l	10	KD .	
#BLK	Berzo(s)pyrene	un/Al	MD	#40 (2.5 Ext. \$2.5 E	
NBLK	Benzo(b)Fluoranthene	<b>પ્</b> લ/દ	KD	KD .	
<b>BLK</b>	Benzo(g) hrsi/Persylon:	SPAL .	ND.	(i)	
HBLK	Benzo(k)Fluoranthene	.ug/l	KD ,	KD .	
HELK	Ui(2-Ethylhexyl)phthalate	07/07	<b>60</b>	<b>10</b>	
HSLK	Butylbenzylphthalate	ug/(	KD	KD.	~~~
elca.	Bronac .	(15g/)	ND.	AND RESERVED	
HBLK	Butachlor	ug/l	KD	KD	M436514+142544535K
		Q5/U	ND TO SERVICE	(a)	
KBLK	Dibenz(a,h)Anthracene	ug/l	KD	KD	***************************************
HELK	015025Ctp/GexyUadipate		15	(D)	
BUKO	Diethylphthalate Ulszinon	ug/l	KO	KD	
KBLK	Dieldrin	ug/l	<b>K</b> D	<b>I</b> D	
	Occurs Colors	(9/1	17	<b>10</b>	
HBLK	Dimethoate	ug/l	KD	<b>K</b> D	
EUK Y	U in a Buty ( pitting late)	/// // // // // // // // // // // // //	215 (27)	(6)	
KBLK	Endrin	ug/l	KD	Ю	eracasse kalkinististist
	FUSICAS	10/L ** 13-63	400	(HD	

## MONTGOMERY LABORATORIES 555 East Walnut Street Pasadena, California 91101 818 568 6400; FAX 818 568 6324; 1 800 566 LABS (1 800 566 5227)

## Laboratory Report

Honolulu, City of Board of Water Supply Lab 630 S Beretania St

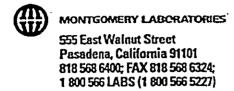
Honolulu , HI 96843 ATTN: Ron Fenstemacher

Sample # 941202078	Sample ID WAIPARU WELL	111 HOLE #5 Pr	oject
Sample Type Water	Sampled 01-dec-1994	Received 02-dec-1994	Reported 30-dec-1994

## 525 Semivolatiles by GC/MS Quality Control

(ML/EPA 525.1 )

				_	=
Control	Parameter	Units	Actual	Found	<b>X</b> Recv
MECK	gama-Chlordare	LOP/Los	HD++	NO ESTA	
HBLK	Hexachlorobenzene	บฐ/ไ	KD	HD	
MBEK	Hexachlorocyclopentadiene	rate and	SEANDLE SEE	A ND S	
HBLK	Reptachlor -	ug/l	KD	ND	*************
HSUK	Heptachton Epoxide	S.4971.45	SHD.	100	
HBLK	Indeno(1,2,3,c,d)Pyrene	ug/l	KD	ND C	
MBLK	Esephorone	na(1	U)	HD.	
HBLK	Lindane	ug/l	ND	KD	***************************************
HBLK.	Mechaxychlon	Up/L	100	<b>H</b> 0	
HBLK	Hetribuzin	ug/l	MD	ND	
MBLK	Hot (Filter	19/4	, ET	(0)	
HBLK	Hetolachlor	ug/l	KD	ND .	
HSCK	transolonachlor	U9/()	HD	VO.	
HBLK	Pentachlorophenol	ug/l	ND	CN CN	
HBLK:	Cherentagens	09/4	AD	(P)	
HBLK	Prometryn	mg/l	KD	ND	
MBCK	Propagitor	449/45	## (D)		
HBLK	Pyrene	ug/l	ND	KD	
elk .	Signation	, 109/L	IU.	A HD THE STATE	
HBLK	Thiobencarb	ug/l	KD	ND	
KEEK	Teration .	OT (ALCOHOL)	310 × 510	105.5	
HS	alpha-Chlordane	ug/l	2	2.02	101
50.000	Aceraph thy Lores 2012 2012 2012	17//		170	200
HS	Alachlor	บฐ/ไ	2	2.09	104
5	7.65 ti	400/25		10000	
HS	Anthracene	ˈug/l	2	1.77	88
S	COMMITTED IN CONTRACT OF THE C		2 (1)	0.00	
HS	Benz(a)Anthracene	ug/l	2	1.79	90
KS 80 ASS	Eleman provided	49/42-62		67	
HS	Benzo(b)Fluoranthene	ug/l	2	1.94	97
<b>S</b> ECTION	Benzo(g.fr SPervience	409/44	2	21.70	



Honolulu, City of Board of Water Supply Lab 630 S Beretania St

Honolulu , HI 96843 ATTN: Ron Fenstemacher

Sample # 941202078 Sample ID <u>WAIPAHU WELL 111 HOLE #5</u> Project
Sample Type <u>Water</u> Sampled <u>01-dec-1994</u> Received <u>02-dec-1994</u> Reported <u>30-dec-1994</u>

525 Semivolatiles by GC/FS Quality Control (ML/EPA 525.1 )

			41	Found	#Recv
control	Parameter	Units	Actual	FOUR C	
S	(Manzo(K) Kluoranthene) (Se alias			2.08	104
IS	Di(2-Ethylhexyl)phthalate	ug/l	2	2.00	80
is .	Butylbanzylphthaleta	09/4		1.85	92
(S	Chrysene	ug/l	2	MANAGEMENT AND	72 73
5	Dibenz(a,b)Anthracene	- 40/2		1.86	~*C*******************
S	Di-(Z-Ethylhexyl)adipate	ug/l	2	1.70	85
Shanka	pretrylphthalate	1,000	2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2	0.97	26.28
S	Dimethylphthalate	ug/l	2	1.91	96
	Ul-neutylphthalate	OTA.		2.92	1061
S	Endrin	ug/L	2	2.06	103
5 (0)	*1 (domene)	09/0	2.5	222	ν. Σ
IS	gamma-Chlordane	ug/l	2	1.93	96
5	llexactiforobenzene	49/45/66		1.85	972
S	<b>Kexachlorocyclopentadiene</b>	ug/l .	2	1.30	65
5/22-02	altracebon	œμ	2	1.92	χ.
S	Heptachlor Epoxide	. ug/l	2	1.93	96
tserie - Car	Covers Calman		TO GOVERN	1692	7)
S	Lindane	ug/l	2	1.87	94
S.	COBONEILO	Second Second	2	9.000 (Co	100
ls	Holinate	ug/l	2	1.87	94
Shara	Constitution	veril.	32.3 min	9377	e de
is	Pentachlorophenol	ug/l	8	5.88	74
SCHOOL	Shered Livenia	777/1.74*	2		<b>36</b>
is	Pyrene	ug/l	2	2.09	104
				1.60	
<del>zanomandaria</del> IS	Thiobencarb	ug/l	2	1 <b>.93</b> .	. 96
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555 East Walnut Street
Pasadena, California 91101
818 568 6400; FAX 818 568 6324;
1 800 566 LABS (1 800 566 5227)
Sample # 941202078 sample 10 MAIPARU HELL 111 HOLE #5

Sample # 941202078 Sample ID WAIPARU WELL III NOLE #5 Project Sample Type Water Sampled 01-dec-1994 Received 02-dec-1994 Reported 30-dec-1994

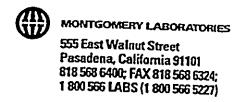
Aldicarbs (ML/EPA 531.1 )

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Board of Water Supply Lab 630 S Beretania St Honolulu, City of

Ronolulu , HI ATTH: Ron Fenstemacher

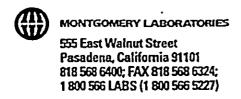
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Honolulu, City of Board of Water Supply Lab 630 S Beretania St

Honolulu , HI 96843 ATIN: Ron Fenstemacher

Sample # 941202078 Sample ID WAIPAHU WELL III HOLF #5			
Sample # 941202078 Sample ID WAIPAHU WELL III HOLE #5 Sample Type Water Sampled 01-dec-1994 Received 02-dec-1	Project 994 Reported	30-dec-1994	4
			-
Aldicarbs	(ML/EPA	531.1	)
Surrogate Summary			
Parameter		***************************************	
EDRO 89		Accepta SI ~ 12	ble Range



### Laboratory Report

Honolulu, City of Board of Water Supply Lab 630 S Beretania St

Honolulu , HI 96843 ATTN: Ron Fenstemacher

Sample # <u>941202078</u>	Sample ID WAIPAHU WELL	III HOLE #5 Pr	roject
Sample Type Water	Sampled <u>01-dec-1994</u>		Reported 30-dec-1994

## Aldicarbs (ML/EPA 531.1 ) Quality Control

Control	Parameter	Units	Actual	Found	#Recv
Icsi Jus	З-нуслохусатьстствп	Ug/l	20-0	18:0	942
LCS1	Aldicarb (Temik)	ug/l	20.0	18.7	94
LCSI	'Aldicarb sulfone	19/8	20.0	18-1	90
LCS1	Aldicarb sulfoxide	ug/l	20.0	17.8	89
icsi.	Baygori	up/l	750-0	19:00:00:00	<b>95</b> (1-44)
LCS1	Carbofuran (Furadan)	ug/l	20.0	19.0	95
LCSI	Carbacyl	rig/i	20-0	195	300
LCS1	<b>Methiocarb</b>	ug/l	20.0	19.3	96
icsi .	Mathamyli	ug/L	20.0	18.0	90
LCS1	Oxamyl (Vydate)	ug/l	20.0	18.1	90
CCS2	Schydroxycarbofurans	ita/I	20:0	HAS	
LCS2	'Aldicarb (Temik)	ug/l	20.0	HA	W4400746076574
L0578	Aldicarb sulface	Cold	30.0	EU.	
LCS2	Aldicarb sulfoxide	ug/l	20.0	NA	*****************
052	Bayyon	<i>(g)</i> (	20.0	HA	
LCSZ	Carbofuran (Furadan)	ug/l	20.0	KA	
(052) - V	Carbanyli	CF/Al	020,0	NA STATE	
LCS2	Kethiocarb	ug/l	20.0	NA	w-noncocon-econococ
ucsz.	(Cathony)	tg/L	20:0	Harris	
LCS2	Oxamyl (Vydate)	ug/l	20.0	KA	*****************
SULK.	E-Molroxy-srboteless	545/4 L	810 St. 2 May 25		
MBLK	Aldicarb (Temik)	ug/l	ND	KD	**************
est.	Adjecto subord	sug/II6 Set		HD BROWN SALES	
HBLK	Aldicarb sulfoxide	ug/l	KD	ND	***********
KSES*	Saypor	NG/A SEA	CD.	(II)	
HBLK	Carbofuran (Furadan)	ug/l	ND	KD.	0102822283238344388
عاقة .	G16-1978	ug/L	NO.		
MBLK	Hethiocarb	ug/l	ND	HD	***************************************
CORK .	Metionyl	dp/(lesses	(Oxygen)		
HBLK	Oxamyl (Vydate)	ug/l	KD	ND	62224404645426645486146
<b>7</b> 5	#5-liydroxyearbo(tiran)	ca/l	20-0	2004	



### MONTGOMERY LABORATORIES

555 East Walnut Street Pasadena, California 91101 818 568 6400; FAX 818 568 6324; 1 800 566 LABS (1 800 566 5227)

### Laboratory Report

Honolulu, City of Board of Water Supply Lab 630 S Beretania St

Honolulu , H1 96843 ATTN: Ron Fenstemacher

Sample # 941202078 Sample ID WAIPAHU WELL III HOLE #5 Project
Sample Type Water Sampled 01-dec-1994 Received 02-dec-1994 Reported 30-dec-1994

Aldicarbs (ML/EPA 531.1 )
Quality Control

Control	Parameter	Units	Actual	Found	<b>X</b> Recv
300000000000000000000000000000000000000	(Kilestokitemia)	07/1	20.0	72.9	99
HS KONSTAN	Aldicarb sulfone	ug/L	20.0	. 18.5	92
	Aldical Sulfoxide	2 - 4 - 5 - 7 - 1 - 5 - 7 - 7 - 7 - 7 - 7 - 7 - 7 - 7 - 7	200	18-0	90.0
65.2.2.2	Baygon	ug/l	20.0	19.3	96
HS HS	Carbofuran (Furadan)	ú;/A	20:0	10-2	96.23
***************************************	Carbaryl	ug/l	20.0	19.3	96
MS	Nathiodero	1.0/1	20:0	19.9	\$100 KF
MS	Kethonyl	. ug/l	20.0	18.5	92
HS HS	Cxamyl (Cycale)		20:0	: 60£6	95
	3-Hydroxycarbofuran	ug/l	20.0	19.2	96
HSD HSD	7. Kient (Cell)		20:0	10.0	992
	Aldicarb sulfone	ug/l	20.0	18.5	92
HSD	Aldicarb sulfactor		20:0	16-0	90
ST	<del>                                      </del>	ug/l	20.0	19.4	97.
H20	Baygon Carbofuran (Furadun)		20:0	925	36
***************************************	***************************************	ug/l	20.0	19.7	98
HSO	Carbaryl Meth Socarb		20:03	20:6	305
5		ug/l	20.0	18.3	92
HSD PROFESSIONER	Hethomyl O'Chmyl (Cyclote)		20 <del>1</del> 0	026	<b>75</b>
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200200000000000000000000000000000000000					
			(C)1334(02)224(1324)		
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MONTGOMERY LABORATORIES

Sample # 941202078 Sample 10 MAIPANU WELL III NOIE #5 Project Sample 701-dec-1994 Received 02-dec-1994 Reported 30-dec-1994 555 East Walnut Street Pasadene, California 91101 818 568 6400; FAX 818 568 6324; 1 800 566 LABS (1 800 566 5227)

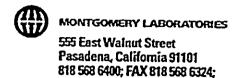
Daboratory Acrost

Board of Water Supply Lab 630 S Beretania St Honolulu, City of

Honolulu ATTM: Ron Fenstemacher

(ML/EPA 515.1 Chlorinated Acids in Water

Parameter	Units	Result	Conc. XRec	Dflution	Det.Limit	repared	Ву	Analyzed	Ву
1651)	1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	<b>1</b>				07-dec=1994	Mt	12-dec-1994	
2,4,5-TP (Silvex)	1/8n	웊		_		07-dec-1994	¥D.	12-dec-1994	dst
	1/61/s	Jit.				07-dac-1994	ig.	12-dec-1994	dat
2,4-08	1/8n	웊	·			07-dec-1994	Ą	12-dec-1994	dst
DIENIOFPRODE SECTION SECTIONS	201/60	(I)				07-dec-1994	Mat	12-dec-1994	dst
5-Hydroxydicamba	. 1/Bn	æ				07-dec-1994	쫘	12-dec-1994	dst
Abit Puonian signaliitat (vaita)	201/B18	AID.				07-dec=1994	НОТ	12-dec-1994	det
Bentazon	/gn	운				07-dec-1994	¥þt	12-dec-1994	dst
billopensing (quality at (Va).	1/6	QF:				07-dec-1994	ipt ipt	12-dec-1994	dst
Dalapon (qualitative)	7/8 <b>n</b>	£				07-dec-1994	¥pt	12-dec-1994	dst
3,54010hlafobanzolc, köldén 356 gy	1/81	OR				07-dec-1994	Hot	12-dec-1994	dat
DCPA	. 1/8n	운	٠.	•		07-dec-1994	教	12-dec-1994	dst
) bamba	- 1/BJ	Alb				07-dec-1994	101	12-dec-1994	dst
Dinoseb	1/6n	웊				07-dec-1994	¥рt	12-dec-1994	dst
Pantachterobianot-scale at a second	3, 1/60	917			7010	07-dec+1994	to:	12-dec-1994	Aet
Pictoram	1/8n	£				07-dec-1994	ğ	12-dec-1994	dst
4-4() (raphenal (qualifative)	16976	NO.				07-dec=1994	tok	12-dec-1994	dst
Date Entry .	•	12/15/94		•			ž Š	12-dec-1994	dst
							<u>.</u>		



1 800 566 LABS (1 800 566 5227)

### Laboratory Report

Honolulu, City of Board of Water Supply Lab 630 S Beretania St

, HI 96843 Honotulu ATTN: Ron Fenstemacher

(ML/EPA 515.1 )

Sample # 941202078 Sample ID WAIPAHU WELL III HOLE #5 ____ Project _ Sample Type <u>Water</u> Sampled <u>01-dec-1994</u> Received <u>02-dec-1994</u> Reported <u>30-dec-1994</u> Chlorinated Acids in Water

Surrogate Summary

Parameter Percent Recovery Acceptable Range 702-130 



### MONTGOMERY LABORATORIES

555 East Walnut Street Pasadena, California 91101 818 568 6400; FAX 818 568 6324; 1 800 566 LABS (1 800 566 5227)

### Laboratory Report

Honolulu, City of Board of Water Supply Lab 630 S Beretania St

Honolulu , HI 96843 ATTN: Ron Fenstemacher

Sample # 941202078 Sample ID WAIPAHU WELL III HOLE #5 Project Sample Type Water Sampled 01-dec-1994 Received 02-dec-1994 Reported 30-dec-1994

## Chlorinated Acids in Water Quality Control

(ML/EPA 515.1 )

					<b>%</b> Recv
Control	Parameter	Units	Actual	Found	28
Č1	2,455TP/(STLYPO)		02500)	0.49	<del>////000/00/00/00/00/00/00/00/00/00/</del>
.cs1	2,4-D	ug/l	1.00	0.99	99
.cs1	Bentazon	u9/L	1200	7611	1113
.csz	2,4,5-TP (Silvex)	ug/l	0.500	KA	***************************************
čs2	2.4-0	ug/l'	1,00	, KA	
.csz	Bentazon	ug/l	1.00	HA.	
BLK	2.4 StT	ug/L	KO.	KD.	
(BLK	2,4,5-TP (Silvex)	ug/l	HD	ND	***************
BLK.	2.60	07/	ND C	. KD	
(BLK	2,4-08	ug/l	KD	KD	
elk ***	Olehlorprop.se	(F-1).	Ū	HD.	
(BLK	5-Hydroxydicamba	ug/l	KD	ĺΦ	
e CX	Acif (borfen) (qualitative)	<b>35/</b> 1	Œ.	480	
KBLK	Bentazon	ug/L	_KD	ND	
elk.	Chlorembeni(qualitative)	10.717	T)	(ID	
HBLK	Dalapon (qualitative)	ug/l	ND	KD	
BIK ST	3 Stolich (probenzolickocid)	7,007	HD	TO (III)	
KBLK	DCPA	J\eu	KD	KD .	
BIK 2	Dicarios	e 10/4	<b>5</b> 0	(ED	
BLK	Dinoseb	ug/l	NO	KD	
BLK	Pentaci (propiero)		3.74D	( ) ( ) ( ) ( ) ( ) ( ) ( ) ( ) ( ) ( )	
HBLK	Pictoram	ug/l	KD	KD	
######################################	Silitropienal (qualitative			See RD	
		ug/l	0.500	0.51	102
KS	2,4,5-TP (Silvex)	09/C		See 8 1 2 0 / 5 2 4 2	104
		eg/l	1.00	0.96	96
KS	Sentazon	457	0.500		
(a)	2.65919 (G1000)		1.00	KA	22276909313609993746399907
KSD	2,4-D	ug/l	1.00		
HOUSE COME	Bentazon				
				24-10-14-14-14-14-14-14-14-14-14-14-14-14-14-	



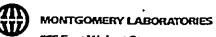
# MONTGOMERY LABORATORIES

555 East Walnut Street Pasadene, Cellfornia 91101 818 568 6400; FAX 818 568 5224; 1 em ese 1 Aps 11 em ese erzzt;

## Laboratory Report

Honolulu, City of Board of Water Supply Lab

			7		Ву	794 dst	764	994 dat	į	994 dat		1994 dat		1994 dst		18P 7661		1994 dst		194 dst		1994 dst		594 dat				1994 dst	į	994 dst		1994 dat	1994 dst	994 ds t
					Analyzed	10-dec-19	10-dec-19	10*dec-1994	10-dec-19	10-dec-19	10-dec-19	10*dec+15	10-dec-15	10-dec-19	10-dec-19	10-dec-19	10-dec-19	10-dec-19	10-dec-19			10-dec-19	10-dec-19	1651-5ap-01	10-dec-15	10-dec-1994	10-dec-19	10-dec- [	10-dec-1	10-dec-1994	10-dec-1	10-dec-19		10-dec-1
	27896	è			Ву	Род		PQ.		po J	-	PO .	_	. rod	_	· 🕸	: -	, 199	_	poJ 5		pot 5	- 1	100		, tod		bou y		×		У	-7	bo 1 - 4
is St	76 18	4			Prepared	* 05-det-199		. 05-dec-199	· 05-dec-199/	+ 05-dec-1994	05-dec-199	05:49F-100	05-dec-199	7661+39P+50	05-dec-199	05 dec- 199	05-dec-199	+05-dec-199	05-dec-199	05-dec*199	05-dec-199	05-det+1994	05-dec-199	05-dec-199	05-dec-199	05-det-199	05-dec-199	05-dac*199	05-dec-199	05-466-199	05-dec-1994	* 05-dac* 199	05-dec-199	05-dec-199
630 S Beretanía	Honolulu	_			n Det.Limit	110	0.1	100	0.1	110-7	0.1	0.15	0.01	5010 *	0.01	1010	0.1	10.0	0.01	1010	0.01	1010	0.01	10.0	0.01	0101	0.01	Juro :	0.01	1010	0.01	\$0.0	0.5	Q
			]		Dilution																		***************************************		***************************************				***************************************					
	-1994		^	correspondent contraction of the	XRec										7																			
	Ject Reported 30-dec-1994		508	(44) market (1504)	Conc.														***************************************															
	Pro -dec-1994		(ML/EPA		Result	OH 1	£	98	요	Q <del>P</del>	£ .	e)	£	Hg	욦	ei e	동	98	오	01	욧	- HD	£	AD .	ድ	QP · ·	£	100	HA	QH .	욮	On S	£	122/9/2
•	Received 02				Units	** 1/01 H	1/Bn	1/60	. ug/l	17/6075	1/6n	12012	ug/l	1/60	ug/l		1/Bn	1207	1/8n	1760	. 1/6n	1707	1/8n		/Bn	***1'97.1*	η/βη	1760	Ug/1	1,07	1/80	30/100	l/gu	
1 800 566 5227)	Sample 10 WAIPANU WELL Sampled 01-dec-1994		laides	**************************************														1.07470																
S	Sample # 941202078 S Sample Type Water		SDWA Pesticides		Parameter	callo 16 Arbeton 12 Te	PCB 1221 Aroclor	cas 1232 Arocton	PCB 1242 Aroclor	chi 1248 Afacion gr	CB 1254 Aroclor	cay ized Aronion are	lpha-BHC	achten (Atanex):	ldrin	Batarand, 14	:hlordane	hlapthatonic (areoff)	elta-BHC	9,61,000	p, DOE	(a) 001 /s	ieldrin .	ndî Mixideliyde	ndrin	rddellfan II erafrans	ndosulfan II (beta)	hoosulfan,sülfatees	Heptachlor	entachton Epolytoe	Indane (gama-8KC)	Hathorychtons	oxaphene	Data Entry



555 East Walnut Street Pasadena, California 91101 818 568 6400; FAX 818 568 6324; 1 800 566 LABS (1 800 566 5227)

### Laboratory Report

Honolulu, City of Board of Water Supply Lab 630 S Beretania St

Honolulu , HI 968 ATTN: Ron Fenstemacher

Sample ID VAIPARN VELL III HOLE #5 Project
Sample Type Vater Sample Off-dec-1994 Received Off-dec-1994 Reported 30-dec-1994

SDWA Festicides Surrogate Summary

Parameter Percent Recovery Acceptable Range Diburyis Chippendato 923 150 130



Sample # 941202078 Sample ID WAIPAHU WELL III HOLE #5

### Laboratory Report

Honolulu, City of Board of Water Supply Lab 630 S Beretania St

Project _

Honolulu , HI 96843 ATTN: Ron Fenstemacher

Sample	Type Water	Sampled <u>01-dec-1994</u>	Received <u>02-dec-1994</u>	Reported	30-dec-199	<u>4</u>
	SDWA Pe	sticides	(	ML/EPA	508	)
		Qualit	y Control			

Control	Parameter	Units	Actual	Found	XRecv
(E)	Aldolfi	CD/L	0.05	0.03	
LCS1	p,p' DDT	ug/l	0.10	0.08	80 -100
<u>1651</u>	Dieldrin	06/1	0:10	0.09	90
LCS1	Endrin	ug/l	0.10	***************************************	90 2100
***************************************	Gamna-BHC-(Urrdene) - 34	ug/l	0.05	0.0538.67	60
LCS1	Heptachlor	ug/l ug/l	0.05 0:05	0.03 NA	60
CCS2	Aldrin	**************************************	0.10	HA	
CS2	p,p' DDT · · · · · · · · · · · · · · · · · ·	ug/l da/l	0.10	HAS	
LCS2	Endrin	ug/l	0.10	NA.	
LCS2 845	Commartific (Expelant)	og/L	0.10	HA SOLETINE	
LCS2	<b>Heptachlor</b>	ug/l		NA .	
HECK	PCB 1016/Arcolon			in a	
HBLK	PCB 1221 Aroclor	ug/l	ND .	HD	933733X3X3X
elk.	POS 1ZZZ Araclor		io.	10	15 77 27 35
MBLK	PCB 1242 Aroclor	ug/l	ND	ND	
WEEK CO.	FREE (200 Aroclot)		60 × 60 × 60 × 60 × 60 × 60 × 60 × 60 ×	10 20 20 20	
HBLK	PCB 1254 Aroclor	ug/l	KD	KD	<del>  </del>
1815 S. C. C.	PCB 1260 (Andellond)	4.00	10)	ND/2 7A ISSE	
MBLK	Alpha-BHC	ug/l	KD .	KD	
<b>T</b> EEK	(Uschlossatebee)	T//5		<b>30</b> %	
MBLK	Aldrin	ug/l	KD	HD .	
1005	<b>Enteration</b>	mir.	ID.	D	
HBLK	Chlorthalonil (Drconil, Bravo)	ug/l	KD	ND	
(ELS)	üaltaelle	25/0	<b>(1)</b>	en de la companya de	
MBLK	p,p' DDD	ug/l	Ю	ND	
<b>E</b> 15.5	-2020B	(D/L	D.	CD *	
HBLK	p,p' DOT	ug/l	KD	KD	
TUK	<u>জার্ম্ব</u> র্জন	25/0		Will be a second	
KBLK	Endrin Aldehyde	પત્ર/(	ND .	KD	
40(5)	Endring allowers to the second and t	09/07/2004	W.	HD DOS SERVICES	



### Laboratory Report

Honolulu, City of Board of Water Supply Lab 630 S Beretania St

Honolulu 96843 , KI ATTN: Ron Fenstemacher

Sample # 5		HU WELL III HOLE #5 ec-1994 Received <u>02-dec</u>	Project		<u>4</u>
	SDWA Pesticides	uality Control	(ML/EPA	508	)
Control	Parameter	Units	Actual	Found	**Recv

Control	Parameter	Units	Actual	Found	XRecv	
<b>EELK</b>	Endosulfan I(Kalpha)	99/1 (177)	9-10 pt 12-3	10		
HBLK	Endosulfan II (beta)	ug/l	KD	ND		
MBLK, U.S.	Endosultan sulfate	1700	KO .	HD-		
HBLK	Gamma-BHC (Lindane)	ug/l	ND .	ND ND		
HBLK	Heptachlor	78/7	ND ND	KD		
HBLK	Reptachlor Epoxide	ug/l ug/l	NO NO	ND		
MILK	Hethoxycfiter	ug/l	ND	ND		
HBLK	Toxaphene	L Chick	0:05	0.02	360	
HS:	Aldein	ug/l	0.10	0.07	70	
KS KS	p,p' DDT	- 0g/( - 0g//	0.10	0.08	80	
HS	Endrin	ug/l	0.10	0.08	80	
ns 86	Camposi(6 (Circing)	00/	0.05	0.05	100	
HS	Heptachlor	ug/l	0.05	0.02	40	
n3	(Incipedanta)					
EAST-WATER		PEDBOOK OF CONTRACTOR OF CONTR				
		••••••				
				Gysteria.		
The bish contracts and the contract and the cont	<u> </u>					
#2/#550434444444					10000100000000000000000000000000000000	
		4,				
					***************************************	
		***************************************		MERCANEL RECORDER DE RECORDE DE LA COMPANSION DE LA COMPA	****	
		***********************	**********************			
************						



MONTGOMERY LABORATORIES

555 East Walnut Street Pasadena, Galifornia 91101 818 568 6400; FAX 818 568 6324; 1 800 566 LABS (1 800 566 5227)

Sample 10 WAIPANU WELL 111 HOLE #5 Project Sampled 01-dec-1994 Received 02-dec-1994 Reported 30-dec-1994 Sample # 941202078 Sample 10 WAIPANU WELL 111 HOLE #5 Sample Type Water

Regulated VOCs plus Lists 1&3 (ML/EPA 524.2

## Laboratory Report

Board of Water Supply Lab 630 S Beretania St Monotulu, City of

96843 ATTM: Ron Fenstemacher ¥, Honolulu

iliane								TO SHOW IN THE PERSON NAMED IN COLUMN TWO		
1			OH.			0.5			02,dec-1994	HO(
1971   197   197   197   197   197   197   197   197   197   197   197   197   197   197   197   197   197   197   197   197   197   197   197   197   197   197   197   197   197   197   197   197   197   197   197   197   197   197   197   197   197   197   197   197   197   197   197   197   197   197   197   197   197   197   197   197   197   197   197   197   197   197   197   197   197   197   197   197   197   197   197   197   197   197   197   197   197   197   197   197   197   197   197   197   197   197   197   197   197   197   197   197   197   197   197   197   197   197   197   197   197   197   197   197   197   197   197   197   197   197   197   197   197   197   197   197   197   197   197   197   197   197   197   197   197   197   197   197   197   197   197   197   197   197   197   197   197   197   197   197   197   197   197   197   197   197   197   197   197   197   197   197   197   197   197   197   197   197   197   197   197   197   197   197   197   197   197   197   197   197   197   197   197   197   197   197   197   197   197   197   197   197   197   197   197   197   197   197   197   197   197   197   197   197   197   197   197   197   197   197   197   197   197   197   197   197   197   197   197   197   197   197   197   197   197   197   197   197   197   197   197   197   197   197   197   197   197   197   197   197   197   197   197   197   197   197   197   197   197   197   197   197   197   197   197   197   197   197   197   197   197   197   197   197   197   197   197   197   197   197   197   197   197   197   197   197   197   197   197   197   197   197   197   197   197   197   197   197   197   197   197   197   197   197   197   197   197   197   197   197   197   197   197   197   197   197   197   197   197   197   197   197   197   197   197   197   197   197   197   197   197   197   197   197   197   197   197   197   197   197   197   197   197   197   197   197   197   197   197   197   197   197   197   197   197   197   197   197   197   197	.l.i-irichioroethane	)/Bn	£			0.5			02-dec-1994	
1971   190   0.5     1971   190   0.5     1971   190   0.5     1971   190   0.5     1971   190   0.5     1971   190   0.5     1971   190   0.5     1971   190   0.5     1971   190   0.5     1971   190   0.5     1971   190   0.5     1971   190   0.5     1971   190   0.5     1971   190   0.5     1971   190   0.5     1971   190   0.5     1971   190   0.5     1971   190   0.5     1971   190   0.5     1971   190   0.5     1971   190   0.5     1971   190   0.5     1971   190   0.5     1971   190   0.5     1971   190   0.5     1971   190   0.5     1971   190   0.5     1971   190   0.5     1971   190   0.5     1971   190   0.5     1971   190   0.5     1971   190   0.5     1971   190   0.5     1971   1971   1971   1971   1971   1971   1971   1971   1971   1971   1971   1971   1971   1971   1971   1971   1971   1971   1971   1971   1971   1971   1971   1971   1971   1971   1971   1971   1971   1971   1971   1971   1971   1971   1971   1971   1971   1971   1971   1971   1971   1971   1971   1971   1971   1971   1971   1971   1971   1971   1971   1971   1971   1971   1971   1971   1971   1971   1971   1971   1971   1971   1971   1971   1971   1971   1971   1971   1971   1971   1971   1971   1971   1971   1971   1971   1971   1971   1971   1971   1971   1971   1971   1971   1971   1971   1971   1971   1971   1971   1971   1971   1971   1971   1971   1971   1971   1971   1971   1971   1971   1971   1971   1971   1971   1971   1971   1971   1971   1971   1971   1971   1971   1971   1971   1971   1971   1971   1971   1971   1971   1971   1971   1971   1971   1971   1971   1971   1971   1971   1971   1971   1971   1971   1971   1971   1971   1971   1971   1971   1971   1971   1971   1971   1971   1971   1971   1971   1971   1971   1971   1971   1971   1971   1971   1971   1971   1971   1971   1971   1971   1971   1971   1971   1971   1971   1971   1971   1971   1971   1971   1971   1971   1971   1971   1971   1971   1971   1971   1971   1971   1971   1971   1971   1971   1971   1971   1971   1971   1971   1971   1971   1971	112/24/jetrachionogrheness esterniss	1260	01			6.0			02-dbc-1994	
Unit   No.   0.5   0.5     Unit   No.   0.5   0.5     Unit   No.   0.5	1,2-Trichloroethane	1/8a	£			0.5			02-dec-1994	æ
1971   197   0.5     1971   197   0.5     1971   197   197   0.5     1971   197   197   0.5     1971   197   197   0.5     1971   197   197   0.5     1971   197   197   0.5     1971   197   197   0.5     1971   197   197   0.5     1971   197   197   0.5     1971   197   197   0.5     1971   197   197   0.5     1971   197   197   0.5     1971   197   197   0.5     1971   197   197   0.5     1971   197   197   0.5     1971   197   197   0.5     1971   197   197   0.5     1971   197   197   0.5     1971   197   197   0.5     1971   197   197   0.5     1971   197   197   0.5     1971   197   197   0.5     1971   197   197   0.5     1971   197   197   0.5     1971   1971   197   0.5     1971   1971   1971   1971   1971   1971   1971     1971   1971   1971   1971   1971   1971   1971     1971   1971   1971   1971   1971   1971   1971     1971   1971   1971   1971   1971   1971   1971     1971   1971   1971   1971   1971   1971   1971   1971     1971   1971   1971   1971   1971   1971   1971   1971   1971   1971   1971   1971   1971   1971   1971   1971   1971   1971   1971   1971   1971   1971   1971   1971   1971   1971   1971   1971   1971   1971   1971   1971   1971   1971   1971   1971   1971   1971   1971   1971   1971   1971   1971   1971   1971   1971   1971   1971   1971   1971   1971   1971   1971   1971   1971   1971   1971   1971   1971   1971   1971   1971   1971   1971   1971   1971   1971   1971   1971   1971   1971   1971   1971   1971   1971   1971   1971   1971   1971   1971   1971   1971   1971   1971   1971   1971   1971   1971   1971   1971   1971   1971   1971   1971   1971   1971   1971   1971   1971   1971   1971   1971   1971   1971   1971   1971   1971   1971   1971   1971   1971   1971   1971   1971   1971   1971   1971   1971   1971   1971   1971   1971   1971   1971   1971   1971   1971   1971   1971   1971   1971   1971   1971   1971   1971   1971   1971   1971   1971   1971   1971   1971   1971   1971   1971   1971   1971   1971   1971   1971   1971   1971   1971   1971   1971   1971	Selection comments	10/16	AND:			970			02-dec-1994	8.4
1971   10   0.5   0.5   0.5   0.5   0.5   0.5   0.5   0.5   0.5   0.5   0.5   0.5   0.5   0.5   0.5   0.5   0.5   0.5   0.5   0.5   0.5   0.5   0.5   0.5   0.5   0.5   0.5   0.5   0.5   0.5   0.5   0.5   0.5   0.5   0.5   0.5   0.5   0.5   0.5   0.5   0.5   0.5   0.5   0.5   0.5   0.5   0.5   0.5   0.5   0.5   0.5   0.5   0.5   0.5   0.5   0.5   0.5   0.5   0.5   0.5   0.5   0.5   0.5   0.5   0.5   0.5   0.5   0.5   0.5   0.5   0.5   0.5   0.5   0.5   0.5   0.5   0.5   0.5   0.5   0.5   0.5   0.5   0.5   0.5   0.5   0.5   0.5   0.5   0.5   0.5   0.5   0.5   0.5   0.5   0.5   0.5   0.5   0.5   0.5   0.5   0.5   0.5   0.5   0.5   0.5   0.5   0.5   0.5   0.5   0.5   0.5   0.5   0.5   0.5   0.5   0.5   0.5   0.5   0.5   0.5   0.5   0.5   0.5   0.5   0.5   0.5   0.5   0.5   0.5   0.5   0.5   0.5   0.5   0.5   0.5   0.5   0.5   0.5   0.5   0.5   0.5   0.5   0.5   0.5   0.5   0.5   0.5   0.5   0.5   0.5   0.5   0.5   0.5   0.5   0.5   0.5   0.5   0.5   0.5   0.5   0.5   0.5   0.5   0.5   0.5   0.5   0.5   0.5   0.5   0.5   0.5   0.5   0.5   0.5   0.5   0.5   0.5   0.5   0.5   0.5   0.5   0.5   0.5   0.5   0.5   0.5   0.5   0.5   0.5   0.5   0.5   0.5   0.5   0.5   0.5   0.5   0.5   0.5   0.5   0.5   0.5   0.5   0.5   0.5   0.5   0.5   0.5   0.5   0.5   0.5   0.5   0.5   0.5   0.5   0.5   0.5   0.5   0.5   0.5   0.5   0.5   0.5   0.5   0.5   0.5   0.5   0.5   0.5   0.5   0.5   0.5   0.5   0.5   0.5   0.5   0.5   0.5   0.5   0.5   0.5   0.5   0.5   0.5   0.5   0.5   0.5   0.5   0.5   0.5   0.5   0.5   0.5   0.5   0.5   0.5   0.5   0.5   0.5   0.5   0.5   0.5   0.5   0.5   0.5   0.5   0.5   0.5   0.5   0.5   0.5   0.5   0.5   0.5   0.5   0.5   0.5   0.5   0.5   0.5   0.5   0.5   0.5   0.5   0.5   0.5   0.5   0.5   0.5   0.5   0.5   0.5   0.5   0.5   0.5   0.5   0.5   0.5   0.5   0.5   0.5   0.5   0.5   0.5   0.5   0.5   0.5   0.5   0.5   0.5   0.5   0.5   0.5   0.5   0.5   0.5   0.5   0.5   0.5   0.5   0.5   0.5   0.5   0.5   0.5   0.5   0.5   0.5   0.5   0.5   0.5   0.5   0.5   0.5   0.5   0.5   0.5   0.5   0.5   0.5	, 1-Dichloroethylene	)/Bn	운			0.5			02-dec-1994	8
1971   140   0.5     1971   140   0.5     1971   140   0.5     1971   140   0.5     1971   140   0.5     1971   140   0.5     1971   140   0.5     1971   140   0.5     1971   140   0.5     1971   140   0.5     1971   140   0.5     1971   140   0.5     1971   140   0.5     1971   140   0.5     1971   140   0.5     1971   140   0.5     1971   140   0.5     1971   140   0.5     1971   140   0.5     1971   140   0.5     1971   140   0.5     1971   140   0.5     1971   140   0.5     1971   140   0.5     1971   140   0.5     1971   140   0.5     1971   140   0.5     1971   140   0.5     1971   140   0.5     1971   140   0.5     1971   140   0.5     1971   140   0.5     1971   140   0.5     1971   140   0.5     1971   140   0.5     1971   140   0.5     1971   140   0.5     1971   140   0.5     1971   140   0.5     1971   140   0.5     1971   140   0.5     1971   140   0.5     1971   140   0.5     1971   140   0.5     1971   140   0.5     1971   140   0.5     1971   140   0.5     1971   140   0.5     1971   140   0.5     1971   140   0.5     1971   140   0.5     1971   140   0.5     1971   140   0.5     1971   140   0.5     1971   140   0.5     1971   140   0.5     1971   140   0.5     1971   140   0.5     1971   140   0.5     1971   140   0.5     1971   140   0.5     1971   140   0.5     1971   140   0.5     1971   140   0.5     1971   140   0.5     1971   140   0.5     1971   140   0.5     1971   140   0.5     1971   140   0.5     1971   140   0.5     1971   140   0.5     1971   140   0.5     1971   140   0.5     1971   140   0.5     1971   140   0.5     1971   140   0.5     1971   140   0.5     1971   140   0.5     1971   140   0.5     1971   140   0.5     1971   140   0.5     1971   140   0.5     1971   140   0.5     1971   140   0.5     1971   140   0.5     1971   140   0.5     1971   140   0.5     1971   140   0.5     1971   140   0.5     1971   140   0.5     1971   140   0.5     1971   140   0.5     1971   140   0.5     1971   140   0.5     1971   140   0.5     1971   140   0.5     1971   140   0.5     1971	Nation(gropropedon	2.1000	OI :			9.0			02-dec-1994	9
10   10   10   10   10   10   10   10	2,3-Trichtorobenzene	1/8n	G	٠		0.5			02-dec-1994	88
ug/l         ND         0.5	23530 Jeniosopropare	1/60	(1)			5.0			02-dec-1992	25/2
1997   10   0.5   0.5   0.5   0.5   0.5   0.5   0.5   0.5   0.5   0.5   0.5   0.5   0.5   0.5   0.5   0.5   0.5   0.5   0.5   0.5   0.5   0.5   0.5   0.5   0.5   0.5   0.5   0.5   0.5   0.5   0.5   0.5   0.5   0.5   0.5   0.5   0.5   0.5   0.5   0.5   0.5   0.5   0.5   0.5   0.5   0.5   0.5   0.5   0.5   0.5   0.5   0.5   0.5   0.5   0.5   0.5   0.5   0.5   0.5   0.5   0.5   0.5   0.5   0.5   0.5   0.5   0.5   0.5   0.5   0.5   0.5   0.5   0.5   0.5   0.5   0.5   0.5   0.5   0.5   0.5   0.5   0.5   0.5   0.5   0.5   0.5   0.5   0.5   0.5   0.5   0.5   0.5   0.5   0.5   0.5   0.5   0.5   0.5   0.5   0.5   0.5   0.5   0.5   0.5   0.5   0.5   0.5   0.5   0.5   0.5   0.5   0.5   0.5   0.5   0.5   0.5   0.5   0.5   0.5   0.5   0.5   0.5   0.5   0.5   0.5   0.5   0.5   0.5   0.5   0.5   0.5   0.5   0.5   0.5   0.5   0.5   0.5   0.5   0.5   0.5   0.5   0.5   0.5   0.5   0.5   0.5   0.5   0.5   0.5   0.5   0.5   0.5   0.5   0.5   0.5   0.5   0.5   0.5   0.5   0.5   0.5   0.5   0.5   0.5   0.5   0.5   0.5   0.5   0.5   0.5   0.5   0.5   0.5   0.5   0.5   0.5   0.5   0.5   0.5   0.5   0.5   0.5   0.5   0.5   0.5   0.5   0.5   0.5   0.5   0.5   0.5   0.5   0.5   0.5   0.5   0.5   0.5   0.5   0.5   0.5   0.5   0.5   0.5   0.5   0.5   0.5   0.5   0.5   0.5   0.5   0.5   0.5   0.5   0.5   0.5   0.5   0.5   0.5   0.5   0.5   0.5   0.5   0.5   0.5   0.5   0.5   0.5   0.5   0.5   0.5   0.5   0.5   0.5   0.5   0.5   0.5   0.5   0.5   0.5   0.5   0.5   0.5   0.5   0.5   0.5   0.5   0.5   0.5   0.5   0.5   0.5   0.5   0.5   0.5   0.5   0.5   0.5   0.5   0.5   0.5   0.5   0.5   0.5   0.5   0.5   0.5   0.5   0.5   0.5   0.5   0.5   0.5   0.5   0.5   0.5   0.5   0.5   0.5   0.5   0.5   0.5   0.5   0.5   0.5   0.5   0.5   0.5   0.5   0.5   0.5   0.5   0.5   0.5   0.5   0.5   0.5   0.5   0.5   0.5   0.5   0.5   0.5   0.5   0.5   0.5   0.5   0.5   0.5   0.5   0.5   0.5   0.5   0.5   0.5   0.5   0.5   0.5   0.5   0.5   0.5   0.5   0.5   0.5   0.5   0.5   0.5   0.5   0.5   0.5   0.5   0.5   0.5   0.5   0.5   0.5   0.5   0.5   0.5   0.5	2,4-Trichlorobenzene	1/8n	운			0.5			02-drc-100	3
Up/L         ND         0.5	2-4-10 inbihylbalisensis	$\mathcal{M}(\mathcal{M})$	OF			610			02-4hc-1994	
1997	2-Dichloroethane	1/gn	皇	•		0.5			100-doc-100/	
10	SOUNOSOPPORTIN	N/Ot	g)			5.0			024664.400	2.1
(a)	3,5-Trimethylbenzene	/ga	£		**************************************	0.5			700 455 500	
CB		1000	AD SEC.			0.5			1941 - 20- 20 1941 - 20- 20	300
1971 NO 5 5 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	Dichlorobenzene (1,4-DCB)	1/ <b>8</b> 5	£			0.5			02-466-1006	-28
United State	aoith i diad copinis	y Ci	(ID			0.55			1724Anc-100/	1000
1971 HD 0.5  1971 HD 0.5  8x3		ا/ۋە	<b>오</b>	•		2			02-dec-100/	18
try/1     HD     0.5       8K)     try/1     HD       8K)     try/1     HD       9/1     HD     0.5       10/2     10/5       10/2     10/5	YOUR DESCRIPTION	100	ell:						05.464.189	2033
BK3		1/gn	S.			0.5			02-dec-100	333
8K) Ug/L ND 5  Ug/L ND 0.5  Ug/L ND 0.5  Ug/L ND 0.5	hlosatolitinn, and market	$M_{\rm G}$	Oli S			0.15			027406.199	200
1971 HD 0.5 Ug/1 HD 0.5 Ug/1 HD 0.5	lethyl-2-Pentanone (HIBK)	1/gn	£	•	•	5		•	02-dec-199	<b>2</b>
1(4) 1/2 10 0.5 10.5 10.5 10.5 10.5 10.5	1996	I)/kl/S	Oliv			6.0			02. doc. 190	- Te
1104)	mobenzene	/&n	오			0.5	7	M >	02-dec-1997	9
. 0.5 1000 · 0.5 0.50	monnerials (Rathyle of Onlos) as a second	100 M	Oll S			510			02-dec-1997	
200 To 100 To	i-1,2-Dichloroethylene	1/6n	오		٠	0.5			02-dec-1997	ž -
CONTRACTOR	Olfobenzije.	**** (D/OD) * ***	010			6;0			02-dec-1994	000
0.5	Carbon Tetrachiorida	1/gn	요			0.5		***************************************	02-dec-100	**

Sample Type <u>Mater</u> Sampled <u>01-dec-1994</u> Received <u>02-dec-1994</u> Reported <u>30-dec-1994</u> Project__ Sample # 941202078 Sample 10 MAIPANU WELL 111 HOLE #5

Regulated VOCs plus Lists 1&3 (ML/EPA 524.2

nanora vorort

Board of Water Supply Lab 630 S Beretanía St Honolulu, city of

ATTM: Ron Fenstemacher Ŧ Honolulu

10 TO 10	3. U.S.	
1/60		
	c•n	
1/41	0.00	
	0.5	
1/91	The state of the s	
	0.5	
1/80	0.5	
	0.5	
/Bi	A CONTRACTOR OF THE CONTRACTOR	
	0.5	
19/1	0.02	
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1/40	015	
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1/0/1	A. F.	
	6.0	
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1/80	2.0	
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1/81	2.5	
	0.5	
1761	2.015	
	0.5	
	0.5	02-dec-1994 yan
Colloboral Algorithms		



## MONTGOMERY LABORATORIES

555 East Walnut Street
Pasadena, California 91101
818 568 6400; FAX 818 568 6324;
1 800 566 LABS (1 800 566 5227)

Sample # 941202078 Sample 10 MAIPANU WELL 111 HOLE #5 Project
Sample Type Mater Sompled 01-dec-1994 Received 02-dec-1994 Reported 30-dec-1994

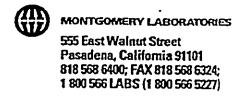
## Laboratory Report

Honolulu, City of Board of Water Supply Lab 630 S Beretania St Honolulu , H1 96843 ATTM: Ron Fenstemacher

(ML/EPA 524.2

Regulated VOCS plus Lists 183

Prepared 8y Analyzed By 02-dec-1994 year 02-dec-1994 yom 02-dec-1994 yom 02-dec-1994 yom			÷			
0flution Det.limit 0.5 0.5 0						
Result Conc. %Rec 410 ND 12/09/94						
Parameter Units  Arana 1/3/Dichloropfopedb						
Parameter trans 1/3/01/chloro Toluene VAN/1 chlorida (VC) Data Entry						



### Laboratory Report

Honolulu, City of Board of Water Supply Lab 630 S Beretania St

Honolulu , HI 96843 ATTN: Ron Fenstemacher

Sample # <u>941202078</u>	Sample ID WAIPAHU WELL	111 HOLE #5 Pr	roject
omole Tune Unter			Parameter 70 day 1000

Regulated VOCs plus Lists 1&3 (ML/EPA 524.2 ) Surrogate Summary

Parameter	Percent Recovery	Acceptable Range
		90 = 1120 = 123 PM
	~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~	80 - 120
1/2/bichloroatriene d4		50 × 120



MONTGOMERY LABORATORIES

555 East Walnut Street Pasadena, California 91101 818 568 6400; FAX 818 568 6324; 1 800 566 LABS (1 800 566 5227)

Laboratory Report

Honolulu, City of Board of Water Supply Lab 630 S Beretania St

Honolulu , HI 964 ATTN: Ron Fenstemacher

Sample # 941202078 | Sample ID <u>WAIPAHU WELL III HOLE #5</u> | Project |
Sample Type <u>Water</u> | Sampled <u>01-dec-1994</u> | Received <u>02-dec-1994</u> | Reported <u>30-dec-1994</u>

Regulated VOCs plus Lists 1&3 (ML/EPA 524.2) Quality Control

Control	Parameter	Units	Actual	Found	ZRecv
	MINISTRUCTOR CHARGES STATE	Marg/Arms		00.004 <u>28</u> 3030	262.0076.883
LCS1	1,1,2,2-Tetrachloroethane	ug/l	4	3.93	98
	1) 2 grach or orthone as	<i>y</i> 19/2	,	4,07	102
LCS1	1,1-Dichlorgethane	ug/l	4	4.65 4.2924	116 2074
LCS1	State Control of the	ug/l	4	3.76	94
LCS1	1,2,4-Trichlorobenzene	Ug/ (3.10	74
LCS1	1,2-Dichloropropane ·	ug/(4	4.20	105
LGS: LGS1	1,2-01cm(0r02-02-02-02-02-02-02-02-02-02-02-02-02-0				1018
LCS1	p-Dichlorobenzene (1,4-DCB)	ug/l	4	4.07	102
iosi .	Benzep.	577			1078
LCS1	cis-1,2-Dichloroethylene	ug/l	4	4.27	107
ies e	(calcropunter)	7		(4.72)	106
LCS1	Carbon Tetrachloride	ug/l	4	4.62	116
LCS1	Stories (Spin		4	3.65	0.5
LCS1	Chloroform (Trichloromethane)	ug/l	4	4.21	105
esi v	Cirlored Brownstollere	0770	3 Sec. 6	6 (03 S)	2013
LCS1	Bromodichlorpmethane	ug/l	4	4.20	105
10 51	inchlozacijus	ican	3	3,53	26 (E)
LCS1	Ethyl benzen	ug/l	4	4.36	109
(ESI	enfilment antermetiene (recoll)			***C**(0*****	Section 1
LCS1	m,p-Xylenes	ug/l	8	8.99	112
	ON VACOR	2500/4		XXXX	
LCS1	o-Dichlorobenzene (1,2-DCB)	ug/l	4	4.01	100
Si de la	Travellared Divisio (CEE)				107
LCS1	Styrene	ug/l	4	4.34	108
				36.0 0000	000
LCS1	Trichloroethylene (TCE)	ug/l	4 	4.25	106
LEST THE	(in the responsible than the second				
LCS1	Toluene	ug/(4	4.30	108
LOSI CONTRACTOR	n Voyt, chtorite (2011) son sie en	o (Griji) o vers		3.0	



Laboratory Report

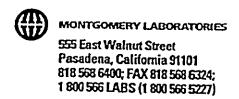
Honolulu, City of Board of Water Supply Lab 630 S Beretania St

Honolulu , HI 96843 ATTN: Ron Fenstemacher

Sample # 941202078	Sample ID WAIPAHU WELL	III HOLE #5 P	roject
Sample Type Water	Sampled 01-dec-1994	Received 02-dec-1994	Reported 30-dec-1994

Regulated VOCs plus Lists 1&3 (ML/EPA 524.2) Quality Control

Control	Parameter	Units	Actual	Found	ZRecv
HBLK()	17 U.Z. Terrechloroethare	cup/U	MD 600 100 100 100 100 100 100 100 100 100	100	
HBLK	1,1,1-Trichloroethane	ug/l	КО	HD	010071021020730707777070
mik	1 12 2 Tetrachtorostheres	60/15	MD.	HD:	
HBLK	1,1,2-Trichloroethane	ug/l	ND	ND CONTRACTOR OF THE PROPERTY OF T	SERVICE CONTRACTOR CONTRACTOR CONTRACTOR CONTRACTOR CONTRACTOR CONTRACTOR CONTRACTOR CONTRACTOR CONTRACTOR CONT
HELK	1 1-bichlargethane	· 09/U	100	Ю	
HBLK	1,1-Dichloroethylene	ug/l	ND	ND	***************************************
TELLY	1, 160 rehloropropene	sveril is said	k0	HDL SERVICES	
HBLK	1,2,3-Trichlorobenzene	ug/l	ND	KD	CONTROL CONTROL
S LK	1/2 Edit of the coproper of the second	KUDAL	10	(III)	
HBLK	1,2,4-Trichlorobenzene	ug/l	CH.	AD	
ZEEC.	2.2.4 framethy/benzene	te/I	1 0	HD	
MBLK	1,2-Dichloroethane	ug/(KD	ND	
HBLK	11/2-Dichloropropere	Y CD/CL	(H) % (1/2) (1/2) (H)	MD.	
MBLK	1,3,5-Trimethylbenzene	. ug/l	KD	ND	NS1001N0310051003
48 E	1/3-Dichloropcopane	199/45 24 25	NO S	HD.	
MBLK	p-Dichlorobenzene (1,4-DCB)	ug/l	ND	ND	
COK-	2 2-Dichtoropropere	QoAl	(0)	103	
MBLK	2-Butanone (KEK)	ug/l	ND	KD	***************************************
MEEKS	Zehlorpethylvinyletjer som sig	A(6/A)	NO.	3D	
MBLK	o-Chlorotoluene	ug/l·	ND	ND	500000000000000000000000000000000000000
RELK.	op Enlareraktere	KG/(Caraca)			
HBLK	4-Hethyl-2-Pentanone (HIBK)	ug/l	CA CARROLL	HD	****
Milk.	Benzene supplies the second	1007/15	NU ASSESSA SERVICE	HDX	
KBLK	Bromobenzene	ug/l	ND	ND	
F JUS	Eromomethane (Hethy) Egom (40) 8-85				
HBLK	cis-1,2-Dichlaroethylene	ug/l	ND	KO	
68LK	Ciloroberzele de Santago de la composición del composición de la composición de la composición del composición de la com	(9/1	310	(P)	
HBLK	Carbon Tetrachloride	ug/l	KD .	HD	
WEX.	els:1,5;0 ichloropropare)	agi/le	ID STANDARD	300	
MBLK	Bronoform	ug/l	ND	ND	
MIK	Citarolomi (filicitorometiane)	\$09/4 ₂	NO SECTION OF SECTION	HD.	



Laboratory Report

Honolulu, City of Board of Water Supply Lab 630 S Beretania St

Honolulu , HI 96843 ATTN: Ron Fenstemacher

Sample # <u>941202078</u>	Sample ID WAIPAHU WELL III HOL	OLE_#S Project	
Sample Type <u>Water</u>	Sampled 01-dec-1994 Receiv	ved 02-dec-1994 Reported 30-dec-199	94

Regulated VOCs plus Lists 1&3 (ML/EPA 524.2) Quality Control

Control	Parameter	Units	Actual	Found	XRec∨
HBLK.	Bromoch Lenomethane	ug/l	ND.	NO.	~~~~
HBLK	Chloroethane	ug/l	ND	ND .	
MBLK	Chloromethare(Methyl*Chloride)	ug/l	NO	ND	
MBLK	Chlorodibromomethane	ug/t	KD	ND	
MBLK	Dibronomethane	ug/l	ND .	¥0	
HBLK	Bromodichloromethane	ug/(ND	ND	
MBLK	Dichtoromethane		ND	ND	
HBLK	Ethyl benzene	ug/l	КD	ND .	***************************************
HELK	*Dichlarodifluoromethane	ug/l	ND	N D	
HBLK	Fluorotrichloromethane(Freon1)	ug/l	ND	ND	~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~
BUK	Hexachtorobotadiene	Ug/I	NO.	ND	***************************************
KBLK	Isopropytbenzene	ug/l	ND	ND	-
MBLK	m_Dichtorabenzene (G);5-DCB)	ug/l	MD	NO	
HBLK	m,p-Xylenes	ug/l	KD	KD	***************************************
MBLK	Haphthatenes	บ9/เ	NO.	ND	
MBLK	n-Butylbenzene	ug/l	ND	KD	*******************************
MBCK	n-Propyl benzene	ug/(l	NO NO	NO.	***************************************
HBLK	o-Xylene	ug/l	КD	НD	***************************************
BELK	60-0 (chi probenzene) (1-2-008)	vue/L	NO.	HD	
HBLK	Tetrachloroethylene (PCE)	ug/l	ND ND	ND	
*BLK	palsopropyltaluena	cug/L	ND:	NO.	
HBLK	sec-Butylbenzene	ug/l	ND	ND	***************************************
MBLK*	Styrene		MT	ND	
HBLK	trans-1,2-Dichloroethylene	ug/l	ND	ND	
HEIX	Lert-Butytbenzenei	l\gu	HD.	40	
HBLK	Trichloroethylene (TCE)	ug/l '	KD	ND	***************************************
SIK .	Acidilonotra(Auproathane(Freon	.vg/l	100	HD	
MBLK	trans-1,3-Dichloropropene	ug/l	ND	KD	
HBLK	Jalu e ne	ug/L	4D	K 0	
HBLK	Vinyl chloride (VC)	ug/l	KD	KD	***************************************

Report 17105 Comment Page

Group Validation Comments

(508) Heptachlor reported as NA due to QC failure on LCS recovery; see results reported from 525.1 analysis. Reference QIR-GC-94-171.

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MINERAL ANALYSIS

HINERAL ANALYSES

area	
	Waipahu III
	Well #1 (2400-09)
OCATION	(2400-03)
	1994
oar	July 20
Date collected	0940
Laboratory number	199,843
	18.83
Regional head, feet	10.00
	289
micromhos @ 25°C	7.37
	0.09
curbidity	Ŏ
olor	
N PARTS PER HILLION	
Ilica	40
aloium	6.2
agnesium	6.9
20d(um	38
otassium	2.1
icarbonate	62
dilate	15
hloride	36
Tunyida	6.10
itrate	13
hosphate	0.85
(ron)	0.01
(anganese)	0.01
onner)	0.01
ead)Loss than(0.01 0.01
rsenic)	0.01
(clanium_)	0.01
phromium ^a)	0.01
Silver)	0.01
Barium }	0.01
Cadmium)	220
Total dissolved solids	51
Alkalinity	44
	,
IN EQUIVALENTS PER HILLION	
Calcium (Ca)	0.309
Magnosium (Mg)	0.567
podium (NA)	1.655
Dataggium (X)	0.054
Ricarbonate (HCUs)	1.016
Sulfate (SO ₄)	0.312
chloride (CI)	1.047 0.210
Nitrate (NO3)	0.210
	5,170
TOTALS	-,-,

a/ Hexavalent only b/ Includes fluoride and phosphate as PO₄

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AREA	
	Waipahu III
	Well #2
	(2400-10)
LOCATION	X004
(max	1994 Nug. 25
	0925
	: 199,844
Laboratory number	. 133/044
	18.49
egional head, feet	AV
	322
	7.55
	0.16
	0
Color	
IN PARTS PER MILLION	
Silica	44
- 3 - F	6.6
	7.0
	47
Sodium	2.2
	93
Bicarbonate	14
Chloride	34
Chloride	0.10
Pluoride	13
Nitrate	0.80
Phosphate	0.01
Iron (0.01
Hanganese)	0.01
Copper)	0.01
	0.01
Arsenic)	0.01
Selenium)	0.01
Chromium)	0.01
silver)	0.01
Barium ! }	0.01
Total dissolved solids	218
Alkalinity	76
Total hardness	45
IN EQUIVALENTS PER MILLION	
	0,329
Calcium (Ca)	0.576
	2.054
	0.056
	1.525
	0.291
sulfate (80A)	0.989
sulfate (80 ₄)	0.210
Nitrate (NO3)	V. C.A.V
	6.030
TOTALS	4.000

a/ Hexavalent only b/ Includes fluoride and phosphate as PO₄

AREA	
	Waipahu III
	Well 3
LOCATION	(2400-11)
ear	1994
Date collected	Oct. 20
Time collected	0900
aboratory number	199,853
Regional head, feet	17.97
specific conductance,	
micromhos @ 25°C	309
H value	7.43
urbidity	ō•0e
color	0
N PARTS PER HILLION	
ilica	33
Calcium	7.7
Ragnesium	7.0
odium	43
otassium	2.1
icarbonate	90
sulfate	13
hloride	33
luoride	0.12
itrate	12 0.75
hosphate	0.75
(ron)	0.01
langanese)	0.01
opper)	0.01
cad .)	. 0.01
reenic)Less than(0.01
Selenium)	0.01
thromium ^a)	0.01
ilver	0.01
arium (0.01
admium)	242
oral dissolved solids	74
lkalinity	48
otal hardness	
N EQUIVALENTS PER MILLION	
alcium (Ca)	0.384
lagnesium (Mg)	0.576
odium (Na)	1.887
otassium (K)	0.054
icarbonate (HCO3)	1.475
Sulfate (SO ₄)	0.271
chloride {Cl}~	0.961 0.194

5.802

TOTALS

a/ Hexavalent only b/ Includes fluoride and phosphate as PO₄

•	MINERAL	analyses

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AREA	Markey VVV
	Waipahu III
	. Wall 4
LOCATION	(2400-13)
	1995
Year	Jan. 13
nate collected	0920
Time collected	199,857
Laboratory number	
	16.54
Regional head, feet	
Specific conductance,	336 .
micromhos @ 25°C	7.37
pH value	0.12
	Ö
Color	
IN PARTS PER MILLION -	
	35
Bilica	6.7
Calcium	• 6.7
Manager 1981	52.4
Andism	2.2
Dotammium	95
Digumbonara	15
Culfata	38
chine(do	
Fluorida	0.17
Nitrate	15
NITIGIA	0.93
Phosphato	0.01
Iron)	0.01
Manganose)	0.01
Copper)	0.01
Told)	0.01
Arsenic)Less than	0.01
Selenium)	0.01
Chromiuma)	0.01
Silver) . (<u> </u>
Barium	0.02
	0.01
Cadmium) Total dissolved solids	267
TOURT OTBOTANG BOTTOM	78
Alkalinity	44
·	
IN EQUIVALENTS PER MILLION	A 524
Calcium (Ca)	0.334 0.551
Wagnesium (MC)	
radium (NR)	2.280
Potassium (K)	0.056
KOCGABTAM (V)	1.557
Bicarbonate (HCO3)	0.312
Sullate (BUA)	1.110
Sulfate (SO ₄)	0.242
Nitrate (NO3)	
TOTALS	6.442

a/ Hexavalent only b/ Includes fluoride and phosphate as PO₄

MINERAL	analyses
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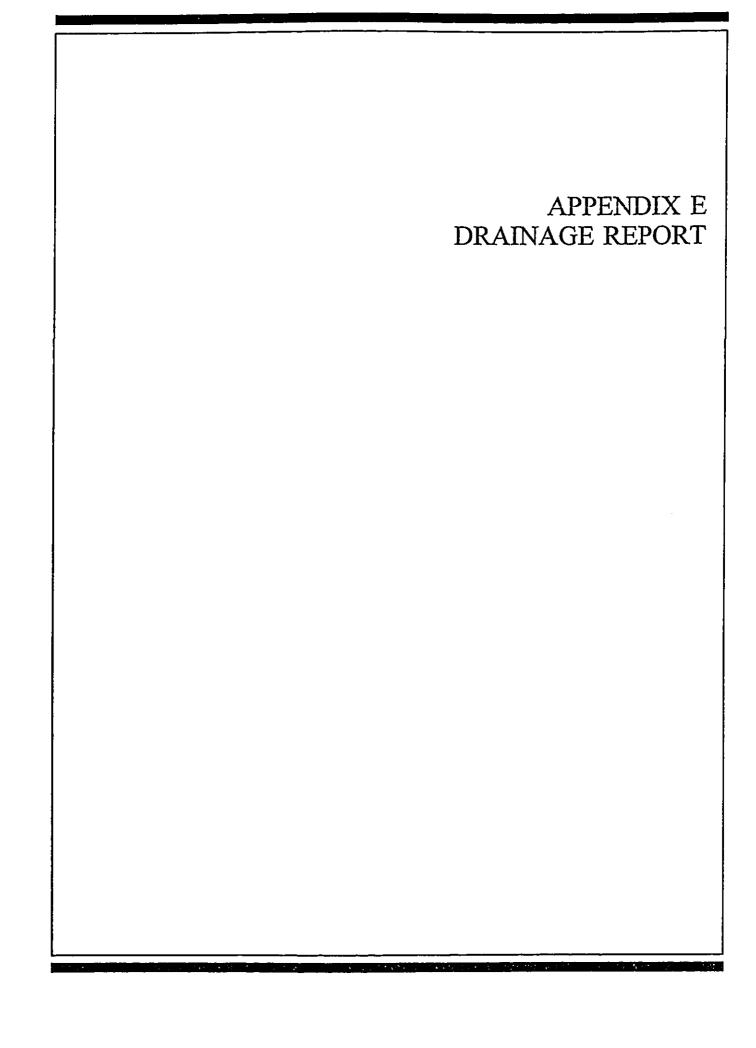
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Yoar		Waipahu III Well 5
Date collected	LOCATION	
Time collected	Yoar	
Time collected	Date collected	
Regional hoad, foot		
Specific Conductance,	-	199,855
Specific Conductance,	Regional head, feet	19.25
7.38 7.38	Specific conductance;	
Turbidity	micromhop @ 25°C	•
Color		
IN PARTS PER MILLION Silica		
Silica	Color	O
Calcium	IN PARTS PER MILLION	
Angel Ange	Silica	
Sedium		-
Potassium 2.3 81 81 82 83 83 84 84 84 84 84 84		- -
Sufate		
Sulfate		
Chloride		
Pluoride		
Strate Stron Strong St	hloride	* *
Phosphate 0.86 Iron		
Comparison Com		
Hanganese	■ ** · · · · · · · · · · · · · · · · · ·	
Copper Codd Codd	,	
Coad	• • • • • • • • • • • • • • • • • • • •	
Arsenic Less than		
Column C		
Chromium ^a 0.01 Carium 0.02 Cadmium 0.02 Cadmium 0.01 Cotal dissolved solids 263 Ikalinity 76 Cotal hardness 42 IN EQUIVALENTS PER HILLION Calcium (Ca) 0.324 Cagnesium (Mg) 0.510 Codium (Na) 2.214 Cotassium (K) 0.059 Icarbonate (HCO ₃) 1.524 Ulfate (SO ₄) 0.291 Chloride (Cl) 1.050 Cotals 0.242 Cotals 0.242 Cotals 0.242 Cotals 0.242 Cotals 0.242 Cotals 0.242	reenic)Less than(
Sarium		
Cotal dissolved solids		
Cotal dissolved solids		
1kalinity		
N EQUIVALENTS PER HILLION		
N EQUIVALENTS PER HILLION 0.324 lagnesium (Mg)	lkalinity	· -
Calcium (Ca) 0.324 Lagnesium (Mg) 0.510 Codium (Na) 2.214 Cotassium (K) 0.059 Cicarbonate (HCO3) 1.524 Culfate (SO4) 0.291 Chloride (Cl)b 1.050 Citrate (NO3) 0.242	otal hardness	42
degree lum (Mg)	N EQUIVALENTS PER HILLION	<u> </u>
2.214 0.059 1.524 0.291 0.100 0.242 0.24	alcium (Ca)	
otassium (K) 0.059 icarbonate (HO_3) 1.524 ulfate (SO_4) 0.291 hloride (CI) 1.050 itrate (NO_3) 0.242	agnesium (Mg)	
icarbonate (HCO ₃) 1.524 ulfate (SO ₄) 0.291 hloride (Cl) ^b 1.050 itrate (NO ₃) 0.242 OTALS 6.214	odraw (Mg)	
ulfate (504) 0.291 hloride (Cl)b 1.050 itrate (NO3) 0.242	orassium (K)	
### ##################################	icarbonate (HCO3)	
OTALS	ulfate (604)	
OTALS	hloride (CI)D	
OTALS	itrate (NO3)	0.242
	OTALS	6.214



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DRAINAGE REPORT FOR WAIPAHU WELLS III STATION TMK 9-4-05:74

Prepared for: City and County of Honolulu Board of Water Supply

Prepared by:
GMP Associates, Inc.
841 Bishop Street, Suite 1501
Honolulu, Hawaii 96813



ASSOCIATES, INC. Engineers/Architects



SEPTEMBER 1997

TABLE OF CONTENTS

<u>SECTION</u>	NTITLE		PAGE
	TABI	LE OF CONTENTS	i.
	LIST	T OF EXHIBITS	ii
1	INTE	RODUCTION	1- 1
	1.1	PROJECT DESCRIPTION	1- 1
	1.2	SCOPE AND PURPOSE OF REPORT	1- 1
2	PROP	PERTY CHARACTERISTICS	2- 1
	2.1	LOCATION	2- 1
	2.2	LAND USE	2- 1
	2.3	TOPOGRAPHIC AND GEOTECHNICAL FEATURES 2	2- 2
3	DRAI	NAGE ANALYSIS	- 1
	3.1	FLOOD HAZARD DESIGNATIONS	- 1
	3.2	HYDROLOGY STUDY	- 1
	3.3	CONCLUSIONS AND RECOMMENDATIONS	- 4
4	DRAI	NAGE FACILITIES 4	- 1
	4.1	EXISTING FACILITIES 4	- 1
	4.2	PROPOSED FACILITIES	- 1
APPENDICE	ES		:
REFERE	ENCES		
EXHIBI	ITS		

LIST OF EXHIBITS

EXHIBIT 1 - LOCATION MAP

EXHIBIT 2 - TOPOGRAPHIC SURVEY

EXHIBIT 3 - DRAINAGE MAP

EXHIBIT 4 - GRADING PLAN

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EXHIBIT 5 - EROSION CONTROL PLAN

EXHIBIT 6 - BLOWOFF DISCHARGE SYSTEM

SECTION 1

INTRODUCTION

1.1 PROJECT DESCRIPTION

The Board of Water Supply (BWS), City and County of Honolulu, is proposing a new well site in the Waipio area of Waipahu, Oahu, Hawaii. This new well site will be known as the Waipahu Wells III Station. The improvements consist of five (5) deep well pumps, ten (10) Granular Activated Carbon (GAC) tanks and appurtenances, a control building, grading, paved roadways, drainage facilities, underground piping, electrical work, security fencing, landscaping and irrigation. The proposed well site is being constructed to increase the water supply for the Waikele-Waipio water system and to supplement the water systems serving the Ewa, Waipahu, Waianae, and Honolulu areas.

1.2 SCOPE AND PURPOSE OF REPORT

GMP Associates, Inc. has been retained by the Board of Water Supply, City and County of Honolulu, to prepare the plans, specifications, and cost estimates (PS&E) for the improvements of the new well site and transmission mains. Plans for the well site are being prepared as "Job No. 98-158A, Waipahu Wells III." Plans for the transmission mains from the well site are concurrently being prepared as "Job No. 98-158B, 24 Inch and 16 Inch Transmission Mains Along Kamehameha Highway and Lumiaina Street." It is the BWS's current intent to have both jobs

constructed under one contract. However, the plans are being prepared separately to provide the BWS the flexibility to build either one of the two projects before the other. Construction of improvements being designed on both plans must be completed before operating the well site.

As a part of the design phase for the well site (Job No. 98-158A), a drainage report is required. This drainage report will be limited to the development of the well site and include hydrology studies, storm runoff calculations, and recommendations for the drainage improvements for the well site.

SECTION 2

PROPERTY CHARACTERISTICS

The following section of this report describes the general physical characteristics of the proposed well site and the property surrounding the project. It is based upon a topographic survey performed by GMP Associates, Inc., geotechnical investigations by PSC Associates Inc., and a visual examination of the area.

2.1 LOCATION

The project is located in the Waipio area in the northern section of Waipahu. It is on the southwest side of Kamehameha Highway approximately 400 feet northwest of the intersection of Kamehameha Highway and Waipio Uka Street as shown on the Location Map (Exhibit 1).

2.2 LAND USE

The proposed well site, containing 1.85 acres, is vacant with the exception of five (5) previously drilled wells. The project site and surrounding area southwest of Kamehameha Highway is currently owned by Castle & Cooke Homes Hawaii and is zoned for agricultural use (AG-1). It is currently fallow but was previously used as pineapple fields. The area to the northeast of Kamehameha Highway is developed with residential and commercial uses. There are existing dirt roads traversing the

project site and a drainage ditch carrying water in a general southwesterly direction. There is also a drainage ditch between the project site and the right-of-way for Kamehameha Highway which conveys water along Kamehameha Highway in a southeasterly direction. The existing conditions are shown on the Topographic Survey (Exhibit 2).

2.3 TOPOGRAPHIC AND GEOTECHNICAL FEATURES

The project site is relatively flat with a mild slope of approximately two percent (2%) towards the south. The existing elevations on the site range between 319 feet and 310 feet.

The entire area of the proposed well site is underlain by clayey silt of the Molokai soil series. These soils are derived from weathering of the underlying igneous rocks of the Koolau Volcanic Series. Geotechnical field investigations and borings have determined that the depth of the soil mantle, consisting predominantly of clayey silt, varies from 26 to 32-1/2 feet, underlain by soft to hard saprolite which is derived from weathered basaltic rocks.

SECTION 3

DRAINAGE ANALYSIS

3.1 FLOOD HAZARD DESIGNATIONS

A review of the Flood Insurance Rate Map Index prepared for the City and County of Honolulu by the Federal Emergency Management Agency reveals that the project site should be on Community Panel No. 150001 0080A. However, the entire panel has not been printed. Only areas within said panel which are subject to flooding have been printed as an inset on Panel No. 150001 0065B. All other areas within Panel No. 150001 0080A are in Zone "D" (areas in which flood hazards are undetermined). An examination of the inset on Panel No. 150001 0065B discloses that the project site is not within any areas subject to flooding.

3.2 <u>HYDROLOGY STUDY</u>

Two separate hydrology studies and calculations were performed for this report. The first study was to determine the surface runoff for the existing or undeveloped condition. The second study was to determine the surface runoff after the development of the proposed well site. Both studies and calculations were based upon the following hydrologic criteria and design charts contained in the "Storm Drainage Standards," Department of Public Works, City and County of Honolulu, dated May 1988:

- 1. A recurrence interval (Tm) of 10 years was used as the drainage areas are less than 100 acres.
- 2. Runoff quantities were determined using the Rational Method as the drainage areas are less than 100 acres.
- 3. For the Rational Method formula Q=CIA, the following values were determined:

 The runoff coefficient (C) of 0.50 was determined from Table 1 for the existing condition. For the developed site, a weighted average of 0.66 was calculated based upon the proposed finished surfaces as shown below:

Description	<u>Acres</u> X	<u>C</u> =	<u>Subtotal</u>
Offsite (grass)	0.07	0.45	0.03
Onsite (grass or ground cover)	0.40	0.45	0.18
Onsite (graveled)	0.58	0.55	0.32
Onsite (asphalt)	0.60	0.80	0.48
Onsite (concrete)	0.21	0.90	0.19
Onsite (roofed)	0.06	0.95	0.06
Totals:	1.92		1.26

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The 1-hour rainfall value of 1.88 inches was determined for the area from Plate 1 for a Tm of 10 years.

Times of concentration (Tc) of 12.5 minutes for the existing condition and 13.5 minutes for the developed site were determined from Plate 3.

Weighted average: 1.26/1.92=0.66

Using the Tc values for the existing and developed site, correction factors of 2.15 and 2.00, respectively, were obtained from Plate 4.

Multiplying the correction factors with the 1-hour rainfall value resulted in design rainfall intensities (I) of 4.04 inches per hour for the existing condition and 3.76 inches per hour for the developed site.

The contributory drainage area for the existing condition was determined using the topographic survey. The total contributory drainage area (A) contains 2.10 acres. This drainage area consists of two separate sub-drainage areas identified as DA1 and DA2 on the Drainage Map (Exhibit 3). DA1 contains 0.25 acres and is the offsite sub-drainage area. DA2 contains 1.85 acres and is the area within the project site. The area of Kamehameha Highway was not included in the offsite sub-drainage area due to the existing drainage ditch between the project site and the southwesterly right-of-way of Kamehameha Highway. This drainage ditch intercepts surface runoff from Kamehameha Highway and conveys it southeasterly along the side of the roadway.

The contributory drainage area for the developed site was determined using the Grading Plan (Exhibit 4). In this case, the total contributory drainage area (A) contains 1.92 acres which

consists of an offsite sub-drainage area (DA1) of 0.07 acres and the onsite sub-drainage area (DA2) of 1.85 acres. Again, the area of Kamehameha Highway was not included in the offsite sub-drainage area due to the existing drainage ditch mentioned above.

Utilizing the values determined above, the Rational Method formula resulted in a calculated flow rate (Q) of 4.24 cubic feet per second (cfs) for the existing condition and 4.76 cfs for the developed site.

3.3 <u>CONCLUSIONS AND RECOMMENDATIONS</u>

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Based upon the hydrology studies and calculations, the total surface runoff will be increased by 0.52 cfs by the proposed development if no drainage facilities are provided. Pursuant to Ordinance No. 96-34, drainage facilities should be provided to handle the increased surface runoff caused by this development. Also, during construction, temporary erosion control measures should be provided as shown on the Erosion Control Plan (Exhibit 5). After completion of all site improvements, the surface of the offsite and onsite areas will be covered with grass, ground cover, gravel, asphalt, concrete, or roofs which will result in minimizing the current soil erosion occurring on the existing undeveloped land.

SECTION 4

DRAINAGE FACILITIES

4.1 <u>EXISTING FACILITIES</u>

As shown on Exhibit 2, there is an existing culvert under the dirt road from Kamehameha Highway near the most northern corner of the proposed site. This culvert conveys water into the drainage ditch along the southwesterly side of Kamehameha Highway. There is also an existing drainage ditch between the two dirt roads which run through the property. This ditch conveys water through the project site towards the southwest. The closest existing storm drain system begins at a catch basin located at the north corner of the intersection of Kamehameha Highway and Waipio Uka Street. The storm drain from this catch basin connects to an 84-inch storm drain running along the northeast side of Kamehameha Highway.

4.2 PROPOSED FACILITIES

In conjunction with the development of the underground piping for the proposed well site, a blowoff discharge line (BDL) system will be provided from each well as shown on the Blowoff Discharge System (Exhibit 6). The purpose of this system is to discharge the initial water pumped from each well at its startup. The pumps are electronically controlled so that only one pump can startup at any time with a maximum flow of 1,000 gallons per minute (gpm) or 2.23 cfs. Also connected to the BDL system is

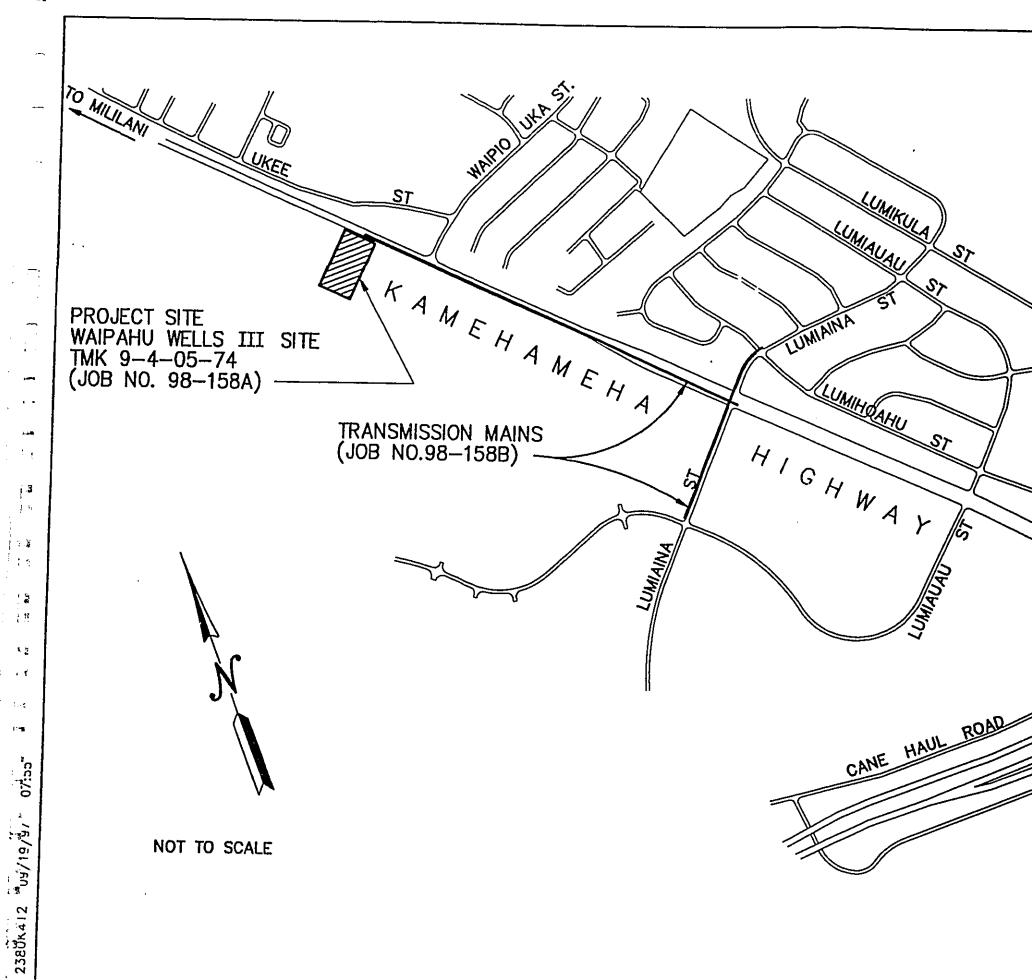
the overflow line (OFL) from the backwash tank and the drain line for treated backwash water (TBW) from the filter pad. These two lines can contribute an additional maximum flow of 1,250 gpm or 2.79 cfs to the system. The BDL system to be constructed as a part of the well site development (Job No. 98-158A) will be from the five existing wells to the new manhole to be constructed in Kamehameha Highway. The remainder of the BDL system will be designed and constructed as a part of the plans for the transmission mains (Job No. 98-158B) previously discussed in Section 1.2. The BDL system in Kamehameha Highway will be connected to the existing catch basin described in Section 4.1 above.

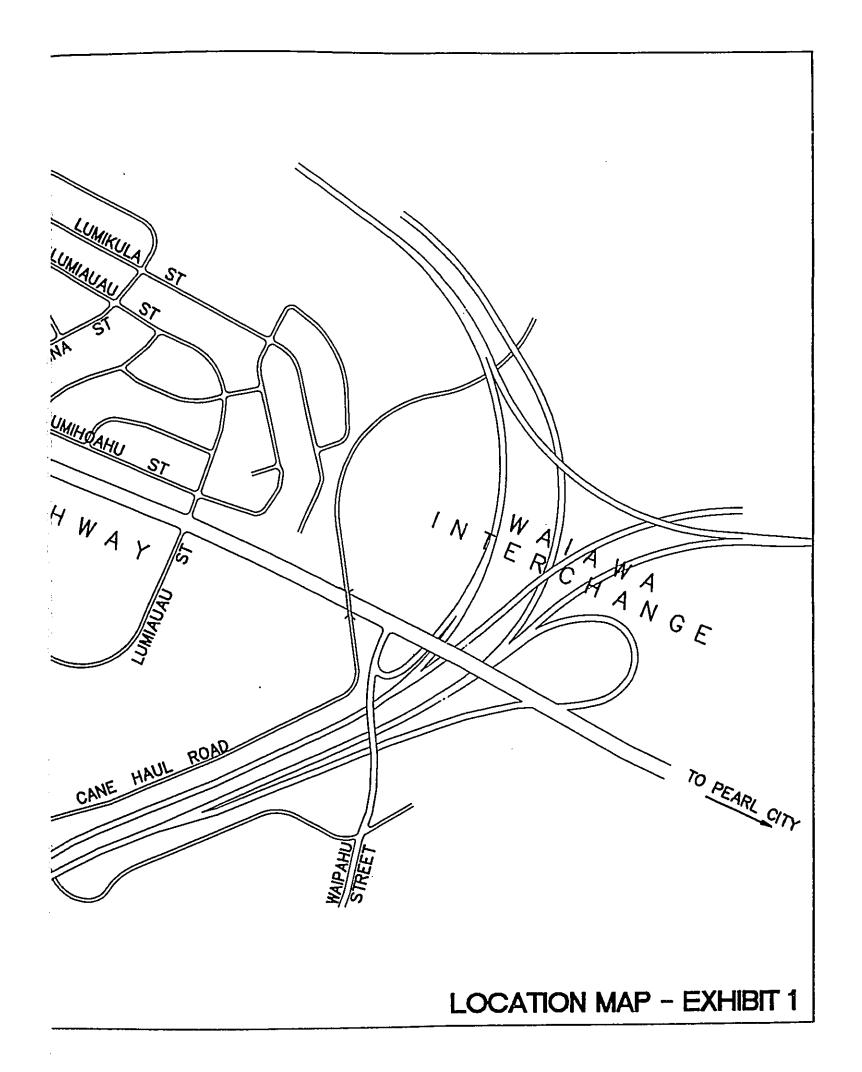
In grading the proposed project, the site will be lowered approximately 2.5' if measured at the center of the GAC Pad. Barms will be constructed along portions of the property lines and trees will be planted on top of the berms to provide visual screening of the GAC tanks. Although the surrounding area southwest of Kamehameha Highway is currently vacant, the berms and trees for the visual screening is being required at this time to alleviate the BWS's concern about possible future objections from residents or occupants if the surrounding area is developed. As a result of the berm to be constructed along the southeasterly property line, a portion of the rainfall runoff which currently sheet flows southeasterly parallel to Kamehameha Highway, will be blocked and diverted southwesterly towards the existing ditch. However, this diversion should not cause any significant impact to the adjacent vacant property.

As previously discussed, the total surface runoff will be increased by 0.52 cfs as a result of this project. In order to provide for this additional surface runoff, a drain inlet will also be constructed in the BDL system described above. The 0.52 cfs will surface flow to the drain inlet, located at BDL (2) Sta. 1+78.07 as shown on Exhibit 6, and be conveyed in the 18" and 20" BDL lines to the new manicle in Kamehameha Highway to be constructed as a part of this development (Job No. 98-158A). The remaining surface runoff will flow to the existing drainage ditches described in Section 4.1 above.

REFERENCES

- 1. Flood Insurance Rate Map, National Flood Insurance Program, Federal Emergency Management Agency, September 1990.
- 2. Geotechnical Engineering Investigation Report, Waipahu Wells III Project, Waipio, Waipahu, Oahu, Hawaii, PSC Associates, Inc., January 25, 1995.
- 3. Storm Drainage Standards, Department of Public Works, City and County of Honolulu, May 1988.
- 4. Topographic Survey, GMP Associates, Inc., April 1995.





EXISTING R/W KAMEHAMEHA HIGHWAY EDGE OF PAVEMENT COIL HEADWILL CONC PAD CONC PAD WELL NO. 1 LID RIM EL = 319.83 GRND EL = 317.50 UID RIM EL GRND EL **LEGEND** DITCH FLOW LINE SHEET FLOW EXISTING CONTOUR ELEVATION BOUNDARY LINE OF PROPOSED WELL SITE NOT TO SCALE

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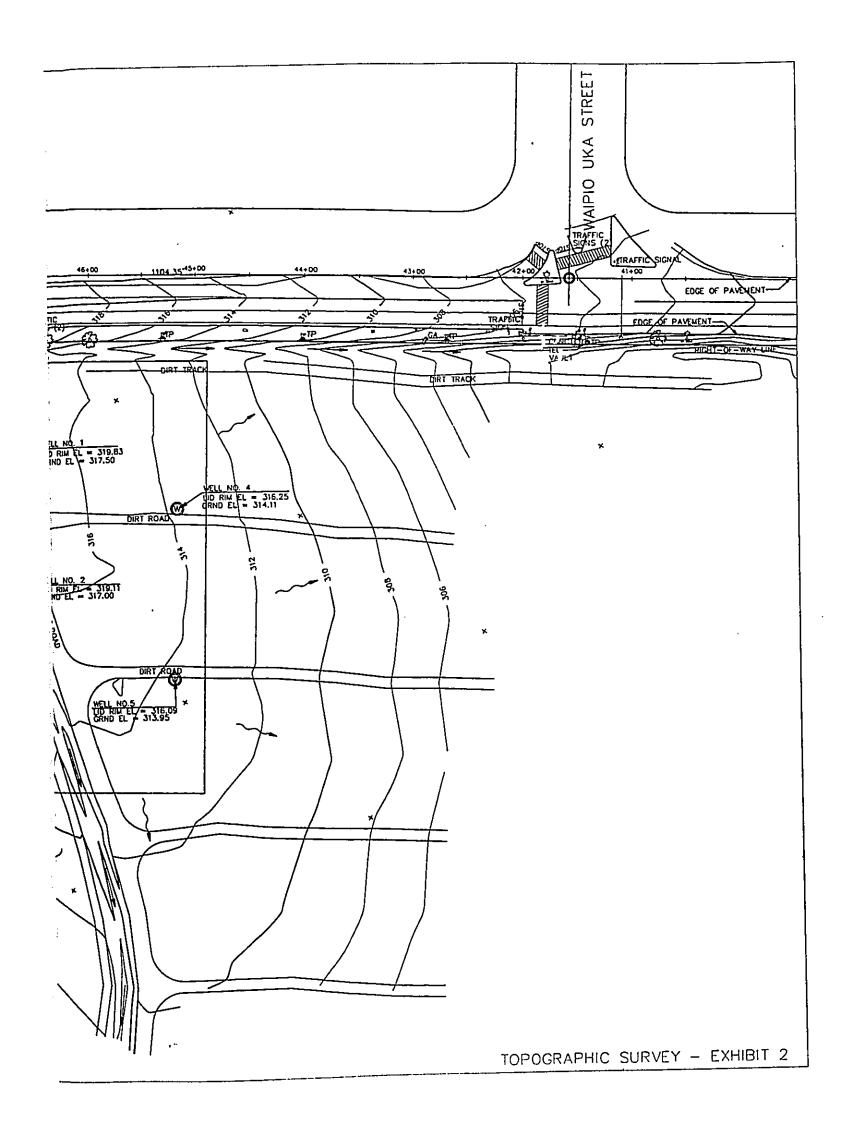
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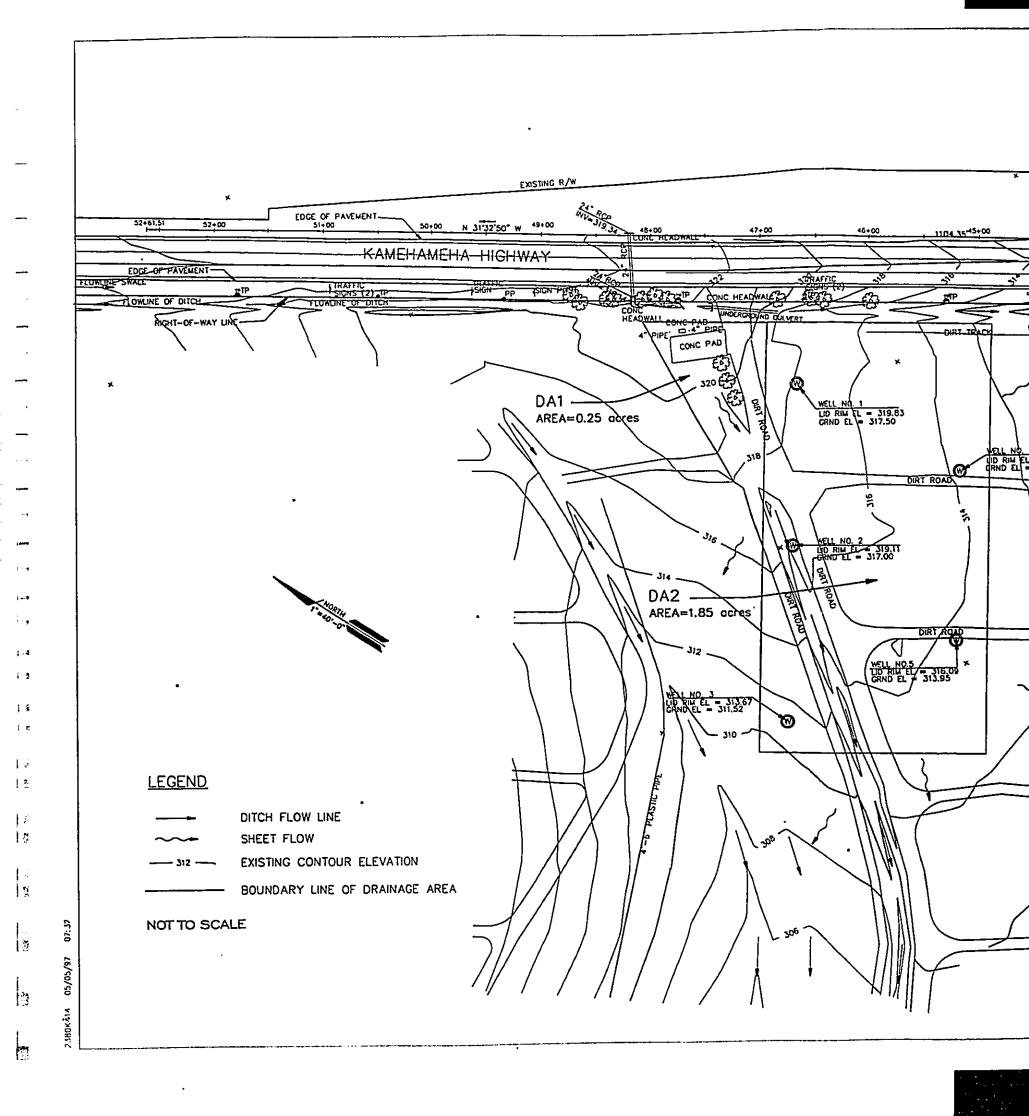
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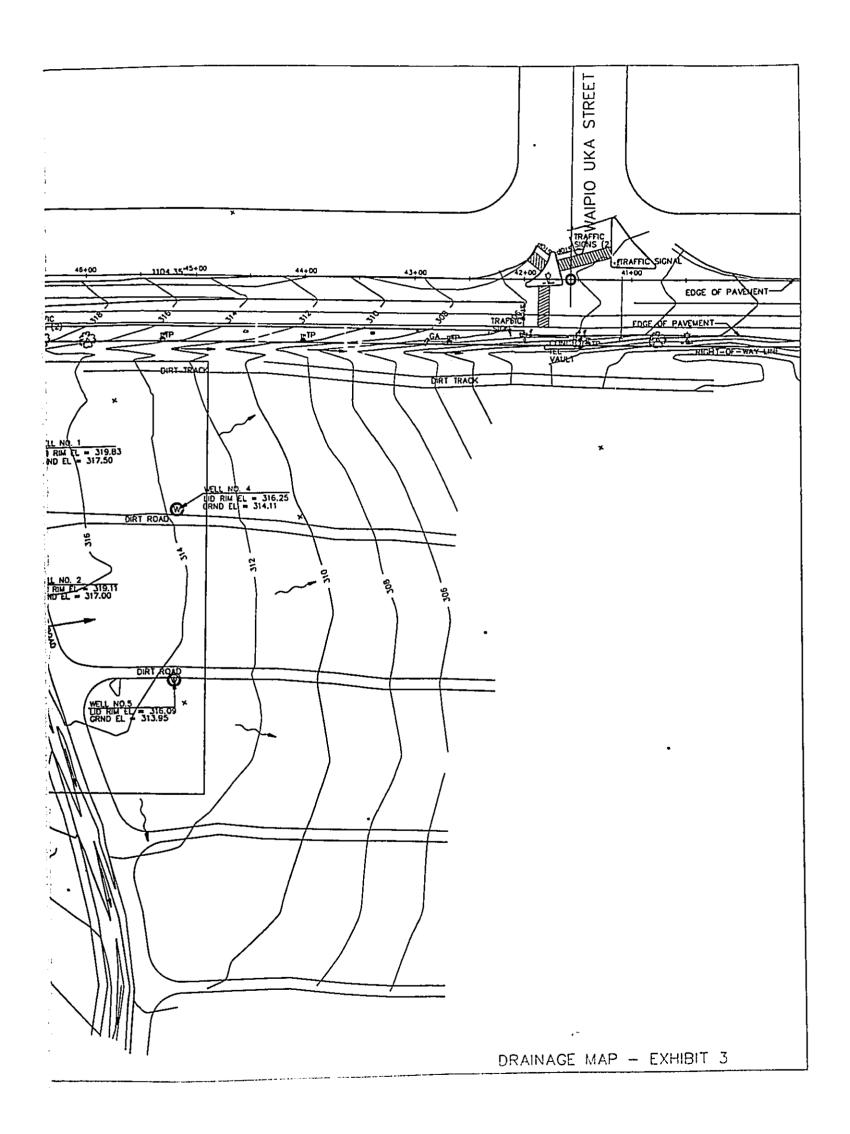
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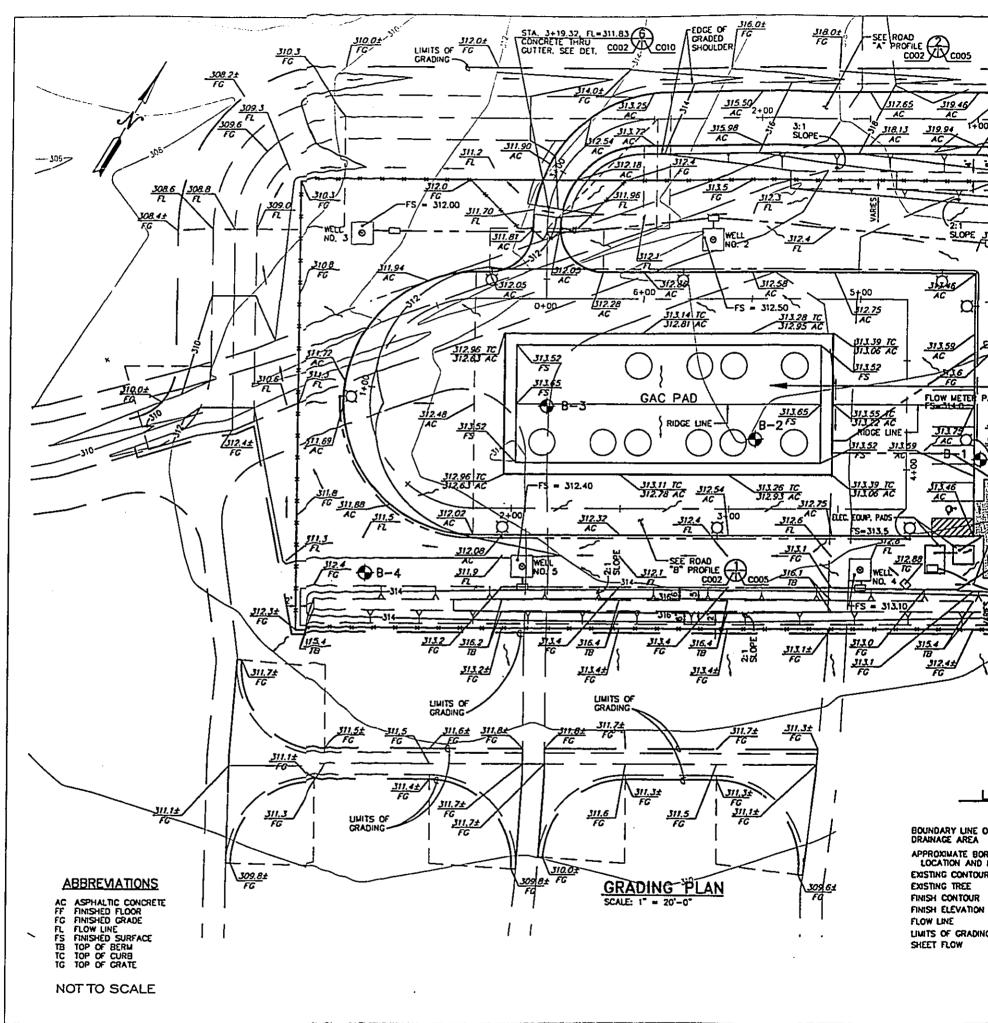
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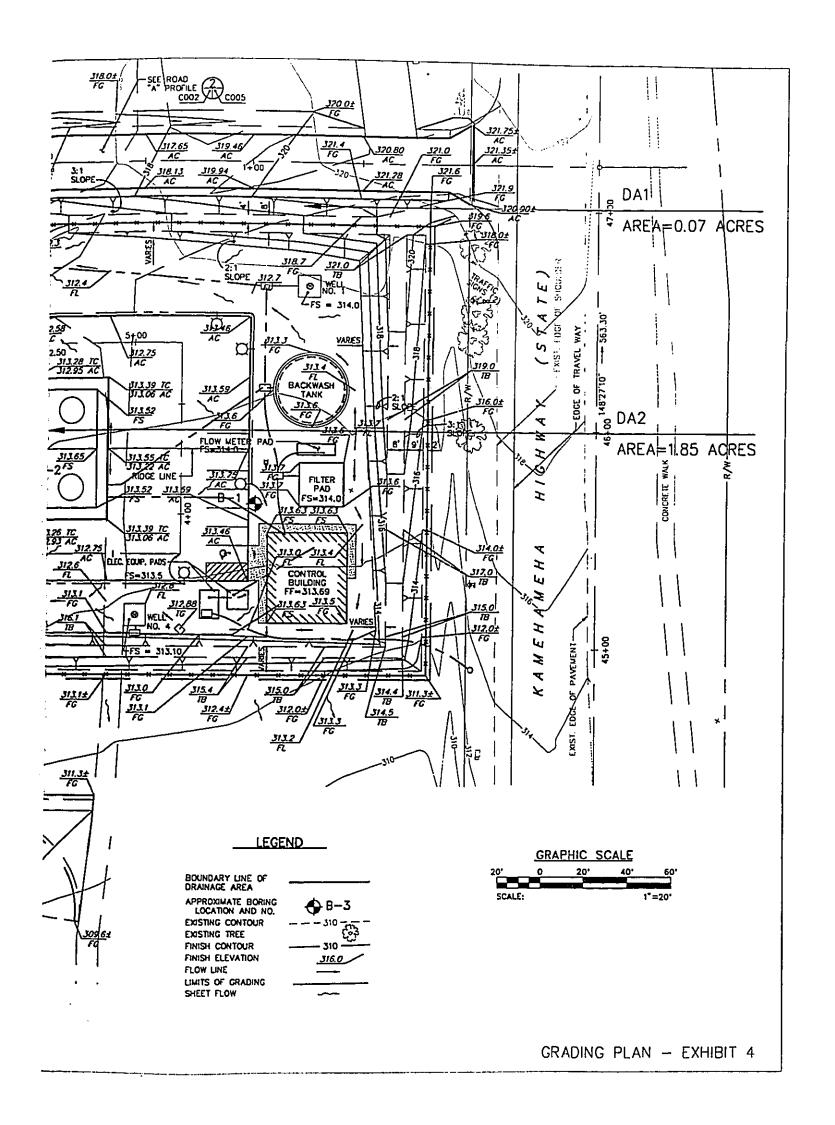
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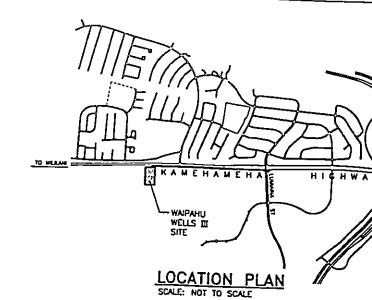
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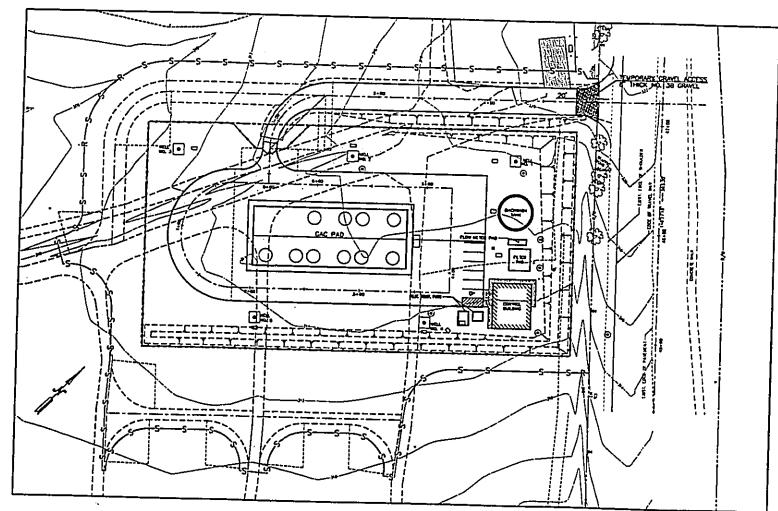
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BEST MANAGEMENT PRACTICES NOTES:

- 1. SILT FENCES SHALL BE CONSTRUCTED PRIOR TO COMMENCEMENT OF CLEARING AND GRUBBING AND ON THE DOWNHILL SIDE OF ALL SLOPES BEING GRADED.
- 2. SILT FENCES SHALL BE IMMEDIATELY REPAIRED WHEN DAMAGED DURING CLEARING AND GRUBBING OR GRADING OPERATIONS.
- 3. ALL UNPAYED SITE INGRESS AND EGRESS SHALL BE GRAVELED AND THE CONTRACTOR SHALL INSURE THAT ALL VEHICLES LEAVING THE CONSTRUCTION SITE WILL BE FREE OF MUD.
- 4. GRASSING SHALL BE BERMUDA GRASS ON 4° OF TOPSOIL.
- CONTRACTOR SHALL REMOVE AND DISPOSE OF OFF SITE THE SELT FENCES WHEN THE PROJECT IS COMPLETED AND THE GRASS IS ESTABLISHED.

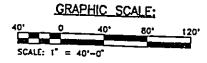




EROSION CONTROL PLAN

SCALE: 1° = 40°-0°

REINFORCED SILT FENCE



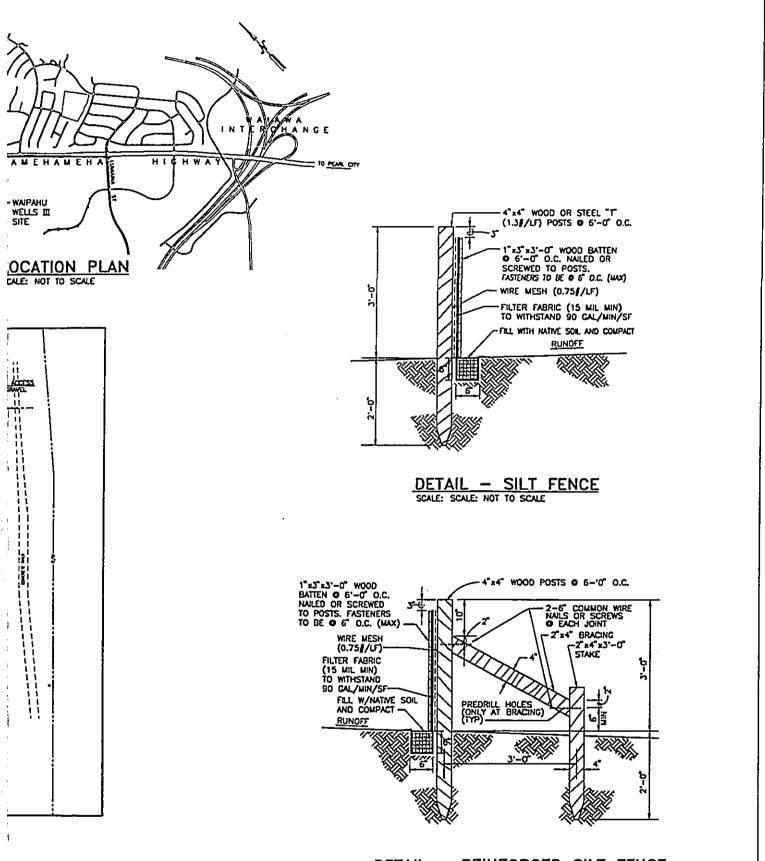
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20°

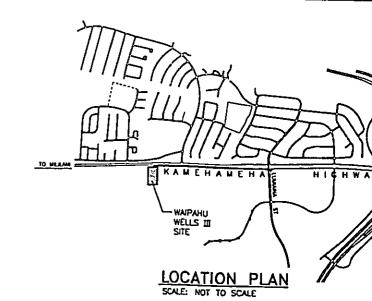
DETAIL — REINFORCED SILT FENCE SCALE: SCALE: NOT TO SCALE

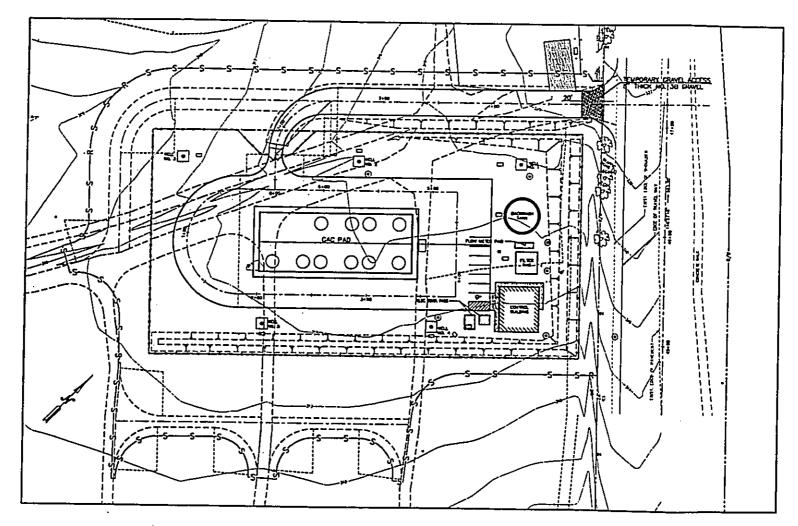
CORRECTION

THE PRECEDING DOCUMENT(S) HAS
BEEN REPHOTOGRAPHED TO ASSURE
LEGIBILITY
SEE FRAME(S)
IMMEDIATELY FOLLOWING

BEST MANAGEMENT PRACTICES NOTES:

- 1. SILT FENCES SHALL BE CONSTRUCTED PRIOR TO COMMENCEMENT OF CLEARING AND GRUBBING AND ON THE DOWNHILL SIDE OF ALL SLOPES BEING GRADED.
- 2. SILT FENCES SHALL BE IMMEDIATELY REPAIRED WHEN DAMAGED DURING CLEARING AND GRUBBING OR GRADING OPERATIONS.
- 3. ALL UNPAYED SITE INGRESS AND EGRESS SHALL BE GRAVELED AND THE CONTRACTOR SHALL INSURE THAT ALL VEHICLES LEAVING THE CONSTRUCTION SITE WILL BE FREE OF MUD.
- 4. GRASSING SHALL BE BERMUDA GRASS ON 4" OF TOPSOIL.
- 5. CONTRACTOR SHULL REMOVE AND DISPOSE OF OFF SITE THE SET FENCES WHEN THE PROJECT IS COMPLETED AND THE CRASS IS ESTABLISHED.





LECEND

EROSION CONTROL PLAN
SCALE: 1" = 40"-0"

- SALT FENCE

NOT TO SCALE

--- REINFORCED SILT FENCE

GRAPHIC SCALE:

SCALE: 1" = 40'-0"

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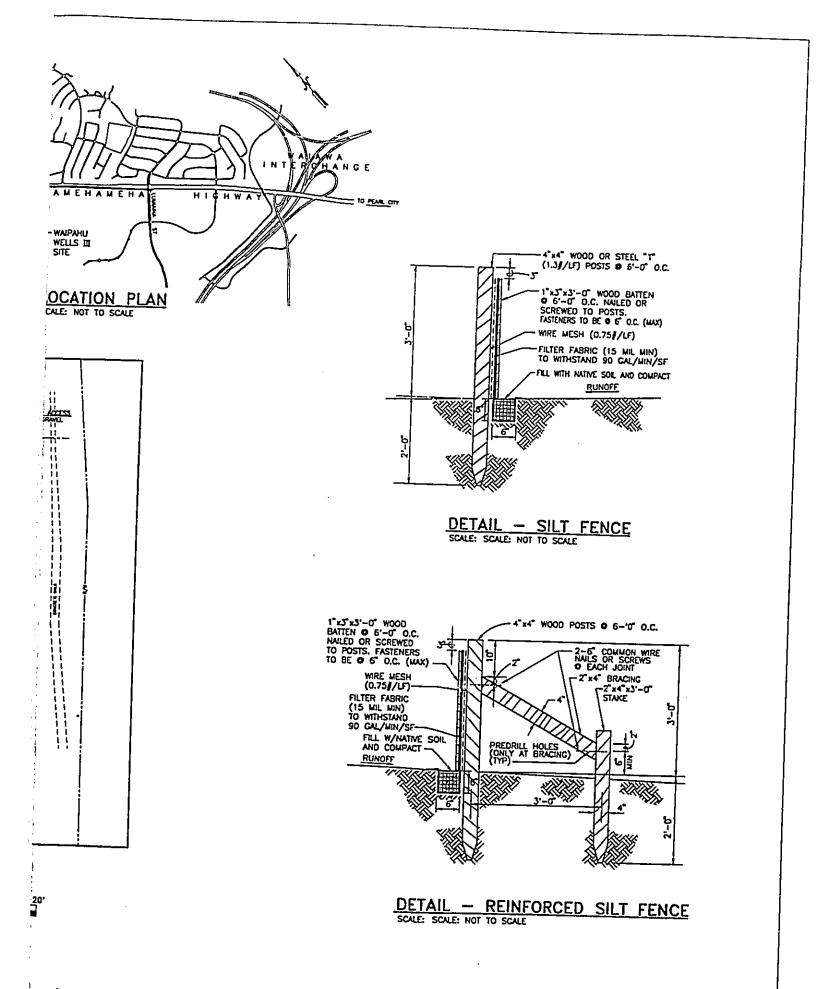
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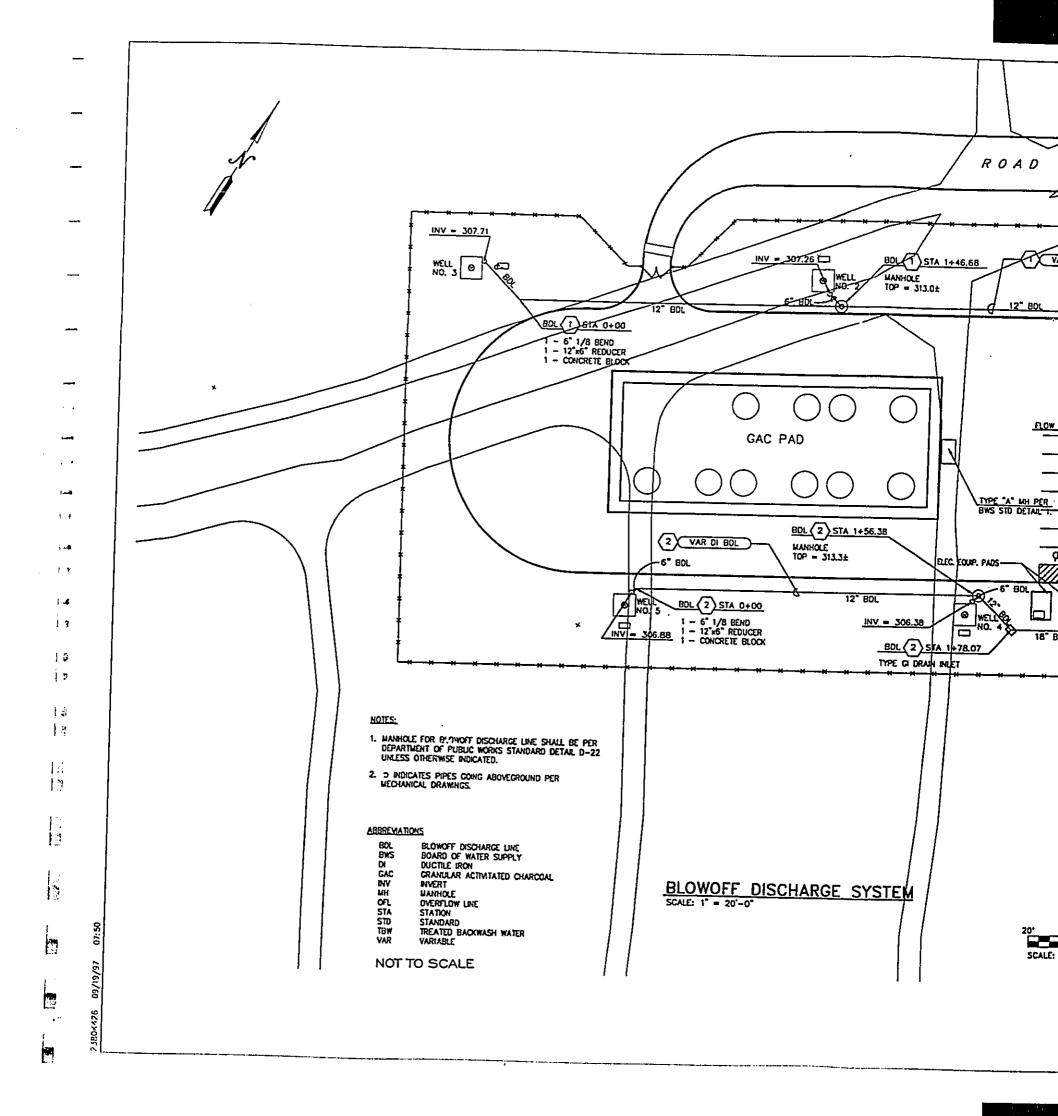
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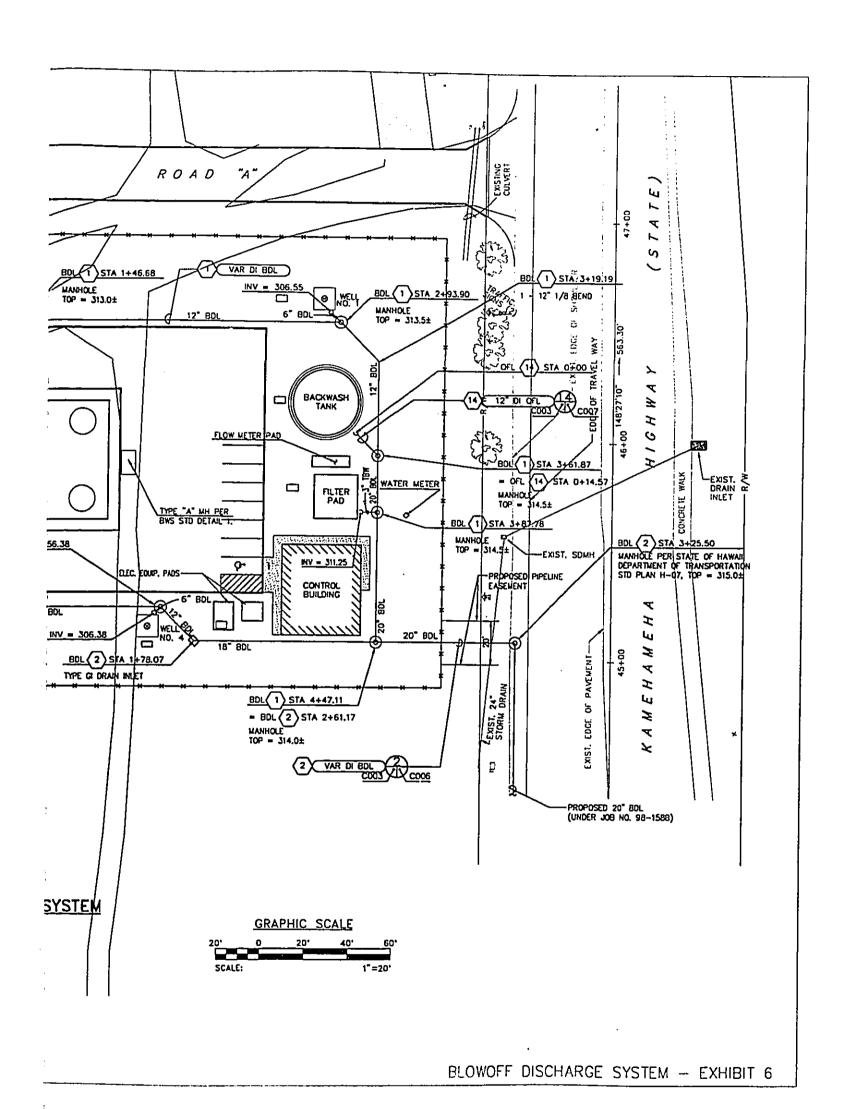
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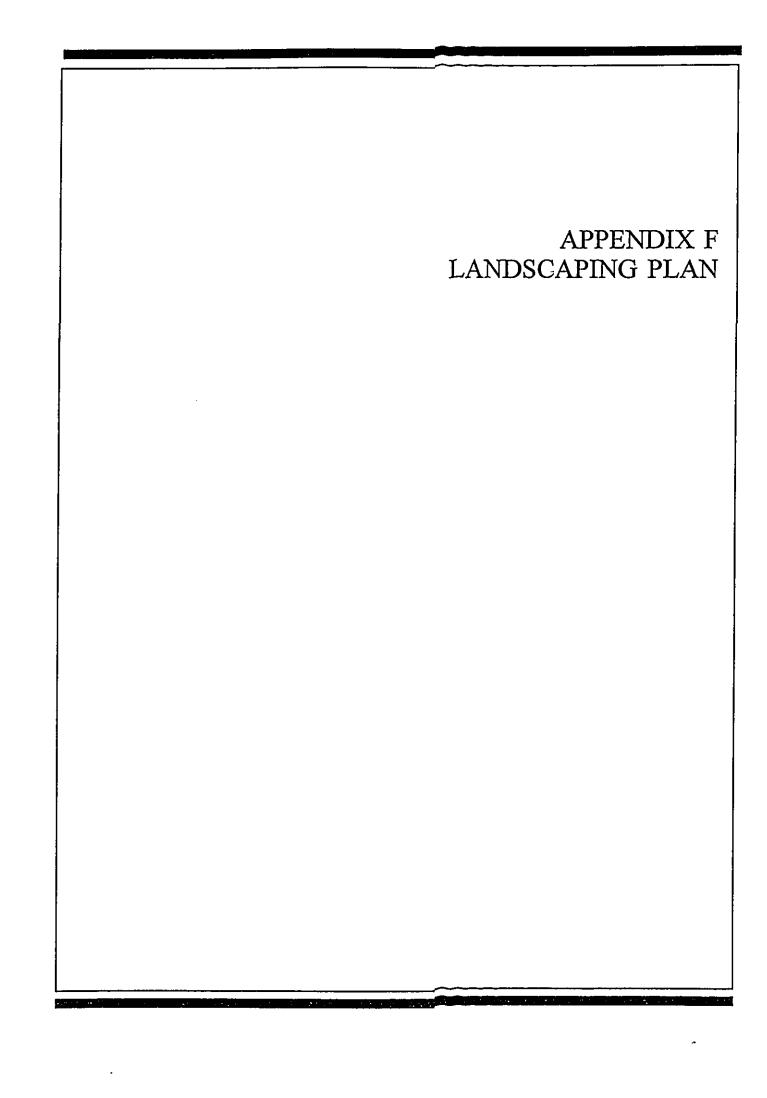
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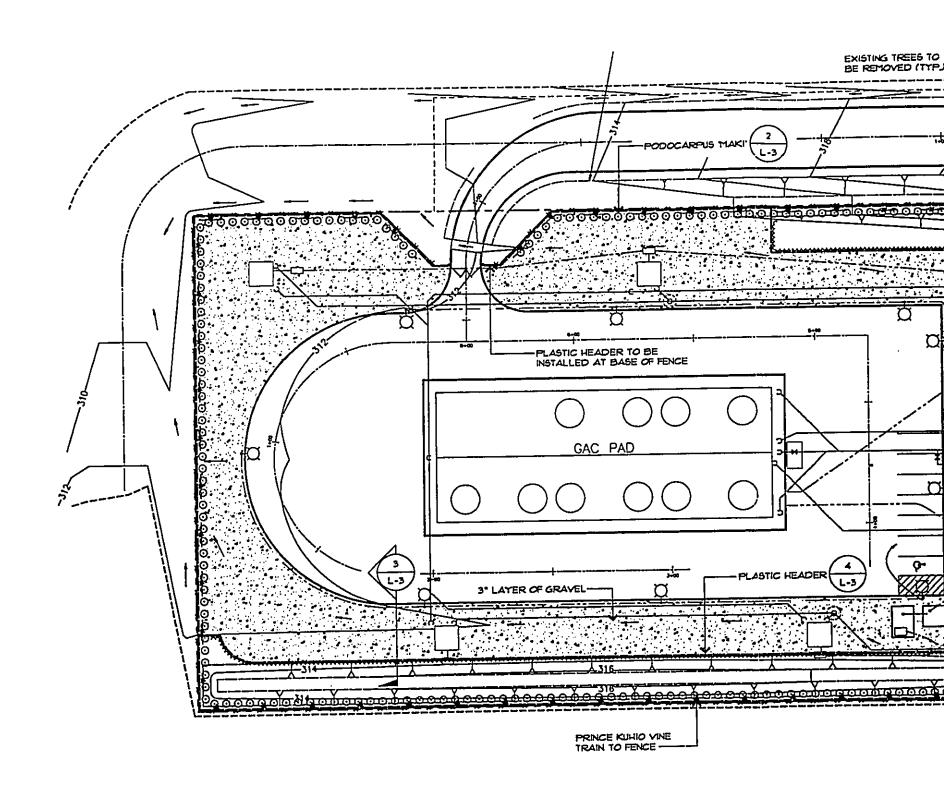
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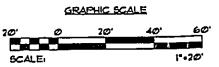
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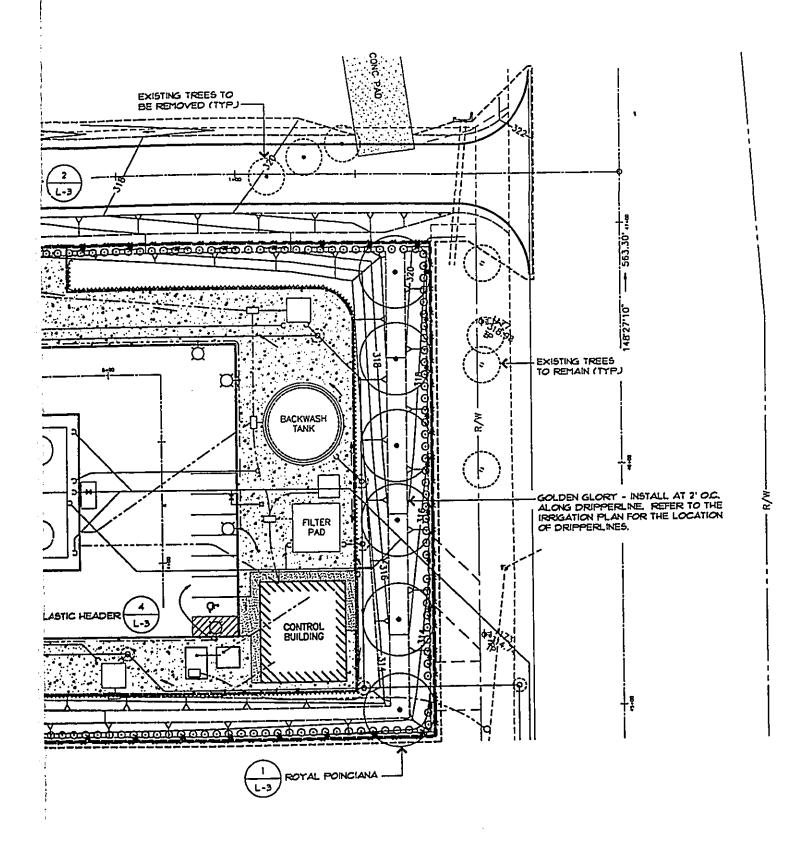
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APPENDIX G PARTIAL CONSTRUCTION PLANS "PART A"

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JOB NO. 98-158A

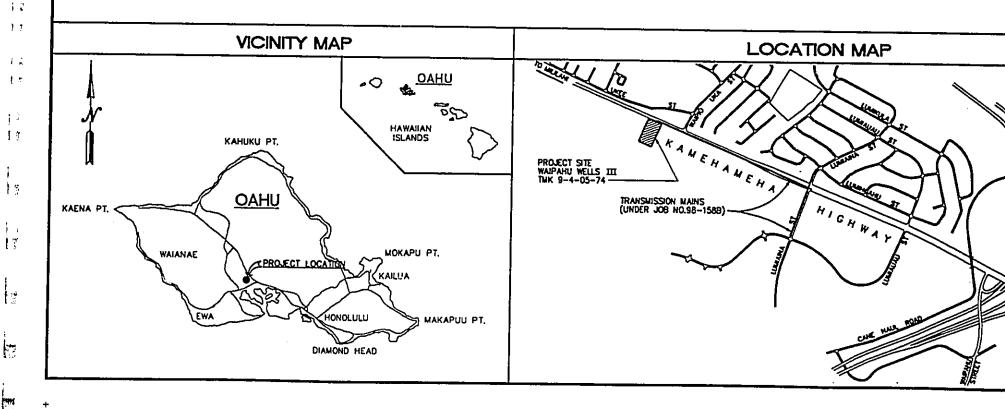
WAIPAHU WELL

BOARD OF WATER SUF CITY AND COUNTY OF HO HONOLULU, HAWAII

PREPARED BY:

GMP ASSOCIATES, INC

ENGINEERS/ARCHITECTS
HONOLULU, HAWAII
PHONE: 521-4711



-

). 98-158A

WELLS III

VATER SUPPLY TY OF HONOLULU LU, HAWAII

ARED BY:

CIATES, INC.

ARCHITECTS LU, HAWAII 521-4711

ON MAP	APPROVED	
	MANAGER AND CHIEF ENGINEER BOARD OF WATER SUPPLY	DATE
HICHWAY E ACT AN CE	ADMINISTRATOR, HIGHWAYS DIVISION STATE DEPARTMENT OF TRANSPORTATION (APPROVAL GRANTED FOR WORK WITHIN STATE RIGHT-OF-WAY ONLY ID NO, LETTER OF APPROVAL NO. HWY-CM, DATED)	DATE
TO ALM ON	DIRECTOR AND CHIEF ENGINEER DEPARTMENT OF PUBLIC WORKS CITY AND COUNTY OF HONOLULU	DATE
	SHEET 1 OF 67	T001

			DEX OF DRAWINGS
	SHEET NO.	DRAWNG NO.	nre
CENERAL	1	T001	TITLE SHEET, LOCATION MAP AND VICINITY MAP
	2	1002	INDEX OF DRAWINGS, NOTES, AND ABBREVIATIONS
	3	T003	WATER NOTES
	4	T004	LOCATION PLAN, LEGEND, AND SURVEY CONTROL
	5	P001	PROCESS AND INSTRUMENTATION DIAGRAM LECEND
	6	P002	PROCESS AND INSTRUMENTATION DIACRAM BACKWASH WATER DISPOSAL SYSTEM
CIVIL	7	C001	SIE PLAN
	8	C002	CRADING PLAN
	9	C003	UTILITY PLAN
	10	C004	SITE SECTIONS
	11	C005	ROAD PROFILES
	12	C1,06	UTILITY PROFILES - 1
	13	CC J7	UTILITY PROFILES - 2
	14	C005	TRAFFIC CONTROL PLAN
	15	C009	EROSION CONTROL PLAN
	16	C010	CIVIL DETAILS - 1
	17	Ç011	CIVIL DETAILS - 2
	18	C012	BORING LOGS
ARCHIECTU	RAL 19	A301	FLOOR PLAN, INTERIOR & EXTERIOR ELEVATIONS ROOM FINISH SCHEDULE
	20	A302	ROOF & REFLECTED CEILING PLANS AND DETAILS
	21	A303	BUILDING SECTIONS AND DETAILS
	22	A304	DOOR TYPES, DOOR SCHEDULE AND DETAILS
	23	A305	SECURITY LATCHSET DETAIL
STRUCTUE	<u>ML</u> 24	5001	STRUCTURAL CENERAL NOTES
	25	\$002	TYPICAL DETAILS AND SECTIONS
	26	\$101	WELLS-PUMP PAD DETAILS
	27	\$201	GAC PADS FOUNDATION PLAN
	28	5202	PLATFORM FRAMING PLAN
	29	\$203	PAD DETAILS AND SECTIONS
	30	\$204	TYPICAL PLATFORM DETALS
	31	5205	STAR DETALS
	32	5206	DETAILS AND SECTIONS
	33	5211	BACKWASH TANK FON & ROOF FRAMING PLANS
	34	5212	BACKWASH TANK-SECTION AND DETAILS
	35	5213	
	36	\$301	FOUNDATION AND ROOF FRAMING PLANS
	37	5302	TYPICAL DETALS
	38	\$303	SECTIONS
MECHAN	CAL 39	MO01	MECHANICAL LECEND AND ABBREVIATIONS
	40	M002	DETALS - 1
	41	M003	DETAILS - 2
	42	M101	SIE PLAN
	43	ы 102	WELL PUMP-PLAN AND SECTIONS
	44	LO1M	WELL PUMP DETAKS
	4	M201	
	44	5 M202	PARTIAL TANK PAO PIPING PLAN, SECTION AND ELEVATION
	4	7 M203	GAC CONTACTOR TANKS
	4	8 M211	BACKWASH TANK
	4	g W212	FILTER PAD PLAN AND SECTION
	5	0 M221	VENTUR: FLOW TUBE PLAN AND SECTION
	5	n M301	CONTROL BUILDING - PLUMBING AND ISOMETRIC DETAILS

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INDEV	05	DDAWNGS	(CONTINUED)
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	SHEET NO.	DRAWING NO.	PDE
ELECTRICAL	52	E001	ELECTRICAL LEGEND & ABBREVIATIONS
	53	E003	DETARS - 1
	54	E003	DETAILS - 2
	55	E004	DETAILS - 3
	56	£005	MCC-1 SINGLE LINE DIAGRAM
	57	E006	MCC-1 ELEVATION
	58	E007	ELEMENTARY CONTROL DIAGRAM
	59	£008	CONTROL DIAGRAMS - 2 AND TELEMETRY DETAILS
	60	E009	TELEMETRY AND SUPERMISORY CONTROL SCHEMATIC & CRICIAT DIAGRAMS
	61	E101	SIE PLAN
	62	E201	TANK PAD ELECTRICAL PLAN
	63	£301	CONTROL BUILDING POWER PLAN
	64	E302	CONTROL BUILDING LIGHTING PLAN & FIXTURE SCHEDULE
LANDSCAP	65	LOCI	LANDSCAPE PLANTING PLAN
	66	1002	LANDSCAPE IRRIGATION PLAN
	67	L003	PLANT UST, DETAILS AND NOTES
	68	L004	PRRIGATION EQUIPMENT LIST, DETAILS AND NOTES

GENERAL NOTES:

- ALL APPLICABLE CONSTRUCTION WORK SHALL BE DONE IN ACCORDANCE WITH THE "STANDARD SPECIFICATIONS FOR PUBLIC WORKS CONSTRUCTION", SEPTEMBER 1985, AND THE "STANDARD DETAILS FOR PUBLIC WORKS CONSTRUCTION", SEPTEMBER 1984, AS AMENDED, OF THE DEPARTMENT OF PUBLIC WORKS, CITY AND COUNTY OF HONOLULU, AND THE COUNTIES OF KAUAI, MAUA, AND HAWAII.
- 2. THE EXISTENCE AND LOCATION OF UNDERCROUND UTULITIES AND STRUCTURES AS SHOWN ON THE PLANS ARE FROM THE LATEST AVAILABLE DATA BUT IS NOT GUARANTEED AS TO THE ACCURACY OR THE ENCOUNTERING OF OTHER OBSTACLES DURING THE COURSE OF THE WORK, THE CONTRACTOR SHALL BE RESPONSIBLE AND SHALL PAY FOR ALL DAMAGES TO EXISTING UTILITIES. THE CONTRACTOR SHALL NOT ASSUME THAT WHERE THERE ARE NO UTILITIES, SHOWN, THAT NONE EXISTS.
- 3. NO BLASTING SHALL BE PERMITTED ON THIS PROJECT.
- 4. THE CONTRACTOR, AT HIS OWN EXPENSE, SHALL RESPOND TO COMPLAINTS MADE BY THE PUBLIC AND NEARBY RESIDENTS REGARDING DUST AND NOISE POLLUTION RESULTING FROM HIS WORK.
- 5. THE CONTRACTOR SHALL PROVIDE SAFE ACCESS TO AND FROM ALL DRIVEWAYS AND STREETS.
- THE CONTRACTOR SHALL NOTIFY THE BWS INSPECTOR UPON UNCOVERING ANY POTENTIAL HISTORICAL ARTIFACTS OR ITEMS OF ARCHAEOLOGICAL SIGNIFICANCE.
- THE CONTRACTOR SHALL NOTIFY THE CONSTRUCTION SECTION, DIVISION OF ENGINEERING, DEPARTMENT OF PUBLIC WORKS AT 523—4883 TO ARRANGE FOR INSPECTIONAL SERVICES AND SUBMIT THREE (3) SETS OF APPROVED CONSTRUCTION PLANS SEVEN (7) DAYS PRIOR TO COMMENCEMENT OF CONSTRUCTION WORK.
- THE CONTRACTOR SHALL OBTAIN A GRADING PERHIT PRIOR TO THE COMMENCEMENT OF CRADING OR CLEARING AND GRUBBING. A DUST AND TEMPORARY EROSION CONTROL PLAN SATISFACTORY TO THE CITY AND COUNTY OF HONOLULU DEPARTMENT OF PUBLIC WORKS SHALL BE SUBMITTED FOR APPROVAL BY THE CONTRACTOR BEFORE OBTAINING A GRADING PERMIT.
- TEMPORARY EROSION CONTROL MEASURES, INCLUDING DRAINAGE SWALES, GRASSING, AND SILT FENCES SHALL BE CONSIDERED INCIDENTAL TO THE PROJECT AT NO EXTRA COST TO THE CITY AND COUNTY OF HONOLULU.
- 10. UPON COMPLETION OF THE GRADING WORK, THE CONTRACTOR SHALL TEST THE GRADED AREA WITH WATER FOR PROPER DRAINAGE, PONDING AREAS SHALL BE REGRADED. THE COSTS INCURRED FOR THE TESTS AND ANY REGRADING WORK SHALL BE THE SOLE RESPONSIBILITY OF THE CONTRACTOR.
- 11. UNLESS OTHERWISE NOTED, ALL DISTURBED AREAS ADJACENT TO ROAD "A" AND ROAD "O" LEFT UNPAYED SHALL BE TOPSCILED (4" THICK) AND PLANTED WITH BERMUDA GRASS (CYHODON DACTYLON).
- 12. THE FOOTING EXCAVATION SHALL BE OBSERVED BY A SOILS ENGINEER DURING CONSTRUCTION TO VERFY THAT THE BEARING SURFACE CONDITIONS ARE CONSISTENT WITH THE FINDINGS OF THE SOIL EXPLORATION REPORT.

GRADING NOTES:

- ALL GRADING WORK SHALL BE DONE IN ACC 13, 14, 15 AND 16 AS RELATED TO GRADING, OF THE REVISED ORDINANCES OF HONOLULU, "GEOTECHNICAL ENGINEERING INVESTIGATION WAIPIO, WAIPAHU, OAHU, HAWAII" BY PSC AS
- 2. NO CONTRACTOR SHALL PERFORM ANY GRADIN ROCKS, SOIL, OR DEBRIS IN ANY FORM TO PROPERTIES, STREETS OR NATURAL WATER IN THE COSTS INCURED FOR ANY REMEDIAL AS BE PAID BY THE CONTRACTOR.
- THE CONTRACTOR, AT HIS OWN EXPENSE, S SURROUNDING AREA FREE FROM DUST NUIS CONFORMANCE WITH THE AIR POLLUTION CONTROL 11-60, "AIR POLLUTION CONTROL".
- 4. THE UNDERGROUND PIPES, CABLES OR DUCTL FROM HIS SEARCH OF RECORDS ARE INDICA CONTRACTOR SHALL VERIFY THE LOCATION EXERCISE PROPER CARE IN EXCAVATING IN OF NEW UTBLIES ARE SHOWN ON THE PLANS EXISTING LINES AT THE PROPOSED CONNECTIONS PRIOR TO EXCAVATION FOR THE NEW LINES.
- 5. ADEQUATE PROVISIONS SHALL BE MADE TO DAMAGING THE CUT FACE OF AN EXCAVATION FILL. FURTHERMORE, ADEQUATE PROVISIONS SEDIMENT—LADEN RUNOFF FROM LEAVING TO
- 6. ALL SLOPES AND EXPOSED AREAS SHALL B FINAL GRADES HAVE BEEN ESTABLISHED. PI ALL GRADING WORK HAS BEEN COMPLETED. CONTINUOUS, AND ANY AREA WITHIN WHICH WI SHALL BE PLANTED.
- 7. FILLS ON SLOPES STEEPER THAN 5:1 SHALL
- B. THE CITY SHALL BE INFORMED OF THE LOC FOR THE PROJECT WHEN THE APPLICATION BORROW/DISPOSAL SITE MUST ALSO FULFILL ORDINANCE.
- 9. NO GRADING WORK SHALL BE DONE ON SA TIME WITHOUT PRIOR NOTICE TO THE CHIEF IS ALSO IN CONFORMANCE WITH HAWAII AD "COMMUNITY NOISE CONTROL FOR GARU".
- 10 THE LIMITS OF THE AREA TO BE GRADED S
 COMMENCEMENT OF THE GRADING WORK.
- 11. ALL GRADING OPERATIONS SHALL BE PERFI APPLICABLE PROMISIONS OF THE WATER PO STANDARDS CONTAINED IN HAWAII ADMINIST "WATER POLLUTION CONTRO." AND CHAPTE AND IF APPLICABLE, THE NPDES PERMIT OF
- 12. WHERE APPLICABLE AND FEASIBLE THE ME OTHER POLLUTANTS SHALL BE IN PLACE E THE GRADING IS INITIATED.
- 13. TEMPORARY EROSION CONTROLS SHALL NO EROSION CONTROLS ARE IN-PLACE AND E
- 14. TEMPORARY EROSION CONTROL PROCEDUR PRIOR TO APPLICATION FOR GRADING PER
- 15. IF GRADING WORK INVOLVES CONTAMINATE BE DONE IN CONFORMANCE WITH APPLICA
- 16. NON-COMPLIANCE TO ANY OF THE ABOVE SUSPENSION OF ALL WORK, AND REMEDIAL ALL COSTS INCURRED SHALL BE BILLED TO VIOLATORS SHALL BE SUBJECTED TO ADMIT PENALTIES.
- 17. BUILDING PERMIT FOR RETAINING WALLS S
 COMMENCEMENT OF GRADING WORK ON S
- 18. FOR BENCH MARK, SEE SHEET TOO4.

APPROVED:

CHIEF, DIVISION OF ENGINEERING, DPW

- 1. ALL CRADING WORK SHALL BE DONE IN ACCORDANCE WITH CHAPTER 14, ARTICLES 13, 14, 15 AND 16 AS RELATED TO GRADING, SOIL EROSION AND SEDIMENT CONTROL OF THE REVISED ORDINANCES OF HONOLULU, 1990, AS AMENDED AND SOILS REPORT "GEOTECHNICAL ENGINEERING INVESTIGATION REPORT, WAIPAHU WELLS III PROJECT, WAIPAHU, OAHU, HAWAII" BY PSC ASSOCIATES, INC. DATED JANUARY 25, 1995.
- NO CONTRACTOR SHALL PERFORM ANY CRADING OPERATION SO AS TO CAUSE FALLING ROCKS, SOIL, OR DEBRIS IN ANY FORM TO FALL, SLIDE OR FLOW ONTO ADJOINING PROPERTIES, STREETS OR NATURAL WATER COURSES. SHOULD VIOLATIONS OCCUR, THE COSTS INCURRED FOR ANY REMEDIAL ACTION BY THE CHIEF ENGINEER SHALL BE PAID BY THE CONTRACTOR.
- 3. THE CONTRACTOR, AT HIS OWN EXPENSE, SHALL KEEP THE PROJECT AREA AND SURROUNDING AREA FREE FROM DUST NUISANCE, THE WORK SHALL BE IN CONFORMANCE WITH THE AIR POLLUTION CONTROL STANDARDS CONTAINED IN CHAPTER 11-60, "AIR POLLUTION CONTROL".
- THE UNDERGROUND PIPES, CABLES OR DUCTLINES KNOWN TO EXIST BY THE ENGINEER FROM HIS SEARCH OF RECORDS ARE INDICATED ON THE PLANS. THE CONTRACTOR SHALL VERIFY THE LOCATION AND DEPTHS OF THE FACILITIES AND EXERCISE PROPER CARE IN EXCAVATING IN THE AREA. WHEREVER CONNECTIONS OF NEW UTLITIES ARE SHOWN ON THE PLANS, THE CONTRACTOR SHALL EXPOSE THE EXISTING LINES ARE SHOWN ON THE PLANS, THE CONTRACTOR SHALL EXPOSE THE EXISTING LINES AT THE PROPOSED CONNECTIONS TO VERIFY THEIR LOCATIONS AND DEPTHS PRIOR TO EXCAVATION FOR THE NEW LINES.
- ADEQUATE PROVISIONS SHALL BE MADE TO PREVENT SURFACE WATERS FROM DAMAGING THE CUT FACE OF AN EXCAVATION OR THE SLOPED SURFACES OF A FILL. FURTHERMORE, ADEQUATE PROVISIONS SHALL BE MADE TO PREVENT SEDIMENT-LADEN RUNOFF FROM LEAVING THE SITE.
- 6. ALL SLOPES AND EXPOSED AREAS SHALL BE SOODED OR PLANTED AS SOON AS FINAL GRADES HAVE BEEN ESTABLISHED. PLANTING SHALL NOT BE DELAYED UNTIL ALL GRADING WORK HAS BEEN COMPLETED. GRADING TO FINAL GRADE SHALL BE CONTINUOUS, AND ANY AREA WITHIN WHICH WORK HAS BEEN INTERRUPTED OR DELAYED, SHALL BE PLANTED.
- 7. FILLS ON SLOPES STEEPER THAN 5:1 SHALL BE KEYED.
- B. THE CITY SHALL BE INFORMED OF THE LOCATION OF THE BORROW/DISPOSAL SITE FOR THE PROJECT WHEN THE APPLICATION FOR A GRADING PERMIT IS MADE. THE BORROW/DISPOSAL SITE MUST ALSO FULFILL THE REQUIREMENTS OF THE CRADING
- NO GRADING WORK SHALL BE DONE ON SATURDAYS, SUNDAYS OR HOLIDAYS AT ANY TIME WITHOUT PRIOR NOTICE TO THE CHIEF ENGINEER, PROVIDED SUCH GRADING WORK IS ALSO IN CONFORMANCE WITH HAWAII ADMINISTRATIVE RULES, CHAPTER 11-43, "COMMUNITY NOISE CONTROL FOR OAHU".
- 10 THE LIMITS OF THE AREA TO BE GRADED SHALL BE FLAGGED BEFORE THE COMMENCEMENT OF THE CRADING WORK.
- 11. ALL GRADING OPERATIONS SHALL BE PERFORMED IN CONFORMANCE WITH THE APPLICABLE PROMISIONS OF THE WATER POLLUTION CONTROL AND WATER QUALITY STANDARDS CONTAINED IN HAWAIT ADMINISTRATIVE RULES, CHAPTER 11-55, "WATER POLLUTION CONTROL" AND CHAPTER 11-54, "WATER QUALITY STANDARDS", AND IF APPLICABLE, THE NPOES PERMIT OF THE PROJECT.
- 12. WHERE APPLICABLE AND FEASIBLE THE MEASURES TO CONTROL EROSION AND OTHER POLLUTANTS SHALL BE IN PLACE BEFORE ANY EARTH MOVING PHASE OF THE GRADING IS INITIATED.
- 13. TEMPORARY EROSION CONTROLS SHALL NOT BE REMOVED UNTIL THE PERMANENT EROSION CONTROLS ARE IN-PLACE AND ESTABLISHED.
- 14. TEMPOTARY EROSION CONTROL PROCEDURES SHALL BE SUBMITTED FOR APPROVAL PRIOR TO APPLICATION FOR GRADING PERMIT.
- 15. IF CRADING WORK INVOLVES CONTAINNATED SOIL, THEN ALL GRADING WORK SHALL BE DONE IN CONFORMANCE WITH APPLICABLE STATE AND FEDERAL REQUIREMENTS.
- 16. NON-COMPLIANCE TO ANY OF THE ABOVE REQUIREMENTS SHALL MEAN IMMEDIATE SUSPENSION OF ALL WORK, AND REMEDIAL WORK SHOULD COMMENCE IMMEDIATELY. ALL COSTS INCURRED SHALL BE BILLED TO THE PERMITTEE, FURTHERMORE, MOLATORS SHALL BE SUBJECTED TO ADMINISTRATIVE, CIVIL, AND/OR CRIMINAL MOLATORS SHALL BE SUBJECTED TO ADMINISTRATIVE, CIVIL, AND/OR CRIMINAL
- 17. BUILDING PERMIT FOR RETAINING WALLS SHALL BE OBTAINED PRIOR TO COMMENCEMENT OF GRADING WORK ON SITE.
- 18. FOR BENCH MARK, SEE SHEET TOO4.

ABBREVIATIONS

SDMH SF

STA

TB

UW

YD.

ĮBW

ķ	AND	
?	AT	
	DIAMETER NUMBER, POUNDS	
,	NOMBER, POUNDS	
	400 M BO BOWGOOT 40	

ASPHALTIC CONCRETE, ACRES
AMERICAN WATER WORKS ASSOCIATION AWWA

BLOWOFF DISCHARGE LINE BACKFLOW PREVENTER BASELINE BLOCK
BOTTOM VERTICAL
BEGINNING OF VERTICAL CURVE
BACKWASH WATER
BOARD OF WATER SUPPLY BLK BVC BVC

BWS CAST IRON CENTERLINE ā CLEANOUT CONCRETE CONNECTION CUBIC CO

DETAIL DUCTILE IRON DRAIN LINE DRAWNG DET DI

DWC

ELECTRIC ELEVATION END OF VERTICAL CURVE EACH WAY ELEV EVC EW EXIST

FAP FF FG FH FEDERAL AID PROJECT FINISHED FLOOR FINISHED GRADE FIRE HYDRANT FLOW LINE FINISHED SURFACE FEET

GAL GAL GALV GRANULAR ACTIVATED CARBON GALLONS GALVANIZED GRADE BREAK

HORIZ HWY HORIZONTAL HICHWAY

LF LINEAL FEET

MAXIMUM MINIMUM, MINUTE MANHOLE MONUMENT MILES PER HOUR

NO NUMBER NPDES NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM

POINT OF INTERSECTION OF VERTICAL CURVE POINT ON CURVE POUNDS PER SQUARE INCH POINT PAVEMENT

POC PSI PT

RADIUS ROAD RIGHT OF WAY

PVMT

APPROVED:

CHIEF, DIVISION OF ENGINEERING, DPW (FOR GRADING ONLY)

T002

DATE

THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION. APPROVED:

BOARD OF WATER SUPPLY

JOB 98-158A WAIPAHU WELLS III

INDEX OF DRAWINGS, NOTES, AND ABBREVIATIONS

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STORM DRAIN STORM DRAIN MANHOLE SOUARE FEET STREET STATION STANDARD

IOP OF BERM
TREATED BACKWASH WATER
TOP OF CURB
TOP OF GRATE
TAX MAP KEY
TELEPHONE POLE
TOP VERTICAL
TREATED WATER
TYPICAL

UNTREATED WATER

VARIABLE VERTICAL

WATERLINE WITH

YARDS

WATER NOTES:

- UNLESS OTHERWISE SPECIFIED, ALL MATERIALS AND CONSTRUCTION OF WATER SYSTEM FACILITIES AND APPURTENANCES SHALL BE IN ACCORDANCE WITH THE CITY AND COUNTY OF HONOLULU, BOARD OF WATER SUPPLY'S "WATER SYSTEM STANDARDS", VOLUME 1, DATED 1985, THE "APPOVED MATERIAL LIST AND STANDARD DETAILS FOR WATER SYSTEM CONSTRUCTION", VOLUME 2, DATED 1985, AND THE "WATER SYSTEM EXTERNAL CORROSION CONTROL STANDARDS", VOLUME 3, DATED 1991, AND ALL SUBSEQUENT AMENDMENTS AND ADDITIONS.
- THE CONTRACTOR SHALL NOTIFY THE BOARD OF WATER SUPPLY IN WRITING ONE WEEK PRIOR TO COMMENCING WORK ON THE WATER SYSTEM.
- PAYMENT FOR ITEMS OF WORK CALLED FOR IN THE PLANS, SPECIAL PROVISIONS AND SPECIFICATIONS FOR WHICH PAYMENT IS NOT SPECIFIED SHALL NOT BE MADE DIRECTLY BUT SHALL BE INCLUDED IN THE VARIOUS ITEMS IN THE PROPOSAL AND NO ADDITIONAL COMPENSATION SHALL BE MADE.
- THE CONTRACTOR IS ALERTED TO THE ENCOUNTERING OF OBSTACLES WHETHER SHOWN ON THE PLANS OR NOT, OR WHICH MAY DIFFER IN LOCATION FROM THAT SHOWN ON THE PLANS WHICH MAY INTERFERE WITH HIS NORMAL METHOD OF OPERATIONS. THE CONTRACTOR SHALL TAKE INTO ACCOUNT ANY ADDITIONAL COSTS ANTICIPATED DUE TO THESE CONDITIONS AND SHALL HAVE THESE COSTS INCLUDED IN THE BID ITEMS WHICH HE/SHE FEELS MOST APPROPRIATE. NO SEPARATE ADDITIONAL COMPENSATION SHALL BE MADE.
- THE CONTRACTOR SHALL BE SOLELY RESPONSIBLE FOR ALL ASSUMPTIONS, DEDUCTIONS, OR CONCLUSIONS HE/SHE MAY MAKE OR DERIVE FROM THE SUBSURFACE INFORMATION OR DATA FURNISHED ON THE PLANS. THE CONTRACTOR MUST SATISFY HIMSELF/HERSELF THROUGH HIS/HER OWN INVESTIGATIONS AS TO WHAT SUBSURFACE CONDITIONS ARE TO BE ENCOUNTERED.
- PRIOR TO START OF EXCAVATION, THE CONTRACTOR SHALL NOTIFY ALL ACENCIES AND UTILITIES AND HAVE THEM LOCATE THEIR RESPECTIVE UNES AFFECTED. THE CONTRACTOR SHALL BE HELD RESPONSIBLE FOR ALL OF HIS/HER CONSTRUCTION AND SHALL PAY FOR ALL DAMAGES TO AND FOR THE PROTECTION OF EXISTING HIS LINES AND STRUCTURES. UTILITIES AND STRUCTURES.
- THE CONTRACTOR SHALL EXPOSE, VERIFY AND BACKFILL ALL EXISTING UNDERGROUND UTILITIES AND STRUCTURES AT CROSSINGS PRIOR TO EXCAVATION OF PIPELINE TRENCH. THE WATER MAIN ALIGNMENT AND GRADE MAY BE CHANGED IF THERE ARE CONFLICTS WITH ANY EXISTING UNDERGROUND UTILITIES AND STRUCTURES, WHETHER SHOWN ON THE PLANS OR NOT. PAYMENT FOR WORK INCLUDED IN THE BARRESHAW WILL BE MADE THE PLANS OR PARTICIPATION. INCLUDED IN THIS PARAGRAPH WILL BE MADE UNDER THE APPROPRIATE BID ITEMS UNDER THE PROPOSAL, AND NO ADDITIONAL COMPENSATION WILL BE CONSIDERED.
- EXISTING UTILITIES CROSSING THE WATER MAIN ARE TO REMAIN IN SERVICE AND IN PLACE. IF RELOCATED FOR THE CONTRACTOR'S CONVENIENCE, INTERRUPTION OF SERVICE SHALL BE FOR A MINIMUM PERIOD OF TIME AND SHALL BE DONE AT THE CONTRACTOR'S EXPENSE AND ONLY WITH THE APPROVAL OF THE BOARD OF WATER SUPPLY.
- ANY COST INCURRED BY GASCO, HECO, OR HICO BY THIS PROJECT SHALL BE PAID BY THE BOARD OF WATER SUPPLY THROUGH THE CONTRACTOR. PAYMENT SHALL BE ONLY FOR THE ACTUAL COST AS SHOWN ON THE UTILITY COMPANY'S INVOICE. NO PAYMENT WILL BE MADE FOR PROFIT, TAX, OVERHEAD, AND BOND COST.
- IF THE CONTRACTOR ELECTS NOT TO EXPOSE AND VERIFY ALL EXISTING UTILITIES AND STRUCTURES AT CROSSINGS PRIOR TO PIPELINE EXCAVATION, HE FORFEITS HIS RIGHTS FOR ANY CLAIMS FOR COMPENSATION CAUSED BY ANY CONFLICTS WITH EXISTING UTILITIES AND STRUCTURES.
- ALL A.C. AND CONCRETE PAVEMENT TO BE TRENCHED (FOR PIPELINE OR ANY WATER SYSTEM INSTALLATION) SHALL BE "SAW-CUT" TO THE REQUIRED WIDTH PRIOR TO REPAYING.
- PAYMENT FOR RESTORATION OF DRIVEWAYS, CURBS AND CUTTERS WILL NOT BE MADE DIRECTLY BUT SHALL BE INCLUDED IN THE UNIT PRICES BID IN THE VARIOUS ITEMS OF THE BID.
- RESTORATION OF PAYEMENT SHALL BE IN ACCORDANCE WITH THE DETAILS SHOWN ON THE PLANS AND DONE WITH EQUIVALENT TO OR BETTER QUALITY MATERIALS.

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- URLESS OTHERWISE SPECIFED, CONNECTIONS TO EXISTING WATER MAINS AND CHLORINATION OF NEW MAINS SHALL BE DONE BY THE CONTRACTOR, WITH THE BOARD OF WATER SUPPLY'S INSPECTOR COORDINATING THE WORK, FOR DETAILS, CONTACT THE BWS PLANNING AND ENGINEERING DIVISION, ENGINEERING BRANCH, CONSTRUCTION SECTION,
- WHEREVER CONNECTIONS TO EXISTING MAINS ARE SHOWN ON THE WHEREVER CONTRICTIONS TO EXISTING MAINS ARE SHOWN ON THE PLANS, THE CONTRACTOR SHALL EXPOSE THE EXISTING MAINS PRIOR TO EXCAVATION OF MAIN TRENCH. THE REMAINING EXCAVATION FOR THE CONNECTION SHALL BE EXCAVATED WHEN THE CONTRACTOR IS READY TO MAKE THE CONNECTION.

- 16. THE BRIDGE DECKS FOR-TEMPORARY DRIBGE-INSTALLATIONS SHALL DE ADJOINING PAVEMENT OR SIDEWALK NO-DUMPS-OR ELEVATED BRIDGE DEGKS-WILL BE ALLOWED.
- 17. ALL WATER MAIN TRENCHES SHALL BE BACKFILLED AS CALLED FOR UNDER PART III, SECTION 1.2.2, TRENCH BACKFILL, OF THE
 "WATER SYSTEM STANDARDS", DATED 1985. COMPACTION OF TRENCH
 BACKFILL SHALL MEET APPLICABLE REQUIREMENTS OF "THE STANDARD
 SPECIFICATIONS FOR PUBLIC WORKS CONSTRUCTION", SEPTEMBER
 1986, OF THE COUNTIES OF THE STATE OF HAWAII,
- THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE PROPER DISPOSAL OF CHLORINATED WATER TO SAFEGUARD PUBLIC HEALTH AND ENVIRONMENT IN ACCORDANCE WITH APPLICABLE DEPARTMENT OF HEALTH REQUIREMENTS.
- SHOULD MAJOR TREE ROOTS 2" AND CREATER BE ENCOUNTERED DURING CONSTRUCTION, THESE ROOTS SHALL BE CUT AND SEALED WITH ASPHALTIC PAINT.
- DURING NON-WORKING HOURS, THE-TRENCHES ON CITY-STREETS-SHALL-BC-COVERED WITH NON-SKID-STEEL-PLATES AND ALL-LANES-
- 21. UNLESS OTHERWISE SPECIFIED, ALL ABANDONED LINES SHALL BE CUT AND PLUGGED WITH CLASS DWS 2000 CONCRETE. PAYMENT FOR CUTTING AND PLUGGING WILL NOT BE MADE DIRECTLY BUT WILL BE INCIDENTAL TO THE VARIOUS ITEMS OF THE PROPOSAL. THE CONTRACTOR SHALL VERIFY THE SIZE AND TYPE OF LINE TO BE
- ALL SALWIGE MATERIALS SHALL BE GLEANED, REPAINTED AND DELIVERED TO THE KALHIR DWS CORPORATION YARD.
- 23. ALL WATER MAINS AND APPURTENANCES INCLUDING SERVICE LATERALS AND SERVICE CONNECTIONS SHALL BE SUBJECTED TO A HYDROSTATIC TEST PRESSURE OF 150 PSI BY THE CONTRACTOR IN THE PRESENCE OF THE BOARD OF WATER SUPPLY INSPECTOR.
- 24. ALL-LATERALS (1" TO 2-1/2") SHALL BE REPLACED OR RECONNECTED-WITH CITIER COPPER OR PLASTIC TUBING.
- THE CONTRACTOR SHALL FURNISH AND INSTALL DIELECTRIC COUPLINGS FOR ALL SERVICE LATERAL CONNECTIONS. PAYMENTS FOR DIELECTRIC COUPLINGS WILL NOT BE MADE DIRECTLY, BUT SHALL BE CONSIDERED INCIDENTAL TO THE VARIOUS ITEMS IN THE PROPOSAL.
- PAYMENT FOR SERVICE LATERALS AND SERVICE CONNECTIONS SHALL BE MADE AT THE UNIT PRICE BID IN THE PROPOSAL. PAYMENT SHALL INCLUDE TAPS INTO MAINS, RECONNECTIONS TO EXISTING SERVICES, TRANSFERRAL OF METERS, AND INSTALLING PIPE LATERALS, FITTINGS, BALL CORPS, BALL STOPS, GLOBE VALVES, METER SPLICES, BRASS PIPES, CAPS AND ALL APPURTENANCES, AS REQUIRED, IN PLACE COMPLETE. PAYMENT FOR METER BOXES, INCLUSIVE OF C.I. FRAMES AND COVERS AND TYPE "A" VALVES BOXES SHALL BE MADE AT THE RESPECTIVE UNIT PRICE BID IN THE BID.
- 27. DEMOUSH AND BACKFILL ALL-ABANDONED WANNIOLES, VALVE-DOXES—
 AND METER-BOXES—SALVAGE ALL CAST-IRON FRAMES AND BOVERS—
- 28. AFTER INSTALLATION OF TAPPING SLEEVE AND TAPPING VALVE AND PRIOR TO TAPPING THE EXISTING WATER MAIN, THE ASSEMBLY SHALL BE PRESSURE TESTED AT 150 PSI ON BOTH SIDES OF THE VALVE AND IN ACCORDANCE WITH THE WATER SYSTEM STANDARDS, DATED 1985.
- THE NEW WATER MAIN SHALL BE COMPLETED IN PHASES AS SHOWN BY THE PLANS. THE CONTRACTOR SHALL COMPLETE EACH PHASE WILLDING INSTALLATION AND TESTING OF THE WATER MAIN, TRANSFER OF SERVICES AND FINAL PANNED OF THE STREET PRIOR TO BEGINNING THE NEXT PHASE HOWEVER, THE CONTRACTOR MAY COMMENCE WORK ON THE NEXT PHASE UPON SATISFACTORY PROGRESS OF ALL REMAINING WORK ON THE PREVIOUS PHASE TO APPROVED IN WINTING BY DWS.
- THE CONTRACTOR SHALL INSTALL THE FIRE HYDRANT REFLECTIVE MARKERS. THE CONTRACTOR SHALL NOTIFY THE NEAREST FIRE DEPARTMENT BATTALION CHIEF FOR THE INSTALLATION OR RELOCATION OF FIRE HYDRANT REFLECTIVE MARKERS. PAYMENT FOR INSTALLATION OF OF REFLECTIVE HYDRANT MARKERS SHALL BE MADE AT THE DESCRIPTION THAT PRICE IN THE BID. THE RESPECTIVE UNIT PRICE IN THE BID.
- MECHANICAL JOINT GLANDS SHALL BE "STRAIGHT-SIDED" AND POLYGON IN SHAPE AS DESCRIBED IN AWWA C111 AND SHALL BE APPLICABLE TO BOTH CAST IRON AND DUCTILE IRON GLANDS OR AN APPROVED EQUAL ON A JOB TO JOB BASIS.
- 32. ALL AIR RELIEF VALVES SHALL HAVE A MINIMUM WORKING PRESSURE RANGE OF 0 TO 150 PSI.
- ALL PVC FITTINGS SHALL CONFORM TO AMERICAN WATER WORKS ASSOCIATION (AWWA) C-907. THE USE OF HUB CLAUPS AND SET SCREWS ON PVC FITTINGS IS NOT APPROVED. PRIOR TO THE PVC FITTING INSTALLATION, THE CONTRACTOR SHALL SUBMIT FOR APPROVAL BY THE BOARD OF WATER SUPPLY, THE MANUFACTURER'S CERTIFICATION THAT ALL PVC FITTINGS CONFORM IN ALL RESPECTS

- 34. PIPE CUSHION SHALL BE OF HIGH RE CONTRACTOR SHALL SUBMIT A SOIL RESISTANT CUSHION MATERIAL HAS 5,000 OHM-CM. REMAINDER OF THE AS SPECIFIED IN VOLUME 1 OF THE CUSHION AND BACKFILL MATERIALS SUBSTANCES ABOVE DECLIFATORS SUBSTANCES ABOVE REGULATORY AS STRONTIUM, AND POLYCHLORINATED
- ALL SECTIONS OF THE WATER MAIN F JACKETING SHALL BE DUCTLE IRON (FITTINGS.
- ALL POLYMNYL CHLORIDE (PVC) PIPE ACCOMPLISHED ONLY BY THE USE OF COUPLINGS. DEFLECTION AROUND ON ONLY BY THE USE OF PVC DEFLECTION
- CLEANING SHALL BE BY THE USE OF PIPELINE AND RUN COMPLETELY THR AND ALL BRANCH LINES FOR FIRE H' SERVICE LATERALS IS NOT REQUIRED. SERVICE LATERALS IS NOT REQUIRED. USED TO SWAB PIPING CLEAN AS EARNSTALLED. EACH "PIG" SHALL CONSOF POLYURETHANE FOAM WITH A DEPFOOT AND A WIYL-COATED NOSE. SHALL BE EQUAL TO 1-1/4 TO 1-1/5 OF THE PIPE BEING INSTALLED. THE BE 1-1/2 TO 2 TIMES ITS DIAMETER. SHALL BE SUBMERGED IN A CHLORING CHLORINE BLEACH IN 5 GALLONS OF PIPET INF SHALL BE CONSIDERED WITH PIPELINE SHALL BE CONSIDERED INCID OF THE NEW PIPELINE.
- 38. BALL CORPS AND BALL STOPS SHALL CORPORATION STOPS AND STOPCOCKS
- 39. -PIPE ALTERNATIVES:-
 - DUCTILE IRON PIPES SHALL BE (
 - WITH POLYETHYLENE.

 POLYMAN CHICANDE (PUC) PIPE
 ALL VALVES, CAST IRON PIPES
 DOUBLE WRAPPED WITH POLYETH
 POLYVINYL CHLORIDE PIPES WILL
 INSTALLATION OF PVC PIPE ACC
 SPECIFICATIONS AS BID ON BY
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 ADDITIONAL FITTINGS AND SPECI
 CONSIDERED INCIDENTAL TO THE
 PROPOSAL FOR PVC PIPE. ANY
 SHALL BE THE RESPONSIBILITY O
 TONING WIRE SHALL BE INSTALLI
 OF THE PIPELINE.

PAYMENT FOR POLYETHYLENE WRAP S UNIT PRICE BID FOR DI PIPE, VALVES

DOUBLE POLYETHYLENE WRAP SHALL I

CLASS 150 OR 200-FOR-DIAMETE CLASS 150 FOR DIAMETERS GRE

FOR EXTERNAL CORROSION CONTROL, WHEN

39. PIPE ALTERNATIVES:

A. DUCTILE IRON PIPES SHALL BE COUNTY FOR THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE PROPERTY OF THE SYSTEM SHALL BE OF PVC PIPES WILL BE PERMITTE SHALL BE INSTALLED ALONG ALL

- 34. PIPE CUSHION SHALL BE OF HIGH RESISTIVITY MATERIAL. THE CONTRACTOR SHALL SUBMIT A SOIL CERTIFICATION THAT HIGH RESISTANT CUSHION MATERIAL HAS A RESISTIVITY CREATER THAN 5,000 OHM-CM. REMAINDER OF THE BACKFILL MATERIAL SHALL BE AS SPECIFIED IN VOLUME 1 OF THE WATER SYSTEM STANDARDS. PIPE CUSHION AND BACKFILL MATERIAL SHALL CONTAIN NO HAZARDOUS SUBSTANCES ABOVE REGULATORY ACTION LEVELS INCLUDING BUT NOT LIMITED TO LEAD, ASBESTOS, MERCURY, CHROMIUM, CADMIUM, ZINC, STRONTIUM, AND POLYCHLORINATED BIPHENYLS (PCB).
- 35. ALL SECTIONS OF THE WATER MAIN REQUIRING REINFORCED CONCRETE JACKETING SHALL BE DUCTILE IRON PIPE WITH DUCTILE IRON
- ALL POLYMNYL CHLORIDE (PVC) PIPE DEFLECTIONS SHALL DE ACCOMPLISHED ONLY BY THE USE OF SPECIAL PVC DEFLECTION COUPLINGS. DEFLECTION AROUND CURVES SHALL BE ACCOMPLISHED ONLY BY THE USE OF PVC DEFLECTION COUPLINGS.
- 37. CLEANING SHALL BE BY THE USE OF "PIGS" INTRODUCED INTO THE PIPEUNE AND RUN COMPLETELY THROUGH ALL INSTALLED PIPEUNES AND ALL BRANCH LINES FOR FIRE HYDRANTS. "PIGGING" OF SERVICE LATERALS IS NOT REQUIRED. BARE FOAM "PIGS" SHALL BE USED TO SWAB PIPING CLEAN AS EACH LENGTH OF THE PIPEUNE IS INSTALLED. EACH "PIG" SHALL CONSIST OF A CYLINDRICAL PIECE OF POLYMERTHANE FOAM WITH A DENSITY OF 3-7 POUNDS PER CURIC FOOT AND A WNYL-COATED NOSE. OUTSIDE DIAMETER OF THE "PIG" SHALL BE EQUAL TO 1-1/4 TO 1-1/2 TIMES THE INSIDE DIAMETER OF THE "PIG" SHALL BE EQUAL TO 1-1/4 TO 1-1/2 TIMES THE INSIDE DIAMETER OF THE "PIG" SHALL BE 1-1/2 TO 2 TIMES ITS DIAMETER. PRIOR TO USE, THE "PIG" SHALL BE SUBMERGED IN A CHLORINE SOLUTION OF 1 OZ. OF 5% CHLORINE BLEACH IN 5 GALLONS OF WATER. "PIGCING" OF THE PIPEUNE SHALL BE CONSIDERED INCIDENTAL TO THE INSTALLATION OF THE NEW PIPELINE.
- 38. BALL CORPS AND BALL STOPS SHALL BE INSTALLED IN DEU OF THE CORPORATION STOPS AND STOPCOCKS, RESPECTIVELY.

39. - PIPE-ALTERNATIVES:

DUCTILE IRON PIPES SHALL BE CLASS 52, DOUBLE WRAPPED WITH POLYETHYLENE

POLYMMY. GHLORIDE (PVC) PIPES CHALL BE GLASS
ALL VALVES, CAST IRON PIPES AND FITTINGS SHALL BE
DOUBLE WRAPPED WITH POLYETHYLENE. NO BENDING OF
POLYMNY. CHLORIDE PIPES WILL BE PERMITTED. THE
INSTALLATION OF PVC PIPE ACCORDING TO THE PLANS AND
SPECIFICATIONS AS BID ON BY THE CONTRACTOR, MAY REQUIRE
ADDITIONAL DESIGN WORK, ADDITIONAL FITTINGS AND SPECIAL
COUPLINGS, NOT SPECIAL PIPE PLANS AND
SPECIFICATIONS. PAYMENT FOR ADDITIONAL DESIGN WORK,
ADDITIONAL FITTINGS AND SPECIAL COUPLINGS SHALL BE
CONSIDERED INCIDENTAL TO THE UNIT PRICE BID IN THE CONSIDERED MCDENTAL TO THE UNIT PRICE BID IN THE PROPOSAL FOR PVC PIPE. ANY ADDITIONAL DESIGN WORK SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR. COPPER TONING WIRE SHALL BE INSTALLED ALONG THE ENTIRE LENGTH OF THE PIPELINE.

PAYMENT FOR POLYETHYLENE WRAP SHALL BE INCIDENTAL TO THE UNIT PRICE BID FOR DI PIPE, VALVES AND FITTINGS.

DOUBLE POLYETHYLENE WRAP SHALL NOT BE LESS THAN 16 MILS.

CLASS 150 OR 200 FOR DIAMETERS 12" AND S CLASS 150 FOR DIAMETERS CREATER THAN 12"

FOR EXTERNAL CORROSION CONTROL, WHEN REQUIRED

39. PIPE ALTERNATIVES:

A. DUCTILE IRON PIPES SHALL BE CLASS 52. ALL DUCTILE IRON PIPES, FITTINGS, AND VALVES SHALL HAVE BONDED COATING, WITH AN EXTERNAL CORROSION CONTROL SYSTEM APPLIED. POLYVNYL CHICORIDE (PVC) PIPES USED TO ELECTRICALLY ISOLATE THE SYSTEM SHALL BE CLASS . NO BENDING OF TYC PIPES WILL BE PERMITTED. COPPER TOKING WIRE SHALL BE INSTALLED ALONG ALL PVC PORTIONS OF THE

POLYMNYL CHLORIDE (PYC) PIPES SHALL BE CLASS
ALL VALVES, CAST IRON PIPES AND FITTINGS SHALL BE
DOUBLE WRAPPED WITH POLYETHYLENE. NO BENDING OF
POLYMNYL CHLORIDE PIPES WILL BE PERMITTED. THE
INSTALLATION OF PYC PIPE ACCORDING TO THE PLANS AND
SPECIFICATIONS AS BID ON BY THE CONTRACTOR, MAY PROURE
ADDITIONAL DESIGN WORK, ADDITIONAL FITTINGS AND SPECIFICATIONS. NOT SPECIFIED IN THE PLANS AND
SPECIFICATIONS. PAYMENT FOR ADDITIONAL DESIGN WORK,
ADDITIONAL FITTINGS AND SPECIAL COUPLINGS SHALL BE
CONSIDERED INCOENTAL TO THE UNIT PRICE BID BY THE
PROPOSAL FOR PYC PIPE. ANY ADDITIONAL DESIGN WORK
SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR. COPPER
TONING WIRE SHALL BE INSTALLED ALONG THE ENTIRE LENGTH
OF THE PIPELINE.

FOR BOTH ALTERNATIVES: PAYMENT FOR THE FURNISHING AND INSTALLATION OF THE EXTERNAL CORROSION CONTROL SYSTEM WILL BE MADE AT THE UNIT PRICE BID, OR LUMP SUM BID, WHICHEVER IS SPECIFIED, FOR THE ITEM OF WHICH THE EXTERNAL CORROSION CONTROL IS A PART.

DOUBLE POLYETHYLENE WRAP SHALL NOT/BE LESS THAN 16 MILS.

CLASS 150 OR 200 FOR DIAMETERS 12" AND SMALLER CLASS 150 FOR DIAMETERS CREATER THAN 12"

FOR CONCRETE CYLINDER PIPE ALTERNATIVE:

39. PIPE ALTERNATIVES:
A DUCTLE IRON PIPES SHAPE BE CLASS 52. ALL DUCTLE IRON

DUCTILE IRON PIPES SHALL BE CLASS 52. ALL DUCTILE IRON WITH POLYETHYLENE.

POLYYNYL CHLORIDE (PVC) PIPES SHALL BE CLASS POLYYNYL CHLORIDE (RVC) PIPES SHALL BE CLASS POLYYNYL CHLORIDE PIPES WILL BE PERMITTED. THE INSTALLATION OF PVC PIPE ACCORDING TO THE PLANS AND SPECIFICATIONS AS BID ON BY THE CONTRACTOR, MAY REGUIRE ADDITIONAL DESIGN WORK, ADDITIONAL PITTINGS AND SPECIAL COUPLINGS, NOT SPECIFIED IN THE PLANS AND SPECIFICATIONS. PAYMENT FOR ADDITIONAL DESIGN WORK, ADDITIONAL PITTINGS AND SPECIAL COUPLINGS SHALL BE CONSIDERED INCIDENTAL TO THE UNIT PRICE BID IN THE PROPOSAL FOR PVC PIPE. ANY ADDITIONAL DESIGN WORK SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR. COPPER TONING WIRE SHALL BE INSTALLED ALONG THE ENTIRE LENGTH OF TAE PIPELINE.

CONGRETE CYLINDER PIPES SHALL BE CLASS AND SHALL BE MANUFACTURED AFTER ALL UNDERGROUND STRUCTURES AND UNTILTES ARE EXPOSED AND VERTIFED.

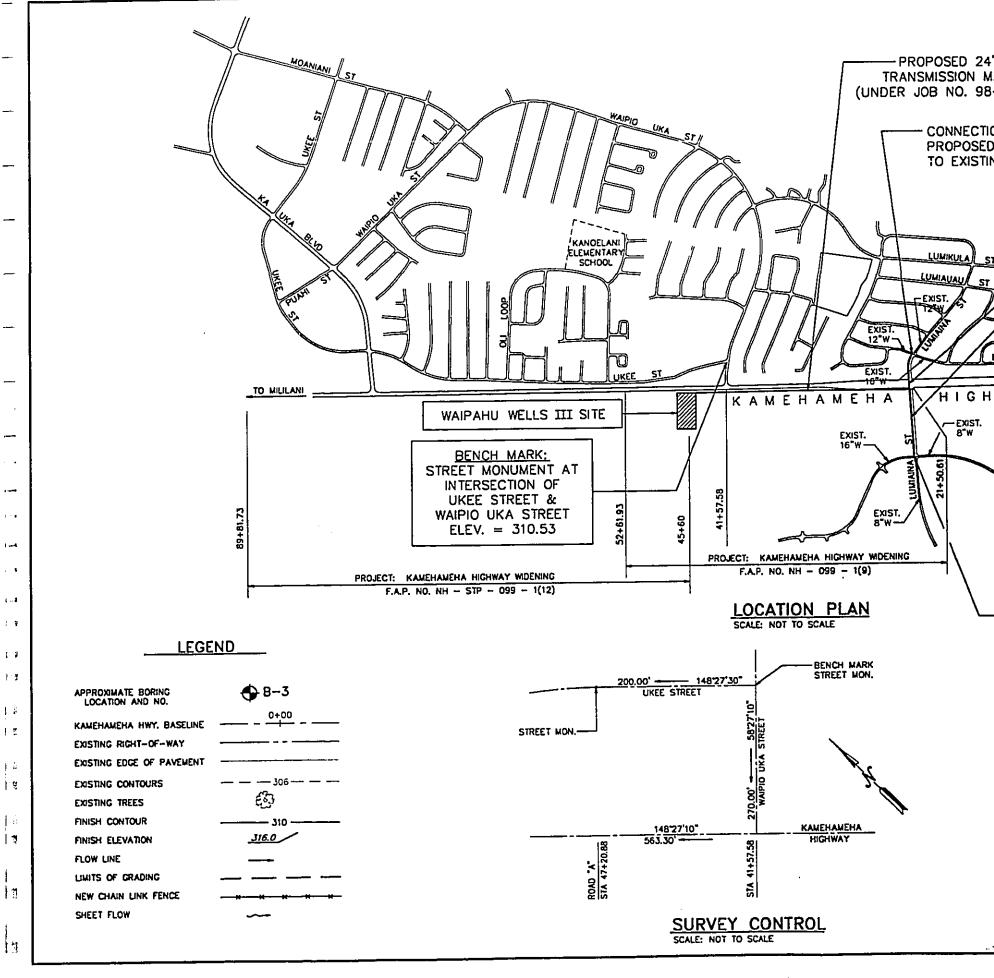
PAYMENT FOR POLYETHYLENE WRAP SHALL BE INCIDENTAL TO THE UNIT PRICE BID FOR DI PIPE, VALVES AND FITTINGS.

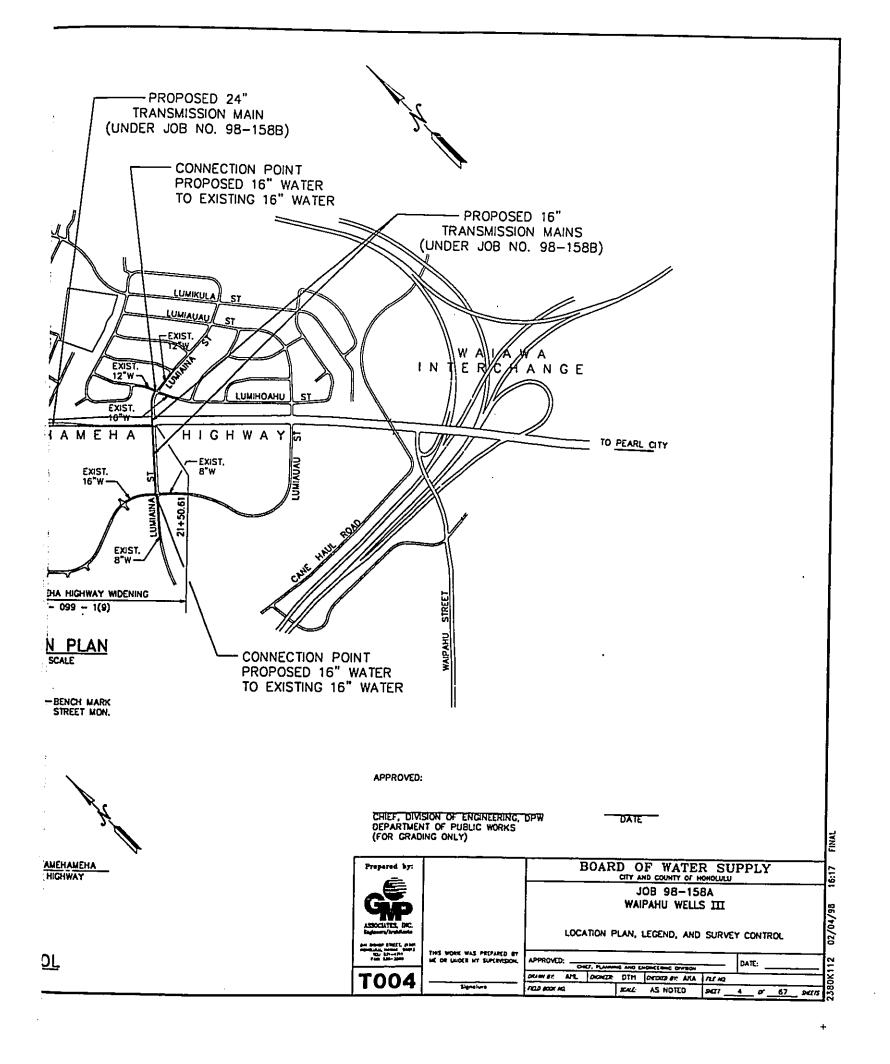
gouble polyethylene wrap shall not be less than 16 mils.

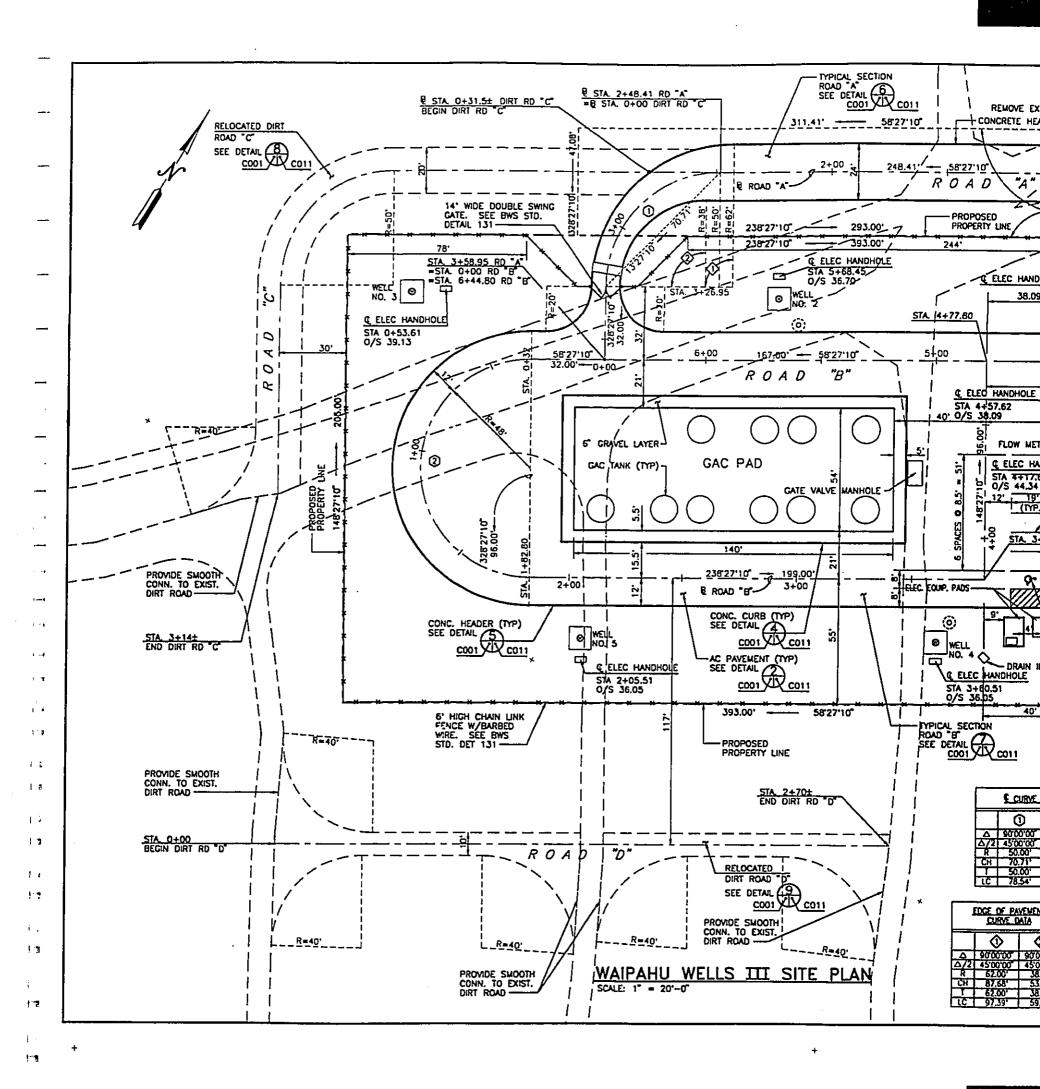
CLASS 150 OR 200 FOR DIAMETERS 12" AND SMALLER CLASS 150 FOR DIAMETERS CREATER THAN 13"

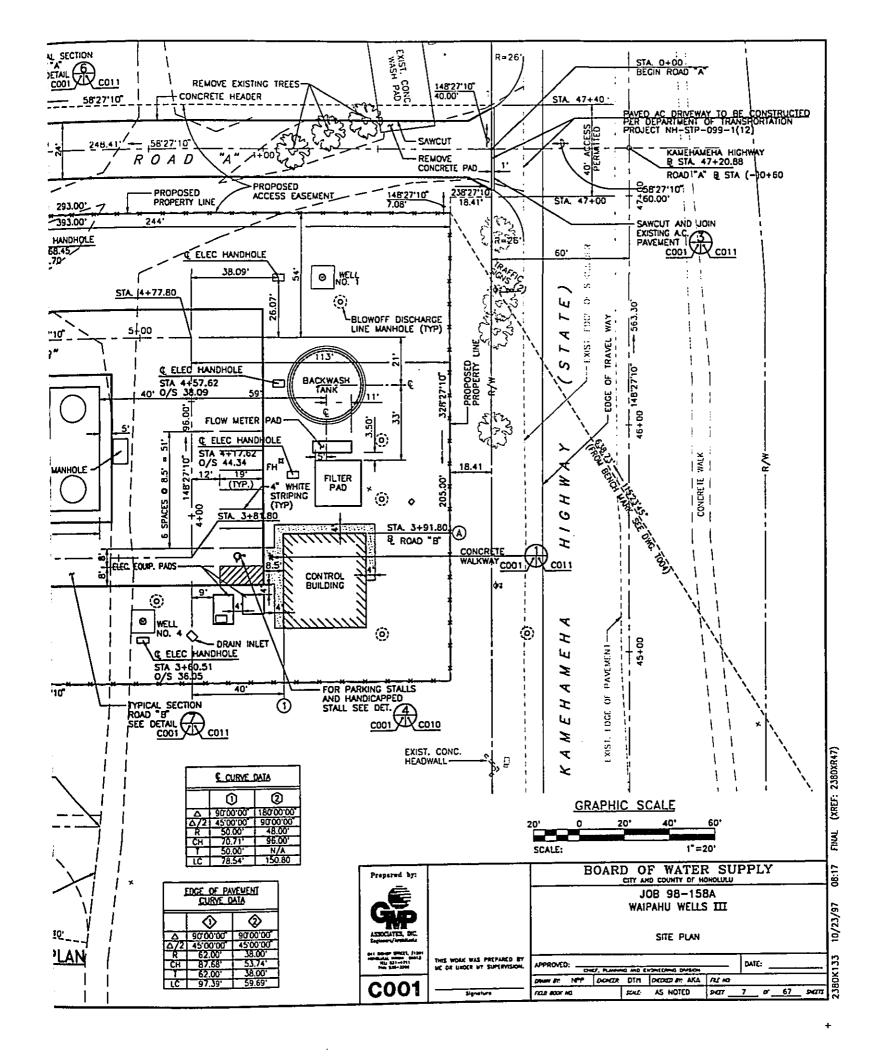
40. THE CONTRACTOR/DEVELOPER SHALL OBTAIN A NPDES PERMIT PRIOR TO CHLORINATION AND/OR DEWATERING, A COPY OF THE PERMIT SHALL BE SUBMITTED TO THE BOARD OF WATER SUPPLY, PLANNING AND ENGINEERING DIMISION, CONSTRUCTION SECTION.

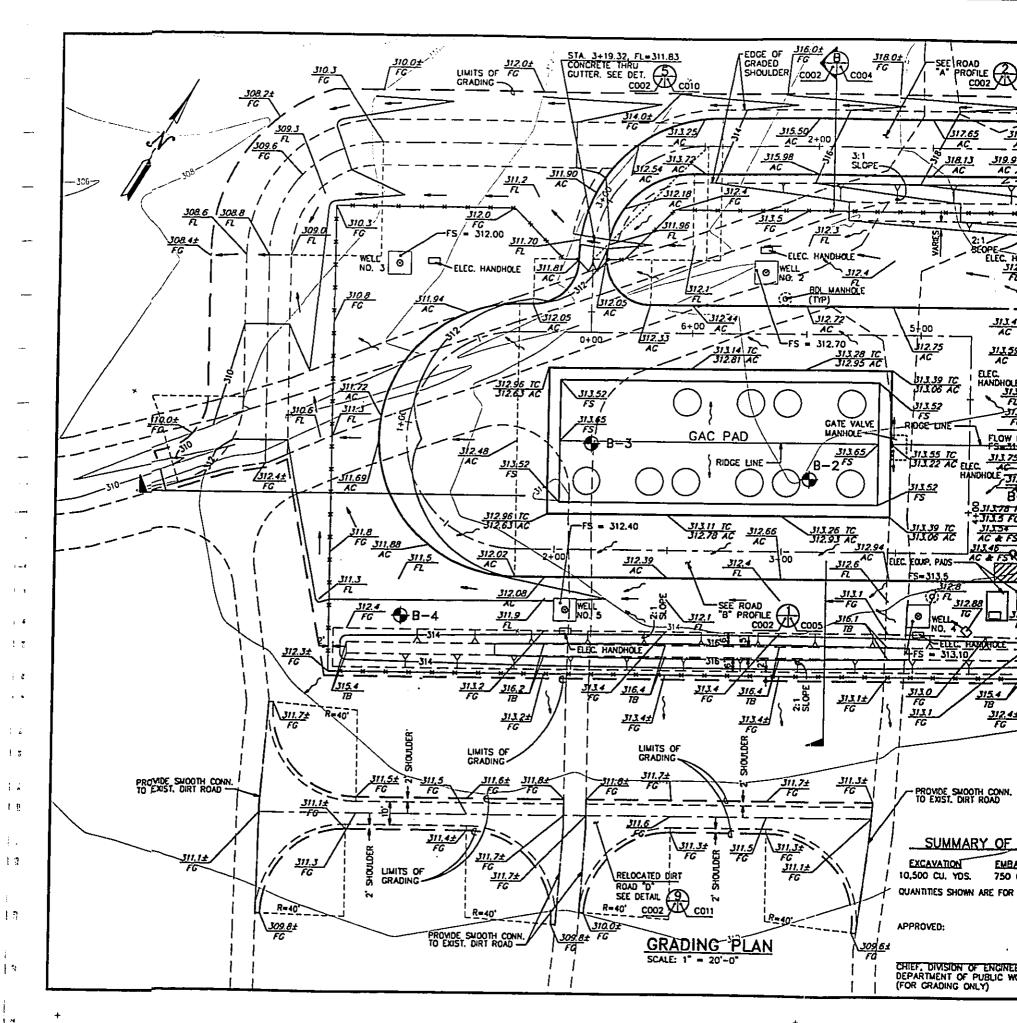
BOARD OF WATER SUPPLY CITY AND COUNTY OF HONOLULL JOB 98-158A WAIPAHU WELLS III WATER NOTES APPROVED: TAL LIN-SHOP DUIN BY HOE DIONER EMS DECORD BY TAC FRE MO T003 FIGUR BOOK NO SCALE: AS NOTED SALE!

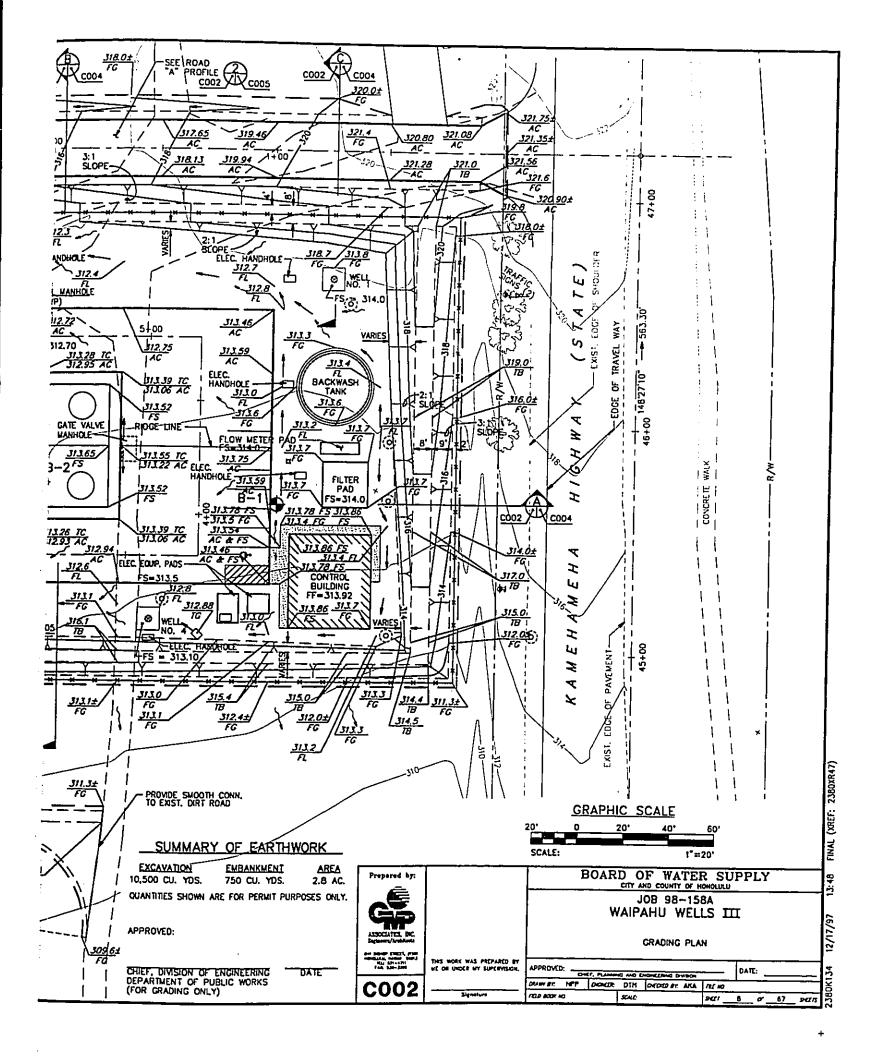


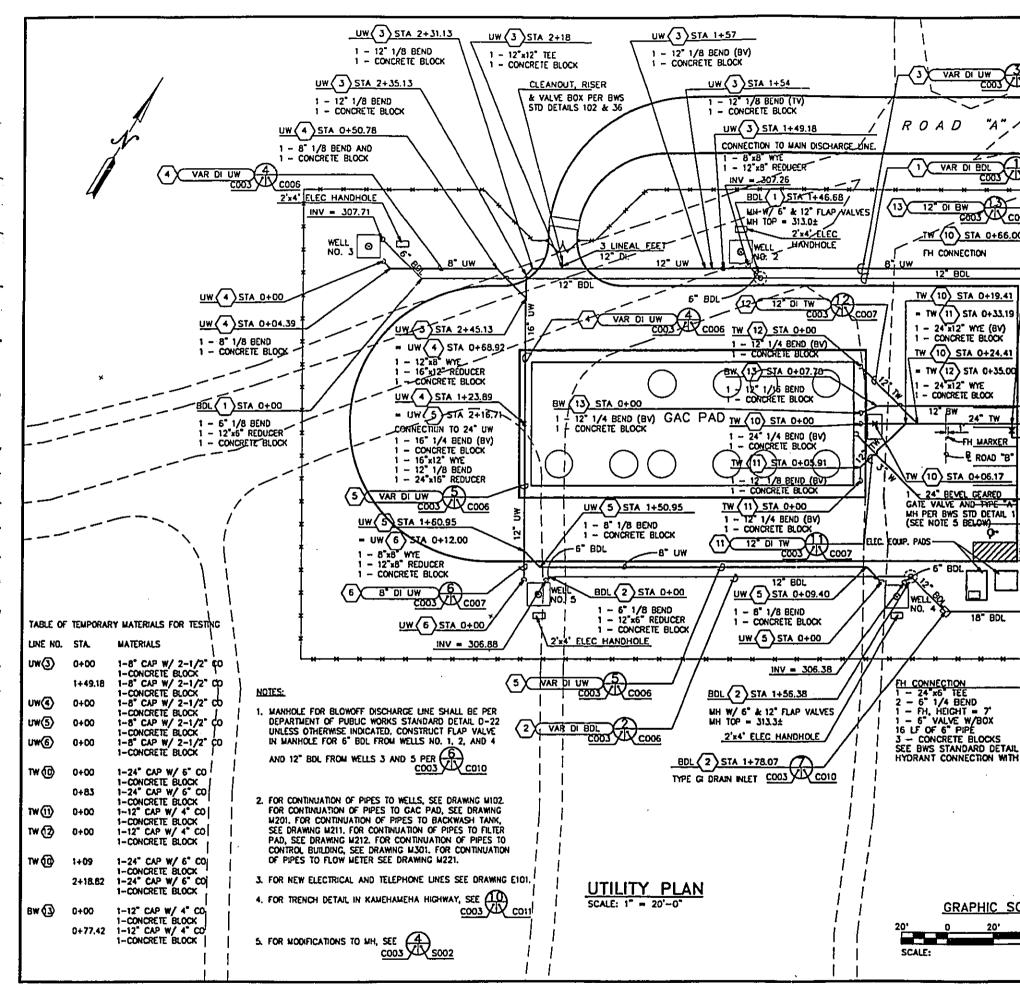


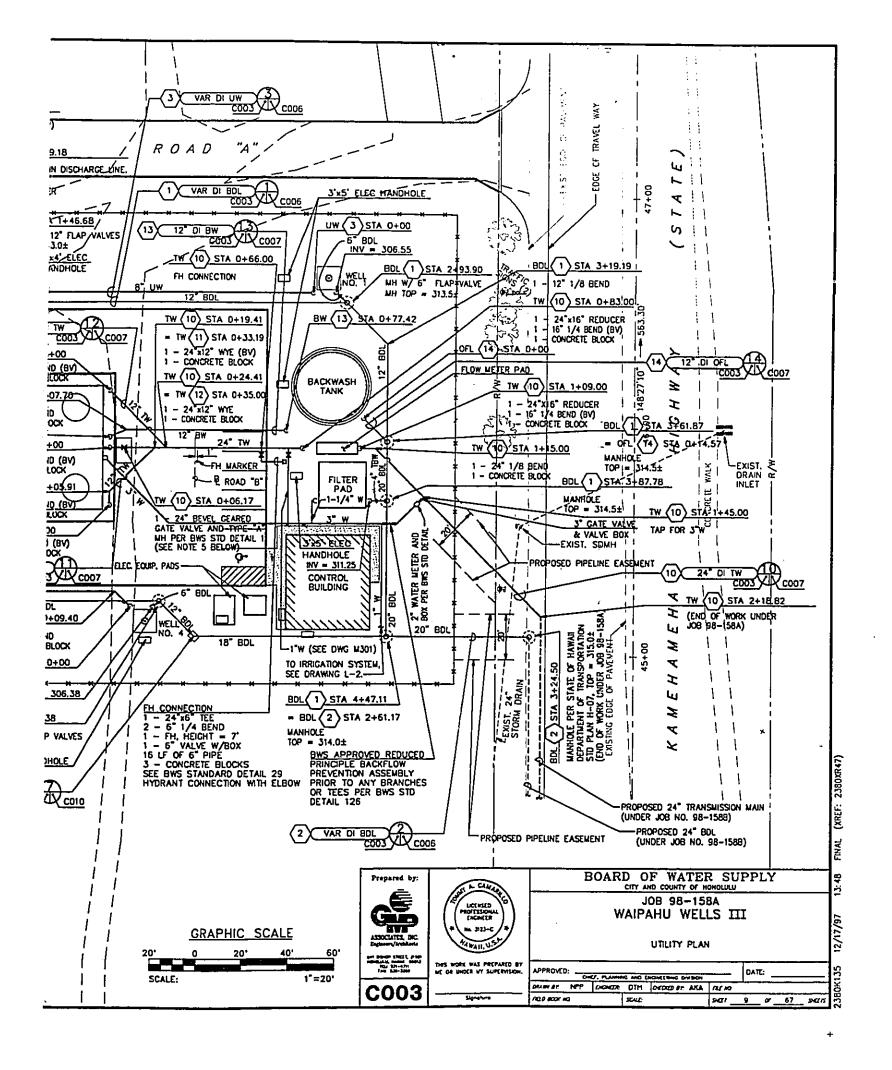


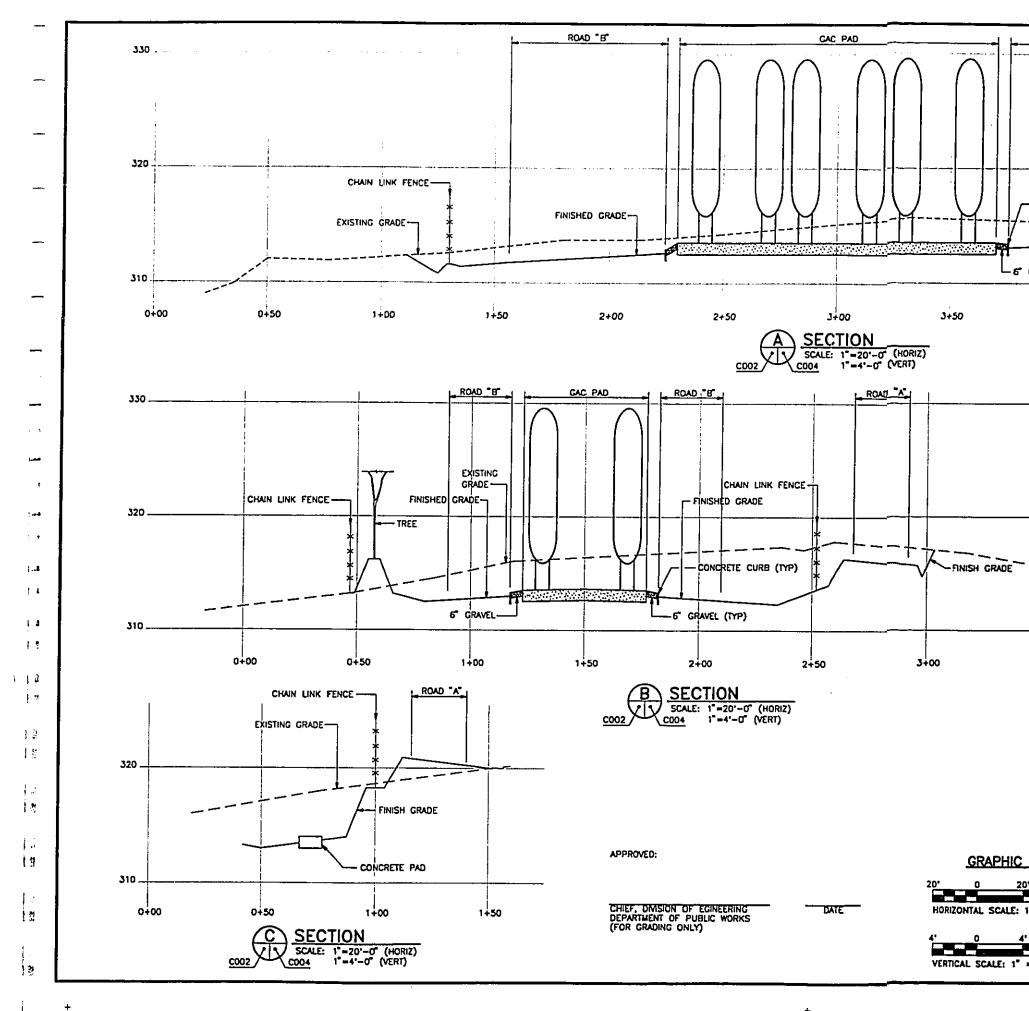


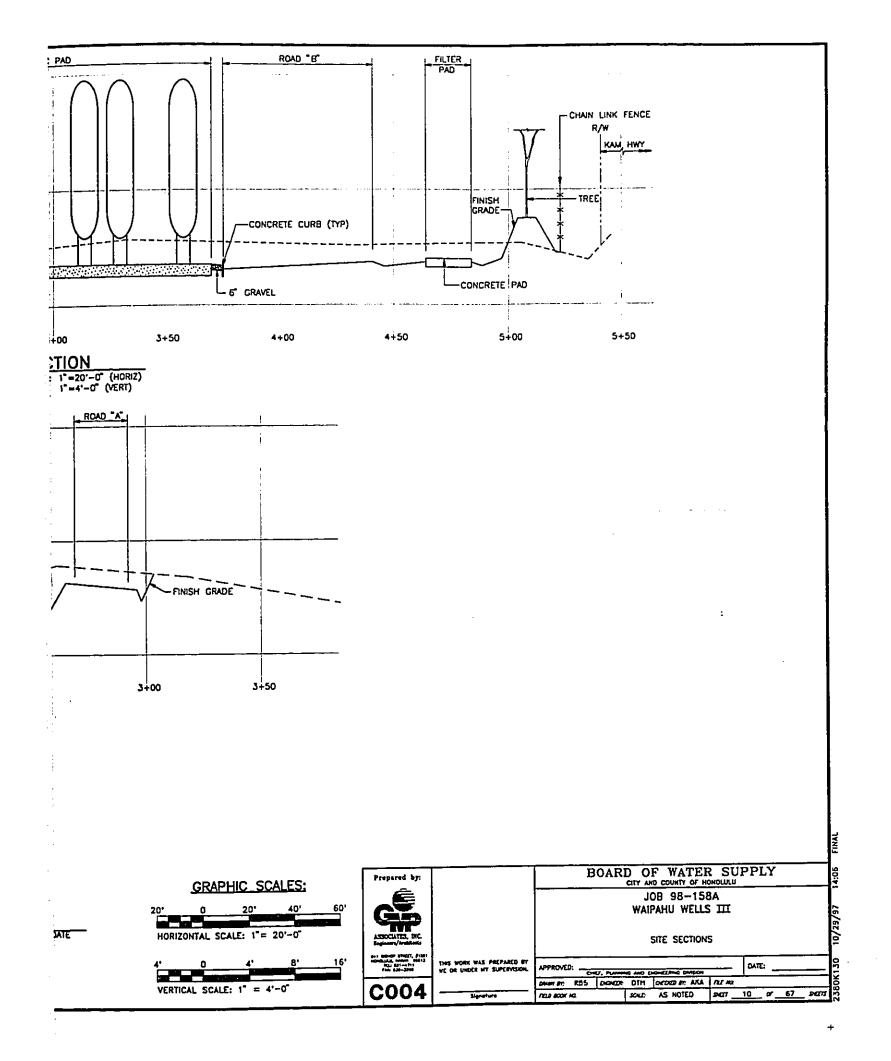








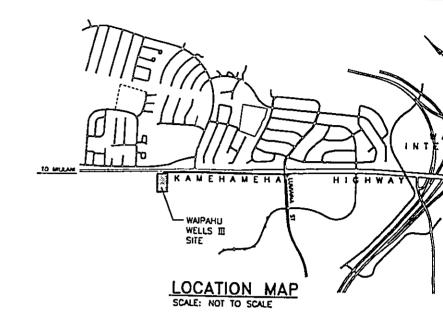


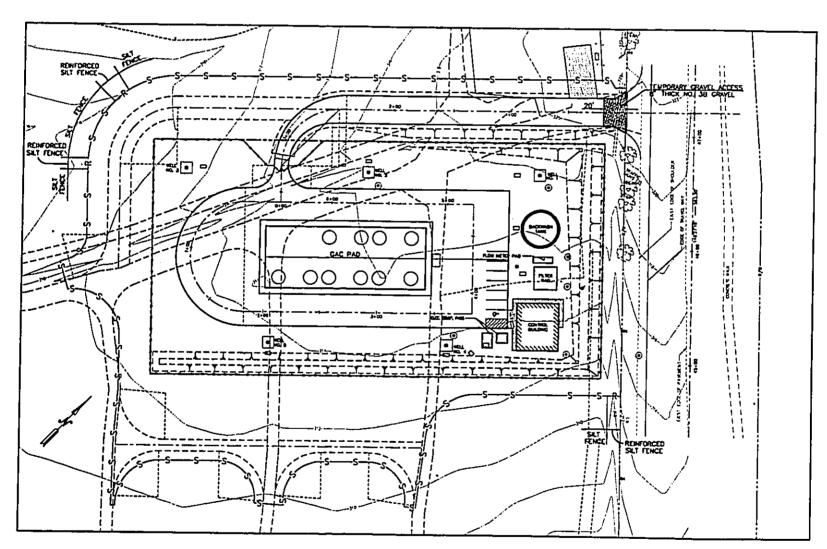


BEST MANAGEMENT PRACTICES NOTES:

EROSION CONTROL PLAN
SCALE: 1" = 40'-0"

- 1. SILT FENCES SHALL BE CONSTRUCTED PRIOR TO COMMENCEMENT OF CLEARING AND GRUBBING AND ON THE DOWNHILL SIDE OF ALL SLOPES BEING GRADED.
- 2. SILT FENCES SHALL BE IMMEDIATELY REPAIRED WHEN DAMAGED DURING CLEARING AND GRUBBING OR GRADING OPERATIONS.
- ALL UNPAYED SITE INGRESS AND EGRESS SHALL BE GRAVELED AND THE CONTRACTOR SHALL INSURE THAT ALL VEHICLES LEAVING THE CONSTRUCTION SITE WILL BE FREE OF MUD.
- 4. GRASSING SHALL BE BERMUDA GRASS ON 4" OF TOPSOIL.
- CONTRACTOR SHALL REMOVE AND DISPOSE OF OFF SITE THE SILT FENCES WHEN THE PROJECT IS COMPLETED AND THE GRASS IS ESTABLISHED.





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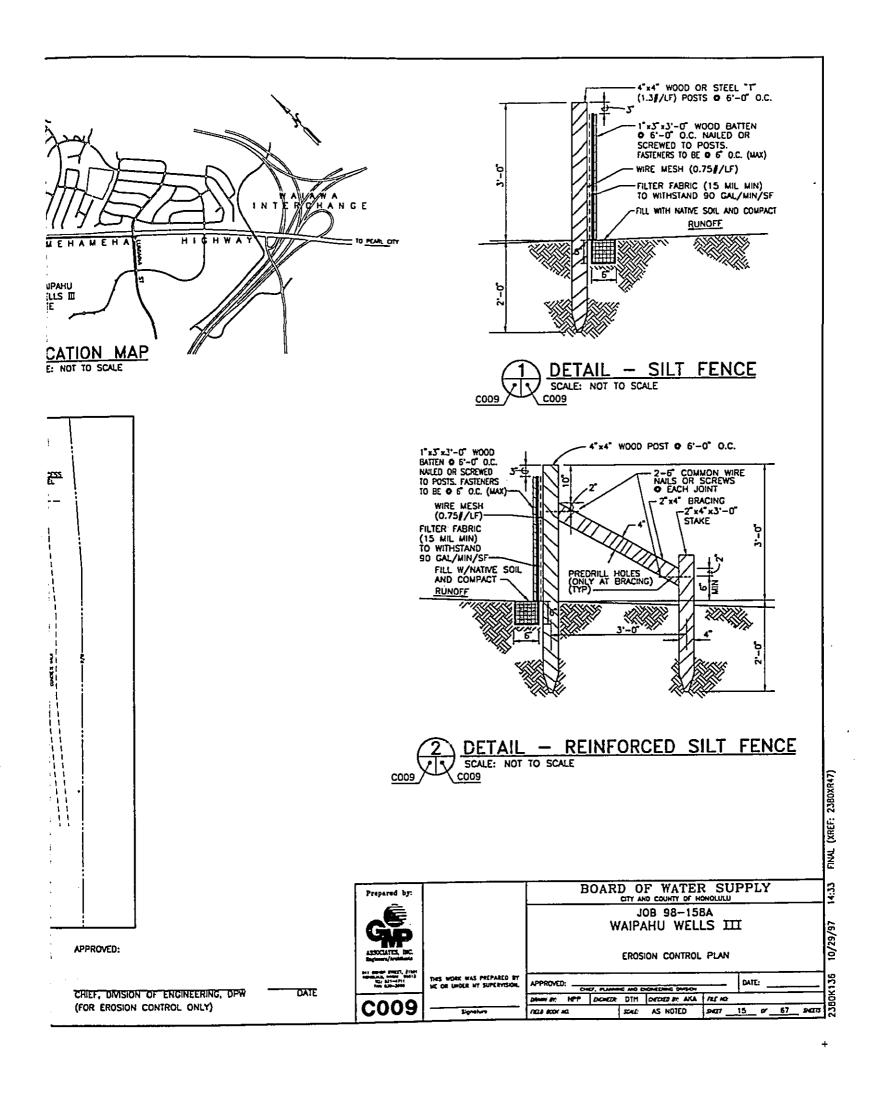
S--- SILT FENCE

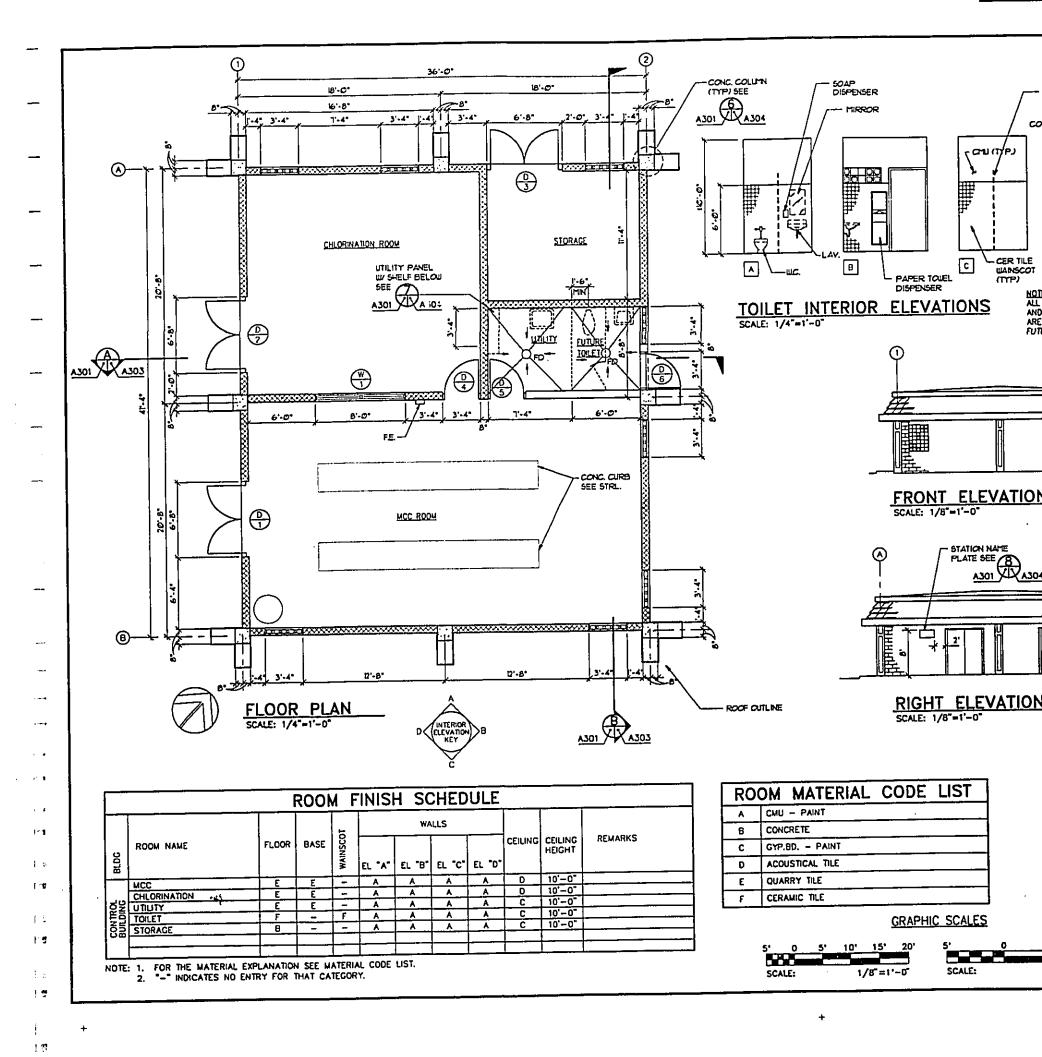
REINFORCED SILT FENCE
TEMPORARY GRAVEL ACCESS

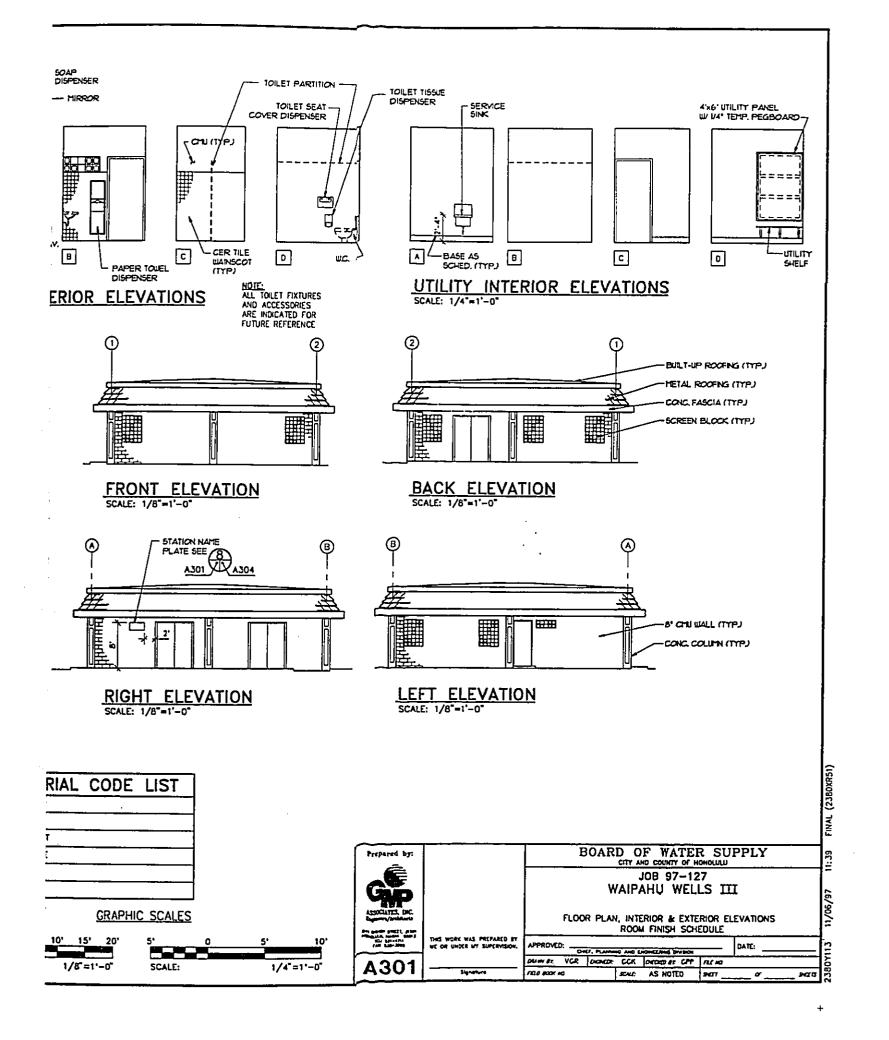
GRAPHIC

40' 0 40' 80' SCALE: 1" = 40'-0" APPROVED:

CHIEF, DIVISION OF ENGINEERING, DPW







1 APPENDIX H PARTIAL CONSTRUCTION PLANS "PART B" ţ....**\$** 1 1 1.8 1 5 Įŝ , i s 1 3 13 id 13 3 13

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JOB NO. 98 - 158B

24 INCH AND 16 INCH TRANSM ALONG KAMEHAMEHA HIGHWAY ANI

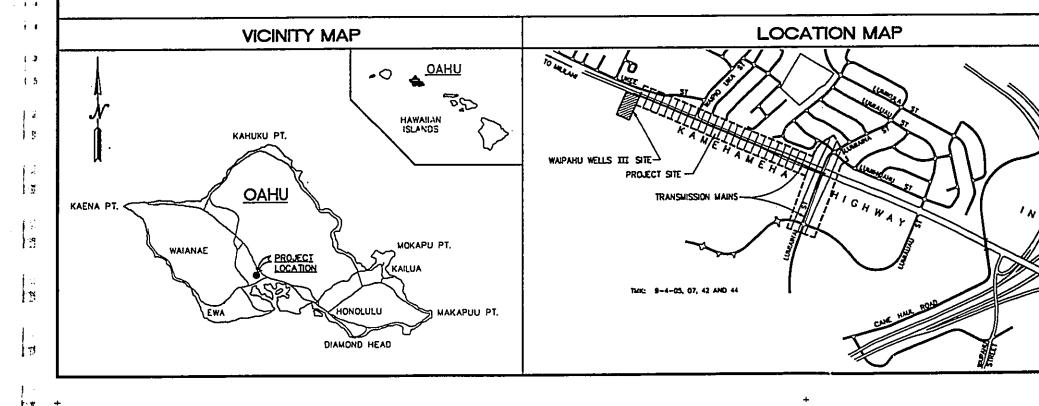
BOARD OF WATER SUPF CITY AND COUNTY OF HON-HONOLULU, HAWAII

TMK; 9-4-05,07,42 AND 44

PREPARED BY:

GMP ASSOCIATES, INC.

ENGINEERS/ARCHITECTS
HONOLULU, HAWAII
PHONE: 521-4711



TRANSMISSION MAINS HWAY AND LUMIAINA STREET

VATER SUPPLY TY OF HONOLULU LU, HAWAII 5,07,42 AND 44

RED BY:

CIATES, INC.

3/ARCHITECTS LU, HAWAII 521-4711

ON MAP	APPROVED	
The state of the s	MANACER AND CHIEF OF ENGINEERING BOARD OF WATER SUPPLY	DATE
	ADMINISTRATOR, HIGHWAYS DIVISION STATE DEPARTMENT OF TRANSPORTATION (APPROVAL GRANTED FOR WORK WITHIN STATE RICHT-OF-WAY ONLY, ID NO. LETTER OF APPROVAL NO. HWY-CM DATED	DATE
NICHWAY E ACATA	DIRECTOR, DEPARTMENT OF TRANSPORTATION SERVICES CITY AND COUNTY OF HONOLULU (FOR CONSTRUCTION WITHIN CITY R/W ONLY)	DATE
3	DRECTOR, DEPARTMENT OF WASTEWATER MANAGEMENT CITY AND COUNTY OF HONOLULU (FOR SEWER WORK WITHIN PUBLIC R/W AND EASEMENT ONLY)	DATE
TO ACUR O	DRECTOR AND CHEF ENGINEER DEPARTMENT OF PUBLIC WORKS CITY AND COUNTY OF HONOLULU	DATE

INDEX OF DRAWINGS		
SHEET NO.	DRAWNG NO.	TITLE
1	T-1	TITLE SHEET, VICINITY MAP AND LOCATION MAP
2	7-2	INDEX OF DRAWINGS AND ABBREVIATIONS
3	T-3	WATER NOTES
4	T-4	UTILITY NOTES
5	T-5	LOCATION PLAN AND LECEND
6	T-6	TYPICAL UTILITY DETAILS
7	C-1	TYPICAL WATER SECTIONS - 1
8	C-2	TYPICAL WATER SECTIONS - 2
9	C-3	PLAN AND PROFILE - 24" W.L. STA. 0+00 TO 7+00
10	C-4	PLAN AND PROFILE - 24" W.L. STA. 7+00 TO 15+00
11	C-5	PLAN AND PROFILE - 24" W.L. STA. 15+00 TO 24+16.32
12	Ç-6	PLAN AND PROFILE - 16" W.L. STA. 0+00 TO 10+59.08
13	C-7	CONNECTION DETAILS
14	C-8	TRAFFIC CONTROL PLAN AND NOTES
15	C-9	TRAFFIC CONTROL PLAN - 2
16	C-10	TRAFFIC CONTROL PLAN - 3
17	C-11	TRAFFIC CONTROL PLAN - 4
18	C-12	TRAFFIC CONTROL PLAN - 5
19	C-13	TRAFFIC CONTROL PLAN - 6
20	C-14	TRAFFIC CONTROL PLAN - 7
21	C-15	DETOUR PLAN
22	€-1	TRAFFIC SIGNAL PLAN AT LUMIAINA STREET AND KAMEHAMEHA HIGHWAY
23	Ε-2	TRAFFIC SIGNAL PLAN AT WAIPIO UKA STREET AND KAMEHAMEHA HIGHWAY
24	E-3	TRAFFIC SIGNAL PLAN AT LUMIANA STREET AND LUMIAUAU STREET
25	E-4	LOOP DETECTOR DETAILS - 1
26	E-5	LOOP DETECTOR DETAILS - 2
27	E-6	LOOP DETECTOR DETAILS - 3

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& ABAND. A. C.	AND ABANDONED ASPHALTIC CONCRETE
APPROX.	APPROXIMATE AIR RELIEF VALVE
ARV. ATB	ASPHALT TREATED BASE
В	_
BOL	BLOWOFF DRAINLINE BEVEL CEARED GATE VALVE
BCCV BC	BASELINE
BLK BLK	BLOCK BOTTOM VERTICAL
BWS	BOARD OF WATER SUPPLY
С	
C. B.	CATCH BASIN CENTERLINE
CL CONC.	CONCRETE
CCP	CONCRETE CYLINDER PIPE
D	
D. L.	DUCTILE IRON
D, DL	DRAINLINE DEPARTMENT
DEPT. DMH	DRAIN MANHOLE DEPARTMENT OF PUBLIC WORKS
DPW DWG.	DRAWING
E	
E, ELEC.	ELECTRICAL ELEVATION
EL., ELEV. E, EXIST., E/	EXISTING
F	
FLG.	FLANCE
G	
G	GASLINE
H HORIZ.	HORIZONTAL
HWY.	HIGHWAY
•	
, l. D.	IDENTIFICATION
INTERS.	INTERSECTION
L	
L, L7.	LEFT
ர .	LINEAR FEET
M	
MAX.	MAXIMUM MINIMUM
MIN. MPH	MILES PER HOUR
MON.	MONUMENT

N #, no.	NUMBER
O o. c. o. d. o/s	ON CENTER OUTSIDE D OFFSET
PAVT. P. E. PH. PT. P. P. PSI PVC	PAVEMENT PUSH END PHASE POINT POWER PO' POUND PEI POLYVINYL
R R, RT R/W RD. REINF.	RIGHT RIGHT-OF- ROAD REINFORCE
S SC SL SLB SMH ST. STA. STD.	SEWER SIGNAL C STREET L STREET L SEWER M STREET STATION STANDAR
T TMK TS TSB TV. TW TYP.	TAX MAP TRAFFIC TRAFFIC TOP VER TREATED TYPICAL
V VERT. VIF VLT. VOL.	VERTICAL VERIFY I VAULT VOLUME
W W/ W. L. W WMH WWM	WITH WATERL WATER WASTER

APPROVED:

CHEF, DIVISION OF PLANNING AND SERVICE CON (FOR SEWER WORK WITHIN PUBLIC R/W AND E

CHEF, DIVISION OF ENGINEERING, DPW (FOR CONSTRUCTION WITHIN CITY R/W ONLY)

Ν ₫, NO. NUMBER 0 O. C. O. D. ON CENTER OUTSIDE DIAMETER 0/5 OFFSET Ρ PAVEMENT PUSH END PHASE POINT PAVT. P. E. PH. PT. P. P. POWER POLE POUND PER INCH SQUARED POLYMNYL CHLORIDE PSI PVC R R, RT R/W RIGHT RIGHT-OF-WAY RD. CAOS REINF. REINFORCED S SEWER
SIGNAL CABLE
STREET LIGHT
STREET LIGHT BOX
SEWER MANHOLE
STREET
STATION
STANDARD S SC SL SLB SMH ST. STA. STD. T TMK TAX MAP KEY TRAFFIC SIGNAL TRAFFIC SIGNAL BOX TS TSB TOP VERTICAL TV. TREATED WATER TW TYP. ٧ VERT. VERTICAL VERIFY IN FIELD ٧F VLT. VAULT VOL. VOLUME W W/ W. L. W WITH. WATERLINE WMH WATER MANHOLE WASTEWATER MANAGEMENT BOARD OF WATER SUPPLY JOB 98-1588 APPROVED: 24 INCH AND 16 INCH TRANSMISSION MAINS ALONG KAMEHAMEHA HIGHWAY AND LUMIAINA STREET CHEF, DIVISION OF PLANNING AND SERVICE CONTROL, WIMI (FOR SEWER WORK WITHIN PUBLIC R/W AND EASEMENT ONLY) DATE INDEX OF DRAWINGS AND ABBREVIATIONS APPROVED: _ TAG OCCUED SE TAG FLE MO SOULE AS NOTED SHITT (FOR CONSTRUCTION WITHIN CITY R/W ONLY) T-2 DAD DICHOR 200 EDM NOS BOOK HO

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WATER NOTES:

- UNLESS OTHERWISE SPECIFIED, ALL MATERIALS AND CONSTRUCTION OF WATER SYSTEM FACULTIES AND APPURTENANCES SHALL BE IN ACCORDANCE WITH THE CITY AND COUNTY OF HONOLULU, BOARD OF WATER SUPPLY'S "WATER SYSTEM STANDARDS", VOLUME 1, DATED 1985, THE "APPROVED MATERIAL LIST AND STANDARD DETAILS FOR WATER SYSTEM CONSTRUCTION", VOLUME 2, DATED 1985, AND THE "WATER SYSTEM EXPENAL CORROSION CONTROL STANDARDS", VOLUME 3, DATED 1991, AND ALL SUBSEQUENT AMENDMENTS AND ADDITIONS.
- THE CONTRACTOR SHALL NOTIFY THE BOARD OF WATER SUPPLY IN WRITING ONE WEEK PRIOR TO COMMENCING WORK ON THE WATER
- PAYMENT FOR ITEMS OF WORK CALLED FOR IN THE PLANS, SPECIAL PROMSIONS AND SPECIFICATIONS FOR WHICH PAYMENT IS NOT SPECIFIED SHALL NOT BE MADE DIRECTLY BUT SHALL BE INCLUDED IN THE VARIOUS ITEMS IN THE PROPOSAL AND NO ADDITIONAL COMPENSATION SHALL BE MADE.
- THE CONTRACTOR IS ALERTED TO THE ENCOUNTERING OF OBSTACLES WHETHER SHOWN ON THE PL NS OR NOT, OR WHICH MAY DIFFER IN LOCATION FROM THAT SHOWN ON THE PLANS WHICH MAY INTERFERE WITH HIS NORMAL METHOD OF OFERATIONS. THE CONTRACTOR SHALL TAKE INTO ACCOUNT ANY ADDITIONAL COSTS ANTICIPATED DUE TO THESE CONDITIONS AND SHALL HAVE THESE COSTS INCLUDED IN THE BID ITEMS WHICH HE/SHE FEELS WOST APPROPRIATE. NO SEPARATE ADDITIONAL COMPENSATION SHALL BE MADE.
- THE CONTRACTOR SHALL BE SOLELY RESPONSIBLE FOR ALL ASSUMPTIONS, DEDUCTIONS, OR CONCLUSIONS HE/SHE MAY MAKE OR DERIVE FROM THE SUBSURFACE INFORMATION OR DATA FURNISHED ON THE PLANS. THE CONTRACTOR MUST SATISFY HIMSELF/MERSELF THROUGH HIS/HER OWN INVESTIGATIONS AS TO WHAT SUBSURFACE CONDITIONS ARE TO BE ENCOUNTERED.
- PRIOR TO START OF EXCAVATION, THE CONTRACTOR SHALL NOTIFY ALL AGENCIES AND UTILITIES AND HAVE THEM LOCATE THEIR RESPECTIVE LINES AFFECTED. THE CONTRACTOR SHALL BE HELD RESPONSIBLE FOR ALL OF HIS/HER CONSTRUCTION AND SHALL PAY FOR ALL DAMAGES TO AND FOR THE PROTECTION OF EXISTING UTILITIES AND STRUCTURES.
- THE CONTRACTOR SHALL EXPOSE, VERIFY AND BACKFILL ALL EXISTING UNDERGROUND UTILITIES AND STRUCTURES AT CROSSINGS PRIOR TO EXCAVATION OF PIPELINE TRENCH. THE WATER MAIN ALIGNMENT AND GRADE MAY BE CHANGED IF THERE ARE CONFLICTS WITH ANY EXISTING UNDERGROUND UTILITIES AND STRUCTURES, WHETHER SHOWN ON THE PLANS OR NOT. PATMENT FOR WORK INCLUDED IN THIS PARAGRAPH WILL BE MADE UNDER THE APPROPRIATE BID ITEMS UNDER THE PROPOSAL, AND NO ADDITIONAL COMPENSATION WILL BE CONSIDERED.
- EXISTING UTILITIES CROSSING THE WATER MAIN ARE TO REMAIN IN SERVICE AND IN PLACE. IF RELOCATED FOR THE CONTRACTOR'S CONVENIENCE, INTERRUPTION OF SERVICE SHALL BE FOR A MINIMUM PERIOD OF TIME AND SHALL BE DONE AT THE CONTRACTOR'S EXPENSE AND ONLY WITH THE APPROVAL OF THE BOARD OF WATER SUPPLY.
- ANY COST INCURRED BY CASCO, HECO, OR HTCO BY THIS PROJECT SHALL BE PAID BY THE BOARD OF WATER SUPPLY THROUGH THE CONTRACTOR. PAYMENT SHALL BE ONLY FOR THE ACTUAL COST AS SHOWN ON THE UTILITY COMPANY'S INVOICE. NO PAYMENT WILL BE MADE FOR PROFIT, TAX, OVERHEAD, AND BOND COST.
- IF THE CONTRACTOR ELECTS NOT TO EXPOSE AND VERIFY ALL IF THE CONTRACTOR ELECTS NOT TO EXPOSE AND VERIFY ALL EXISTING UNDERCROUND UTILITIES AND STRUCTURES AT CROSSINGS PRIOR TO PIPELINE EXCAVATION, HE FORFEITS HIS RIGHTS FOR ANY CLAIMS FOR COMPENSATION CAUSED BY ANY CONFLICTS WITH EXISTING UTILITIES AND STRUCTURES.
- ALL A.C. AND CONCRETE PAVEMENT TO BE TRENCHED (FOR PIPELINE OR ANY WATER SYSTEM INSTALLATION) SHALL BE "SAW-CUT" TO THE REQUIRED WIDTH PRIOR TO REPAYING.
- 12. PAYMENT FOR RESTORATION OF DRIVEWAYS, CURBS AND GUTTERS WILL NOT BE MADE DIRECTLY BUT SHALL BE INCLUDED IN THE UNIT PRICES BID IN THE VARIOUS ITEMS OF THE BID.
- RESTORATION OF PAVEMENT SHALL BE IN ACCORDANCE WITH THE DETAILS SHOWN ON THE PLANS AND DONE WITH EQUIVALENT TO OR BETTER QUALITY MATERIALS.
- UNLESS OTHERWISE SPECIFIED, CONNECTIONS TO EXISTING WATER MAINS AND CHLORINATION OF NEW MAINS SHALL BE DONE BY THE CONTRACTOR, WITH THE BOARD OF WATER SUPPLY'S INSPECTOR COORDINATING THE WORK. FOR DETAILS, CONTACT THE BWS PLANNING AND ENGINEERING DIMISION, ENGINEERING BRANCH, CONSTRUCTION SECTION.
- WHEREVER CONNECTIONS TO EXISTING MAINS ARE SHOWN ON THE PLANS, THE CONTRACTOR SHALL EXPOSE THE EXISTING MAINS PRIOR TO EXCAVATION OF MAIN TRENCH. THE REMAINING EXCAVATION FOR THE CONNECTION SHALL BE EXCAVATED WHEN THE CONTRACTOR IS READY TO MAKE THE CONNECTION.

- THE BRIDGE DECKE FOR TEUPORARY BRIDGE INSTALLATIONS SHALL BE-ELEVATED BRIDGE DECKS WILL BE ALLOWED.
- ALL WATER MAIN TRENCHES SHALL BE BACKFILLED AS CALLED FOR UNDER PART II, SECTION 1.2.2, TRENCH BACKFILL, OF THE "WATER SYSTEM STANDARDS", DATED 1985. COMPACTION OF TRENCH BACKFILL SHALL MEET APPLICABLE REQUIREMENTS OF "THE STANDARD SPECIFICATIONS FOR PUBLIC WORKS CONSTRUCTION", SEPTEMBER 1986, OF THE COUNTIES OF THE STATE OF HAWAII.
- THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE PROPER DISPOSAL OF CHLORINATED WATER TO SAFEGUARD PUBLIC HEALTH AND ENVIRONMENT IN ACCORDANCE WITH APPLICABLE DEPARTMENT OF HEALTH REQUIREMENTS.
- SHOULD MAJOR TREE ROOTS 2" AND GREATER BE ENCOUNTERED DURING CONSTRUCTION, THESE ROOTS SHALL BE CUT AND SEALED WITH ASPHALTIC PAINT.
- DURING NON-WORKING HOURS, THE TRENCHES ON CITY STREETS SHALL BE COVERED WITH NON-SKID STEEL PLATES AND ALL LANES MAINTAINED OPEN FOR TRAFFIC.
- UNLESS OTHERMSE SPECIFIED, ALL ABANDONED LINES SHALL BE CUT AND PLUGGED WITH CLASS DWS 2000 CONCRETE. PAYMENT FOR CUTTING AND PLUGGING WILL NOT BE MADE DIRECTLY BUT WILL BE INCIDENTAL TO THE VARIOUS ITEMS OF THE PROPOSAL. THE CONTRACTOR SHALL VERIFY THE SIZE AND TYPE OF LINE TO BE BUILDED. PLUGGED.
- ALL SALVAGE MATERIALS SHALL BE CLEANED, REPAINTED AND DELIVERED TO THE KALIHI BWS CORPORATION YARD.
- ALL WATER MAINS AND APPURTENANCES INCLUDING SERVICE LATERALS AND SERVICE CONNECTIONS SHALL BE SUBJECTED TO A HYDROSTATIC TEST PRESSURE OF 150 PSI BY THE CONTRACTOR IN THE PRESENCE OF THE BOARD OF WATER SUPPLY INSPECTOR.
- ALL LATERALS (1º TO 2-1/2º) SHALL BE REPLACED OR RECONNECTED WITH EITHER COPPER OR PLACED TUBING.
- THE CONTRACTOR SHALL FURNISH AND INSTALL DISLECTRIC
 -GOUPLINGS FOR ALL SERVICE LATERAL GONIFICATIONS PAYMENTS FOR
 -DISLECTRING COUPLINGS WILL NOT BE MADE DIRECTLY, DUT SHALL DE
 -CONSIDERED INCIDENTAL TO THE WARIOUS HEWS IN THE PROPOSAL.
- PAYMENT FOR SERVICE LATERALS AND SERVICE CONNECTIONS SHALL DE WASE AT THE UNIT PRICE DID IN THE PROPOSAL. PAYMENT SHALL INCLUDE TAPS INTO MAINS, RECONNECTIONS TO EXISTING CHALL-INCLUDE TATE THIS MANNET RECONSTRUCTION CASTALLING PIPE
 CERNOES, TRANSFERRAL OF METERS, AND INSTALLING PIPE
 LATERALS, FITTINGS, BALL GORPS, BALL GTOPS, GLOBE VALVES,
 METER SPLICES, BRASS PIPES, GAPS AND ALL APPURTENANCES, ASREQUIRED, IN PLACE COMPLETE. PAYMENT FOR METER BOXES;
 HIGUSIVE OF G.I. FRAMES AND GOVERS AND TYPE. "A" VALVESBOXES SHALL BE MADE AT THE RESPECTIVE WHIT PRICE BID IN THE
- DEMOLISH-AND-BACKFILL-ALL-ABANDONED-MANHOLES, VALVE-BOXES-AND-METER-DOKES. SALYAGE ALL-GAST-IRON-FRAMES AND-GOVERS.
- AFTER INSTALLATION OF TAPPING SLEEVE AND TAPPING VALVE AND PRIOR TO TAPPING THE EXISTING WATER MAIN, THE ASSEMBLY SHALL BE PRESSURE TESTED AT 150 PSI ON BOTH SIDES OF THE VALVE AND IN ACCORDANCE WITH THE WATER SYSTEM STANDARDS, DATED 1985.
- THE NEW WATER MAIN-SHALL-DE COMPLETED IN PHASES AS SHOWN THE NEW WATER MAIN STALL BE GOUPLETED IN THREES AS SHOWN ON THE PLANS. THE CONTRACTOR DIALL-COMPLETE EACH PHASE INCLUDING WISTALLANDN AND TESTING OF THE WATER MAIN, TRANSFER OF SERVICES AND FINAL PARMIS OF THE STREET PRIOR TO DECIMING THE NEXT PHASE, HOWEVER, THE CONTRACTOR MAY COMMENCE WORK ON THE PIEXE UPON SATISFACTORY PROGRESSOR ALL REMAINING WORK ON THE PREVIOUS PHASE.

 AS APPROVED IN WRITING BY BWS.
- THE CONTRACTOR SHALL INSTALL THE FIRE HYDRANT
 -REFLECTIVE WARKERS. THE CONTRACTOR-SHALL NOTICY
 -THE-NEARCEST FIRE-DEPARTMENT BATTALION -GHEF FOR
 -THE-MESTALLATION -OR RELOCATION OF FIRE-HYDRANT
 -REFLECTIVE WARKERS. PAYMENT FOR INSTALLATION OF
 -OF-REFLECTIVE HYDRANT-MARKERS SHALL BE MADE AT-THE RESPECTIVE UNIT PRICE IN THE DID.
- 31. MECHANICAL JOINT CLANDS SHALL BE "STRAIGHT-SIDED" AND POLYCON IN SHAPE AS DESCRIBED IN AWAR C111 AND SHALL BE APPLICABLE TO BOTH CAST IRON AND DUCTILE IRON CLANDS OR AN APPROVED EQUAL ON A JOB TO JOB BASIS.
- 32. ALL AIR RELIEF VALVES SHALL HAVE A MINIMUM WORKING PRESSURE RANGE OF 0 TO 150 PSI.

- 33. ALL PVC FITTINGS SHALL CONFORM TO ASSOCIATION (AWWA) C-907. THE US SCREWS ON PVC FITTINGS IS NOT APPL SCHEWS ON PICE PHILINGS IS NOT APPI FITTING INSTALLATION, THE CONTRACTO APPROVAL BY THE BOARD OF WATER: CERTIFICATION THAT ALL PVC FITTINGS TO AWWA C-907.
- 34. PIPE CUSHION SHALL BE OF HIGH RESI
 CONTRACTOR SHALL SUBMIT A SOL CE
 RESISTANT CUSHION MATERIAL HAS A
 5,000 OHM-CM. REMAINDER OF THE E
 AS SPECIFIED IN VOLUME 1 OF THE WA
 CUSHION AND BACKFILL MATERIAL SHA SUBSTANCES ABOVE REGULATORY ACTI LIMITED TO LEAD, ASBESTOS, MERCURY STRONTIUM, AND POLYCHLORINATED BIS
- ALL SECTIONS OF THE WATER MAIN RE JACKETING SHALL BE DUCTILE IRON PI
- ALL POLYMNYL CHLORIDE (PVC) PIPE I ACCOMPLISHED ONLY BY THE USE OF COUPLINGS. DEFLECTION AROUND CUR ONLY BY THE USE OF PVC DEFLECTION
- CLEANING SHALL BE BY THE USE OF "
 PIPELINE AND RUN COMPLETELY THRO
 AND ALL BRANCH LINES FOR FIRE HY
 SERVICE LATERALS IS NOT REQUIRED,
 USED TO SWAB PIPING CLEAN AS EACH
 INSTALLED. EACH "PIO" SHALL CONS
 OF POLYURETHANE FOAM WITH A DEN
 FOOT AND A VINYL-COATED NOSE. C
 SHALL BE EQUAL TO 1½ TO 1½ TIMES
 OF THE PIPE BEING INSTALLED. THE
 BE 1½ TO 2 TIMES ITS DIAMETER. F
 SHALL BE SUBMERGED IN A CHLORINE
 CHLORINE BLEACH IN 5 GALLONS OF
 PIPELINE SHALL BE CONSIDERED INCO
 OF THE NEW PIPELINE.
- 38. BALL CORPS AND BALL STOPS SHALL CORPORATION STOPS AND STOPCOCKS
- PIPE ALTERNATIVES:
 - ALTERNATIVES:DUBTILE INDI- PIPES SHALL DEMRI POLYETHYLENE:
 POLYANY GHLORIDE (PVG) PPI
 ALL VALVES, GAST INDI- PIPES ALL VALVES, GAST-INON PIPES BOULE WITAPPED WITH POLYTE POLYMINE CHLORIDE PIPES WITH STALLATION OF PVG-PIPE AG SPECIFICATIONS AS DIS ON BY ADDITIONAL DESIGN WORK, AND COUPLINGS, NOT EPEGIFIED IN SPECIFICATIONS. PAYMENT FOR ADDITIONAL PITTINGS AND SPECOMOBERITAL TO THE PROPOSAL-FOR PVG-PIPE. AND STALL BE THE RESPONSIBILITY TOWNS WITH PIPES AND STALL BE THE RESPONSIBILITY.

-PAYMENT FOR POLYCTHYLENE WRAP--UNIT-PRICE-DID-FOR DI-PYPE, VALVES

-DOUBLE POLYETHYLENE-WRAP-SHALL

-CLASS-150-OR-200-FOR-DIAME -CLASS-150-FOR-DIAMETERS-CR

- 34. PIPE CUSHION SHALL BE OF HIGH RESISTIVITY MATERIAL. THE CONTRACTOR SHALL SUBMIT A SOIL CERTIFICATION THAT HIGH RESISTANT CUSHION MATERIAL HAS A RESISTIVITY CREATER THAN 5,000 OHM-CM. REMAINDER OF THE BACKFILL MATERIAL SHALL BE AS SPECIFIED IN VOLUME 1 OF THE WATER SYSTEM STANDARDS. PIPE CUSHION AND BACKFILL MATERIAL SHALL CONTAIN NO HAZARDOUS SUBSTANCES ABOVE REGULATORY ACTION LEVELS INCLUDING BUT NOT LIMITED TO LEAD, ASBESTOS, MERCURY, CHROMIUM, CADMIUM, ZINC, STRONTIUM, AND POLYCHLORINATED BIPHENYLS (PCB).
- ALL SECTIONS OF THE WATER MAIN REQUIRING REINFORCED CONCRETE JACKETING SHALL BE DUCTILE IRON PIPE WITH DUCTILE IRON
- ALL POLYWNYL CHLORIDE (PVC) PIPE DEFLECTIONS SHALL BE ACCOMPLISHED ONLY BY THE USE OF SPECIAL PVC DEFLECTION COUPLINGS. DEFLECTION AROUND CURVES SHALL BE ACCOMPLISHED ONLY BY THE USE OF PVC DEFLECTION COUPLINGS.
- CLEANING SHALL BE BY THE USE OF "PIGS" INTRODUCED INTO THE PIPELINE AND RUN COMPLETELY THROUGH ALL INSTALLED PIPELINES AND ALL BRANCH LINES FOR FIRE HYDRANTS. "PIGCING" OF SERVICE LATERALS IS NOT REQUIRED. BARE FOAM "PIGS" SHALL BE USED TO SWAB PIPING CLEAN AS EACH LENGTH OF THE PIPELINE IS INSTALLED. EACH "PIG" SHALL CONSIST OF A CYLINDRICAL PIECE OF POLTURETHANE FOAM WITH A DENSITY OF 3-7 POUNDS PER CUBIC FOOT AND A VINYL-COATED NOSE. OUTSIDE DIAMETER OF THE "PIG" SHALL BE EQUAL TO 17 TO 17 TIMES THE INSIDE DIAMETER OF THE "PIG" SHALL BE EQUAL TO 18 TO 18 THE LENGTH OF THE "PIG" SHALL BE SUBMERGED IN A CHLORINE SOLUTION OF 1 0Z. OF 5% CHLORINE BLEACH IN 5 GALLONS OF WATER. "PIGGING" OF THE PIPEUNE SHALL BE CONSIDERED INCIDENTAL TO THE INSTALLATION OF THE NEW PIPEUNE.
- 38. BALL CORPS AND BALL STOPS SHALL BE INSTALLED IN UEU OF THE CORPORATION STOPS AND STOPCOCKS, RESPECTIVELY.

DUGTILE IRON PIPES SHALL OF CLASS-52, DOUBLE WRAPPED

WITH POLYETHILENC

-MITH POCTETTICE CONTINUED - (PVG) PIPES SHALL BE-GLASS 180.
-ALL -WAVES, CAST FROM PIPES AND FITTINGS SHALL BE-DOUBLE WHAPPED WITH POCYCTIMENC. - NO BENDING OF -POLYMMAL CHLORIDE PIPES WILL BE PERMITTED. - THE -INSTALLATION OF PVG PIPE ACCORDING TO THE PLANS AND "SPECIFICATIONS AS DID ON DY THE CONTRACTOR, MAY REQUIRE ADDITIONAL DESIGN WORK, ADDITIONAL FITTINGS AND SPECIAL -ADDITIONAL DESIGN - WORK, ADDITIONAL TITTINGS AND SPECIALCOUPLINGS, HOT-EPECIFIED IN THE PLANS AND
-EPECIFICATIONS. PAYMENT FOR ADDITIONAL DESIGN WORK;
-ADDITIONAL-TITTINGS AND EPECIAL COUPLINGS CHALL BE-CONSIDERED INCIDENTAL TO THE UNIT PRICE DID IN THE
-PROPOSAL-FOR PVG PIPC. ANY ADDITIONAL BESIGN WORK-EHALL BE THE RESPONSIBILITY OF THE CONTRACTOR. COPPER
-TOWNS WAR SHALL DE INSTALLED ALONG THE ENTIRE LENGTH-OF THE TRIPELINE.

-PAYMENT FOR POLYETHMENE WAAP SHALL BE INCIDENTAL-TO-THE--UMIT PRICE DID FOR DI PIPE, WALVES AND FITTINGS.

-DOUBLE POLYERIYENE-WAAP STALL NOT DE LESS-RIAN TO-WILS:

CLASS-+50-OR-200-FOR-DIAMETERS-+2*-AND-SMALLER CLASS-150 FOR DIAMETERS GREATER-THAN-12"

FOR EXTERNAL CORROSION CONTROL - WIEN-REQUIRED-

PIPE ALTERNATIVES:

- -DUGTILE IRON PIPES-SHALL-BE GLASS 52 .- ALL DUGTILE-IRON-PIPES, FITTINGS, AND VALVES SHALL HAVE DONDED COATING.
 WITH AN EXTERNAL CORROSION CONTROL SYSTEM APPLIED. POLYMINA GILLORIDE (PVG) PIPES USED TO ELECTRICALLY
 150LATE THE SYSTEM SHALL DE CLASS NO DENN
 OF PVG PIPES WILL BE PERWITTED. GOPPER TOWNS WIRE
 SHALL DE INSTALLED ALONG ALL PVC PORTIONS OF THE NO DENDINO
- POLYMNYL CHLORIDE (PVC) PIPES SHALL DE CLASS

 -ALL VALVES, CAST-IRON PIPES AND FITTINGS SHALL DE
 -DOUDLE MAPPED WITH POLYETHYLENE. NO DENDING OF
 -POLYMNYL CHLORIDE PIPES WILL BE PERMITTED. THE
 -HISTALLATION OF PVG PIPE ACCORDING TO THE PLAIS AND
 -EPECIFICATIONAL AS BID ON BY THE CONTRACTOR, MY PECCHINAL
 -EPECIFICATIONAL AS SID ON BY THE CONTRACTOR, MY PECCHINAL
 -EPECIFICATIONAL AS SID ON BY THE CONTRACTOR, MY PECCHINAL
 -EPECIFICATIONAL AS SID ON BY THE CONTRACTOR. ADDITIONAL OFSICH WORK, ADDITIONAL FITTINGS AND SPECIAL COUPLINGS, NOT SPECIFIED IN THE PLANS AND SPECIFICATIONS PAYMENT FOR ADDITIONAL DESIGN WORK,
 ADDITIONAL FITTINGS AND SPECIAL COUPLINGS SHALL BE CONSIGNED INCIDENTAL TO THE UNIT PRICE DID IN THE PROPOSAL FOR THE THE WAR ADDITIONAL DESIGN WORK STALL BE THE RESPONSIBILITY OF THE CONTRACTOR. COPPER TOWNS WIFE SHALL BE INSTALLED ALONG THE ENTIRE LENGTH

FOR DOTH ALTERNATIVES. PAYMENT FOR THE FURNISHING AND INSTALLATION OF THE EXTERNAL CORROSION CONTROL SYSTEM WILL BE MADE AT THE UNIT PRISE BID, OR LUMP SUM BID, WHISTEVER ISSECRED, FOR THE TEM OF WHICH THE EXTERNAL CORROSION-CONTROL IS A PART.

-DOUDLE POLYETHYLENE WRAP-SHALL-NOT-DE-LESS-THAN-16-WILS-

-GLASS-150-OR-200-FOR-DIAMETERS-12" AND SMALLER--GLASS-160-FOR-DIAMETERS-GREATER-THAN-12"

FOR CONCRETE CYLINDER PIPE ALTERNATIVE:

39. PIPE ALTERNATIVES:

DUCTILE IRON PIPES SHALL BE CLASS 52. ALL DUCTILE IRON

- DUCTILE IRON PIPES SHALL BE CLASS 52. ALL DUCTILE IRON WITH POLYETHYLENE.
 POLYMYL CHLORIDE (PVC) PIPES SHALL BE CLASS 150.
 ALL VALVES, CAST IRON PIPES AND FITTINGS SHALL BE
 DOUBLE WRAPPED WITH POLYETHYLENE. NO BENDING OF
 POLYMYL CHLORIDE PIPES WILL BE PERMITTED. THE
 INSTALLATION OF PVC PIPE ACCORDING TO THE PLANS AND
 SPECIFICATIONS AS BID ON BY THE CONTRACTOR, MAY REQUIRE
 ADDITIONAL DESIGN WORK, ADDITIONAL FITTINGS AND SPECIAL
 COUPLINGS, NOT SPECIALED IN THE PLANS AND
 SPECIFICATIONS. PAYMENT FOR ADDITIONAL DESIGN WORK,
 ADDITIONAL FITTINGS AND SPECIAL COUPLINGS SHALL BE
 CONSIDERED INCIDENTAL TO THE UNIT PRICE BID IN THE
 PROPOSAL FOR PVC PIPE. ANY ADDITIONAL DESIGN WORK
 SHALL BE THE RESPONSIBILITY OF THE CONTRACTOR. COPPER
 TONING WIRE SHALL BE INSTALLED ALONG THE ENTIRE LENGTH
 OF THE PIPELINE.
 CONCRETE CYLINDER PIPES SHALL BE CLASS 150 AND SHALL
- CONCRETE CYUNDER PIPES SHALL BE CLASS 150 AND SHALL BE MANUFACTURED AFTER ALL UNDERGROUND STRUCTURES AND UTILITIES ARE EXPOSED AND VERIFIED.

PAYMENT FOR POLYETHYLENE WRAP SHALL BE INCIDENTAL TO THE UNIT PRICE BID FOR DI PIPE, VALVES AND FITTINGS.

DOUBLE POLYETHYLENE WRAP SHALL NOT BE LESS THAN 16 MILS.

CLASS 150 OR 200 FOR DIAMETERS 12" AND SMALLER CLASS 150 FOR DIAMETERS GREATER THAN 12"

REVISED JANUARY 1997

75. H1-4)71

THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION.

WATER NOTES DATE: DHE. PLANNIC AND ENGINEERING DAVISOR SEACE AS NOTED

BOARD OF WATER SUPPLY JOB 98-1588 24 INCH AND 16 INCH TRANSMISSION MAINS ALONG KAMEHAMEHA HIGHWAY AND LUMIAINA STREET

T-3

HICO NOTES:

1.5

- THE CONTRACTOR SHALL NOTIFY HAWAIIAN TELEPHONE COMPANY (HICO) AT 483-8085 TWO WEEKS BEFORE STARTING EXCAVATION TO ARRANCE FOR FIELD LOCATION OF ALL EXISTING TELEPHONE CABLES AND/OR DUCT LINES.
- THE CONTRACTOR SHALL EXCAVATE AND BACKFILL AROUND TELEPHONE CABLES IN THE PRESENCE OF HTCO ENGINEER OR HIS REPRESENTATIVE.
- 3. ALL EXCAVATION WITHIN TWO FEET OF TELEPHONE CABLES SHALL BE DONE BY HAND.
- 4. FOR RELOCATION OF ANY TELEPHONE CABLES AND/OR DUCT LINES, THE CONTRACTOR SHALL NOTIFY HTCO THIRTY (30) WORKING DAYS BEFORE STARTING WORK, THE CONTRACTOR SHALL PROVIDE THE NECESSARY EXCAVATION AND BACKFILL, ARRANGE FOR TRAFFIC PERMITS AND RESTORE SIDEWALK, PAVEMENT OR OTHER FACILITIES.
- 5. THE CONTRACTOR SHALL NOTIFY HTCO INVEDIGITLY AT 611 AFTER ANY DAMAGES TO HTCO CABLES, DUCT LINES, PULLBOXES, MANHOLES, HANDHOLES, POLES AND GUYS. THE CONTRACTOR WILL BE HELD LIABLE FOR ALL DAMAGES TO HTCO FACILITIES.
- 6. REPAIR WORK ON DAMAGED CABLES SHALL BE DONE BY HTCO AND ANY OTHER WORK INVOLVING EXISTING UNDERGROUND FACILITIES SHALL BE DONE BY THE CONTRACTOR IN THE PRESENCE OF HTCO ENGINEER OR HIS REPRESENTATIVE. COST FOR ALL REPAIR WORK SHALL BE BORNE BY THE CONTRACTOR.
- PROVIDE ADEQUATE SUPPORT AND PROTECTION FOR TELEPHONE CABLES AND/OR DUCT LINES EXPOSED IN THE TRENCH. SUCH SUPPORT AND PROTECTION SHALL BE APPROVED BY HTCO INSPECTOR.
- 8. THE CONTRACTOR SHALL OBTAIN AN EXCAVATION PERMIT CLEARANCE FROM HICO RECORDS SECTION LOCATED AT 3239 UALENA STREET, 380 FLOOR (ABY-3) TWO WEEKS PRIOR TO START OF CONSTRUCTION, HOURS OF BUSINESS ARE 7:00 A.M. TO 11:00 A.M. AND 11:30 A.M. TO 3:00 P.M. MONDAY THRU FRIDAY EXCEPT HOUDAYS.
- THE COSTS OF ANY TEMPORARY RELOCATION OF HICO FACILITIES DONE FOR THE CONVENIENCE OF THE CONTRACTOR SHALL BE BORNE BY THE CONTRACTOR, UNLESS OTHERWISE NOTED.
- 10. SHOULD IT BECOME MECESSARY TO TEMPORARLY RELOCATE ANY HIGO FACILITIES TO ENABLE THE CONTRACTOR TO PERFORM HIS WORK IN A SAFE MAINER IN FULFILING HIS CONTRACT CEUCATIONS, THESE TEMPORARY RELOCATIONS WILL BE DONE BY HICO, OR BY THE CONTRACTOR UNDER HICO'S SUPERMISION, WITH ALL COSTS AND COORDINATION TO BE BORNE BY THE CONTRACTOR.
- 11. ANY WORK REQUIRED TO RELOCATE HTCO FACILITIES CONFLICTING WITH THE PROPOSED CONSTRUCTION AND THE EXISTENCE OF WHICH WERE NOT SHOWN ON THE PLANS SHALL BE BORNE BY THE CONTRACTOR.

HECO NOTES:

- 1. THE LOCATION OF HAWAIIAN ELECTRIC COMPANY'S (HECO) OVERHEAD AND UNDER-CROUND FACULTIES SHOWN ON THE PLANS ARE FROM EXISTING RECORDS WITH VARYING DECREES OF ACCURACY AND ARE NOT CUJARANTEED AS SHOWN. THE CONTRACTOR SHALL EXERCISE EXTREME CAUTION WHENEVER CONSTRUCTION CROSSES OR IS IN CLOSE PROXIMITY OF UNDERGROUND LINES AND SHALL MAINTAIN ADEQUATE CLEARANCE WHEN OPERATING EQUIPMENT WITHIN OR UNDER ANY OVERHEAD LINES.
- THE CONTRACTOR SHALL COUPLY WITH THE STATE OF HAWAI'S OCCUPATIONAL SAFETY AND HEALTH LAW (DOSH).
- THE CONTRACTOR SHALL OBTAIN AN EXCAVATION PERMIT FROM HECO'S MAPPING AND RECORDS DIMSION LOCATED AT 820 WARD AVENUE. 4TH FLOOR, TWO WEEKS PRIOR TO STARTING CONSTRUCTION. REFER TO HECO REQUEST NUMBER AT THAT TIME.
- FOR VERIFICATION OF UNDERGROUND LINES OR FOR ASSISTANCE IN SUPPORTING AND PROTECTING THESE LINES, THE CONTRACTOR SHALL CALL HECO'S UNDERGROUND DIVISION AT 543-7345 A MINIMUM OF 72 HOURS IN ADVANCE.
- 5. WHEN TRENCH EXCAVATION IS ADJACENT TO OR BENEATH HECO EXISTING STRUCTURES OR FACULTIES THE CONTRACTOR IS RESPONSIBLE FOR PROPERLY SHEETING AND BRACING THE EXCAVATION AND STABILIZING THE EXISTING GROUND TO RENDER IT SAFE AND SECURE FROM POSSIBLE SUDESCA" E-"YS AND SETTLEMENTS, AND FOR PROTECTING EXISTING STRUCTURES OR FACULTIES ATH BEAMS, STRUTS, OR UNDER-PINNING TO FULLY PROTECT THESE FROM DAMAGE.
- FOR POLE BRACING INSTRUCTIONS, THE CONTRACTOR SHALL CALL THE HECO DISTRICT CONSTRUCTION SUPERINTENDENT (AT KOOLAU, PHONE 261-6085) A MINIMUM OF 72 HOURS IN ADVANCE.
- ANY WORK REQUIRED TO RELOCATE HECO FACILITIES, INCLUDING TEMPORARY RELOCATION DONE FOR THE CONVENIENCE OF THE CONTRACTOR, SHALL BE DONE BY HECO AND THE CONTRACTOR SHALL BE RESPONSIBLE FOR ALL COORDINATION, AND FOR COSTS IF APPLICABLE, UNLESS OTHERWISE NOTED.
- 8. SHOULD IT BECOME NECESSARY TO TEMPORARILY RELOCATE ANY HECO FACILITIES TO ENABLE THE CONTRACTOR TO PERFORM HIS WORK IN A SAFE AND EXPEDITIOUS MANNER IN FULFILLING HIS CONTRACT OBLIGATIONS, THESE TEMPORARY RELOCATIONS WILL BE DONE BY HECO, OR BY THE CONTRACTOR UNDER HECO'S SUPERVISION, WITH ALL COSTS BEING BORNE BY THE CONTRACTOR.
- 9. ANY UNFORESEEN CONFLICT THAT WOULD RESULT IN THE REDESION OR RELOCATION (EITHER TEMPORARY OR PERMANENT) OF HECO'S ELECTRICAL FACULTIES MAY BE CAUSE FOR LENGTHY DELAYS. TO AVOID SUCH DELAYS, THE CONTRACTOR MUST NOTIFY HECO OF THE CONFLICT A MINIMUM OF 30 DAYS PRIOR TO THE START OF CONSTRUCTION.
- ANY DAMAGE TO HECO'S FACULTIES WILL BE REPORTED IMMEDIATELY TO HECO'S TROUBLE DISPATCHER AT PH. 543-7874.
- 11. ALL HECO OVERHEAD AND UNDERCROUND FACILITIES SHALL BE PROTECTED AT ALL TIMES BY THE CONTRACTOR DURING CONSTRUCTION. COSTS FOR DAMAGES TO HECO FACULITIES SHALL BE BORNE BY THE CONTRACTOR. THIS REPAIR WORK SHALL BE DONE BY HECO, OR BY THE CONTRACTOR UNDER HECO'S SUPERVISION.
- 12. THE CONTRACTOR SHALL INDEWNEY, DEFEND AND HOLD HARMLESS HECO FROM AND AGAINST ALL LOSSES, DAMAGES CLAWS AND ACTIONS, ALL EXPENSES INCIDENTAL TO SUCH LOSSES, DAMAGES, CLAWS OR ACTION, BASED UPON OR ARISING OUT OF DAMAGE TO PROPERTY OR INJURIES TO PERSONS, OR OTHER TORTIOUS ACTS CAUSED OR CONTRIBUTED TO BY CONTRACTOR OR ANYONE ACTING UNDER ITS DIRECTIONS OR CONTROL OR ON ITS BEHALF; PROVIDED CONTRACTOR'S INDEMNITY SHALL NOT BE APPLICABLE TO ANY LIABILITY UPON THE SOLE MEGLIGENCE OF HECO.

CONSTRUCTION NOTES WITHIN CITY RIGHT-OF-WAY

- I. ALL CONSTRUCTION WORK SHALL BE DONE IN ACCORDANCE WITH THE STANDARD SPECIFICATIONS FOR PUBLIC WORKS CONSTRUCTION, SEPTEMBER 1986, AND STANDARD DETAILS FOR PUBLIC WORKS CONSTRUCTION, SEPTEMBER 1984, AS AMENDED, OF THE DEPARTMENT OF PUBLIC WORKS, CITY AND COUNTY OF HONOLULU AND THE COUNTIES OF KAULI MAUI, AND HAWAII,
- 2. THE UNDERGROUND PIPES, CABLES OR DUCTUMES KNOWN TO EXIST BY THE ENGINEER FROM HIS SEARCH OF RECORDS ARE INDICATED ON THE PLANS. THE CONTRACTOR SHALL VERIFY THE LOCATIONS AND DEPTHS OF THE FACILITIES AND EXERCISE PROPER CARE IN EXCAVATING IN THE AREA. WHEREVER CONNECTIONS OF NEW UTULTIES TO EXISTING UTILITIES ARE SHOWN ON THE PLANS, THE CONTRACTOR SHALL EXPOSE THE EXISTING LINES AT THE PROPOSED CONNECTIONS TO VERIFY THEIR LOCATIONS AND DEPTHS PRIOR TO EXCAVATION FOR THE NEW LINES.
- 3. NO CONTRACTOR SHALL PERFORM ANY TRENCHING OPERATION SO AS TO CAUSE FALLING ROCKS, SOIL OR DEBRIS IN ANY FORM TO FALL, SLIDE OR FLOW ONTO ADJOINING PROPERTIES, STREETS OR NATURAL WATERCOURSES, SHOULD SUCH VIOLATIONS OCCUR, THE COSTS INCURRED FOR ANY REMEDIAL ACTION BY THE CHIEF ENGINEER SHALL BE PAYABLE BY THE CONTRACTOR.
- 4. THE CONTRACTOR SHALL BE RESPONSIBLE FOR CONFORMANCE WITH THE APPLICABLE PROMISIONS OF CHAPTER 54, WATER QUALITY STANDARDS AND CHAPTER 55, WATER POLLUTION CONTROL, OF TITLE 11, ADMINISTRATIVE RULES OF THE STATE DEPARTMENT OF HEALTH.
- 5. THE CONTRACTOR SHALL NOTIFY THE CONSTRUCTION SECTION, DIVISION OF ENGINEERING, DEPARTMENT OF PUBLIC WORKS AT 527-6311 TO ARRANGE FOR INSPECTIONAL SERVICES AND SUBMIT THREE (3) SETS OF APPROVED CONSTRUCTION PLANS SEVEN (7) DAYS PRIOR TO COMMENCEMENT OF CONSTRUCTION WORK.

SEWER NOTES

- 1. ALL SEWER CONSTRUCTION SHALL WITH THE CITY'S STANDARD S DEPARTMENT OF PUBLIC WORK CITY PRACTICES AND REVISED O AMENDED, AND THE DESIGN STAWASTEWATER MANAGEMENT, VOX
- 2. THE CONTRACTOR SHALL NOTIFIED DEPARTMENT OF WASTEWATER IN 523-4345 TO ARRANCE FOR INS FOUR SETS OF APPROVED CONFIDENT OF SHALL PAY FOR ALL INSPECTION
- 3. THE CONTRACTOR SHALL BE RECONTINUOUS SEWER SERVICE TO CONSTRUCTION,
- 4. THE CONTRACTOR SHALL BE RES CAUSED DURING CONSTRUCTION. THE STATE DEPARTMENT OF HEA SAMPLING AND ANALYZING PROCI RESPONSIBLE FOR ALL PUBLIC NO
- 5. THE UNDERGROUND PIPES, CABLES BY THE ENGINEER FROM HIS SEA THE PLANS. THE CONTRACTOR SH OF THE FACULTIES AND EXERCISE AREA. THE CONTRACTOR SHALL E ALL DAMAGED UTILITIES.

GAS NOTES:

- BHP GAS COMPANY GAS PIPELINES COATED AND CATHODICALLY PROTEC BE EXTREMELY CARELY WHEN WORD
- WRITTEN CLEARANCES MUST BE 081 AT LEAST FIVE WORKING DAYS PRIO THESE GAS PIPELINES.
- SINCE GAS LINE LOCATIONS ON THE CONTRACTOR, AFTER OBTAI CALL BHP GAS COMPANY AT LE STARTING EXCAVATION TO ARRA EXISTING GAS PIPELINES. THE T DURING BUSINESS HOURS AND
- THE CONTRACTOR SHALL EXCAVATE PIPELINES IN THE PRESENCE OF A I ALL BACKFILL WITHIN SIX INCHES OF SELECT CUSHION MATERIAL APPROV.
- 4. FOR RELOCATION OF ANY GAS PIPEL NOTIFY BHP GAS COMPANY FIVE WO WORK. THE CONTRACTOR SHALL PR AND BACKFILL, OBTAIN TRAFFIC PER SIDEWALKS, AND OTHER FACULTIES. SHALL BE DONE BY BHP GAS COMP.
- 5. THE CONTRACTOR SHALL NOTIFY BHI ANY DAMAGE HAS BEEN CAUSED TO ITS CATHODIC PROTECTION DEVICES. BE DONE BY BHP GAS COMPANY AN
- MINIMUM VERTICAL AND HORIZONTAL PIPELINES AND OTHER PIPELINES, CO FACILITIES SHALL BE 12 INCHES. AL FOR GAS PIPELINES EXPOSED IN THE BY THE CONTRACTOR AND APPROVE
- . THE CONTRACTOR SHALL WORK IN A IN ORDER TO KEEP THE UNCOVERED FOR AS SHORT A PERIOD OF TIME A

OAHU TRANSIT SERVICES

THE CONTRACTOR SHALL NOTIFY THE ED SHIFFEN, AT 848-4571 OR LOWEL PRIOR TO BEGINNING ANY WORK, INFO OF WORK, PROPOSED CLOSURE OF AI LANES, AND THE NEED TO RELOCATE

APPROVED:

CHEF, DIVISION OF PLANNING AND SERVICE CONTROL. (FOR SEWER WORK WITHIN PUBLIC R/W AND EASEMEN

CHEF, DIVISON OF ENGNEERING, OPW (FOR CONSTRUCTION WITHIN CITY R/W ONLY)

- ALL SEWER CONSTRUCTION SHALL BE PERFORMED IN ACCORDANCE WITH THE CITY'S STANDARD SPECIFICATIONS, SEPT. 1986, THE DEPARTMENT OF PUBLIC WORKS DETAILS, SEPT. 1984, CURRENT CITY PRACTICES AND REVISED ORDINANCES OF HONOLULU, 1990 AS AMENDED, AND THE DESIGN STANDARDS OF THE DEPARTMENT OF WASTEWATER MANAGEMENT, VOL. 1, JULY 1993.
- 2. THE CONTRACTOR SHALL NOTIFY THE CONSTRUCTION SECTION, DEPARTMENT OF WASTEWATER MANAGEMENT AT 527-5280 OR 523-4345 TO ARRANCE FOR INSPECTION SERVICES AND SUBMIT FOUR SETS OF APPROVED CONSTRUCTION PLANS SEVEN DAYS PRIOR TO COMMENCEMENT OF SEWER WORK. THE CONTRACTOR SHALL PAY FOR ALL INSPECTION COSTS.
- THE CONTRACTOR SHALL BE RESPONSIBLE FOR MAINTAINING CONTINUOUS SEWER SERVICE TO ALL AFFECTED AREAS DURING
- THE CONTRACTOR SHALL BE RESPONSIBLE FOR ANY SEWACE SPILLS CAUSED DURING CONSTRUCTION. THE CONTRACTOR SHALL NOTIFY THE STATE DEPARTMENT OF HEALTH AND UTILIZE APPROPRIATE SAMPLING AND ANALYZING PROCEDURES. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ALL PUBLIC NOTIFICATIONS AND PRESS RELEASES.
- THE UNDERGROUND PIPES, CABLES OR DUCTLINES KNOWN TO EXISTING BY THE ENGINEER FROM HIS SEARCH OF RECORDS ARE INDICATED ON THE PLANS. THE CONTRACTOR SHALL VERIFY THE LOCATION AND DEPTH OF THE FACULTIES AND EXERCISE PROPER CARE IN EXCAVATING THE AREA. THE CONTRACTOR SHALL BE RESPONSIBLE AND SHALL PAY FOR ALL DAMAGED UTILITIES

GAS NOTES:

- BHP GAS COMPANY GAS PIPEUNES IN THE PROJECT AREA ARE PLASTIC COATED AND CATHODICALLY PROTECTED. THE CONTRACTOR SHALL BE EXTREMELY CARELY WHEN WORKING NEAR THESE GAS PIPEUNES.
- WRITTEN CLEARANCES MUST BE OBTAINED FROM BHP GAS COMPANY AT LEAST FIVE WORKING DAYS PRIOR TO STARTING EXCAVATION NEAR THESE GAS PIPELINES.

SINCE GAS LINE LOCATIONS ON FIELD MAPS ARE APPROXIMATE, THE CONTRACTOR, AFTER OBTAINING WRITTEN CLEARANCE, SHALL CALL BHP GAS COMPANY AT LEAST FIVE WORKING DAYS BEFORE STARTING EXCAVATION TO ARRANGE FOR FIELD LOCATION OF THE EXISTING GAS PIPELINES. THE TELPHONE NUMBER IS 594-5575 DURING BUSINESS HOURS AND 526-0066 AFTER HOURS.

- THE CONTRACTOR SHALL EXCAVATE AND BACKFILL AROUND GAS PIPELINES IN THE PRESENCE OF A BHP GAS COMPANY REPRESENTATIVE. ALL BACKFILL WITHIN SIX INCHES OF ANY GAS PIPELINE SHALL BE SELECT CUSHION MATERIAL APPROVED BY BHP GAS COMPANY.
- 4. FOR RELOCATION OF ANY GAS PIPELINE, THE CONTRACTOR SHALL NOTIFY BHP GAS COMPANY FIVE WORKING DAYS BEFORE STARTING WORK. THE CONTRACTOR SHALL PROVIDE THE NECESSARY EXCAVATION AND BACKFILL, OBTAIN TRAFFIC PERMITS, AND RESTORE PAVEMENT, SIDEWALKS, AND OTHER FACULTIES. ANY RELOCATION OF GAS FACILITIES SHALL BE DONE BY BHP GAS COMPANY AND PAID FOR BY THE CONTRATOR.
- 5. THE CONTRACTOR SHALL NOTIFY BHP CAS COMPANY IMMEDIATELY AFTER ANY DAMAGE HAS BEEN CAUSED TO EXISTING CAS PIPEUNES, COATINGS, OR ITS CATHODIC PROTECTION DEVICES. REPAIR WORK ON SUCH DAMAGE SHALL BE DONE BY BHP CAS COMPANY AND PAID FOR BY THE CONTRACTOR.
- 5. MINIMUM VERTICAL AND HORIZONTAL CLEARANCE BETWEEN THE GAS PIPELINES AND OTHER PIPELINES, CONDUITS, DUCTLINES, OR OTHER
 FACILITIES SHALL BE 12 INCHES. ADEQUATE SUPPORT AND PROTECTION
 FOR GAS PIPELINES EXPOSED IN THE TRENCH SHALL BE PROVIDED
 BY THE CONTRACTOR AND APPROVED BY BHP GAS COMPANY.
- THE CONTRACTOR SHALL WORK IN AN EXPEDITIOUS MANNER IN ORDER TO KEEP THE UNCOVERED CAS PIPELINES EXPOSED FOR AS SHORT A PERIOD OF TIME AS POSSIBLE.

OAHU TRANSIT SERVICES NOTE:

THE CONTRACTOR SHALL NOTIFY THE DAHU TRANSIT SERVICES, INC. (OTS), ED SNIFFEN, AT 848-4571 OR LOWELL TOM AT 848-4578 TWO WEEKS PRIOR TO BEGINNING ANY WORK, INFORMING THEM OF LOCATION, SCOPE OF WORK, PROPOSED CLOSURE OF ANY STREET OR TRAFFIC LANES, AND THE NEED TO RELOCATE ANY BUS STOP.

APPROVED:

CHEF, DIVISION OF PLUINING AND SERVICE CONTROL, WAY (FOR SEWER WORK WITHIN PUBLIC B/W AND EASEMENT ONLY)

CHEF, DIVISION OF ENGINEERING, DPW (FOR CONSTRUCTION WITHIN CITY R/W CHLY)

DATE

DATE

The Sale-Sale

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THIS WORK WAS PREPARED BY ME OR UNDER MY SUPERVISION.

BOARD OF WATER SUPPLY CITY AND COUNTY OF HOHOLUL JOB 98-1588

24 INCH AND 16 INCH TRANSMISSION MAINS ALONG KAMEHAMEHA HIGHWAY AND LUMIAINA STREET

UTILITY NOTES

APPROVED: COME. PLANNING AND ENGINEERING DAYS DATE: MAN SE DAD DONCE TAG DECOM SE TAG FLE NO FAL AS NOTED THE MOOK MO PCIT 9475

TRAFFIC NOTES FOR WORK ON CITY AND COUNTY STREETS

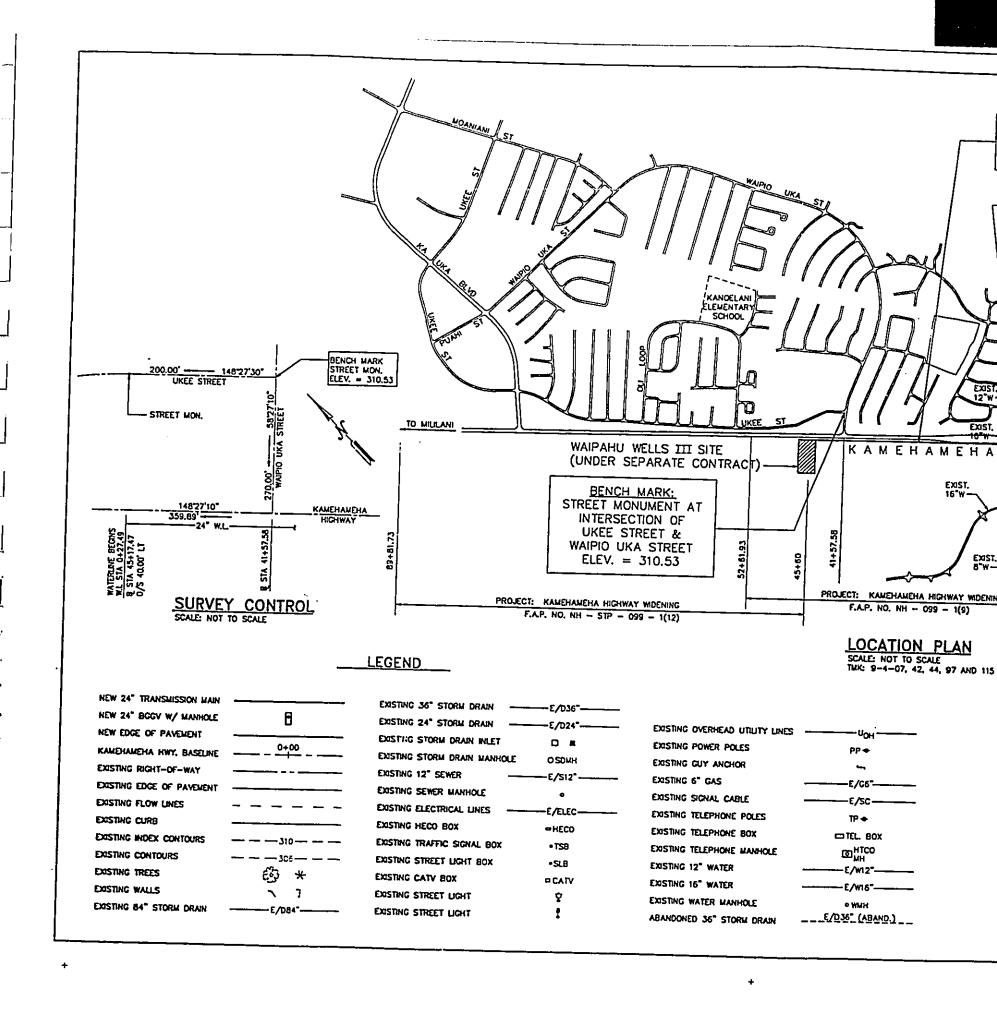
- A PERMIT SHALL BE OBTAINED FROM THE DEPARTMENT OF TRANSPORTATION SERVICES BEFORE WORK ON ANY PORTION OF A PUBLIC STREET OR HIGHWAY MAY BEGIN.
- THE CONTRACTOR SHALL PROVIDE, INSTALL AND MAINTAIN ALL NECESSARY SICHS AND OTHER PROTECTIVE FACILITIES, WHICH SHALL CONFORM WITH THE "HAWAII ADMINISTRATION RULES GOVERNING THE USE OF TRAFFIC CONTROL DEVICES AT WORK SITES ON OR ADJACENT TO PUBLIC STREETS AND HIGHWAYS" ADDITED BY THE DIRECTOR OF TRANSPORTATION, AND THE CURRENT U. S. FEDERAL HICHWAY ADMINISTRATION'S "MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES FOR STREETS AND HIGHWAYS, PART VI.— TRAFFIC CONTROLS FOR STREET AND HIGHWAY CONSTRUCTION AND MAINTENANCE OPERATIONS."
- WORK ON ANY (JTY STREET AREA MAY BE PERFORMED ONLY BETWEEN THE HOURS OF 8:30 A.M. TO 3:30 P.M. MONDAY THROUGH FRIDAY, UNLESS OTHERWISE PERMITTED BY THE DEPARTMENT OF TRANSPORTATION SERVICES.
- DURING WORKING HOURS, THE CONTRACTOR SHALL PROVIDE TWO LANES FOR THROUGH TRAFFIG. ON STREETS TOO NARROW TO MAKE THIS PRACTICABLE. THE CONTRACTOR MAY WORK IN ONE HALF OF THE ROADWAY, KEEPING ONE LANE OPEN TO TRAFFIG AND ALTERNATING THE FLOW OF TRAFFIC. DURING NON-WORKING HOURS, ALL TRENCHES SHALL BE COVERED WITH A SAFE NON-SKID BRIDGING, MATERIAL AND ALL LANES SHALL BE OPEN TO TRAFFIC.
- AS REQUIRED BY THE DEPARTMENT OF TRANSPORTATION SERVICES, THE CONTRACTOR SHALL PROVIDE OFF-DUTY POLICE OFFICERS TO CONTROL THE FLOW OF TRAFFIC.
- WHERE PEDESTRIAN WALKWAYS EXIST, THEY SHALL BE MAINTAINED IN PASSABLE CONDITION OR OTHER FACILITIES FOR PEDESTRAINS SHALL BE PROVIDED. PASSAGE BETWEEN WALKWAYS AT INTERSECTIONS SHALL LIKEWISE BE PROVIDED.
- DRIVEWAYS SHALL BE KEPT OPEN UNLESS THE OWNERS OF THE PROPERTY USING THESE RIGHTS-OF-WAY ARE OTHERWISE PROVIDED FOR SATISFACTORILY.
- CONTRACTOR SHALL REFERENCE TO THE APPROVAL OF THE DEPARTMENT OF TRANSPORTATION SERVICES, ALL EXISTING TRAFFIC SIGNS, POST AND PAVEMENT MARKINGS PRIOR TO THE COMMENCEMENT OF CONSTRUCTION. THE CONTRACTOR SHALL REPLACE OR REPAIR ALL TRAFFIC SIGNS, POSTS, AND PAVEMENTS SHALL REPLACE OF REPAIR ALL TRAFFIC SIGNS, POSTS, AND PAVEMENTS DEPARTMENT OF TRANSPORTATION SERVICES AT 523-4029 ONE (1) WEEK PRIOR TO ANY WORK TO BE DONE ON SIGNS, POSTS AND PAVEMENT MARKINGS.
- NO MATERIAL AND/OR EQUIPMENT SHALL BE STOCKPILED OR OTHERWISE STORED WITHIN STREET RIGHTS-OF-WAY EXCEPT AT LOCATIONS DESIGNATED IN WRITING AND APPROVED BY THE DEPARTMENT OF TRANSPORTATION SERVICES.
- 10. BOARD OF WATER SUPPLY SHALL ENSURE THAT THE CONTRACTOR INSTALLS THE CONSTRUCTION TRAFFIC CONTROL DEVICES IN ACCORDANCE WITH THE MUTCO AND HAWAII ADMINISTRATION RULES AS SPECIFIED IN TRAFFIC NOTE NO. 2.

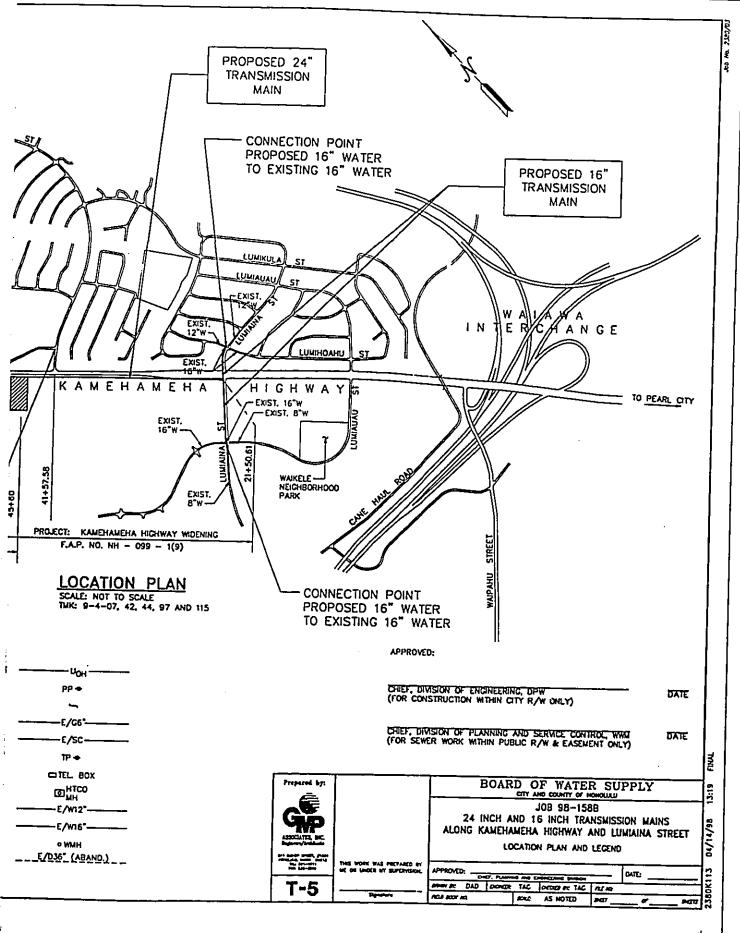
ELECTRICAL AND MAINTENANCE SERVICES DIVISION NOTES:

- THE CONTRACTOR SHALL NOTIFY THE ELECTRICAL AND MAINTENANCE SERVICES DIVISION, DEPARTMENT OF TRANSPORTATION SERVICES, THREE (3) WORKING DAYS PRIOR TO COMMENCING ANY WORK ON THE STREET LIGHTING SYSTEM (PHONE: 527-5002)
- 2. THE CONTRACTOR SHALL NOTIFY THE ELECTRICAL AND MAINTENANCE SERVICES DIVISION, DEPARTMENT OF TRANSPORTATION SERVICES, THREE (3) WORKING DAYS PRIOR TO COMMENCING ANY WORK ON THE TRAFFIC SIGNAL SYSTEM (PHONE: 523-4589)
- 3. THE STREET LIGHTING AND TRAFFIC SIGNAL SYSTEMS SHALL BE KEPT OPERATIONAL DURING CONSTRUCTION. ANY RELOCATION OR CHANGEOVER REQUIRED SHALL BE APPROVED BY THE ELECTRICAL AND MAINTENANCE SERVICES DIVISION, DEPARTMENT OF TRANSPORTATION SERVICES, AND PERFORMED AND PAID FOR BY THE CONTRACTOR.
- 4. THE CONTRACTOR SHALL BE RESPONSIBLE FOR ANY DAMAGES TO EXISTING STREET LIGHTING AND TRAFFIC SIGNAL FACILITIES, INCLUDING THE TRAFFIC SIGNAL INTERCONNECT SYSTEM, AND ANY AND ALL DAMAGES TO THESE FACILITIES SHALL BE REPAIRED BY THE CONTRACTOR AT HIS COST IN ACCORDANCE WITH THE REQUIREMENTS OF THE CITY AND COUNTY OF HONOLULU.

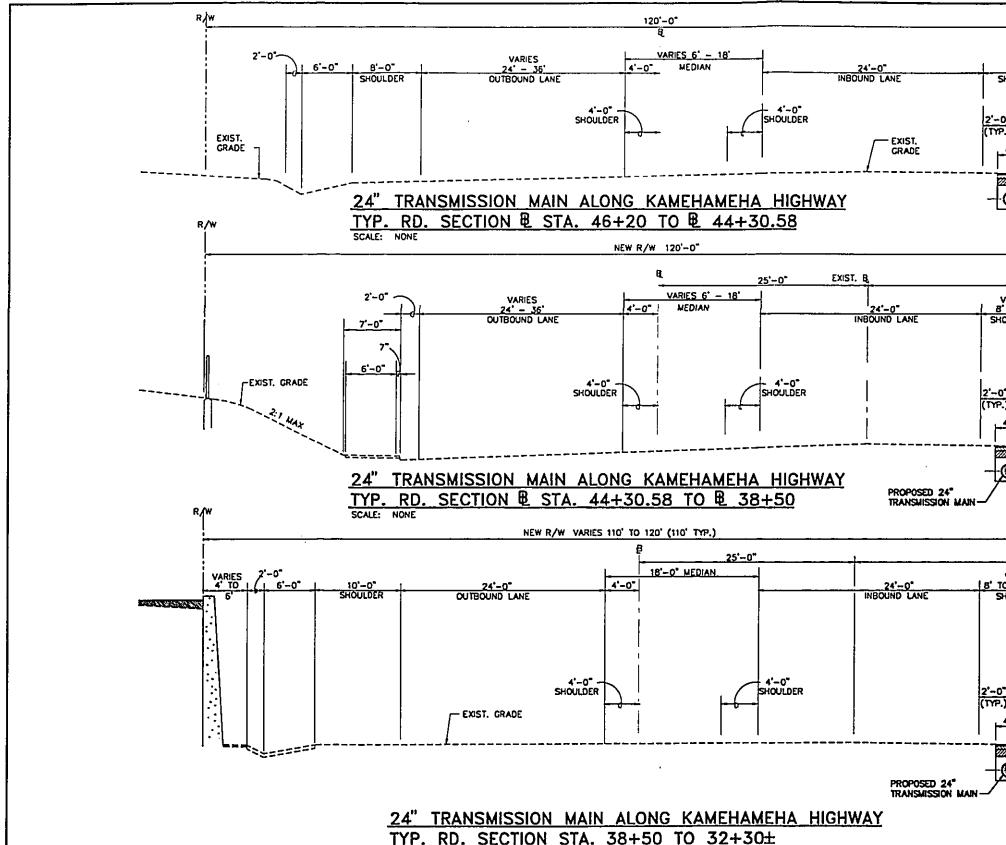
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Prepared by:



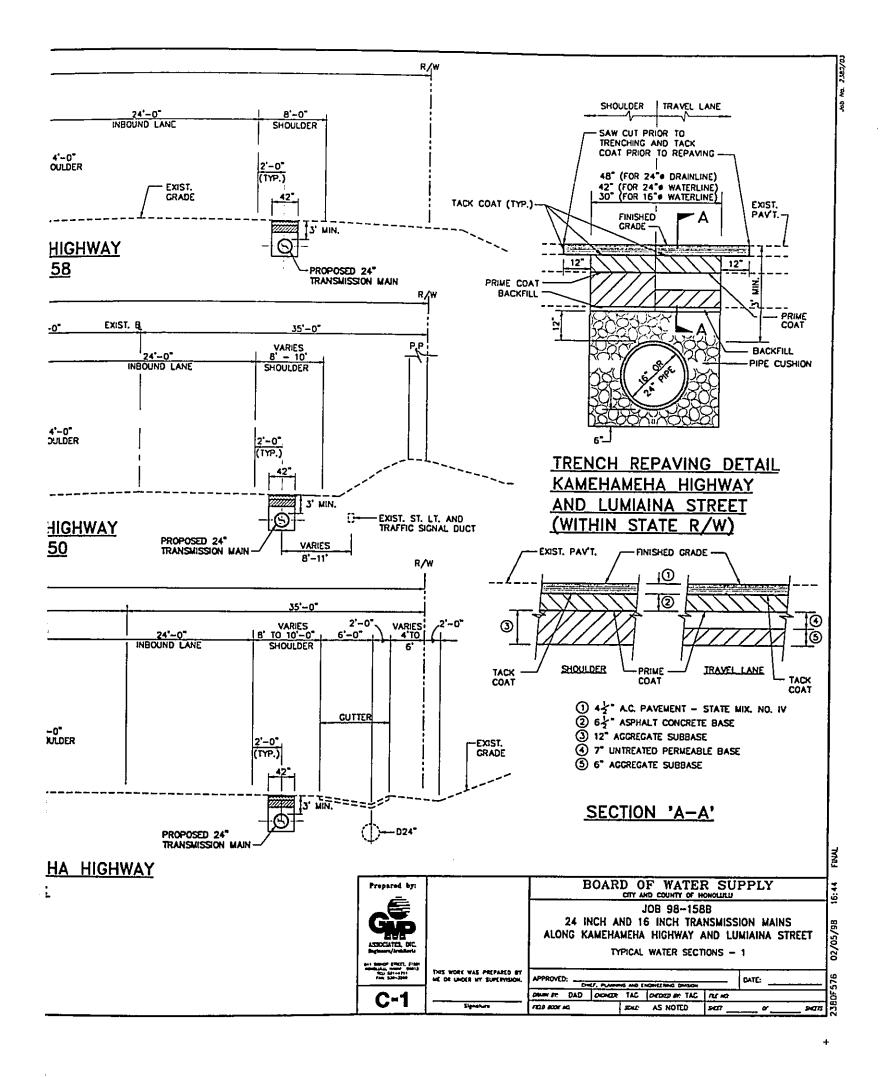


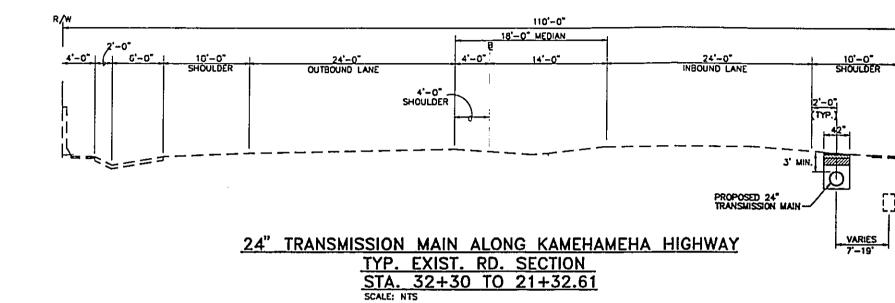
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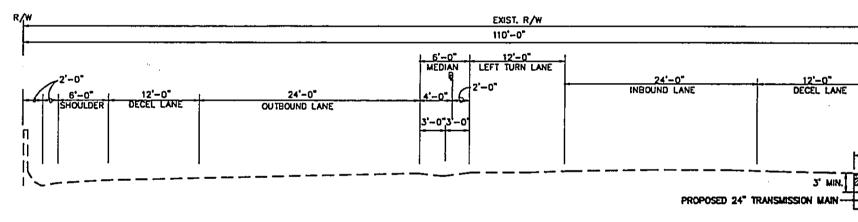


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TYP. RD. SECTION STA. 38+50 TO 32+30± SCALE: NONE







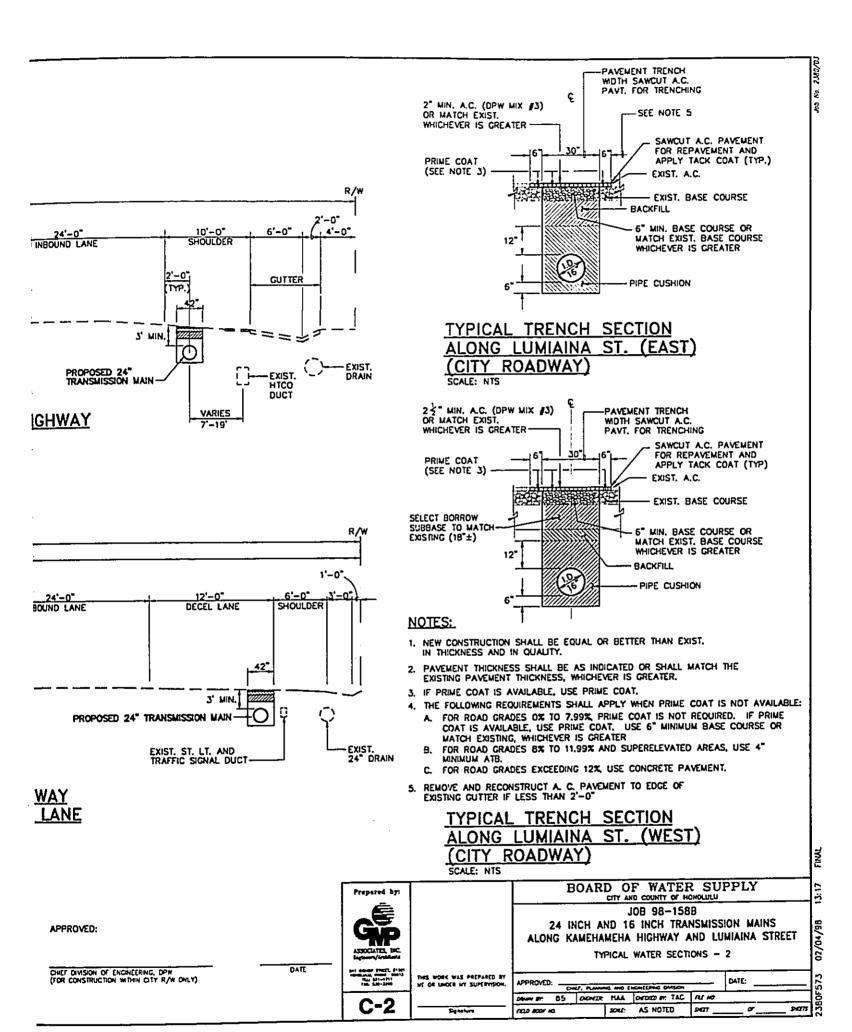
EXIST. ST. LT. AND TRAFFIC SIGNAL DUCT-

24" TRANSMISSION MAIN ALONG KAMEHAMEHA HIGHWAY TYPICAL EXIST. ROAD SECTION WITH DECELERATION LANE SCALE: NTS

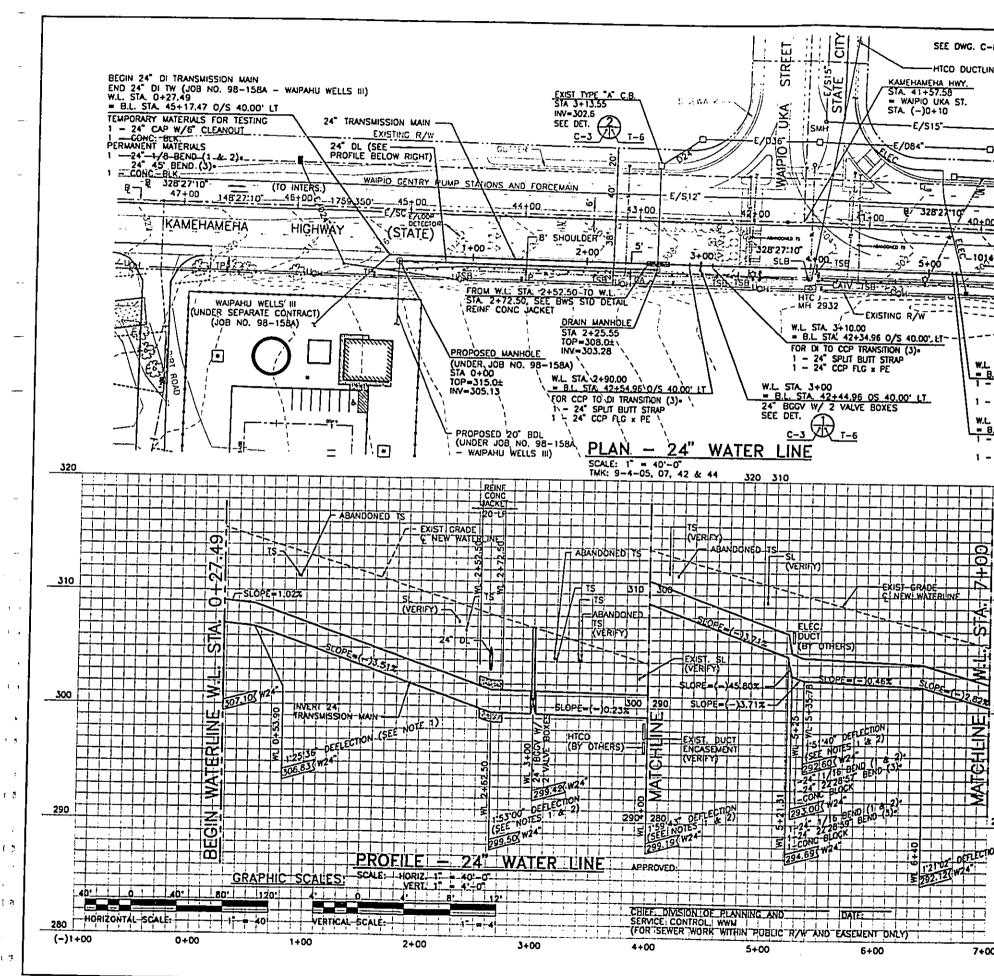
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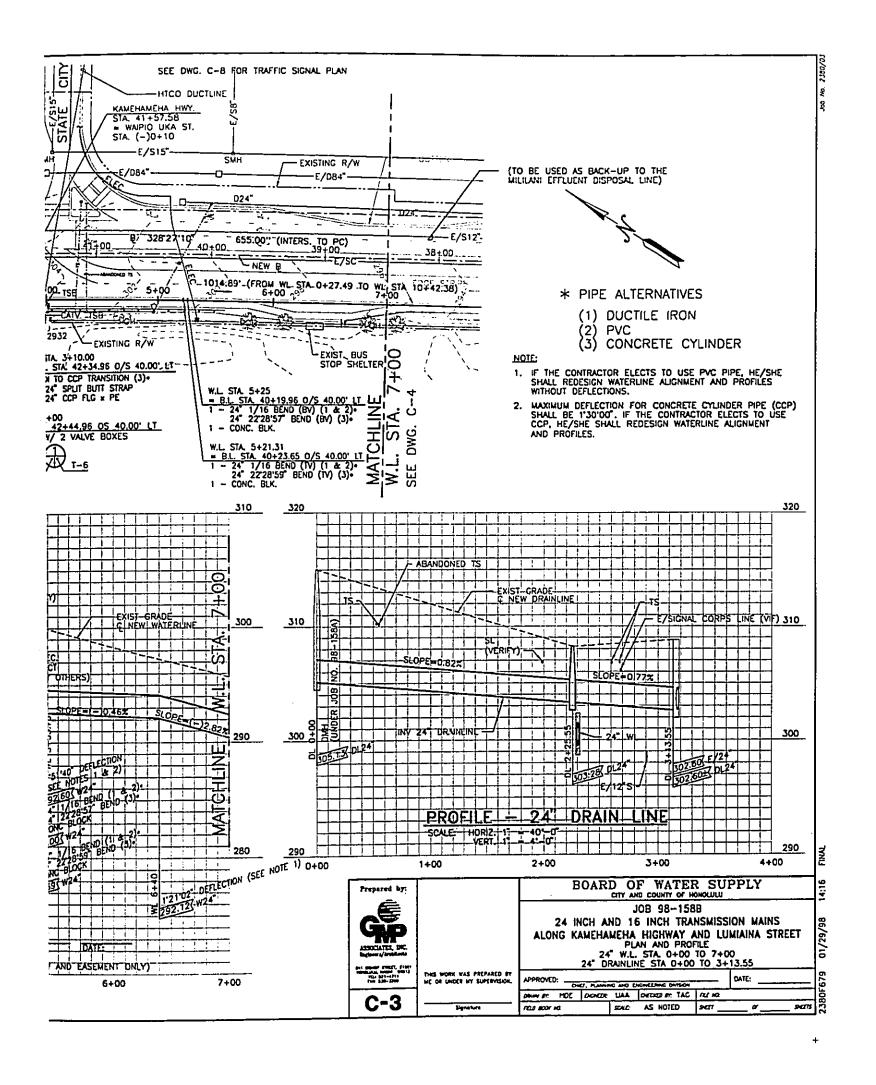
CHEF DIVISION OF ENCINEERING, DPW (FOR CONSTRUCTION WITHIN CITY R/W CHLY)

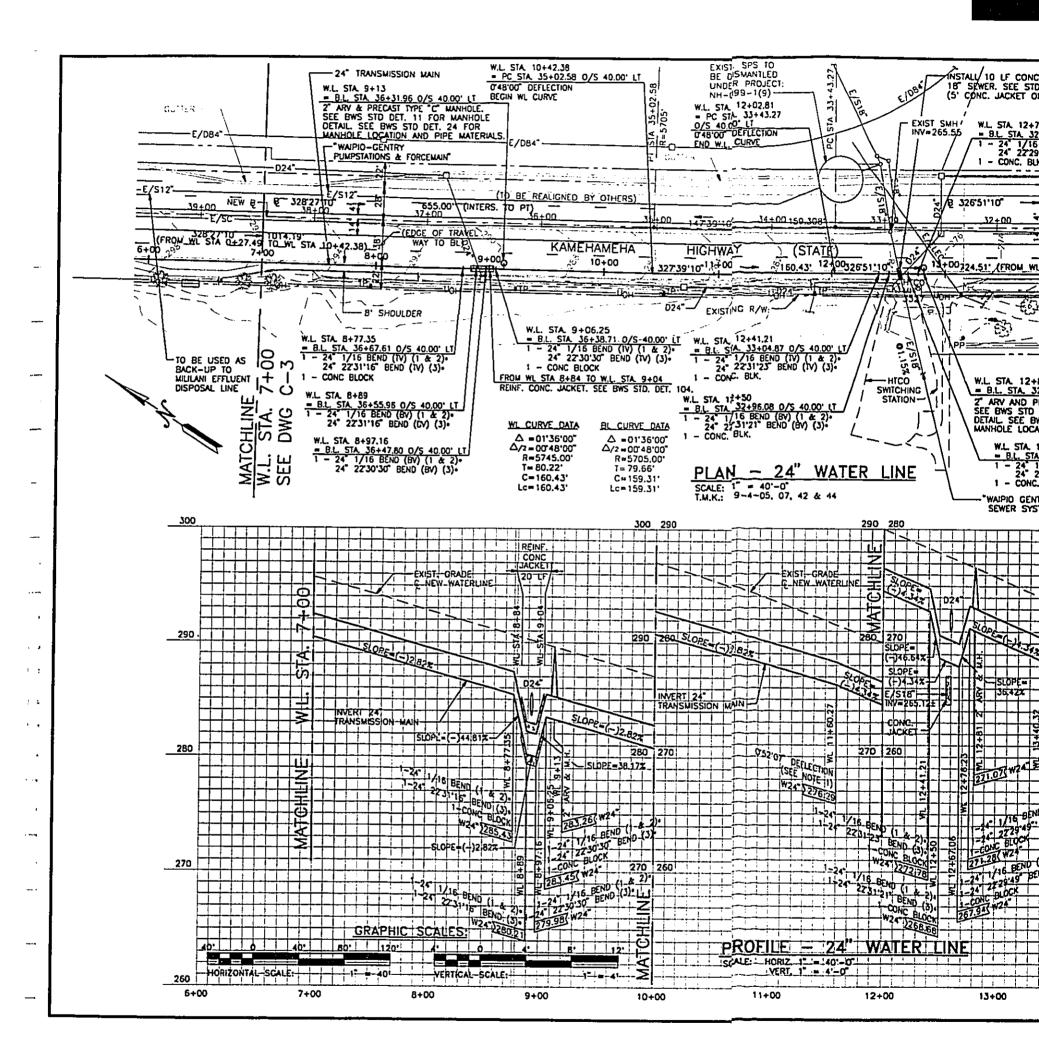


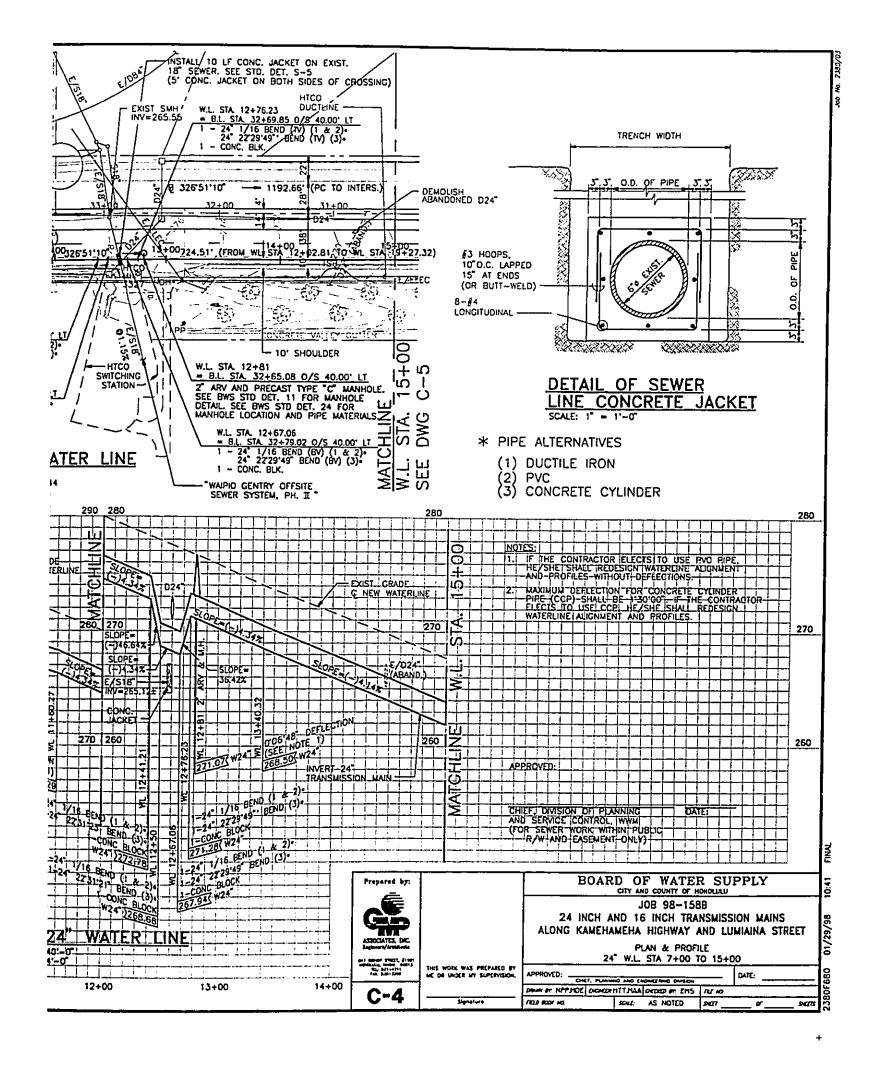
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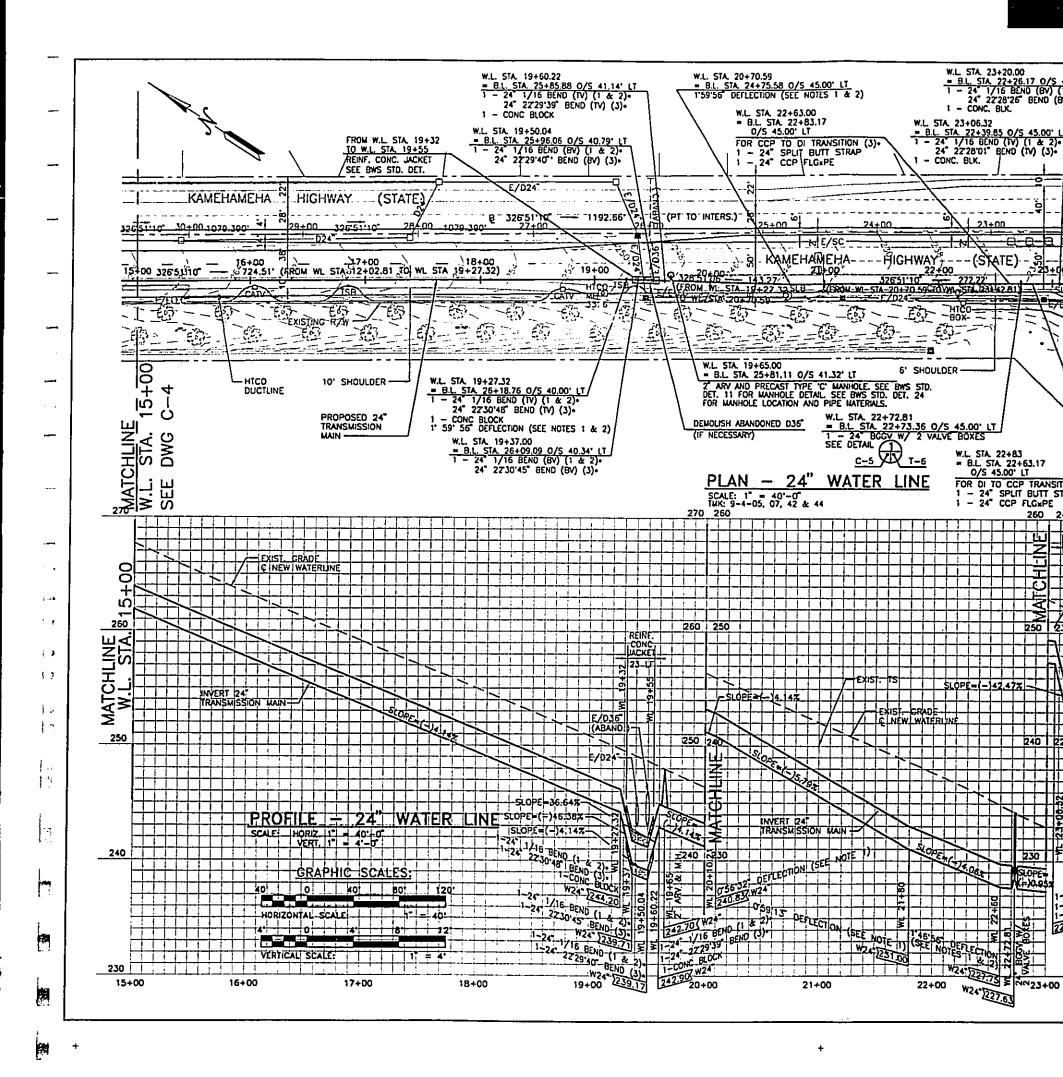


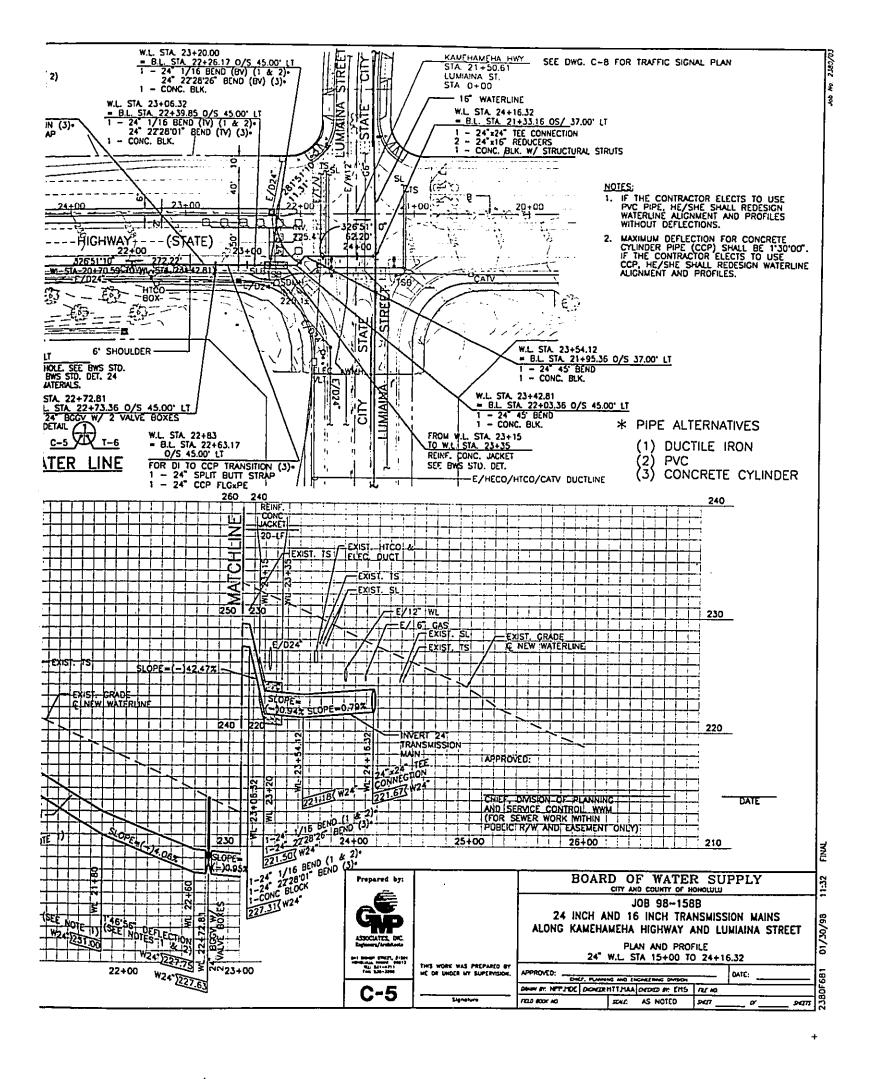
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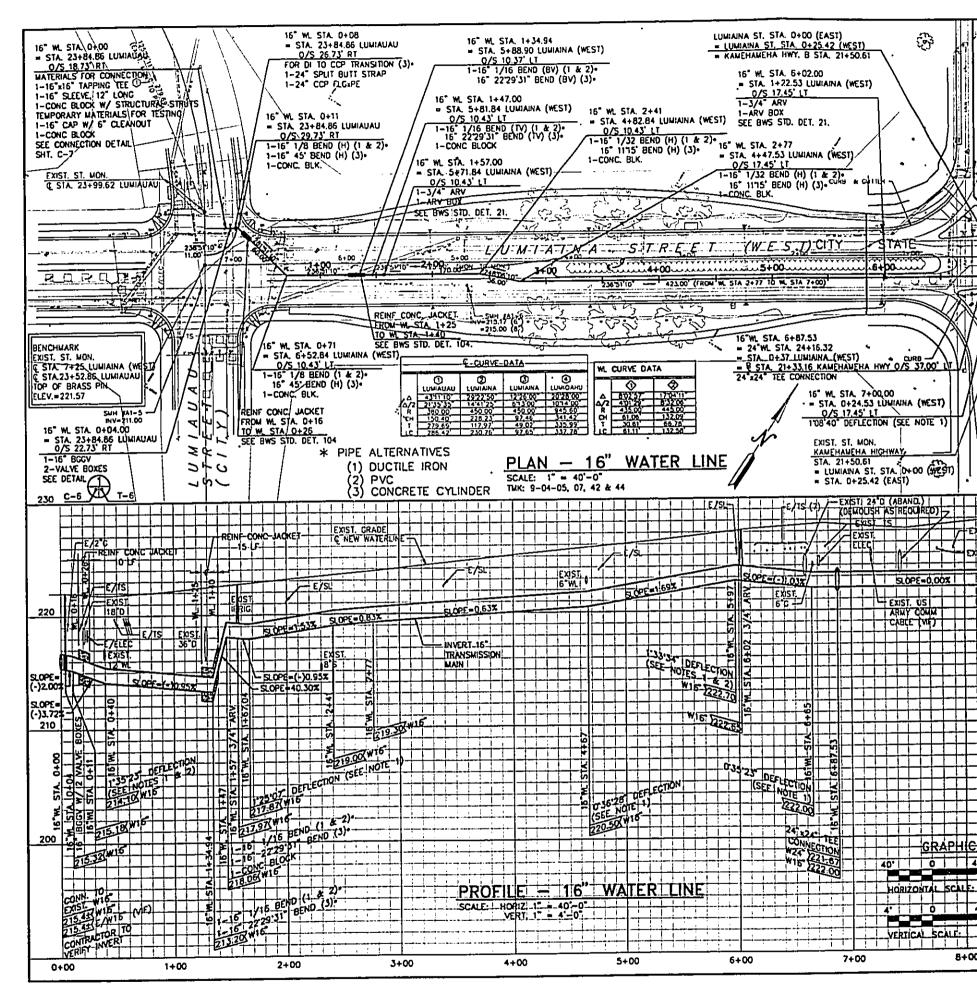


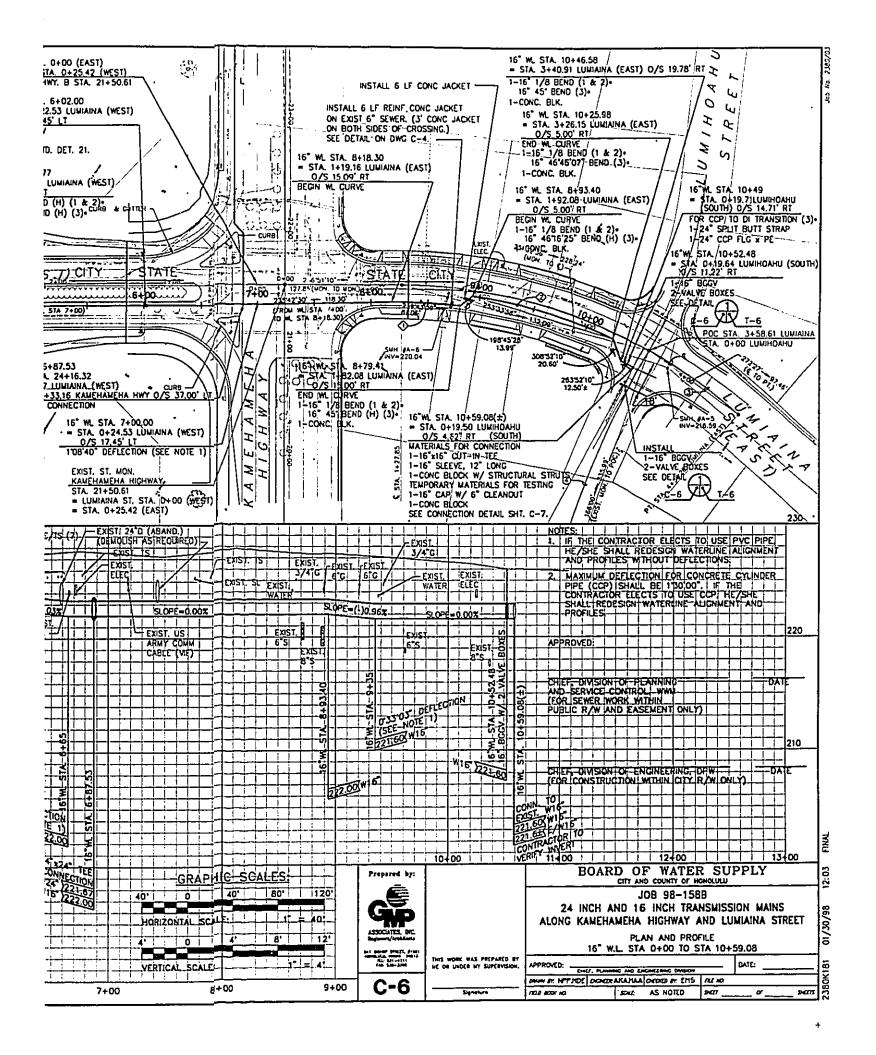


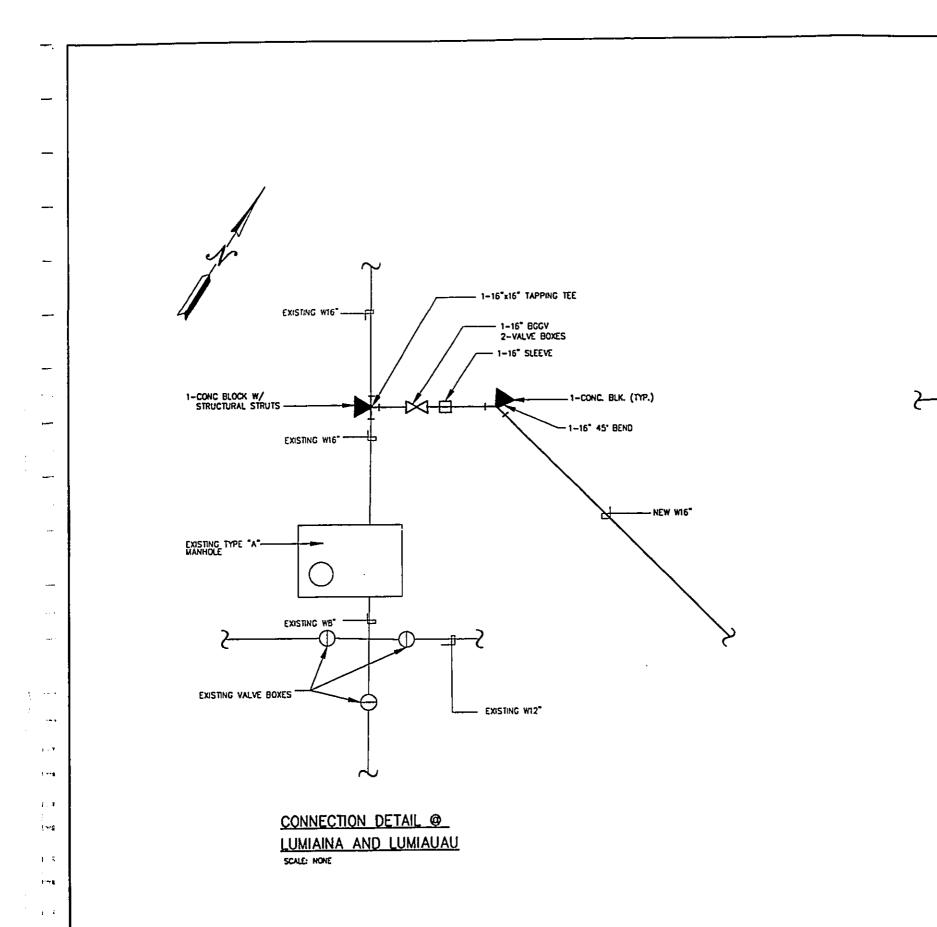


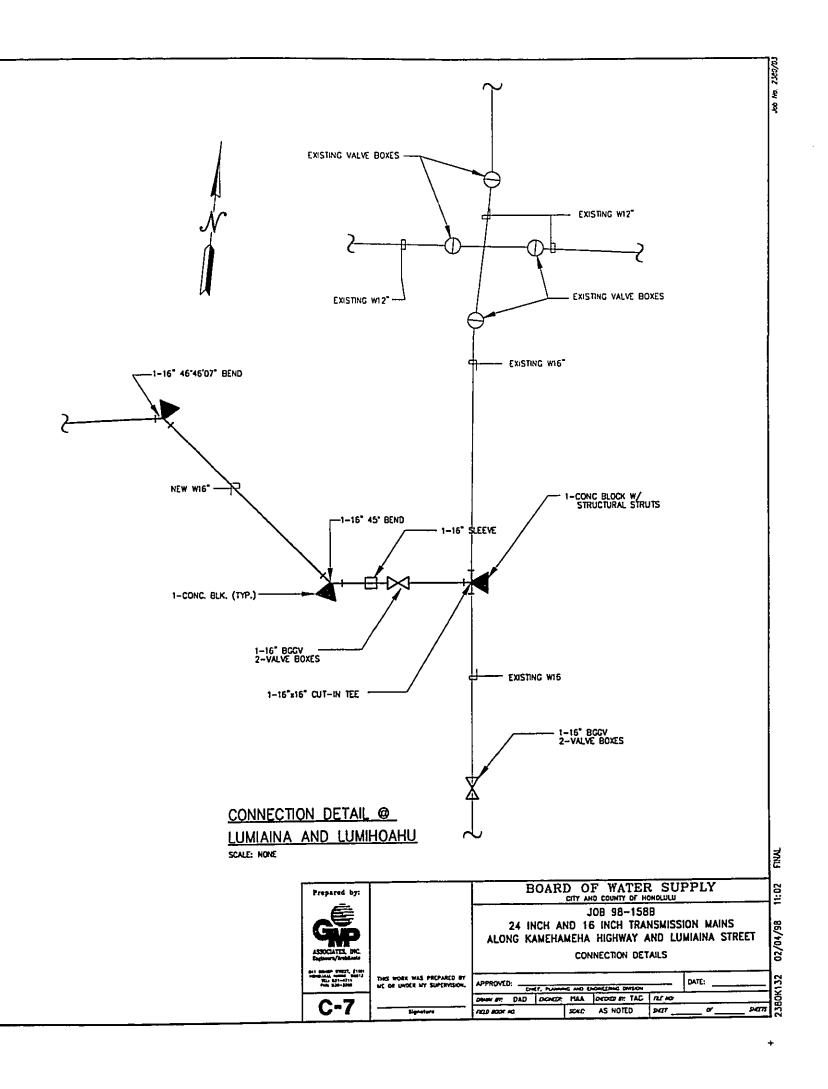


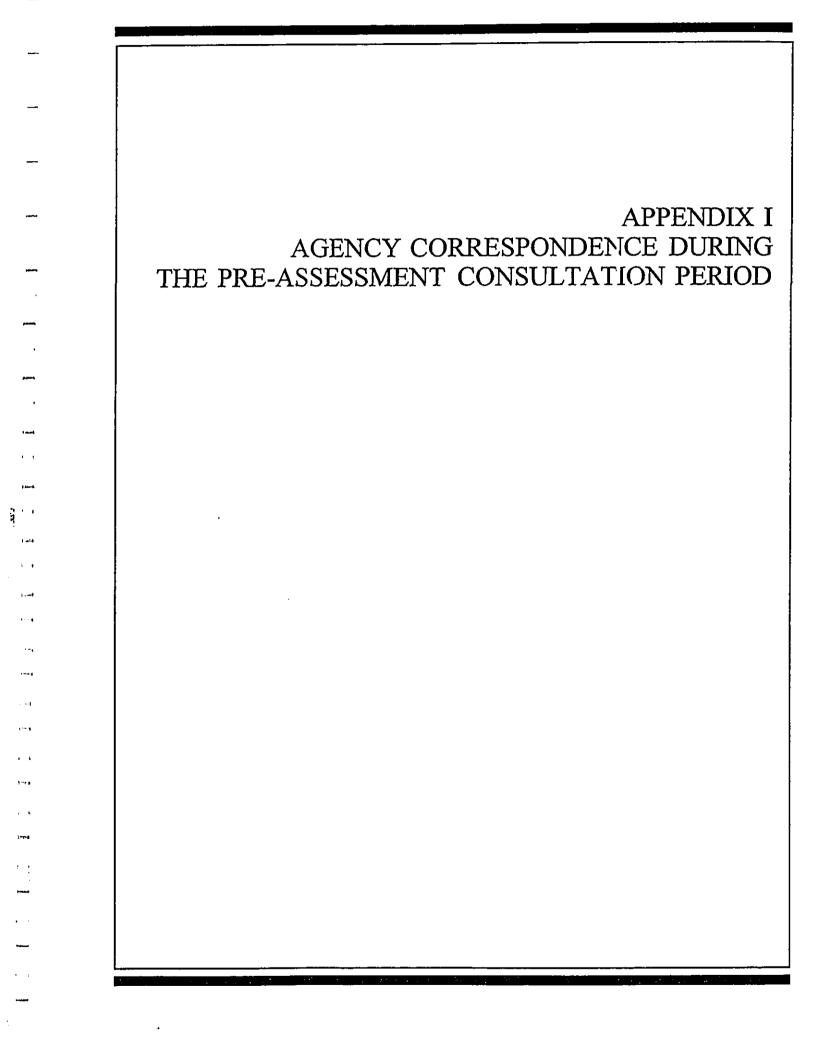












The following agencies were contacted during the pre-assessment consultation of the draft Environmental Assessment. A (\checkmark) indicates that a response was received from the agency.

Mr. William Wong, Chief State of Hawaii, Department of Health Environmental Management Division Safe Drinking Water Branch 919 Ala Moana Blvd. Honolulu, HI 96814

/ Mr. Denis Lau, Chief
State of Hawaii, Department of Health
Environmental Management Division
Clean Water Branch
919 Ala Moana Blvd.
Honolulu, HI 96814

Mr. Patrick T. Onishi, Director City and County of Honolulu Department of Land Utilization 650 S. King Street, 7th Floor Honolulu, HI 96813

Ms. Cheryl Soon, Director City and County of Honolulu Department of General Planning 650 S. King Street, 7th Floor Honolulu, HI 96813

Ms. Rae M. Loui, Deputy Director State of Hawaii Department of Land and Natural Resources Commission on Water Resource Management 1151 Punchbowl Street, Room 130 Honolulu, HI 96813

> Mr. Gary Gill, Director Office of Environmental Quality Control 220 S. King Street, 4th Floor Honolulu, HI 96813

 ✓ Mr. Don Hibbard, Administrator State of Hawaii
 State Historic Preservation Office
 33 South King Street, 6th Floor Honolulu, HI 96813

- ✓ Mr. Michael Wilson, Director
 State of Hawaii
 Department of Land and Natural
 Resources
 Office of Conservation and
 Environmental Affairs
 1151 Punchbowl Street, Room 131
 Honolulu, HI 96813
- Mr. Kazu Hayashida, Director State of Hawaii Department of Transportation Highways Division 869 Punchbowl Street Honolulu, HI 96813
- ✓ Mr. Raymond Sato Manager and Chief Engineer City and County of Honolulu Board of Water Supply 630 S. Beretania Street Honolulu, HI 96813
- ✓ Mr. William Meyer
 District Chief
 Water Resources Division
 U.S. Geological Survey
 Department of the Interior
 677 Ala Moana Blvd., Suite 415
 Honolulu, Hawaii 96813
- ✓ Mr. Kenneth M. Kaneshiro
 State Conservationist
 U.S. Department of Agriculture
 P.O. Box 50004
 Honolulu, Hawaii 96850
- ✓ Mr. Gordon Matsuoka
 State Public Works Engineer
 Department of Accounting and General
 Services
 State of Hawaii
 P.O. Box 119
 Honolulu, Hawaii 96810

- ✓ Mr. Roy S. Oshiro, Executive Director State of Hawaii Department of Budget and Finance Housing Finance and Development Corporation 667 Queen Street, Suite 300 Honolulu, Hawaii 96813
- ✓ Mr. Randall K. Fujiki Director and Building Superintendent City and County of Honolulu Building Department 650 South King Street, 1st Floor Honolulu, HI 96813
- ✓ Mr. Kenneth Sprague Director and Chief Engineer City and County of Honolulu Department of Public Works 650 South King Street Honolulu, Hawaii 96813
- ✓ Mr. Charles O. Swanson, Director City and County of Honolulu Department of Transportation Services 650 South King Street Honolulu, Hawaii 96813
- ✓ Mr. Felix Limtiaco
 Director and Chief Engineer
 City and County of Honolulu
 Department of Wastewater Management
 650 South King Street
 Honolulu, Hawaii 96813

The Honorable John DeSoto City Council Honolulu City Council Honolulu, Hawaii 96813

 ✓ The Honorable Calvin Kawamoto Senator, Nineteenth Senatorial District State of Hawaii State Capitol Honolulu, Hawaii 96813

> The Honorable Roy Takumi Representative, Thirty-Sixth Representative District State of Hawaii State Capitol Honolulu, Hawaii 96813

Waipahu Neighborhood Board No. 22 c/o Neighborhood Commission City Hall, room 400 Honolulu, Hawaii 96813

Mr. John T. Harrison
Environmental Coordinator
University of Hawaii
Environmental Center, Crawford 317
2250 Compus Road
Honolulu, HI 96822

- ✓ Mr. Bill Bonnet, Manager
 Hawaiian Electric Company, Inc.
 Environmental Department
 P.O. Box 2750
 Honolulu, Hawaii 96840
- ✓ Ms. Esther Ueda, Executive Officer Hawaii State Land Use Commission 335 Merchant Street, Room 104 Honolulu, Hawaii 96813

Ms. Kathleen Dadey U.S. Army Engineer District, Honolulu CEPOD-CO-OR Fort Shafter, Hawaii 96858-5440 SAMPLE REQUEST FOR REVIEW LETTER AND LIST OF AGENCIES CONTACTED

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February 6, 1996

Engineers/Architects

Mr. William Wong, Chief State of Hawaii, Department of Health Environmental Management Division Safe Drinking Water Branch 919 Ala Moana Blvd. Honolulu, HI 96814

Re: Request for Project Review Waipahu Wells III Station

Dear Mr. Wong:

GMP Associates, Inc. is currently preparing a revised Draft Environmental Assessment (DEA) for the above subject project. We are enclosing a project description, location map, and site map to clarify the scope of this project.

The Waipahu Wells III project has been through the Environmental Review Process once before in the first quarter of 1995. However, due to some changes to the scope of work, the project must undergo the Environmental Review Process for a second time. The following specific changes have been made to the scope:

- 1. The 100,000-gallon overflow reservoir has been omitted from the project;
- Approximately 2,400 feet of 24-inch transmission main along Kamehameha Highway, from Lumiaina Street to the existing 42-inch main above the H-1 freeway, has also been omitted;
- The well system will now service the Waikele-Waipio 395' system; and
- 4. Approximately 1,000 feet of new 16-inch transmission main will be added along Lumiaina Street, between Lumiauau Street and Lumihoahu Street. The new 16-inch main should connect the Kamehameha Highway 24-inch main from Waipahu Wells III with the existing 16-inch main at Lumiauau Street, and the existing 16-inch main at Lumihoahu Street.

Please send your comments to us by February 16, 1996, to be included in the DEA. Otherwise, you will have another opportunity to comment on the project during the 30-day comment period following the publication of the DEA in the OEQC Bulletin.

Thank you for your time and attention.

Sincerely,

GMP ASSOCIATES, INC.

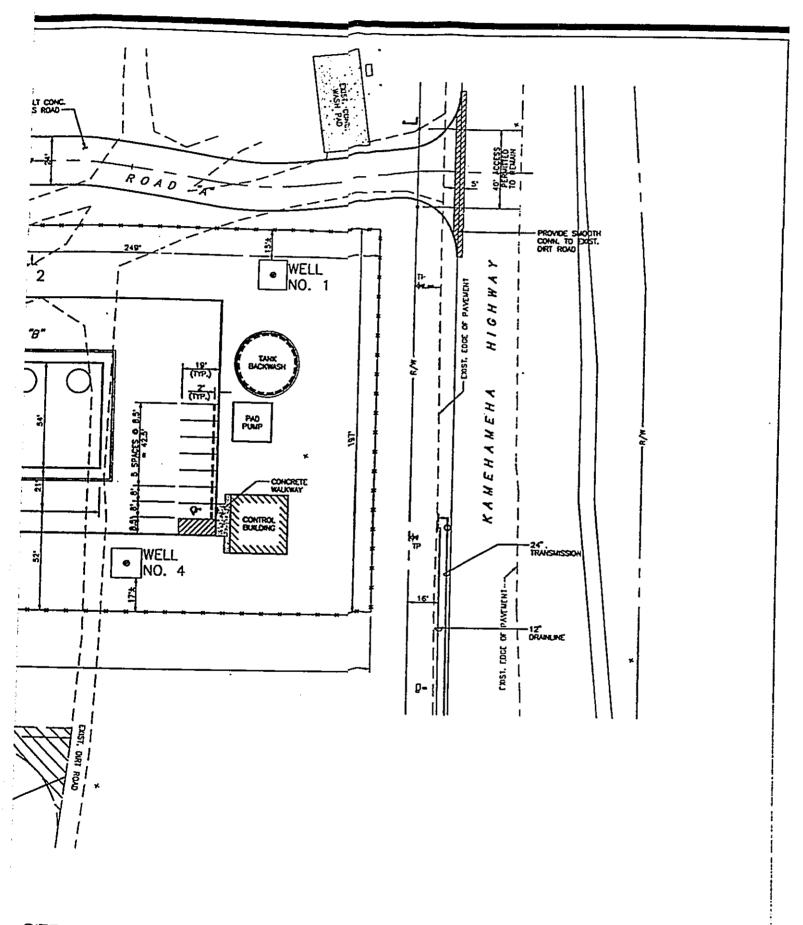
Michael M. Miyahira, P.E.

Environmental Services Department

cc: OEQC

Attachments

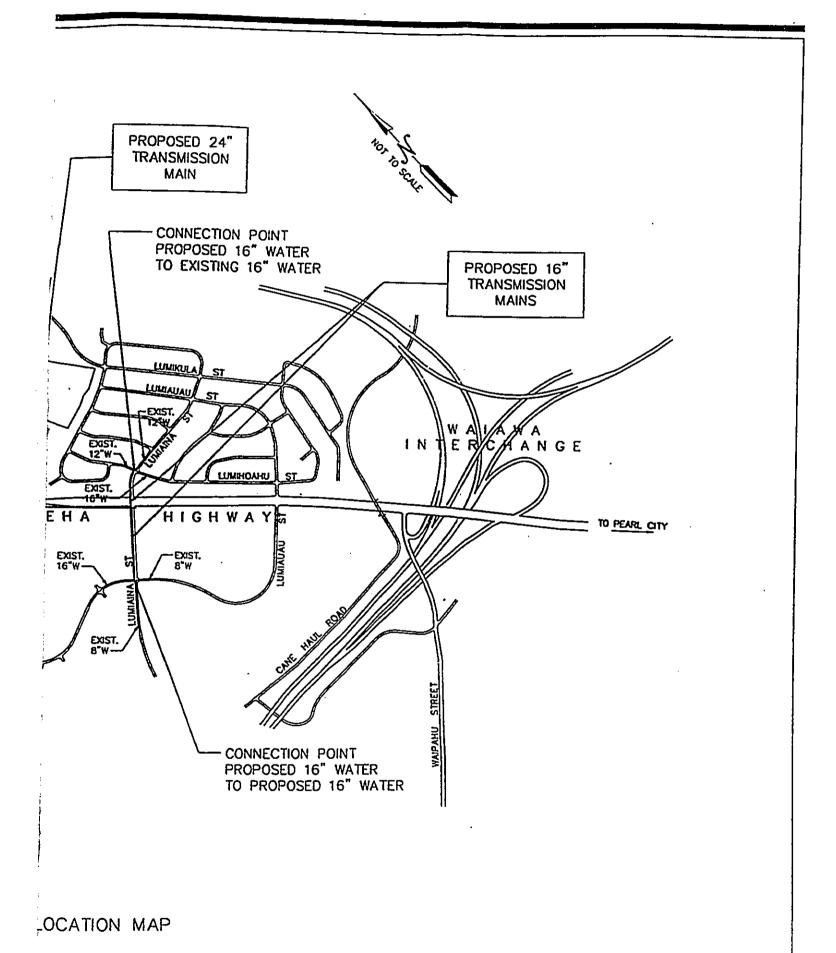
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PROPOSED 24" TRANSMISSION MAIN CONNECTION F PROPOSED 16' TO EXISTING 1 KANOELANI ELEMENTARY SCHOOL UKEE. LUMIHO EXIST. TO MILILANI KAMEHAMEHA WAIPAHU WELLS III EXIST. 16"W--EXIST. 8"W EXIST. CONI PROI TO F LOCATION MAP

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INCOMING CORRESPONDENCE

BENJAMIN J. CAYETANO



LAWRENCE MIKE DIRECTOR OF HEALTH

In reply, please refer to:

DEPARTMENT OF HEALTH

P.O. BOX 3378 HONOLULU, HAWAII 96801

February 29, 1996

96-022/epo

Mr. Michael M. Miyahira, P.E. Environmental Services Department GMP Associates, Inc. 841 Bishop Street, Suite 1501 96813 Honolulu, Hawaii

Dear Mr. Miyahira:

Subject: Pre-Consultation

Waipahu Wells III Station

One (1) Mile North of the Waiawa Interchange

TMK: 9-4-05: 74

Thank you for allowing us to review and comment on the subject project. We have the following comments to offer:

Water Pollution

A National Pollutant Discharge Elimination System (NPDES) permit is required for any discharge to waters of the State including the following:

- Storm water discharges relating to construction activities l. for projects equal to or greater than five acres;
- Storm water discharges from industrial activities; 2.
- Construction dewatering activities;
- Cooling water discharges less than one million gallons; 4.
- Ground water remediation activities; and 5.
- Hydrotesting water. 6.

Any person wishing to be covered by the NPDES general permit for any of the above activities should file a Notice of Intent with the Department's Clean Water Branch at least 90 days prior to commencement of any discharge to waters of the State.

Mr. Michael M. Miyahira February 29, 1996 Page 2

Any questions regarding this matter should be directed to Mr. Denis Lau of the Clean Water Branch at 586-4309.

Sincerely,

BRUCE S. ANDERSON, Fh.D.

Deputy Director for

Environmental Health

c: CWB

BENJAMN L CAYETANO COVERNOR OF HAWAII

1 6



STATE OF HAWAII DEPARTMENT OF LAND AND NATURAL RESOURCES COMMISSION ON WATER RESOURCE MANAGEMENT P. O. BOX 621 HONOLULU, HAWAII 96809

FEB 2 | 1996

MICHAEL D. WILSON CHARPERSON

ROBERT G. GIRALD DAVID A. NOBRIGA LAWRENCE H. MIKE RICHARD H, COX HERBERT M, RICHARDS, JR.

RAE M. LOUI, P.E. DEPUTY

Mr. Michael M. Miy GMP Associates, Inc 841 Bishop St. Honolulu, HI 96813	.	<u> </u>
Dear Mr. Miyahira:		
SUBJECT:	DEA Waipahu Wells III Station, Response to Feb. 6, 1996 Letter	<i>U2</i> :
Thank you	u for the opportunity to review the subject document. Our comments related to water resources	are marke

		The second of th
1	ion-potal protection	In general, the CWRM strongly promotes the efficient use of our water resources through conservation measures and use of alternative the water resources whenever available, feasible, and there are no harmful effects to the ecosystem. Also, the CWRM encourages the of water recharge areas which are important for the maintenance of streams and the replenishment of aquifets.
(]	We recommend coordination with the county government to incorporate this project into the county's Water the and Development Plan.
(1	We are concerned about the potential for ground or surface water degradation/contamination and recommend that approvals for this project be conditioned upon a review by the State Department of Health and the developer's acceptance of any resulting requirements related to water quality.
Į]	A Well Construction Permit and a Pump Installation Permit from the CWRM would be required before ground water is developed as a source of supply for the project.
(]	The proposed water supply source for the project is located in a designated water management area, and a Water Use Permit from the CWRM would be required prior to use of this source.
(]	Groundwater withdrawals from this project may affect streamflows. This may require an instream flow standard amendment.
[1	We recommend that no development take place affecting highly crodible slopes which drain into streams within or adjacent to the project.
ĺ	1	If the proposed project diverts additional water from streams or if new or modified stream diversions are planned, the project may need to obtain a stream diversion works permit and petition to amend the interim instream flow standard for the affected stream(s).
[1	Based on the information provided, it appears that a Stream Channel Alteration Permit pursuant to Section 13-169-50. HAR will be required before the project can be implemented.
[1	Based on the information provided, it does not appear that a Stream Channel Alteration Permit pursuant to Section 13-169-50, HAR will be required before the project can be implemented.
ĺ	1	An amendment to the instream flow standard from the CWRM would be required before any streamwater is diverted.
(1	Any new development that is permitted along a stream that is not yet channelized should be based on the express condition ther no streams will be channelized to prevent flooding of the development. Development in the open floodplain should not be allowed; other economic uses of the floodplain should be encouraged.
ſ	X J	OTHER:

The DHHL has earmarked 0.143 million gallons per day (mgd) to come from this well for their projects and currently has an interim water use permit for this amount from this source. The BWS has a pending water use permit application request for 3.0 mgd.

If there are any questions, please contact Roy Hardy at 587-0274.

Deputy Director

BENJAMIN & CAYETANO GOVERNOR OF HAWAII 96 Film 25 1117 8 22



MICHAEL D. WILSON CHURPERSON

ROBERT G. GIRALD DAVID A. NOBRIGA LAWRENCE H, MIIKE RICHARD H, COX HERBERT M, RICHAROS, JR.

RAE M. LOUI, P.E. DEPUTY

STATE OF HAWAII DEPARTMENT OF LAND AND NATURAL RESOURCES COMMISSION ON WATER RESOURCE MANAGEMENT P. O. 80X 621 HONOLULU, HAWAII 96809

MAR 22 1996

Mr. Michael M. Miyahira Environmental Services Department GMP Associates, Inc. 841 Bishop St., Suite 1501 Honolulu, HI 96813

Dear Mr. Miyahira:

Request for Project Review of Revised Draft Environmental Assessment for Waipahu Wells III Station

Thank you for the opportunity to review the subject document. Our comments related to water resources are marked below.

In general, the CWRM strongly promotes the efficient use of our water resources through conservation measures and use of alternative

pro pro	n-potabl xection	e water resources whenever available, feasible, and there are no harmful effects to the ecosystem. Also, the CWRM encourages the of water recharge areas which are important for the maintenance of streams and the replenishment of aquifers.
(1	We recommend coordination with the county government to incorporate this project into the county's Water Use and Development Plan.
[1	We are concerned about the potential for ground or surface water degradation/contamination and recommend that approvals for this project be conditioned upon a review by the State Department of Health and the developer's acceptance of any resulting requirements related to water quality.
C	1	A Well Construction Permit and a Pump Installation Permit from the CWRM would be required before ground water is developed as a source of supply for the project.
[1	The proposed water supply source for the project is located in a designated water management area, and a Water Use Permit from the CWRM would be required prior to use of this source.
ſ	1	Groundwater withdrawals from this project may affect streamflows. This may require an instream flow standard amendment.
[]	We recommend that no development take place affecting highly erodible slopes which drain into streams within or adjacent to the project.
(1	If the proposed project diverts additional water from streams or if new or modified stream diversions are planned, the project may need to obtain a stream diversion works permit and petition to amend the interim instream flow standard for the affected stream(s).
E	1	Based on the information provided, it appears that a Stream Channel Alteration Permit pursuant to Section 13-169-50, HAR will be required before the project can be implemented.
[1	Based on the information provided, it does not appear that a Stream Channel Alteration Permit pursuant to Section 13-169-56, HAK will, be required before the project can be implemented.
(]	An amendment to the instream flow standard from the CWRM would be required before any streamwater is diverted.
[]	Any new development that is permitted along a stream that is not yet channelized should be based on the express condition that no streams will be channelized to prevent flooding of the development. Development in the open floodplain should not be allowed; other economic uses of the floodplain should be encouraged.
۲ ۱	<i>.</i> 1	OTHER:

The Commission issued a well construction/pump installation permit to Honolulu Board of Water Supply (BWS) on December 29, 1993. Our records show that the well construction and pump installation work has been completed. In their application for these permits, BWS did not disclose the status of the Chapter 343 process.

A water use permit was approved for this source on October 19, 1994 for 0.144 mgd for Department of Hawaiian Homelands needs at Princess Kahanu Estates.

From the described changes in the scope of the work, it does not appear that new permits from the Commission are required.

If there are any questions, please contact Lenore Nakama at 587-0218.



STATE OF HAWAII

DEPARTMENT OF LAND AND NATURAL RESOURCES

STATE HISTORIC PRESERVATION DIVISION 33 SOUTH KING STREET, 6TH FLOOR HONOLULU, HAWAII 96813

MICHAEL D. WILSON, CHARVERLOR BOARD OF LAND AND KATURAL RESOURCES

DOWNY GILBERT COLOMA-AGARAH

AQUACULTURE DEVELOPHISHT PROGRAM

AQUATIC RESQUECES CONSTRAVATION AND

DYVAOKMENTAL AFARS

CONSERVATION AND RESOURCES DIFORCEMENT

CONVEYANCES

FORESTRY AND WILDLIFE HISTORIC PRESERVATION

MOIZIVIO LAND MANAGEMENT

LOG NO: 16488 ~

DOC NO: 9602EJ25

STATE PARKS WATER AND LAND DEVELOPMENT

February 22, 1996

Michael M. Miyahira, P. E. Environmental Engineer GMP Associates, Inc.

841 Bishop Street, Suite 1501 Honolulu, Hawaii 96813

Dear Mr. Miyahira:

Revised Draft Environmental Assessment (DEA) for the SUBJECT:

Waipahu Wells III Station

Waipi'o, 'Ewa, O'ahu TMK: 9-4-05:074

Thank you for the opportunity to review the revised DEA for the Waipahu Wells III Station: A review of our records shows that there are no known historic sites at the revised project location. These lands were commercially cultivated for many years where it is unlikely that historic sites will be found. Therefore, we believe that the this project will have "no effect" on historic sites.

Aloha,

Don Hibbard, Administrator and Historic Preservation Officer

EJ:smf

177

BENJAMIN J. CAYETANO GOVERNOR OF HAWAII



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STATE OF HAWAII DEPARTMENT OF LAND AND NATURAL RESOURCES

P.O. BOX 621 HONOLULU, HAWAII 96809

REF: EAGMPWWIII.RCOM

MAR 1 3 1996

LM-NV

Michael M. Miyahira P.E. Environmental Service Department GMP Associates, Inc. 841 Bishop Street, Suite 1501 Honolulu, Hawaii 96813

Dear Mr. Miyahira:

SUBJECT: REVISED DRAFT ENVIRONMENTAL ASSESSMENT, WAIPAHU WELL III STATION PROJECT, ISLAND OF OAHU, Hawaii.

We have received your transmittal and materials relevant to the subject Draft Environmental Assessment.

The information that you have forwarded to us was distributed to our divisions for their review and comments. As a result of the action, the following comments were received by our Division of Land Management:

Forestry and Wildlife:

"No Comments"

2. State Parks:

"No Comments"

3. Aquatic Resources:

"No Comments"

4. Boating and Ocean Recreation:

"No Comments"

5. Historic Preservation:

"A review of our records shows that there are no known historic sites at the revised project location. These lands were commercially cultivated for many years where it is unlikely that historic sites will be found. Therefore, we believe that the project will have NO EFFECT on historic sites."

MICHAEL D. WILSON CHARPERSON BOARD OF LAND AND NATURAL RESOURCES

DEPUTY GILBERT S. COLOMA-AGARAN

AQUACULTURE DEVELOPMENT
PROGRAM
AQUATIC RESOURCES
BOATING AND OCEAN RECREATION
CONSERVATION AND
ENVIRONMENTAL AFFAIRS
CONSERVATION AND
RESOURCES ENFORCEMENT
CONVEYANCES
FORESTRY AND WILDLIFE
MISTORIC PRESERVATION
LAND MANAGEMENT
STATE PARKS
Y TEL AND LAND DEVELOPMENT
WATER RESOURCE MANAGEMENT

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The Department of Land and Natural Resources has no other comments on the proposed Waipahu Well III Station. However, we do request that the applicant, its agents, contractors, subcontractors, obtain all applicable Federal, State and County licenses and permits prior to the commencement of the construction work.

We appreciate the opportunity to review the revised draft environment assessment for the proposed project.

Should you or your staff have any questions pertaining to this Department's comments, please feel free to contact Mr. Nicholas A. Vaccaro of the Land Division at 587-0438.

Aloha,

f MICHAEL D. WILSON

Attachment(s)

1-4

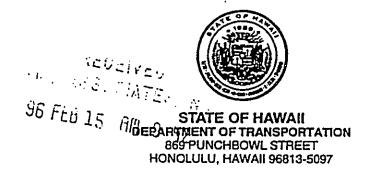
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C: Michael H. Nekoba Colbert M. Matsumoto Oahu District Land Office



KAZU HAYASHIDA DIRECTOR

DEPUTY DRECTORS
JERRY M. MATSLIDA
GLENN M. OKIMOTIC

IN REPLY REFER TO

STP 8.7224

February 13, 1996

Mr. Michael M. Miyahira GMP Associates, Inc. 841 Bishop Street, Suite 1501 Honolulu, Hawaii 96813

Dear Mr. Miyahira:

Subject: Revised Draft Environmental Assessment (DEA)
Waipahu Wells III Station

Thank you for your letter dated February 6, 1996.

The proposed development, as revised is not anticipated to have a significant impact on our State transportation facilities.

Please coordinate the implementation of the development with our Highways Division. Plans for any construction work within the State highway right-of-way must be submitted for our review and approval.

We appreciate the opportunity to provide comments.

Very truly yours,

KAZU HAYASHIDA Director of Transportation

BOARD OF WATER SUPPLY

CITY AND COUNTY OF HONOLULU 630 SOUTH BERETANIA STREET HONOLULU, HAWAII 96843 PHONE (808) 527-6180 FAX (808) 533-2714



JEREMY HARRIS, Mayor

WALTER O. WATSON, JR., Chairman MAURICE H. YAMASATO, Vice Chairman KAZU HAYASHIDA MELISSA Y.J. LUM FORREST C. MURPHY KENNETH E. SPRAGUE BARBARA KIM STANTON

RAYMOND H. SATO Manager and Chief Engineer

Mr. Michael M. Miyahira, P.E. Environmental Services Department GMP Associates, Inc. 841 Bishop Street, Suite 1501 Honolulu, Hawaii 96813

Dear Mr. Miyahira:

Subject:

Your Letter of February 6, 1996 Regarding the Revised Draft Environmental Assessment (DEA) for the Waipahu Wells III Station

Thank you for your letter regarding the revised DEA for the Board of Water Supply's proposed Waipahu Wells III project.

We have the following comments regarding the revisions to the DEA:

- 1. The 100,000 gallon overflow reservoir has been deleted from the project's scope.
- 2. The estimated 2,400 feet of 24-inch transmission main along Kamehameha Highway from Lumiaina Street to the existing 42-inch main above the H-1 Freeway has been deferred at this time but should be kept in the EA as a future project.
- 3. The Ewa/Waipahu and Honolulu district to the Waikele-Waipio 395-foot system should be included as service areas from the Waipahu Wells III project.
- 4. The estimated 1,000 feet of new 16-inch transmission main will be added along Lumiaina Street between Lumiauau Street and Lumihoahu Street. The EA should include the 24-inch main from Waipahu Wells II along Lumiaina Street and Paiwa Street to the 36-inch main along H-1 Freeway.

If you have any questions, please contact Barry Usagawa at 527-5235.

Very truly yours,

KAYMOND H. SATO

Manager and Chief Engineer

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United States Department of the Interior

U.S. GEOLOGICAL SURVEY

WATER RESOURCES DIVISION 677 Ala Moana Boulevard, Suite 415 Honolulu, Hawaii 96813

February 9, 1996

Mr. Michael M. Miyahira
Environmental Services Department
GMP Associates, Inc.
841 Bishop St., Suite 501
Honolulu, Hawaii 96813

Dear Mr. Miyahira:

Subject: Draft Environmental Assessment

Waipahu Wells III Station

The staff of the U.S. Geological Survey, Water Resources Division, Hawaii District, has reviewed the Draft Environmental Assessment, and we have no commments to offer at this time.

Thank you for allowing us to review the DEA.

Sincerely,

William Meyer District Chief

Enc.



Natural Resources Conservation Service

P. O. Box 50004 Honolulu, HI 96850-0001

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March 11, 1996

Mr. Michael M. Miyahara, P.E. GMP Associates, Inc. Environmental Services Department 841 Bishop Street, Suite 1501 Honolulu, Hawaii 96813

Dear Mr. Miyahira:

Subject: Draft Environmental Assessment (DEA) - Waipahu Wells III Station, Waipahu, Hawaii

We have reviewed the above-mentioned document and have no comments to offer at this time. We thank you for the opportunity to review this document.

Sincerely,

KENNETH M. KANESHIRO

State Conservationist

cc:

Mr. Gary Gill, Director, Office of Environmental Quality Control, Central Pacific Plaza, 220 S. King Street, 4th Floor, Honolulu, HI 96813

BENJAMIN J. CAYETANO GOVERNOR



STATE OF HAWAII

SUFFICE 22 PEPARTMENT OF ACCOUNTING AND GENERAL SERVICES PIL 3 U3 P. O. BOX 119, HONOLULU, HAWAII 96810

SAM CALLEJO COMPTROLLER

MARY PATRICIA WATERHOUSE DEPUTY COMPTROLLER

LETTER HO. (P) 1123.6

Kai /ali

FED 2.0 1996

GMP Associates, Inc. 841 Bishop Street, Suite 1501 Honolulu, Hawaii 96813

Same Same

Gentlemen:

Subject: Waipahu Wells III Station

Waipahu, Hawaii

Draft Environmental Assessment

Thank you for the opportunity to review the subject document. We have no comments to offer.

If there are any questions, please have your staff contact Mr. Ralph Yukumoto of the Planning Branch at 586-0488.

Very truly yours,

GORDON MATSUOKA

State Public Works Engineer

RY:jk



U.E. GEOLOGICAL SURVEY WATER RESOURCES DIVISION HONDILLIN, HAWALL

February 6, 1996

FEB 7 1996

Engineers/Architects

Mr. William Meyer
District Chief
Water Resources Division
U.S. Geological Survey
Department of the Interior
677 Ala Moana Blvd., Suite 415
Honolulu, Hawaii 96813

Re:

Request for Project Review

Waipahu Wells III Station

Dear Mr. Meyer:

GMP Associates, Inc. is currently preparing a revised Draft Environmental Assessment (DEA) for the above subject project. We are enclosing a project description, location map, and site map to clarify the scope of this project.

The Waipahu Wells III project has been through the Environmental Review Process once before in the first quarter of 1995. However, due to some changes to the scope of work, the project must undergo the Environmental Review Process for a second time. The following specific changes have been made to the scope:

- 1. The 100,000-gallon overflow reservoir has been omitted from the project;
- 2. Approximately 2,400 feet of 24-inch transmission main along Kamehameha Highway, from Lumiaina Street to the existing 42-inch main above the H-1 freeway, has also been omitted;
- The well system will now service the Waikele-Waipio 395' system; and
- 4. Approximately 1,000 feet of new 16-inch transmission main will be added along Lumiaina Street, between Lumiauau Street and Lumihoahu Street. The new 16-inch main should connect the Kamehameha Highway 24-inch main from Waipahu Wells III with the existing 16-inch main at Lumiauau Street, and the existing 16-inch main at Lumihoahu Street.

Please send your comments to its by February 16, 1996, to be included in the DEA. Otherwise, you will have another opportunity to comment on the project during the 30-day comment period following the publication of the DEA in the OEQC Bulletin.

Thank you for your time and attention.

Sincerely,

GMP ASSOCIATES, INC.

Michael M. Miyalfira, P.E.

Environmental Services Department

cc: OEQC
Attachments

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BENJAMIN J. CAYETANO GOVERNOR



ROY S. OSHIRO EXECUTIVE DIRECTOR

Emit ASSCOTATELLIR

STATE OF HAWAII

DEPARTMENT OF BUDGET AND FINANCE

IN REPLY REFER TO

196 FEB 15 HIT 9HOUSING FINANCE AND DEVELOPMENT CORPORATION

677 QUEEN STREET, SUITE 300

96:DEV/602

HONOLULU, HAWAII 96813 FAX (808) 587-0600

February 13, 1996

Mr. Michael M. Miyahira, P.E. GMP Associates, Inc. 841 Bishop Street, Suite 1501 Honolulu, Hawaii 96813

Dear Mr. Miyahira:

Subject: Waipahu Wells III Station Request for Project Review

The Housing Finance and Development Corporation acknowledges receipt of your February 6, 1996 letter regarding the subject project. We have reviewed the project description, location map, and site map which were enclosed with your letter and have no comment at this time.

We certainly appreciate the opportunity to comment.

Sincerely,

ROY S. OSHIRO

Executive Director

BUILDING DEPARTMENT

CITY AND COUNTY OF HONOLULU

HONOLULU MUNICIPAL BUILDING 650 SOUTH KING STREET HONOLULU, HAWAII 96813

TALLANDER

HAYON 96 FED 16 AM 9 39



RANDALL K. FUJIKI DIRECTOR AND BUILDING BUPERINTENDEN^T

ISIORO M. BAQUILAR
DEPUTY DIRECTOR AND BUILDING SUPERINTENDENT

PB 96-100

February 14, 1996

GMP Associates, Inc. 841 Bishop Street, Suite 1501 Honolulu, Hawaii 96813

Attention: Michael M. Miyahira, P. E.

Gentlemen:

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Subject: Revised Draft Environmental Assessment (DEA)
Waipahu Wells III Station

This is in response to your request to review the above subject matter.

We have no comments to offer. Thank you for the opportunity to review the document.

Should there be any questions, please contact Douglas Collinson at 527-6375.

Very truly yours,

BANDALI K. FULIKI

Director and Building Superintendent

cc: G. Tamashiro

DEPARTMENT OF PUBLIC WORKS

CITY AND COUNTY OF HONOLULU

650 SOUTH KING STREET. 1 1TH FLOOR • HONOLULU, MAWAII 96813 PHONE: (808) 523-4341 • FAX: (808) 527-5857

JEREMY HARRIS

So filin 7 17 2 26



OŽPWIN J. HAMA

ENV 96-033

KENNETH C. SPAGUE

DIRECTC# AND C--EF ENGINEER

March 5, 1996

Mr. Michael M. Miyahira, P.E. Environmental Services Department GMP Associates, Inc. 841 Bishop Street, Suite 1501 Honolulu, Hawaii 96813

Dear Mr. Miyahira:

Subject: Pre-Draft Environmental Assessment (PEA)

Waipahu Wells III Station

TMK: 9-4-05:74

We have reviewed the subject PEA and have the following comments:

- 1. There is an existing drainline on Lumiaina Street.
- 2. The proposed project is located in Flood Zone "D".
- Frontage improvements may be required.
- 4. The DEA should address best management practices (BMPs) for hydrotesting disinfection of lines, disposal of GAC effluent.

Should you have any questions, please contact Mr. Alex Ho, Environmental Engineer, at 523-4150.

Very truly yours,

KENNETH E. SPRAGUE

Director and Chief Engineer

DEPARTMENT OF TRANSPORTATION SERVICES

CITY AND COUNTY OF HONOLULU

PACIFIC PARK PLAZA
711 KAPIOLANI BOULEVARD, SUITE 1200
HONOLULU, HAWAII 96813

JEREMY HARRIS

: 2

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201 LU 201 ASSOUIATES, 11 196 FEB 20 HM 8 38



CHARLES O. SWANSON

February 16, 1996

2/96-00667R

Mr. Michael M. Miyahira, P.E. Environmental Services Department GMP Associates, Inc. 841 Bishop Street, Suite 1501 Honolulu, Hawaii 96813

Dear Mr. Miyahira:

Subject: Waipahu Wells III Station

In response to your request for project review dated February 6, 1996, we have the following comments to offer:

- Construction plans, including a traffic control plan, for all work within the City's right-of-way should be submitted to this department for review and approval.
- 2. The scheduling of this project should be coordinated with other agencies to avoid having roadwork occur on streets in close proximity at the same time.

Should you have any questions regarding these comments, please contact Faith Miyamoto of the Transportation Systems Planning Division at 527-6976.

Respectfully,

CHARLES O. SWANSON

Director

DEPARTMENT OF WASTEWATER MANAGEMENT

COUNTY OF HONOLULU CITY AND

650 SOUTH KING STREET E1889 HAWAH JUJUANOH

JEREMY HARRIS MAYOR



FELIX B. LIMTIACO DIMECTOR

CHERYLK, OKUMA-SEPE DEPUTY DIRECTOR

In reply refer to: WCC 96-22

February 13, 1996

Mr. Michael M. Miyahira, P. E. **Environmental Services Department** GMP Associates, Inc. 841 Bishop Street, Suite 1501 Honolulu, Hawaii 96813

Dear Mr. Miyahira:

Subject: Revised Draft Environmental Assessment

Waipahu Wells III Station

TMK: 9-4-5: 74

We have no objection to the Waipahu Wells III Station and the necessary transmission mains. Please contact our department to locate existing sewers in the area during the design and construction of this project.

If you have any questions, please contact Ms. Tessa Yuen of the Service Control Branch at 523-4956.

Very truly yours,

Cheux K.Okuno-Son FELIX B. LIMTIACO Director

NORMAN MIZUGUCHI

MIKE MCCARTNEY! VICE PRESIDENT

HOSALYN BAKER

LES IHARA, JR. HAJORITY FLOOR LEADER

BRIAN TANIGUCHI HAJORITY WHIP

CALVIN KAWAMOTO HAJORITY CAUCUS LEADER

MICHAEL M. F. LIU MINORITY LEADER

The Senate

The Fighteenth Pegislature

of the

State of Hawaii

STATE CAPITOL

HONOLULU, HAWAII 96813



FIRST DISTRICT MALAMA SOLOMON

SECOND DISTRICT

RICHARD LL MATSUURA THIRD DISTRICT

ANDREW LEVIN FOURTH DISTRICT

ROSALYN BAKER

FIFTH DISTRICT

- SIXTH DISTRICT AVERY CHUMBLEY

SEVENTH DISTRICT LEHUA FERWANDES SALLING

__ EIGHTH DISTRICT DONNA FL RCEDA

> NINTH DISTRICT MATT MATEURAGA

TENTH DISTRICT LES HURA, JR.

ELEVENTH DISTRICT

TWELFTH DISTRICT CAROL FLIKUNAGA

THIRTEENTH DISTRICT

ROO TAM FOURTEENTH DISTRICT

HALTON HOLT

FIFTEENTH DISTRICT HORMAN MIZUGUCHI SIXTEENTH DISTRICT

SEVENTEENTH DISTRICT

DAVID IGE

EIGHTEENTH DISTRICT RANDY IWASE

NINETEENTH DISTRICT CALVIN KAWAMOTO

TWENTIETH DISTRICT BRIAN KANNO

TWENTY-FIRST DISTRICT

TWENTY-SECOND DISTRICT

ACREAT BUNDA TWENTY-THIRD DISTRICT

MIKE MCCARTNEY

TWENTY-FOURTH DISTRICT MICHAEL M. F. LIU

> TWENTY-FIFTH DISTRICT WHITNEY T. ANDERSON

CHIEF CLERK T, DAVID WOO, JR. February 8, 1996

Michael M. Miyahira, P.E.

Environmental Services Department

GMP ASSOCIATES, INC.

841 Bishop Street, Suite 1501

Honolulu, Hawaii 96813

Request for Project Review

Waipahu Wells III Station

Hiyahira: Dear Mr.

Thank you for your letter of February 6, 1996, and the attachments thereto.

This is to let you know that we support the project wholeheartedly, and believe that it will be beneficial to the greater Waipahu area.

Thank you again.

incerely,

CAL KAWAMOTO State Senator

19th Senatorial District

(Waipahu/Pearl City)



William A. Bonnet Manager Environmental Department

February 22, 1996

Michael M. Miyahara, P.E. GMP Associates, Inc. 841 Bishop Street, Suite 1501 Honolulu, Hawaii 96813

Dear Mr. Miyahara:

Subject: Waipahu Wells III Station

Thank you for the opportunity to comment on your February 6, 1996 project description for the Waipahu Wells III Station project. We have reviewed the subject document and have no comments at this time on the proposed project. HECO shall reserve further comments pertaining to the protection of existing powerlines bordering the project area until construction plans are finalized. Again, thank you for the opportunity to comment on this Environmental Assessment.

Sincerely,

An HEI Company



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STATE OF HAWALL STATE OF HAWALL DEPARTMENT OF BUSINESS, ECONOMIC DEVELOPMENT & TOURISM LAND USE COMMISSION

Room 104, Old Federal Building 335 Merchant Street Honolulu, Hawaii 96813 Telephone: 587-3822

February 14, 1996

Mr. Michael M. Miyahira, P.E. GMP Associates, Inc. 841 Bishop Street, Suite 1501 Honolulu, Hawaii 96813

Dear Mr. Miyahira:

Subject: Request for Project Review - Waipahu Wells III Station

We have reviewed the subject request for project review, and as noted in our letter dated January 6, 1995 in response to the earlier Environmental Review Process, we offer the following comments:

- 1) We confirm that the Waipahu Wells III site, as shown in the Location Map, is within the State Land Use Agricultural District.
- 2) We confirm that the proposed 24-inch transmission main is within the State Land Use Agricultural District and Urban District.
- 3) The proposed 16-inch transmission mains along Lumiaina Street is within the State Land Use Urban District.
- 4) We suggest that a map, depicting the State Land Use District Boundaries, in relation to the proposed project, be included in the draft environmental assessment.

We have no further comments to offer at this time.

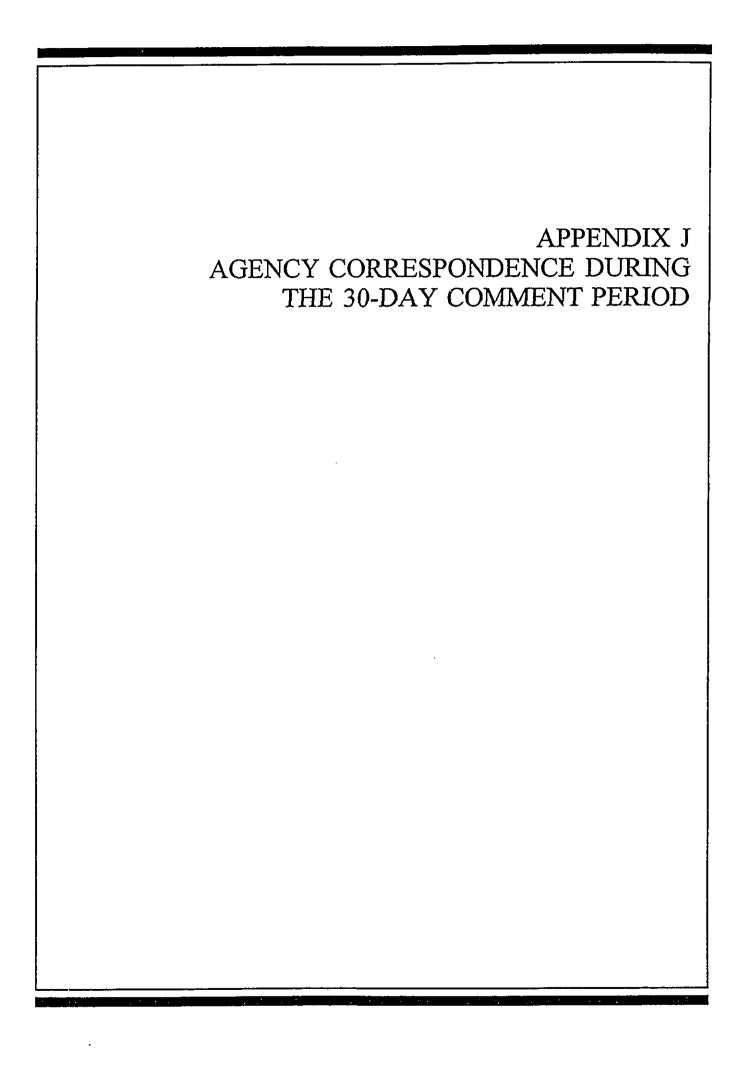
If you have any questions in regards to this matter, please feel free to contact me or Leo Asuncion of my staff at 587-3822.

Sincerely,

ESTHER UEDA

Executive Officer

EU:th



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BOOF WATER SUPPLY
BENJAMIN J. CAYETANO
COVERNOR

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GARY GILL

STATE OF HAWAII

OFFICE OF ENVIRONMENTAL QUALITY CONTROL

235 SOUTH BERETANIA STREET SUITE 702 HONOLULU, HAWAII 96813 TELPHONE (808) 586-4186 FACSIMILE (808) 586-4186

December 5, 1997

Mr. Raymond Sato, Manager and Chief Engineer Board of Water Supply City and County of Honolulu 630 South Beretania Street Honolulu, Hawaii 96843

Dear Mr. Sato:

Subject: Draft Environmental Assessment for the Waipahu Wells III Station, Oahu

Thank you for the opportunity to review the subject document. We have the following comments.

1. Orientation Maps

Please provide maps that show the following:

- a) known or assumed groundwater flowpaths; and
- b) points or regions of known contamination, points of potential contamination (landfills, individual wastewater disposal systems, hazardous waste sites, dry wells and injection wells), and the likely wellhead protection area for the proposed well.
- 2. Aquifer or Hydrologic Unit Status

Please provide a description of the aquifer or hydrologic unit status including the following:

- * Total authorized water use by the Commission on Water Resource Management
- * Data table presenting the following information as appropriate
 - Current water use totals, including subtotals for individual users
 - Current installed capacity including subtotals for

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Mr. Sato Page 2

individual wells and/or groups of wells. Pending installed capacity and/or use for wells within the aquifer

3. Contamination Analysis

Please describe the hazardous components of the spent carbon that will be removed from the water treatment unit. How will the hazardous materials be handled and disposed?

4. Determination

Please discuss the findings and reasons for supporting the FONSI determination based on the significant criteria listed in §11-200-12 of the EIS rules. Please see the enclosed example.

Should you have any questions, please call Jeyan Thirugnanam at 586-4185.

Sincerely,

Gary Gill Director

c: GMP Associates

8.0 DETERMINATION, FINDINGS AND REASONS FOR SUPPORTING DETERMINATION

8.1 SIGNIFICANCE CRITERIA

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According to the Department of Health Rules (11-200-12), an applicant or agency must determine whether an action may have a significant impact on the environment, including all phases of the project, its expected consequences both primary and secondary, its cumulative impact with other projects, and its short and long-term effects. In making the determination, the Rules establish "Significance Criteria" to be used as a basis for identifying whether significant environmental impact will occur. According to the Rules, an action shall be determined to have a significant impact on the environment if it meets any one of the following criteria:

(1) Involves an irrevocable commitment to loss or destruction of any natural or cultural resources;

The proposed project will not impact scenic views of the ocean or any ridge lines in the area. The visual character of the area will change from the current agricultural land to an improved 4-lane highway which is compatible with the surrounding land use plans and programs being implemented for the region. The highway corridor is comprised of "Prime" agricultural land which is an important resource. Development of drainage systems will follow established design standards to ensure the safe conveyance and discharge of storm runoff. In addition, the subject property is located outside of the Count's Special Management Area (SMA).

As previously noted, no significant archaeological or historical sites are known to exist within the corridor. Should any archaeologically significant artifacts, bones, or other indicators of previous on-site activity be uncovered during the construction phases of development, their treatment will be conducted in strict compliance with the requirements of the Department of Land and Natural Resources.

(2) Curtails the range of beneficial uses of the environment;

Although the subject property is suitable for agricultural uses, the land area adjoining the Mokulele Highway is naturally suited for transportation purposes due to its location proximate to an existing highway system. To return the site to a natural environmental condition is not practical from both an environmental and economic perspective.

(3) Conflicts with the State's long-term environmental policies or goals and guidelines as expressed in Chapter 344, HRS; and any revisions thereof and amendments thereto, court decisions, or executive orders;

MOKULELE HIGHWAY/PUUNENE BYPASS

Final Environmental Assessment

PROJECT NO. 311A-02-92

(8) Is individually limited but cumulatively has considerable effect on the environment, or involves a commitment for larger actions;

By planning now to address the future needs of the community and the State, improvement of the transportation system is consistent with the long term plans for Maui. No views will be obstructed or be visually incompatible with the surrounding area.

(9) Substantially affects a rare, threatened or endangered species or its habitat;

No endangered plant or animal species are located within the highway corridor.

(10) Detrimentally affects air or water quality or ambient noise levels;

Any possible impact to near-shore ecosystems resulting from surface runoff, will be mitigated by the establishment of on-site retention basins during the construction phases of development. After development, retention areas within the highway right-of-way will serve the same function to encourage recharge of the groundwater.

(11) Affects or is likely to suffer damage by being located in an environmentally sensitive area, such as a flood plain, tsunami zone, beach, erosion-prone area, geologically hazardous land, estuary, freshwater, or coastal waters.

Development of the property is compatible with the above criteria since there are not environmentally sensitive areas associated with the project and the physical character of the corridor has been previously disturbed by agricultural uses. As such, the property no longer reflects a "natural environment". Shoreline, valleys, or ridges will not be impacted by the development.

(12) Substantially affects scenic vistas and view planes identified in county or state plans or studies;

Due to topographical characteristics of the property, views of the area to be developed are generally not significant although they are visible. The majority of the proposed project will not be visible, except from higher elevations by the general public or from persons traveling along the highway.

(13) Requires substantial energy consumption.

The location of the proposed project is between Maui's major growth areas. This relationship will reduce travel times and energy consumption after project build out through efficiencies gained by the increased capacity of the highway. Construction of the proposed project will not require substantial energy consumption relative to other similar projects.

MOKULELE HIGHWAY/PUUNENE BYPASS

Final Environmental Assessment

PROJECT NO. 311A-02-92

Page 48

BOARD OF WATER SUPPLY

CITY AND COUNTY OF HONOLULU 630 SOUTH BERETANIA STREET HONOLULU, HAWAII 96843 PHONE (808) 527-6180 FAX (808) 533-2714



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JEREMY HAKUS, MOOT PY

WALTER O. WATSON, JR., Chairman EDDIE FLORES, JR. KAZU HAYASHIDA JAN M. L. Y. AMII FORREST C. MURPHY JONATHAN K. SHIMADA, PhD BARBARA KIM STANTON

BROOKS H. M. YUEN, Acting Manager and Chief Engineer

Mr. Gary Gill, Director Office of Environmental Quality Control State of Hawaii 235 South Beretania Street, Suite 702 Honolulu, Hawaii 96813

Doar Mr. Gill:

LB

Subject: Draft Environmental Assessment for the Board of Water Supply's Proposed Waipahu Wells III Station, Waipahu, Oahu

Thank you for reviewing the Draft Environmental Assessment (EA) for the proposed Waipahu Wells III project.

We provide the following responses to your concerns:

1. Orientation Maps

- a. Groundwater flows from high potential to low potential. In this case, the general groundwater flowpath of the affected aquifer is from mountain to ocean. A map delineating the boundaries of the Waipahu and Waiawa aquifers will be added to the Final EA.
- b. Water quality test results have shown that the pesticides ethylene dibromide (EDB) and dibromochloropropane (DBCP) are present in the water. A groundwater contamination map showing the latest confirmed results of contaminated groundwater wells in the vicinity, will be included in the Final EA.
- 2. Aquifer or Hydrologic Unit Analysis: The Commission on Water Resource
 Management allocated a total of 2.684 mgd to the Waipahu Wells III station
 on June 5, 1996. Of this total, 2.014 mgd is allocated to the State Housing
 and Finance Development Corporation, 0.5 mgd is allocated to the Board of
 Water Supply and 0.17 mgd is allocated to the State Department of Hawaiian
 Home Lands. The Final EA will reflect the permitted and actual water uses
 within the Waipahu-Waiawa aquifer system.
- 3. Contamination Analysis: The activated carbon absorbs the pesticides in groundwater. The spent carbon from the GAC units is presently being landfilled in accordance with approved procedures. We are evaluating alternatives to regenerate the carbon for reuse.
- 4. <u>Determination</u>: The findings and reasons for supporting the FONSI determination will be included in Section 6, "Determination", of the Final

If you have any questions, please contact Barry Usagawa at 527-5235.

very truly yours,

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BROOKS H. M. YOUN Acting Manager and Chief Engineer

cc: Anna Lee, GMP Associates, Inc.

DEPARTMENT OF PARKS AND RECREATION

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CITE HONOLULU

BD OF WATER GUARTH KING STREET, 10TH FLOOR . HONOLULU, HAWAII 96813 PHONE: (808) 523-4182 • FAX: (808) 523-4054

DEC 11 11 40 AM '97

Mr. Neal S. Fukumoto, P.E.

841 Bishop Street, Suite 1501 Honolulu, Hawaii 96813-3915

JEREMY HARRIS MAYOR



WILLIAM D. BALFOUR, JR. DIRECTOR

> MICHAEL T. AMII DEPUTY DIRECTOR

December 8, 1997

Dear Mr. Fukumoto:

GMP Associates, Inc.

Subject: Draft Environmental Assessment (DEA) for the Board of Water Supply (BWS) for (1) Construction and Installation of Improvements at Waipahu Wells III Station and (2) Installation of New Transmission Mains along Kamehameha Highway; along Lumiaina Street, between Kamehameha Highway and Kukula Street; and along Kukula Street, Adjoining Waipahu Wells II Station

We have reviewed the DEA for the above-described project and offer the following comments:

- The DEA provides a thorough description and analysis of most of the "Proposed Action, Affected Environment, and Environmental Consequences... of the action(s).
- However, there is a near-total lack of description or illustration of the proposed transmission mains, their "Affected Environment," and the "Environmental Consequences... of installing those mains (beyond a single line drawn along the above roadways on a single map).
- The most significant factor, from our point of view, is the proximity of our (1) Waikele Community Park, adjoining the easterly and northerly sides of the Waipahu Wells I site, along the northerly side of Lumiaina Street, and (2) Waikele Neighborhood Park, located in the block bounded by Kamehameha Highway, Lumiaina Street, and Lumiauau Street.

Mr. Neal S. Fukumoto Page 2 December 8, 1997

After looking in several of the usual places ("Proposed - Action, Affected Environment, and Environmental Consequences..."), we note that both parks are not mentioned anywhere in the text, maps, or plans in the DEA.

Our primary concerns include (1) risks to young children at the parks who might be attracted to open ditches along the path of the transmission mains; (2) traffic problems and access to the parks during installation of the transmission mains; and (3) adverse effects to trees and other landscaping along the path of the proposed mains.

We request, therefore, that the consultant or the BWS submit construction plans, etc., when they become available, showing the exact location(s), dimensions, and "Affected Environment(s)..." of the proposed transmission mains. Those plans should show or make reference to both waikele Community Park and Waikele Neighborhood Park. We also request that the consultant pay special attention to the location of trees and landscaping along the northerly side of Lumiaina Street and along the easterly and northerly sides of the Waipahu Wells I site.

Please call Mr. Jay Lembeck, Planner, of our Advance Planning Branch at 523-4272 if you need further assistance.

Sincerely,

W.D. Back.

WILLIAM D. BALFOUR, JR. Director

WDB:ei

√cc: Board of Water Supply

BOARD OF WATER SUPPLY

CITY AND COUNTY OF HONOLULU 630 SOUTH BERETANIA STREET HONOLULU, HAWAII 96843 PHONE (808) 527-6180 FAX (808) 533-2714



COPY

JEREMY HARRIS, Mayor

WALTER O. WATSON, JR., Chairman EDDIE FLORES, JR. KAZU HAYASHIDA JAN M.L.Y. AMII FORREST C. MURPHY JONATHAN K. SHIMADA, PhD BARBARA KIM STANTON

RAYMOND H. SATO Manager and Chief Engineer

TO:

WILLIAM D. BALFOUR, JR., DIRECTOR DEPARTMENT OF PARKS AND RECREATION

FROM:

RAYMOND H. SATO, MANAGER AND BOARD OF WATER SUPPLY

SUBJECT:

DRAFT ENVIRONMENTAL ASSESSMENT FOR THE PROPOSED WAIPAHU WELLS III

STATION, TMK: 9-4-05: 074

Thank you for reviewing the Draft Environmental Assessment (EA) for the proposed Waipahu Wells III project.

We provide the following responses to your concerns:

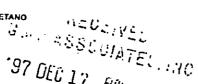
- 1. The description of the proposed transmission mains and the adjoining land uses will be expanded. Construction plans of the proposed transmission mains will be submitted to the Department of Parks and Recreation for review when they become available.
- 2. Recreational resources will be addressed in the Final EA, in particular, the Waikele Community Park and Waikele Neighborhood Park. The section will include your primary concerns on risks to park users, especially young children, traffic impacts to park access and roadway landscaping along the proposed route.

If you have any questions, please contact Barry Usagawa at 527-5235.

cc: Neal Fukumoto, GMP Associates, Inc.

3 M P ASSOCIATES, INC

BENJAMIN J. CAYETANO GOVERNOR





ROY S. OSHIRO EXECUTIVE DIRECTOR

IN REPLY REFER TO:

97 DEC 17 FIFT 8 44DEPARTMENT OF BUDGET AND FINANCE HOUSING FINANCE AND DEVELOPMENT CORPORATION

97:DEV/5202

677 QUEEN STREET, SUITE 300 HONOLULU, HAWAII 96813 FAX (808) 587-0600

December 8, 1997

Mr. Neal S. Fukumoto, P.E. Project Manager GMP Associates, Inc. 841 Bishop Street, Suite 1501 Honolulu, Hawaii 96813-3915

Dear Mr. Fukumoto:

Subject: Draft Environmental Assessment for the Waipahu Wells III Station Waipahu, Hawaii (TMK: 9-4-05:74)

Thank you for the opportunity to comment on the draft environmental assessment for the subject project.

The purpose of this project is to provide 2.657 mgd of potable water to meet the HFDC's needs for the Villages of Kapolei. As such, HFDC is participating with the Board of Water Supply in the cost-sharing of this project. The following are our comments regarding the DEA:

- ı. Page 5-3, Paragraph 5.1.9 Traffic Please mention how ADA requirements for temporary and permanently relocated bus stops, sidewalk, and ramps will be
- Page 5-4, Paragraph 5.1.11 Socioeconomic 2. Delete "90" from the first sentence. Sentence should read: "Construction of the Waipahu Wells III Station and 24-inch and 16-inch transmission mains is [90] expected to provide a small number of temporary jobs for local workers."



Mr. Neal S. Fukumoto, P. E. December 8, 1997
Page 2

3. <u>Page 5-6. Paragraph 5.2.7 Socioeconomic</u>
Please identify the funding amounts and the sources for this project.

If there are any questions on the above comments, please contact Neal Wu at 587-0538.

Sincerely,

RANGE-

ROY S. OSHIRO Executive Director

CITY AND COUNTY OF HONOLULU 630 SOUTH BERETANIA STREET HONOLULU, HAWAII 96843 PHONE (808) 527-6180 FAX (808) 533-2714



March 18, 1998



WALTER O. WATSON, JR., Chairman EDDIE FLORES, JA. KAZU HAYASHIDA JAN M.L.Y. AMII FORREST C. MURPHY JONATHAN K. SHIMADA, PhD BARBARA KIM STANTON

RAYMOND H. SATO Manager and Chief Engineer

Mr. Roy S. Oshiro, Executive Director Housing Finance and Development Corporation Department of Budget and Finance State of Hawaii 677 Queen Street, Suite 300 Honolulu, Hawaii 96813

Dear Mr. Oshiro:

Subject:

Draft Environmental Assessment for the Proposed Waipahu Wells III Station, Waipahu, Oahu,

TMK: 9-4-05: 74

Thank you for reviewing the Draft Environmental Assessment (EA) for the proposed Waipahu Wells III Station.

We provide the following responses to your concerns:

Page 5-3, Paragraph 5.1.9 Traffic: The following provisions will be made to satisfy Americans with Disabilities Act (ADA) requirements:

One bus stop along Kamehameha Highway, as well as a crosswalk and sidewalk ramp at the intersection of Kamehameha Highway and Lumiaina Street will be temporarily relocated during construction. The temporary relocation will be in conformance with ADA requirements. Following completion of construction activities, the bus stop, crosswalk and sidewalk ramp will be reinstalled.

- 2. Page 5-4; Paragraph 5.1.11 Socioeconomic will be corrected.
- 3. Page 5-6, Paragraph 5.2.7 Socioeconomic:

The Final EA will include the funding amounts for the proposed project. The sources of funding for this project are identified in Section 1.2 of the document.

If you have any questions, please contact Barry Usagawa at 527-5235.

Very truly yours,

RAYMOND H: SATO

Manager and Chief Engineer

Neal Fukumoto, GMP Associates

Pure Water . . . our greatest need - use it wisely

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ESTHER UEDA EXECUTIVE OFFICER

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STATE OF HAWAII

DEPARTMENT OF BUSINESS, ECONOMIC DEVELOPMENT & TOURISM

LAND USE COMMISSION

P.O. Box 2359 Honolulu, HI 96804-2359 Telephone: 808-587-3822 Fax: 808-587-3827

November 7, 1997

Mr. Neal S. Fukumoto, P.E. Project Manager GMP Associates, Inc. 841 Bishop Street, Suite 1501 Honolulu, Hawaii 96813-3915

Dear Mr. Fukumoto:

Subject: Draft Environmental Assessment (DEA) for the Waipahu Wells III Station, Waipahu, Hawaii,

TMK 9-4-05: 74

We have reviewed the DEA for the subject project transmitted by your letter dated November 3, 1997, and in addition to our previous comments dated February 14, 1996, on the subject project, we have the following comments to offer:

- References to the "Agriculture" District/Designation on page 4-4 and Figure 4-3 should be amended to "Agricultural" District/Designation. Also on page 4-4, "Chapter 204-4.5(a)(7)" should be amended to "Section 205-4.5(a)(7)."
- 2) We suggest Figure 4-3 also include the proposed transmission mains in relation to the State land use districts.

We have no further comments to offer at this time. We appreciate the opportunity to comment on the subject DEA.

Should you have any questions, please feel free to call me or Bert Saruwatari of our office at 587-3822.

Sincerely,

ESTHER UEDA

Executive Officer

EU:th

CITY AND COUNTY OF HONOLULU 630 SOUTH BERETANIA STREET HONOLULU, HAWAII 96843 PHONE (808) 527-6180 FAX (808) 533-2714



January 27, 1998



JEREMY HARRIS, Mayor

WALTER O. WATSON, JR., Chairman MAURICE H. YAMASATO, Vice Chairman KAZU HAYASHIDA MELISSA Y.J. LUM FORREST C. MURPHY JONATHAN K. SHIMADA, PhD BARBARA KIM STANTON

RAYMOND H. SATO Manager and Chief Engineer

Ms. Esther Ueda, Executive Officer
Department of Business, Economic Development
and Tourism
Lai d Use Commission
State of Hawaii
P. O. Box 2359
Honolulu, Hawaii 96804-2359

Attention: Bert Saruwatari

Dear Ms. Ueda:

Subject:

Your Letter of November 7, 1997 to GMP Associates, Inc. Regarding the Draft Environmental Assessment for the Proposed Waipahu Well III Station, Waipahu, Oahu, TMK: 9-4-05: 74

Thank you for your letter regarding the Draft Environmental Assessment (EA) for the proposed Waipahu Wells III Station.

We provide the following responses to your comments:

- 1. References in the EA will be corrected to reflect "Agricultural" District/ Designation on page 4-4 and Figure 4-3 and "Section 205-4.5 (a) (7)" on page 4-4.
- 2. Figure 4-3 showing state land use district boundaries will include the proposed transmission mains.

If you have any questions, please contact Barry Usagawa at 527-5235.

Very truly yours,

Manager and Chief Engineer

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DEPARTMENT OF THE ARMY U.S. ARMY ENGINEER DISTRICT, HONOLULU FORT SHAFTER, HAWAII 96858-5440

November 14, 1997

Operations Branch

Mr. Neal S. Fukumoto GMP Associates, Inc. 841 Bishop Street, Suite 1501 Honolulu, Hawaii 96813-3915

Dear Mr. Fukumoto:

Thank you for the opportunity to review the Draft Environmental Assessment for the Waipahu Wells III Station (TMK: 9-4-05:74). Based on the information provided, the proposed project will not impact waters of the United States, including wetlands, and will not require a Department of Army permit.

If you have any further questions, please contact Mr. Alan Everson of my staff at 438-9258, extension 11 and refer to File No. 980000028.

Sincerely,

Linda M. Hihara-Endo, Ph.D., P.E. Acting Chief, Operations Branch

CITY AND COUNTY OF HONOLULU 630 SOUTH BERETANIA STREET HONOLULU, HAWAII 96843 PHONE (808) 527-6180 FAX (808) 533-2714



JEREMY HARRIS, Mayo

WALTER O. WATSON, JR., Chairman MAURICE H. YAMASATO, Vice Chairman KAZU HAYASHIDA MELISSA Y.J. LUM FORREST C. MURPHY JONATHAN K. SHIMADA, PhD BARBARA KIM STANTON

RAYMOND H. SATO Manager and Chief Engineer

Ms. Linda M. Hihara-Endo, Ph.D, P.E. Operations Branch Department of the Army U.S. Army Engineer District, Honolulu Fort Shafter, Hawaii 96858-5440

Dear Dr. Hihara-Endo:

Subject:

Your Letter of November 14, 1997 to GMP Associates, Inc. Regarding the Draft

Environmental Assessment for the Proposed Waipahu Wells III Station, Waipahu,

Oahu, Hawaii, TMK: 9-4-005: 074

Thank you for reviewing the Draft Environmental Assessment for the proposed Waipahu Wells III Station.

We acknowledge that the proposed project will not impact waters of the United States, including wetlands, and will not require a Department of the Army permit.

If you have any questions, please contact Barry Usagawa at 527-5235.

Very truly yours,

Manager and Chief Engineer

Neal Fukumoto, GMP Associates, Inc.

our arontest need - use it wisely



STATE OF HAWAII
DEPARTMENT OF TRANSPORTATION
869 PUNCHBOWL STREET
HONOLULU, HAWAII 96813-5097

November 10, 1997

KAZU HAYASHIDA DIRECTOR

DEPUTY DIRECTORS

GLENN M. OKIMOTO BRIAN K. MINAAI

IN REPLY REFER TO:

RECEIVED NA ASSOCIATES, INC

STP 8.8246

Mr. Neal S. Fukumoto Project Manager GMP Associates, Inc. 841 Bishop Street, Suite 1501 Honolulu, Hawaii 96813-3915

Dear Mr. Fukumoto:

Subject: Draft Environmental Assessment (DEA)

Waipahu Wells III Station

TMK: 9-4-05: 74

Thank you for your letter dated November 3, 1997.

The proposed development, is not anticipated to have a significant impact on our State transportation facilities.

Our comments of February 13, 1996, STP 8.7224 are still applicable. Please coordinate the implementation of the development with our Highways Division. Plans for any construction work within the State highway right-of-way must be submitted for our review and approval.

We appreciate the opportunity to provide comments.

Very truly yours,

KAZU HAYASHIDA Director of Transportation

CITY AND COUNTY OF HONOLULU 630 SOUTH BERETANIA STREET HONOLULU, HAWAII 96843 PHONE (808) 527-6180 FAX (808) 533-2714



EREMY HARRIS Mayor

JEREMY HARRIS, Mayor

WALTER O. WATSON, JR., Chairman MAURICE H. YAMASATO, Vice Chairman KAZU HAYASHIDA MELISSA Y.J. LUM FORREST C. MURPHY JONATHAN K. SHIMADA, PhD BARBARA KIM STANTON

RAYMOND H. SATO Manager and Chief Engineer

Mr. Kazu Hayashida, Director Department of Transportation State of Hawaii 869 Punchbowl Street Honolulu, Hawaii 96813-5097

Dear Mr. Hayashida:

Subject:

Your Letter of November 10, 1997 to GMP Associates, Inc. Regarding the Draft Environmental Assessment for the Board of Water Supply's Proposed Waipahu Wells III Station Waipahu Orley III Station Waipahu

Wells III Station, Waipahu, Oahu, TMK: 9-4-05: 74

Thank you for your letter regarding the Draft Environmental Assessment for the proposed Waipahu Wells III Station.

We acknowledge that the proposed project is not anticipated to have a significant impact on State transportation facilities. Construction drawings for work within the State Highway right-of-way will be submitted for your review and approval and will be coordinated with the State Highways Division.

If you have any questions, please contact Barry Usagawa at 527-5235.

Very truly yours,

KAYMOND H. SATO Manager and Chief Engineer

BENJAMIN J. CAYETANO



STATE OF HAWAII DEPARTMENT OF HEALTH P.O. BOX 3378

HONOLULU, HAWAII 96801

In reply, please refer to:

LAWRENCE MIKE DIRECTOR OF HEALTH

November 10, 1997

Mr. Neal S. Fukumoto, P.E. Project Manager GMP Associates, Inc. 841 Bishop Street, Suite 1501 Honolulu, Hawaii 96813-3915

Dear Mr. Fukumoto:

SUBJECT:

DRAFT ENVIRONMENTAL ASSESSMENT FOR THE WAIPAHU WELLS III STATION WAIPAHU, HAWAII (TMK: 9-4-05:74)

Thank you for the opportunity to review and comment on the draft environmental assessment (DEA). We have no objections to this DEA for Waipahu Wells III station. The Waipahu Wells III, state well nos. 2400-09 to -13, were granted conditional approval as drinking water source on September 11, 1995. In addition, we have the following comments to offer:

- The September 11, 1995 conditional approval requires that 1. all water from the Waipahu Wells III Station wells be treated by granula activated carbon.
- Please replace Appendix A, Water Use Permits, Exhibit 1 -Well No. 2459-26 to -30, with the correct location map for well No. 2400-09 to -13.

EMD / SDWB

ASSOCIATES, I

Mr. Neal S. Fukumoto, P.E. November 10, 1997 Page 2

If you should have any questions, please contact Ms. Queenie Komori of the Safe Drinking Water Branch, Engineering Section, at 586-4258.

Sincerely,

THOMAS E. ARIZUMI, P.E., Chief Environmental Management Division

QK:la

Enclosure

CITY AND COUNTY OF HONOLULU 630 SOUTH BERETANIA STREET HONOLULU, HAWAII 96843 PHONE (808) 527-6180 FAX (808) 533-2714



January 28, 1998



JEREMY HARRIS, Mayor

WALTER O. WATSON, JR., Chairman MAURICE H. YAMASATO, Vice Chairman KAZU HAYASHIDA MELISSA Y.J. LUM FORREST C. MURPHY JONATHAN K. SHIMADA, PhD BARBARA KIM STANTON

RAYMOND H. SATO Manager and Chief Engineer

Mr. Thomas E. Arizumi, Chief Environmental Management Division Department of Health State of Hawaii P. O. Box 3378 Honolulu, Hawaii 96801

Dear Mr. Arizumi:

Subject:

Your Letter of November 10, 1997 to GMP Associates Inc. Regarding the Draft Environmental Assessment for the Proposed Waipahu Wells III Station, Waipahu, Oahu, TMK: 9-4-05: 74

Thank you for reviewing the Draft Environmental Assessment (EA) for the proposed Waipahu Wells III Station.

We provide the following response to your concerns:

- 1. We acknowledge that your September 11, 1995 conditional approval requires that all water from the Waipahu Wells III Station be treated by granular activated carbon (GAC). GAC units will be installed at the proposed station for water treatment.
- 2. Exhibit 1, Appendix A of the Final EA will be amended to reflect the proper location map for the proposed wells.

If you have any questions, please contact Barry Usagawa at 527-5235.

Very truly yours,

RAYMOND H. SATO

Manager and Chief Engineer

νc:



GMP ASSOCIATES, INC '97 DEC 1 AM 8 20

Patricia Uyehara Wong, Esq. Manager Environmental Department

November 26, 1997

GMP Associates, Inc. 841 Bishop Street, Suite 1501 Honolulu, HI 96813-3915 Attention: Mr. Neal Fukumoto, P.E.

Dear: Mr. Fukumoto

Subject: Waipahu Wells III Station

Thank you for the opportunity to comment on your October 1997 Draft EA for the Waipahu Wells III Station, as proposed by the Board of Water Supply. We have reviewed the subject document and would like to point out that the present plans call for an overhead line extension along Kamehameha Highway from Waipio Uka St. to the well site.

I suggest your staff and consultants deal directly with Bill Muench (543-5657), seinor customer engineer, to coodinate HECO's continuing input on this project.

Sincerely,

Jum

cc: OEQC

B. Muench



CITY AND COUNTY OF HONOLULU 630 SOUTH BERETANIA STREET HONOLULU, HAWAII 96843 PHONE (808) 527-6180 FAX (808) 533-2714



January 27, 1998



JEREMY HARRIS, Mayor

WALTER O. WATSON, JR., Chairman MAURICE H. YAMASATO, Vice Chairman KAZU HAYASHIDA MELISSA Y.J. LUM FORREST C. MURPHY JONATHAN K. SHIMADA, PhD BARBARA KIM STANTON

RAYMOND H. SATO Manager and Chief Engineer

Ms. Patricia Uyehara Wong, Esq., Manager Environmental Department Hawaiian Electric Company, Inc. P. O. Box 2750 Honolulu, Hawaii 96840-0001

Dear Ms. Wong:

Subject:

Your Letter of November 26, 1997 to GMP Associates, Inc. Regarding the Draft Environmental Assessment for the Proposed Waipahu Wells III Station, Waipahu,

Oahu, TMK: 9-4-05: 74

Thank you for reviewing the Draft Environmental Assessment (EA) for the proposed Waipahu Wells III Station.

We will continue to coordinate the design of the proposed project with Mr. Bill Muench of the Hawaiian Electric Company. The Final EA will reflect the new overhead lines and poles that will be installed along Kamehameha Highway from Waipio Uka Street to the well station. In addition, the Final EA will note that these new lines and poles will replace existing ones.

If you have any questions, please contact Barry Usagawa at 527-5235.

Very truly yours,

Manager and Chief Engineer

jec:

DEPARTMENT OF WASTEWATER MANAGEMENT

CITY AND COUNTY OF HONOLULU

650 SOUTH KING STREET, 3RD FLOOR • HONOLULU, HAWAII 96813 PHONE: 18081 527-6663 • FAX: (8081 527-6675

JEREMY HARRIS



KENNETH E. SPRAGUE, P.E., Ph.D.

DIRECTOR

CHERYL K. OKUMA-SEPE, ESO. OCPUTY DIRECTOR

In reply refer to: WCC 97-261

November 17, 1997

Mr. Neal S. Fukumoto, P. E. Project Manager GMP Associates, Inc. 841 Bishop Street, Suite 1501 Honolulu, Hawaii 96813-3915

Dear Mr. Fukumoto:

Subject: Draft

Draft Environmental Assessment for the

Waipahu Wells III Station

Waipahu, Hawaii

TMK: 9-4-05: 074

KECEIVEL GMP ASSOCIATES, INC.

We have no objection to the construction of the Board of Water Supply's Waipahu Wells III Station and the necessary transmission mains. Please contact our department to locate the existing sewer lines in the area during the design and construction of this project.

If you have any questions, please contact Ms. Tessa Ching of the Service Control Branch at 523-4956.

Sincerely,

KENNETH E. SPRAGUE

Director

CITY AND COUNTY OF HONOLULU 630 SOUTH BERETANIA STREET HONOLULU, HAWAII 96843 PHONE (808) 527-6180 FAX (808) 533-2714



January 28, 1998

EREMY HARRIS, Mayor

WALTER O. WATSON, JR., Chairman MAURICE H. YAMASATO, Vice Chairman KAZU HAYASHIDA MELISSA Y.J. LUM FORREST C. MURPHY JONATHAN K. SHIMADA, PhD BARBARA KIM STANTON

RAYMOND H. SATO Manager and Chief Engineer

TO:

KENNETH E. SPRAGUE, DIRECTOR

DEPARTMENT OF WASTEWATER MANAGEMENT

FROM:

BAYMOND H. SATO, MANAGER AND CHIEF ENGINEER

BOARD OF WATER SUPPLY

SUBJECT:

YOUR LETTER OF NOVEMBER 17, 1997 TO GMP ASSOCIATES, INC.

REGARDING THE DRAFT ENVIRONMENTAL ASSESSMENT FOR THE

PROPOSED WAIPAHU WELLS III STATION, WAIPAHU, OAHU,

TMK: 9-4-05: 74

Thank you for reviewing the Draft Environmental Assessment (EA) for the proposed Waipahu Wells III Station.

We acknowledge that you have no objections to the proposed project. We will contact your department to locate the existing sewer lines in the area during the design and construction of the project. Construction drawings will be submitted for your review and approval.

If you have any questions, please contact Barry Usagawa at 527-5235.

PLANNING DEPARTMENT

CITY AND COUNTY OF HONOLULU

650 SOUTH KING STREET, BTH FLOOR . HONOLULU, HAWAII 96813-3017 PHONE: (808) 523-4711 . FAX: (808) 523-4950

JEREMY HARRIS

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PATRICK T. ONISHI

DONA L. HANAIKE

RR 11/97-2166

November 20, 1997

Mr. Neal S. Fukumoto P.E. Project Manager GMP Associates, Inc. 841 Bishop Street, Suite 1501 Honolulu, Hawaii 96813

Dear Mr. Fukumoto:

REGEIVED
REGEIVED
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REGEIVED
REGEIVED

Draft Environmental Assessment (EA) for the Waipahu Wells III Station

Tax Map Key (TMK) 9-4-05:74

In response to your company's request of November 3, 1997 on behalf of the City and County of Honolulu Board of Water Supply (BWS), an amendment to the Central Oahu Development Plan Public Facilities Map would be required before the proposed station is funded for construction.

The proposed station is located within the Waiola Sports Complex being developed by Jopis. the City and County of Honolulu Department of Parks and Recreation. Your company should solicit their review comments with regards to the Station's impact upon the proposed Waiola Sports Complex.

Should you have any questions please contact Rob Reed of our staff at 523-4402.

Yours very truly,

Chief Planning Officer

PTO:Ih

CITY AND COUNTY OF HONOLULU 630 SOUTH BERETANIA STREET HONOLULU, HAWAII 96843 PHONE (808) 527-6180 FAX (808) 533-2714



COPY

JEREMY HARRIS, Mayor

WALTER O. WATSON, JR., Chairman MAURICE H. YAMASATO, Vice Chairman KAZU HAYASHIDA MELISSA Y.J. LUM FORREST C. MURPHY JONATHAN K. SHIMADA, PhD BARBARA KIM STANTON

RAYMOND H. SATO Manager and Chief Engineer

TO:

PATRICK T. ONISHI, CHIEF PLANNING OFFICER

PLANNING FEPARAMENT

FROM:

RAYMOND H. SATO, MANAGER AND CHIEF ENGINEER

BOARD OF WATER SUPPLY

SUBJECT:

YOUR LETTER OF NOVEMBER 20, 1997 TO GMP ASSOCIATES, INC. REGARDING THE DRAFT ENVIRONMENTAL ASSESSMENT FOR THE

PROPOSED WAIPAHU WELLS III STATION, WAIPAHU, OAHU,

TMK: 9-4-05: 74

Thank you for reviewing the Draft Environmental Assessment (EA) for the proposed Waipahu Wells III Station.

We provide the following responses to your concerns:

- 1. An amendment to the Central Oahu Development Plan Public Facilities map was obtained December 13, 1993.
- 2. The proposed well station is located adjacent to the Waiola Sports Complex which is being developed by the County's Department of Parks and Recreation. The wells were drilled in January 1995, prior to the sports complex plan. A copy of the Draft EA has been sent to the Department of Parks and Recreation for their review and comments.

If you have any questions, please contact Barry Usagawa at 527-5235.

KC:



STATE OF HAWAI'I

OFFICE OF HAWAIIAN AFFAIRS

711 KAPI'OLANI BOULEVARO, SUITE 500 HONOLULU, HAWAI'I 96813-5249 PHONE (808) 594-1888

> FAX (808) 594-1865 December 03, 1997

Mr. Neal S. Fukumoto Project Manager GMP Associates, Inc. 841 Bishop Street, Suite 1501 Honolulu, HI 96813-3915

Subject: Draft Environmental Assessment (DEA) for the Waipahu Wells III Station, Island of Oahu.

Dear Mr. Fukumoto:

Thank you for the opportunity to review the Draft Environmental Assessment (DEA) for the Waipahu Wells III Station, Island of Oahu. The Honolulu Board of Water Supply (BWS) is proposing to develop this well to produce 2.6 mgd of potable water which is expected to meet the needs of DHHL, BWS, and the State Housing Finance and Development Corporation (HDFC). The sustainable yield of the Waipahu/Wahiawa aquifer, the source of the water for the Waipahu Well, is estimated at 119 mgd.

The Office of Hawaiian Affairs has no objections at this time to the proposed well project. Based on information contained in the DEA, the well apparently bears no significant long-term adverse impacts on adjacent areas nor upon existing flora or fauna habitats. Furthermore, no known archaeological remains exist and the proposed well will not significantly affect scenic resources. Moreover, water withdrawals will neither affect the aquifer's sustainable yield nor waterflow of nearby surface streams.

Letter to Mr. Fukumoto December 03, 1997 Page 2

Please contact Colin Kippen (594-1938), Officer of the Land and Natural Resources Division, or Luis A. Manrique (594-1758), should you have any questions on this matter.

Sincerely yours,

Randall Ogata Administrator Colin Kippen
Officer, Land and
Natural Resources
Division

cc Trustee Aiona
Trustee Akana
Trustee Apoliona
Trustee Beamer
Trustee DeSoto
Trustee Hee
Trustee Keale
Trustee Machado
Trustee Springer

CITY AND COUNTY OF HONOLULU 630 SOUTH BERETANIA STREET HONOLULU, HAWAII 96843 PHONE (808) 527-6180 FAX (808) 533-2714



· January 23, 1998



WALTER O. WATSON, JR., Chairman MAURICE H. YAMASATO, Vice Chairman KAZU HAYASHIDA MELISSA Y.J. LUM FORREST C. MURPHY JONATHAN K. SHIMADA, PhD BARBARA KIM STANTON

RAYMOND H. SATO Manager and Chief Engineer

Mr. Randall Ogata, Administrator Office of Hawaiian Affairs State of Hawaii 711 Kapiolani Boulevard, Suite 500 Honolulu, Hawaii 96813-5249

Dear Mr. Ogata:

Subject:

Your Letter of December 3, 1997 to GMP Associates, Inc. Regarding the Draft

Environmental Assessment for the Board of Water Supply's Proposed Waipahu

Wells III Station, Waipahu, Oahu, TMK: 9-4-05: 74

Thank you for your letter regarding the Draft Environmental Assessment for the proposed Waipahu Wells III Station.

We acknowledge that the Office of Hawaiian Affairs has no objections to the proposed well project. The Department of Hawaiian home Lands is participating in the construction costs to acquire water credits for Hawaiian Home land developments.

If you have any questions, please contact Barry Usagawa at 527-5235.

Neal Fukumoto, GMP Associates, Inc.

Very truly yours,

RAYMOND H. SATO

Manager and Chief Engineer .

Pure Water . . . our greatest need - use it wisely



STATE OF HAWAII

DEPARTMENT OF LAND AND NATURAL RESOURCES

November 10, 1997

STATE HISTORIC PRESERVATION DIVISION 33 SOUTH KING STREET, 6TH FLOOR HONOLULU, HAWAII 96813

MICHAELD, WILSON, CHAIRTERSON BOARD OF LAND AND HATURAL RESOURCES

DEPUTIES

GILBERT COLOMA-AGARAN

AGUACULTURE DEVELOPMENT
PROGRAM

AGUATIC RESOURCES

CONSERVATION AND RESOURCES ENFORCEMENT

CONVEYANCES

FORESTRY AND WILDLIFE

HISTORIC PRESERVATION

DIVISION LAND DIVISION STATE PARKS

WATER AND LAND DEVELOPMENT

Neal S. Fukumoto, P. E. Project Manager GMP Associates, Inc. 841 Bishop Street, Suite 1501 Honolulu, Hawaii 96813

Dear Mr. Fukumoto:

LOG NO: 20467 V DOC NO: 9711EJ04

SUBJECT: Chapter 6E-8 Historic Preservation Review -- Draft Environmental

Assessment (DEA) for the Waipahu Wells III Station (October 1997

Revision)

Waipi'o, 'Ewa, O'ahu TMK: 9-4-05;074

The DEA incorporates in Appendix H our earlier comments that no historic sites are known or are likely to be found at the project location and that we believe that this project will have "no effect" on historic sites.

Aloha

Don Hibbard, Administrator Historic Preservation Division

EJ:jk

CITY AND COUNTY OF HONOLULU 630 SOUTH BERETANIA STREET HONOLULU, HAWAII 96843 PHONE (808) 527-6180 FAX (808) 533-2714



January 23, 1998



JEREMY HARRIS, Mayor

WALTER O. WATSON, JR., Chairman MAURICE H. YAMASATO, Vice Chairman KAZU HAYASHIDA MELISSA Y.J. LUM FORREST C. MURPHY JONATHAN K. SHIMADA, PhD BARBARA KIM STANTON

RAYMOND H. SATO Manager and Chief Engineer

Mr. Don Hibbard, Administration
State Historic Preservation Division
Department of Land and Natural Resources
State of Hawaii
33 South King Street, Sixth Floor
Honolulu, Hawaii 96813

Dear Mr. Hibbard:

Subject:

Your Letter of November 10, 1997 to GMP Associates, Inc. Regarding the Draft Environmental Assessment for the Board of Water Supply's Proposed Waipahu Wells III Station, Waipio, Ewa, Oahu, TMK: 9-4-05: 74

Thank you for reviewing the Draft Environmental Assessment for the proposed Waipahu Wells III Station.

We acknowledge that the proposed project will have "no effect" on any historic sites in the area.

If you have any questions, please contact Barry Usagawa at 527-5235.

Very truly yours,

RAYMOND H. SATO Manager and Chief Engineer

BENJAMIN J. CAYETANO GOVERNOR



STATE OF HAWAII

DEPARTMENT OF ACCOUNTING AND GENERAL SERVICES
P. O. BOX 118, HONOLULU, HAWAII 96810

SAM CALLEJO COMPTROLLER

MARY PATRICIA WATERHOUSE DEPUTY COMPTROLLER

> 60 32 11

REGETYED, ASSCOTATES, I

LETTER NO. (P) 1722.7

NOV 20 1997

Mr. Neal S. Fukumoto, P.E. Project Manager GMP Associates, Inc. 841 Bishop Street, Suite 1501 Honolulu, Hawaii 96813-3915

Dear Mr. Fukumoto:

Subject: Waipahu Wells III Station

Waipahu, Hawaii (TMK: 9-4-05:74) Draft Environmental Assessment

Thank you for the opportunity to review the subject document. We have no comments to offer.

If there are any questions, please have your staff contact Mr. Ronald Ching of the Planning Branch at 586-0490.

Sincerely,

GORDON MATSUOKA

Public Works Administrator

RC:jy

CITY AND COUNTY OF HONOLULU 630 SOUTH BERETANIA STREET HONOLULU, HAWAII 96843 PHONE (808) 527-6180 FAX (808) 533-2714



January 23, 1998



JEREMY HARRIS, Mayor

WALTER O. WATSON, JR., Chairman MAURICE H. YAMASATO, Vice Chairman KAZU HAYASHIDA MELISSA Y.J. LUM FORREST C. MURPHY JONATHAN K. SHIMADA, PhD BARBARA KIM STANTON

RAYMOND H. SATO Manager and Chief Engineer

Mr. Gordon Matsuoka
State Public Works Engineer
Department of Accounting and General Services
State of Hawaii
P. O. Box 119
Honolulu, Hawaii 96810

Dear Mr. Matsuoka:

Subject: Your Lette

Your Letter of November 20, 1997 to GMP Associates, Inc. Regarding the Draft Environmental Assessment for the Proposed Waipahu Wells III Station, Waipahu,

Oahu, TMK: 9-4-05: 74

Thank you for reviewing the Draft Environmental Assessment for the proposed Waipahu Wells III Station.

We acknowledge that you have no comments to offer at this time.

If you have any questions, please contact Barry Usagawa at 527-5235.

Very truly yours,

RAYMOND H. SATO

Manager and Chief Engineer

- ...



United States Department of Agriculture

Natural Resources Conservation Service

P.O. Box 50004 Honolulu, HI 96850

Our People...Our Islands...In Harmony

December 9, 1997

Mr. Neal S. Fukumoto, P.E. Project Manager GMP Associates, Irc. 841 Bishop Street, Suite 1501 Honolulu, HI 96813-5915

Dear Mr. Fukumoto:

Subject: Draft Environmental Assessment (DEA) - Waipahu Wells III Station, Waipahu, Oahu, Hawaii

We have reviewed the above subject matter and have not comments to offer at this time.

Thank you for the opportunity to review this document.

Sincerely,

KENNETH M. KANESHIRO

State Conservationist

าง ASSOCIATES, เพื่อ ASSOCIATES, เพื่อ

CITY AND COUNTY OF HONOLULU 630 SOUTH BERETANIA STREET HONOLULU, HAWAII 96843 PHONE (808) 527-6180 FAX (808) 533-2714



January 23, 1998



JEREMY HARRIS, Mayor

WALTER O. WATSON, JR., Chairman MAURICE H. YAMASATO, Vice Chairman KAZU HAYASHIDA MELISSA Y.J. LUM FORREST C. MURPHY JONATHAN K. SHIMADA, PhD BARBARA KIM STANTON

RAYMOND H. SATO Manager and Chief Engineer

Mr. Kenneth M. Kaneshiro, State Consessionist Natural Resources Conservation Service United States Department of Agriculture P. O. Box 50004 Honolulu, Hawaii 96850

Dear Mr. Kaneshiro:

Subject: Your Letter of December 9, 1997 to GMP Associates, Inc. Regarding the Draft

Environmental Assessment for the Proposed Waipahu Wells III Station, Waipahu,

Oahu, TMK: 9-4-05: 74

Thank you for reviewing the Draft Environmental Assessment for the proposed Waipahu Wells III Station.

We acknowledge that you have no comments to offer at this time.

If you have any questions, please contact Barry Usagawa at 527-5235.

Very truly yours,

RAYMOND H. SATO

Manager and Chief Engineer

Æc:

DEPARTMENT OF PUBLIC WORKS

CITY AND COUNTY OF HONOLULU

650 SOUTH KING STREET, 11TH FLOOR + HONOLULU, HAWAII 96813 PHONE: (808) 523-4341 + FAX: (808) 527-5857

JEREMY HARRIS MAYOR



November 17, 1997

JONATHAN K. SHIMADA, PHD DIRECTOR AND CHIEF ENGINEER ROLAND D. LIBBY, JR.

DEPUTY DIRECTOR

ENV 97-250

ASSOCIATES, I

Mr. Neil S. Fukumoto, P.E. Project Manager GMP Associates, Inc. 841 Bishop Street, Suite 1501 Honolulu, HI 96813-3915

Dear Mr. Fukumoto:

Subject: Draft Environmental Assessment (DEA)

Waipahu Wells III Station

TMK: 9-4-05: 74

We have reviewed the subject DEA and have no comments to offer at this time. Should you have any questions, please contact Alex Ho, Environmental Engineer, at 523-4150.

Very truly yours,

Jonathan K. Shimada, Phd Director and Chief Engineer

CITY AND COUNTY OF HONOLULU 630 SOUTH BERETANIA STREET HONOLULU, HAWAII 96843 PHONE (808) 527-6180 FAX (808) 533-2714



08 8 MR 38 MR 36,

January 21, 1998



JEREMY HARRIS, Mayor

WALTER O. WATSON, JR., Chairman MAURICE H. YAMASATO, VICE Chairman KAZU HAYASHIDA MELISSA Y.J. LUM FORREST C. MURPHY JONATHAN K. SHIMADA, PhD BARBARA KIM STANTON

RAYMOND H. SATO Manager and Chief Engineer

TO:

JONATHAN K. SHIMADA, Ph.D., DIRECTOR AND CHIEF ENGINEER

DEPARTMENT OF PUBLIC WORKS

FROM:

RAYMOND H. SATO, MANAGER AND CHIEF ENGINEER

BOAKD OF WATER SUPPLY

SUBJECT:

YOUR MEMORANDUM OF NOVEMBER 17, 1997 TO GMP ASSOCIATES, INC.

REGARDING THE DRAFT ENVIRONMENTAL ASSESSMENT FOR THE

PROPOSED WAIPAHU WELLS III STATION, WAIPAHU, OAHU,

TMK: 9-4-05: 74

Thank you for reviewing the Draft Environmental Assessment for the proposed Waipahu Wells III Station.

We acknowledge that you have no comments to offer at this time.

If you have any questions, please contact Barry Usagawa at 527-5235.

-cc:

BUILDING DEPARTMENT

CITY AND COUNTY OF HONOLULU

HONOLULU MUNICIPAL BUILDING 650 SOUTH KING STREET HONOLULU, MAWAII 96813

JEREMY HARRIS



RANDALL K, FUJIKI DIRECTOR AND BUILDING EUPERINTENDENT

DEPUTY DIRECTOR AND BUILDING SUPERINTENDENT

PB 97-594

RECEIVED RECEIVED

November 10, 1997

GMP Associates, Inc. 841 Bishop Street, Suite 1501 Honolulu, Hawaii 96813

Attn: Neal S. Fukumoto, P.E.

Gentlemen:

Subject: Draft Environmental Assessment

for the Waipahu Wells III Station Waipahu, Hawaii (TMK: 9-4-05:74)

We have reviewed the draft Environmental Assessment for the subject project and have no comments to offer.

Thank you for the opportunity to review the document.

Very truly yours,

Director and Building Superintendent

CITY AND COUNTY OF HONOLULU 630 SOUTH BERETANIA STREET HONOLULU, HAWAII 96843 PHONE (808) 527-6180 FAX (808) 533-2714



198 JliN 28 AM 9 58 January 21, 1998



JEREMY HARRIS, Mayor

WALTER O. WATSON, JR., Chairman MAURICE H. YAMASATO, Vice Chairman KAZU HAYASHIDA MELISSA Y.J. LUM FORREST C. MURPHY JONATHAN K. SHIMADA, PhD BARBARA KIM STANTON

RAYMOND H. SATO Manager and Chief Engineer

TO:

RANDALL K. FUJIKI, DIRECTOR AND BUILDING SUPERINTENDENT

BUILDING DEPARTMENT

FROM:

BAYMOND H. SATO, MANAGER AND CHIEF ENGINEER

BOARD OF WATER SUPPLY

SUBJECT:

YOUR MEMORANDUM OF NOVEMBER 10, 1997 TO GMP ASSOCIATES, INC.

REGARDING THE DRAFT ENVIRONMENTAL ASSESSMENT FOR THE

PROPOSED WAIPAHU WELLS III STATION, WAIPAHU, OAHU,

TMK: 9-4-05: 74

Thank you for reviewing the Draft Environmental Assessment for the proposed Waipahu Wells III Station.

We acknowledge that you have no comments to offer-

If you have any questions, please contact Barry Usagawa at 527-5235.

CITY AND COUNTY OF HONOLULU

650 SOUTH KING STREET, 7TH FLOOR . HONOLULU, HAWAII 96813 PHONE: (808) 523-4414 # FAX: (808) 527-6743



JEREMY HARRIS MAYOR



JAN NAOE SULLIVAN DIRECTOR

LORETTA K.C. CHEE . DEPUTY DIRECTOR

97-08191 (AC/SHC) '97 EA Comments Zone 9

November 19, 1997

Mr. Neal S. Fukumoto, P.E. GMP Associates, Inc. 841 Bishop Street, Suite 1501 Honolulu, Hawaii 96813-3915

Dear Mr. Fukumoto:

Draft Environmental Assessment (EA) For Waipahu Wells III Station Tax Map Key: 9-4-05: 74

In response to your letter dated November 3, 1997, we have reviewed the above-referenced document and find that the proposed project is not within the Special Management Area (SMA), and therefore not subject to the provisions of Chapter 25, Revised Ordinances of A Special Management Area Use Permit (SMP) is not required prior to construction.

We have no further comments at this time. Thank you for the opportunity to review the Draft EA. Should you have any questions, please contact the Environmental Review Branch at 523-4077.

Very truly yours,

SULLIVAN

or of Land Utilization

JNS: am

/cc: Board of Water Supply

g:ppd\97-08191.shc

CITY AND COUNTY OF HONOLULU 630 SOUTH BERETANIA STREET HONOLULU, HAWAII 96843 PHONE (808) 527-6180 FAX (808) 533-2714



December 12, 1997



JEREMY HARRIS, Mayor

WALTER O. WATSON, JR., Chairman MAURICE H YAMASATO, Vice Chairman KAZU HAYASHIDA MELISSA Y.J. LUM FORREST C. MURPHY JONATHAN K. SHIMADA, PhD BARBARA KIM STANTON

RAYMOND H. SATO Manager and Chief Engineer

TO:

JAN SULLIVAN, DIRECTOR

DEPARTMENT OF LAND UTILIZATION

FROM:

KALIMUNG HOUTH

BOARD OF WATER SUPPLY

SUBJECT:

YOUR MEMORANDUM OF NOVEMBER 19, 1997 TO GMP ASSOCIATES, INC.

REGARDING THE DRAFT ENVIRONMENTAL ASSESSMENT FOR THE

PROPOSED WAIPAHU WELLS III STATION, TMK: 9-4-05: 074

Thank you for reviewing the Draft Environmental Assessment for the proposed Waipahu Wells III project.

We acknowledge that the proposed project is not within the Special Management Area.

If you have any questions, please contact Barry Usagawa at 527-5235.