#### BOARD OF WATER SUPPLY

CITY AND COUNTY OF HONOLULU 630 SOUTH BERETANIA STREET HONOLULU, HAWAII 96843



UFC. OF ENVIRONMEN QUALITY CONTROL

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RAYMOND H. SATO, Acting Manager and Chief Engineer

Mr. Gary Gill, Director Office of Environmental Quality Control 220 South King Street, 4th Floor Honolulu, Hawaii 96813

Dear Mr. Gill:

Subject: Negative Declaration for the Waipahu Wells III Station, Waipahu,

Oahu, Hawaii, TMK:9-4-05:74

The Board of Water Supply has reviewed the comments received during the 30-day public comment period which began on January 8, 1995. The Board of Water Supply has determined that this project will not have a significant effect and has issued a negative declaration. Please publish this notice in the February 10, 1995 OEQC Bulletin.

We have enclosed a completed OEQC Bulletin Publication Form and four copies of the final Environmental Assessment.

If you have any questions, please contact Steven Serikaku at 527-5202.

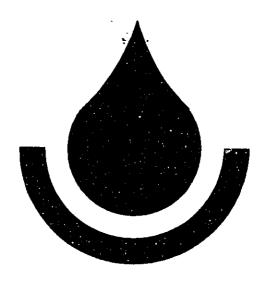
Very truly yours,

RAYMOND H. SATO

Acting Manager and Chief Engineer

**Enclosures** 

# WAIPAHU WELLS III STATION



# FINAL ENVIRONMENTAL ASSESSMENT

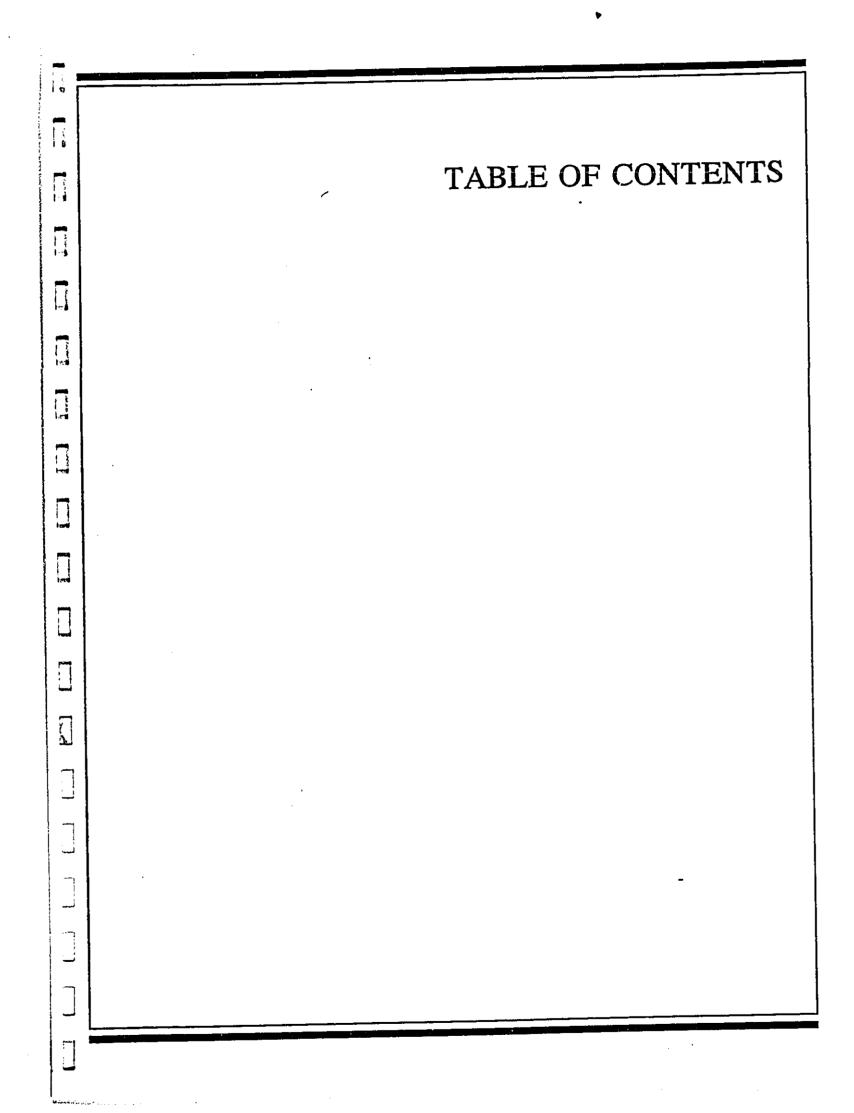
SUBMITTED TO:

BOARD OF WATER SUPPLY CITY AND COUNTY OF HONOLULU



FEBRUARY 1995

ASSOCIATES, INC. Engineers/Architects



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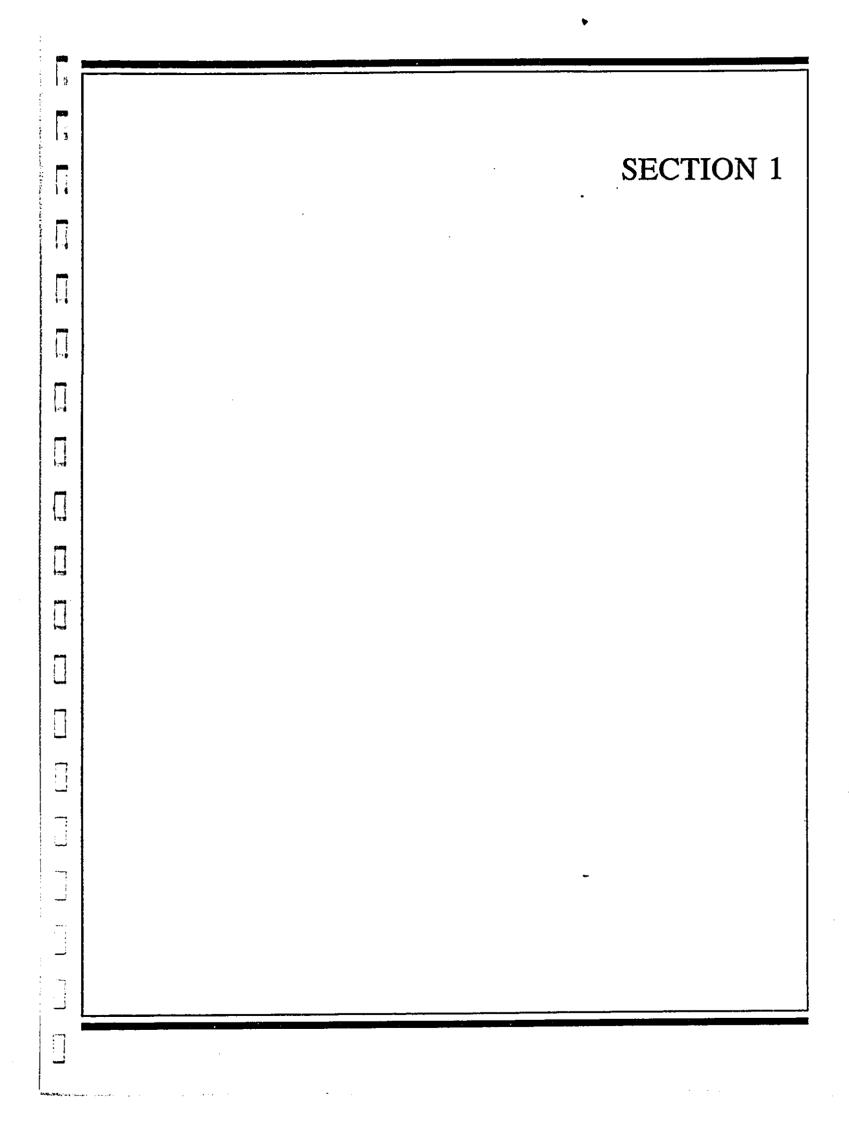
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## SECTION 1

# INTRODUCTION AND SUMMARY

1.1	PROPOSING	AGENCY
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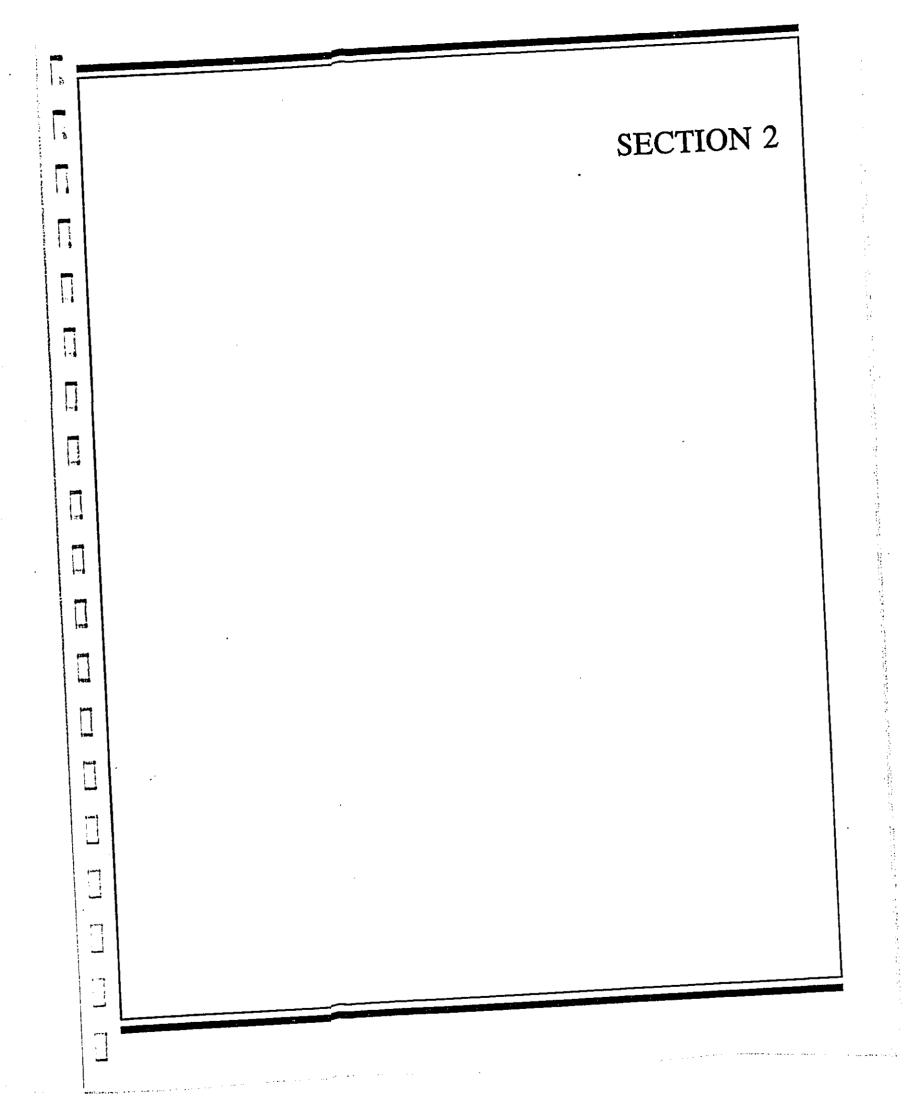
Board of Water Supply, City and County of Honolulu.

# AGENCIES CONSULTED IN MAKING THE ASSESSMENT

- Safe Drinking Water Branch, Hawaii State Department of Health
- 2. Clean Water Branch, Hawaii State Department of Health
- 3. Department of Land Utilization, City and County of Honolulu
- 4. Department of General Planning, City and County of Honolulu
- 5. Commission on Water Resources Management,
  Department of Land and Natural Resources, State
  of Hawaii
- 6. Hawaii State Land Use Commission
- 7. Hawaii State Office of Environmental Quality Control
- 8. Historic Sites Preservation Office, Department of Land and Natural Resources, State of Hawaii

- 9. Office of Conservation and Environmental Affairs,
  Department of Land and Natural Resources, State
  of Hawaii
- 10. Highways Division, Hawaii State Department of Transportation

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#### SECTION 2

# PROJECT DESCRIPTION

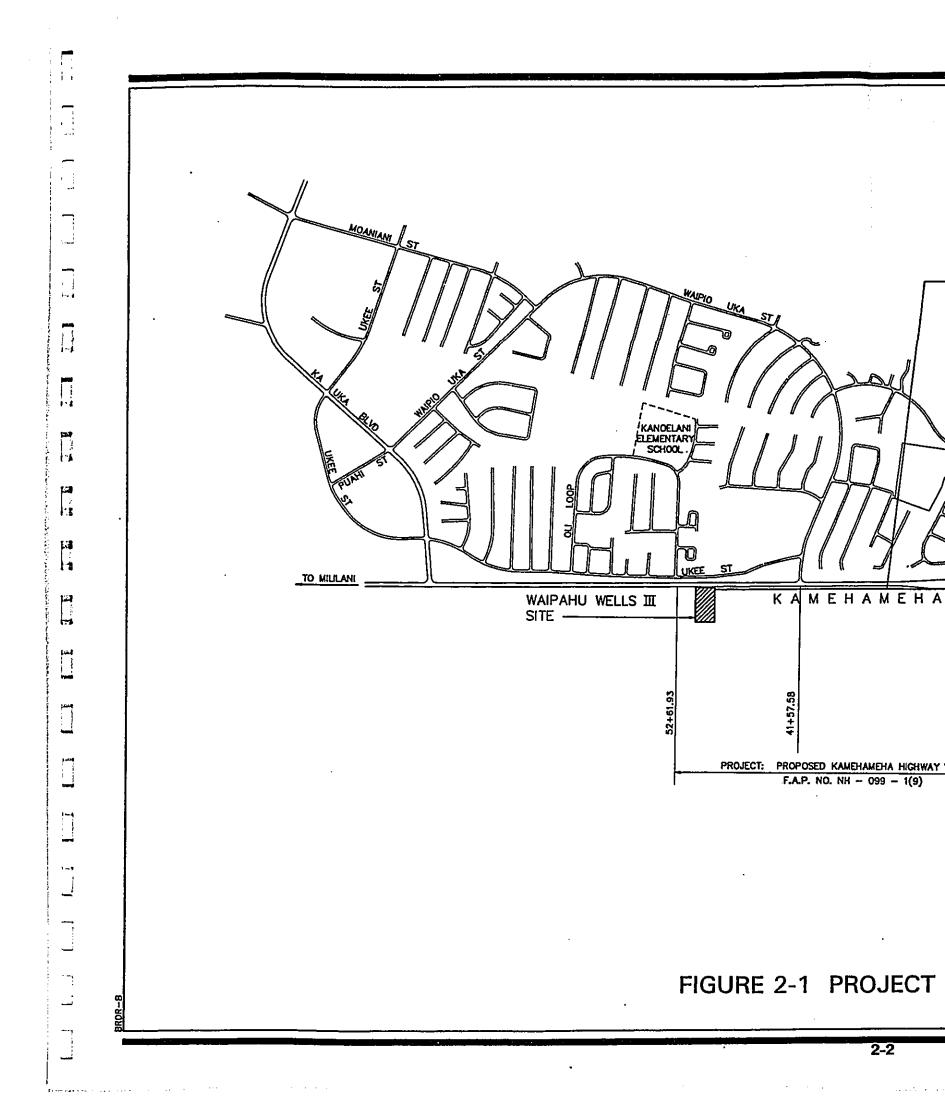
# 2.1 PROJECT SITE

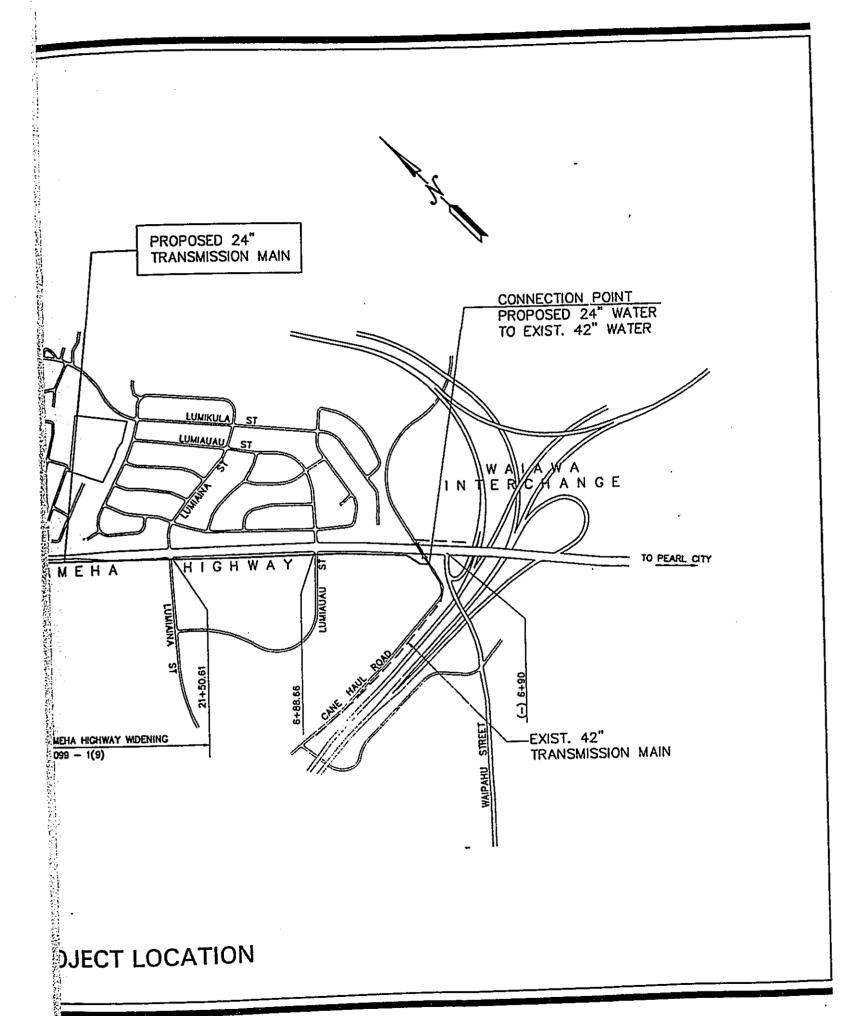
The proposed Waipahu Wells III Station and transmission main project site, shown in Figure 2-1, is a relatively flat piece of abandoned sugarcane land located on Kamehameha Highway approximately one mile north of the Waiawa Interchange and above the Waikele and Crestview subdivisions. The site was chosen by the Board of Water Supply based upon availability, elevation, access, topography and constructability. A new 24-inch transmission main within Kamehameha Highway, will start at the well site and end at the Waiawa Interchange.

The elevation of the 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. However, the Honolulu Board of Water Supply (BWS) is planning to purchase the property in fee. The exact boundaries of the well site are  $160'\pm x$   $385'\pm .$ 

# 2.2 <u>PROPOSED FACILITIES</u>

On July 28, 1993, the Commission of Water Resource Management (CWRM) approved an allocation of 5.839 mgd to the BWS from the Waipahu-Waiawa Aquifer System. The BWS is asking for a proposed use of 3.0 mgd from the CWRM for the Waipahu Wells III Station to supplement the water supply for the growing populations of Waipahu, Ewa, and the Villages of Kapolei. A determination of the actual permitted use at the Waipahu Wells





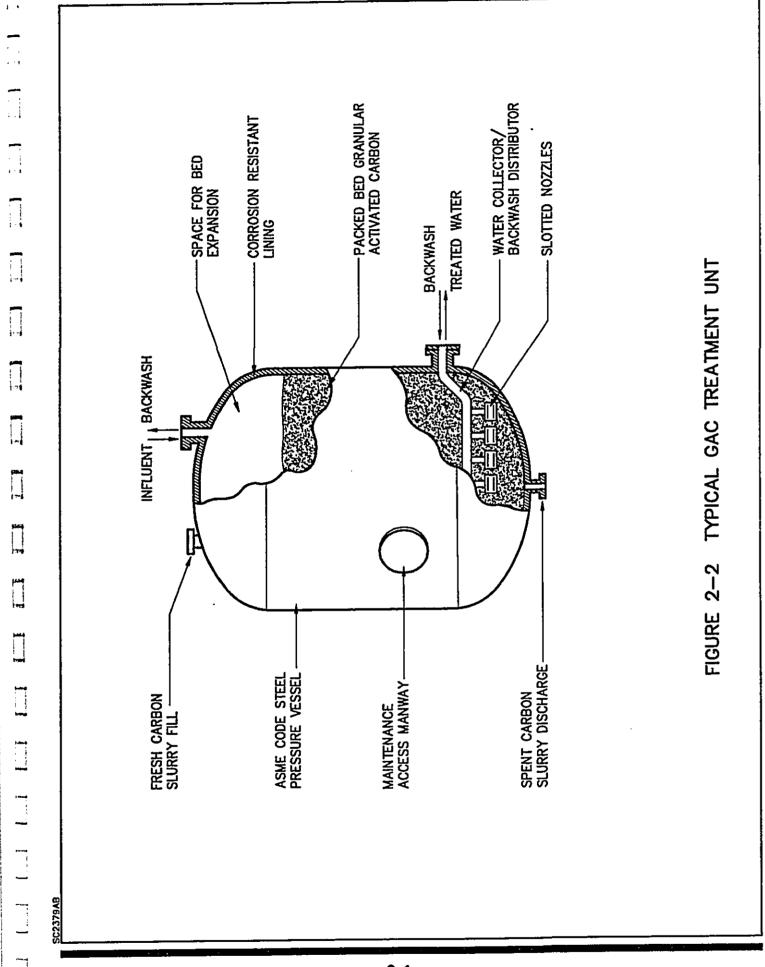
III Station will be determined by BWS, the U.S. Geological Survey, and the CWRM. On October 19, 1994, CWRM approved a Water Use Permit held by the Department of Hawaiian Home Lands for the use of 143,500 gallons per day from Waipahu Wells III. The permit will be transferred to the BWS when the BWS assumes control of the wells. Copies of the Water Use Permits are in Appendix A.

The proposed project involves the installation of five (5) 1000 gpm pumps, ten Granular Activated Carbon (GAC) water treatment units, a 0.1 million gallon (mg) overflow storage reservoir, control building, transmission main, Bailey pressure-reducing valve, access road, landscaping, fencing, irrigation system, electrical equipment and appurtenances.

The five pumps will have a total maximum pump capacity of 7.5 mgd. Additional pumping capacity is for reserve in case of breakdowns or maintenance. The pump's suction will be set at 30 feet below mean sea level (MSL). Information on the submersible pumps can be found in Appendix B.

GAC treatment units are required based on the water quality analysis performed by the BWS. Water quality results are shown in Appendix C. GAC has an excellent adsorptive capacity for most organic and synthetic organic chemicals, such as EDB and DBCP. Each pump will have two GAC contactors which can operate either in the parallel or series configuration.

The GAC unit is a downflow fixed bed unit, where contaminated 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 2-2. Periodically, the GAC unit needs to be backwashed



to clean the activated carbon. During backwashing, the unit operates in an upflow mode where backwash exits at the top of the unit. An Individual NPDES Permit is needed to dispose of the backwash.

The five wells, whose well numbers are 2400-09 through 2400-13, extend to a depth of between 453 and 458 feet from the ground elevation of between 311 and 318 feet above MSL to an elevation of between 140 and 144 feet below MSL. Appendix D contains information on wells No. 1-5, including well completion reports, cross sections, and pump test results. A 0.10 mg reservoir will be located within the well site fence line. A layout of the five wells and ten GAC units at the project site is shown is Appendix E. The new 24-inch transmission main will connect to an existing 42-inch transmission main at the Waiawa Interchange roughly 5,250 feet from the well site.

#### 2.3 DEVELOPMENT SCHEDULE

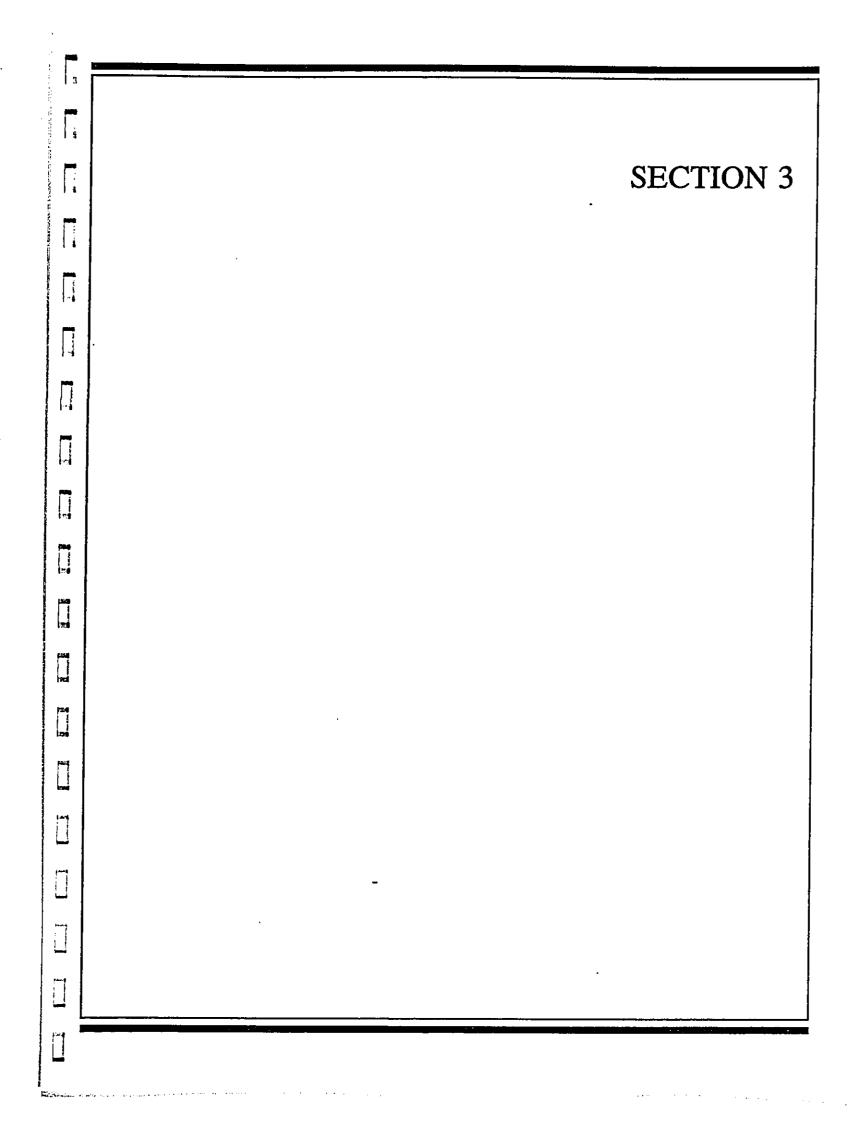
The project is expected to be constructed within one year of contractor mobilization. The start of construction is dependent upon obtaining all pertinent permits and approvals, and upon the acquisition of equipment and materials. The estimated construction cost of the project at the time of this report is \$7.9 million.

#### 2.4 PROJECT NEED

In the fiscal year ending June 30, 1993, the Board of Water Supply served an estimated population of approximately

853,838 people of which 170,872 is the estimated population served in the Pearl Harbor District. According to the <u>Oahu Water Plan</u>, which was completed in July 1982, the projected population served by the BWS in the Pearl Harbor District in 1990 was 148,961. For the year 1995, the projected population to be served is 158,990. The population in 1993 has already exceeded the projected population for 1995, which means that existing demand for water should also exceed the projected demand.

In order to meet this demand, the number of BWS wells must increase or the production of the existing wells must increase. To minimize excessive drawdown at existing wells due to higher pumping rates, new wells within the Pearl Harbor aquifer are being proposed. The Waipahu Wells III project site is one such location.



#### SECTION 3

# EXISTING CONDITIONS

# 3.1 <u>EXISTING LAND USE DESIGNATIONS</u>

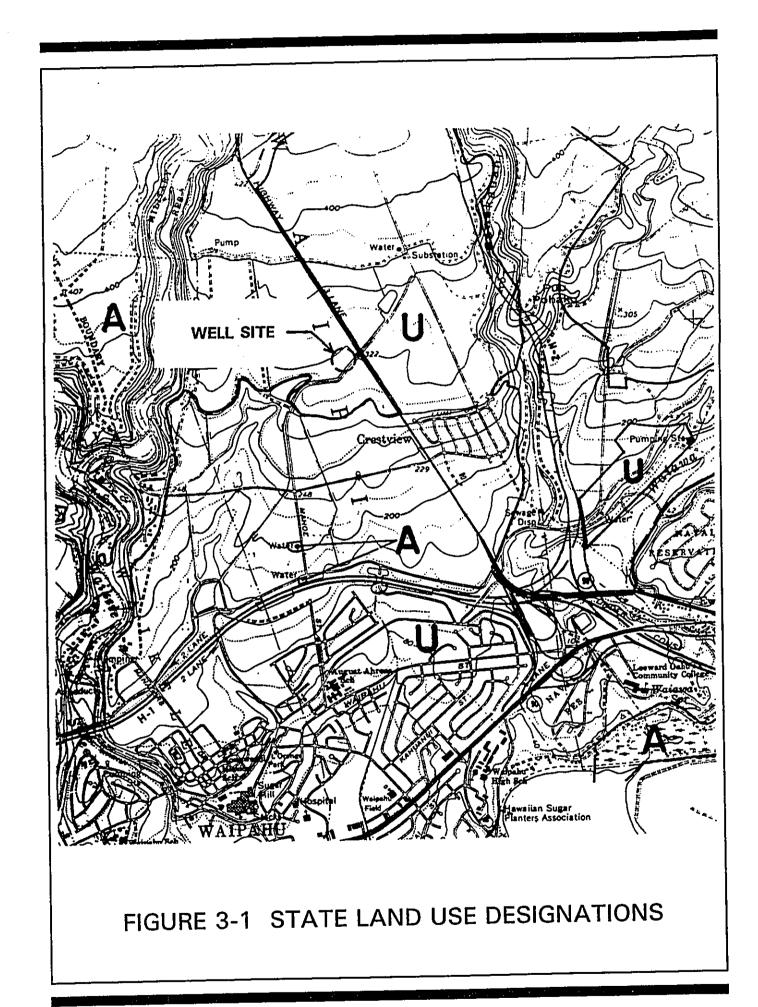
The Waipahu Wells III Station and transmission main project boundaries fall within the State Agriculture and Urban Land Use Districts. A State Special Use Permit is not required because the proposals are considered a permissible use within the agricultural district under Chapter 205-4.5(a) (7), Hawaii Revised Statutes. A Conservation District Use permit is also not required. The existing state land use designations are shown in Figure 3-1.

The proposed site is zoned AG-1 on the City and County of Honolulu Zoning Map as shown in Figure 3-2. A Development Plan Land Use Map for the area is shown in Figure 3-3.

# 3.2 SURROUNDING LAND USES

Most of the land on the west side of Kamehameha Highway is designated either agriculture or urban land, whereas the land on the eastern side of Kamehameha Highway is mostly urban. There are no designated conservation areas close to the project site.

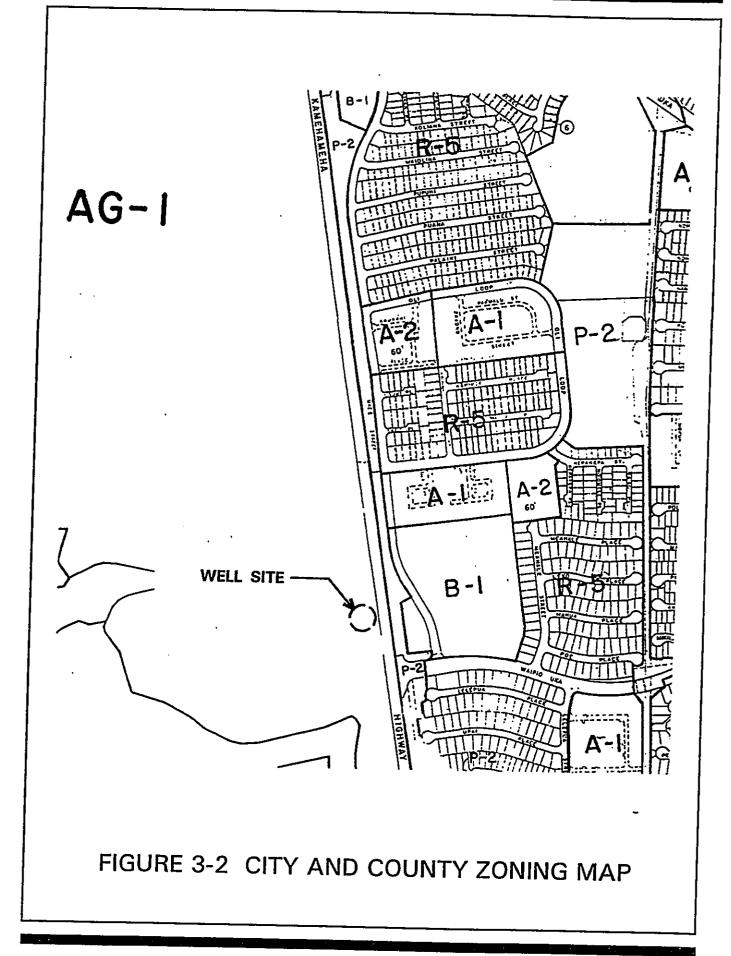
The urban land on the eastern side of Kamehameha Highway is used for residential as well as commercial use. Most of the urban land to the southwest of the proposed site has been developed as the community of Waikele. The agricultural land to

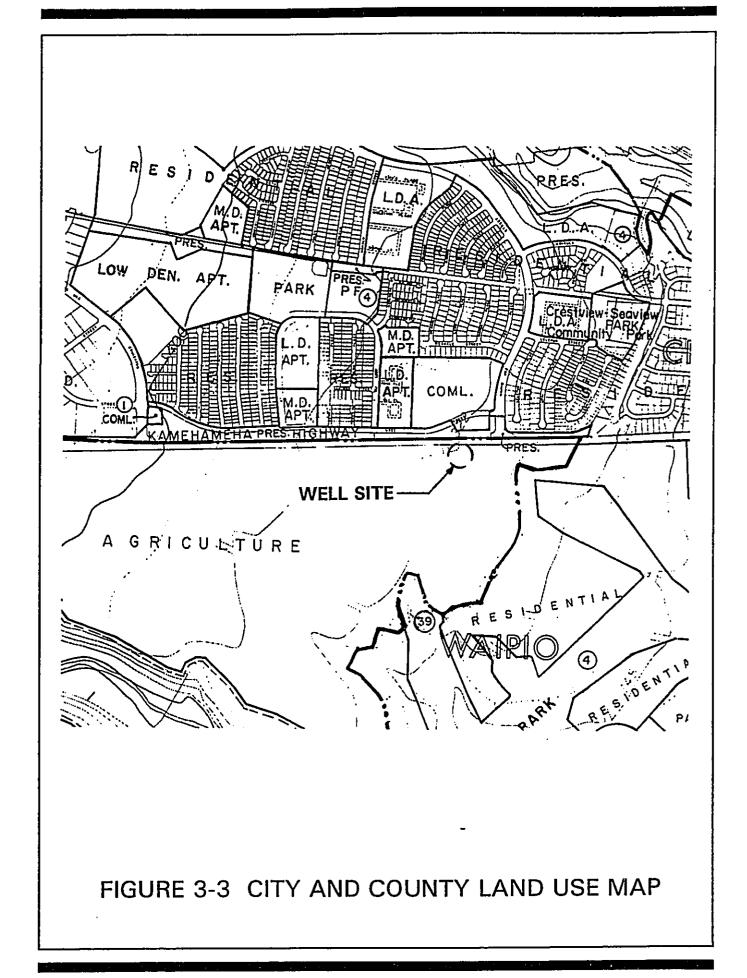


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the north and west of the site consists of abandoned cane fields and pineapple fields under cultivation.

#### 3.3 <u>CLIMATE</u>

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 temperature ranges from 66 degrees to 84 degrees Fahrenheit.

#### 3.4 <u>HYDROGEOLOGY</u>

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 contamination.

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 basal water.

#### 3.5 GEOLOGY AND TOPOGRAPHY

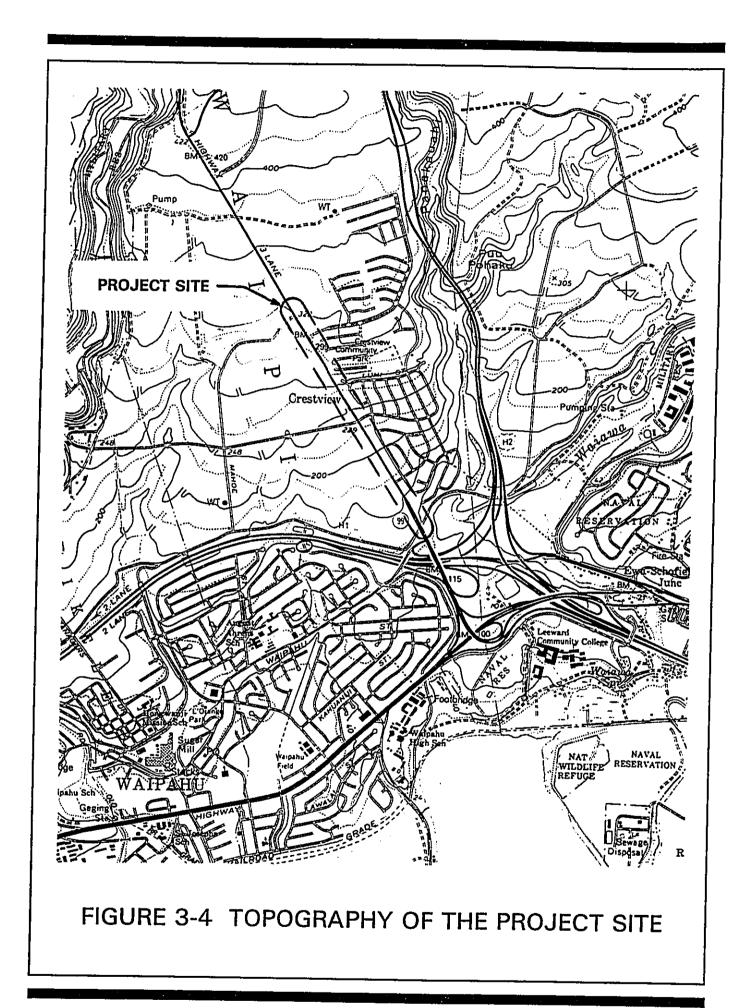
The central Oahu plateau was formed by the overlap of the Koolau volcano lava flows over the Waianae flank. The plateau was elevated by successive lava flows from the Koolau shield volcano. Subsequently, very hard volcanic rock formed bedrock in the project area.

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

### 3.6 SOILS

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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.

#### 3.7 <u>FLOOD HAZARDS</u>

According to the Flood Insurance Rate Map done for the City and County of Honolulu by the Federal Emergency Management Agency, the well site and the transmission main are in Zone "D," which means that flood hazards in the area are undetermined.

### 3.8 <u>EARTHQUAKE HAZARDS</u>

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 3, the possibility of an earthquake occurring on Oahu is considered quite remote. The Board of Water Supply, however, has adopted the more conservative Zone 3 design standards for all of its structures, which would offer a higher stability in the event of an earthquake.

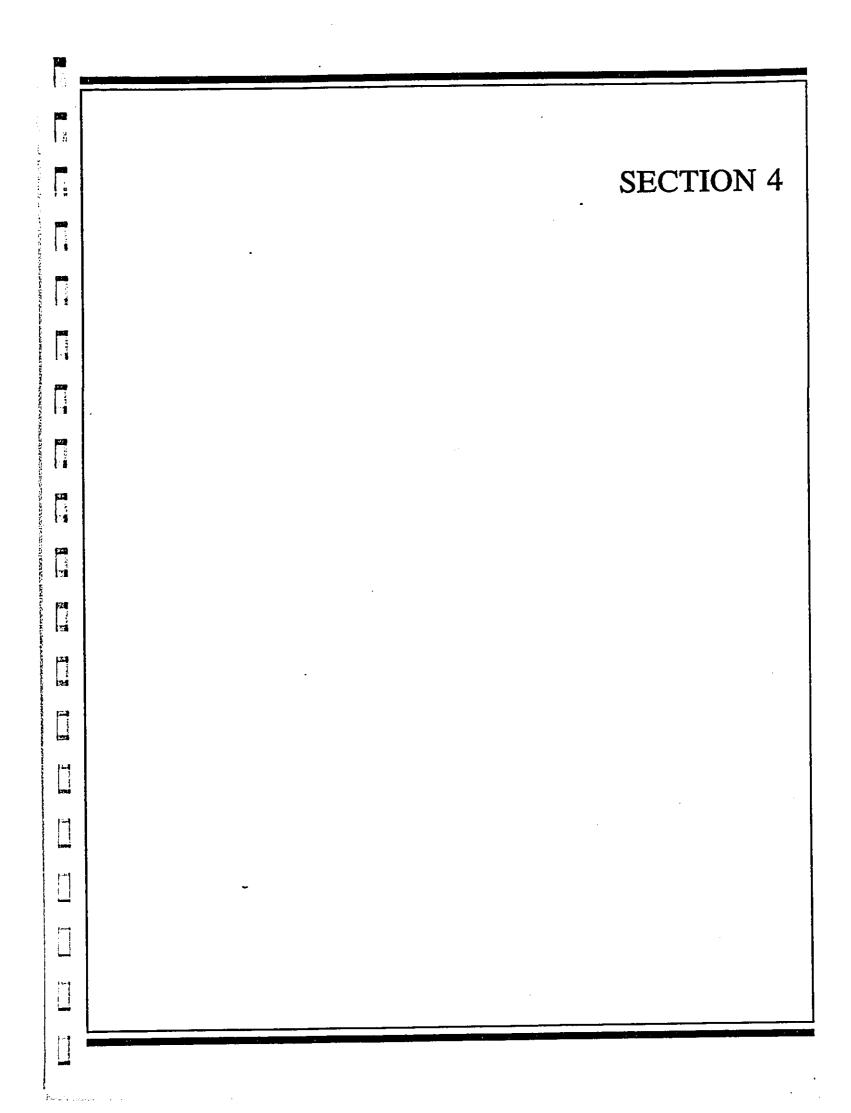
# 3.9 FLORA AND FAUNA

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 The remaining vegetation Oahu Sugar Company cane fields. consists mostly of introduced or exotic nuisance species of There were no rare, endangered or grasses, shrubs and trees. threatened plant species found on the project site. 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 Common bird species which may frequent the Hawaiian islands. 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. There are no rare or endangered animal species at the site.

# 3.10 ARCHAEOLOGY AND HISTORIC SITES

The Waipahu Wells III station is located in abandoned cane fields which 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 highly unlikely that a new historic site will be found. In the event that one is discovered, State law requires that construction work in the area

be stopped and the Historic Preservation Division of the Department of Land and Natural Resources be notified immediately.



#### SECTION 4

#### PROJECT IMPACTS AND MITIGATIVE MEASURES

### 4.1 SHORT-TERM IMPACTS AND MITIGATIVE MEASURES

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.

#### 4.1.1 <u>Construction Noise</u>

Noise levels at the construction 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.

In order to mitigate noise impacts, the use of muffled construction equipment is recommended. Construction equipment is also expected to be properly maintained. Heavy vehicles must be in compliance with Title 11, Administrative Rules, Department of Health, Chapter 42, Vehicular Noise Control for Hawaii. Also, construction activities will be limited to normal daylight working hours, including holidays.

#### 4.1.2 Air Quality

Short-term air pollution may result from dust/dirt due to clearing, grubbing and grading, along with emissions from construction equipment. Frequent watering of the site should reduce dust emissions. Portions of the site, which are downwind of the project, should be surrounded by dust screens, if necessary. Areas which have been graded should be grassed as soon as possible to prevent dust from becoming a nuisance. All construction equipment and trucks shall be kept in good operating condition and equipped with adequate emissions controls. All open-bed trucks shall be covered when transporting materials which have the potential to become airborne. Overall, the project is not expected to have significant short-term effects on air quality.

## 4.1.3 Flora and Fauna

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

## 4.1.4 Surface Water/Groundwater Quality

Construction of the project is not expected to adversely affect surface water quality in the area of the project. The

only impact on surface water would be from stormwater runoff 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 which have been graded; and grading during dry weather.

The Waipahu Wells III project site sits over the Pearl Harbor aquifer. However, percolation of silt and dirt from construction activities into the aquifer is considered unlikely.

# 4.1.5 Archaeological/Historical

Since no significant archaeological or historic sites are known to exist at the site, no short-term impacts are expected.

#### 4.1.6 Traffic

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well as to the north and south of the site, is expected to increase, especially during construction of the 24-inch waterline. Construction is expected to proceed in increments, with each stage having its own State Highways-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 heavy.

In addition to the traffic control plans, diversion of traffic to the H-2 freeway through Ka Uka Boulevard will alleviate some of the congestion which is expected on Kamehameha Highway. Movement of heavy construction equipment should be restricted to periods of light traffic.

In addition to traffic congestion, several bus stops along Kamehameha Highway will have to be temporarily relocated during the construction of the transmission main. The construction should occur in phases which will mitigate the effect of relocating each bus stop.

# 4.1.7 Public Health and Safety

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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 ensure automobile and pedestrian safety.

# 4.1.8 Socioeconomic

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

# 4.2 LONG-TERM IMPACTS AND MITIGATIVE MEASURES

The long-term impacts of the project will affect the immediate project site, areas beyond the project site and the community. The following sections describe the project's long-term impacts on flora/fauna, drainage, infrastructure, socioeconomic, land use, and planned development.

#### 4.2.1 Flora and Fauna

Since there are no rare or endangered plant or animal species at the project site, no significant long-term impacts are expected.

### 4.2.2 <u>Drainage</u>

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The minimal amount of additional runoff generated from the well site will be allowed to sheet flow into adjacent agricultural lands. Since Kamehameha Highway will be restored to its original pavement surface, the stormwater runoff associated with the transmission line construction area is not expected to increase.

#### 4.2.3 <u>Infrastructure</u>

The Waipahu Wells III Station will serve to supplement the water supply in the rapidly developing Waipahu, Ewa, and Kapolei areas.

The new well station has plans for restrooms, and therefore, it is expected to generate a small additional load on the existing sewer system.

Power will be required to operate the pumps and lights. Power consumption by the five pumps is estimated to be 750 hp, which is equivalent to 750 kW, and is not expected to have a significant effect on HECO's existing power grid.

#### 4.2.4 <u>Socioeconomic</u>

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 Kaplei is currently under significant development. Several subdivisions have already been built, as well as a golf course and school. Further development of this area is expected. In order to sustain this development, adequate resources must be available. The additional water from

the Waipahu Wells III Station should contribute to increased development in the Leeward area.

#### 4.2.5 <u>Land Use and Planned Development</u>

The Waipahu Wells III Station and transmission main will provide additional capacity to the potable water system in its service area. The additional capacity will enable future subdivisions and amenities to be built.

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#### SECTION 5

#### ALTERNATIVES TO THE PROPOSED PLAN

#### 5.1 <u>NO ACTION</u>

The Waipahu Wells III Station and transmission main project is intended to add to the municipal water supply to meet the growing demand of the Waipahu/Waikele area. A no-action alternative is not practical because the BWS may not be able to meet the demands of future area developments. The benefits of providing the public with additional water outweigh the relatively minor impacts of this project.

#### 5.2 <u>DELAYED ACTION</u>

Delayed action is also not a practical alternative. It would only cause additional stress on local existing water system infrastructure serving the area until the new well station is built.

New subdivisions which will not have adequate water supply may have a connection moratorium imposed on them. Basically, the subdivision cannot obtain BWS service until additional water supply is added to the system. The delay in construction could ultimately lead to higher construction costs which would be reflected in the price of new homes in the affected area.

#### 5.3 <u>ALTERNATE SITES</u>

The well site was probably chosen for a number of reasons, some of which may have been adequate elevation head, land acquisition, ease of accessibility and water quality data based on nearby wells.

All five wells have been drilled. If they prove to be unproductive wells, then an alternative site may have to be considered.

#### 5.4 <u>ALTERNATE SOURCES</u>

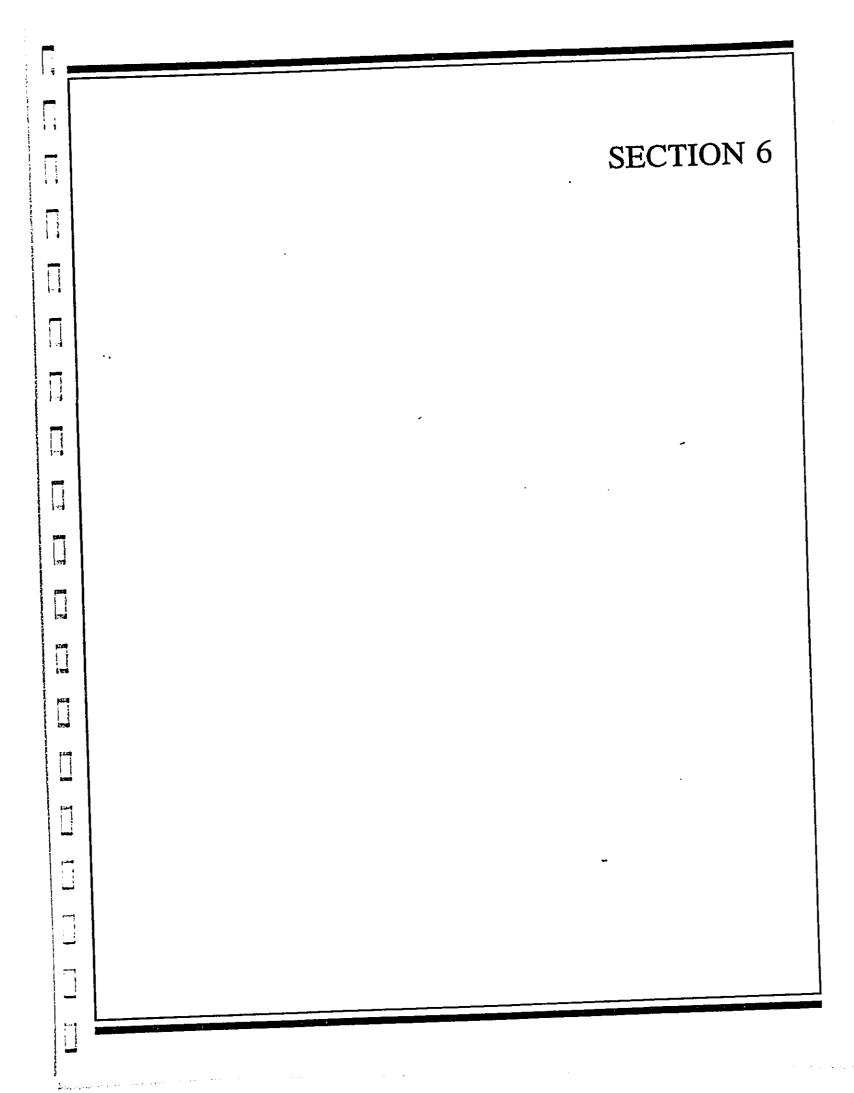
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The Board of Water Supply has considered several alternate sources of water such as desalination, utilization of surface water or brackish water, and recycling of wastewater. Until one of these alternatives becomes feasible from a technical and cost effective standpoint, the Board will continue to emphasize the development of groundwater as its primary source of potable water.

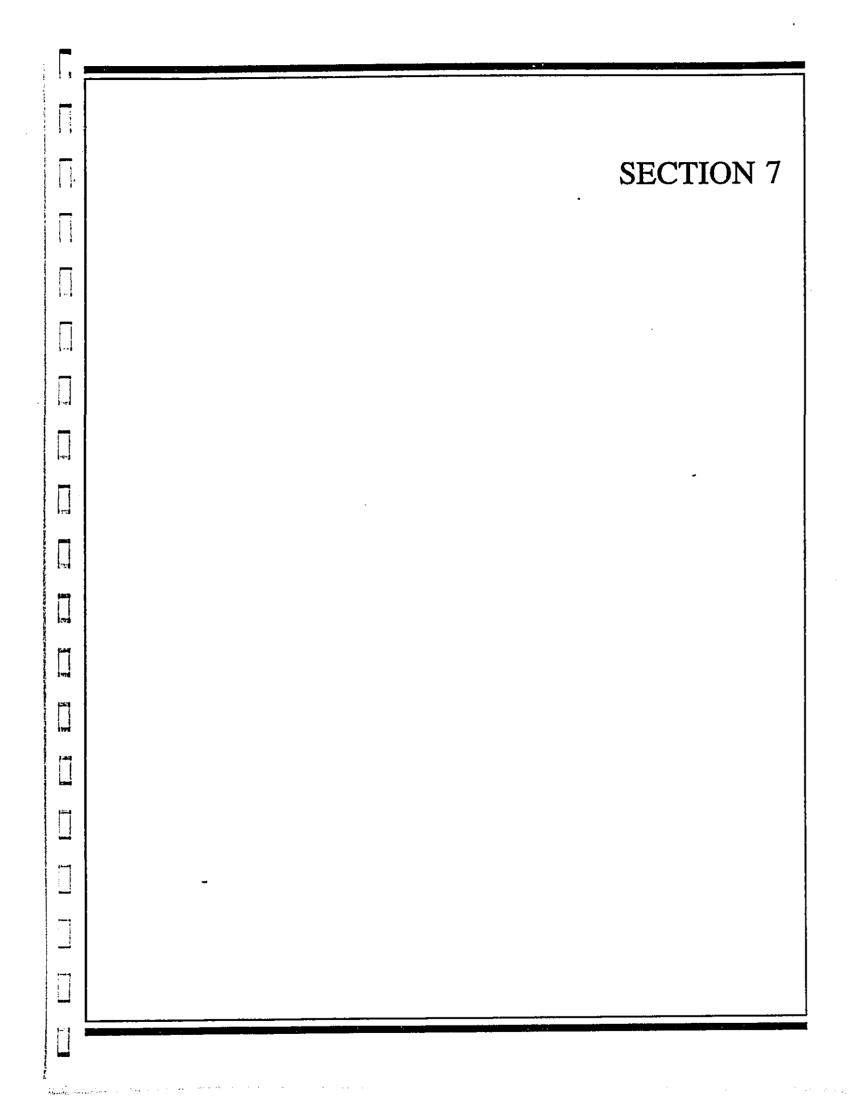
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#### SECTION 6

#### NEGATIVE DECLARATION DETERMINATION

The few potential negative impacts which have been identified in this Final Environmental Assessment should be adequately minimized by the suggested mitigative measures. In accordance with Chapter 343, Hawaii Revised Statutes, it has been determined that an Environmental Impact Statement is not required for the proposed Waipahu Wells III Station and transmission main project. Therefore, this document constitutes a Negative Declaration.



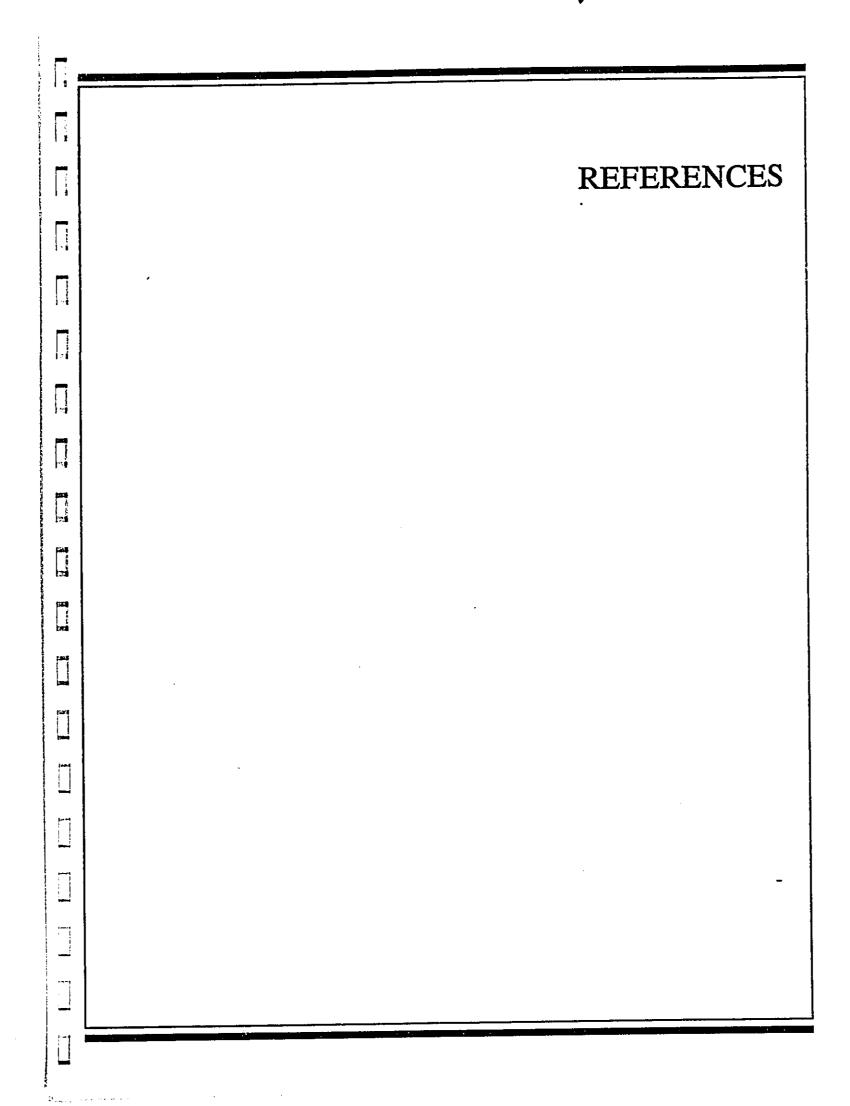
#### SECTION 7

#### LIST OF NECESSARY PERMITS AND APPROVALS

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

- Plan Approval City and County Department of Public Works
- Plan Approval Honolulu Board of Water Supply
- Plan Approval State Commission of Persons with Disabilities
- Grading, Grubbing, Stockpiling Permit City and
   County Department of Public Works
- Building Permit City and County Building
   Department
- Conditional Use Permit City and County Department of Land Utilization
- NPDES General Permit State DOH Clean Water Branch
- Air Quality Permit State DOH Clean Air Branch
- State Permit to Supply Water for Beneficial Use Department of Land and Natural Resources
- State Historic Preservation Office Department of Land and Natural Resources
- Construction within State Highways R-O-W State
   Department of Transportation Highways Division
- Pump Installation Permit Department of Land and
   Natural Resources

- Water Use Permit Department of Land and Natural
   Resources
- Utility Company Approvals HECO, HTEL, Cable TV



#### 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 Impact Statement of Gentry 515, Waiawa, Central Oahu District, Island of Oahu, Hawaii" (March 1987).
- 3. "Kamehameha Highway Widening, Central Oahu, Hawaii,
  TMK: 9-4-42,44,56 Environmental Assessment." Highways
  Division, Department of Transportation, State of Hawaii.
- 4. "Kamehameha Highway Widening, Lumiaina Street to Waipio Uka Street, Ewa, Hawaii Negative Declaration." Highways Division, Department of Transportation, State of Hawaii (May 1992).
- 5. "Oahu Water Plan." Board of Water Supply, City and County of Honolulu (July 1982).
- 6. "Rainfall Atlas of Hawaii." State of Hawaii, Department of Land and Natural Resources.
- 7. "Soil survey of Islands of Kauai, Oahu, Maui, Molokai, and Lanai, State of Hawaii." U.S. Department of Agriculture, Soil Conservation Service (August 1972).

8. "Waiola Estates Subdivision Final Environmental Impact Statement." City and County of Honolulu, Department of Housing and Community Development (Sept. 1986).

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# APPENDIX A WATER USE PERMITS 7.74

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

October 19, 1994

Fax to: Suzette Hokama GMP 588 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

1.3

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

Chairperson and Members Commission on Water Resource Management

TAY

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 1

ITEM 1 MINUTES OF THE SEPTEMBER 15 AND 28, 1994 MEETINGS

Unanimously approved (Nobriga/Ing).

ITEM 2 OLD BUSINESS/ANNOUNCEMENTS

None.

ITEM 3 DEPARTMENT OF TRANSPORTATION, APPLICATION FOR A STREAM

CHANNEL ALTERATION PERMIT, BRIDGE WIDENING AND CULVERT

CROSSING, PIIKRA STREAM, KAU, HAWAII

Unanimously approved (Girald/Nobriga).

ITEM 4 DEPARTMENT OF ACCOUNTING AND GENERAL SERVICES, APPLICATION

FOR A STREAM CHANNEL ALTERATION PERMIT, INSTALLATION OF A

<u>SEWER CROSSING, WAIAKEA STREAM, HILO, HAWAII</u>

Unanimously approved (Ing/Sybinsky).

ITEM 5 ITT SHERATON HOTELS, KYO-YA CO., LTD., APPLICATION FOR A WATER

USE PERMIT, KOKUSAI KOGYO WELL (WELL NO. 1749-19), PALOLO

GROUND WATER MANAGEMENT AREA, OAHU

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).

TIEM 6 DEPARTMENT OF HAWAIIAN HOMES LANDS, APPLICATION FOR WATER

USB PERMIT, WAIPAHU WELLS III (WELL NOS. 2400-09 TO 13), WAIPAHU-

<u>WAIAWA GROUND WATER MANAGEMENT AREA, OAHU)</u>

Unanimously approved (Nobriga/Girald).

TIEM 7 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

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

- 1. 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.
- 2. The water use must at all times meet the requirements set forth in HAR §13-171-13 which means that it:
  - a. Can be accommodated with the available water source;
  - b. Is a reasonable-beneficial use as defined in section §13-171-2;
  - Will not interfere with any existing legal use of water;
  - d. Is consistent with the public interest;
  - e. Is consistent with state and county general plans and land use designations;
  - f. Is consistent with county land use plans and policies; and
  - g. Will not interfere with the rights of the Department of Hawaiian Home Lands as provided in section 221 of the Hawaiian Homes Commission Act and 174C-101(a), HRS.
- 4. 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;
  - b. The interim or permanent instream flow standard, as applicable, must be amended.
- 6. The water use permit is subject to the requirements of the Hawaiian Homes Commission Act, as amended, if applicable.
- 7. 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.
- 9. 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 necessary to:
  - a. Protect water sources in quantity, quality, or both;
  - Meet other legal obligations including other correlative rights;
  - c. Insure adequate conservation measures:
  - d. Require efficiency of water uses:
  - e. Reserve water for future uses, provided that all legal existing uses of water as of June 1987, shall be protected;
  - f. Meet legal obligations to the Department of Hawaiian Homes, if applicable; or
  - g. Carry out such other necessary and proper exercise of the State's and the Commissions's police powers under law as may be required

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:

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

K. Hayashida, Z. Lao

94-2362

JOHN WAREE DOVERNOR OF HUMAN Aug 33 17, 22 17, 154



KEITH W. AHUE

DR. PETER SYBINSKY ROBERT S. NAKATA J. DOUGLASING, ESO. ROBERT G. GIRALD DAVID NOSRIGA

> RAE M. LOUL P.E. DOWNY

STATE OF HAWAII

DEPARTMENT OF LAND AND NATURAL RESOURCES COMMISSION ON WATER RESOURCE MANAGEMENT

REF:WRM:SS

P.O. BOX 621 HONOLULU, HAWAN 96800

시내급 29 원하다

TO:

Dr. Peter A. Sybinsky, Director Department of Health

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

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

Donald A. Clegg, Director Department of Land Utilization

Robin Foster, Chief Planning Officer

Planning Department

FROM:

. 2

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.

#### Attachment(s)

Response:
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() We have no comments

We have no objections

() Comments attached
() Additional information requested

() Extended review period requested

Herbert H. Minakami Contact person:

Date:

Phone:

527-6183

Signed: KAZU HAYASATDA Manager and Chief Engineer

Ý3:

JOHN WAIHEE

GOVERNOR

TATE OF HAWAII



HOALIKU L. DRAKE CHAIRMAN HAWAIIAN HOMES COMMISSION

#### STATE OF HAWAII DEPARTMENT OF HAWAIIAN HOME LANDS

P. O. BOX 1879 HONOLULU, HAWAII 96805

AUGUST 12, 1994

TO:

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

FROM:

Hoaliku L. Drake, Chairman Hawaiian Homes Commission

المبتركا

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.

KECEIVED

HLD:sm:5659B

Attachment

CC:Kazu Hayashida, Board of Water Supply Craig Watase, Princess Kahanu Development Corporation

#### \_ARD OF WATER SUPPLY

G Y AND COUNTY OF HONOLULU

630 SOUTH BERETANIA STREET

H NOLULU, HAWAII 96843



JEREMY HARRIS, Mayor

WALTER O. WATSON, JA, Cheminen MAURICE H. YAMASATO, VICE CRAIMSO SISTER M. DAVLYN AH CHICK, O.S.F. REX D. JOHNSON MELISSA Y.J. LUM FORREST C. MURPHY KENNETH E. SPRAGUE

_		•	•	July 22, 1994	KÁZU HAYASHIDA Manager and Chief Engine9/
		n & Asso en Street	ciates, Inc. r, Suite 300		
	Dear Mr.	Tagami:			
-:	Subject:		etter of July 8, 1994 Re vision, TMK: 8-7-07: 4, 8	garding the Proposed Prince 3-7-33: 14 & 19	ss Kahanu Estates
				oposed development. We ha water master plan and water	
<del>-</del>	1.	The to	tal water requirements s	hould be 143,500 gallons pe	er day.
	2.	The De	epartment of Hawaiian I	Iome Lands (DHHL) is requi	ired to:
		a.		te Commission on Water Re lent transfer of permitted use ply.	
-	•	ъ.	estimated cost is \$3.	share of our Waipahu Wells 60 per gallon. The final cos onstruction of the project.	
ed All Mi	<b>-</b> ,	<b>c.</b>		share of our proposed Nana d storage cost for the propos	
1		d.	Pay our Water System	m Facilities Charges for trans	smission.
-1		e.	Submit construction	drawings for our review and	l approval.
-) 	The availation our review	bility of and app	water will be confirmed proval.	when the construction draw	rings are submitted for
- •	If you have	any qu	estions, please contact J	oseph Kaakua at 527-6123.	
-1	•			Very truly yours,	
-			FOR	MUMMAN J N KAZU/HAYASHIDA Manager and Chief Engine	er er

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



State of Hawaii

COMMISSION ON WATER RESOURCE, MANAGEMENT:

Department of Land and Natural Resources: 10

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Aug 10 9 o1 All '94

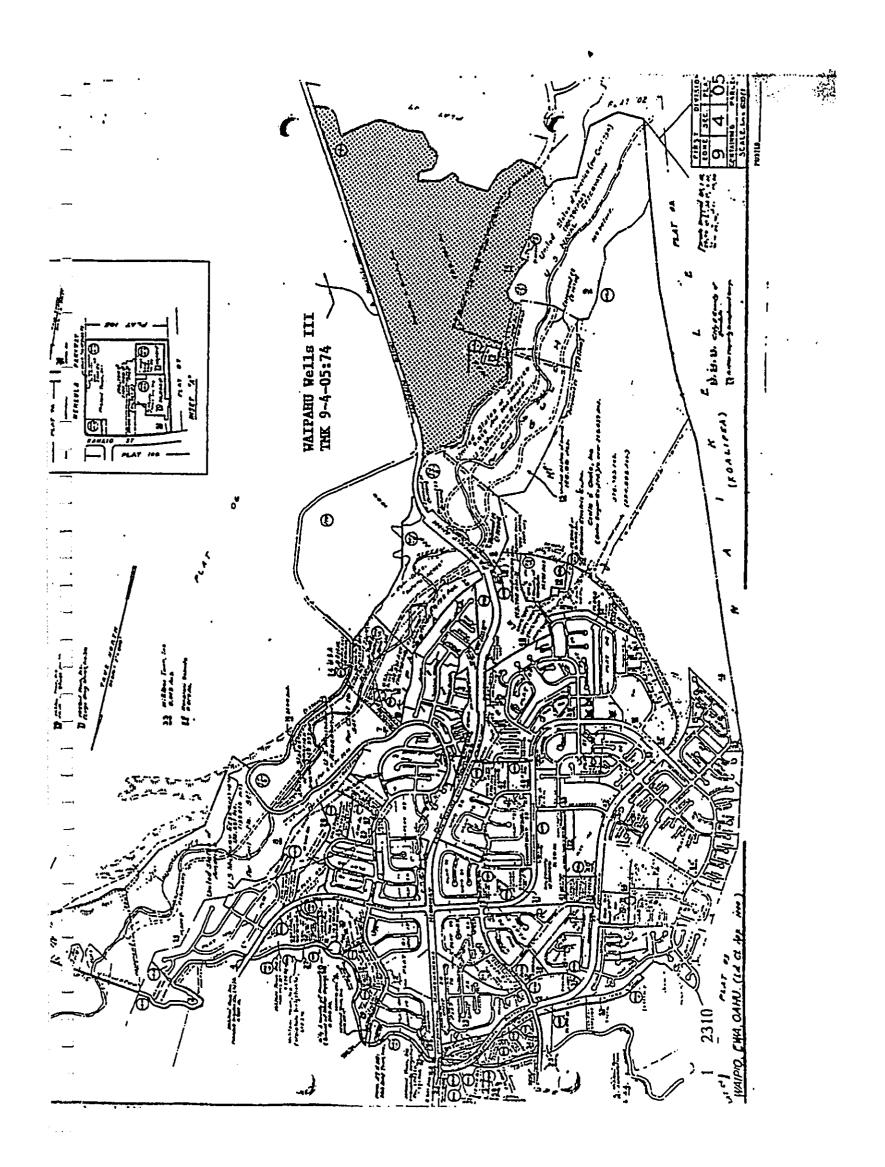
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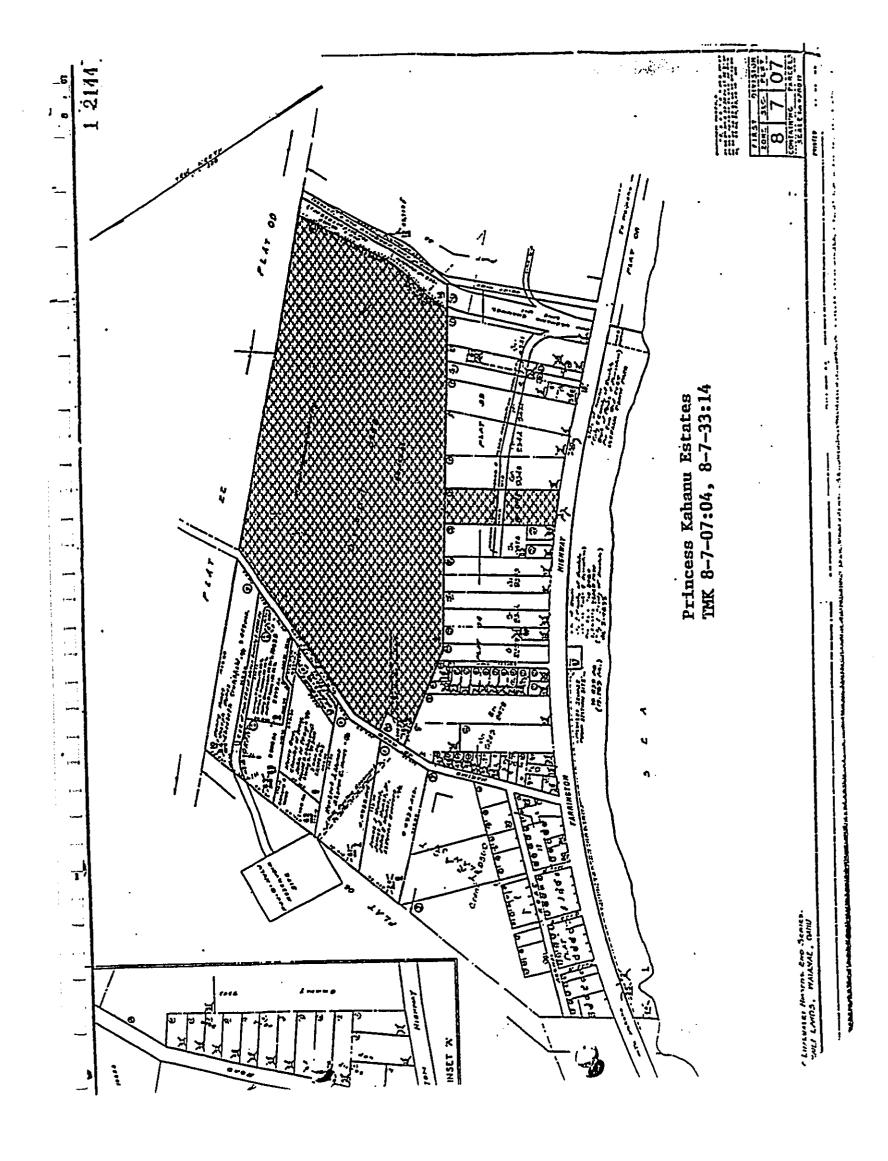
#### APPLICATION FOR WATER USE PERMIT

PE	RMITTEE INFORM	MATION					
1.	(a) APPLICANT		•	(b) LANDOV	WNER OF S	OURCE	•
	Content Person St.			Firm/Name <u>CR</u> Contact Person Address P.O.	stle & Co Wally Miy Box 2780	oke Homes. shira	Inc. Ph. 548-
•	-Honolu	lu, HI 968Q5		Hono	lulu. HT	96803	
SO	URCE INFORMA	TION				•	
2.	WATER MANAG	EMENT AREA: _	Pearl Harbo	WAITAHIA	-WAAN	A ISLAND	<u>Oahu</u>
3.	(b) PROPOSED (	ell/diversion n New) Well/dive	rsjon name: .	TE NUMBER: 💥	aipahu 77	1 <del>. 2400-07</del> 100-09 1	08.09.1 0.13
	(c) LOCATION: (Attach a USGS map	Address <u>Waipah</u> ; , scale 1°=2000', and	z l a property tex map s	howing source locat	ion referenced	Tex Map Koy	9 - 4 - 1
4.	SOURCE TYPE (6	heck one): · 🔲 Stream	m 🏗 Besel	Dike-confin			Caproci
5.	METHOD OF TA	KING WATER (che	ck one): Artesian	☑ Well & Pum	p Dive	rted Surface	Other (e
USI	<b>EINFORMATION</b>						•
6.	(a) Proposed use of (b) Tax Map Key: 8	ROPOSED WATER water is: D Existin -7 - 07:04 (I	ig Ethew floostion of use is a	Dook autoba	<b></b>		
		District: ** Urban Coning Code: R-5.		rre Conservatio	n 🗆 Rura	ı	
7.	QUANTITY OF W	ATER REQUESTE	D: <del>_143+000</del>	143,500	gallons pe	r day (averag	ed over 1
8.	METHOD OF ME	ASUREMENT:	3⊠ Flowmeter	Open-pipe	□ Weir	Oquice	Other (ex
9.	QUALITY OF WA	TER REQUESTED:	Fresh	☐ Brackish	□ salt	2 Potable	□ Non-Pot
10.	PROPOSED USE:	☑ Municipal (Includ ☐ Industrial	ing hotels, stores, e	to.) 🔲 Individ	rual Domestio Y		☐ Inigation
	For questions 12 & 13	: If multiple TMKs ar	involved, please of	omplete Table 1 on i	back of applica	ition.	
11. 12.	TOTAL NUMBER OF				gle-famil	y homes	
13.	PROPOSED TIME			IVERSION: _24	(acres) hours/da	(orop) operation, ex. 7	
14.	APPLICANT MUS	T BRIEFLY DESCR	IBF FOLLOWING	• 4			
	(a) Impact on Si	ustainable yield (?)	): <u> </u>	a part of po	cable value by the	er release	d by
		w Standards affection					
	(d) Other existing	me Lands use effec ig legal uses affec	icted (?): The p: ted (?): <u>none</u>	roject will b	e_occupio	d by DHHL	1eagees
		ng permits, EIS, e					
15.	REMARKS, EXPLA	NATIONS: (Bee	reverse) .				•
	<del></del>	(If more	space is needed, o	ontinue on back sid	1)		
OTE: 1	ligning below indicates that the	applicant understands that, If	a water use permit le grans	ted by the Commission on	Water Resource Me	nagoment, a permit i	Outjoot to prior
ndereta	f cross, shanges in sustainable ndo that, upon porpit approval,	a vester chartage plan must b	e cubmitted should the Cor	mmission require one.	i, and Hawallen He	ime Lando futuro uso:	u. In addition, a <sub>l</sub>
	Applicant (print)	oaliku L. Drak	e, Chairman	Landowner (pri	Weastle	6 Cooke Ho	mes, Hav
	Signature from	an nomes	COMMISSION	Signature Aug	Kan O	Waln	<u>.</u>
	Date 8/4/94			Date V Aug	just 9, 1	994//	

#### TABLE 1. MULTIPLE TMKs TO USE REQUESTED WATER

		CUPRENT .	UNTE	GPOJUNTS		SOFTOTAL TO BEUSED
PROJECTNAMETER	TVK	ZONING* CODE	NET ACRES	agPD/AGRE	ξ ξ ξ τ	OVER NEXT
Princess Kahanu Estates	8-7-07:04	R-5,PDH	271 units	500	135.500	100.7
Princess Kahanu Estates	8-7-07:04	R-5,PDH	l unit -		7-000	. 1007
Princess Kahanu Estates		-	1 unit - Community Center	•	1,000	100%
					·	
<b>.</b>				···. · · ·		····
		•	-			





#### BOARD OF WATER SUPPLY

CITY AND COUNTY OF HONOLULU

330 SOUTH BERETANIA STREET

HONOLULU, HAWAII 96843



FRANK F. FASI, Mayor

WALTER O. WATSON, JR., Chalman 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

August 28, 1992

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

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. "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



## COMMISSION ON WATER RESOURCE MANAGEMENT Department of Land and Natural Resources

### APPLICATION FOR WATER USE PERMIT

	☐ Ground Water or	
	ructions: Please print in ink or type and send completed application. Box 621, Honokulu, Hawaii 96809. Application must be accompanied biral Resources. The Commission may not accept incomplete application.	with attachments to the Commission on Water Resource Management, by a non-refundable filing fee of \$25.00 payable to the Dept. of Land and ons. For assistance, call the Regulation Branch at 587-0225.
1.	(a) APPLICANT Firm/Name Board of Water Supply	(b) LANDOWNER Hole Food Company, Inc., fka
	Contact Person Kazu Hayashida ph: 527-6180	Contact Person George Yim Ph: 548-6611
	Honolulu, Hawaii 96843	Address P.O. Rox 2990 Honolulu, Hawaii 96802
2.	WATER MANAGEMENT AREA: Pearl Harbor	ISLAND: Oahu
3.	(a) EXISTING SOURCE NAME AND STATE NUMBER:	(well or stream diversion name/number)
•	(b) PROPOSED (NEW) SOURCE NAME: Waipahu	9-4-5:74
4.	SOURCE LOCATION: Address	
••	(Attach a USGS map, scale 1"=2000", and a property tax map show	ring source location referenced to established property boundaries.)
	the state of the s	and source sources to established property boundaries.)
i.	SOURCE TYPE (check one): Stream 🛱 Basal	☐ Dike-confined ☐ Perched ☐ Caprock
i <b>.</b>	METHOD OF TAKING WATER (check one):   Artesian Flow	Well & Pump ☐ Diverted Surface Flow ☐ Other (explain)
•	LOCATION OF PROPOSED WATER USE: (If possible, sho	w on same maps as source location. Otherwise, attach similar maps)  Tax Map Key
	(b) Land Use District(check one): Urban Agriculture (c) County Zoning (describe)	
<b>.</b>	QUANTITY OF WATER REQUESTED: 3.0 million	gallons per day
•	METHOD OF MEASUREMENT: ☐ Flowmoter ☐ Op	en-pipe 🗆 Weir 🗀 Orifice 🚨 Other (explain)
).	QUALITY OF WATER REQUESTED: Treeh	ackish 🔲 Salt 🔲 Potable 🔲 Non-Potable
1.	□ Industrial .	☐ Domestic (Individual, noncommercial, etc.) ☐ Imigation ☐ Military ☐ Other (explain)
2.	NUMBER AND TYPE OF UNITS TO BE SERVED (explain	in):
١.	TOTAL ACRES PROPOSED FOR IRRIGATION AND TYPE	PE OF CROP:
		(acres) (crop)
	PROPOSED TIME OF WATER WITHDRAWAL OR DIVER	RSION: 24 hours (Indicate hours of operation)
i <b>.</b>		, , ,
	(b) Permenant or Interim Instream Flow Standards affected (?): N/A	•
	Instream Flow Standards affected (?): N/A (c) Hawalian Home Land uses affected (?): N/A	
	(d) Other existing legal uses affected (?): N/A	
	(e) Other:	
	*******	In Change of City and the control of the
		ls (total of five) with capacities of 1.5 $m$
	each for proposed well field.	
	(if more space is needed, conti	nue on back side)
mor e	igning below indicates that the applicant understands that, if a water use permit is posting permitted uses, changes in sustainable yields and instream flow standards, addition, applicant understands that, upon permit approval, a water shortage plan	recovered trace as defined by the Commission, and Discussion Lieuw Lands Lieuw.
	Applicant (print) Board of Water Supply	· · · · · · · · · · · · · · · · · · ·
	Signature the Signature Si	Ignature cec carties application
ſ	For Official Use Only: Onte Received <u>8/21/9&gt; -&gt; 9/1/9</u> 2 Hydrologic Unit No. 3	0203 Diversion Works No
	lotice Dates:	
		Viali List Bulletin Public Hosting
		6/24/92 WUPA Form

ATER SUPPLY

OF HONOLULU

ETANIA STREET

HAWAII 96843

RECEIVED

AUG 18 PI2: 53

August 14, 1992 EFF. OF 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

SCHOOLSE WAY STAND

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





#### APPLICATION FOR, WATER USE PERMIT

(a) APPLICANT FIRM/Rame BOARD OF Water Supply FIRM/Rame CASULT BY SASING Dev. 527-5180 Address Form RAZU HayaShida ps. 527-5180 WATER MANAGEMENT AREA: Pearl Harbor ISLAND: Oahu  WATER MANAGEMENT AREA: Pearl Harbor ISLAND: Oahu  (a) EXISTING SOURCE NAME AND STATE NUMBER: (b) PROPOSED (NEW) SOURCE NAME: Waipahu Wells III  SOURCE LOCATION: Address Form Razul Property tax map showing source location referenced to established property boundaries.)  SOURCE TYPE (check one): Steam Rassas   Diko-confined   Perched   Caprock METHOD OF TAKING WATER USE; (if possible, show on same maps as source location. Otherwise, statch similar maps) (a) Address   Municipal System   Address   Muni	atructions: Please print in ink or type and send completed application O. Box 621, Honolulu, Hawaii 96809. Application must be accompanied tatural Resources. The Commission may not accept incomplete application	with attachments to the Commission on Water Resource Management, by a non-refundable filing fee of \$25.00 payable to the Dept. of Land and
WATER MANAGEMENT AREA: Pear 1 Harbor   ISLAND: Oahu    (a) EXISTING SOURCE NAME AND STATE NUMBER:   (well or stream diversible name/number)    (b) PROPOSED (NEW) SOURCE NAME:   Waipahu   Wells III    SOURCE LOCATION: Address   Tax Map key 9-4-07: 1    (Alacha LUSGS map, reals of "RECOOK", and a properly lax map showing source location referenced to established properly boundaries.)  SOURCE TYPE (check one):   Stream   Dasas   Dixer-confirmed   Perched   Capprock    METHOD OF TAKING WATER (check one):   Artesian Flow   Walf & Pump   Duiverlood Surface Flow   Oliber (expilain)    LOCATION OF PROPOSED WATER USE: (if possible, show on some maps as source location. Otherwise, attach similar maps) (is) tand the Detection to one):   Urben   Agriculture   Conservation   Rural    (is) Land Use Detection to one):   Urben   Agriculture   Conservation   Rural    (ic) Country Zening (describe)   Urben   Agriculture   Conservation   Rural    (ic) Country Zening (describe)   Urben   Agriculture   Conservation   Rural    QUALITY OF WATER REQUESTED:   Fresh   Breakth   Saat   Potable   Mon-Potable    PROPOSED USE:   Municipal (including briefs, stores, etc.)   Domestic (included), noncommercial, etc.)   Infrastion      Indicating   Conservation   Conservation   Cappelling    NUMBER AND TYPE OF UNITS TO BE SERVED (explain):    TOTAL ACRES PROPOSED FOR IRRIGATION AND TYPE OF CROP:   (Acres)    (Indicate hours of operation)    PROPOSED TIME OF WATER WITHDRAWAL OR DIVERSION:   24 hours    (Indicate hours of operation)   Onter (explain)    PROPOSED TIME OF WATER WITHDRAWAL OR DIVERSION:   24 hours    (Indicate hours of operation)   Onter (explain)    (Indicate hours of operation)	Firm/Name Board of Water Supply Contact Person Kazu Hayashida ph. 527-6180 630 South Beretahia St.	Contact Person George VIIII Ph. 548-6611
(a) EXISTING SOURCE NAME AND STATE NUMBER:  (well or stream diversion name/number)  (b) PROPOSED (NEW) SOURCE NAME: Waipahu Wells III  SOURCE LOCATION: Address (Austein a USGS map, seels 1"=2000", and a property tax map showing source location referenced to established property boundaries.)  SOURCE TYPE (check one): Stream **El Basal		
(b) PROPOSED (NEW) SOURCE NAME: Waipahu Wells III  SOURCE LOCATION: Address Tax Map Ray 9-4-07: 1  (Attach a USSS map, ecale 1*2000*, and a property tax map showing source location referenced to established property boundaries.)  SOURCE TYPE (check one): Steam Beast Olike-confined Perchad Caprock  METHOD OF TAKING WATER USE: (if possible, show on same maps as source location. Otherwise, attach similar maps) (c) Address Municipal System Tax Map Ray  (b) Land Use District(check one): Urban Agriculture Corporavation Rural (c) County Zong (describe).  QUANTITY OF WATER REQUESTED: 3.0 million gallons per day  METHOD OF MEASUREMENT: Browmeter Open-pipe Well Orthos Otherwise, attach similar maps) (c) Land Use District(check one): Urban Received Perchad Open-pipe Well Orthos Otherwise, attach similar maps) (c) Address Municipal (including hotols, stores, etc.) Demestic (individual, noncommercial, etc.) I imagetion Orthor (explain)  METHOD OF MEASUREMENT: Browmeter Open-pipe Well Orthos Other (explain)  PROPOSED USE: Municipal (including hotols, stores, etc.) Demestic (individual, noncommercial, etc.) I imagetion District (explain): Other (explain)  NUMBER AND TYPE OF UNITS TO BE SERVED (explain): (acros) (cup)  PROPOSED TIME OF WATER WITHDRAWAL OR DIVERSION: 24 hours  APPLICANT MUST BRIEFLY DESCRIBE FOLLOWING POTENTIAL RESTRICTIONS ON USE: Inable yield (?): (acros) (cup)  (b) Permanant or Interim Instrumer Flow Standards affected (?): (acros) (cup)  (c) Hawailan Home Land uses affected (?): (acros) (cup)  (d) Other existing legal uses affected (?): (acros) (cup)  Supragation Sustainable yield (?): (acros) (cup)  Supragation Sustainable vield (?): (acros) (cup)  Supragation Sustainable vield (?): (acros) (cup)  Demendation of Value and uses affected (?): (acros) (cup)  (d) Other existing legal uses affected (?): (acros) (cup)  Supragation of Sustainable vield (?): (acros) (cup)  Demendation of Sustainable vield (?): (acros) (cup)  Supragation Foreign and Across Across Across Across Across Across Across Across Across Acr	WATER MANAGEMENT AREA: Pearl Harbor	: Oahu ISLAND: Oahu
SOURCE LOCATION: Address	tin i m	(well or stream diversion name/number)
Citach a USGS mep, each 1*2000*, and a property tax map showing source location referenced to established property boundaries.)	(b) PROPOSED (NEW) SOURCE NAME:	saun meriz iii
METHOD OF TAKING WATER (check one): Artesian Flow		Tax map key
LOCATION OF PROPOSED WATER USE: (if possible, show on serne maps as source location. Otherwise, attach similar maps)  (a) Address    Municipal System	SOURCE TYPE (check one): Stream The Basal	☐ Dike-confined ☐ Perched ☐ Caprock
(b) Land Use District/check one):  Urban	METHOD OF TAKING WATER (check one): Artesian Flow	w 🖺 Well & Pump 🗎 Liverted Surface Flow 🔲 Other(explain)
County Zoning (describe)   3.0 million gallons per day		· · · · · · · · · · · · · · · · · · ·
METHOD OF MEASUREMENT:	(c) County Zoning (describe)	
PROPOSED USE: Municipal (including holes, stores, etc.) Domestic (individual, noncommercial, etc.) Dirigation Military Dirigation Military Dotter (explain)  NUMBER AND TYPE OF UNITS TO BE SERVED (explain):  TOTAL ACRES PROPOSED FOR IRRIGATION AND TYPE OF CROP: (ecros) (crop)  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 (?):  (b) Permenant or Interim Instream Flow Standards affected (?): n/a (d) Other existing legal uses affected (?): 11/a (d) Other existing legal uses affected (?): (e) Other:  REMARKS, EXPLANATIONS: Construct new wellfield of three wells with capacities of 1.5 MGD each.  (if more space is notationally standards and naturean flow standards, served uses as a defined by the Commission, and Namylan Home Lands future assisting permitted uses, changes in quistainable primary and the spot of the served uses as a defined by the Commission and Namylan Home Lands future assisting permitted uses, changes in sustainable pictic and instream approval, a water shortage plan must be submitted shooting from the company of the commission on Water Resource Management, a permit is subject assisting permitted uses, changes in sustainable pictic and instream and approval, a water shortage plan must be submitted shooting from the company. Inc., fixe Applicant (print) Board of Water Supply Landowner (print) Castle and Cooke, Inc. Signature Date Octobed Castle and Cooke Computer		,
NUMBER AND TYPE OF UNITS TO BE SERVED (explain):  TOTAL ACRES PROPOSED FOR IRRIGATION AND TYPE OF CROP:  (acros) (crop)  PROPOSED TIME OF WATER WITHDRAWAL OR DIVERSION:  APPLICANT MUST BRIEFLY DESCRIBE FOLLOWING POTENTIAL RESTRICTIONS ON USE: (a) Impact on Sustainable yield (?):  (b) Permenant or Interim Instream Flow Standards affected (?): (c) Hawailan Home Land uses affected (?): (d) Other existing legal uses affected (?): (e) Other:  REMARKS, EXPLANATIONS:  Construct new wellfield of three wells with capacities of 1.5 MGD each.  (i) more space is needed, continue on back side)  Signing below indicates that the applicant understands that, so of instream flow standards, reserved uses as defended by the Commission on Water Resource Management, a permit is subject easting permited uses, charges in sustainable yields and instream flow standards, reserved uses as defended by the Commission on Water Resource Management, a permit is subject easting permited uses, charges in sustainable yields and instream flow standards, reserved uses as defined by the Commission on Water Resource Management, a permit is subject easting permited uses, charges in sustainable yields and instream flow standards, reserved uses as defined by the Commission results con a colling, applicant understands that use of Water Supply  Landowner (print)  Board Oxoge, Inc. fice.  Signature  AUI 1 U 1931  Hydrologic Unit No. 2002.2  Diversion Works No.  State Well No.  Notice Dates:	QUALITY OF WATER REQUESTED: Tresh	kackish 🔲 Salt 🔲 Potable 🖾 Non-Potable
TOTAL ACRES PROPOSED FOR IRRIGATION AND TYPE OF CROP:  (acres) (crop)  PROPOSED TIME OF WATER WITHDRAWAL OR DIVERSION:  APPLICANT MUST BRIEFLY DESCRIBE FOLLOWING POTENTIAL RESTRICTIONS ON USE:  (a) Impact on Sustainable yield (?):  (b) Permenant or Interim  Instream Flow Standards affected (?):  (c) Hawalian Home Land uses affected (?):  (d) Other existing legal uses affected (?):  (e) Other:  REMARKS, EXPLANATIONS:  Construct new wellfield of three wells with capacities of 1.5 MGD each.  (if more space is needed, continue on back side)  Signing below indicates that the applicant understands that, if a water use permit is granted by the Commission on Water Resource Management, a permit is subject addition, applicant understands that, if a water use permit is granted by the Commission on Water Resource Management, a permit is subject addition, applicant understands that, then water use permit is granted by the Commission on Water Resource Management, a permit is subject addition, applicant understands that, use a water shortage plan must be a submitted shorted by the Commission, and Hawalian Home Lands finate and addition, applicant understands that, use new lands and in the permit approvial. A water shortage plan must be a submitted shorted by the Commission, and Hawalian Home Lands finate and addition, applicant understands that, use new lands finate a submitted shorted by the Commission, and Hawalian Home Lands finate and addition, applicant understands that, use new lands finate and cooke, inc.  Signature  AUG 10 1931  Landowner (print)  Board of Water Supply  Landowner (print)  Board of Water Lastie & Cooke  Signature  AUG 10 1931  Bydrologic Unit No. 2020  Diversion Works No.  State Well No.  Notice Dates:		· · · · · · · · · · · · · · · · · · ·
PROPOSED TIME OF WATER WITHDRAWAL OR DIVERSION:  24 hours  (indicate hours of operation)  APPLICANT MUST BRIEFLY DESCRIBE FOLLOWING POTENTIAL RESTRICTIONS ON USE: Reduction of available sustainable yield (indicate hours of operation)  Reduction of available sustainable yield (indicate hours of operation)  Reduction of available sustainable yield (indicate hours of operation)  Reduction of available sustainable yield (indicate hours of operation)  Reduction of available sustainable yield  Indicate hours of operation)  Reduction of available sustainable yield  Indicate hours of operation)  Reduction of available sustainable yield  Indicate hours of operation)  Reduction of available sustainable yield  Indicate hours of operation)  Reduction of available sustainable yield  Indicate hours of operation)  Reduction of available sustainable yield  Indicate hours of operation)  Reduction of available sustainable yield  Indicate hours of operation)  Reduction of available sustainable yield  Indicate hours of operation)  Reduction of available sustainable yield  Indicate hours of operation)  Reduction of available sustainable yield  Indicate hours of operation)  Indicate hours of operation)  Reduction of available sustainable yield  Indicate hours of operation)  Indicate hours of operation of available sustainable yield and indicate hours of available of the professor of available sustainable yield and indicate hours of available of the professor of available of	NUMBER AND TYPE OF UNITS TO BE SERVED (explanation)	ain):
PROPOSED TIME OF WATER WITHDRAWAL OR DIVERSION:  24 hours  (indicate hours of operation)  APPLICANT MUST BRIEFLY DESCRIBE FOLLOWING POTENTIAL RESTRICTIONS ON USE: Reduction of available sustainable yield (indicate hours of operation)  Reduction of available sustainable yield (indicate hours of operation)  Reduction of available sustainable yield (indicate hours of operation)  Reduction of available sustainable yield (indicate hours of operation)  Reduction of available sustainable yield  Indicate hours of operation)  Reduction of available sustainable yield  Indicate hours of operation)  Reduction of available sustainable yield  Indicate hours of operation)  Reduction of available sustainable yield  Indicate hours of operation)  Reduction of available sustainable yield  Indicate hours of operation)  Reduction of available sustainable yield  Indicate hours of operation)  Reduction of available sustainable yield  Indicate hours of operation)  Reduction of available sustainable yield  Indicate hours of operation)  Reduction of available sustainable yield  Indicate hours of operation)  Reduction of available sustainable yield  Indicate hours of operation)  Indicate hours of operation)  Reduction of available sustainable yield  Indicate hours of operation)  Indicate hours of operation of available sustainable yield and indicate hours of available of the professor of available sustainable yield and indicate hours of available of the professor of available of	TOTAL ACRES PROPOSED FOR IRRIGATION AND TY	VPE OF CROP•
APPLICANT MUST BRIEFLY DESCRIBE FOLLOWING POTENTIAL RESTRICTIONS ON USE:  (a) Impact on Sustainable yield (?):  (b) Permenant or Interim  Instream Flow Standards affected (?):  (c) Hawalian Home Land uses affected (?):  (d) Other existing legal uses affected (?):  (e) Other:  REMARKS, EXPLANATIONS:  Construct new wellfield of three wells with capacities of 1.5 MGD each.  (if more space is needed, continue on back side)  Signing below indicates that the applicant understands that, it a water use permit is granted by the Commission on Water Resource Management, a permit is subject resisting permitted uses, changes in sustainable yields and instream flow standards, reserved uses as defined by the Commission, and Hawalian Home Lands fixure in addition, applicant understands that, upon permit approval, a water shortage plan must be submitted should fire Commission, and Hawalian Home Lands fixure in addition, applicant understands that, upon permit approval, a water shortage plan must be submitted should fire Commission, and Hawalian Home Lands fixure and addition, applicant understands that, upon permit approval, a water shortage plan must be submitted should fire Commission, and Hawalian Home Lands fixure and addition, applicant understands that, upon permit approval, a water shortage plan must be submitted should fire Commission, and Hawalian Home Lands fixure and addition, applicant understands that, upon permit approval, a water shortage plan must be submitted should fire Commission, and Hawalian Home Lands fixure and addition, applicant understands that, upon permit approval, a water shortage plan must be submitted should fire Commission, and Hawalian Home Lands fixure  Applicant (print) Board of Water Supply  Landowner (print) Castle and Cooke, Inc.  By 1154, Agent, Castle & Cooke  Signature  Date Accepted  Notice Dates:	101AL AORES PROPOSED POR INDIGATION AND TH	(acres) (crop) .
(b) Permenant or Interim Instream Flow Standards affected (?):  (c) Hawailan Home Land uses affected (?):  (d) Other existing legal uses affected (?):  (e) Other:  REMARKS, EXPLANATIONS:  Construct new wellfield of three wells with capacities of 1.5 MGD each.  (if more space is needed, continue on back side)  Signing below indicates that the applicant understands that, it a water use permit is grarted by the Commission on Water Resource Management, a permit is subject resisting permitted uses, changes in sustainable yields and instream flow standards, reserved uses as defined by the Commission, and Hawaiian Home Lands thure in addition, applicant understands that, upon permit approval, a water shortage plan must be submitted should give Commission, sugars one.  Applicant (print) Board of Water Supply  Landowner (print) Castle and Cooke, Inc.  Signature  Signature  Date  For Official Use Only:  Date Received of 1/15/42 and 1/12  Hydrologic Unit No. 20103  Diversion Works No.  State Well No.  Notice Dates:	PROPOSED TIME OF WATER WITHDRAWAL OR DIVE	(Indicate hours of operation)
(if more space is needed, continue on back side)  Signing below indicates that the applicant understands that, it a water use permit is granted by the Commission on Water Resource Management, a permit is subject redsting permitted uses, changes in sustainable yields and instream flow standards, reserved uses as defined by the Commission, and Hawalian Home Lands future in addition, applicant understands that, upon permit approval, a water shortage plan must be submitted should the Commission, and Hawalian Home Lands future in addition, applicant understands that, upon permit approval, a water shortage plan must be submitted should the Gommission, and Hawalian Home Lands future in addition, applicant understands that, upon permit approval, a water shortage plan must be submitted should the Gommission, and Hawalian Home Lands future in addition, applicant understands that, upon permit approval, a water shortage plan must be submitted should the Gommission, and Hawalian Home Lands future in addition, applicant understands that, upon permit approval, a water uses permit is granted by the Commission on Water Resource Management, a permit is subject to commission on Water Resource Management, a permit is subject to commission, and thewalian Home Lands future in addition, applicant understands that, upon permit approval, a water uses as defined by the Commission, and Hawalian Home Lands future in addition, applicant understands that, upon permit approval, a water uses permit is granted by the Commission, on Water Resource Management, a permit is subject to constitute the commission, and the subject to constitute uses as defined by the Commission, and Hawalian Home Lands future in addition and the subject to commission, and the water uses as defined by the Commission, and Hawalian Home Lands future in addition and the subject to commission, and Hawalian Home Lands future in addition and the subject to commission, and Hawalian Home Lands future in addition and the subject to commission, and Hawalian Home Lands future in	(b) Permenant or Interim Instream Flow Standards affected (?):  (c) Hawailan Home Land uses affected (?):  (d) Other existing legal uses affected (?):	
Signing below indicates that the applicant understands that, if a water use permit is granted by the Commission on Water Resource Management, a permit is subject existing permitted uses, changes in sustainable yields and instream flow standards, reserved uses as defined by the Commission, and Hawaiian Home Lands future in addition, applicant understands that, upon permit approval, a water shortage plan must be submitted should the Commission sequire one.  Applicant (print) Board of Water Supply Landowner (print) Castle and Cooke, Inc.  Signature Signature Signature Comp  Date Pacelved 08/15/92 Hydrologic Unit No. 20103 Diversion Works No.  State Well No.  Notice Dates:	REMARKS, EXPLANATIONS: Construct new capacities of 1.5 MGD each.	
Applicant (print) Board of Water Supply  Signature Application of Mater Supply  For Official Use Only:  Date Received Only:  Date Received Only:  Notice Dates:	كالمأم معرب بمعالك فتتنأ لفات المنافأة المصافلة فالمسابية بمبري ببران بالمراف والمسابق والمرافي والمسابق	والمستقد
For Official Use Only:  Date Received o 1/15/92 April 92 Hydrologic Unit No. 20103 Diversion Works No.  State Well No.	ior existing permitted uses, changes in sustainable yields and instream flow standard. In addition, applicant understands that, upon permit approval, a water shortage please (print) Board of Water Supply Signature	Landowner (print)  Signature  Compa  Compa  Compa  Castle and Cooke, Inc.  Signature  Compa  Compa
Notice Dates: Public	For Official Use Only:  Date Received 08/15/92 \$ \$1/1/92 Hydrologic Unit No. 2	. Diversion Works No.
	Notice Dates: Public Mayor BWS	Mail List Bulletin Public Hearing



## State of Hawali COMMISSIONON WATER RESOURCE MANAGEMENT Department of Land and Natural Resources

#### APPLICATION FOR PERMIT ☐ Well Construction or ☐ Pump Installation

$\mathbf{D} \mathbf{O}$	Box 621, Honolulu, Hawaii 9680 tral Resources. The Commission	type and send completed a 19. Application must be according to the accordi	mpanied by a non-rejundati	ole filing tee of \$25.0	O pavable to the Dept. of	Land and
	APPLICANT: (may be a	i, b, or c, but <u>all</u> must b	be filled in) (b) LANDO	WNER		
	Firm/Name_Board_of	Water Supply	Firm/Name	Same		
	Contact Person Kazu Ha	ayashidan:527-6	180 Contact Persor	٠	Ph:	
	Address 630 S Rex	etania Street-	Address			
	Honolulu,	Hawaii 96843	<del></del>			
	(c) CONTRACTOR				•	
	Firm/Name_To_be_de	tormined B		ntrentarie C-57 Line	insa No	
	Address	·····	<u> </u>	THE COST LICE	100 140 2-2-3	
	WELL LOCATION/NAM	E. Wainahu TTT			island Oahu	
•	WELL LOCATION/NAM Address	E. Harpana Lil	•	Tax Ma	p Key 9-4-5:7	
	Address			referenced to actab	•	
	(Attach a USGS map, scale 1	"⇔2000;and a property tax :	шар апомілд ман юсалов	teteleuced to estro	iished property bounds	101.)
	(a) PROPOSED WORK	: 🔯 Drill New Wall	☐ * Alter Location			
		Modify Existing Well	☐ Redrill	Deepen	🗆 * Abandon/Seal	
		☐ Install New Pump	☐ Replace Pump	☐ Modify Pump	1.41	
		* Be sure to complete and	i submit well abandonmen	r teborr nbou comb	letion of work.	
	/LA AMELL TOURS	☐ Dug ☐ Bored	☐ Driven	☐ Radial		
	(b) WELL TYPE:	is this well a part of a batt				
		(Briefly describe and fill in	the diagram on the back of			
		•				
	PROPOSED PUMP INF	ORMATION: Rated P	ump Capacity: 1.0	100	gallons per mint	ve
	Pump Type:		<b>-</b>	Motor:		
	□ Deep Well Turbine	☐ Rotary	Propeller	Diesel		•
	☐ Submerable	☐ Rotary-Displacement	☐ Reciprocating	Gas	horsepower of	
	☐ Centrifugal	☐ Rotary-Gear	☐ Impulse		HOISEPOWER CI.	
	PROPOSED USE:	Municipal (including ho		☐ Military		
'	. ,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,	Domestic (Individual, n	oncommercial water sys.)	☐ Industrial		
		☐ Irrigation (crop)	Classic Classic	Other (explain		
		State Land Use District: County Zoning (describe)	☐ Urban ☐ Agriculture		KIBEIANDU	
	•	County 2011ing (describe)	(if more space is needed	, continue below un	dor remarks, explanatio	na.)
	(a) PROPOSED AMOU	NT OF WITHDRAWAL:	3 Million	_ gallons per d	ay	
•	(b) METHOD OF FLOY		☐ Flow-meter	Open-pipe	☐ Orifice Plate	□ Weir
	(b) ME11100 01 1 201	, ,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,				
	PENDING ACTIONS:	□ CDUA □ SMA	□ EIS □ EA	NONE	Other(explain)	•
	REMARKS, EXPLANATI	ONS: <u>Drill up</u>	to 5 wells			
		والمراز والمناطق المساور والمساور والمساور	is needed, continue on ba	THE RESERVE THE PERSON NAMED IN COLUMN 2 I		
9 be	now indicates that the appacant under ars of the approvel date. In addition	stands that, if the purtrait requests	d is granted by the Commission the Commission a well complet	on Water Recourse Me tion report, well aband	priment report, or both, will proposed with	rkis to be con hin 30 days a
	- 4 - 4	alas contentente met monthly to	PTOP ENGE PLOTE BANKE FOR MAIN MICHEL	1 10 LIE GOIHHIBANO	the embarrant ton miles and an arrange	
	of the permitted work. The applicant mit shall not constitute a determinati					
	Board of Water	SupplyLandowner	(Samb)	Contr	actor	····
	112113/-			<b>4.</b>	A	
a	1000/-	Signature			ture	
	6/9/93	Date	•	Date.		
) [ <u>-</u>	al Use Only:					
Re	ceived			_		
An	copled	Landhida		Agulter Syst	lom Namo	
	xecked By	TO:XXIII OO			e Well No.	

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			<b>*</b>	•	•	
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	• •	•		Щ		
Cer	mont Grout: <u>365</u>	_ ft				
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				<b>州</b>		
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				7		
Soo	- <del>-</del> - • • )					
nu	k Packing N/A	n	- - - - - - - - - - - - - - - - - -	<del>&lt;</del>	Solid Casing:	
			1111		Material <u>ASTM A-53</u> Length <u>365</u>	
			1111		Diameter 1.6	
			1111		Wall thickness 3/8	
Hole	T1				•	
nus	Diameter: 20	In	-▶			
	••	• .				
				<u>                                     </u>		
•			1111	<b>'</b>	Casing: Perforated Screen	
Total	Depth <u>465</u> n		Jiilk	1	Length N/A Diameter	
					Wall thickness	<del></del>
				J.	Openings sq. in./LF.	
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	•		1 11			
•					Open Hole:	
					Length100	
		•	<del></del>		Diameter	
		•				
			•			

Approximate elevation at time of filing application. Ground elevation above mean sea 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.

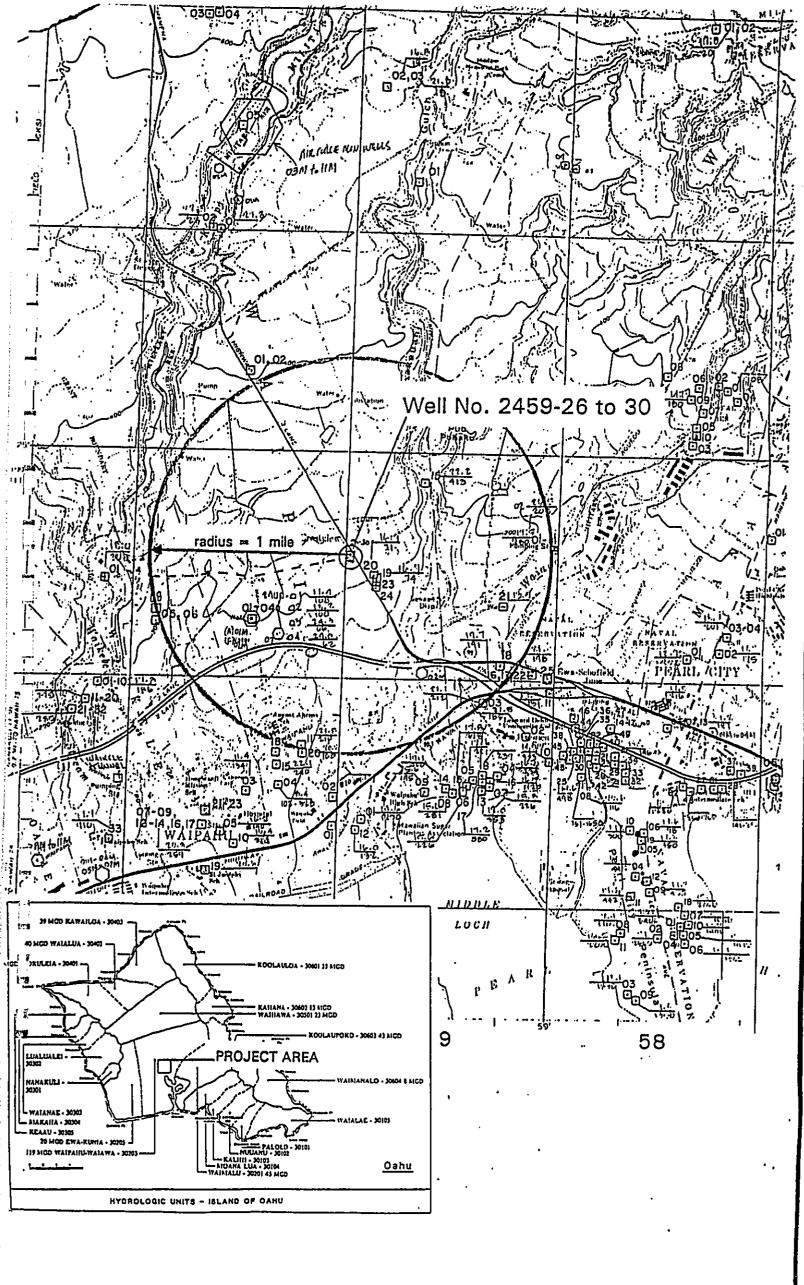


Exhibit 1

## APPENDIX B SUBMERSIBLE PUMPS \* g.

	Mailanto Man 163 GM	P. ASSOCIATES.
<b>23</b>	MODEL: 12 MA . SUBMER	SIBLE PUMP
	FABRICATED STL. SURFACE PLATE	·
)   9	- 13" & TO FACE OF FLANGE	
<del>                                       </del>		
*	1/2"THX. JASE TO & OF DIS	CHARGE_
\$4 <b>3</b>	DISCHARGE FLANGE 7/8-DIA.O	F HOLES
ŝ	STD. 125	
9	SURFACE PLATE FABRICATI	D STEEL .
<b>5:8</b>	358H. 3 16' I.D. OF WELL	
ŧ	16" LD. OF WELL	
5 <b>32</b>	375-93/4" B COLUMN GARU. Sch. 40 A-S.	S GR.B
	HO POWER CONDUCTOR	
8	BOWL UNIT:	
Į II	12 MQ ASSEMBLY	PUMP RATING
19	9-6" 7 STAGE	G.P.M. 1000
3	1 Similar 121/870 OF BOW INT	FT. FIELD HD. 470
LZ	INCL. CABLE GUARD	:
	B'-344" MOTOR: BYRON JACKON MFG. 115/8"	O.D.
13	150 HP. COD CY. 480 VOLTS	•
tres	1800 R.PM. 3 PH. FRAME	SO. NO. SOLD TO:
	7/8" DIA. 8 HOLES	
	ON 25" B.C.	ORDER NO. USER
173	AS SHOWN	PUMP IDENTIFICATION
å		
	TOP VIEW	THIS CERTIFIED PRINT
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	PRELIMINARY - FOR BUSINES BUSINE DULY	FOR CONSTRUCTION  BYDATE
13	LICULITATION - TOIC DOUBLE DEVOTE DEVOT	BYDATE
	DRN. BY' CHK'D BY: DATE:	PUMP" NO.

Effective Dec. 77 Super. Dec. 1976

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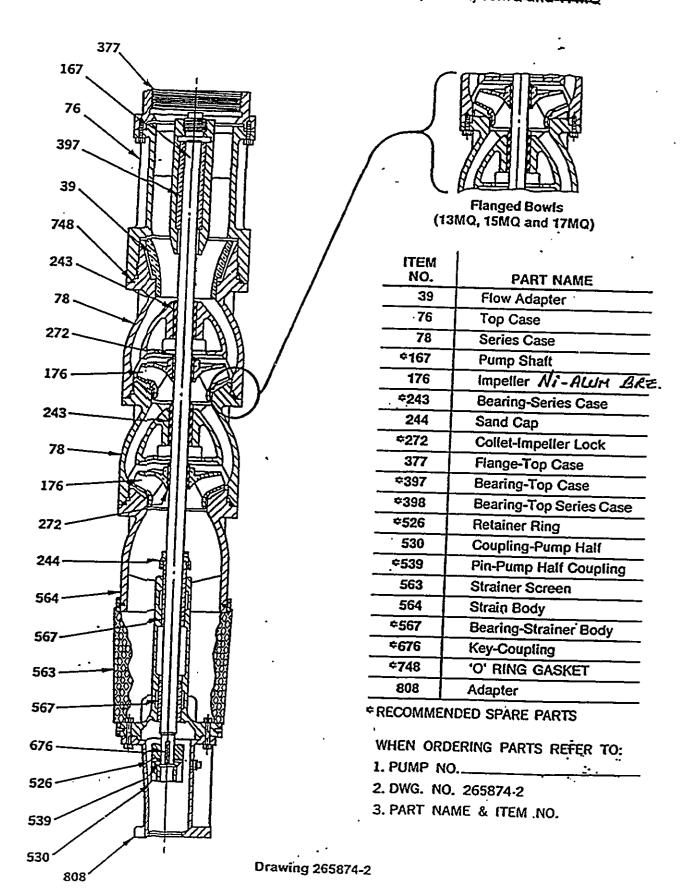
BW/IP International, Inc.

Byron## ...
Jackson®
Products

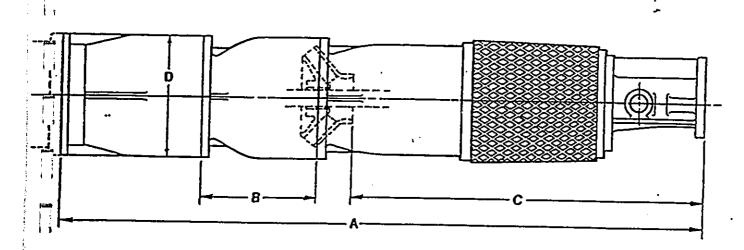
Section - 2-410-Page 2-410-2.3

#### TYPE MQ SUBMERSIBLE BOWL ASSEMBLIES

Sectional Drawing for THIND, 11MD, 12MQ, 15MQ and 17MQ



#### TYPE "MQ" SUBMERSIBLE BOWL ASSEMBLIES



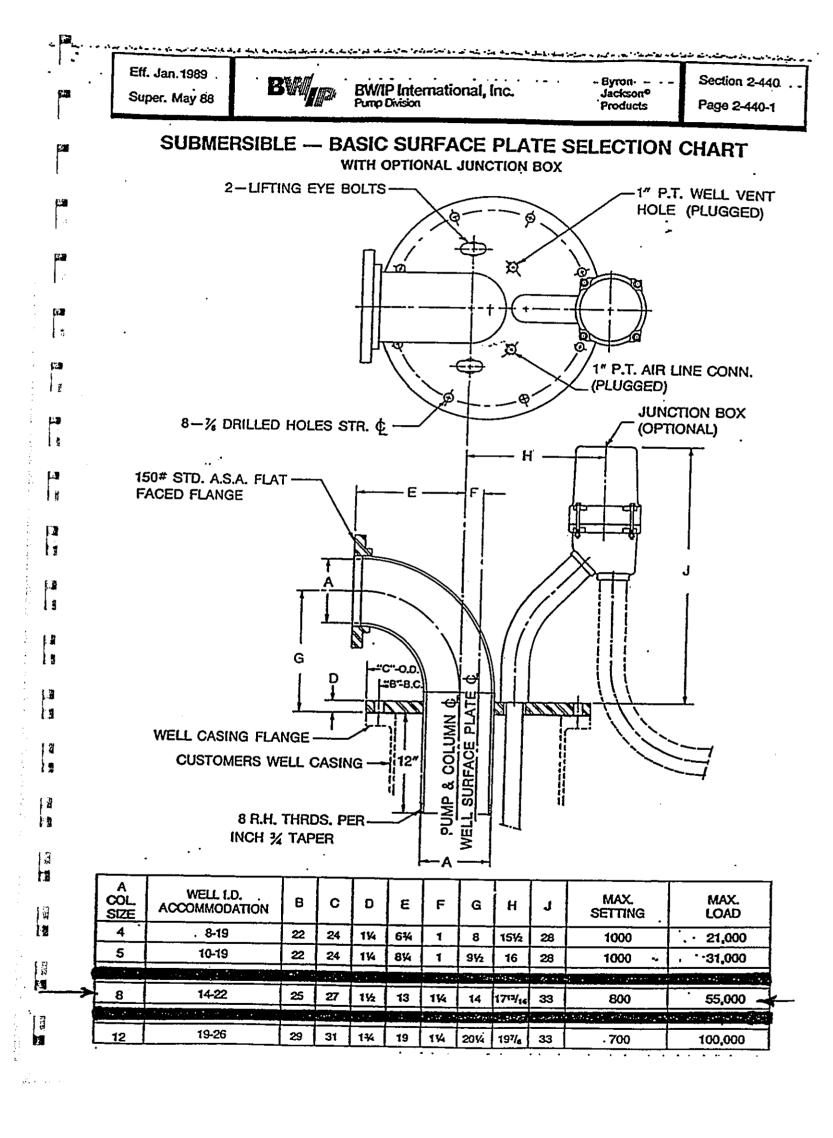
#### Lengths Apply to Standard or Heavy Construction.

PU	SUBM	L MOT	OR	STRAINER	A	8	С		AVAILABLE TOP CASE		WELL (.D.	
Et.	SIZE SPEED 2P 4P		SIZE	(DLENGTH OF ONE STG. UNIT	LENGTH OF ADD'L STG.	GTH OF FIRST STAGE I'L STG. IMP.LOCATION		OUTLET	MIN.	RECOMIED		
7-440	8.	<u> </u>		8	294	71/14	151/4	-		81/2	10	
_{ <b>_</b>	10	ند	<u> </u>		3214(4	1.449	1814/14	644	5	10	12	
s 10	8			8	334,4	8	20=1/32	T.,	5.00	81/2	10	
	10				341/4		212422	72/4	5 & 6	10	12	
(a)	10	-	•		4117/16	••	231/14			1		
10 0	12			10	4244	91/2	241/4	91/2	6, 8	12	12	
1.6	14		~		457/16		2613/16	]			14	16
	10			]	4844							
1 10	12		<u> </u>	12	514 <sub>16</sub>	103/4	267/16	107/4	8	12	13.5	
1.3	14		-		5214		2911/14			14	16	
	10			E					./		<del> </del>	
2/32	12	[		12	531414	12	264,4	1114	8 <b>,</b> 10	13	15	
<u> -   2  </u>						F				-14	16	
į	12			L	547/4					<del>                                     </del>		
340	14		-	14	52414	127/4	2814	13	. 10	14	. 16	
3	17		•		55 <sup>t2</sup> /16	ľ	324/16	•		1514	17	
(.2)	12		<u></u>		677/14							
5-MQ	14		<i>v</i> .	15	654	147/15	384	147/12	10, 12	151/2	1744	
	17		-		6611/14		397/14	```	10, 12	10,2	17-14	
13	17		<u></u>		701/4		3712/16					
7-MQ	16		-	15		1634		167/4	10, 12	17%	1914	
48	21		-		713/16		387/4	1076	10, 12	"""	1814	
240	17		-		824/16		4611/14	.			•	
PHIQ	18		-	18	9257	19%		20	12, 16, 20	21	.,23	
15	21		<u> </u>		83%	1	4734		7 - 7 - 7		4,000	

المراجع المناسو

Figed Bowls.

Length of one stage assembly may vary slightly with 2 Pole Speed Motor if critical, contact Tuisa Engineered Products Department for exact dimension. FE



Section 2-420. 2-420-2



BW/IP International, Inc. Pump Division Byron Jackson® Products Eff. Aug. 1993 Super. Apr. 91

### **4 POLE SUBMERSIBLE MOTORS**

### **TECHNICAL DATA**

1800 RPM — 3 PHASE — 60 HERTZ

		4										•	
: -			m	АМР	ERES(3)	AMPERES		1/2	LOAD	1 44	LOAD	FUL	L LOAD
7 (Z	E Of	HORSE	VOLT-	RATED AMPS	STARTING CURRENT %	NO LOAD	FULL LOAD RPM	P.F.	EFF.	P.F.	EFF.	P.F.	EFF.
-	-	7.5 10 15 20 25 30	460	11 16 22 28 35 41	300 525 380 300 350 300	2.3 8.5 8.5 8.5 15	1745 1765 1745 1725 1735 1720	72 58 68 74 64 63	75 75 81 82 79 82	80 68 76 81 74 77	80 81 83 83 85 86	84 74 81 84 79 82	81 82 83 83 86 85
<b>)</b> "	1	40 50 60 75	460	50 65 83 98	470 360 425 360	18 18 35 35	1770 1760 1770 1760	71 77 61 68	83 85 82 65	80 84 73 78	86 87 86 87	85 86 80 84	87 86 87 87
-	- E114	100 125	460	140 160	41\$ 420	45 55	1765 1760	70 77	86 85	80 79	88 87	84 81	88 88
	1						1.0	The State of					
-	-1	150		195	370	74	1751	66	88	74	89	80	90
	أبيرا	200		250	330	100	1742	70	86	76		: :	
2-		125 150 175 200	2300	34 40 47 54	370 370 350 340	12 14 · 16 18	1750 1748 1746 1742	68 66 66 70	88 88 86	75 75 74 72 75	88 87 89 88 88	80 80 80 80 80	89 89 90 89 89
	1	125 150 200 250 300	· <b>4</b> 60	153 182 240 310 360	440 440 485 490 420	50 55 85 116 120	1756 1754 1760 1760 1751	84 83 77 74 76	83 83 86 85 85	88 88 83 82 83	86 87 88 88 88	88 88 87 85 85	87 88 89 90
	1 N	125 150 200 250 300	2300	30 36 48 60 74	405 420 380 450 405	7 10 14 18 20	1750 1750 1750 1760 1761	88 . 88 87 83 84	83 83 84 84 84	88 88 88 86 86	85 85 86 86 86	89 89 88 88 88	87 87 88 88 88
7-		300 350 400 450 500	2300	76 89 101 114 127 152	440 408 400 430 385 430	23 23 26 33 33 45	1773 1770 1769 1774 1770	76 79 79 77 80 76	87 87 87 87 87 87	81 82 82 81 81 82	88 88 88 88 88 88	83 83 83 83 83 83	89 89 89 89 89
•	3 9	300 350 400 450 500	4000	42 · 49 · 56 63 · 70 · 88	529 447 474 576 475 420	17 17 18 24 22 26	1778 1773 1775 1780 1775 1774	75 77 76 70 76 77	87 87 87 87 87 87	78 80 80 79 80 81	88 88 88 88 88	83 83 83 83 83	89 89 89 89 89
3"	3	600 700 800	2300	154 177 203	402 350 360	68 68 70	1774 1768 1770	79 . 79 79	81 82 84	83 83 83	86 87 87	84 84 84	87 88 88
		600 700 800	4000	89 98 117	425 367 365	30 30 32	1776 1772 1772	79 79 79	81 82 84	83 83 83	86 87 87	84 84 84	87 88 .88
	1	800 1000 1250 1500	4000	115 144 180 216	430 408 450 420	29 33 44 49	1762 1760 1768 1767	76 77 77 77	80 80 80 80	83 84 84 84	85 85 85 85	86 86 86 86	87 87 87 87
1	1	600 800 1000 1250 1500	6600	54 72 90 112 133	410 425 450 410 415	14 18 23 26 31	1760 1762 1764 1760 1760	76 76 76 77 77	78 79 79 80 80	83 83 83 84 84	83 83 83 84 84	86 86 86 86	84 85 85 85 85

Mogars are connected for operation on one voltage only. Service factor AMPS equal to rated AMPS Plus 10%.

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Eff. April 1991
Super. Aug. 89

BW/IP International, Inc.
Pump Division

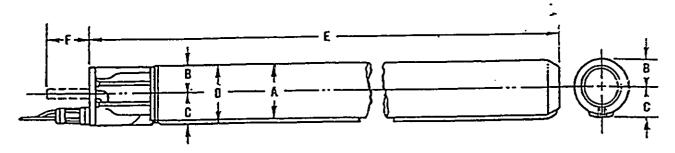
Byron.
Section 2-420\_
Pump Division

Page 2-420-1

### 4 POLE SUBMERSIBLE MOTORS

### TECHNICAL DATA

1800 RPM - 3 PHASE - 60 CYCLE



### FLAT & ROUND TYPE CABLE

ļī				1						ÇTO O	UTSIDE					
2	MOTOR SCZE	HORSE- POWER	VOLTE	TYPE OF TERMINAL BOX	PLAT CABLE SUE	MOUND CABLE ECTE	DOWN THRUST CAPACITY AT PUMP SHUT OFF	SKINL WELL LD,	OUTSIDE DIA OF STATOR A	EIDE OPPOSITE TERMINAL BOX BOX	TERLUKAL BOX SIDE C	OVERULL WIDTH OF MOTOR (8 + C)	LEHCTH OF MOTOR E	SHAFT EXTEN- SION F	SIEPPING WOCHT OF MOTOR	HORSE- POWER
	8"	7½ 10 15 20 25	460	Flat Type Cable	12	-	49004	8"	7%*	31/4"	41/6"	744*	57% 60 67% 67%	51V <sub>14</sub> *	4507 '465 480 500 525 550	7% 10 15 20 25 30
18		40					·			,					845/ 950	40 50
桶	٠,	50 60 75	460	Flat Type	62		76001	10*	814	44,5	54.	8%"	794 794	64.	1100 1250	60 75
ň	10"	100	460	Cabic									9214		1365 1430	100° 125
j il		12 23 25 28 28 28 28 28 28 28 28 28 28 28 28 28	460	Fixto Type Cable	ano	-	10,5004	12*	11-	21%-	· 6¼°	1144*	90% 99% 103%	Jrs/**.	2100 2100 2310 2265	150 150 200
	<b>~</b> 12°	125 150 175 200	2300	Flat Type Cattle	44 SKV		10.800V	124		-6W°-	616.	11%*	994 1034 1054	7144"	2016/ 2100 2210 2266	125 150 175 
	14*	125 150 200 250 250	460	Flat Type Catric	euo.	-	16,700#	14"	124*	644*	74u*	1344"	9614 1001/2 • 1081/2 1171/2 1211/2	7444	2400# 2550 2810 3100 3228	125 150 200 250 300
	84"	125 150 200 250 300	2300	Flat Type Cable	skv	16 12 110	16,700#	14"	1234*	644.	74 <sub>16</sub> *	134 <sub>16</sub> "	1001/2 1081/2 1171/2 1211/2 1211/2	7 <sup>14</sup> 1,"	2580# 2640 '3140 5273 3273	125 150 200 250 300
73	17"	. 300 350 400 450	2300	2300 V Flat Catole Type	2300 V 44 5KV	16 12 110	16,700#	1614*	15*	71/2*	Ω <b>"</b> 4"	1614"	1061/s 114 122 1291/s 1331/s	evie-	37254 4100 4250 4390 4400	300 350 400 450 500
<u>†2</u>		500 600	4000	4160 V Spc1	4160 V Spc1	#4/0			<u> </u>			<u> </u>	146		4600	600
9	16"	600 700	2300	Flat Type Cable	\$40 SKV	350 MCM #6-350	16,700#	17K*	154.	744.	84444	164,*	140 146 156	874.	46507 5000 .	600 700 800
Į (la		800	4000	Spc1	Spc1	MCM				<del>                                     </del>		-	1341/2	<del>                                     </del>	43007	600
12	21"	600 800 1000	4000	Soci	Spcit	Spc1	28,000r	23*	20-	10"	11"	21*	1441/2	817.	5200 6100	1000
19	-	1250 1500	6600									· .	167 160		7100 8200	1250 1500

Flat cables must be submerged during operation on all motors.

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Jacksono **Products** 

Eff. April 1991

### SUBMERSIBLE - TECHNICAL DATA ROUND CABLE SELECTION GUIDE

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Hertz: 60

e: 460 										ABLE	SIZE					<del>/</del>				
NO R	_	WG	46.4	AWG	44.6	AWG.	R	AWG		AWG		AWG	#2/0	AWG	#4/0	AWG	300	MOH	500	MOM
AMPS	1	В		8	٨	В	٨	В	Α	е	Α	В	٨	В	٨	В	^	В	^	в
22	1029 707 514	0.032 0.057 0.127	1631 1121 815	0.000 0.045 0.050	2579 1773 1290	0.013 0.027 0.050	4051 2785 2025	0.006 0.017 0.032	5056 3476 2528	0.006 0.013 0.025	6281 4318 3141	0.005 0.011 0.020	7749 5327 3874	0.004 0.006 0.016	11411 7845 5706	0.002 0.005 0.010	14676 10089 7338	0.002 0.004 0.007	19394 13333 9097	0.00
T T	404 323 276	0.206 0.322 0.442	641 512 437	0.130 0.202 0.278	1013 811 602	0,061 0,127 0,175	1591 1273 1067	0.051 0.060 0.110	1966 1589 1357	0.041 0.063 0.067	2468 1974 1685	0.032 0.050 0.069	3044 2435 2079	0,026 0,040 0,055	4463 .3586 3062	0.016 0.025 0.034	5765 4612 3937	0,011 0,016 0,024	7619 6095 5203	0.001 0.011 0.015
80 83	226 174	0.857 1,110	359 276 216	0.413 0.698 1.139	567 457 342	0,260 0,439 0,716	891 686 537	0.163 0.276 0.450	1112 656 670	0.130 0.219 0.357	1382 1063 832	0.103 0.174 0.283	1705 1311 1027	0.061 0.138 0.225	2510 1931 1512	0.051 0.057 0.141	3229 2484 1945	0.036 130.0 0.100	4267 3262 2570	0.03 0.03 0.02
140					290	0.996	455 318	0.628 1.282	568 397 348	0.498 1.016 1.327	705 494 432	0,395 0,606 1,052	870 609 533	0,313 0,639 0,834	1281 697 765	0.197 0.402 0.525	1647 1153 1009	0.139 0.283 0.370	2177 1524 1333	0.06 0.17 0.22
250													437	1,239	546 502	0.780 1.085 1.281	828 702 646	0.550 0.765 0.904	1094 928 653	0.33 0.45 0.54
738																	521	1.389	686 593	0.63 1.12

<sup>1.</sup> Column "A" gives the maximum atlowable cable lengths in feet.
2. Column "B" gives cable toss in HP/100 ft. of cable at full load.
3. Shock 600V cable sizes are 8 & 4 AWG, and 300 & 500 MCM.
4. Hock SKV cable sizes are 6, 2, 1/0, and 4/0 AWG (SKV cable may be substituted for 600V cables).
5. Cable ampachly fimits are per NEC (National Electric Code) Table 310-28, 1987.
Ampachly limit is 1.10 x motor rated AMPS (Motor service factory is 1.10) not the 1.25 multiplier as stated in NEC for motor branch circuits for 600V and less systems.
6. Pable string is for round cable (3 conductor jacketed cable) only.

liminates damaging backsurge .he patented Lakewood Surge Control Valve eliminates damaging backsurge when the pump shuts off. As the pump perates, the valve wings fold up on open" position-with minimal resistance or restriction of water flow.

hen the pump shuts off, water presure forces valve wings to fold down. eliminating powerful backsurge from water remaining in the upper column ipe. This water is allowed to safely and lowly bleed back through the surge valve, protecting pump parts and well structure

, he Lakewood Surge Control Valve:

 Economical—low-cost, positive water control

Efficient—minimal or no maintenance.

Effective—total control of backsurge.

\* Easy to install—installation as simple

as a coupling. Selection—a range of sizes to suit your needs, 3"—12", also available in stain-

### pynamically engineered:

less steel.

All steel construction—seamless coupling stock, steel seats.

Quality tested—to 1,000 lbs.

Numerically controlled machining—for true threads and faces.

 Quiet—neoprene tube shock absorber on upper cross bar.

Superior design—minimal flow resistance, only two moving parts.

Quality construction—all NPT threads, 8V and 8Rd, or flanged.

Many customers prefer using Lakewood Surge Control Valves in tandem on deep set wells. In tandem, one surge valve is issually installed 100' or less above the rump, the second valve at the static water level. Tandem surge valves add sure, accurate control of backsurge and hackwash in many well conditions. And should the pump ever need to be pulled. the Lakewood Surge Valve allows water to bleed out of the pipe and pump, making the job easier and eliminating a watery mess around the rig. The Lakewood Surge Valve can also be used on shaft-driven turbine pumps, installed at the suction end. Pump, shaft and well structure are then protected from damaging backflush.

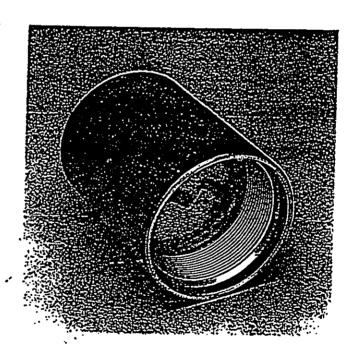
The Lakewood Surge Control Valve is built for long life in your well Installs as easily as a column pipe coupling on most any water well where you need to control backwash.



PUMP ON

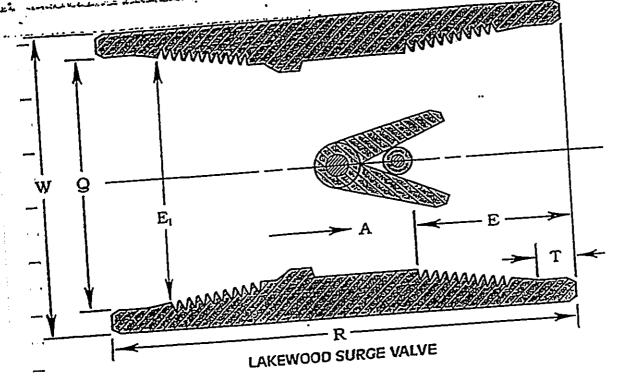


**PUMP OFF** 



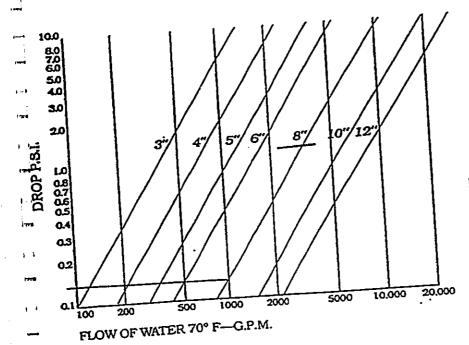
**LEWOOD** 

for submersible and turbine pump installations



NOM PROPERTY OF THE PROPERTY O	9,6 10,1 3,388	VALVE ESTABLES ALONG	2.125 2.250	6 <sup>1</sup> / <sub>4</sub>	3.590 4.590	.471 .490	WEIGHT 185 7.5 11 19	50-NIC FOREAS SPENING 5.36 10.31 14.88
<u>4"</u> - 5"	4.387 5.449	5.000 6.290	2.312	71/8	5.650	.500		40.16
8"	8.500	9.625	2.625	8¾	8.719	.676	97	95.0
12"	12.617	14.000	3.000	12	12.810	.780		

.- Special sizes, materials or threads on request.



LAKEWOOD SURGE VALVE HEAD LOSS CHART Eff. Dec. 1986

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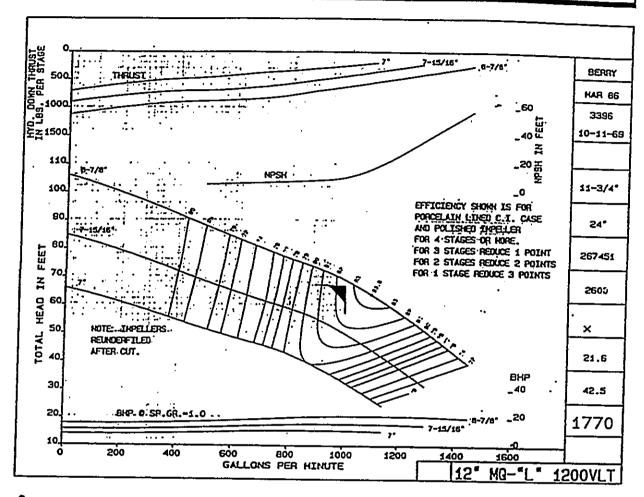
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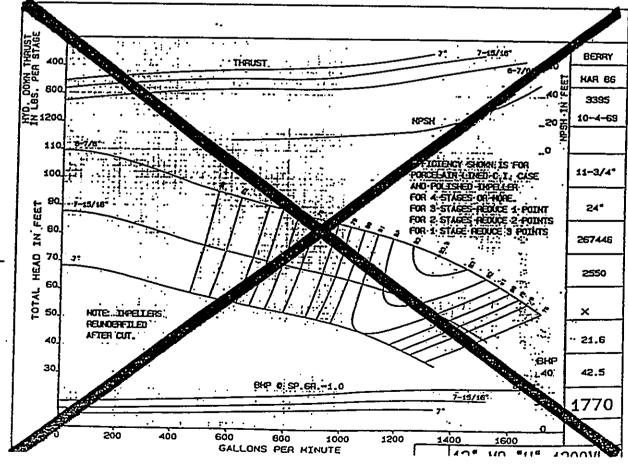
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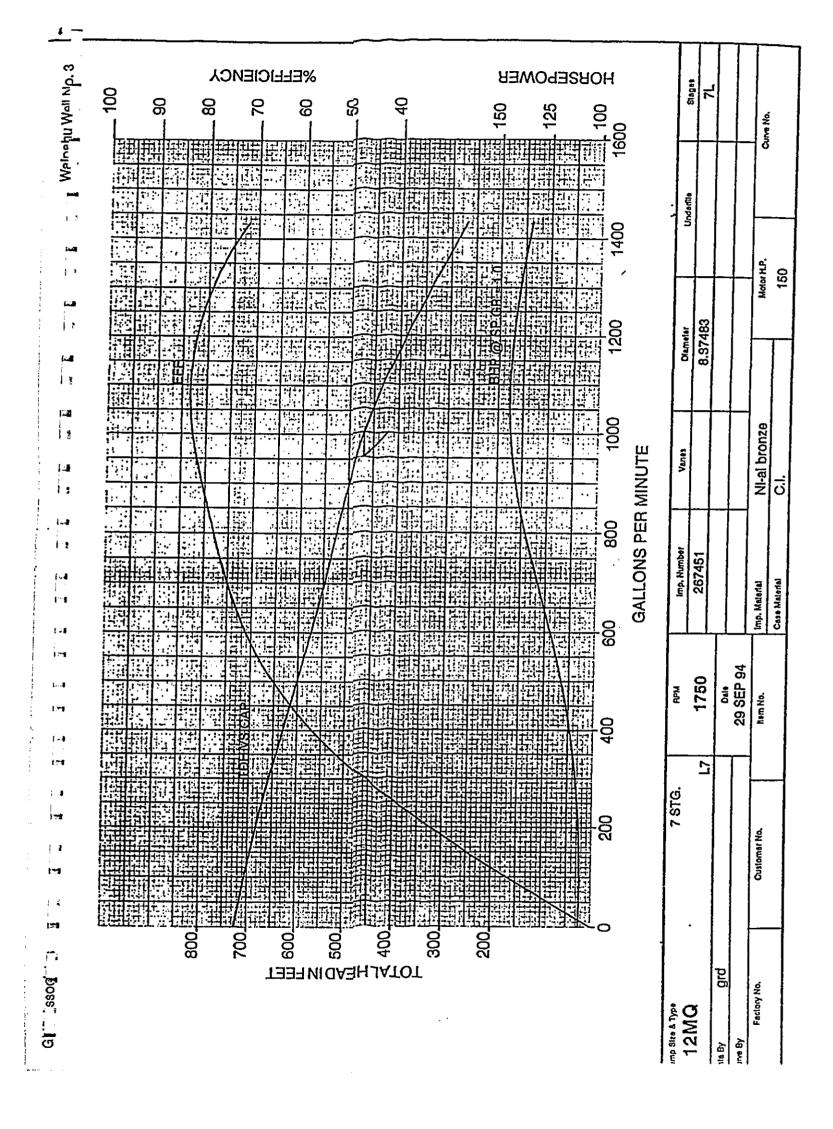
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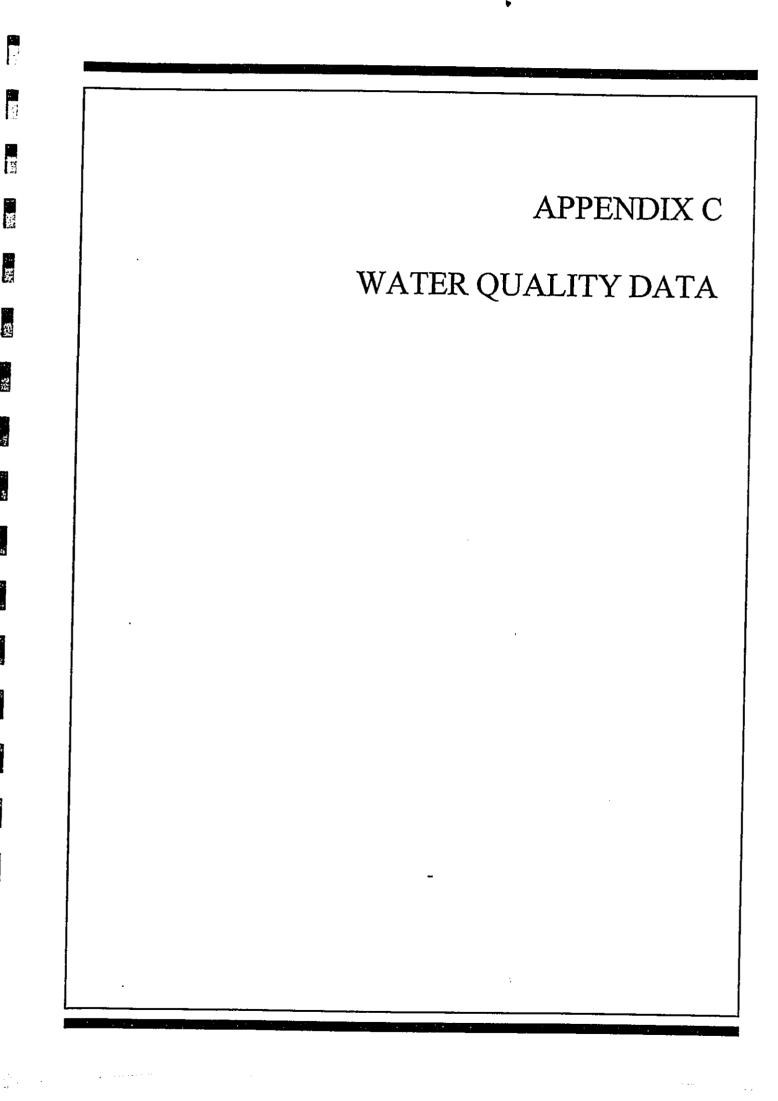
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BW/IP International, Inc. Pump Division Byron . . Jackson<sup>e</sup> Products Section\_2-171 . Page 2-171-49











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

DUG 2.3 1994

HDS



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

Sample Type Water

Sampled <u>20-jul-1994</u> Received <u>21-jul-1994</u> Reported <u>23-aug-1994</u> Project Sample # 940816017 Sample 1D WAIPAHU 111 (940721008)

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

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Laboratory Report

Parameter Thelilun, GF (AL/EPA 200,9 ) mg/l And Lonc. XRec Dilution Det.Limit Prepared By Analyzed By Thelilun, GF 0.001 18 aug. 1994 evy 22 eug. 1994 Him 



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

Konolulu , HI 96843 ATTN: Ron Fenstemacher

ample	# 940816017	Sample ID WAIPAHU III (	940721008) Pr	oject
ample	Type Water	Sampled 20-jul-1994	Received 21-jul-1994	Reported 23-aug-1994

## Single Determination Analytes Quality Control

Control	Parameter		Units	Actual	Found	*Recv
icsi 💮	That Lium, GF		mg/l	0.040	0.0446	112
LCS2	Thallium, GF		mg/l	0.040	0.0462	116
MBLK	Thellium, GF		mg/L	ND .	ND	
MS	Thallium, GF	***************************************	mg/l	0.040	0.0463	116
MSD	That Lium, GF		mg/l	0.040	0.0450	112

Report #: 15038

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### Laboratory Report

Returning to
your files.

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myself. Thomber. acher

WINTSOMERY LABORATORIES ad napheross

acts 1 1 1994

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

Sampled 20-jul-1994 Received 21-jul-1994 Reported 17-aug-1994 Project Sample # 940721008 Sample 1D WAIPAHU 111 Sample Type Water

# Laboratory Report

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

96843 ATIM: Ron Fenstemacher ₩, Honolutu

9 0 0x 8 0 -	
By By Jps 994 Jps 994 gto 674 ey Jps 994 Jps 994 Jps 994 Jps 994 gto 994 col	No.
Analyzed 22-jul-1994 02-aug-1994 22-jul-1994 22-jul-1994 01-aug-1994 09-aug-1994	
2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2	
Ву gto вуя gto col	
Prepared By 02-aug-1994 gto 22-Jull-1994 gto 01-aug-1994 gto 25-Jul-1994 col	
22-1 22-1 01-8	
Det.Limit Prepared 0:001 0.001 0:2 0:2 0.01 0:05 0:aug·199 5:91 25:jul-199	
0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	
Stec Dilution 1 1	
XRec	
Conc.	
Result AD AD AD AD AD AD AD AD AD	
13/L	
Units ) mg/l ) mg/l ) mg/l ) mg/l ) mg/l ) picogre	
245.1 ) 1 (26.2 ) 1 (245.1 ) 1 (26.2	
Units (ML/6010-200.7 ) mg/l (ML/EPA206.2 ) mg/l (ML/6010-200.7 ) mg/l (ML/6010-200.7 ) mg/l (ML/EPA200.9 ) mg/l (1613 ) Picogram	
AP.	***************************************
tal, lC l, GF , ICAP al GF xin	***************************************
Parameter Beryl (lum, Total, ICAP Cadmium, Total, GF Nercury Nickel, Total, ICAP Antimony, Total, GF 2,3,7,8 - Dioxin	\$5.5.345.345.345.345.345.345.345.345.345.
Parameter Beryl (lum Cadmium, Nercury Nickel, T Antimony, 2,3,7,8 -	***************************************



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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

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

Honolulu , HI 96843 ATTN: Ron Fenstemacher

 Sample # 940721008
 Sample 10 UAIPAHU 111
 Project

 Sample Type Uater
 Sampled 20-jul-1994
 Received 21-jul-1994
 Reported 17-aug-1994

## Single Determination Analytes Quality Control

Control	Parameter	Units	Actual	Found %Recv
LCS1	Beryllium, Total, ICAP	mg/l	0.05	0,0492 98
LCS2	Beryllium, Total, ICAP	mg/t	0.05	0.0504 101
MBLK	Beryllium, Total, ICAP	mg/L	ND	HD
KS	Beryllium, Total, ICAP	mg/t	0.05	0.0496 99
<b>H</b> SD	Beryilium, Total, ICAP	mg/l	0.05	0.0491 98
LCS1	Cadmium, Total, GF	mg/t	0.0100	0.0102 102
CC\$2	Cadmium, Total, GF	mg/L	0.0100	0.0099 99
MBLK	Cadmium, Total, GF	mg/t	ND	ND
MS	Cadmium, Total, GF	mg/l	0.0100	0_0104 104
MSD	Cadmium, Total, GF	mg/l	0.0100	0.0098 98
LCS1	Nercury	ug/1	1250	1.42 95
LCSZ	Hercury	ug/l	1.50	1.49 99
HBLK	Mercury	ug/l	ND	<b>KID</b>
MS	Kercury	ug/l	1.50	1.57 105
MSD	Mercury	ug/1	1.50	1.56 104
LCS1	Nickel, Total, ICAP	mg/l	0.5	0.495 99
LCS2	Nickel Total ICAP	mg/l	0.5	0,500 100
MBLK	Nickel, Total, ICAP	mg/l	ND	ND
MS	Nickel Total, ICAP	mg/1	0.5	0.486 97
MSD	Nickel, Total, ICAP	mg/t	0.5	0.486 97
Ecs1	Antimony Total GF	mg/l	0.040	0.041 102
LCS2	Antimony, Total, GF	mg/l	0.040	0.042 105
MBLK	Antimony, Total, GF:	mg/i	NO	HD.
MS	Antimony, Total, GF	mg/l	0.040	0.042 105
HS0	Antimony Total, GF	mill	0.040	0.042 105
3/7/7/4////////////////////////////////		904007.901VIII	***************************************	
MACCALLEGE SERVICE (1998)		30:20:30:30:30:00:00:00:00:00:00:00:00:00:00	***************************************	***************************************
STATE STATE OF THE			900011001140040000000000000000000000000	MANAN AND AND AND AND AND AND AND AND AND

### Report 14571 Comment Page

### Group Validation Comments

Result for TCDD analysis is submitted by Pace, Inc.

Simple# 940721008 Source: 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.

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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

506 # **9** 1994

HDS /

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

Sample # 940721006 Sample 10 WAIPANU 111 Project Sample Type Water Sampled 20-jul-1994 Received 21-jul-1994 Reported 09-aug-1994 Sample Type <u>Mater</u>

(ML/EPA 504

AB1803 - EDB and DBCP

Laboratory Report

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

96843 Honolulu , HI ATIM: Ron Fenstemacher

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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

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

Honolulu , HI 96843 ATTH: Ron Fenstemacher

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Sample # 9/0721006	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

S 40 10 10 10 10 10 10 10 10 10 10 10 10 10	and the second of the second o				
Control	Parameter	Units	Actual	Found	*Recv
ret .	Dibromoch Loropropane (DB	(P) ug/i	0.10	0.10	100
LCS1	Ethylene Dibromide (EDB)		0.10	0.10	100
LC52	Dibromochlaropropana (US		0,10	0.10	100
LCSZ	Ethylene Dibromide (EDB)	ug/l ·	0.10	0.10	100
PELK	Dibramochtoropropane (Di		HD.	NA	
1101 V	Ethylana Dibromide (FDB)	ug/l	ND	N/A	

LL5Z					0.40	0.10	100
LCSZ	Ethylene	Dibromide	(EDB)	ug/l	0.10	WA .	
<b>H</b> BLK	Olbranac	htoropropan	e (DBCP)	cop/l	MD e	NA	200000000000000000000000000000000000000
MBLK	Ethylene	Dibromide	(EDB)	ug/l	ND	*********************	***************************************
MS	Distromos	hlanopropen	a (D8CP)	Up/L	0,10	HA	
HS	Ethylene	Dibromide	(EDB)	ug/l	0.10	NA	
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MONTGOMERY LABORATORIES

555 East Walnut Straat Pasadena, California 91101 818 558 6400; FAX 818 568 6324; 1 800 566 LABS (1 800 566 5227)

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

525 Semivolatiles by GC/MS (ML/EPA 525.1

# Laboratory Report

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Honolulu, City of Board of Water Supply Lab 630 S Beretania St 96843

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Honolulu

ATTN: Ron Fenstemacher

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Analyzed  29- Jul - 1994  29- Jul - 1994  29- Jul - 1994  20- Jul - 1994	29- Jul - 1994 29- Jul - 1994 30- Jul - 1006	7661 - 101 - 62 1661 - 101 - 62	26- III - 68	29- Jul - 1994 29- Jul - 1994	29- Jul - 1994 29- Jul - 1994	29- Jul - 1994	29- jul - 199	29-Jul-199 29-Jul-199	29-141-199	29-101-199	29-Jul-199 29-Jul-199	29-Jul-199 29-Jul-199	29- Jul -199 29- Jul -199	29- Jul - 199 29- Jul - 199
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26. jul - 1994 26. jul - 1994 26. jul - 1994 26. jul - 1994	26-jul-199 26-jul-199	26 Jul 193	26- Jul - 195	26- Jul - 19 26- Jul - 19	26-jul-19 26-jul-19	26- Jul - 19	26 Jul - 19	26- Jul -19 26- Jul -19	26-101-19	26-Jul-19 26-Jul-49	26- jul - 19 26- jul - 19	26- Jul - 19 26- Jul - 15	26- Jul - 15 26- Jul - 15	26- jul -19 26- jul -19
Det.Limit 0103 0.1 0.05	0.05	0.05	0,02	0.05	9.0 2.0	2	0.02	0.6	0.5	0.2	0.5 10	0.5	0.05	0.05
c Dilution														
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Result MD ND	AD AD	용당	99 99	NO HD	ND ND	KO	S S	QK QK	NO	E CE	ND NO	ex ex	오오	ж Ж
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Units 1997 1971 1977	1/6n 1/6n	/Bn	/Bn /Bn	/Bn	/6n	1/Bn	Bn Bn	<b>9</b>	S A	3° S	Sn X	en Su	ກັ	ž ž
		nê	thene	ylene ithere	)phthalate	ופיפים		hracene	yr)adipate te		ate	alate	16	tene I opented i bne
Parameter Unit Bibha-chiordana ba/l Acemaphthylene ug/l Alachior Ug/l	Aldrin Anthracana	Atrazine ug/l Benz(a)Antiracena ug/l	ug/l Benzo(b)fluoranthene 199/l	Benzo(g,h,i)Perylene ug/l	Di(2-Ethylhexyl)phthalate ug/l	יסשכנו סשכנו	utachtor hrysene	pibenz(ajt)Anthracene	DI-CZ-EthylnexyvyBalpare Diathylphthalate Ug/II	Diazinon ug/l	imethylphthal	Di-n-Butyiphthalate ug/l	Fluorene bama:0hlordane	ug/l Hexachlorobyzlopentedlene Jg/l

Pasadena, California 91101 818 568 6400; FAX 818 568 5224; 1 800 566 LABS (1 800 566 5227) 555 East Walnut Street

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

		Analyzed By  29-jul-1994, cru
Board of Water Supply Lab 630 S Beretania St	ulu , HI 96843 Ron Fenstemacher	0.02 26-jul-1994 [1] 0.02 26-jul-1994 [1] 0.02 26-jul-1994 [1] 0.05 26-jul-1994 [1]
Boar 630	Reported 09-aug-1994 Honolulu SPA 525.1 )	Conc. XRec Dilution Det 0:00 0:00 0:00 0:00 0:00 0:00 0:00 0:
	GC/MS (ML/EPA	Units Result  190/1 ND  19
800 566 LABS (1800 566 5227) 940721006 Sample 10 MAIPARU 111	1 1	oxide E.d.DYrene Ind
7 800 566 LAB Sample # 940721006	Sample Type Hater 525 Sei	Parameter lighterion Heptachlor Epoxide Indeno(1/2.3/c.d)Byreng Isophorone Liciane Hethoxychlor Aditiburin Holinate Netdlachlor Phenanthrene Prometryn Prometry Prome

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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

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

> 525 Semivolatiles by GC/MS Surrogate Summary

(ML/EPA 525.1 )

Parameter Perylene di2	***************************************	Percent Recovery	Acceptable Range
8.412/1404-015		94	70 - F30

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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

525 Semivolatiles by GC/MS
Quality Control

(ML/EPA 525.1 )

<del></del>					
_		Units	Actual	Found	%Recv
Control	Parameter	ag/l	2	7.25	912
LCS1	alpha-Chlordane	ug/l	2	2.12	106
LCS1	Acenaphthylene	ug/i.	2	2.47	124
LEST .	Alaction	ug/l	2	1.95	98
LCS1	Aldrin	ug/i	2	2:08	104
(CS)	Anthracene	ug/l	2	2.17	108
LCS1	Atrazine	ug/t		1.77	88
LCS1	Benz(n)Anthracene	ug/l	· Z	2.03	102
LCS1	Benzo(a)pyrene	ug/i		2112	106
(CS1)	Benzo(b) filuoranthene	ug/l	2	2.02	101
LCS1	Benzo(g,h,i)Perylene	09/L		2.23	112
LOST	Benzo(k) Flugranthane	ug/l	2	2.36	118
LCS1	D1(2-Ethylhexyl)phthalate	ug/i		1_97	98
ici 🕦	Butylbenzylphthalate	ug/l	2	1.98	99
LCS1	Chrysene	ug/L		2.01	100
LCS1	Dibent(e,h)Anthracene	<del>63620/4/4/</del>	2	2.08	104
LCS1	Di-(2-Ethylhexyl)adipate	ug/l ug/l		2.47	124
£C51	Diethylphtmalate	\$93950950 <del>0</del> 0000000000000000000000000000000	2	2.34	117
LCS1	Dimethylphthalate	ug/l		2.32	116
LCS1	Di-m-Butylphthalate	log/L	2	1.88	94
LCS1	Endrin	ug/l		2.15	108
163	Fluorene	op/l	2	2.35	118
LCS1	gamma-Chlordane	ug/l		1.94	97
1.057	RexachLarobenzene	09/1	2	2.03	102
LCS1	Hexachlorocyclopentadiene	ug/l		5.03	SUL
£CS1	Heptechion	up/l	-	2.31	116
LCS1	Heptachlor Epoxide	ug/l	2	1.95	58
LCS1	Indimo(1,2,3,c,d)Pyrene	ug/L	2	2.17	108
LCS1	Lindane	ug/l	2	2.54	127
LCS1	Methoxychlor	up/l	5	2.38	119
LCS1	Holinate	ug/l	2	2.31	116
test	trans-konachtor	ug/l	2		***************************************



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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

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

Honolulu , HI 96843 AYTN: Ron Fenstemacher

Cample # 940721006	Sample ID WATPAHU 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

		Units	Actual	Found	*Recv
Control	Parameter	ug/l	8	11.27	146
(CST)	PentachLorophenol	ug/l	2	2.10	105
LCS1	Phenanthrene	19/L	2	2.39	120
LCS1	Pyrene	ug/l	2	1.78	89
LCS1	Simazine	ug/l	-2	2.32	116
LCS1	Throbencarb	<del>\$500\$70\$@\$003\$\$4@@\$00</del>	ND	ND	202242000000000000000000000000000000000
MBLK	alpha-Chlordane	ug/l i/g/L	ND ND	HD.	
MBLK	/Acensphthylene	<del>2007-00-00-00-00-00-0</del>	ND	MD	******************************
MBLK	Alachior	ug/l	ND ND	10	
#BLK	Aldrin	up/l	ND	ND	***************************************
MBLK	Anthracene	ug/l	ND ND	HD.	
MELK	Atrazine	1/607	ND	ND	
HBLK	Benz(a)Anthracene	ug/l	ND MD	Vio.	
HELK	Berizo(s)pyrene	00/1	ND	ND	
MBLK	Benzo(b)Fluoranthene	ug/l	NO NO	ЯD	
MIK	g genzo(g/h,1)Perylene	167/1	(2) <del>04(2)</del> 20 <del>(2)20(2)</del>	ND	
MBLK	Benzo(k)Fluoranthene	ug/l	ND	10	
HBLK	01(2-Ethythexyl)phthalata	up/l	MD.	ND	
HBLK	Butylbenzylphthalate	ug/l	ND .	ND ND	
MBLK .	Bromac14	ug/i	NO.	ND CH	
MBLK	Butachlor	ug/l	GN	acanceeraevenereesee	
#BLX	Chrysene	op/l	HD	k0	
MBLK	Dibenz(a,h)Anthracene	ug/l	ND	ND .	
HBLK	Di (2-Ethylhexyl)adipate	Ug/L	NO.	HD	
HBLK	Diethylphthalate	ug/l	ND	ИD	
HELK	Distinon	99/1	ND .	ko	
HBLK	Dieldrin	ug/l	. KD	ND	***************************************
MBLK	Dimethylphthalate	te/L	NO.	HD	
MBLK	Dimethoate	ug/l	ND.	HD	
HELK	Di-n-Butylphthalate	up/t	ND .	ж0	
MBLK	Endrin	ug/l	ND	ND	
Milk	Fluorene	Ug/L	UD	<b>H</b> D	

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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

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

# 525 Semivolatiles by GC/MS Quality Control

(ML/EPA 525.1

Control	Parameter	Units	Actual	e	4
#BLK	game:Cilordene	QD/1	MD MC	Found	XRecv
MBLK	Hexachlorobenzene	ug/l	ND	ND	
<b>9</b> 81K	## ### ### ###########################	1/94	ko .	AD AD	
KBLK	Heptachlor	ug/l	ND	ND	
HBLK	Maptachior Epoxide	ug/i	HD .	<b>\$10</b>	
MBLK	Indeno(1,2,3,c,d)Pyrene	ug/i	<b>N</b> D	ND	
MBLK	s lacprotone	ug/l	NO .	ND .	
MBLK	Lindane	ug/l	ND	ND	
MBEK	w.Methaxychlor	Ug/l	ND	AiD .	
MBLK	<b>Metribuzin</b>	ug/l	ND	ND .	***************************************
MBLK	Rollrate	tg/L	MD	(fD)	
HELK	Metolachlor	ug/l	ND	<b>K</b> D	
MBLK	træns:Nonachlar Pentachlorophenol		ND .	<b>80</b>	
MELK	Phananthrene	ug/l	ND	ND	***************************************
HBLK	Prometryn	(bg/L	ND CN	s#D	
HELK	Propection	mg/l	ND	ND	*****************
MBLK	Ругепе	ug/l	NO.	NO.	
MBLK	Simozine	ug/l ug/L	ND	ND	******************
HBLK	Thiobencarb	ug/l	ATC	140	
MELK	Jrifiiralin	ug/t	ND ND	ND	90000000000000000000000000000000000000
MS	alpha-Chlordane	l/gu	2	sko 2	
<b>H</b> S	Acensphthylare	ug/i	2	2.16 2.08	108
MS	Alachlor	ug/l	2	2.32	104
HS .	Akarin	up/l		1.91	116 96
MS	Anthracene	ug/l	2	1.92	96
MS	Atrazina	1/9/1	Ž	Z 08	104
KS	Benz(a)Anthracene	ug/l	2	1.61	80
<b>K</b> S	Benzo(a)pyrene	ug/l	2		
HS	Benzo(b)Fluoranthene	ug/l	2	1.68	84
ks -	Benzo(g,fr, i3Perylene	ug/t	2	1.72	86
			***************************************	·····	



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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

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

Honolulu , HI 96843 ATTN: Ron Fenstemacher

Sample # 940721006	Sample ID WAIPAHU III	Pr	aject
Sample Type Water	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	%Recv
<b>K</b> S	Bertzo(k)Fluorenthere	ug/l_	2,000	1.95	98
HS	Di(2-Ethylhexyl)phthalate	ug/l	Z	1.91	96
MS	Butylberzylphthalate	ug/L	2	1,84	92
MS	Chrysene	ug/l	2	1.83	92
HS .	Dibenz(a,h)Anthraceno	up/l	2 (100)	1,55	78;
MS	Di-(2-Ethylhexyl)adipate	ug/(	2	1.95	98
MS	Diethylphthelete	Ug/1	2	2.37	118
MS	Dimethylphthalate	ug/l	2	2.24	112
HS	Vi-n-Butylphthalate	up/L	2	5.08	104
HS	Endrin	ug/l	2	2.09	104
<b>X</b> S	Fluoreng	LG/L	2	2:12	1061
HS	gamia-Chlordane	ug/l	2	2.16	108
HS	Hexachi or obenzena	Up/I	5	1.94	97
HS	Hexachtorocyclopentadiene	ug/l	2	1.41	70
<b>M</b> S	Heptachlor	Ug/1	2	1.98	50
MS	Heptachlor Epoxide	ug/l	2	2.12	106
HS	Indeno(1,2,5,c,d)Pyrene	ug/l	2	1.50	75
MS	Lindane	ug/l	Z	2.05	102
MS	Hethoxychion	1/9/1	2	2.05	102
HS	<b>Kolinate</b>	עק/ נ	2	2.34	117
<b>H</b> S	trans-Nonachler	up/l	2	2.20	140
KS	Pentachlorophenol	ug/l	8	10.0	125
<b>M</b> S	Phenanthrene	ug/L	2	2:05	102
MS	Pyrene	ug/l	2	2.09	104
<b>H</b> S	Simazine	up/1	2	1,37	83
KS	Thiobencarb	ug/l	2	2.16	108
**************					

555 East Walnut Street Pasadena, California 91101 818 568 6400; FAX 818 568 6224; 1 800 566 LABS (1 800 566 5227)

Sample # 940721006 Sample ID WAIPAHU III

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

SDWA Pesticides (ML/EPA 508

l i i i Laboratory Report

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

96843 Honolulu , HI ATTM: Ron Fenstemacher

Analyzed By  O4-aug-1994 kah	.aug:1994 kah -aug-1994 kah -aug-1994 kah
23-jul-1994 kah	e) (e)
0.1 0.1 0.1 0.1 0.1 0.1 0.1 0.0 0.01	
Result Conc. Xaec Mo	75/50
Units Res 1937 HD 1937 HD 1	OH 1/5n
ff!; <u>fravo</u> )	
Parameter PCB 1016 Argehlor PCB 1221 Arochlor PCB 1222 Arochlor PCB 1242 Arochlor PCB 1242 Arochlor PCB 1244 Arochlor PCB 1254 Arochlor Alcha-BHC Alcha-BHC Alcha-BHC Aldrin Bata-BHC Chlordane Ohlorthalchill (Orconill, grayo) Delta-BHC P.P. DDE P.	Data Entry Report #: 14569



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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

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

Honolulu , HI 96843 ATTN: Ron Fenstemacher

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

SDWA Pesticides (ML/EPA 508 Surrogate Summary

Parameter Percent Recovery Acceptable Range
Diburyl Chlorexiate 1009 570 2 130

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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

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	Perameter	Units	Actual	Found	%Recv
LCS1	Atdriff	up/l	0.05	0.03	60
LCS1	P.P' DDT	ug/l	0.10	0.08	80
LEST	Dialdrin	U9/1	0.10	0.09	90
LCS1	Endrin	ug/l	0.10	0.08	80
LCS1	GarmerBHC (Lindense)	up/l	0.05	0.04	£0.60
LCS2	Heptachlor	ug/l	0.05	0.04	80
LCS2	SeeAldrin	υg/L	0.05	0.03	60
CGS2	p,p' DDT Dieldrin	ug/l	0.10	0.08	80
LCSZ	Endrin	ug/l ug/l	0.10	0.09	90
LCS2	Carma-BHC (Lindane)	ug/t	0.10 0.05	0.09 0.04	90
LCS2	Heptachlor	ug/l	0.05	0.04	80
HBLK	PCB 1016 Arochton	CB/1	ND ND	V.04	80
HBLK	PCB 1221 Arochtor	ug/l	ND	ND ND	
MEK	PCB (1232) Arochtor	ug/1	AD .	ND ND	
MBLK	PCB 1242 Arochlor	ug/l	ND	ND	
HELK	PCB (1248)Arochtor	ug/i	ND	NO.	
MBLK	PCB 1254 Arochlor	ug/l	ND	ND	
MELK	PC8 1260 Arachtan	1/9/1	ND	MD	
MBLK	Alpha-BHC	ug/l	ND	ND	***************************************
MBFK	Alachion (Alanex)	Ug/l	ND	<b>K</b> O	
KBLK	Aldrin	ug/l	ND	ND	***************************************
#BLK	Chiordane	L/g/L	MU	-HD	
HBLK	Chlorthalonil (Drconil, Bravo)	ug/l	ND	ND	
MBLK	Delta-BHC	ug/t	MD	NO.	
MBLK	p,p' 000	ug/l	ND	ND	
MELK	Pip, DDE	Ug/1	MO	ND	
MBLK	P,P' DDT	ug/l	ND	ND	~~~~
MBLK	Dieldrin	up/l	NO.	NO.	
MBLK	Endrin Aldehyde Endrin	ug/l	ND	ND	*************************
Att A Comment	EIRII III	uo/L	NU	WD.	



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	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
(ELK	Endosulfan I (alpha)	up/l	HD.	+ <b>W</b> O	
(BLK	Endosulfan II (beta)	ug/l	ND	ND	***********
elk.	Endosulfan aulfate	∪g/L	* NO	НD	
(BLK	Gamma-BHC (Lindane)	ug/l	ND	ND	*****************
(E) AX	Heptachlor	ug/1	MD	40	
(BLK	Heptachlor Epoxide	ug/l	ND	ND	****************
est k	Hethoxychlor	ug/L	NO.	ND .	
BLK	Toxaphene	ug/l	ND	ND	************
<b>G</b>	Aldrin	up/l-	0.05	NA	
ls	p,p' DDT	ug/l	0.10	NA.	***************************************
S	Dieldrin	tg/l	0210	HA	
(S	Endrin	ug/l	0.10	NA.	*************
S.	Gamma-BRC (L'Indene)	.ug/l	0.05	NA .	
is .	Keptachlor	ug/l	0.05	NA	*************
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555 East Walnut Street Pasadene, California 91101 818 568 6400; FAX 818 568 6224; 1 800 566 LABS (1 800 566 5227)

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

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

# Laboratory Report

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

96843 ATIN: Ron Fenstemacher Ξ Honolulu

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25-Jul-1994 col

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browomethene (Methyl Browlde)

3romobenzene

cis-1,2-Dichloroethylene

4-Methyl-2-Pentanone (MIBK)

25- Jul - 1994

25-jul-1994 col

25- Jul - 1994

Report #: 14569

Carbon Tetrachloride ug/l ND 0.5 25-jul-1994 col

U9/1 ND 0.5 25-jul-1994 col 0.5 25-jul-1994 col 0.5 25-jul-1994 col 0.5 25-jul-1994 col

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MONTGOMERY LABORATORIES

555 East Walnut Street Pasadena, California 91101 818 568 6400; FAX 818 568 6224; 1 800 566 LABS (1 800 566 5227)

Sampled 20-1ut-1994 Received 21-jut-1994 Reported 09-aug-1994 Sample # 940721006 Sample ID WAIPAHU III Sample Type Water

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

# Laboratory Report

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

96843 ATIM: Ron Fenstemacher Ħ, Honoluly

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

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

# Laboratory Report

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Honolulu, City of Board of Water Supply Lab 630 S Beretania St Honolulu , HI 96843 ATTN: 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	# <u>940721006</u>	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	Percent Recovery	Acceptable Range
1.2-Dichlorosthape-d/	91	80 + 120
1,2-Dichloroethane-d4 6-Bromofluorobenzene	101 104	80 - 120 80 - 120
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### Laboratory Report

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

Honolulu , Hí 96843 ATTN: Ron Fenstemacher

Sample	# <u>940721006</u>	Sample ID WAIPAHU III	De	oject
		Sampled <u>20-jul-1994</u>		

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

Control	Parameter	Units	Actual	Found	%Recv
(CS)	1,1-01chloroethylene	346/l***	4	3.93	98
LCS1	1,2,4-Trichlorobenzene	Ug/[	4	4.56	114
Lesi	p-Dichlarobanzene (1,4-008)	UG/1	Ż	29	107
LCS1	p-Chlorotoluene	Ug/l	4	4.68	117
ECS1	Benzene	ug/l	4	435	209
LCS1	Chlorobenzene	ug/l	4	4.76	119
LC51	Chloroform (Inichtoromethans)	Ug/L		3.99	100
LCS1	Trichloroethylene (TCE)	ug/l	4	4,61	************
<b>L</b> esi	Jaluene	up/l		4.55	115
LCS2	1,1-Dichloroethylene	ug/(	4	3.31	114
LCS2	1,2,4r3richtorobenzene	Ug/I		3.21 4.33	83 108
LCSZ	p-Dichlorobenzene (1,4-DCB)	ug/l	4	3. <i>9</i> 1	98
£C52	prChLorotaluene	ug/l		3.71 2.19	705
LCS2	Benzene	ug/l	4	3 <i>.9</i> 9	*****************
LCS2	Childrobenzene	192/L		2.77 4.03	100
LCS2	Chicroform (Trichloromethane)	ug/l	4	3.65	101 89
£CSZ.	Trichloroethylens (TCE)	un/i		3.90	***************************************
LCS2	Toluene	ug/l	4	3.84	95
MSLK	al. 1/1, Zeletrach Loroethane	i lau	NO NO	:600 <del>000</del> 0000000000000000000000000000000	96
MBLK	1,1,1-Trichloroethane	ug/(	ND	HD ND	
MELK	1/1,2,2-letrachteroethane	UD/A	NO NO	XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX	
HBLK	1,1,2-Trichloroethane	ug/(	ND	NO:	
MELK	1, 1-Dichlorpethana	ug/i	ИD	ND ND	
MBLK	1,1-Dichloroethylene	ug/l	ND	ND	
HBLK	1,7=0 ichtoropropere	ug/l	ND ND	ND ND	****
MBLK	1,2,3-Trichlorobenzene	ug/l	ND	***************************************	
MBLK	1,2,5 Intchtoropropane		NO NO	ND	
MBLK	1,2,4-Trichlorobenzene	ug/l	ND	HD.	
HELK	1,2,4-Trimethylberizene	Ug/i	ND ND	ND	***************************************
MBLK	1,2-Dichloroethane	ug/l	ND	¥0	
MBLK	1,2-Dichleropropane	υg/1	NO NO	ND	***************************************
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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

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 <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	บกits	Actual	Found	*Recv
HELK	1,3,5-Ir imethylbenzene	up/l	MD .	NO.	
MBLK	1,3-Dichtoropropane	ug/l	ND	KD	
MBLK	p-Dichlorobenzene (1:4-008)	Ug/L	MD.	MD.	
MBLK	2,2-Dichloropropane	ug/l	ND	ND	
MELK	Z-Butanone (MEK)	up/l	ND .	<b>8</b> (0)	
MBLK	2-Chloroethylvinylether	ug/l	ND	ND	
MBLK	o Chlorotoli <del>ene</del>	ug/i	NO.	ND .	
MBLK	p-Chlorotoluene	ug/l	ND	ND .	
HELK	4-Mathyl:2-Perfanore (MIBK)	Up/l	NO.	NO s	
MBLK	Benzene	ug/l	MD	CA	***************************************
Mark	Bronobergene	1074	<b>K</b> D	HD	
MBLK	Bromomethane (Methyl Bromide)	ug/l	CA	ND	**************************************
HELK	cis 1,201chloroethylene	up/l	ND	<b>\$</b> (0	
MBLK	Chlorobenzene	ug/l	ND	CN CN	200000000000000000000000000000000000000
HBLK HBLK	Carbon Tetrachionide	1/00	ND.	HD	
MRFK.	cis-1,3-Dichloropropene	ug/l	ND	ND	***************
MBLK	Brono fores	up/l	HD	ko .	
MEK	Chloroform (Trichloromethane)  Bromochloromethane	ug/l	ND	ND	***************************************
MBLK	Chloroethane	1/00	ND	<b>H</b> D	
MEEK	Chloromethane (Nethyl Chlorade)	ug/l	ND	ND	
MBLK	Chlorodibromomethane	ug/l	ND	NO	
BEK .	Ditronomethage	ug/l Vg/L	ND ND	ND	
MBLK	Bromodichloromethane	ug/l	ND	ND ND	
HELK	UichLorougthene	עשו/ו	ND	NO NO	
MBLK	Ethyl benzene	ug/l	. ND	ND	
MBLK:	s Dichlerodifilioromethaness	Ug/1	ND	AD AD	
MBLK	Fluorotrichloromethane(Freon1)	ug/l	ND	ND	
#ELX	Hexachlorobutediene	ug/l	MD	NO	
MBLK	Isopropylbenzene	ug/l	ND	ND	
#BLK	m-Dichlarobenzene (1,5-008)	ug/1	<b>N</b> D	ALD.	
		***************************************	~~~~~	*************************************	~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~



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### MONTGOMERY LABORATORIES

555 East Walnut Street Pasadena, California 91101 818 568 6400; FAX 818 558 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	Project
Sample	Type Water	Sampled 20-jul-1994	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	*Recv
948LK	m.pr.Kylenes	ug/l	HO S	ND ND	AKECV
KBLK	<b>Naphthalene</b>	ug/l	ND	ND	****
MBLK	n-Butyl benzene	5g/i	k0	HD	
MBLK	n-Propylbenzene	ug/l	ND	ND	
MELK	o-XyLene	ug/l	ND	NO.	
MBLK	o-Dichlorobenzene (1,2-DCB)	ug/l	ND	ND	
MILK	Tetrachlorosthylena (PCE)	teg/£	lio Cil	ND	
HBLK	p-Isopropyltaluene	ug/l	ND	ND	****************
MOEK.	secrBury(benzene	ug/l	ND.	NO.	
MBLK	Styrene	ug/l	ND	ND	***************************************
MOLK	trans:1,2:Dichloroathylane	Ug/L	MO	• HD	
MBLK	tert-Butylbenzene	ug/l	ND	ND D	
MBFK MBFK	Irichloroathylene (ICE)	. Novi	ND .	NO.	
MBLK	Trichlorotrifluoroethane(Freon	ug/l	ND	ND	
MBLK	trans-1,3-0 ich (propropene Toluene	UB/L	KD	HD	
HELK	MAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAAA	ug/l	ND	ND	~~~~
MS	VinyLichtoride (VC)	up/l	ED.	NO.	
HS	1,1-Dichloroethylene	ug/l	<u>4</u>	NA	**********
MS	p-Dichlorobenzene (1,4-DCB)	ug/L		NA	
HS	p-Chiorotoluere	ug/l	4	A	000000000000000000000000000000000000000
MS	Benzene	Ug/l		HA	
MS	Chlorobenzene	ug/l	4	NA	***************************************
HS	Chloroform (Trichloromethane)	ug/l ug/l	•	HA	
HS	Irichloroethylene (ICE)	09/l	4	NA.	***************************************
MS	Toluene	ug/1	4	NA.	
MSD	1,1cDichloroethylene	1/g/L		NA	
MSD	1,2,4-Trichlorobenzene	ug/l	4	NA NA	
MSD	p:Dichtorobenzene (1,4-DCB)	ug/i		NA NA	******
MSD	p-Chlorotoluene	ug/l	4	NA NA	
MSD	Benzene	Ug/L	7	NA	
		***************************************			



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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

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

Honolulu , HI 96843 ATTN: Ron Fenstemacher

ample # 940721006	Sample ID WAIPARU 111		oject
dipic ii variation		a 1	Denombed NO-suin-1994
ample Type Water	Sampled <u>20-jul-1994</u>	Received 51-101-1994	Keboi ced ox and 1774

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

	B	Units	Actual	Found	*Recv
Control HSD	Parameter Chioropenzene	ug/l		WA	
MSD	Chloroform (Trichloromethane)	ug/l	4	HA.	
#SD	Trichlorpethylene (TEL)	ug/L		HA	
KSD	Toluene	ug/l	4	NA	
					***************************************

#### Report 14569 Comment Page

Sample# 940721006 S urce: WAIPAHU III

#### 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.



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

4(1): 4 1994

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555 East Wainut Street Pasadena, California 91101 818 568 6400; FAX 818 568 6224; 1 800 566 LABS (1 800 566 5227)

Tiple 1D WAIPANU III Project Sampled 21-jul-1994 Reported 04-aug-1994 Sample # 940721007 Sample 1D WAIPAHU 111 Sample Type Water

Laboratory Report

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

57896 Honolulu , HI ATTH: Ron Fenstemacher

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Unit:	)/Bi							
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PA SA	PA 54							
GHE	₹.							
Units Endothall (AL/EPA 548: ), ug/l								
eter hall	osate							
Param Endot	e de							



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 <u>WAIPAHU III</u>
 Project

 Sample Type <u>Water</u>
 Sampled <u>21-jul-1994</u>
 Received <u>21-jul-1994</u>
 Reported <u>04-aug-1994</u>

### Single Determination Analytes Quality Control

Contro	<del></del>		Units	Actual	Found	XRecv
(CS)	Endothal L		- 05/1	25	78.7	115
LCS2	Endothall		ug/l	25	NA	
<b>FBLK</b>	. Endothail		l\gu	ND .	HD.	
MS	Endothal l		ug/l	25	30.1	120
LCST	Glyphosate		ug/I	50'	55.3	111
LCS2	Glyphosate	***************************************	ug/l	50	45.7	91
Hatk	Glyphosate			<b>N</b> D	ND	
200002000000000000000000000000000000000		***************************************	227700000000000000000000000000000000000	***********************	***************************************	~~~~
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Water Commen				****	***	**********************
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Report #: 14570

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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 # 940721007 Sample ID WAIPARU 111 Project Sample Type Water Sampled 21-jul-1994 Received 21-jul-1994 Reported 04-aug-1994

(EPA 549

and Paraquat

Diquat

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

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Laboratory Report

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Konolulu , HI 96843 ATTH: Ron Fenstemacher

24-jul 1994 itj 26-jul 1994 dit 24-jul 1994 itj 26-jul 1994 dit Analyzed 24-jul-1994 ILJ XRec Dilution Det.Limit Prepared biquat 19.4 Conc. 웆 1/gn Paraquat

Report #: 14570

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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

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

Diquat and Paraquat (EPA 549
Quality Control

- E-T-P-F-E-T-N-E-T-						
Control	Parameter		Units	Actual	Found	gRecv g1
CST	Diquet		ug/l	5.0	4.56	84
	WWW.WW.WW.WW.WW.WW.WW.WW.WW.WW.WW.WW.WW	**************************************	ug/l	10.0	8.37	D-4
LCS1	Paraquat		ug/L	520	NA .	
UE\$2	Diquat		ug/l	10.0	NA	
LCS2	Paraquat	***************************************	ug/L	NO	¥0	
HBLK	biquat		MANAGE 1 8444 A 1444 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	ND	ND	
HBLK	Paraquat		ug/l	520	4.55	91
MS	Diquat		ug/L	·	7.14	71
HS	Paraquat		ug/l	10.0		
HS0	Diquat		ug/l	5.0	NA .	
	***************************************	\$6000000000000000000000000000000000000	ug/l	10.0	NA	
MSD	Paraquat					
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MONTGOMERY LABORATORIES 1.3 17.3

555 East Walnut Street Pasadena, California 91101 818 568 6400; FAX 818 568 6224; 1 800 566 LABS (1 800 566 5227)

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

Aldicarbs

(ML/EPA 531.1

Laboratory Report

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

96843 ATTN: Ron Fenstemacher Ή, Honolulu

Analyzed By  26/10/1994 dil			
Det.Limit Prepared By 2.5 0.8 0.9 2.9 2.9			
Conc. XRec Dilution Det. 2 0.5 0.5 0.5 0.5 0.9 0.9 0.9 0.9 0.9 0.9 0.9 0.9 0.9 0.9			
Result ND			
Parameter Units 3 Hydroxycarbofuran 1971 Aldicarb (Temik) ug/1 Aldicarb sulfane ug/1 Baygan ug/1 Baygan ug/1 Carbofuran (Furadan) ug/1 Carbofuran (Furadan) ug/1 Hethiocarb ug/1 Actionarb ug/1 Wethomyl (Vydate) ug/1 Wethomyl (Vydate) ug/1			
Parameter 3-Hydroxycarbofuran Aldicarb (Temik) Aldicarb sulfone Aldicarb sulfoxide Baygon Carbofuran (Furadan)	·		



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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

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

Honolulu , HI 96843 ATTN: Ron Fenstemacher

Sample	# 940721007	Sample ID WAIPAHU III	Pr	oject
Sample	Type Water	Sampled 21-jul-1994	Received 21-jul-1994	Reported 04-aug-1994

## Aldicarbs (ML/EPA 531.1 ) Surrogate Summary

Parameter EDMC	Percent Recovery	Acceptable Range 80 - FZO



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

Honolutu , HI 96843 ATTN: Ron Fenstemacher

Sample #	940721007	Sample ID WAIPAHU III	Project
Sample T	ype Water	Sampled 21-jul-1994	Received 21-jul-1994 Reported 04-aug-1994

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

Control	Parameter	Units	Actual	Found	%Recv
ccs)	3-Hydroxycarbofuran	Ug/l	20:0	21.6°r	108
LCS1	Aldicarb (Temik)	ug/l	20.0	20.3	102
LCS#	Aldicarb sulfone	1/g/1	20.0	<b>72</b> -2	111
LCS1	Aldicarb sulfoxide	ug/l	20.0	23.9	120
COT	Raygon	up/l	2010	50.6	103
LCS1	Carbofuran (Furadan)	ug/l	20.0	20.4	102
LCSI	(Carbary)	Ug/L	70.0	722.45	112
LCS1	Hethiocarb	ug/l	20.0	22.7	114
(CS16.4.)	Hethanyl	up/l	20.0	20:2	701
LCS1	Oxamyl (Vydate)	ug/l	20.0	21.1	106
LCS2	5-Hydroxycerbofuren	tig/L	20.0	21.9	110
LCS2	Aldicarb (Temik)	ug/l	20.0	19.2	96
LCSE	Aldicarts sulfone	<b>497</b> 1	50:0	<u> 22.</u> 8	114
LCS2	Aldicarb sulfoxide	ug/l	20.0	25.2	126
LCS2	Baygon	Ug/A	2020	. 20.9	104
LCS2	Carbofuran (Furadan)	ug/(	20.0	20.5	102
LCS2	Carbaryl	υφ/l	50.0	22:7	114
LCS2	Hethiocarb	ug/l	20.0	22.3	112
LCS2	Methonyl	ug/L	2010	20.4	102
LCS2	Oxamyl (Vydate)	ug/(	20.0	22.0	110
HBLK	3-Hydroxycarbofuran	ug/l	MD	2.00	
MBLK	Aldicarb (Temik)	ug/l	ND	ND	
MBLK	Aldicarb sulfone	. bg/l	ND.	HD.	
MBLK	Aldicarb sulfoxide	ug/l	ND	ND	
MBLK	Baygon	ug/l	ND .	<b>8</b> 00	
MBLK	Carbofuran (Furadan)	ug/(	ND	ND	,
MELK	Carbacyl	L/g/L	ND ·	MD .	
MBLK	Hethiocarb	ug/(	ND CN	ND	
HBLK .	Methomyi	ug/l	ND	<b>4</b> 0	
MBLK	Oxamyl (Vydate)	ug/į	ND	ND	
MS	3-Hydroxycarbofuran	1/9/1	20	21.1	106

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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

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

Honolulu , HI 96843 ATTN: Ron Fenstemacher

 Sample # 940721007
 Sample ID WAIPARU III
 Project

 Sample Type Water
 Sampled 21-jul-1994
 Received 21-jul-1994
 Reported 04-aug-1994

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

Control	Parameter	Units	Actual	Found	%Recv
<b>HS</b>	Address (Tenth)	up/t	50	21.3	106
HS	Aldicarb sulfone	ug/l	20	20.7	104
KS.	Aldicarb sulfoxide	Ug/6	20	<b>25</b> .0	125
HS	Baygon	ug/l	20	20.7	104
HS.	Carbofuren (Furedan)	tup/l	20	20.4	201
HS	Carbaryl	ug/l	20	22.4	112
MS	Nethiocarb	Ug/L	20	23.6	118
KS	Methomyl	ug/l	20	20.2	101
HS	Oxamyl (Vydate)	Q9/l	20	21.7	106
MSD	3-Hydroxycarbofuran	ug/l	20	21.0	105
MSO.	Aldicarb (Jemik)	Ug/L	,20	21,2	106
MSD	Aldicarb sulfone	ug/l	20	20.8	104
#SD_	(Aldicarb sulforida)	Up/1	20	0.35	150
MSD	Baygon	ug/l	20	20.7	104
MSO	exCarbofuran((Furaden)		20	20.4	102
MSD	Carbaryl	ug/l	20	22.6	113
HSD	Methiocarb	ug/t	20	24,4	122
MSD	Methomyl	ug/l	20	20.3	102
MSD	Oxamyl (Vydate)	Ug/L	20	21:4	107
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## MONTGOMERY LABORATORIES

## Laboratory Report

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Total

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Size	818 568 6400- FAX 818 558 6324:			Board	of Water Su	pply Lab	
Sample   Digital   11   Project   Digital   Project   Project   Digital	SS		•	930 S	Beretania S		
Units   Result Conc.   Xac   Dilution   Det.   Init   Propured   Sy   Analyzed   Conc.   Xac   Dilution   Det.   Init   Propured   Sy   Analyzed   Conc.   Conc.   Xac   Dilution   Conc.	Sam	3	o`			Ŧ	
Result         Conc.         XRec         Dilution         Det. Linit         Prepared         By         Analyzed         E           Nic         0.72         22-Jul 18793, ppt         26-Jul 1894         P         26-Jul 1894           Nic         0.1         2.2-Jul 1894         P         26-Jul 1894           Nic         0.1         2.2-Jul 1894         P         26-Jul 1894           Nic         0.2         22-Jul 1894         P         26-Jul 1894           Nic         0.2         22-Jul 1894         P         26-Jul 1894           Nic         0.2         22-Jul 1894         P         26-Jul 1894           Nic         0.5         22-Jul 1894         P         26-Jul 1894           Nic         0.5         22-Jul 1894         P         26-Jul 1894           Nic         0.5         22-Jul 1894         P         26-Jul 1894           Nic         0.2         22-Jul 1894         P         26-Jul	ממשטע שנושלשו	n Water	PA 515.	ATTHE	Ron Fenster	acher	7
units         Result         Conc.         Mail Littling         Des. Limit         Des. Limit         Analyzed of the general sections of the ge			NAME OF THE OWNER, WHICH THE PARTY OF THE PA	AND THE PROPERTY OF THE PROPER			
HO 0.1 22-jul-1994 hpt 26-jul-1994 hpt 26-jul-	ameter	Units	Result	Dilution	Limit		Analyzed By
15   15   15   15   15   15   15   15	(5-T) (ell.cov)	1/60	70 EX			₩.	8
ug/1         kD         2         22-1ul-1994         pt         26-1ul-1994           ug/1         kD         0.2         22-1ul-1994         pt         26-1ul-1994           ug/1         kD         0.2         22-1ul-1994         pt         26-1ul-1994           ug/1         kD         0.5         22-1ul-1994         pt         26-1ul-1994           ug/1         kD         0.2         22-1ul-1994         pt         26-1ul-1994           ug/1         kD         0.2         22-1ul-1994         pt         26-1ul-1994           ug/1         kD         0.2         22-1ul-1994         pt         26-1ul-1994           ug/1         kD         0.1         22-1ul-1994         pt         26-1ul-1994           ug/1         kD         0.1         22-1ul-1994         pt         26-1ul-1994           ug/1         kD         0.1         22-1ul-1994         pt	(1) (2) (1) (2) (1) (1) (1) (1) (1) (1) (1) (1) (1) (1	. /g/	NO	)		5886	S. 688
10   10   10   10   10   10   10   10	2,4-DB	J/Bn	KD			- 88	230
(feative)   Usy	chlorprop	1/Bn	2E 23			æ.	
ug/L         HD         0.5         22-Jul-1994 spt         26-Jul-1994 spt           ug/L         HD         0.5         22-Jul-1994 spt         26-Jul-1994 spt           ug/L         HD         1         22-Jul-1994 spt         26-Jul-1994 spt           ug/L         HD         0.2         22-Jul-1994 spt         26-Jul-1994 spt           ug/L         HD         0.1         22-Jul-1994 spt         26-Jul-1994 spt           ug/L         HD         0.7         22-Jul-1994 spt         26-Jul-1994 spt           ug/L         HD         0.7         22-Jul-1994 spt         26-Jul-1994 spt           ug/L         HD         0.7         22-Jul-1994 spt         26-Jul-1994 spt           ug/L         HD         22-Jul-1994 spt         26-Jul-1994 spt	Hydroxydicanda (4)iorfan foralitativa		AD AN			20000	
1   22-1ul-1994   pril   pri	ntajon	# T	오		on very series	3	
1   22-1ul-1994   pt   26-1ul-1994   pt   26-1ul-	lorenden (gwalltative)	1/85	ND			30.XX	S 22
0.2 22-Jul-1994 mpt 26-Jul-1994 npt 26-Jul-199	slapon (qualitative)	1/gn	ND NO				
ug/l         HD         0.2         22-Jul-1994         PP         26-Jul-1994         PP	5-Dichlorobenzolc acid	)/bn	dh.			W.A.	97. X
HB         0.2         222-jul-1994 κpt         26-jul-1994           ug/l         ND         0.2         22-jul-1994 κpt         26-jul-1994           ug/l         0.0         22-jul-1994 κpt         26-jul-1994 kpt         26-jul-1994 kpt         26-jul-1994 kpt           ug/l         ND         0.1         22-jul-1994 kpt         26-jul-1994 k	.PA	1/Bn	Q.				- 8
ug/l     HD     0.2     22-jul-1994 μpt     26-jul-1994 μpt       ug/l     ND     0.1     22-jul-1994 μpt     26-jul-1994 μpt       ug/l     HD     5     22-jul-1994 μpt     26-jul-1994 μpt        07/28/94     0     22-jul-1994 μpt     26-jul-1994 zbr        07/28/94     μpt     26-jul-1994 zbr	centa	1/80	ON			X83.5	100
1971 ND 22-Jul-1994 kpt 26-Jul-1994 upt 26-Jul	inoseb	1/6n	22		*********	33	33
ug/t ND 0.1 22-jul-1994 Apt 26-jul-1994 1997 1997 1997 1997 1997 1997 1997	antachlorophenol	<b>1/8</b> 3	0107			333	- T
lendi (quai trativa)	lcloram	Lg5	KO		1	8	34
07/28/94 vpt 26-jul-1994 vpt 26-jul-1994	Witrophendi (qualitativa)	1/81	NO.			***	888 888
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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

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

Honolulu , HI 96843 ATTN: Ron Fenstemacher

		Pr	oject
Sample # 940721007	Sample ID WAIPAHU 111 Sampled 21-jul-1994	Received 21-jul-1994	Reported 04-aug-1994
Sample Type Water	Sampled Z1-101-1722		

## Chlorinated Acids in Water Surrogate Summary

(ML/EPA 515.1

the second secon	
	Percent Recovery Acceptable Range 70 130
Parameter	89
Parameter 2,440[chlorophenylacetic acid	
182	
377	
1.63	
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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

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

Honolulu , HI 9684 ATTN: Ron Fenstemacher

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

#### Chlorinated Acids in Water Quality Control

(ML/EPA 515.1 )

Control   Parameter   Units						
CCS1	Control	Parameter	Units	Actual	Found	%Recv
CEST   2,4-D   Ug/L   1,00   0.98   98   1551   1561   1501   1501   1501   1501   1501   1501   1501   1501   1501   1501   1501   1501   1501   1501   1501   1501   1500   144   1500   144   1500   144   1500   144   1500   144   1500   144   1500   144   1500   144   1500   144   1500   144   1500   144   1500   145   1500   145   1500   145   1500   145   1500   145   1500   145   1500   145   1500   145   1500   145   1500   145   1500   145   1500   145   1500   145   1500   145   1500   145   1500   145   1500   145   1500   145   1500   145   1500   145   1500   145   1500   145   1500   145   1500   145   1500   145   1500   145   1500   145   1500   145   1500   145   1500   145   1500   145   1500   145   1500   145   1500   145   1500   145   1500   145   1500   145   1500   145   1500   145   1500   145   1500   145   1500   145   1500   145   1500   145   1500   145   1500   145   1500   145   1500   145   1500   145   1500   145   1500   145   1500   145   1500   145   1500   145   1500   145   1500   145   1500   145   1500   145   1500   145   1500   145   1500   145   1500   145   1500   145   1500   145   1500   145   1500   145   1500   145   1500   145   1500   145   1500   145   1500   145   1500   145   1500   145   1500   145   1500   145   1500   145   1500   145   1500   145   1500   145   1500   145   1500   145   1500   145   1500   145   1500   145   1500   145   1500   145   1500   145   1500   145   1500   145   1500   145   1500   145   1500   145   1500   145   1500   145   1500   145   1500   145   1500   145   1500   145   1500   145   1500   145   1500   145   1500   145   1500   145   1500   145   1500   145   1500   145   1500   145   1500   145   1500   145   1500   145   1500   145   1500   145   1500   145   1500   145   1500   145   1500   145   1500   145   1500   145   1500   145   1500   145   1500   145   1500   145   1500   145   1500   145   1500   145   1500   145   1500   145   1500   145   1500   145   1500   145   1500   145   1500   145   1500   145   1500	***************************************		up/i	0.500	0.62	124
	***************	2,4-D	ug/l	1.00	0.98	********
CS2	LCS1	Bentazon	Ug/i	1.00	1 01	******************
Columb   C	LCS2	2,4,5-TP (Silvex)	ug/l	0.500	******************	
CLS2	Less:	2,4-0	Un/l	***************************************	000000100000000000000000000000000000000	
MBLK   2,4,5-TP (Silvex)   Ug/L   ND	LCS2	Bentazon	******************************	~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~	xxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxxx	
MBLK	MBLK	2,4,5-1	***************************************	*******************************	000000000000000000000000000000000000000	
MELK   2,4-DB	MBLK	***************************************	~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~	~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~	************	
MBLK         2,4-DB         Ug/L         ND         ND           MBLK         Dichloppop         Ug/L         ND         ND           MBLK         5-Hydroxydicamba         Ug/L         ND         ND           MBLK         4crifiDon/en(qualitative)         Ug/L         ND         ND           MBLK         Bentazon         Ug/L         ND         ND           MBLK         Bentazon (qualitative)         Ug/L         ND         ND           MBLK         Dalapon (qualitative)         Ug/L         ND         ND           MBLK         Dalapon (qualitative)         Ug/L         ND         ND           MBLK         Dicamba         Ug/L         ND         ND           MBLK         Dicamba         Ug/L         ND         ND           MBLK         Dinoseb         Ug/L         ND         ND           MBLK         Pertectiloropherol         Ug/L         ND         ND           MBLK         Pictoram         Ug/L         ND         ND           MBLK         Pictoram         Ug/L         ND         ND           MS         2,4,5-TP (Silvex)         Ug/L         1,00         0,42         84 <t< td=""><td>MBLK</td><td>X*29C-9799#0C230C0C00000C0C0CACAAAAAAAAAAAAAAAAAAAA</td><td>XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX</td><td>***************************************</td><td>212102222222222222222222222222222222222</td><td></td></t<>	MBLK	X*29C-9799#0C230C0C00000C0C0CACAAAAAAAAAAAAAAAAAAAA	XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX	***************************************	212102222222222222222222222222222222222	
Mail	******************************	***************************************	~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~		***************************************	
MBLK   S-Hydroxydicamba   Ug/L   ND   ND	MBLK.	***************************************	######################################	222220222222222222222222222222222222222	\$9879257949750000x20000000000000	***************************************
MBLK   Dicambo   Ug/L   MD   MD   MD   MBLK   Dicambo   Ug/L   MD   MD   MD   MD   MD   MD   MD   M	*************************************		********************************	*************************	***********************	
MBLK   Bentazon   Ug/L   ND   ND	300000000000000000000000000000000000000	PO228C0000CC008B0B0C00000A0AAAAAAAAAAAAAAAAA		090002000000000000000000000000000000000	200000000000000000000000000000000000000	**********
#BLK	***********************		***************************************	******************	***************************************	
MBLK         Dalapon (qualitative)         Ug/l         ND         ND           HBLK         3,5*Dichlorobenzoic acid         Ug/l         HD         HO         ND           MBLK         DCPA         Ug/l         ND         ND         ND           MBLK         Dicamba         Ug/l         ND         ND         ND           MBLK         Dinoseb         Ug/l         ND	***************************************	\$\$\$\$\$ <b>\$</b> \$\$\$\$\$\$\$\$\$\$\$\$\$\$\$\$\$\$\$\$\$\$\$\$\$\$\$\$\$\$	002000000000000000000000000000000000000	000000000000000000000000000000000000000	20000000000000000000000000000000000000	27071020010011071000000000000
HELK   3/5-Dichlarobenzoic ecid   Ug/1   HD	***************************************	***************************************	***************************************	************	**********	
MBLK         DCPA         ug/l         ND         ND           MBLK         DIcamba         ug/l         ND         ND           MBLK         Dinoseb         ug/l         ND         ND           MBLK         Pentacritorophenol         ug/l         ND         ND           MBLK         Pictoram         ug/l         ND         ND           MBLK         Pictoram         ug/l         ND         HD           MS         2,4,5-TP (Silvex)         ug/l         0.500         0.42         84           MS         2,4,5-TP (Silvex)         ug/l         1.00         0.77         .77           MSD         2,4,5-TP (Silvex)         ug/l         0.500         NA           MSD         2,4-D         ug/l         1.00         NA           MSD         2,4-D         ug/l         1.00         NA           MSD         8entazon         ug/l         1.00         NA	************		000000000000000000000000000000000000000	**************	*****************************	000000000000000000000000000000000000000
#### ################################	~~~~~		************************	************	NO.	
MBLK         Dinoseb         ug/L         ND         ND           HBLK         Pertachiarophenol         ug/l         ND         ND           MBLK         Picloram         ug/L         ND         ND           MBLK         - Nitrophenol (qualitative)         ug/L         NO         HD           MS         2,4,5-TP (Silvex)         ug/L         0.500         0.42         84           MS         2,4,5-TP (Silvex)         ug/L         1.00         0.77         .77           MS         Bentazon         ug/L         1.00         0.77         .77           MSD         2,4,2-TP (Silvex)         ug/L         0.500         NA           MSD         2,4-D         ug/L         1.00         NA           MSD         8entazon         ug/L         1.00         NA	669390000000000000000000000000000000000	XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX	*********************************	ND	ND	••••
#BLK Pentachloropherol ug/i ND ND  MBLK Picloram ug/l ND ND  MBLK 4- Nitropherol (qualitative) ug/i NO HD  MS 2,4,5-TP (Silvex) ug/l 0.500 0.42 84  MS 240 ug/l 1.00 0.77 .77  MS Bentazon ug/l 1.00 0.77 .77  MSD 2,4,5-TP (Silvex) ug/l 0.500 NA  MS Bentazon ug/l 1.00 0.77 .77  MSD 2,4,5-TP (Silvex) ug/l 1.00 NA  MSD 2,4-D ug/l 1.00 NA  MSD Bentazon ug/l 1.00 NA	***************************************		ug/1	NO	HD.	
MBLK         Pictoram         ug/t         ND         ND           BBLK         4-Nitrochenol (qualitative)         ug/t         ND         HD           MS         2,4,5-TP (Silvex)         ug/t         0.500         0.42         84           HS         2,40         ug/t         1.00         0.95         75           MS         Bentazon         ug/t         1.00         0.77         .77           MSD         2,45-7P (Silvex)         ug/t         0.500         NA           MSD         2,4-D         ug/t         1.00         NA           MSD         8entazon         ug/t         1.00         NA	200000000000000000000000000000000000000	***************************************	***************************************	ND	ND	
######################################	~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~	***************************************	ug/i	ND	<b>N</b> II	
MS 2,4,5-TP (Silvex)	000000000000000000000000000000000000000	MAMAMAMAMAMAMAMAMAMAMAMAMAMAMAMAMAMAMA		ND	ND	***************************************
#C 2,4:0 Ug/1 1:00 0:95 95  MS Bentazon Ug/1 1:00 0.77 .77  MSD 2,4:5-TP (Silvex) Ug/1 0:500 MA  HSD 2,4-D Ug/1 1:00 NA  HSD Bentazon Ug/1 1:00 NA	*************		e) tg/L	<b>N</b> D	<b>H</b> D	
MS         Bentazon         Ug/l         1.00         0.77         .77           MSD         2,4557P (Silvex)         Ug/l         0.500         MA           MSD         2,4-D         Ug/l         1.00 ·         NA           MSD         8entazon         Ug/l         100 ·         NA		CCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCCC	ug/(	0.500	0.42	84
MS         Bentazon         Ug/L         1.00         0.77         77           MSD         2.4 S-TP (Silvex)         Ug/L         0.2500         NA           MSD         2,4-D         Ug/L         1.00 ·         NA           HSD         Bentazon         Ug/L         1.00 ·         NA		***************************************	ug/L	1.00	0.95	95
MSD   2,4.5=7P (Silvex)   Ug/L   02500   MA     MSD   2,4-D   Ug/L   1.00		Bentazon	ug/l	1.00	0.77	000000000000000000000000000000000000000
MSD 2,4-D ug/t 1.00 · NA MSD Bentazon ug/t 1.00 · NA	NSD	2,4,5-7P (Silvex)	ug/i	0.500	000000000000000000000000000000000000000	
HSD Bentazon Ug/1 1:00 NA	MSD	2,4-D	***************************************	1.00	********	
	MSD	Bentezon	000000000000000000000000000000000000000	000000000000000000000000000000000000000	1955250000000000000000000000000000000000	
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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
AUG # 2 1994
HDS

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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 # 940721009 Sample ID WAIPARU 111

 Sample # 940721009
 Sample ID WAIPANU III
 Project

 Sample Type Water
 Sampled 20-jul-1994
 Received 21-jul-1994
 Reported 02-aug-1994

Laboratory Report

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

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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 968 ATTN: Ron Fenstemacher

Sample # <u>940721009</u>	Sample ID WAIPAHU_III	Pr	oject
Sample Type <u>Water</u>	Sampled <u>20-jul-1994</u>		

#### Single Determination Analytes Quality Control

Control	Parameter	Units	Actual	, Found	<b>40</b>
LCS1	Cyanide	mg/l	0.05	010483	%Recv 97
LCS2	Cyanide	mg/l	0.05	0.0565	113
MBLK	Cyarnde	mg/L	NO	HD	
KS	Cyanide	mg/l	0.05	0.0531	106
HSD	Cyanide	mg/l	0.05	0.0486	97

Report #: 14572

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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 # 940721009 Sample 1D WAIPAHU III Project Sample Type Water Sampled 20-jul-1994 Received 21-jul-1994 Reported 02-aug-1994

## Laboratory Report

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

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Radiation	
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Beta	
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1 Result 2.6 1.4 5.0 1.0						
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Parameter Units Alphs, Gross, PCI/1 Alphs, Two Sigma Error PCI/1 Beta, Two Sigma Error PCI/1 Beta, Two Sigma Error PCI/1						1



555 East Walnut Street Pasadena, California 91101 818 568 6490; 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>940721009</u>	Sample ID WAIPAHU III	Project
Sample Type <u>Water</u>	Sampled <u>20-jul-1994</u>	Received 21-jul-1994 Reported 02-aug-199

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

Control	Parameter	Units	Actual	Found	XRecv
1CS1	Alphe, Gross	pC(/)	9.2	10.0	109
LCS1	Beta, Gross	pCi/l	28.1	31.2	111
LCSZ	Alpha, Gross	pCI/L	912	9.8	107
LCS2	Beta, Gross	pCi/l	28.1	29.8	106
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Report #: 14572

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Report 14572 Comment Page

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#### MONTGOMERY LABORATORIES

555 East Walnut Street Pasadena, California 91101 818 568 6400; FAX 818 568 6324; 1 800 566 LAB\$ (1 800 566 5227) # 2

Laboratory Report

for

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

Honolulu, HI 96843

Attention: Ron Fenstemacher

SEP 0 6 1994

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# MONTGOMERY LABORATORIES

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 06-sep-1994 Project Sample # 940826082 Sample 1D WAIPANU 111 HOLE #2 Sample Type Water

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

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Laboratory Report

96843 ATTN: Ron Fenstemacher Ξ Honolulu

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Result

Units

Parameter

(ML/EPA 504

AB1803 - EDB and DBCP

Report #: 15299



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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

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

96843

Honolulu , HI

ATTN: Ron Fenstemacher

 Sample # 940826082
 Sample ID <u>WAIPAHU III HOLE #2</u>
 Project

 Sample Type <u>Water</u>
 Sampled <u>25-aug-1994</u>
 Received <u>26-aug-1994</u>
 Reported <u>06-sep-1994</u>

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

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Control	Parameter	Units	Actual	Found	%Recv
LCS1	Ulbromoch (Gropropane (DBCP)	ug/t	0.10	0.10	100
LCS1	Ethylene Dibromide (EDB)	ug/l	0.10	0.10	100
LCS2	Dibromochi propropene (0802)	eug/L	0.10	0:10	100
LCS2	Ethylene Dibromide (EDB)	ug/l	0.10	0.12	120
HELK	Dibromochloropropane (DBCP)	ug/l	ND	NO.	
MBLK	Ethylene Dibromida (EDB)	ug/l	HD	ND	
<b>7</b> 5	Dibromochiloropropana (DBCP)	0g/L	0.10	0.09	90
KS	Ethylene Dibromide (EDB)	ug/l	0.10	0.09	90
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555 East Walnut Street Pasadene, California 91101 818 568 6400; FAX 818 568 6324; 1 800 566 LABS (1 800 566 5227)

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

(ML/EPA 525.1 525 Semivolatiles by GC/MS

## Laboratory Report

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

ATIN: Ron Fenstemacher Ħ, Honolulu

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Bilty/herry/botha/ate us/l	1/60	HD		5.0	30- sug-1994		01-sep-199	Alo y
	1/01	Ş	,	2	30-aug-1994		01-sep-199	
Birtachlor u9/1	1/6n	ON .		0.05	30-alig-1994	csk	01-sep-1994	4 CFK
vsene	1/6n	QX		0.02	30-aug-1994		01-sep-199	
Olbert (a.h) Anthiracene	)/B/	gH		60.0	30-aug-199/		01-sep-199	
(2-Ethylhexyl)adioate	1/6n	웃		9.0	30-aug-199		01-sep-199	
thylohthalate	1/60	92		5:0	30-aug-199		. 01-sep-199	
n i az i non	1/6n	8		0.1	30-aug-199		01-sep-195	
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ethoate		91		10	30-aug-199	Sec. 35	01-sep-195	tuo 🔸
n-Butvinhthalate	1/60	£		0.5	30-aug-1994		01-sep-195	
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oame-thiordane ug/l	1/6n	ON		0:05	30-aug-1994	4 csk	01-gos-10	Ye cru
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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)

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

(ML/EPA 525.1

525 Semivolatiles by GC/MS

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

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Laboratory Report

Honolulu, City of

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Report #: 15299

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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 # 940826082
 Sample ID WAIPARU 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 Surrogate Summary

Perylene:di2	Percent Recovery	Acceptable Range 70 130
<u></u> -		

Report #: 15299

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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

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

Honolulu , HI 96843 ATTM: Ron Fenstemacher

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

#### 525 Semivolatiles by GC/MS Quality Control

(ML/EPA 525.1 )

Control	Parameter	**-*			
LCS1	alpha-Chiordane	Units Ug/l	Actual	Found	XRecv
LCS1	Acenaphthylene	ug/l	2	2.50 1.93	125
LC51	Alechian	Ug/L	2	2.41	96 120
LCS1	Aldrin	ug/(	2	2.13	106
&CS1	Anthracene	ug/l	2	1.75	88
LCS1	Atrazine	ug/l	2	2.28	114
LCST	Benz(a)Anthracene	ug/1	2	1.81	90
LCS1	Benzo(a)pyrene	ug/l	2	1.76	88
ECS1	Benzo(b)Fluoranthene	ug/1	12	1.89	94
LCS1	Benzo(g,h,i)Perylene	ug/l	2	1.98	99
LCST LCST	Benzo(k)Fluoranthene	Ug/L	2	2.03	102
£CS1	Di(2-Ethylhexyl)phthalat	M0000000000000000000000000000000000000	Z	2.27	114
LCS1	Butylbenzylphthalate		2	1.90	95
LCSI	Chrysene Diberz(a;h)Anthracene	ug/l	2	1.84	92
LCS1	Di-(2-Ethylhexyl)adipate	Ug/L	2	1.92	- 674
LCS1	Diethylphthalate	Ċ:::::::::::::::::::::::::::::::::::::	2	1.96	98
LCS1	Dimethylphthalate	ug/l	2	2,33	116
LCS1	Di-n-Butylphthalate	ug/l	2	2.11	106
LCS1	Endrin	ug/l ug/l		2.47	124
Lest	Fluorene	ug/t	2	1.71	86
LCS1	gamma-Chlordane	ug/l	2	2.08 2.29	104
LCS1	Hexachtorobenzene :	193/L	Ž	1.92	114
LCS1		ug/l	2	1.32	96
LCS1	Heptachlor	ug/l	-	1.91	66 96
LCS1	Keptachlor Epoxide	ug/l	2	2.18	109
ccst	Indeno(1,2,3,c,d)Pyrene		. 2	1974	87
LCS1	Lindane	ug/[	2	1.94	97
LCS1	Hethoxychtor	ug/l	<b>2</b> .	2.09	104
LCS1	Molinate	ug/(	2	2.31	116
LCS1	Crans-Nonachlor	ug/1	2	2:14	107
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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

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

### 525 Semivolatiles by GC/MS Quality Control

(ML/EPA 525.1

D1					
Control	Parameter	Units	Actual	Found	#Recv
icsi	Pentachi prophenol	up/l	8	8.79	110
LCS1	Phenanthrene	ug/l	2	2.03	102
LCS1	Pyrene	t/g/L	2	2.32	116
LCS1	Simazine	ug/l	2	2.31	116
LCS1	Thiobencarb	<b>49/</b> 1	5	2,38	119
MBLK	alpha-Chlordane	ug/l	ND	ND	
MILK.	AcensphthyLene	ug/L	ND	ND -	
MBLK	Alachior	ug/(	ND ND	ND	
HBLK	Aldrin	ug/l	ND.	<b>K</b> D	
HBLK	Anthracene	ug/l	ND	ND	
MBLK	Atrazina	ug/L	ND	ND	
<b>HBLK</b>	Benz(a)Anthracene	ug/l	. ND	ND	
HBLK	Benzo(a)pyrece	ug/l	MD	HD.	
MBLK	Benzo(b)Fluoranthene	ug/l	ND	ND	
MBLK.	Benzo(g,h,f)Perylene	ug/t	ND	HD_	
MBLK	Benzo(k)Fluoranthene	ug/l	ND	ND	***************************************
HELK	DICZ-Ethythexyt)phthatat	e ug/l	ND	NO.	
MBLK	Butylbenzylphthalate	ug/l	ND	ND	***************************************
966LK	Bromaci L	trg/L	NO.	HD.	
MBLK	Butachlor	ug/l	ND	ND	***************************************
HELK	Chrysene	ug/i	ND	NO.	
MBLK	Dibenz(a,h)Anthracene	ug/l	ND	ND	*****
MBLK .	Dis(2:Ethy(hexyl)adipate	ug/1	ND .	HD	
MBLK	Diethylphthalate	ug/(	ND	ND	**************
HELK	Diszinon	ug/t	ND	<b>\$1</b> 0	
MBLK	Dieldrin	ug/l '	ND	ND	***************************************
MBLK	Dimethylphthalate	ug/L	NO	<b>H</b> D	
MBLK	Dimethoate	ug/i	ND	ND	manufaction of the control of the co
MBLK	Di-n-Butylphthalate	ug/l	ND.	NO.	
MBLK	Endrin	ug/l	ND	ND	ACCUSED STREET, ST.
MBLK	Fluorene	Ug/L	NO.	ND T	
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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

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

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

(ML/EPA 525.1

Units Actual Found %Recv Control Parameter ND. game-Chiordene HBLK. .ug/l MBLK **Hexachlorobenzene** ug/l ND BLK NO HexachLorocyclopentadiene Ug/L **M8LK Heptachlor** ug/l HELK ND HD. Heptachtor Epoxide Ug/( ND ND **MBLK** Indeno(1,2,3,c,d)Pyrene ug/l MELK 1sophorane ug/4 NO ND ND ND MBLK Lindane ug/l Methoxychier **W**O HELK ug/l ND ND ND **MBLK** Metribuzin ug/l ND. MBLK Molinate ug/L ND ND ND **Metolachlor** MBLK ug/l NO. HELK ND trans-Nonachtor up/l ND ND MBLK Pentach Lorophenol ug/l ND Phenanthrene ug/l ND HOLK ND ND MBLK mg/l Prometryn MD 机 HELK Propactilar un/l ND ND MBLK ug/l Pyrene ND. HD HELK ug/l Simazine HD MBLK ug/l ND Thiobencarb KO. HELK ND Triffuration ug/l 1.88 94 2 alpha-Chlordane ug/l 52 1.83 Acensphthylene 2 ug/L 2.34 117 Alachlor ug/l 2 2.07 104 Aldrin 2 ug/l 1.03 52 Anthracene ug/l **1**15 110 2 2019 Atrezine ug/t 1.62 81 Benz(a)Anthracene ug/l NS. 90 ug/L 2... 1\_79 Benzo(a)pyrene Benzo(b)Fluoranthene 2.19 110 ug/l HS 2.26 113 Benzo(g,h,j)Perylana



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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

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 525.1 )

				Found	%Recv
		Units	Actual	2.20	110
Control	Parameter	ceg/l	2	\$\$000000000000000000000000000000000000	142
<b>H</b> S	Benzo(k) Eluoranthene	ug/l	2	2.84	**********
MS	Di(2-Ethylhexyl)phthalate	Jug/I	2	2.40	120
908000000000000000000000000000000000000	Butylbenzylphthalate	***************************************	2	1.95	98
<u>MS</u>	Chrysene	ug/l		2.31	116
MS	bibenz(a,h)Anthracene	ua/l	2	2.48	124
HS.	Di-(2-Ethylhexyl)adipate	ug/l	************	2.13	106
MS	01-(2-20)	ug/i	2	2.16	108
MS	Diethylphthalate	ug/l	2		115
MS	Dimethylphthalate	ug/l	2	5.30	995994459445944
<b>#</b> 5	Di-n-Butylphthstate	ug/l	2	2.12	106
HS	Endrin	ug/i	2	1.90	95
<b>4</b> 5	Fluorene	ug/l	2	2.18	109
MS	gamma-Chlordane			1.91	96
	Hexachlorobenzena	ug/L		1.30	65
<b>H</b> S	Hexachlorocyclopentadiene	ug/l	2	1.96	98
MS		ug/1		2.05	102
MS	Heptschlor	ug/l	Z		112
MS	Keptachlor Epoxide	ug/l	2	2.24	VXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX
<b>H</b> S	Indeno(1,2,3,c,d)Pyrene	ug/l	2	1.87	94
HS	Lindane	0g/(	2	2.38	119
*************************	Hethoxychlon	\$600.5500\$6500	2	2.20	110
MS	Molinate	ug/l		2.15	106
HS	trans-Monachior	up/l	•	10.3	129
#S	Pentachlorophenol	ug/l	8	1.96	98
MS		ug/i	2		108
MS	Phenanthrene	ug/l	22	2.16	104
MS	Pyrene	ug/l	2	2.07	7200776006006
<b>H</b> S	Simazina	ug/l	2	2.31	116
MS	Thiobencarb				
			\$5000000000000000000000000000000000000	***************************************	
	\$28000000000000000000000000000000000000				
***************************************					Within

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 25-809-1994 Received 26-809-1994 Reported 06-889-1994

## Laboratory Report

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

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	921224 0-1004	7661 -D	1994 1994	1994 1994	1994 Ig-1994	9-1994	Jg-1994	7661 - En	1994-gu	ug-1994	7661 B1	ug-1994	1661-Pn	aug-1994	1994 1994	aug-1994	5661-6ne	aug-1994	30-aug-1994 30-aug-1994	900 - Day	aug-1994	400-1994	aug-1994	661 - Bne	8UG-199	aug 177
Analyzed	40-05	30-8	30-et	30-et	30-aı	30-8	30-a	30-8	30-e	30-8	20:	30-6	30-(	30-1	30.	30-	30-	30-	9 9	30-	30-	30	30	200	30	
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Det.Limit	0.5	0.5	0.7 0 E	N.S.	0.5	0.5	0.5	0.5	0.5	0.5	0.5	0.5	6:0	0.5	S*O	2	4	0.5	0	) 0.5	0.5	0.5	0.5	0.5	0.5	012
Dilution							360000000000000000000000000000000000000			Ye was a second		20.20.00.00.00.00.00.00.00.00.00.00.00.0													***************************************	
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Result	2	9	9	요	⊋ 1	2 Q	£	9	오 :	1	2 %	70 41	2 40	S	11	£	9	오	2	유	9 5	2 %	2 5	2 2	2	Q.
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Units	)/Bn	<b>սց/</b> Լ	1/8n	ug/l	) (80	1/6n	1/6n	) (B)	1/gn	1/6n	1/6n	· //Br	1/ <u>5</u> 0	77	) /B	7	Y H	1/61		1/gn	1/60	/gs	- B	1/8n	)   	) (Br
	)/Bn		1/8n	200000000000000000000000000000000000000											- 83											
								1/60									(A)					***************************************				
			ethane												) (8)					(18K)		80%.XX	romide)	ne		0
	foether	hane	roethan	hane	9	ene	ane	ropano	enzene	enzene	ne	BUB	enzene	ibne	ne (1,4-1	Jane	÷	nytether		anone (F			lethyl B	oethyle	1	ropropen
	atrachlo	chloroet	etrachio	chloroet	otoether	oroethy	oroprop	2.3.1richloropropare	,2,4-Trichlorobenzene	,2,4-trimethylbenzene	,2-Dichloroethane	totoprop	,3,5-Trimethylbenzene	(aropro)	robenzer	locopro	2-Butanone (MEK)	2-ch(aroethyl Vinyl ethar	o-chlorotoluene E. All A.A.A. flishs	4-Wethyl-2-Pentanone (MIBK)	enzene	nzene	romonathand (Methyl Bromide)	cis-1,2-Dichloroethylene	Chlorobenzenb	Carbon Tetrachioride cisri 3:01th Cocopropens
•	Parameter 1 1 1 2 Tatrachlocoethade	1 1-Trichloroethane	1.2.2.Tetrachloroethane	1,1,2-Trichloroethane ug/l	1-DIEN	,1-Dichl	1.1-Dichloropropene	2.3.Tr	,2,4-1	1,2,4+16	1,2-Dich	1,2-Dichlotopropane	1,3,5-1	1,3.bichtaropropane	p-Dichlorobenzene (1,4-DCB)	2,2.0 lel	2-Butan	2-ch (or:	o-chlor	4-Hethy	Berzene	Bromobenzene	Bromome	cis-1,2	Chloro	Carbon
1	<b>⊶</b> %≪	#X =	***	.5	V-ext.		and a	94 <del>4</del> 17	., -	,,																

MONTGOMERY LABORATORIES 555 East Walnut Street 

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

96843 ATIM: Ron Fenstemache Ξ. Honotulu

Sampled 25-aug-1994 Received 26-aug-1994 Reported 06-sep-1994

Project

Sample 1D HAIPANU 111 HOLE #2

Sample # 940826082 Sample Type Water

Pasadena, Celifornia 91101 818 568 6400; FAX 818 568 6324; 1 800 566 LABS (1 800 566 5227)

(ML/EPA 524.2 plus Lists 123 Regulated VOCs

30:81994 [29] 30-aug-1994 col 30-aug-1994 c61 30-aug-1994 , 661 0.5 30-aug-1994 col Chloromethand 015 30-aug 1994 cd 30-eug-1994 col 30-849-1994 661 t-Butylbenzenn 075 30:649:1994 <u>601</u> 30-aug-1994 | eal 30-alig-1994 col 30-809-1994 501 30-aug-1994 66[ 30:eug-1994 & 66 9 당 ខ្ល 30-aug-1994 19/1 HD 0.5 0.5 0.9 0.5 0.5 Det.Limit Prepared 6.0 Sig 5.0 610 chlorotri fluoroathaharftagn 1971 NO 105 6.5 0.5 5.5 0.5 Dilution יסאוסל סרות. omočili brodnetilane ug/t ND Ug/t HD 0N [//Ei] ZRec Conc. 

30- aug-1994 651

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## | 3 MONTGOMERY LABORATORIES -

555 East Walnut Street Pasadena, California 91101 818 568 6400; FAX 818 568 6224; 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

## Laboratory Report

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1-2 • 1/2 Honolulu, City of Board of Water Supply Lab 630 S Beretenia St

Honolulu , HI ATIN: Ron Fenstemacher

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A 524.2
(ML/EPA
Lists 1&3
I suld
VOCB
Regulated

Parameter         Units         Result         Conc.         XRec         Dilution         Det.Limit         Prepared         By         Analyzed         By           franching         1/3.01ch Grophopene         ug/l         HD         0.5         30-aug-1994         col           Vinyl Chicoride (VC)         ug/l         ND         0.5         30-aug-1994         col           Data Entry          HD         30-aug-1994         col						
Parameter trans 1,3.51ch Toluche Vinyl chloride 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 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

1,2-Dichloroethane-d4 100 80 - 120 4-Bronof (Dorobenzene 102 8) 120	
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Report #: 15299

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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 # 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 ) Quality Control

Control	Parameter	Units	Actual	Found	*Recv
icst	1,1-Dichlaroethylene	up/l		3.37	84
LCS1	1,2,4-Trichlorobenzene	ug/l	4	4.80	120
LCSI	p-DichLoroberzene (1,4-0c8)	Ug/A	4	3.74	94
LCS1	p-Chlorotoluene	ug/l	4	3.72	93
LCS1	Bertzerie	ug/l	4	4,10	102
LCS1	Chlorobenzene	ug/l	<u>4</u>	4.18	104
LCS1	Chierofern (Trichleromethane)	1/64	4	3.73	93
LCS1	Trichloroethylene (TCE) Toluene	ug/l	4	3.84	96
LCS2	1,1-Dichloroethylene	Up/1	*	4:02	100
LCS2	1,2,4x1mich (orobenzene	ug/l	4	4.09	102
LCSZ	p-Dichlorobenzene (1,4-DCB)	ug/l		4:42	110
LCS2	p:Chlorotol uene	ug/l	4	4.15	104
LCS2	Benzene	ug/l	4	4.35 4.39	109
a.cs2	Chlorobenzene	ug/i	7	4.59 4.52	110 113
LCS2	Chloroform (Trichloromethane)	ug/[	4	4.21	105
1CS2	Trichloroethylene (TCE)	ug/l	4	4.48	112
LCS2	Toluene	ug/l	4	4.48	112
MBLK	1,1,1,2-Tetrachtoroethane	ug/t	ND	ND	
HBLK	1,1,1-Trichloroethane	ug/l	ND	ND	***************************************
MELK	1,1,2,2 lettechioroethane	ug/t	MD	NO.	
MBLK	1,1,2-Trichloroethane	ug/l	ND	ND	***************************************
MBLK	1,1-Dichloroethane	1/20	ND	MD	
MBLK	1,1-Dichloroethylene	ug/l	ND	ND	
MBLK	1.1 Dichlaropropene	ug/l	ND	ND	
HELK	1,2,3-Trichlorobenzene	ug/l	ND	ND	
MBLK	1,2,5-Trichtoropropare	ug/l	NO .	- ND	
HELK	1,2,4-Trichlorobenzene 1,2,4-Trimethylbenzene	ug/(	ND	ND	***************************************
MBLK	1,2-Dichloroethane	ug/l	ND	40	
HBLK	1,2-Dichtoropropane	ug/l	ND	ND	***************
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Report #: 15299

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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

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

Honolulu , HI 96843 ATTN: Ron Fenstemacher

Sample # 940826082 Sample 1D WAIPAHU 111 HOLE #2 Project
Sample Type Water Sampled 25-aug-1994 Received 26-aug-1994 Reported 06-sep-1994

## Regulated VOCs plus Lists 1&3 Quality Control

(ML/EPA 524.2 )

F-A-F				round %Recv
		Units	Actual	Found
Control	Parameter And herizand	ug/t	ND	NO
MBLK	135-Trimethylbenzene 1,3-Dichloropropane	ug/l	ND	ND ND
MBLK	p-Dichlarobenzere (1,4-008)	ug/i	ND	ND
MBLK	2,2-Dichloropropane	ug/t	ND	100
MBLK	2-Butanone (MEK)	ug/l	ND ND	ND
HBLK HBLK	2-Chloroethylvinylether	ug/l	ND ND	HD
MBLK	o-Chlorotoluene	ug/1	ND	ND
MBLK	p-Chlorotoluene	ug/l ug/l	ND	NO.
#BLK	(4-Hethy) -2-Pentanone (HIBK)	ug/l	ND	ND
MBLK	Benzene	tig/L	NO	MD
MBLK	Bromoberzetie	\$55C00000000000000000000000000000000000	ND	ND
MBLK	Bromomethane (Methyl Bromide)	ug/l	ND	KO
HELK	cis-1/2-bichlaroethylene	ug/l	ND	ND ND
MBLK	Chlorobenzene Darbon Tetrachloride	ug/1	ND	ND
<b>W</b> BLK	cis-1,3-Dichloropropene	ug/l	ND	¥D
MBLK	Bromoform	up/I	ND ND	ND
HELK MBLK	Chloroform (Trichloromethane	y ug/l	ND ND	<b>H</b> D
MBLK	Bromochtoromethane		ND	ND
MBLK	Chloroethane	ug/l ug/l	ND	ND .
HBLK	Chloromethane(Methy) Chloric	le) ug/l	ND	ND
MBLK	Chlorodibromomethane	J/gu	NO.	HD.
MBLK	Dibromomethane	ug/l	ND	ND
MBLK	Bromodichloromethane	ug/l	ND.	<b>N</b> O
#BLK	Dichloromethane	ug/l	ND	ND ND
HBLK	Ethyl benzene Dichlorodifluoromethane	ug/L	NO .	ND
MBLK.	Fluorotrichloromethane(Free	n1) ug/l	ND	NO NO
HBLK	Hexachiorobitadiene	U9/1	ND ND	ND
MBLK	Isopropylbenzene	ug/l	ND ND	T HD
HBLK	m-Dichiarobenzene (1,5-pc8	ug/L		000000000000000000000000000000000000000
Term Reserved	VARIATION TO THE PARTY OF THE P		•	



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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

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

Honolulu , HI 96843 ATTN: Ron Fenstemacher

 Sample # 940826082
 Sample ID <u>VAIPAHU III HOLE #2</u>
 Project

 Sample Type <u>Vater</u>
 Sampled <u>25-aug-1994</u>
 Received <u>26-aug-1994</u>
 Reported <u>06-sep-1994</u>

## Regulated VOCs plus Lists 1&3 Quality Control

(ML/EPA 524.2 )

Control	Parameter	Units	Actual	Found	XRecv
HELK	p,p-Kylenes	ug/l- t	ND	ND .	
MBLK	<b>Naphthalene</b>	ug/l	ND	KD	*******************
WELK-	n-Butylbenzene	Jyg/i	ND .	HD	
MBLK	n-Propylbenzene	ug/l	ND	ND	*************
HBLK	o-Xylene	ug/l	ND	NO.	
MBLK	o-Dichlorobenzene (1,2-DCB)	ug/l	ND	ND	
HBLK	Tetrachicrosthylens (PCE)	ug/(	ND.	HD.	
KBLK	p-Isopropyltoluene	ug/l	ND	ND	***************************************
HBLK	sec-Butyl benzene	ug/l	ND	ko:	
MBLK	Styrene	ug/l	ND	KD	***************************************
HELK	trans-1_2-Dichloroethylene	Ug/i	NO .	HD	
MBLK	tert-Butylbenzene	ug/l	ND	ND	
HELK	Trichlorosthylene (TCE)	ug/i	ND	NO.	
MBLK	Trichlorotrifluoroethane(Freo	n ug/l	ND	ND	~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~
<b>MBLK</b>	trans-1,3-Dichteropropene	اارون	NO	HD	
MBLK	Toluene	ug/l	ND	DИ	***********************
HELK	Vinyl chloride (VC)	ug/l	ND	<b>N</b> 0	
distribution of the second					********************
23022372373737444					******************
2005/2000/2007/2000/200	***************************************			·····	
6/9/Z000/04/05/07/04/0	***************************************	•••••••			
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#### MONTGOMERY LABORATORIES

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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

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# MONTGOMERY LABORATORIES

555 East Walnut Street Pasadena, Celifornia 91101 818 568 6400; FAX 818 568 6224; 1 800 566 LABS (1 800 566 5227)

Sample # 9<u>40826083</u> Sample ID <u>WAIPAHU III HOLE #2</u>
Sample Type <u>Water</u> Sampled <u>25-aug-1994</u> Received <u>26-aug-1994</u> Reported <u>09-sep-1994</u>

Laboratory Report

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

Parameter Câdalum, Total; OF (HL/EPA206:2 ) mg/l; HD Conc. XRec Dilution Det.Limit Prepared By Analyzed By Câdalum, Total; OF (HL/EPA206:2 ) mg/l; HD HD (Sonc. XRec Dilution Det.Limit Prepared By Analyzed By 웃 (ML/EPA 245.1 ) ug/l

Report #: 15300



#### MONTGOMERY LABORATORIES

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### Laboratory Report

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

Honolulu , HI 96843 ATTN: Ron Fenstemacher

## Single Determination Analytes Quality Control

Control	Parameter	***************************************	Ur	its #	lctual	Found	XRecv
£CS1	Cadmium, T		enc.	<i>i</i> l ε	.01	0.0101	101
LCS2	Cadmium, To	otal, GF	ng.		******************************	0.0111	111
MBLK	Cadmium, To	otal, GF	mg	5297 <b>0</b> 22990000000000000000000000	************************	HD	
MS	Cadmium, To	otal, GF	mg	***************************************	*************************	0.0114	
MSD S	Cercinitien To	thi, GF	mg .	P0900000000000000000000000000000000000	022000000000000000000000000000000000000	P00070900000000000000000000000000000000	114
LCS1	Hercury		Ug	~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~			116
LC52	Hercury		υg	***************************************	********************	297529556559999999999	90 ************************************
MBLK	Kercury		ug	**********	*******************************	10 <b>CO</b>	85
HS.	Marcury		ug.	000000000000000000000000000000000000000	************************	***********************	202202000000000000000000000000000000000
MSD	Kercury		ug/	**********	*************		101
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13 i z MONTGOMERY LABORATORIES

555 East Walnut Street Pasadena, California 91101 818 568 6400; FAX 818 568 6324; 7 800 566 LABS (1 800 566 5227)

Sample # 940826083 Sample ID WAIPANU III HOLE #2 Project
Sample Type Water Sampled 25-8ug-1994 Received 26-8ug-1994 Reported 09-8ep-1994

Aldicarbs

(ML/EPA 531.1

Laboratory Report

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

ATTN: Ron Fenstenacher Ħ, Honolulu

Analyzed By 31 alig-1994 dil		
init Prepared By		
XRec Dilution Det.1. 2 0.5 0.5 0.5 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2		
Result Conc. HD		
Units  Ug/1		
Parameter         Units           3.Hydroxycabbfuran         Ug/l           Aldicarb (Temik)         Ug/l           (Idicarb sulfone         Ug/l           Aldicarb sulfoxide         Ug/l           Aldicarb sulfoxide         Ug/l           Carbofuran (Furadan)         Ug/l           Carbofuran (Furadan)         Ug/l           Hethiocarb         Ug/l           Methory(         Ug/l           Oxamyl (Vydate)         Ug/l           Usamyl (Uydate)         Ug/l		



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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 # <u>940826083</u>	Sample ID WAIPAHU III HOLE #2	Project
Sample Type Water	Sampled 25-aug-1994 Received	1 26-aug-1994 Reported 09-sep-1994

#### Aldicarbs

(ML/EPA 531.1 )

#### Surrogate Summary

Parameter EDMC	Percent Recovery 90	Acceptable Range 80 - T20
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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

#### Quality Control

(ML/EPA 531.1 )

Control	Parameter	Units	Actual		
4.CS1	3-Hydroxycarbofuran	ug/l	20:0	Found	*Recv
LCS1	Aldicarb (Temik)	ug/l	20.0	21,0	105
LCS1	Aldicarb sulfone	ug/L	20.0	19.9	100
LCS1	Aldicarb sulfoxide	ug/l	20.0	21.6	108
£CS1	Baygon	ug/l	20.0	23.6	118
LCS1	Carbofuran (Furadan)	ug/l	20.0	20.2	101
LCS1	- Carbanyl	i/gu	20.0	20.0	100
LCS1	<b>Hethiocarb</b>	ug/l	20.0	20.8	104
LCS1	Hethomyl	ug/i	20.0	19.7	98
LCS1	Oxamyl (Vydate)	ug/l	20.0	19.8	99
t£\$2	3-Hydroxycarbofuran	1/eu	20.0	20.5	102
LCSZ	Aldicarb (Temik)	ug/l	20.0	21.1	106
ŁCS2	Aldicarb sulfone	ug/l	20.0 20.0	19.7	98
LCS2	Aldicarb sulfoxide	ug/(	20.0	21.8	109
LCSZ	Baygon	ug/1	20.0	23.9	120
LCS2	Carbofuran (Furadan)	ug/l	******	20.5	102
1 CS2	Carbaryi	ug/t	20.0 20.0	20.2	101
LCS2	Hethiocarb	ug/l	20.u 20.0	51.9	110
LCS2	Methonyi	ug/1	***************************************	21.1	106
LCS2	Oxamyi (Vydate)	Ug/l	20.0	20.1	100
HBLK	3-Hydroxycarbofuran	***************************************	20.0	20.9	104
MBLK	Aldicarb (Temik)	ug/l	ND	ki)	
MBLK	Aldicarb sulfone	ug/l	ND	ND	***************************************
MBLK	Aldicarb sulfoxide	ug/1	ND.	MD.	
HBLK .	Baygon	ug/l	ND	ND	***************************************
MBLK	Carbofuran (Furadan)		ND	NO.	
HBLK	Carbaryl	ug/l	ND	ND.	***************************************
MBLK	Methiocarb	Ug/L	NO	ND	
HBLK	Mathomyt	Ug/l	ND	ND	
HBLK	Oxamyl (Vydate)	ug/l	ND .	HO.	
MS	5-Hydroxycarbofuran	ug/l	ND	ND	***************************************
		ug/t	2010	20.5	102



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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 F	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	XRecv
ΉS	Aldicarb (Testk)	ug/l	20:0	20.1	100
HS	Aldicarb sulfone	ug/l	20.0	20.6	103
MS	Aldicarb sulfoxide	ug/L	20.0	20.1	100
MS	Baygon	ug/l	20.0	20.6	103
<b>H</b> S	Carbofuran (Furadan)	ug/l	- 20:Q	2015	102
KS	Carbaryl	ug/l	20.0	20.6	103
NS.	Hethiocarb	U9/1	20.0	21.1	106
HS	Hethomyl .	ug/l	20.0	20.3	102
HS	Oxamyle (Vydate)	up/l	50:0	20.5	102
MSD	3-Hydroxycarbofuran	ug/l	20.0	20.7	104
MSO .	Aldicarb (femik)	vg/L	20:0	20-4	102
MSD	Aldicarb sulfone	/l	20.0	20.5	102
#SD	Aldicarb sulfoxide	ug/l	20.0	20.1	100
MSD	Baygon	ug/l	20.0	20.5	102
MSD	Carbofuran (Furadan)	ne\f	20:0	20.4	102
MSD	Carbaryl	ug/l	20.0	20.8	104
HSD.	Hethlocarb	ug/l	20.0	21.7	108
MSD	Hethomyl	ug/l	20.0	20.2	101
MS0	Oxemyl (Vydate)	ug/l	20.0	2025	102
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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 10 WAIPAHU 111 HOLE #2 Sample Type <u>Mater</u>

Chlorinated Acids in Water (ML/EPA 515.1 )

Honolulu, City of

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Laboratory Report

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13 15 Board of Water Supply Lab 630 S Beretanía St

AIIN: Ron Fenstemacher Ŧ Honolulu

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Prepared 29:408-1994 29:409-1994 29:409-1994 29:408-1994	9-199 9-199 9-199 9-199	29-aug-1994 29-aug-1994 29-aug-1994 28-aug-1994 29-aug-1994
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0.2 0.2 0.1 2 0.5 0.5	0.5 0.5 1 0.2	0.2 0.04 0.1 5
Dilution		
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Result HD HD HD HD	오 오 오 오 오 오 <b>오</b>	ND ND ND ND ND O9/06/9
ø		
Units 19/1 19/1 19/1 19/1 19/1	1/80 1/80 1/80 1/80 1/80	1/65 1/65 1/65 1/65
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Unite   Unite   Unite   Ug/    Ug/    Ug/    Ug/    Ug/  Ug/	qualita Jailta Itativ inzoic	ug/l [d][[d][[d][[d][[d]]] erol (qualitative)
(Silv	en (q (qual l (orobe	ferroll 77
Parameter Units 2,4,5:1 Usi/L 2,4,5-TP (Silvex) Usi/L 2,4:0 Usi/L 2,4-DB Usi/L Dichlopping Usi/L Dichlopping Usi/L Dichlopping Usi/L 5-Hydroxydicamba Usi/L Usi/L	Aciffloorfen (qualifative)  Bentazon  Chloremben (qualifative)  Dalapon (qualifative)  35.5 Dichlorbenzole acid  OCPA  Ug/1	Dinoseb  Cantechlorophenol  Dista Entry  Data Entry  Data Canten  Dinoseb
2 2 2 2 2 2 5 5 5 5 5 5 5 5 5 5 5 5 5 5	Acit Bent Ch(o Data 3,5:1	

Report #: 15300



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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

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

Chlorinated Acids in Water Surrogate Summary

(ML/EPA 515.1 )

Per ent Recovery Acceptable Range (2005) (2005) (2005) (2005) (2005) (2005) (2005) (2005) (2005) (2005) (2005) (2005) (2005) (2005) (2005) (2005) (2005) (2005) (2005) (2005) (2005) (2005) (2005) (2005) (2005) (2005) (2005) (2005) (2005) (2005) (2005) (2005) (2005) (2005) (2005) (2005) (2005) (2005) (2005) (2005) (2005) (2005) (2005) (2005) (2005) (2005) (2005) (2005) (2005) (2005) (2005) (2005) (2005) (2005) (2005) (2005) (2005) (2005) (2005) (2005) (2005) (2005) (2005) (2005) (2005) (2005) (2005) (2005) (2005) (2005) (2005) (2005) (2005) (2005) (2005) (2005) (2005) (2005) (2005) (2005) (2005) (2005) (2005) (2005) (2005) (2005) (2005) (2005) (2005) (2005) (2005) (2005) (2005) (2005) (2005) (2005) (2005) (2005) (2005) (2005) (2005) (2005) (2005) (2005) (2005) (2005) (2005) (2005) (2005) (2005) (2005) (2005) (2005) (2005) (2005) (2005) (2005) (2005) (2005) (2005) (2005) (2005) (2005) (2005) (2005) (2005) (2005) (2005) (2005) (2005) (2005) (2005) (2005) (2005) (2005) (2005) (2005) (2005) (2005) (2005) (2005) (2005) (2005) (2005) (2005) (2005) (2005) (2005) (2005) (2005) (2005) (2005) (2005) (2005) (2005) (2005) (2005) (2005) (2005) (2005) (2005) (2005) (2005) (2005) (2005) (2005) (2005) (2005) (2005) (2005) (2005) (2005) (2005) (2005) (2005) (2005) (2005) (2005) (2005) (2005) (2005) (2005) (2005) (2005) (2005) (2005) (2005) (2005) (2005) (2005) (2005) (2005) (2005) (2005) (2005) (2005) (2005) (2005) (2005) (2005) (2005) (2005) (2005) (2005) (2005) (2005) (2005) (2005) (2005) (2005) (2005) (2005) (2005) (2005) (2005) (2005) (2005) (2005) (2005) (2005) (2005) (2005) (2005) (2005) (2005) (2005) (2005) (2005) (2005) (2005) (2005) (2005) (2005) (2005) (2005) (2005) (2005) (2005) (2005) (2005) (2005) (2005) (2005) (2005) (2005) (2005) (2005) (2005) (2005) (2005) (2005) (2005) (2005) (2005) (2005) (2005) (2005) (2005) (2005) (2005) (2005) (2005) (2005) (2005) (2005) (2005) (2005) (2005) (2005) (2005) (2005) (2005) (2005) (2005) (2005) (2005) (2005) (2005) (2005) (2005) (2005) (2005) (2005) (2005) (2005) (2005) (2005) (20

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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

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

Honolulu , HI 96843 ATTN: Ron Fenstemacher

(ML/EPA 515.1

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

### Chlorinated Acids in Water Quality Control

Parameter (CS) Units ...2,5,5-TP (STLV Actual Found LCS1 XRecv 2,4-D 0.500 0.58 LCSI 116 Bentazon ug/l 1.00 1.01 LCS2 Ug/L 101 2,4,5-TP (Silvex) 1-00 Ice. 1.17 ug/l 117 0.5(5 0.500 NA LCS2 U7//U Bentazon 1.00 MIK NA. 2,4,55 ug/l 1.00 NA HBLK 2,4,5-TP (Silvex) nayr. ND: HELK ND. ug/i ND ND HBLK Up/I 2,4-DB ND. ND. BIK Dichlorprop Ug/( ND HBLK **UTAL** 5-Hydroxydicamba ΝO HD HULK Acifluorfen (qualitative) ug/l ND MBLK ug/l Bentazon MD **MECK** 10 Chloramben (qualitative) ug/l ND ND HBLK ug/l Dalapon (qualitative) NO. HIL ND 5,5,0 ichterobenzoic acid ug/t ND ND MBLK Ug/l DCPA ND. MIK NO. Dicamba Ug/( ND ND MBLK Dinoseb **Ug/L** MO HBLK HD. Pentachlorophenol Ug/( ND ND MBLK Pictoram ug/l MD MD MILK \*\*Wittophenol (cual (tative) ug/l ND ND HS 2,4,5-TP (Silvex) ug/L NO ND HS. Ug/[ 2,4-0 0.500 0.72 MS Ug/( 144 Bentazon 1.00 MSA) 1.23 123 2,4,5 TP (SILV ug/( 1.00

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ug/l

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Report #: 15300

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ñ 13 MONTGOMERY LABORATORIES

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

Sampled 25-8ug-1994 Received 26-8ug-1994 Reported 09-sep-1994 Project . Sample # 940826083 Sample ID WAIPAHU 111 HOLE #2 Sample Type Water

(ML/EPA 508 SDWA Pesticides

Laboratory Report

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

96843 Honolulu , HI ATTM: Ron Fenstemacher Honolulu

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Xec Dilution
Conc.
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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

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

Honolulu , HI 96843 ATTN: Ron Fenstemacher

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Sample # 940826083	Sample ID WAIPAHU III H	OLE #2 Pr	oject
Sample Type Water	Sampled <u>25-aug-1994</u>	Received <u>26-aug-1994</u>	Reported <u>09-sep-1994</u>

#### SDWA Pesticides (ML/EPA 508 Surrogate Summary

Parameter	Percent Recovery	Acceptable Range
Dibutyl. Chlorendate	YP.	10 - 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 ഒ0 S Beretania St

Honolulu

, HI

ATTN: Ron Fenstemacher

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

#### SDWA Pesticides Quality Control

(ML/EPA 508

Control	Parameter	Units	Actual	Found	%Recv
LCS1	Aldrin	ug/l	0.05	0.05	100
LCS1	p,p' DDT	ug/l	0.10	0.10	100
LCS1	Dieldrin	Ug/L	0_10	0.10	100
LCS1	Endrin	ug/(	0.10	0.09	90
LCS1	Gamme-BHC (Lindane)	up/l	. 0.05	0205	100
LCS1 LCS2	Keptachlor	ug/l	0.05	0.04	80
LCS2	Aldrin	na\r	0105	HA .	
LCS2	p,p' DDT	ug/l	0.10	NA.	Mark Control of the C
LCS2	Dieldrin Endrin	ug/l-	0.10	NA.	
LCSZ	Gauma-BHC (Lindane)	ug/l	0.10	NA	****************
LCS2	Heptachlor	vg/1	0.05	NA .	
HBLK	PCB 1016 Aroctor	ug/l ug/l	0.05	NA	
MBLK	PCB 1221 Aroclor	ug/l	ND ND	<b>4</b> (D	
MBLK	PCB 1232 Arector	ug/t ug/t	KD KD	ND ND	
MBLK	PCB 1242 Aroclor	ug/l	ND	ND	
MBLK	SPCB 1248 Aroctor	ug/l	ND.	ND ND	
MBLK	PCB 1254 Aroclor	ug/(	ND	ND	
MBLK	PCB 1260 Argetor	ug/l	Ko	MD N	
MBLK	Alpha-BKC	ug/l	ND	ND	
HELK	Alachion (Alanex)	ug/t	ND	400	
MBLK	Aldrin	ug/l	ND	ND	150000000000000000000000000000000000000
HBLK .	Chilordane	ו/פע	MD	ND	
MBLK	Chlorthaionil (Drconil, Brav	o) ug/l	ND	ND	K497735059C0QCQ40QQQQCCCC
HBLK	Delta-BHC	ug/t	ND	<b>N</b> ID	
MBLK	P,P' DDD	ug/l	ND	NO	***************************************
MBLK	b'b, pre	ug/t	MD	ND	
MBLK	p,p' DDT	ug/l	ND	ND	
HELK	Dieldrin	up/l	MD	<b>\$</b> 10	
MBLK	Endrin Aldehyde	ug/l	ND.	ND	***************************************
<b>HBLK</b>	Endrin	ug/1	ND .	ND	-

Report #: 15300

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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

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

Honolulu , HI 96843 ATTM: Ron Fenstemacher

Sample	# 940826083	Sample ID WAIPAHU III'H	fole #2	
ample	Type <u>Water</u>	Sampled <u>25-aug-1994</u>	Received 26-aug-1994	Reported No.com.100/

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

Control	Parameter	Units	Actual	Found	منه. -
HBLK	Endosulfanki (siphs)	ug/la-	ND NO	Found NO	#Recv
MBLK	Endosulfan II (beta)	ug/l	ND	ND	
MELK.	Endosultan sulfate	Ug/1	NO	ND ND	
HBLK	Gamma-BHC (Lindane)	ug/l	ND	ND	
HBLK	<b>Heptachlor</b>	ub/t	ND	<b>4</b> 0	
HBLK	Heptachlor Epoxide	ug/(	ND	ND	
MOLK .	Methoxychlor	bg/1	ND	ND CH	
MBLK	Toxaphene	ug/(	ND	*****	
#S	Aldrin	ug/l	0.05	ND	*************
HS	p,p' DDT	ug/l	0.10	0.05	700
es .	Dieldrin		0.10	0.10 0.11	100
MS	Endrin	ug/l	0.10	*****	110
<b>H</b> S	Game-BHC (Lindane)	ug/l	0.05	0.09	90
MS	Heptachlor	ug/i	0.05	0.05	700
			0.03	0.04	80
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Report #: 15300

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#### MINERAL ANALYSES

LOCATION	WAIPAHU III -	10/01 0	
	Well 1 (2400-0	29) Waipahu III	-
Year Date c llected Time collected Laboratory number	1994 July 20 0940	1994 Aug, 25 6925	
Regional head, feet Specific conductance micromhos @ 25°C pH value Turbidity Color	289 7:37 0:09	327 7.53 0./4	
IN PARTS PER MILLION:			
Dissolved oxygen Free carbon dioxide Silica Calcium Magnesium Sodium Potassium Bicarbonate Sulfate Chloride Fluoride Nitrate Fhosphate Iron Manganese Sopper Sead Arsenic Selenium Phromiuma	40 6.2 6.9 38 2.1 62 15 36 0.10 13 0.85 0.01 .01		
otal dissolved solids			

IN EQUIVALENTS PEP Calcium (Ca)

Magnesium (Mg)

Sodium (Na)

Potassium

Bicarbo S

Sulfar E

Chi S

No

## CORRECTION

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



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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

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

Honolulu , HI 96843 ATTN: Ron Fenstemacher

 Sample # 940826083
 Sample ID <u>WAIPAHU III'HOLE #2</u>
 Project

 Sample Type <u>Water</u>
 Sampled <u>25-aug-1994</u>
 Received <u>26-aug-1994</u>
 Reported <u>09-sep-1994</u>

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

Control	Parameter	Units	Actual	Found	%Recv
HBLK	Endosulfen I (alpha)	ug/l	ND	<b>\$</b> (1)	
MBLK	Endosulfan II (beta)	ug/l	ND	ND	••••
MBLK	Endosulfan sulfate	υg/1	NO	ND	
MBLK	Gamma-BHC (Lindane)	ug/l	ND	ND	
MBLK	*Heptachlor	up/i	ND	ND .	
MBLK	Heptachlor Epoxide	ug/l	ND	ND	050000000000000000000000000000000000000
MBLK .	Hathoxychi ar	ug/t	ND	ND	
MBLK	Toxaphene	ug/l	ND	ND	*************
MS	Aldrin	ug/l	0.05	0.05	100
NS NS	p,p' DDT Dieldrin	ug/l	0.10	0.10	100
MS	Endrin	15eu	0.10	0.11	110
#S	GatmerBHC (Lindene)	ug/l ug/l	0.10 0.05	0.09 0.05	90
MS	Heptachlor	ug/l	0.05	0.04	100
	incpresent Co	ug/ t	0.05	0.04	80
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#### MINERAL ANALYSES

Year Date c llected	Phhy III - 121 (2460-09)  1994  Tuly 20 0940  289  7.37 0.09 0  40 6.2 6.9 38 2.1 62 15 36 0:10 13 0.85 0.01	WAi PAhu III- Well & 7. (2400-10) 1994- Aug. 25 6925 	
Date c llected Time collected Laboratory number  Regional head, feet Specific conductance micromhos @ 25°C  pH value Turbidity Color  IN PARTS PER MILLION  Dissolved oxygen Free carbon dioxide Silica Calcium Magnesium Sodium Potassium Sodium Potassium Strate Chloride Fluoride Fluor	140 62 62 62 62 63 610 63 63 63 63 64 65 65 65 65 65 65 65 65 65 65	372  372 7.55 0.16 0  44 6.6 7.0 47 2.2 43 14 3.14 0.10 13 0.80 0.01	
Date c llected Time collected Laboratory number  Regional head, feet Specific conductance micromhos @ 25°C  pH value Turbidity Color  IN PARTS PER MILLION  Dissolved oxygen Free carbon dioxide Silica Calcium Magnesium Sodium Potassium Sodium Potassium Strate Chloride Fluoride Fluor	140 62 62 62 62 63 610 63 63 63 63 64 65 65 65 65 65 65 65 65 65 65	372  372 7.55 0.16 0  44 6.6 7.0 47 2.2 43 14 3.14 0.10 13 0.80 0.01	
Regional head, feet Specific conductance micromhos © 25°C pH value Furbidity Golor IN PARTS PER MILLION Dissolved oxygen Free carbon dioxide Silica Calcium Magnesium Sodium Potassium Sicarbonate Chloride Fluoride Witrate Phosphate Iron Manganese Copper Lead Arsenic Selenium Chromiuma Chromiuma Cotal dissolved solids Alkalinity Cotal hardness CN EQUIVALENTS PER MILLION:		5905  377 7.58 0.16 0  44 6.6 7.0 47 2.72 93 114 314 0.10 13 0.80 0.01	
Regional head, feet Specific conductance micromhos © 25°C pH value Furbidity Golor IN PARTS PER MILLION Dissolved oxygen Free carbon dioxide Silica Calcium Magnesium Sodium Potassium Sicarbonate Chloride Fluoride Witrate Phosphate Iron Manganese Copper Lead Arsenic Selenium Chromiuma Chromiuma Cotal dissolved solids Alkalinity Cotal hardness CN EQUIVALENTS PER MILLION:		7.58 0.14 0  -44 6.6 7.0 47 2.2 93 114 314 0.10 13 0.80 0.01	
Regional head, feet Specific conductance micromhos @ 25°C pH value Furbidity Golor  IN PARTS PER MILLION:  Dissolved oxygen Free carbon dioxide Silica Salcium Magnesium Sodium Fotassium Sicarbonate Sulfate Chloride Fluoride Fruoride Witrate Fruoride Silica  Choride Fruoride Solfate Choride Fruoride Solfate Choride Fruoride Solfate Choride Fruoride Solfate Cron  Asnganese Copper  Lead  Arsenic Solenium Cotal dissolved solids Alkalinity Fotal hardness  IN EQUIVALENTS PER MILLION:	7.37 0.09 0 40 6.2 6.9 38 2.1 62 15 36 0:10 13 0.85	7.58 0.14 0  -44 6.6 7.0 47 2.2 93 114 314 0.10 13 0.80 0.01	
Specific conductance micromhos @ 25°C pH value Furbidity Color  IN PARTS PER MILLION  Dissolved oxygen Free carbon dioxide Silica Calcium Magnesium Sodium Potassium Bicarbonate Chloride Fluoride Vitrate Phosphate Iron Manganese Copper Lead Copper Copper Lead Copper	7.37 0.09 0 40 6.2 6.9 38 2.1 62 15 36 0:10 13 0.85	7.58 0.14 0  -44 6.6 7.0 47 2.2 93 114 314 0.10 13 0.80 0.01	
micromhos @ 25°C pH value Furbidity Color  IN PARTS PER MILLION  Dissolved oxygen Free carbon dioxide Silica Calcium Magnesium Sodium Cotassium Sicarbonate Chloride Fluoride Vitrate Phosphate Iron Manganese Copper Lead Arsenic Selenium Chromiuma	7.37 0.09 0 40 6.2 6.9 38 2.1 62 15 36 0:10 13 0.85	7.58 0.14 0  -44 6.6 7.0 47 2.2 93 114 314 0.10 13 0.80 0.01	
PH value Furbidity Color  IN PARTS PER MILLION  Dissolved oxygen Free carbon dioxide Silica Calcium Magnesium Sodium Potassium Bicarbonate Sulfate Chloride Fluoride Witrate Phosphate Iron Manganese Copper Lead Arsenic Sclenium Chromiuma	7.37 0.09 0 40 6.2 6.9 38 2.1 62 15 36 0:10 13 0.85	7.58 0.14 0  -44 6.6 7.0 47 2.2 93 114 314 0.10 13 0.80 0.01	
Turbidity Color  IN PARTS PER MILLION:  Dissolved oxygen Free carbon dioxide Silica Calcium Magnesium Sodium Potassium Bicarbonate Sulfate Chloride Fluoride Witrate Phosphate Iron Manganese Copper Lead Arsenic Selenium Chromiuma Cotal dissolved solids Alkalinity Fotal hardness  IN EQUIVALENTS PER MILLION:	0.09 0  40 6.2 6.9 38 2.1 62 15 36 0:10 13 0.85	7.58 0.14 0  -44 6.6 7.0 47 2.2 93 114 314 0.10 13 0.80 0.01	
Color  IN PARTS PER MILLION:  Dissolved oxygen  Pree carbon dioxide  Silica  Calcium  Magnesium  Sodium  Potassium  Sicarbonate  Sulfate  Chloride  Fluoride  Fluoride  Fluoride  Fluoride  Sopper  Lead  Arsenic  Solenium  Chromiuma  Cotal dissolved solids  Akalinity  Fotal hardness  IN EQUIVALENTS PER MILLION:	0.09 0  40 6.2 6.9 38 2.1 62 15 36 0:10 13 0.85		
IN PARTS PER MILLION:  Dissolved oxygen Free carbon dioxide Silica Calcium Magnesium Sodium Potassium Sicarbonate Sulfate Chloride Fluoride Vitrate Fron Manganese Copper Lead Arsenic Selenium Chromiuma Chro	6.2 6.9 38 2.1 62 15 36 0:10		
Dissolved oxygen Free carbon dioxide Silica Calcium Magnesium Sodium Cotassium Sicarbonate Culfate Chloride Fluoride Fluoride Fluoride Fluoride Flooride Copper Manganese Sopper Manganese Copper Manganese	6.9 38 2.1 62 15 36 0:10 13 0.85	13 0.80 0.01	
Dissolved oxygen Free carbon dioxide Silica Calcium Magnesium Sodium Cotassium Sicarbonate Culfate Chloride Fluoride Fluoride Fluoride Fluoride Flooride Copper Manganese Sopper Manganese Copper Manganese	6.9 38 2.1 62 15 36 0:10 13 0.85	13 0.80 0.01	
Free carbon dioxide Silica Calcium Magnesium Sodium Potassium Sicarbonate Sulfate Chloride Fluoride Fluoride Vitrate Fron ) Manganese ) Copper ) Lead ) less than ( Arsenic ) Selenium ) Chromiuma ) Fotal dissolved solids Alkalinity Fotal hardness  IN EQUIVALENTS PER MILLION:	6.9 38 2.1 62 15 36 0:10 13 0.85	13 0.80 0.01	
Silica Calcium Magnesium Sodium Potassium Sicarbonate Sulfate Chloride Fluoride Fluo	6.9 38 2.1 62 15 36 0:10 13 0.85	13 0.80 0.01	
Calcium  Magnesium  Cotassium  Cicarbonate  Sulfate  Chloride  Fluoride  Vitrate  Chosphate  Iron  Manganese  Copper  Lead  Marsenic  Selenium  Chromiuma  Chromiuma  Cotal dissolved solids  Malkalinity  Mandanese  Mandan	6.9 38 2.1 62 15 36 0:10 13 0.85	13 0.80 0.01	
Agnesium Potassium Ricarbonate Sulfate Sulfate Chloride Pluoride Vitrate Phosphate Cron ) (() Manganese ) (() Copper ) (()	6.9 38 2.1 62 15 36 0:10 13 0.85	13 0.80 0.01	
Sodium Potassium Sicarbonate Sulfate Sulfate Sulfate Sulfate Sulfate Sulfate Survide S	6.9 38 2.1 62 15 36 0:10 13 0.85	13 0.80 0.01	
Cotassium  Sicarbonate Sulfate Chloride Fluoride	0:10" 13 0:85	13 0.80 0.01	
Sicarbonate Sulfate Sulfate Chloride Fluoride Fl	0:10" 13 0:85	13 0.80 0.01	
Sulfate Chloride Fluoride Vitrate Fhosphate Fron Manganese Copper Manganese Copper Mead Missenic Misse	0:10" 13 0:85	13 0.80 0.01	
Chloride Fluoride Vitrate Fhosphate Fron  Manganese Copper  Lead  Arsenic Selenium Chromiuma Chr	0:10" 13 0:85	13 0.80 0.01	
Fluoride Vitrate Fhosphate Fron  Manganese  Copper  Lead  Lead  Less than  Chromium  C	0:10" 13 0:85	13 0.80 0.01	
Vitrate  Phosphate  From (  Manganese)  Copper (  Lead ) less than (  Arsenic )  Selenium (  Chromiuma )  Chromiuma (  Chromiuma )  Cotal dissolved solids  Alkalinity  Total hardness  IN EQUIVALENTS PER MILLION:	0:10" 13 0:85	13 0.80 0.01	
Phosphate  Iron  Manganese  Copper  Lead  Arsenic  Selenium  Chromiuma  Chromiuma  Chal dissolved solids  Alkalinity  Cotal hardness  IN EQUIVALENTS PER MILLION:	0.85	0.80	
Iron (Manganese) (	0.85	0,01	
Manganese (Copper ) (Coppe	0.01		
Copper ) ( Lead ) less than ( Arsenic ) ( Selenium ) ( Chromium <sup>a</sup> ) ( Cotal dissolved solids ( Alkalinity ( Total hardness ( IN EQUIVALENTS PER MILLION:	01-7		
Lead ) less than (Arsenic ) (Chromium ) (Chromium <sup>a</sup> ) (Chromium <sup>a</sup> ) (Cotal dissolved solids (Chromium ) (Chr	101	,01	
Arsenic (Selenium ) (Chromium	.01	01	
Selenium ) ( Chromium <sup>a</sup> ) ( Chromium <sup>a</sup> ) ( Cotal dissolved solids	.01	,01	
Chromium <sup>a</sup> ) ( Cotal dissolved solids	.01	,01	
Cotal dissolved solids	101	,01	
Alkalinity	101	701 218 76	
Notal hardness	220	<del>218</del>	
IN EQUIVALENTS PER MILLION:	51:	<u>76</u>	
ا کا انتخاب کے برائی میں بھی ہوتا ہے کہ انتخاب کی بھی انتخاب کی بھی نے بہتے ہوتے ہے جس بھی انتخاب کے انتخاب کے	44	45	
Calcium (Ca)	<i>0.309</i>	0.379	
Magnesium (Mg)	1567	.576	
Sodium (Na)	1.655	2,054	
Potassium (K)	.054		
Bicarbonate (HCO3)	1.016	1.525	
Sulfate (SO <sub>4</sub> )	.312	.291 .	
Chloride (Ci)b	1.047	,989	
litrate (NO3)	.210	.210	•
TOTALS	S.170 ·	6.030	
-		•	
Hexavalent only.			
nexavalent only. Includes fluoride and phosphate as $PO_{A}$ .	•		
Silver)		,01	•
BARIUM ) ( less than (	.01	.01	



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#### MONTGOMERY LABORATORIES

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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 LABORATOPIES Simulfier dil

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555 East Walnut Street

1 MONTGOMENY LABORATORIES

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Laboratory Report

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Board of Water Supply Lab

630 S Beretania St

4 Honolulu, City of

ATTN: Ron Fenstemacher Ξ

96843

Honolulu

- EDB and DBCP

AB1803

CANADA BANCO LONG

Sampled <u>20-oct-1994</u> Received <u>21-oct-1994</u> Reported <u>04-nov-1994</u>

Sample ID WAIPAKU WELL III G#1

Sample # 941021265

Sample Type <u>Water</u>

. . . . . .

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

Project

(ML/EPA 504

Dilution XRec Conc.

Result

1/81

Dibranochi ordoropene (DBCP)

Ethylene Dibromide (EDB)

Data Entry

787

Units

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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.

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

Honolulu , HI 96843 ATTN: 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

#### AB1803 - EDB and DBCP Quality Control

(ML/EPA 504

Control	Parameter		Units	Actual		
(CS)	Ulbromoch toropropan	e (DBCP)	up/l	0.10.	Found 0,09	XRecv 90
LCS1	Ethylene Dibromide	(EDB)	ug/l	0.10	0.11	110
1052	Dibromoctilaropropen	e, (DBCP)	Leg/L	0.10	0.09	90
LCS2	Ethylene Dibromide	(EDB)	ug/l	0.10	0.09	90
MBLK	Dibramoch Lorapropan	e (DBCP)	-ug/l*	ND .	kO.	
<b>3</b> 5	Ethylene Dibromide ( Dibromochloropropane	(EDB)	ug/t	ND	ND	
KS	Ethylene Dibromide (	EDB7	Ug/L	0.10	HA	
			ug/(	0.10	KA .	***************************************
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SK5 MONTGOMENY LABORATORIES

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

Imple 10 HAIPAHU WELL 111 G#1
Sampled 20-oct-1994 Received 21-oct-1994 Reported 04-nov-1994 Sample # 941021265 Sample ID WAIPAHU WELL III G#1 Sample Type Water

(ML/EPA 525.1 525 Semivolatiles by GC/MS

Laboratory Report

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

Honolulu , HI ATTM: Ron Fenstemacher H,

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Analyzed 27-oct-1994	
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1 5 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 1D WAIDANU WELL 111 G#1 Project Sampled 20-oct-1994 Received 21-oct-1994 Reported 04-nov-1994 Sample # <u>941021265</u> Sample ID <u>WAIPAHU WELL III G#1</u> Sample Type Water

525 Semivolatiles by GC/MS (ML/EPA 525.1

Honolulu, City of

Laboratory Report

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Board of Water Supply Lab 630 S Beretania St

96843 ATTM: Ron Fenstemacher Ξ, Honolulu

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Parameter Heptachlor Heptachlor Epoxide Indero(1/2/3/c/d)Pyrene	isophorone Lindana Methoxychlor Hetribuzin	fetol trans enta	Prometryn Propachlor Pyrena	T HOS	
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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

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

Honolulu , HI 96843 ATTN: Ron Fenstemacher

 Sample # 941021265
 Sample ID MAIPARU 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 Surrogate Summary (ML/EPA 525.1 )



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#### MONTGOMERY LABORATORIES

555 East Walnut Street Pasadena, California 91101 818 568 6490; 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 9684 ATTN: 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
icsi .	elphaiChlardene	up/l	2	1.23	200
LCS1	Acenaphthylene	ug/l	2	1.90	95 .
i.esi	Alechion	ug/L	Ž	1.98	99
LCS1	Aldrin	ug/l	2	1.88	94
(CS)	Anthracena	ug/i	7	1.85	92
LCS1	Atrazine	ug/l	2	1.92	96
LCS1	Benz (e) Anthracene	ig/L	2	1,777	88
LCS1	Benzo(a)pyrene	ug/(	2	1.92	96
£ CS1	Benzo(b) Fluorenthene	up/l	7	1,95	98
LCS1	Benzo(g,h,i)Perylene	ug/(	2	1.95	98
LC51	Benzo(k)Flucrentiene	19/1	2	1.80	20
LCS1	Di(2-Ethylhexyl)phthalate	ug/l	2	1.73	86
(C1)	Bucylbenzylphthalare	<b>up/</b> (	2	1280	90
LCS1	Chrysene	ug/l		1.82	91
ECST	Diberz(e,h)Anthracene	19/1	2	1285	92
LCS1	Di-(2-Ethylhexyl)adipate	ug/l	2	2.20	110
LCS1	Diethylphthalare	Gg/l	2 *	1,90	. 95
LCS1	Dimethylphthalate	ug/l	2	1.96	98
LCST	Distributy(phthetate	1971	2	1.71	86
LCS1	Endrin	ug/l	2	1.67	84
(CS)	Elucrane est	up/L	2	91.92	91
LCS1	gamma-Chlordane	ug/l	2	1.92	96
1051	Hexacittorobarzane	19/1	<u>2</u>	1,85	92
LCS1	Hexachlorocyclopentadiene	ug/l	2	1.61	
LCS1	Reptaction	99/1		175	93
ECS1	Heptachlor Epoxide	ug/l ·	2	1.90	95
LCS1	sindentii 2,3 c.d)Pyrene Lindane	1971		1,83	92
icsi	Methoxychtor **	ug/l ua/l	2	1.87	94 BG
LCS1	Holinate	cosseseesscoppyAL coepypoistabattabett		1,71	2000040122422000440000400
LCS1	trans-Nonachior	ug/l	2	1.93	96
	TOTALDRADA CADA	te/L		1,88	74



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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

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

Honolulu , HI 96843 ATTN: Ron Fenstemacher

 Sample # 941021265
 Sample ID <u>WAIPAHU WELL III G#1</u>
 Project

 Sample Type <u>Water</u>
 Sampled <u>20-oct-1994</u>
 Received <u>21-oct-1994</u>
 Reported <u>04-nov-1994</u>

#### 525 Semivolatiles by GC/MS Quality Control

(ML/EPA 525.1 )

Control	Parameter	Units	Actual	Found	%Recv
icsi	Pentach terophenol	ug/l	8	6.45	80
LCS1	Phenanthrene	ug/l	2	1.89	94.
LCS1	Pyrane	.00/1	2	1.92	96
LCS1	Simazine	ug/l		1.88	94
LCS1	Thiobercerb)	up/l	2	1.25	92
NBLK	alpha-Chlordane	ug/l	ND	ND.	************************
MBLK	AceraphthyLene	Ug/1	NO	ND.	
MBLK	Alachlor	ug/l	ND	ND	******
<b>FELK</b>	Atarin	up/l	HD .	NO .	
MBLK	Anthracene	ug/l	ND	ND	******
MEK	Attering	tig/L	, NO	HD.	
KBLK	Benz(a)Anthracene	ug/l	ND	ND	
HULK .	Benzo(#)pyrene	. <del>10</del> /1	HO	<del>30</del>	
MBLK	Benzo(b)Fluoranthene	ug/l	ND	ND .	
HBLK .	Benzo(g,fi   )Perylene	1/0/1	NO	HD	
MBLK	Benzo(k)Fluoranthene	ug/l	ND	ND	
MELK	DI(2:Ethylhexyl)phthalate	Up/1	ND	<b>1</b> 0	
MBLK	Butylbenzylphthalate	ug/l	ND	ND ND	
MOLK	Bromacit	.09/1	, NO	000000000000000000000000000000000000000	
MBLK	Butachlor	ug/l	ND	ND	
HELK .	Chrysane	Op/L	ND	<b>W</b> 0	
MBLK	Dibenz(a,h)Anthracene	ug/l	ND	ND HD	
MELK	DI <sub>2</sub> CZ:Ethylhexyl)adipate:	100/1	AU.	ND	
MBLK	Diethylphthalate	ug/l	ND ND	NO **	
HELK	Diazinon	Op/1	9997777796##300000000000000000000000	ND	
MBLK	Dieldrin	ug/l	ND	HD	
MBLE	Disathylpithalate	1/0/1	HID ND	ND	
HBLK	Dimethoate	ug/l	ND.	NO NO	
MBLK	Discributy(phthalate	up/1	ND	ND	toolooko katalaan
MBLK	Endrin	ug/l	cccccccccccccccccccccccccccccccccccccc	010701000000000000000000000000000000000	
MBEK	Fluorene	U9/1	NO .	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 # 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	<b>XRecv</b>
ABLE .	game-Chlordene	up/i	MD	ki)	
MBLK	Hexach Lorobenzene	ug/l	ND	ND	•
MBLK.	HexachLorocyclopentadlane	Lig/L	ND.	HD.	
MBLK	Heptachlor	ug/l	ND	ND	
<b>HELK</b>	Haptechier Epoxide	ug/l	ND:	40	
KBLK	Indeno(1,2,3,c,d)Pyrene	ug/į	ND	ND	
MBLK.	£soptionone	Ug/L	NO .	* ND	
MBLK	Lindane	ug/l	ND	ND	***************************************
HEIK.	Methaxychlor	Up/1	ND	NO .	
MBLK	Metribuzin	ug/l	ND	ND	***************************************
<b>MIC</b>	e No. inate	υ <sub>9</sub> /.	ND .	HD.	
MBLK	Metolachlor	ug/(	ND	ND	200000000000000000000000000000000000000
#ELK	trans-NonachLor	ug/l	ND .	NO .	
NBLK	Pentachlorophenol	ug/l	ND	ND	
MIK	Phenanthrene	un/l	, NO	ND.	
MBLK	Prometryn	ng/l	ND	ND.	*******************
HELK	Propactitor	up/l	ND	)AD	
MBLK	Pyrene	ug/l	ND	ND	***************************************
MBIK	Simizine	1/g/,L	<b>N</b> O	ND .	
MBLK	Thiobencarb	ug/l	ND	ND	
MELK	Jrifiliralin	up/l	NO	NO.	
MS	alpha-Chlordane	ug/l	2	2.04	102
MS MS	Acensphthylene Alachlor	Ug/L	2	1.74	<b>2673</b>
MS	Aldrin	ug/l	2	2.18	109
MS	Anthracene	40/1	2	1.73 0.37	66 18
MS.	Atrazina	ug/l	-	C2002000000000000000000000000000000000	^~~~
MS	Benz(a)Anthracene	ug/L ug/l	2	2.01 1.39	100 70
#S	Benzo(s)pyrane	ug/l	2	0.92	46
KS	Benzo(b)Fiuoranthene	***************	PRICOD TO FOREIGN CONTROL OF BUSINESS	2.05	102
NS NS	Benzo(g;h;1)Perylene	ug/l	2	**********	***************
Z.************************************		LF9/L	2	1,85	92

Report #: 16364

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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

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

Honolulu , HI 96843 ATTN: 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 )

	Parameter	Units	Actual	Found	<b>Z</b> Recv
Control	Benzo(A) (Lucranthene	ug/i	2	1,590	95
(S)	Di(2-Ethylhexyl)phthalate	ug/l	2	1.90	95
4S	Butylbertylphthalata	ug/L	2	1,281	.50.
S	***************************************	ug/l	2	1.89	94
4S 7288888888	Chrysene (Dibenz(a;h)Anthracene	ug/1	2	1.52	91
6	Di-(2-Ethylhexyl)adipate	ug/l	2	1.57	78
ts Zamana	Olethylphthalate	ig/L	2	2,18	109
4S	Dimethylphthalate	ug/l	2	2.20	110
1S	Dimetry (pithatate	<b>W/I</b>	2	5-05	302
6	Endrin	ug/l	2	1.69	84
(S	Figoreac	ug/L	2	2503	102
C .	gamma-Chlordane	ug/l	2	2.06	103
HS	gamma-Cittorcate Hexachi orobenzeness	<b>189</b> /1	2	1,62	70
<b>(</b> 2	Hexachlorocyclopentadiene	ug/l	2	0.36	18
4S	Hexacitor	G9/1	2	1072	8.5
C.	065300060000000000000000000000000000000	ug/l	2	1.98	99
MS ************************************	Heptachlor Epoxide	ug/l	2	1.77	88
KS.	Indeno(I) E 3 (c d) Pyrene Lindane	ug/l	2	1.94	97
MS	Cilidate	LR/L	2	1.75	86
KS	· · · · · · · · · · · · · · · · · · ·	ug/l	2	2.23	112
MS ************************************	Molinate trans-Monachion	up/l	2	1_86	93
<b>K</b> S	***************************************	ug/l	8	8.04	100
MS ************************************	Pentachlorophenol	Ug/1	2	1.90	×5
rs e	oscopnemanthrens	ug/l	2	1.98	99
MS ************************************	Pyrene	up/1	-	2 08	404
<b>K</b> S	S)mezire	ug/l	2	1.97	98
MS	Thiobencarb	-3/-	_		
			?\$200 <b>000</b> \$5000	***************************************	
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## **MONTGOMERY LABORATORIES**

555 East Walnut Street Pasadene, Celifornie 91101 818 558 6400; FAX 818 558 5224; 1 800 566 LABS (1 800 566 5227)

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

Laboratory Report

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

ATIN: Ron Fenstemacher Ħ, Honolulu

Regulated VOCs plus Lists	sts 1&3	(ML/EPA 524.2	4.2 )						
Acceptance of the second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second second secon			***************************************	Service Service Service Service Service Service Service Service Service Service Service Service Service Service Service Service Service Service Service Service Service Service Service Service Service Service Service Service Service Service Service Service Service Service Service Service Service Service Service Service Service Service Service Service Service Service Service Service Service Service Service Service Service Service Service Service Service Service Service Service Service Service Service Service Service Service Service Service Service Service Service Service Service Service Service Service Service Service Service Service Service Service Service Service Service Service Service Service Service Service Service Service Service Service Service Service Service Service Service Service Service Service Service Service Service Service Service Service Service Service Service Service Service Service Service Service Service Service Service Service Service Service Service Service Service Service Service Service Service Service Service Service Service Service Service Service Service Service Service Service Service Service Service Service Service Service Service Service Service Service Service Service Service Service Service Service Service Service Service Service Service Service Service Service Service Service Service Service Service Service Service Service Service Service Service Service Service Service Service Service Service Service Service Service Service Service Service Service Service Service Service Service Service Service Service Service Service Service Service Service Service Service Service Service Service Service Service Service Service Service Service Service Service Service Service Service Service Service Service Service Service Service Service Service Service Service Service Service Service Service Service Service Service Service Service Service Service Service Service Service Service Service Service Service Service Service Service Service Service Service Service Service Service Service Service Servic					
Parameter	Units	Result	Conc. XRec	Dilution	Det.Limit	Prepared	Ву	Analyzed	
1,1,1,2-Tetrachioroethene	1/81	CH.			5*0			01-nov-1994	
1,1,1-Trichtoroethane	ng/l	운			0.5			01-nov-1994	
1,1,2,2.Tetrachioroethana	1/60	9			0.5			01-nov-1994	
1,1,2-Trichloroethane	ug/l	윤			0.5			01-nov-1994	
1,1-Dichloroethare	***	ND			510			01+hov-199/	
1,1-Dichloroethylene		웊			0.5			01-nov-1994	
1,1-Dichlaropropene	1/50	08			0.5			01-nov-199	
1,2,3-Trichlorobenzene	1/Bn	웊			0.5			01-nov-199	
1,2,3.Trichloropropame	88 S	Q.			0.5			01-nov-199	
1,2,4-Trichlorobenzene		웃			0.5			01-nov-199	•
1,2,4-Tritethylberzens		gr			0,5			01-nov-199	
1,2-Dichloroethane		오			0.5			01-nov-199	•
1/2-Dichloropropane	1/81	90			5,0			01-hov-1994	
1,3,5-Trimethylbenzene		윤			0.5			01-nov-199	
1,3-bichigropropane	1/80	ON .			6.0			01-hot-190	8
p-Dichlorobenzene (1,4-DCB)	)/6n	유			0.5			01-nov-199	
2;2-Dichlocopropana	1/81	- QR			510			01-nov-199	
2-Butanone (MEK).	ng/l	£			5			01-nov-199	•
2-thioroathylyinylether	1/81	9						01-nov-199	
o-Chlorotoluene	ug/l	윤			0.5			01-nov-199	
p-Chlorotolliene		NO.			510			01-nov-199	
Policine of the Charlest Anna Charlest Anna Charlest Anna Charlest Anna Charlest Anna Charlest Anna Charlest Anna Charlest Anna Charlest Anna Charlest Anna Charlest Anna Charlest Anna Charlest Anna Charlest Anna Charlest Anna Charlest Anna Charlest Anna Charlest Anna Charlest Anna Charlest Anna Charlest Anna Charlest Anna Charlest Anna Charlest Anna Charlest Anna Charlest Anna Charlest Anna Charlest Anna Charlest Anna Charlest Anna Charlest Anna Charlest Anna Charlest Anna Charlest Anna Charlest Anna Charlest Anna Charlest Anna Charlest Anna Charlest Anna Charlest Anna Charlest Anna Charlest Anna Charlest Anna Charlest Anna Charlest Anna Charlest Anna Charlest Anna Charlest Anna Charlest Anna Charlest Anna Charlest Anna Charlest Anna Charlest Anna Charlest Anna Charlest Anna Charlest Anna Charlest Anna Charlest Anna Charlest Anna Charlest Anna Charlest Anna Charlest Anna Charlest Anna Charlest Anna Charlest Anna Charlest Anna Charlest Anna Charlest Anna Charlest Anna Charlest Anna Charlest Anna Charlest Anna Charlest Anna Charlest Anna Charlest Anna Charlest Anna Charlest Anna Charlest Anna Charlest Anna Charlest Anna Charlest Anna Charlest Anna Charlest Anna Charlest Anna Charlest Anna Charlest Anna Charlest Anna Charlest Anna Charlest Anna Charlest Anna Charlest Anna Charlest Anna Charlest Anna Charlest Anna Charlest Anna Charlest Anna Charlest Anna Charlest Anna Charlest Anna Charlest Anna Charlest Anna Charlest Anna Charlest Anna Charlest Anna Charlest Anna Charlest Anna Charlest Anna Charlest Anna Charlest Anna Charlest Anna Charlest Anna Charlest Anna Charlest Anna Charlest Anna Charlest Anna Charlest Anna Charlest Anna Charlest Anna Charlest Anna Charlest Anna Charlest Anna Charlest Anna Charlest Anna Charlest Anna Charlest Anna Charlest Anna Charlest Anna Charlest Anna Charlest Anna Charlest Anna Charlest Anna Charlest Anna Charlest Anna Charlest Anna Charlest Anna Charlest Anna Charlest Anna Charlest Anna Charlest Anna Charlest Anna Charlest Anna Charlest Anna Charlest Anna Charlest Anna Charlest Anna	•				-			•	

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Report #: 16364

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Chiotopenzena taji No

cis-1,2-Dichloroethylene

Bromobenzene

Carbon Tetrachloride

Bironomatijana (Hathyl Biromida). 1991. NO 01.5 01. nov-1994. col.

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4-Methyl-2-Pentanone (NIBK)

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| # MONTGOMERY LABORATORIES

555 East Walnut Street Pasadena, California 91101 818 568 6400; FAX 818 558 5224; 1 800 566 LABS (1 800 566 5227)

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

Regulated VOCs plus Lists 1&3

(ML/EPA 524.2

Laboratory Report

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

96843 Honolulu , KI ATTN: Ron Fenstemacher

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Fig. 18	
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eon1)	
Bromoform Chloroform (Trichloromethane) Bromochloromethane Chloroethane Chloroethane Chloroethane Chloroethane Chloroethane Chloroethane Unordibromomethane Olchloromethane Olchloromethane Dichloromethane Fluorotrichloromethane Dichloromethane Olchloromethane Fluorotrichloromethane Glichlorobenzene Olchlorobenzene Olchlorobenzene Olchlorobenzene Styrene Styrene Styrene Styrene Styrene Styrene Styrene Stringutylbenzene Styrene Stringutylbenzene Styrene Stringutylbenzene	772
Bromoform Chloroform (Trichlorome Bromochlorome Hane Bromochloromethane Chloroethane Chloroethane Chloroethane Ulbromomethane	Donort # 1172

9 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 # 941021265 Sample 10 MAIPANU WELL 111 G#1

Project \_\_ Sample Type Water

Sampled 20-oct-1994 Received 21-oct-1994 Reported 04-nov-1994

## Laboratory Report

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

96843 ATIN: Ron Fenstemacher , H Konolulu

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lution Det.Limit Pre 0.5 0.5 0						
Conc. XRec Di						
nits Result 9/1 KD 9/1 ND 9/1 ND - 11/04/9						
Parameter  trans 13-bichloropropane trans 13-bichloropropane 19/1 Toluene 19/1 Vinvil chloride (Vg) Data Entry						
Parameter Ithus:1,3:b[chloroprop Toluene Vinyl chloride (VC) . Data Entry						



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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

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

Honolulu , HI 96843 ATTN: 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

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

Parameter &_Bromo f(Unrobenzena	Percent Recovery	Acceptable Range
Toluene-d8 1,2-Dichloroethene-d4	95 109	80 - 120 80 - 120



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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

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	Brolose
		d 21-oct-1994 Reported 04-pourtock

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

Control	0				
LCS1	Parameter 1,1,1stolchibroethane	Units up/l	Actual	Found	XRecv
LCS1	1,1,2,2-Tetrachloroethane	ug/l	****	3.83	96
LCSI	1,1,2,1richtoroethage	Ug/t	4	3.87	97.
LCS1	1,1-Dichloroethane	ug/l		3.77	. 95
LCS1	1,2,4 To chi probenzene	ug/l	4	4.11	103
LCS1	1,2-Dichloroethane	ug/l	***************************************	3.79	95
LCSI	a 1,2-Dichtoropropune	ug/L	4	3.92	98
LCS1	1,3-Dichloropropane	ug/l		3.84	96,
ECS1	publicatoropensena (1,400s)	99/L	8	7.45	93
LCS1	Benzene	ug/l	· •	3,59	89
CSI	# C18-1 Z-Dichlorpethylene	(n/i	4	4.13	103
LCS1	Chlorobenzene	ug/t		3.83	96
LCS1	Carbon Tetrachloride	UB/1	4	3.86	96
LCS1	Bromoform	ug/l	· •	3.92	93
LCS II	Chiloroform (Trichitoromethers	) ug/l	4	3.60	90
LCS1	Bromodichloromethane	ug/l	4	3:68	92/14
LCS1	Dichloromethane	UB/I		3.39	85
LCS1	Ethyl benzene	ug/l		4.10	102
LCS1	Fluorotrichtoromethame(Freor	1) ug/l	4	4.22	106
LCS1	m,p-Xylenes	ug/l	8	4.80	120
£CS1-	O-XyLerie	op/i	4	8.02	100
LCS1	o-Dichlorobenzene (1,2-DCB)	ug/l	4	3,89	97
LCSI	fetrachionosthylene (PCE)	Un/ L		3.53	88
LCS1	Styrene	ug/l	4	3.80	75
LCS1	Ermsel_2-Dichlorpethylene	ug/l	-	4.04	101
LCS1	Trichloroethylene (TCE)	ug/l	4	3.92	98.0
LCSI .	withchiarotrifluoroethane(Free	n -ug/i	•	3.87	. 97
LCS1	Toluene	ug/l	4	538	134
CST	Viryl chilorate (VC)	37.	4	4.00	100
MBLK	1,1,1,2-Tetrachloroethane	ug/l	ND	6.24	1069
est K	1.1.1 Trichtorosthere	ue/L	MD MT	ND	***********

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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

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

Honolulu , HI 96843 ATTN: 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

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

Control	Parameter	Units	Actual	Found	*Recv
HBLK .	1,12,2 Tetrachtoroethane	ug/i	MD	<b>N</b> O	
MBLK	1,1,2-Trichloroethane	ug/l	CK	KD	
HBLK	1 1-Dichloroethage	ug/L	NO.	#D	
MBLK	1,1-Dichloroethylene	ug/l	ND.	KD .	
HELK	1,1+01chtpropropere	ug/l	MD	NO.	
MBLK	1,2,3-Trichlorobenzene	ug/l	KD	ND.	
MELK	1,2,3-Trichtgrapropane	ug/L	e sko	<b>HD</b>	
KBLK	1,2,4-Trichlorobenzene	ug/l	ND	ND	
HELK	1,2 4-Trimethylberizens	up/l	MD.	NO NO	
MBLK	1,2-Dichloroethane	ug/l	ND	ND	
Milk Sa	2-Dichteropropane	49/1	AO .	ND .	
HBLK	1,3,5-Trimethylbenzene	ug/l	KD.	HD.	
<b>YELY</b>	1:3:0 tchLoropropane	up/L	CONTROL CONTROL	k0	
HBLK	p-Dichlorobenzene (1,4-DCB)	ug/l	ND	ND	
BELK .	2, Zebichloropcopane)	- 1\gar	KD .	MD.	
MBLK	2-Butanone (MEK)	ug/l	ND	ND	
HE IX	2-Chioroethylvinylether	(up/l	MD.	NO.	
MBLK	o-Chlorotoluene	ug/l	<b>KD</b>	ND	
MIK	e p-chiorotoluene	U9/L	NO.	) HD	
MBLK	4-Hethyl-2-Pentanone (HIBK)	ug/l	ND	ND	
HELK:	Berrere	ug/l	ND.	NO.	
MBLK	Bromobenzene	ug/l	ND	ND .	000000000000000000000000000000000000000
ELK	Bromomethene (MethylsBromide)	ue/L	AD .	HD	
MBLK	cis-1,2-Dichloroethylene	ug/l	ND	ND	**********************
HELK	Chilorobenzene	Q7/I	ND .	<b>40</b> 0	
MBLK	Carbon Tetrachloride	ug/l	ND	ND	
BOLK	cis:1,3-Dichleropropese	ig/L	AID .	MD.	
KBLK	Bromoform	ug/l	ND	ND	************************
HELK	(Chloroform (Trichloromethame)	ug/l	NO.	900	
MBLK	Bronoch Loromethane	ug/l	ND	ND	
MBLK	Chlaroethane	ug/i	HO .	ND -	



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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

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

Honolulu , HI 96843 ATTN: 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

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

Control	Parameter	Units	Actual	Found	%Recv
#BCK	Chioromethame(Methyl Chioride)	ug/l	ND	kO s	
MBLK	Chlorodibromomethane	ug/l	ND	ND	
MOLK	Dibromomethane:	ug/L	MD	MD	
HBLK	Bromodichloromethane	ug/l	ND	ND	
HBLK	Dichloromathere	UD/I	ND	NO.	
HBLK	Ethyl benzene	ug/l	ND	ND	
MBLK	Dichlorodifluoromethane	Ug/L	ND	ND .	
KBLK	Fluorotrichloromethane(Freon1)	ug/l	ND CH	ND	
MELK	Hexachlorobutediene	ug/l	HD	NO	
MBLK	Isopropylbenzene	ug/l	ND	ND .	***************************************
MLK	m-Dichlerobenzene (1.5-008)	ug/L	AU	HD.	
MBLK	ធ,p-Xylenes	ug/(	ND	ND	
MELK	a Naphthal ene	ug/l	ND	kO.	
MBLK	n-Butylbenzene	ug/l	ND	ND	
MELK	niBropylbenzene	<i>U</i> g/1	ND .	HD	
MBLK	o-Xylene	ug/l	ND	ND .	************
HBLK	a-Dichlorabenzene (1,2-DCB)	ug/l	ND	NO.	
MBLK	Tetrachloroethylene (PCE)	ug/l	ND	ND	***************************************
MBLK	prisopropyltoluene	t/g/L	ND	HD.	
MBLK	sec-Butylbenzene	ug/l	ND	ND	***************************************
MELK	Styrene	up/t	MD.	<b>k</b> 0	
MBLK	trans-1,2-Dichloroethylene	ug/l	ND	ND	
MBLK	tert-Butylbenzene	ug/1	NO	ND	
MBLK	Trichloroethylene (TCE)	ug/l	ND	ND	***************************************
HELK	Inichlonatrifilionsethane(Fraori	up/t	MO	NO.	
MBLK	trans-1,3-Dichloropropene	ug/l	ND	ND	
#BLK	Toluere	ue/I	ND	ND CH	
MBLK	Vinyl chloride (VC)	ug/l	ND	ND	
400000000000000000000000000000000000000		************************			



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 Submitted on

NOV 04 1994



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13 MONTGOMERY LABORATORIES

Pasadena, California 91101 818 568 6400; FAX 818 568 5324; 7 800 566 LABS (1 800 566 5227) 555 East Walnut Street

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Sampled 20-oct-1994 Received 21-oct-1994 Reported 04-nov-1994 Project \_\_ Sample # 941021266 Sample ID WAIPAHU WELL 111 G#2 Sample Type Water

Laboratory Report

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



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

Ronolulu

, HI 96843

ATTN: Ron Fenstemacher

Sample # <u>941021266</u>	Sample ID WAIPARU WELL	III G#2 Pr	oject
	Sampled <u>20-oct-1994</u>		

# Single Determination Analytes Quality Control

Control	Parameter	Units	Actual	<b>5</b>	
CST	Barium, Total, ICAP	m/i	1.0	Found 0.989	XRecv
LCS2	Barium, Total, ICAP	mg/l	1-0	1.00	99 100
MOLK.	Serium, Total, ICAP	₩C/L	NO.	ND ND	100
KS	Barium, Total, ICAP	mg/l	1_0	0.943	94
HSD.	Barium, Total, TCAP	mu/l	1.0	0.743	94
LCS1	Beryllium, Total, ICAP	mg/L	0.05	0.0471	94
LCS2	Beryllium, Total ICAP	eg/L	0205	0.0477	95
MBLK	Beryllium, Total, ICAP	ng/l	ND	ND	
<b>9</b>	Servitium, Total, ICAP	mg/(l	0.05	0.0262	93
MSD	Beryllium, Total, ICAP	ing/L	0.05	0.0449	90
ausja 💮	Codmiss, Total, ST	mg/i	0.01	0.0101	101
LCS2	Cadmium, Total, GF	ang/l	0.01	0.0102	102
Hark	Codmium, Total, Gr	reg/l	NO.	ko 💮	
MS	Cadmium, Total, GF	ng/l	0.01	0.0087	87
150	Cedmium, jotel, Gi	mg/L	0_01	0.0084	
LCS1	Hercury	ug/L	1.50	1.41	94
LCS2	Mercury	up/l	1.50	1.38	92
MBLK	Mercury	ug/l	ND	ND	
MS	Hercury	ug/L	1.50	1.48	90
MSD	Mercury	ug/l	1.50	1.49	99
(en	Mickel, Total, ICAP	mp/l-	0.5	0.496	99
LCS2	Nickel, Total, ICAP	mg/l	0.5	0.493	99
MBLK.	Mickel, Total, ICAD	<b>#6</b> /L	<b>30</b> 0	HD	
MS MSD	Nickel, Total, ICAP	mg/l	0.5	0.462	92
*************************	Mickel, Joral, ICAP	ep/i	0.5	0.457 +	91
LCS1 LCS2	Antimony, Total, GF	mg/l	0.04	0.0365	91
***********	Antimony Total, GE	<b>T</b> q/(	0204	0.0362	50
MBLK MS	Antimony, Total, GF	ng/l	ND	KD	LOCAL TOTAL BERNINGS
MSD	Antimony, Total SF	æg/l.	0.040	0.0449	312
nsu LESI	Antimony, Total, GF	mg/l	0.040	0.0465	116
LUZE	Theilium, GF	mg/I	800.0	0.00773	97
				***************************************	ANNA CONTRACTOR

Report #: 16365

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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

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

Honolulu , H1 96843 ATTN: Ron Fenstemacher

ample # 941021266	Sample ID WAIPAHU WELL III G#2	Project
omale Type Unter	Sampled 20-oct-1994 Received	21-oct-1994 Reported 04-nov-1994

# Single Determination Analytes Quality Control

Control   Parameter		•			<b>-</b>	**Recv
MBLK Thallium, GF mg/L ND ND MS Thallium, GF mg/L 0:008 0:00823 103	Control	Parameter	Units	Actual	Found	
The Littler, GF mg/L 0.008 0:00825 105			<b>******</b>			
101						105
raction, or sign.	<b>M</b> S		*********	<del>/////////////////////////////////////</del>	**********	*****************
	MSD	Institum, Gr				
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775 MONTGOMERY LABORATORIES

555 East Weinut Street Pasadena, California 91101 818 568 6400; FAX 818 568 6224; 1 800 566 LABS (1 800 566 5227)

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

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(ML/EPA 531.1

Laboratory Report

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

Honolulu , HI ATTH: Ron Fenstemacher

Units         Result         Conc.         XRec         Dilution         Det.Limit         Prepared         By         Analyzed         By           Ug/1         ND         0.5         24.oct+1994         [1]           Ug/1         ND         0.5         24.oct+1994         [1]           Ug/1         ND         0.5         24.oct+1994         [1]           Ug/1         ND         0.9         24.oct+1994         [1]           Ug/1         ND         2         24.oct+1			
Parameter . Units 3:Hydroxycatboluran . Ug.lt Aldicarb (Temik) . Ug.lt Aldicarb sulforde . Ug.lt Aldicarb sulforde . Ug.lt Baygon . Ug.lt Carbofuran (Furadan) . Ug.lt Carbofuran (Furadan) . Ug.lt Carbofuran (Furadan) . Ug.lt Carbofurab . Ug.lt Methiocarb . Ug.lt . Ug.lt . Ug.lt . Ug.lt . Ug.lt . Ug.lt . Ug.lt . Ug.lt . Ug.lt . Ug.lt . Ug.lt . Ug.lt . Ug.lt . Ug.lt . Ug.lt . Ug.lt . Ug.lt . Ug.lt . Ug.lt . Ug.lt . Ug.lt . Ug.lt . Ug.lt . Ug.lt . Ug.lt . Ug.lt . Ug.lt . Ug.lt . Ug.lt . Ug.lt . Ug.lt . Ug.lt . Ug.lt . Ug.lt . Ug.lt . Ug.lt . Ug.lt . Ug.lt . Ug.lt . Ug.lt . Ug.lt . Ug.lt . Ug.lt . Ug.lt . Ug.lt . Ug.lt . Ug.lt . Ug.lt . Ug.lt . Ug.lt . Ug.lt . Ug.lt . Ug.lt . Ug.lt . Ug.lt . Ug.lt . Ug.lt . Ug.lt . Ug.lt . Ug.lt . Ug.lt . Ug.lt . Ug.lt . Ug.lt . Ug.lt . Ug.lt . Ug.lt . Ug.lt . Ug.lt . Ug.lt . Ug.lt . Ug.lt . Ug.lt . Ug.lt . Ug.lt . Ug.lt . Ug.lt . Ug.lt . Ug.lt . Ug.lt . Ug.lt . Ug.lt . Ug.lt . Ug.lt . Ug.lt . Ug.lt . Ug.lt . Ug.lt . Ug.lt . Ug.lt . Ug.lt . Ug.lt . Ug.lt . Ug.lt . Ug.lt . Ug.lt . Ug.lt . Ug.lt . Ug.lt . Ug.lt . Ug.lt . Ug.lt . Ug.lt . Ug.lt . Ug.lt . Ug.lt . Ug.lt . Ug.lt . Ug.lt . Ug.lt . Ug.lt . Ug.lt . Ug.lt . Ug.lt . Ug.lt . Ug.lt . Ug.lt . Ug.lt . Ug.lt . Ug.lt . Ug.lt . Ug.lt . Ug.lt . Ug.lt . Ug.lt . Ug.lt . Ug.lt . Ug.lt . Ug.lt . Ug.lt . Ug.lt . Ug.lt . Ug.lt . Ug.lt . Ug.lt . Ug.lt . Ug.lt . Ug.lt . Ug.lt . Ug.lt . Ug.lt . Ug.lt . Ug.lt . Ug.lt . Ug.lt . Ug.lt . Ug.lt . Ug.lt . Ug.lt . Ug.lt . Ug.lt . Ug.lt . Ug.lt . Ug.lt . Ug.lt . Ug.lt . Ug.lt . Ug.lt . Ug.lt . Ug.lt . Ug.lt . Ug.lt . Ug.lt . Ug.lt . Ug.lt . Ug.lt . Ug.lt . Ug.lt . Ug.lt . Ug.lt . Ug.lt . Ug.lt . Ug.lt . Ug.lt . Ug.lt . Ug.lt . Ug.lt . Ug.lt . Ug.lt . Ug.lt . Ug.lt . Ug.lt . Ug.lt . Ug.lt . Ug.lt . Ug.lt . Ug.lt . Ug.lt . Ug.lt . Ug.lt . Ug.lt . Ug.lt . Ug.lt . Ug.lt . Ug.lt . Ug.lt . Ug.lt . Ug.lt . Ug.lt . Ug.lt . Ug.lt . Ug.lt . Ug.lt . Ug.lt . Ug.lt . Ug.lt . Ug.lt . Ug.lt . Ug.lt . Ug.lt . Ug.lt . Ug.lt . Ug.lt . Ug.lt . U			_



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 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 )

Surrogate Summary

Parameter SCHC	Percent Recovery 87	Acceptable Range 80 = 320
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Report #: 16365

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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

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
£CS1	3-Avdroxycarbofuran	ug/l	20.0	18.9	94
LCS1	Aldicarb (Temik)	ug/l	20.0	18.7	94
ECS)	Aldicarb sulfone	ug/i	2010	19.0	95
LCS1	Aldicarb sulfoxide	ug/l	20.0	15.4	77
rcsi.	Reygon	ug/i	20.0	119.6	98
LCS1	Carbofuran (Furadan)	ug/l	20.0	19.6	98
LCS1	Carbarytes	Ug/L	20.0	18.6	93
LCS1	Hethiocarb	ug/i	20.0	16.7	84
LCSI	Herhomyi	Up/l	20.0	18.5	92
LCS1	Oxamyl (Vydate)	ug/l	20_0	18.0	90
1652	3-hydroxycarboturan	Ug/L	20.0	HA	
LCS2	Aldicarb (Temik)	ug/l	20.0	NA	***************************************
£(222)	Aldicarb aultone	.up/l	20:0	NA.	
LCS2	Aldicarb sulfoxide	ug/l	20.0	NA	****************
CES2	Baygon	Ug/L	20.0	HA	
LCS2	Carbofuran (Furadan)	ug/l	20.0	NA	******
ECS2	Carberyl	cup/l	20.04	NA .	
LCS2	<b>Hethiocarb</b>	ug/l	20.0	NA	ontennetorationalió
LC52	Hethomy)	ts/L	20.0	HA .	
LCS2	Oxamyl (Vydate)	ug/l	20.0	NA	***************************************
ELK.	3-Hydroxycarboturen	ug/l	HD .	NO.	
MBLK	Aldicarb (Temik)	ug/l	ND	ND	onedensoncobnonnon
MIK.	Aldicarb sulfone	tg/I	NO .	HD .	
MBLK	Aldicarb sulfoxide	ug/(	ND	ND	****************
<b>HETK</b>	Beygon	up/A	ND .	<b>4</b> 0	
MBLK	Carbofuran (Furadan)	ug/l	ND	ND	*****************
MELK	Cerbaryl	Ug/1	NO	MD .	
MBLK	Kethiocarb	ug/l	ND	ND	XX11000019286XXXXXXX
HELK	Methonyl	up/l	ю	NO -	
MBLK	Oxamyl (Vydate)	ug/l	ND	ND	,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,
MS	3-Hydroxycarbofuran	Up/1	20.0	20.1	100



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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

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

Honolulu , HI 96843 ATTN: Ron Fenstemacher

Sample # 941021266_	Sample ID WAIPAHU WELL	111 G#2 Pr	roject
Sample Type Water	sampled <u>20-oct-1994</u>	Received 21-oct-1994	Reported <u>04-nov-1994</u>

# Aldicarbs

Quality Control

(ML/EPA 531.1 )

		Consultation of the Consultation		Ban consider in the same of the same	a see or writer a seed that the two	and the same		
				Units	Actual	Found	i XRe	cv
300000000	trol	Parameter		up/1	20.0	19.6	******************	
		# Aldicarb (1		ug/l	20.0	19.3	96.	*******
MS	************	Aldicarb su	LTORE	ug/i	20.0	19.6	<del>7</del> 8	
#S2		SAldicarb av		ug/l	20.0	20.1	100	)
MS	**********	Baygon Carboluren	/Erradan	un/i	20:0	19.9	100	
		***************************************		ug/l	20.0	20.3	102	!
HS	***************************************	Carbaryl		(Jg/l	20:0	18.5	972	
		Hethiocarb		ug/l	20.0	18.5	92	
HS		Methomyl Oxamyl CVyo	ata)	ug/i	20.0	18.7	9,6	
#5		3-Hydroxyca		ug/l	20.0	20.2	101	
HSD	****	Atdicarb (1		<i>17/1</i> 0	20.0	19,5	98	
MSD		Aldicarb su	lfone	ug/l	20.0	19.5	98	**********
HSO		Atdicarb 89	ifaxide	Up/i	20,0	19.7	90	
HSD		Baygon	***************************************	ug/l	20.0	20.3	102	<u> </u>
450		Carbofuran	(Furadan)	ug/i*	2010	20,2	101	
HSD		Carbaryl	***************************************	ug/l	20.0	20.4	102	*
#SU		Hethiocarb		ug/l	50.0	20.5	******	
MSD		Methomyl		ug/l	20.0	18.6	93	*******
150		Oxamyl (Vyd	ate)	ug/i	20.0	18.9	54	
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555 East Walnut Street Pasadena, California 91101 818 568 6400; FAX 818 558 6224; 1 800 566 LABS (1 800 566 5227)

Sampled 20-oct-1994 Received 21-oct-1994 Reported 04-nov-1994 Project Sample # 941021266 Sample 1D WAIPANU WELL 111 G#2 Sample Type Water

(ML/EPA 515.1 ) Chlorinated Acids in Water

Laboratory Report

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

ATTW: Ron Fenstemacher Honolulu

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arameter ,4,5-T	2,4,5-TP (Silvex) 2,4-D	80	ulentorprop 5-Hvdroxvdfeamba	cifluorfen (qualitative)	Bentazon	hiorsmoon (publitative	patapon (quatitative)	1970 EILEICOMIZOIC BOIG	iranta.	do:		in one		-Nittophierot (dualitative)	מפום בוונו)	
Para	2,4,5-TP 2,4:0	2,4-08	2. 4. 5. 5. 5. 5. 5. 5. 5. 5. 5. 5. 5. 5. 5.		Bent	9 2	9187	12.45 OCO4		Dinoseh					818 818 818	

Report #: 16365



955 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 WAIPARU WELL	111 G#2	Project
Sample Type Water	Sampled 20-oct-1994	Received 21-oct-19	994 Reported <u>04-nov-1994</u>

Chlorinated Acids in Water (ML/EPA 515.1 )
Surrogate Summary

Parameter Z/4=01chlorophenylacetic acid	Percent Recovery	Acceptable Range 70 - 130

Report #: 16365

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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 # 941021266
 Sample ID WAIPAHU WELL III G#2
 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	<b>XRecv</b>
£CS1	2,4,5-TP (\$119ex)	up/i	0.500	0.52	104
LCS1	2,4-D	ug/l	1.00	1.01	101
LCSI	Bentszon	ug/1	1200	1.04	104
LCS2	Z,4,5-TP (Silvex)	ug/l	0.500	NA	
LCS2	2,4-0	ug/l	1.00	¥A.	
LCS2	Bentazon	ug/l	1.00	NA	
MELK	2,4,5:1	ria\f	NO.	HD .	
MBLK	2,4,5-TP (Silvex)	ug/l	ND ND	ND	
METK	2,4-0	up/l	HD	<b>K</b> O .	
HBLK	2,4-DB	ug/(	ND	ND .	
MEEK	Dichlorprop	.ug/4	ND.	ND .	
MBLK	5-Kydroxydicamba	ug/(	KD	KD	
948FX	Actification (qualitative)	*************	ND *	**************************************	
MBLK	Bentazon	ug/(	ND	ND	***************************************
MBLK	Chlorauben (qual (tative)	ug/i	NO .	HD.	
MBLK	Dalapon (qualitative)	ug/(	ND	ND	***************************************
HBLK	3,5:Dichlorobenzaic erid	.ta\t	ND .	KD.	
MBLK	DCPA	ug/l	ND	ND	******************
HBLK	Dicambe	tg/L	MO	ND	
HBLK	Dinoseb	ug/l	ND	ND	***************************************
#BLK	Pantachiorophanol	up/l	NO.	sa <b>3</b> 00	
MBLK	Picloram	ug/l	ND .	ND.	000000000000000000000000000000000000000
MBLK	Weltrophenol (qualitative	~~ <del>~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~</del>	NO.	ND .	
HS	2,4,5-TP (Silvex)	ug/l	0.500	0.53	106
MS NS	2,4-0	Op/is	1:00	1.06	106
500051000000000000000000000000000000000	Bentazon	ug/l	1.00	1.14	114
MCD.	Z,4,5-TP (Silvex)	Ug/L	0.500	HA	
MSD MSD	2,4-D	ug/l	1.00	NA.	*****
HSD	Bentazon		1.00	NA.	
		·	***************************************		**********

Report #: 16365

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# 1.3 1"1 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 # 941021266 Sample 1D WAIPAKU WELL 111 G#2 Project
Sample Type <u>Mater</u> Sampled <u>20-oct-1994</u> Received <u>21-oct-1994</u> Reported <u>04-nov-1994</u> Sample Type Water

(ML/EPA 508 )

SDWA Pesticides

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

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Laboratory Report

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96843 ATTM: Ron Fenstemacher ₩, Honolulu

10   10   10   10   10   10   10   10	Jarameter Dig fülk Arocian	Units Ug/l	Result ND	Conc. XR	%Rec Dilu	Dilution D	mi t	Prepared 24-oct-19	By 7.4	Analyzed 30-oct-1994	By 4 dst
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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

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

Honolulu , HI ATTN: Ron Fenstemacher

Sample # 941021266 Sample ID WAIPAHU WELL III G#2 \_ Project \_ Sample Type <u>Water</u> Sampled <u>20-oct-1994</u> Received <u>21-oct-1994</u> Reported <u>04-nov-1994</u>

> SDWA Pesticides Surrogate Summary

(ML/EPA 508

)

Parameter Acceptable Range Percent Recovery 70 - 730



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 WELL III G#Z
 Project

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

SDWA Pesticides (ML/EPA 508 )
Quality Control

Control	Parameter	Units	Actual	Found	%Recv
LCS1	Aldrin	ug/t	0.05	0.03	æ
LCS1	p,p' DDT	ug/l	0.10	0.09	90.
LCS1	Dieldnin	Ug/1	0.10	0.10	100
LCS1	Endrin	ug/l	0.10	0.10	100
LCS	Game-BilC (Lindene)	up/l	0.05	0.05	100
LCS1	Heptachlor	ug/l	0.05	0.03	60
0.CS2	Aldrin	1/g/1	0,05	NA	
LCSZ	p,p' DDT	ug/l	0.10	. NA	********
LCS2	Dieldrin	up/l	0.10	KA	
LCSZ	Endrin	ug/l	0.10	NA.	2742879923270469862
LCS2	Gamma-BHC (Lindape)	Ug/L	0.05	HA	
LCS2	Heptachlor	ug/l	0.05	NA.	***************************************
HELK	PCB 1016 Aroctor	Up/L	ND	NO.	
MBLK	PCB 1221 Aroclor	ug/l	ND	ND	00400100000000000000000000000000000000
#BLK	POB 9232 Appoint	Ug/L	ND	<b>H</b> D	
MBLK	PCB 1242 Aroclor	ug/l	ND	KD.	*****************
HEIK	PCB 1248 Aroctor	ug/l	NO	NO:	
MBLK	PCB 1254 Aroclor	ug/l	ND.	ND	000000000000000000000000000000000000000
MBLK	PCB 1260 Aroctor	i/g/L	NO	ND	
HBLK	Alpha-BKC	ug/l	ND	ND	200920000000000000
#BLK .	Alachion (Alehex)	ug/l	ND	NO	
MBLK	Aldrin	ug/l	ND	ND	***********
MBLK	Chlordene	1/9/1	MD	ND .	
MBLK	Chlorthalonil (Drconil, Bravo)	ug/l	ND	ND	***************************************
MBFK	Delta-BHC	up/l	RD.	<b>1</b> 40	
MBLK	p,p' DDD	ug/l .	ND	ND	•
MBLK	b'b, pre	V9/L	NO	MD.	
MBLK	p,p' DOT	ug/l	ND	ND	H104034034444000000
MBLK	Dieldrin	ug/1	ed.	kii)	
MBLK	Endrin Aldehyde	ug/l	ND	ND	************
MBLK	Endrin	0g/L	NO.	ND	



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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

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

Konolulu , HI ATTN: Ron Fenstemacher

	941021266	Sample ID <u>WAIPAHU WELL</u>	III c#2	D	
Sample T	ype <u>Water</u>	Sampled <u>20-oct-1994</u>	Received 21-oct-199	Project 94 Reported	04-nov-1994

# SDWA Pesticides Quality Control

(ML/EPA 508

Control	Parameter	Units			· · · · · · · · · · · · · · · · · · ·
HELK.	Endosulfan J. (alpha)	00/1	Actual	Found	XRecv
HBLK	Endosulfan II (beta)	ug/l	MD.	NO.	
MBLK	Endosultan sulfate	Ug/L	KD	ND	***************************************
MBLK	Gamma-BHC (Lindane)	ug/l	ND ND	<b>HD</b>	
MELK	Hisptachlor	ug/1	**************************	ND	*******************************
HBLK	Keptachlor Epoxide	ug/l	ND ND	, ko	
MELK	Hethoxychlar	UG/L	NO NO	ND	***************************************
MBLK	Toxaphene	ug/l	ND	NO.	
#S	#Aldrin	ug/l	0.05	ND 0.04	***************************************
MS	P.P' DDT	ug/l	0_10	.ee.ea.eee.ee.ee.ee.ee.ee	80
as .	Dieldrin	Ug/L	0.10	0.10 0.11	100
MS	Endrin	ug/l	0.10	0.10	110
	Game-BHC (Lindane)	0g/l	0.05	0.10	100
MS	Heptachlor	ug/l	0.05	0.05	100
				0.05	100
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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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555 East Walnut Street Pasadena, California 91101 818 568 6400; FAX 818 568 6324; 1 800 566 LABS (1 800 566 5227)

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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 Chibinitted on

DEC 3.0 4994

Report Summary of positive results, PR17105

4.				Result	MDL	UNITS
Analyzed	941202078	WAIPAHU WELL	III HOLE	#5		
1:/09/94 12/09/94 12/12/94 1:/10/94 12/02/94	Data Entry Ethylene Dik Data Entry Data Entry Data Entry	promide (EDB)		12/12/94 0.02 12/15/94 12/19/94 12/09/94	.010	 UGL 

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# MONTGOMERY LABORATORIES

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

Sampled 01-dec-1994 Received 02-dec-1994 Sample # 941202078 Sample 10 WAIPAKU WELL 111 HOLE #5 Sample Type Water

Laboratory Report

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96843 Ę Board of Water Supply Ξ 630 S Beretania St Honolulu, city of Honolulu Reported 30-dec-1994 **Project** 

ATTM: Ron Fenstemacher

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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	# 941202078	Sample ID WAIPARU WELL	III HOLE #5 P	roject
		Sampled <u>01-dec-1994</u>		

# Single Determination Analytes Quality Control

Control	Parameter	Units	Actual	Found	*Recv
LCS1	Barium, Total, ICAP	mg/l	1.0	0.994	99
LCS2	Barium, Total, ICAP	mg/(	1.0	0.982	98
HELK	Berium, Total, ICAP	mg/i	NO.	ND	
MS	Barium, Total, ICAP	mg/l	1.0	1.01	101
HSD	Barlum, Total, ICAP	mg/l	1.0	1.03	103
LCS1	Beryllium, Total, ICAP	mg/l	0.05	0.0473	95
LC52	Beryllium, Total, ICAP	mg/1	0.05	0.0462	92
MBLK	Beryllium, Total, ICAP	mg/i	ND	ND	***************************************
#S	Beryllium, Total, ICAP	mg/l	0:05	0.0474	95
HSD CCST	Beryllium, Total, ICAP	mg/l	0.05	0.0495	99
***********************	Cadmium; Total, GF	mg/i	0.01	0.0113	113
LCS2	Cadmium, Total, GF	mg/l	0.01	0.0113	113
HELK	Cadmium, Total, GF	mg/l	ND	NO.	
MS MSD	Cadmium, Total, GF	mg/l	0.01	0.0096	96
	Cadmium, Total, GF	mg/L	0.01	0.0104	104
LCS1	Hercury	ug/i	1.50	1.30	87
LCS2	Mercury	ug/l	1.50	1.29	B6
MBLK	Hercury	ug/l	ND	ND	
MS	Mercury	ug/L	1.50	1.27	85
MSD	Mercury	ug/l	1.50	1.27	85
£CS1	Nickel, Total, ICAP	mg/l	0.5	0,499	100
LCS2	Nickel, Total, ICAP	mg/l	0.5	0.484	97
MBLK	Nickel, Total, ICAP	mg/t	NO.	ND	
NS .	Nickel, Total, ICAP	mg/l	0.5	0.509	102
MSD	Nickel, Total, ICAP	mg/ l	0:5	0.517	103
LCS1	Antimony, Total, GF	mg/l	0.04	0.0457	114
a.cs2	Antimony, Natel, GF	mg/4	0.04	0:0440	110
MBLK	Antimony, Total, GF	mg/l	ND	ND	***************************************
<b>H</b> S	Antimony, Total, 6F	πg∮i	0.040	0.0440	710
MSD	Antimony, Total, GF	mg/l	0.040	0.0479	120
LCS1	Thellium, GF	mg/i	800.0	0.00983	123

Report #: 17105



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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

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	*** ***	
		Sampled Od 4 deep	111 HOLE #5	Project
-		Sampled <u>01-dec-1994</u>	Received <u>02-dec-199</u>	Reported 30-dec-100/

# Single Determination Analytes Quality Control

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Control	Parameter	linta-			
£CS1	Barium Total, ICAP	Units	Actual	Found	XRecv
LCS2		ng/l	1.0	0.994	************************
MEK	Barium, Total, ICAP	mg/l	1.0		99
***************************************	Beriam, Total, ICAP	mg/i	000000000000000000000000000000000000000	0.982	98
MS	Barium, Total, ICAP	***************************************	NO	ND .	
HSD	Barium, Total, ICAP	mg/l	1.0	1.01	101
LCS1		79/1	1.0	1.03	103
£.C52	Beryllium, Total, ICAP	mg/l	0.05	0.0473	***************************************
MBLK	Beryllium, Total, ICAP	mg/(	0.05	***************************************	95
MARAMANA	Beryllium, Total, ICAP	mg/L		0.0462	92
HS	Beryllium, Total, ICAP	***************************************	ND	ND	
MSD	Beryllium, Total, ICAP	mg/l	0.05	0.0474	95
LC51	Cadmium, Total, GF	mg/L	0.05	0.0495	99
LCS2		मद/1	0.01	0.0115	****************
MBEK	Cadmium, Total, GF	mg/l	0.01	*******************************	113
***************************************	Cadmium, Total, GF	mg/l	***************************************	0.0113	113
MS	Cadmium, Total, GF		ND .	NO.	
MSD	Cadmium, Total, GF	mg/l	0.01	0.0096	96
LCS1	Mercury	mg/1	0.01	0.0104	104
£CS2	200020000000000000000000000000000000000	ug/l	1.50	1.30	and the second second
******************	Percury	ug/t	1.50	200000000000000000000000000000000000000	87
MBLK	Hercury	ug/l	***************************************	1.29	86
HS	Mercury	\$10000000000000000000000000000000000000	ND	ND	
MSD	Mercury	Ug/1	1250	1.27	85
£cst	. Rickel Total ICAP	ug/l	1.50	1.27	85
LCS2		mg/t	0.5	***************************************	***************************************
300000000000000000000000000000000000000	Nickel, Total, ICAP	mg/l	0.5	0.499	100
MBLK	Nickel, Total, ICAP	mg/L	***************************************	0.484	97
MS	Nickel, Total, ICAP	***************************************	AD	ND	
#S0	Nickel, Tatel, ICAP	mg/l	0.5	0.509	102
LCS1	Antimony, Total, GF	mg/l	025	0.517	103
LCS2	Total, GF	mg/l	0.04	0.0457	***************************************
MBLK	Antimony, Total, GF	mg/1	0.04	***************************************	114
*****	Antimony, Total, GF	mg/L	*************************	0.0440	110
<b>H</b> S	Antimony, Total, 5F	200000000000000000000000000000000000000	NU	ND	
MSD	Antimony, Total, GF	mg/l	0.040	0.0440	770
LCS1	Theilium, GF	mg/l	0.040	0.0479	120
***************************************	and the second second	mg/t	0_008	0.00983	200 000 000 000 000 000 000 000 000 000
		***************************************		v.uu703	123



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 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

# Single Determination Analytes Quality Control

Control	Parameter		Units	Actual	Found	%Recv
1052	Thellium, GF		mg/l	800.0	0.00914	1114
MBLK	Thallium, GF	***************************************	ng/l	ND	ND	
<b>¥</b> S	Thallium, GF		mg/L	D.008	0.0106	132
MSD	Thallium, GF		mg/l	0.008	0.0107	134
***************************************	***************************************		***************************************	***********************		
***************************************	********		****	************************		
********************	***************************************		*******************************	*************************	*************************	
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Report #: 17105

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555 East Welnut Street Pasedene, Californie 91101 818 568 6406; FAX 818 568 6224; 1 800 566 LABS (1 800 566 5227)

Sample # 941202078 Sample 1D WAIPANU WELL 111 HOLE #5 Project
Sample Type Water Sampled 01-dec-1994 Received 02-dec-1994 Reported 30-dec-1994

(ML/EPA 504

- EDB and DBCP

AB1803 -

# Laboratory Report

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

ATIM: Ron Fenstemacher Η, Honolulu

Analyzed By 09.tdec-1994 hth 09-dec-1994 hth 09-dec-1994 KHF							
Prepared By A 08:dec1994 hth 0 08-dec-1994 hth 0							
Det.Limit 0101 0.01							
Conc. XRec Dilution							
Result ND 0.02 12/12/94							
Units 19/1 19/1							
Parameter Units Dibromochioropiopana (DBCP) Ethylene Dibromide (EDB) Ug/l Data Entry							
Parameter Dibromoch Ethylene 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 ATTN: Ron Fenstemacher

96843

 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

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

Control	Parameter	Units	Actual	Found	XRecv
LCS1	Ulbromochtorapropane (DBCP)	up/t	0.10	0231	210
LCS1	Ethylene Dibromide (EDB)	ug/l	0.10	0.11	110
tcs2	Dibromochloropropens (DBCP)	J/gu	0.10	0.10	100
LCS2	Ethylene Dibromide (EDB)	ug/l	0.10	0.10	100
#BLK	Dibromoch Loropropane (DBCP)	ug/l	ND	MD.	
MBLK	Ethylene Dibromide (EDB)	ug/l	ND .	ND	
MS	Dibromochiloropropane (DBCP)	ug/L	0.10	HA	
MS	Ethylene Dibromide (EDB)	ug/l	0.10	NA	***************************************
					****************
300000000000000000000000000000000000000				***************************************	**********
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A12011111 Year arrangement	*****			***************************************	*************
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555 East Walnut Street Pasadena, California 91101 818 568 6400; FAK 818 568 6324; 1 800 566 LABS (1 800 566 5227)

Sample ID MAIPANU WELL III HOLE #5 Project Sampled 01-dec-1994 Received 02-dec-1994 Reported 30-dec-1994 Sample # 941202078 Sample Type Water

(ML/EPA 525.1 525 Semivolatiles by GC/MS

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Laboratory Report

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

96843 Monolulu , HI ATTH: Ron Fenstemacher Ξ,

Units Result Ug/l HD
1/80
Benzo(a)pyrene
Benzo(K)Fluotánthare: ug/l
***************************************
Dibenz(a,h)Anthracene
7000000000000
1/61
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Dieldrin 1997
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١/
Endirin 1971
1/60
ug/l
Hexacii lorocyci opentadiane ug/li

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MONTGOMERY LABORATORIES

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

Sample # 941202078 Sample 10 WAIPANU WELL III HOLE #5 Project
Sample Type Water Sampled 01-dec-1994 Received 02-dec-1994 Reported 30-dec-1994

Laboratory Report

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

525 Semivolatiles by GC/MS (ML/EPA 525.1

96-dec-1994 crit 08-dec-1994 ctg 05-dec-1994 csk 08-dec-1994 cru 05:dec-1994 csk 08-dec-1994 cty 08-dec-1994 crw 08-56c-1994 crg 08-dec-1994 cru MJD - 7661 - DBP-90 08-dec-1994 сги 08-dec-1994 сги 08-dec-1994 08-dec-1994 08-dec-1994 08-dec-1994 08-dec-1994 08-dec-1994 08-dec-1994 05\*dec+1994 csk Det.Limit Prepared By Ords O5-det.1994 csf 03-dec+1994 csk 0.2 US-det-1994 tik 05-dec-1994 csk 05-dec-1994 csk CS<sub>K</sub> 05-dec-1994 csk csk csk csk S 05-dec-1994 05-dec-1994 05-dec-1994 05-dec-1994 05-dec-1994 05-dec-1994 05-dec-1994 05-dec-1994 05-dec-1994 Det.Limit Prepared Lindane ug/l ND u.>
Lindane ug/l ND 0.05
Lindane no ug/l ND 0.05 0.5 0.05 0.05 ug/l ND 0.2 Ug/l ND 0.05 Hatribuzin ND Gras 0.05 0.02 0.05 Dilution 19/I NO rnenanthrene Prometiyn MD ZRec Conc. leptach i dr. 19/1 HD 97 **8** QA. 웃 운 1/60 1/8n 1/8n Intobenearb ug/t 7 | | **1**/6n 7 hdenot (12,3 ja;d) Pyraně Vetalachiat Jantach Lorophano I rena Heptachlor Epoxide trans-Monachlor Phenanthrene rifluralin Propachlor Parameter Simazine **Holinate** 

Report #: 17105



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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

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

Honolulu , HI 9684 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

525 Semivolatiles by GC/MS
Surrogate Summary

(ML/EPA 525.1

Percytione\_df2 | 107 | 70 | 130 |

Percytione\_df2 | 107 | 70 | 130 |

Percytione\_df2 | 107 | 107 | 107 |

Percytione\_df2 | 107 | 107 | 107 |

Percytione\_df2 | 107 | 107 | 107 |

Percytione\_df2 | 107 | 107 | 107 |

Percytione\_df2 | 107 | 107 | 107 |

Percytione\_df2 | 107 | 107 | 107 |

Percytione\_df2 | 107 | 107 | 107 |

Percytione\_df2 | 107 | 107 | 107 |

Percytione\_df2 | 107 | 107 | 107 |

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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

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

# 525 Semivolatiles by GC/MS Quality Control

(ML/EPA 525.1 )

Control	Parameter				
£CS1	atpha-Chtordane	Units	Actual	Found	*Recv
LCS1	Acenaphthylene	ug/l		1291	96
LEST VE	Alacitor	ug/l	2	1.82	91
LCS1	Aldrin	Ug/(	2	2.08	104
Ecsi V	Anthracene	ug/l		1.83	92
LCS1	Atrazine	ug/l	2	1.71	86
LCSI	***************************************	ug/l	2	1.86	93
LCS1	(Benz(a)Anthracene	ug/L	2	1.74	87
ics:	Benzo(a)pyrene	ug/l	2	1.78	89
LCS1	Benzo(b)Fluoranthene	ug/l	3	1.94	97
LCSI	Benzo(g,h,i)Perylene	ug/l	2 	1.87	94
LCS1	Benzo(K)Fluoranthene	1/gu	2	1.79	90
LCS1	Di(2-Ethylhexyl)phthalate	ug/l	2	2.00	100
***************************************	Butylbenzylphthalate	/ <b>9/</b> (	2	1.74	87
LCS1	Chrysene	ug/l	2	1.81	90
CCSI	Ofbero(a,h)Anthracane	Ug/L	2	1.78	189
LCS1	Di-(2-Ethylhexyl)adipate	ug/l	2	1.56	78
£CS1	Diethylphthalate	-ug/l	2	1.92	97
LCS1	Dimethylphthalate	ug/l	2	1.89	94
CCS1	Di-n-Butyiphthelate	ug/L	2	2.07	104
LCS1	Endrin	ug/l	2	1.95	98
resi T	Fluorene	ug/l	2	1_87	94
LCS1	gamma-Chlordane	ug/l	2	1.90	95
ccs1	Hexach Lorobenzene	ug/L	2	1.68	84
LCS1	Hexachlorocyclopentadiene	ug/l	2	1.18	59
	Heptechlor	up/t	2	1.94	97
LCS1	Heptachlor Epoxide	ug/l	2	1.86	93
tesi	Indeno(1,2,3,c,d)Pyrene	Ug/L	2	1.81	90
30272759000000000000000000000000000000000	Lindane	ug/l	2	1.76	88
	Methaxychlor	ug/t	2	11_92	96
900000000000000000000000000000000000000	Molinate	ug/l	2	1.90	95
CCS1	trens-Wanachlor	ug/1	2	1.85	92



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

# 525 Semivolatiles by GC/MS Quality Control

(ML/EPA 525.1 )

Control	Parameter	Units	Actual	Found	ev.a.
ECS1	Pentachlorophenol*	up/i	8	6.37	ZRecv 80
LCS1	Phenanthrene	ug/i	2	1.79	*****
ilcsi 💮	Pyrere	ug/1	2	2.01	90
LCS1	Simazine	Ug/l	2	1.90	100
LCS1	Thiobencarb	ug/l	-	1.89	95
MBLK	alpha-Chlordane	ug/[	ND	ND	94
9BLK	Acenaphthylene	ug/L	ND	ND ND	
MBLK	Alachlor	· ug/l	ND ND	ND	
HBUK	Aldrin	ug/l	<b>1</b> 0	NO NO	
MBLK	Anthracene	Ug/L	ND	ND	
MBLK	Atrezine	Ug/1	ND	KD .	
MBLK	Benz(a)Anthracene	ug/l	ND	ND ND	
HELK	Benzo(a)pyrene	ug/l	ND	10 10	
MBLK	Benzo(b)Fluoranthene	ug/(	ND	ND	
381K	Benzo(g;h,i]Perylane	1/g/1	NO	HD.	
HBLK	Benzo(k)Fluoranthene	ug/l	ND	ND	
HBFK	<ul> <li>DI (2-Ethylhexyl)phthelate</li> </ul>	ug/l	MD.	kn	
HBLK	Butylbenzylphthalate	ug/l	ND	ND	
MBLK.	Bromacit	1/94	NO.	HD.	
MBLK	Butachlor	ug/l	KD	ND	
HELK	Chrysene	ug/l	ND	ko	
MBLK MBLK	Dibenz(a,h)Anthracene	ug/l	ND	ND	
MBLK	DI: (2-Ethy(hexyt)adipate	i/gd	NO	HD	
HELK	Diethylphthalate	ug/l	ND	ND	
MBLK	Distinon	U9/1	MO	NO.	
4444444444	Dieldrin	ug/l	ND	ND	
MBLK MBLK	Dimethylpithalate	1/90	ND.	40	
HELK	Dimethoate	ug/l	ND	ND	
MBLK	01-n-Butylphthalate	up/i	MD.	NO.	
20000000000000000000000000000000000000	Endrin	ug/l	ND	ND	***************************************
MBLK	Fluorene	ug/t	ND .	ND ND	
			***************************************		

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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

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 525.1 )

		•.	A1	Found	*Recv
Control	Parameter	Units	Actual ND	ko .	
948LK	gamma-Chlordane	ug/l	***************************************	ND	SEC. SEC. SEC. SEC. SEC. SEC. SEC. SEC.
HBLK	Hexachlorobenzene	ug/l	ND	ND ND	
MBLK	Hexachiorocyclopentadiane	Ug/L	ND.	520000000000000000000000000000000000000	
MBLK	Heptachlor .	ug/l	ND	ND	
MBLK	Heptaciilar: Epoxide	ug/l	ND .	KO.	
MBLK	Indeno(1,2,3,c,d)Pyrene	ug/l	ND	ND	***************************************
MELK	Isophorone	l/g/L	NO	ND	
MBLK	Lindane	ug/l	ND	ND.	
HELK	Methoxychlor	ug/l	ND .	<b>4</b> (0	
MBLK	Hetribuzin	ug/(	ND	ND.	
MEK.	Not inate	ug/L	NO.	HD.	
KBLK	Hetolachlor	ug/l	ND	ND 	
HELK	trans-Nonachlor	ug/l	MD	¥0	
MBLK	Pentachlorophenol	ug/l	ND	ND	***************************************
MBLK	Phenanthrene	ug/L	ND	ND 1	
MBLK	Prometryn	mg/l	ND	ND	***************************************
**********************	Propection	ug/l	ND	<b>N</b> D	
#BLK	Pyrene	ug/l	ND	ND	
HBLK	Simazine	ug/L	NO	ND	
MBLK	Thiobencarb	ug/l	ND	ND	
MBLK		ug/l	MD	<b>\$1</b> 0	
HBLK	Trifluralin	ug/l	2	2.02	101
MS	alpha-Chlordane	ug/L	2	1.78	89
MS	Acenaphthylene	uġ/l	2	2.09	104
MS	Alachlor	ug/i	-	1.89	94
HS*	Aldrin	ug/l	2	1.77	· 88
KS	Anthracene	~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~	2	1.98	99
MS	Atrazino dist	ug/i	2	1.79	90
MS	Benz(a)Anthracene	ug/l	2	1,87	94
NS	Benzo(s)pyrens	ug/l	\$00450454545444444444444444444444444444	1.94	97
HS	Benzo(b)Fluoranthene	ug/l	2	1.90	95
MS.	Benzo(g.h.i )Perytene	t/g/L	2		



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

# 525 Semivolatiles by GC/MS Quality Control

(ML/EPA 525.1

C	_				
Control	Parameter	Units	Actual	Found	445
HS.	Benzo(k) Fluoranthere	ug/i		MMM11111111111111111111111111111111111	%Recv
MS	Di(2-Ethylhexyl)phthalai	e ug/[	2	1,86	93
MS	Butylbenzylphthalate	Ug/I		2.08	104
MS	Chrysene	Ug/[		1.78	89
HS .	p Dibenz(a,b)Anthracene	ug/l	2	1.85	92
HS	Di-(2-Ethylhexyl)adipate	***************************************		1.86	93
945	Diethylphthalate	***************************************	2	1.70	85
MS	Dimethylphthalate	ו/פו	2	1.97	98
HS	Di-n-Butylphthalate	ug/l	2	1.91	96
MS	Endrin	ug/l	2	2.12	706
MS	Fluorene	ug/(	2	2.06	103
MS	gamma-Chlordane	Jg/L	2	1.92	96
NS .		ug/l	2	1.93	96
MS	Hexachtorobenzene	<b>ug/</b> i	2	1.63	***************************************
#5	Hexachlorocyclopentadiene	ug/l	2	1.30	92
**********************	Heptachlor	1/gu	Ž	1.92	65 ************************************
MS	Heptachlor Epoxide	ug/(	2	*************************	96
MS	Indeno(1,2,3,c,d)Pyrene	ug/l		1.93	96
MS	Lindane	ug/l		1.82	91
MS	Methoxychilar		2	1.87	94
MS	Molinate	***************************************		1.99	100
MS	trans-Monachter	ug/l	2	1.87	94
HS	Pentachlorophenol	up/l	2	1.97	78
MS	Phenanthrene	ug/l	8	5.88	74
MS	Pyrene	ug/t	2	1.88	94
<b>H</b> S	Simezine	ug/l	2	2.09	104
HS		Ug/t	2	1.50	95
	Thiobencarb	ug/(	2	1.93	96
					70
	***************************************		**************************************		
					*****

Report #: 17105

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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 <u>01-dec-1994</u> Received <u>02-dec-1994</u> Reported <u>30-dec-1994</u> Project Sample ID WAIPAHU WELL 111 HOLE #5 Sample # 941202078 Sample Type <u>Mater</u>

(ML/EPA 531.1

Aldicarbs

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

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Laboratory Report

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96843 ATTM: Ron Fenstemache Ħ, Honolulu

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S Tart		
Perameter Units 3-Hydroxycarbofuran Ug/1 Aldicarb (Temik) ug/1 Aldicarb sulforde ug/1 Aldicarb sulfoxide ug/1 Aldicarb sulfoxide ug/1 Garbofuran (Furadan) ug/1 Carbofuran (Furadan) ug/1 Hethiocarb ug/1 Hethiocarb ug/1 Hethiowyli (Vydate) ug/1 Ug/1		
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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

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

Aldicarbs Surrogate Sum

(ML/EPA 531.1 )

Surrogate Summary

Parameter BDHC	Percent Recovery	Acceptable Range



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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

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

# Aldicarbs

(ML/EPA 531.1 )

Control	Parameter	Units	Actual	Found	*Recv
LCS1	3-Hydroxycarboturan	ug/l	20:0	18.8	94
LCS1	Aldicarb (Temik)	ug/l	20.0	18.7	94
ECSI	Aldicarb suttons	ug/L	20.0	1821	90
LCS1	Aldicarb sulfoxide	ug/l	20.0	17.8	89
icst	Baygon	ug/l	70.0	9 19:0	75
LCS1	Carbofuran (Furadan)	ug/l	20.0	19.0	95 ************************************
LCST	Carbaryl		20-0	19.3	ot .
LCS1	Hethiocarb	ug/l	20.0	19.3	96
icsi	Methomy!	ug/l	20.0	18:0	90
LCS1	Oxamyl (Vydate)	ug/l	20.0	18.1	90
£52	3-kydroxycarbofuran	Ug/1	20.0	HA.	
LCS2	Aldicarb (Temik)	ug/l	20.0	KA	****************
***************************************	Aldicarb sulfone	υσ/l	20.0	RA.	
LCS2	Aldicarb sulfoxide	ug/l	20.0	NA	
LCS2	Baygon	i/g/l	20.0	HA	
LCS2	Carbofuran (Furadan)	ug/l	20.0	NA	
	Carbery	ug/l	20:0	- NA	
LCSZ LCSZ	Hethiocarb	ug/l	20.0	NA.	***************************************
LCSZ	Hethonyl	úg/i	20.0	HA .	
LCS2	Oxemyl (Vydate)	ug/l	20.0	NA	
#BIX	3-Hydroxycarbofuran	úg/l	ND .	NO.	
MBLK	Aldicarb (Temik)	ug/l	ND	ND	
MBLK	Aidicarb sulfone	ug/L	ND .	ND .	
HBLK	Aldicarb sulfoxide	ug/l	ND	ND	******************************
MBLK	Baygon	ug/l	MD.	k0	
MBLK	Carbofuran (Furadan)	ug/l	ND	ND	***************************************
MBLK	Carbaryi	i/gu	NO	+ ND	
MBLK	Hethiocarb	ug/l	ND	ND	******************
MBLK	Wethory	ug/t	ND	<b>X</b> 0	
***************************************	Oxamyl (Vydate)	ug/l	ИD	ND	······································
MBLK	3-Hydroxycarbofuran	ug/L	20.0	19.0	95
MS	D. II. J. II. O. A. C. II. C. C. C. C. C. C. C. C. C. C. C. C. C.		***************************************	***************************************	



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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

Honolulu, City of Board of Water Supply L<sup>ab</sup> 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

# Aldicarbs Quality Control

(ML/EPA 531.1 )

				***************************************	
Control	Parameter	Units	Actual	Found	XRecy
#S	Aldicarb (Temik)	ug/t	20:0	19.8	99
MS	Aldicarb sulfone	ug/(	20.0	18.5	92
MS	Aldicarb sulfoxide	ug/i	20.0	18:0	90
MS	Baygon	ug/l	20.0	19.3	96
MS	Carboturans(Furadan)	ug/l	20:0	19.2	96
MS	Carbaryl	ug/l	20.0	19.3	96
MS	Hethiocarb	trg/L	20.0	19.0	100
HS	Hethomyl	· ug/l	20.0	18.5	92
#S	Gramytr(Vydate)	up/l	20.0	18.6	93
HSD	3-Hydroxycarbofuran	ug/l	20.0	19.2	96
MSD	Aldicarb (Temik)	1971	20.0	1928	55
MSD	Aldicarb sulfone	ug/l	20.0	18.5	92
HSD	Aldicarb sulfoxide	ug/t	20:0	18.0	90
MSD	Baygon	ug/l	20.0	19.4	97
MSD	Carbofuran (Furedan)		20.0	1923	96
MSD	Carbaryl	ug/l	20.0	19.7	98
HSD	Hethlocarb	49/1	20.0	20.6	103
MSD	Hethomyl	ug/l	20.0	18.3	92
MED	Dxamyli (Vydate)	1/10	20.0	18:6	93
2000		***************************************			
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9 9 MONTGOMERY LABORATORIES ğ ğ 

555 East Walnut Street Pasadena, California 91101 818 568 6400: FAX 818 568 6704

Honolulu, City of Board of Water Supply Lab

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Laboratory Report

818 500 5401; PAX 818 508 5224; 1 800 566 LABS (1 800 566 5227)				Board of Water Supply Lab 630 S Beretania St	· Supply Lab a St			
Sample # 941202078 Sample ID WAIPAHU WELL III HOLE #		Project	1					
Sample Type Water Sampled 01-dec-1994 Rec	Received 02-dec-199	02-dec-1994 Reported 30-dec-1994	c-1994	Honolulu		96843	-	
		, , , , , , , , , , , , , , , , , , , ,		AITH: Ron Fenstemacher	temacher			
Enfortemental Acids in Water		ML/EPA 515.1						
		Result Conc.	XRec Dilution	on Det.Limit	Prepared	By	Analyzed	8
2,4,5:1	)/Bŋ	CH		0.2	07-dec-199	1号:	12-dec-1994	dst
2,4,5-TP (Silvex)	/g/	2		0.2	07-dec-1994	:	12-dec-1994	dst
2,4+6	1/6n	01		0.1	07 dec-1994	. Apt	12-dec-1994	dst
2,4-08	ug/l	2		7	07-dec-199		12-dec-1994	dst
ÖlEhlerprop: 19/1	1/8/	QH.		5.0	U7-dec-1994	4 April	12-dec-1994	dst
5-Hydroxydicamba		SX.		0.2	07-dec-199		12-dec-1994	dst
Acifilionian (qualitative)	1/bn	9		0.2	07-dac-1994	. Mpt	12-dec-1994	dst
Bentazon		£		0.5	07-dec-199	;	12-dec-1994	
thioranden (qualitative) bg/l		QH.		570	07-dec-199	6 upt	12-dec-1994	dst
Dalapon (qualitative)	1/6n	2		-	07-dec-199		12-dec-1994	
3,5.01chlorobenzole, acid	1/Bn	AD .		9:0	07-dec*199	Lint	12-dec-1994	3000
DCPA	ug/l	æ		0.2	07-dec-199		12-dec-1994	
Dicembe 19/1	J/Bn	g.		0,2	07-dec-1994	\$	12-dec-1994	dst
Dinoseb	ng/l	£		0.2	07-dec-1994	:	12-dec-1994	3
Pentachlorophanol Ug/I	1/ <b>þ</b> n	A)		50.0	07-ddc+1994	4 upt	12, dec-1994	dst
Š	ug/l	<del>2</del>		0.1	07-dec-1994		12-dec-1994	dst
4-Witropherol (qualitative)	)/Bn	No.		•	07-dec-1994	144 7	12-dec+1994	JVP
Data Entry .		12/15/94		0	07-dec-1994		12-dec-1994	dst

Report #: 17105



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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

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 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>

Chlorinated Acids in Water (ML/EPA 515.1 )
Surrogate Summary

Percent Recovery 89	Acceptable Range 70 - 130



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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

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 III HOLE #5</u>
 Project

 Sample Type <u>Water</u>
 Sampled 01-dec-1994
 Received 02-dec-1994
 Reported 30-dec-1994

## Chlorinated Acids in Water Quality Control

(ML/EPA 515.1 )

Control	Parameter	Units	Actual	Found	<b>%</b> Recv
ccst	Zy4;5-17 (Stitvex)	ug/t	0.500	0.49	98
LCS1	2,4-D	ug/l	1.00	0.99	99
LCS1	s Bentazori	Ug/i	1.00	1.11	111
LCS2	2,4,5-TP (Silvex)	ug/l	0.500	HA	***************************************
LCS2	7,4:0	ug/t	1.00	NA.	
LCS2	Bentazon	ug/l	1.00	NA	*************
MBLK	214,5-1	ug/L	ND .	ND.	
HSLK	2,4,5-TP (Silvex)	ug/l	ND	ND	***************************************
<b>H</b> ELK	0-0,5	úg/l	NO	\$tD	
HBLK	2,4-D8	ug/l	ND	ND	
MBEK	Dichlorprop	ug/L	AID	ND	
MBLK	5-Hydroxydicamba	ug/L	ND	ND	
HELK	Acifluorfen (qualitative)	ug/i	ND.	40	
MBLK	Bentazon	ug/l	ND	ND	
MBEK	Chioramben (qualitative)	ug/t	ND.	ND .	
HBLK	Dalapon (qualitative)	ug/l	ND	ND	
HBLK	3,5;01chlorobenzoiclacid	ug/l	ND .	40	
MBLK	DCPA	ug/l	ND	ND	
MBLK	Dicambe	ug/i	ND.	HD	
MBLK	Dinoseb	ug/l	ND	ND	
HBLK	Pentachi orophenol 20	ug/l	ND ND	<b>N</b> 0	
MBLK	Picloram	ug/l	ИÐ	ND	
<b>H</b> EK	4-Witrophenol (qualitative)	ig/L	ND.	HD:	
MS	2,4,5-TP (Silvex)	ug/l	0.500	0.51	102
HS	0.4,5	ug/l	1.00	1.04	104
MS	Bentazon	ug/l	1.00	0.96	96
HZD	2,4,5,TP (Silvex)	. ug/£	0.500	HA	
MSD	2,4-0	ug/l	1.00	NA	
H2D	Bentazon	ug/l	1.00	NA	
***************************************					

1 3 13 MONTGOMERY LABORATORIES 4 şi T 13

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

Sample # <u>941202078</u> Sample ID <u>WAIPAHU WELL III HOLE #5</u>
Sample Type <u>Water</u> Sampled <u>01-dec-1994</u> Received <u>02</u>

Sampled 01-dec-1994 Received 02-dec-1994 Reported 30-dec-1994 Project\_\_

(ML/EPA 508

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Laboratory Report

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

96843 Honolulu , HI ATIM: Ron Fenstemacher

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ion Det.L 0.1 0.1 0.1 0.0 0.01 0.01 0.01 0.01 0	
XRec Dilution	
Sonc.	
Result 15	
Units  Ug/1  Ug/1  Ug/1  Ug/1  Ug/1  Ug/1  Ug/1  Ug/1  Ug/1  Ug/1  Ug/1  Ug/1  Ug/1  Ug/1  Ug/1  Ug/1  Ug/1  Ug/1  Ug/1  Ug/1  Ug/1  Ug/1  Ug/1  Ug/1  Ug/1  Ug/1  Ug/1  Ug/1  Ug/1  Ug/1  Ug/1  Ug/1  Ug/1  Ug/1  Ug/1  Ug/1  Ug/1  Ug/1  Ug/1  Ug/1  Ug/1  Ug/1  Ug/1  Ug/1  Ug/1  Ug/1  Ug/1  Ug/1  Ug/1  Ug/1  Ug/1  Ug/1  Ug/1  Ug/1  Ug/1  Ug/1  Ug/1  Ug/1  Ug/1  Ug/1  Ug/1  Ug/1  Ug/1  Ug/1  Ug/1  Ug/1  Ug/1  Ug/1  Ug/1  Ug/1  Ug/1  Ug/1  Ug/1  Ug/1  Ug/1  Ug/1  Ug/1  Ug/1  Ug/1  Ug/1  Ug/1  Ug/1  Ug/1  Ug/1	
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Parameter     Units	****
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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

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

Honotulu , 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

SDWA Pesticides

(ML/EPA 508

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Surrogate Summary

Darameter	Percent Recovery	Acceptable Range
Parameter Diburyi Chlorendate	92	70 - 130



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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

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

Honolulu , H1 96843 ATTH: 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

# SDWA Pesticides (ML/EPA 508 ) Quality Control

		Units	Actual	Found	XRecv
Control	Parameter	ug/l	0.05	0.03	60
LCS1	Aldrin	\$5500 C. C. C. C. C. C. C. C. C. C. C. C. C.	0.10	0.08	80
LCS1	P,P' DOT	ug/l	0.10	0.10	100
LEST	pieldrin	t/g/L	***************************************	0.09	90
LCS1	Endrin	ug/l	0.10	0.09	100
(CS)	Garma =BRCE(Lindane)	up/l	0.05	*************	60
LCS1	Heptachlor	ug/l	0.05	0.03	
************************	Aldrin	Ug/L	0.05	HA	
LC52	p,p' DDT	ug/l	0.10	NA.	****
LCS2	MARKA COCK CONTROL OF THE CONTROL OF THE CONTROL OF THE CONTROL OF THE CONTROL OF THE CONTROL OF THE CONTROL OF THE CONTROL OF THE CONTROL OF THE CONTROL OF THE CONTROL OF THE CONTROL OF THE CONTROL OF THE CONTROL OF THE CONTROL OF THE CONTROL OF THE CONTROL OF THE CONTROL OF THE CONTROL OF THE CONTROL OF THE CONTROL OF THE CONTROL OF THE CONTROL OF THE CONTROL OF THE CONTROL OF THE CONTROL OF THE CONTROL OF THE CONTROL OF THE CONTROL OF THE CONTROL OF THE CONTROL OF THE CONTROL OF THE CONTROL OF THE CONTROL OF THE CONTROL OF THE CONTROL OF THE CONTROL OF THE CONTROL OF THE CONTROL OF THE CONTROL OF THE CONTROL OF THE CONTROL OF THE CONTROL OF THE CONTROL OF THE CONTROL OF THE CONTROL OF THE CONTROL OF THE CONTROL OF THE CONTROL OF THE CONTROL OF THE CONTROL OF THE CONTROL OF THE CONTROL OF THE CONTROL OF THE CONTROL OF THE CONTROL OF THE CONTROL OF THE CONTROL OF THE CONTROL OF THE CONTROL OF THE CONTROL OF THE CONTROL OF THE CONTROL OF THE CONTROL OF THE CONTROL OF THE CONTROL OF THE CONTROL OF THE CONTROL OF THE CONTROL OF THE CONTROL OF THE CONTROL OF THE CONTROL OF THE CONTROL OF THE CONTROL OF THE CONTROL OF THE CONTROL OF THE CONTROL OF THE CONTROL OF THE CONTROL OF THE CONTROL OF THE CONTROL OF THE CONTROL OF THE CONTROL OF THE CONTROL OF THE CONTROL OF THE CONTROL OF THE CONTROL OF THE CONTROL OF THE CONTROL OF THE CONTROL OF THE CONTROL OF THE CONTROL OF THE CONTROL OF THE CONTROL OF THE CONTROL OF THE CONTROL OF THE CONTROL OF THE CONTROL OF THE CONTROL OF THE CONTROL OF THE CONTROL OF THE CONTROL OF THE CONTROL OF THE CONTROL OF THE CONTROL OF THE CONTROL OF THE CONTROL OF THE CONTROL OF THE CONTROL OF THE CONTROL OF THE CONTROL OF THE CONTROL OF THE CONTROL OF THE CONTROL OF THE CONTROL OF THE CONTROL OF THE CONTROL OF THE CONTROL OF THE CONTROL OF THE CONTROL OF THE CONTROL OF THE CONTROL OF THE CONTROL OF THE CONTROL OF THE CONTROL OF THE CONTROL OF THE CONTROL OF THE CONTROL OF THE CONTROL OF THE CONTROL OF THE CONTROL OF THE CONTROL OF THE CONTROL OF THE CONTROL OF THE CONTROL OF THE CONTROL OF	ug/l	0.10	NA.	
£CS2	vieldrin	ug/l	0.10	NA	***************************************
LCS2	Endrin	tig/L	0.05	HA .	
LCS2	CommarBHC (Circlere)	ug/l	0.05	· NA	*******************
LCS2	<b>Heptachlor</b>	ug/t	<b>B</b> D	ND .	
MBLK	PCB 1016 AFOCLOT	ug/l	ND	ND	
MBLK	PCB 1221 Aroclor	ug/i	<b>N</b> O	MD	
948LK	PCB 1Z32 Aroctor	000000000000000000000000000000000000000	ND	ND	
MBLK	PCB 1242 Aroclor	ug/l		NO.	
HBLK	PCB 1248 Arector	cus/1	MD	ND	220200000000000000000000000000000000000
MBLK	PCB 1254 Aroclor	ug/l	ND	AD.	
MBLK	PCB 1260 Aroctor	Ug/1	160	ND	20000000000000000000000000000000000000
MBLK	Alpha-BHC	ug/l	ND	accessores	
MBLK	Alachton (Alanex)	ug/l	<b>8</b> 0	<b>K</b> O	223002200000000000000000000000000000000
MBLK	Aldrin	ug/l	ND	ND	
200000000000000000000000000000000000000	Chlordate	ug/l	HD.	ND	
MBLK	Chlorthalonil (Drconil, Bravo)	ug/l	ND	ND	***************************************
MBLK	Delta-BHC	ug/l	MD	椒	
HELK	000000000000000000000000000000000000000	ug/l	ND	ND	
MBLK	p,p' 000	ug/l	NO.	HD.	
9/8LK	PiP'sDDE!	ug/l	ND	ND	
HBLK	p,p' DDT	ug/i	ND	NO	
HBLK	Dieldrin	\$\$\$\$\$\$\$\$\$\$\$\$\$\$\$\$\$\$\$\$\$\$\$\$\$\$\$\$\$\$\$\$\$\$\$\$\$\$	<b>K</b> D	ND	
MBLK	Endrin Aldehyde	ug/l	NO NO	HD	
MBLK	Endrin	09/1			WARRY WATER CO.
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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

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 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>

SDWA Pesticides (ML/EPA 508 )
Quality Control

Control	Parameter	Units	Actual	Found	%Recv
#BLK	*Endostit familis(alpha)	ug/l	ND	<b>k</b> O	
MBLK	Endosulfan II (beta)	ug/l	KD	KD.	www.man.enect.com/enect.com
MBLK	Endosulfan sulfate	ug/l	ND .	<b>M</b> D	
MBLK	Gamma-BHC (Lindane)	ug/l	ND	MD	****************
MBCK	Heptachlor	ug/i	Ю	NO .	
HBLK	Heptachlor Epoxide	ug/l	ND	KD.	***************************************
MBLK	Hethoxychiler	ug/L	ND	360	
MBLK	Toxaphene	ug/l	ND	ND	40
MS	Aldrin	up/l	0.05	0.02	70
MS	p,p' DDT	ug/l	0.10 0.10	0.07 0.08	80
MS.	Dieldrin	tig/L	0.10	0.08	80
KS	Endrin	ug/l ug/l	0.75	0.05	100
<del>1</del> 5	Gaemer-BHC (Clindane)	ug/l	0.05	0.02	40
KS	Keptachlor	ug/ t	0.05		
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MONTGOMERY LABORATORIES

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

Sampled 01-dec-1994 Received 02-dec-1994 Reported 30-dec-1994 Sample # 941202078 Sample 1D WAIPAHU WELL 111 HOLE #5 Sample Type Water

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

Laboratory Report

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

96843 AITH: Ron Fenstemacher Ξ, Honolulu

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Analyzed  02:dec-1994  02:dec-1994  02:dec-1994  02-dec-1994
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Dilution
Conc. Mec
Result t
Units  Ug/1  Ug/1  Ug/1  Ug/1  Ug/1  Ug/1  Ug/1  Ug/1  Ug/1  Ug/1  Ug/1  Ug/1  Ug/1  Ug/1  Ug/1  Ug/1  Ug/1  Ug/1  Ug/1  Ug/1  Ug/1  Ug/1  Ug/1  Ug/1  Ug/1  Ug/1  Ug/1  Ug/1  Ug/1  Ug/1  Ug/1  Ug/1  Ug/1  Ug/1  Ug/1  Ug/1  Ug/1  Ug/1  Ug/1  Ug/1  Ug/1  Ug/1  Ug/1  Ug/1  Ug/1  Ug/1  Ug/1  Ug/1  Ug/1  Ug/1  Ug/1  Ug/1  Ug/1  Ug/1  Ug/1  Ug/1  Ug/1
Coroethane ethane Ebroethane ethane ethane ane stree benzene sontzene  Parameter  1,1,1-Trickloroethane 1,1,2-Trickloroethane 1,1,2-Trickloroethane 1,1,2-Trickloroethane 1,1,2-Trickloroethane 1,1,0-Trickloroethane 1,10 ichloroethylene 1,2,3-Trickloroephylene 1,2,4-Trickloroephylene 1,2,4-Trickloroephylene 1,2,4-Trickloroephylene 1,2,4-Trickloroephylene 1,2,5-Trickloroephylene 1,2,5-Trimethylbenzene 1,2,5-Trimethylbenzene 1,3,5-Trimethylbenzene 1,3,5-Trimeth

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MONTGOMERY LABORATORIES 173 1-2

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

mple 10 WAIPARU WELL III HOLE #5 Project Sampled 01-dec-1994 Received 02-dec-1994 Sample # 941202078 Sample 10 WAIPARU WELL III HOLE #5
Sample Type Water Sampled 01-dec-1994 Received 02

Laboratory Report

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

96843 Honolulu , Hl ATTH: Ron Fenstemacher

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Prepared
0.5 0.5 0.5 0.5 0.5 0.5 0.5 0.5 0.5 0.5
Dilution
Жес
Conc.
Result 1
Units  Ug/1  Ug/1  Ug/1  Ug/1  Ug/1  Ug/1  Ug/1  Ug/1  Ug/1  Ug/1  Ug/1  Ug/1  Ug/1  Ug/1  Ug/1  Ug/1  Ug/1  Ug/1  Ug/1  Ug/1  Ug/1  Ug/1  Ug/1  Ug/1  Ug/1  Ug/1  Ug/1  Ug/1  Ug/1  Ug/1  Ug/1  Ug/1  Ug/1  Ug/1  Ug/1  Ug/1  Ug/1  Ug/1  Ug/1  Ug/1  Ug/1  Ug/1  Ug/1  Ug/1  Ug/1  Ug/1  Ug/1  Ug/1  Ug/1  Ug/1  Ug/1  Ug/1  Ug/1  Ug/1  Ug/1  Ug/1  Ug/1  Ug/1  Ug/1  Ug/1  Ug/1  Ug/1  Ug/1  Ug/1  Ug/1  Ug/1  Ug/1  Ug/1  Ug/1  Ug/1  Ug/1  Ug/1  Ug/1  Ug/1  Ug/1  Ug/1  Ug/1  Ug/1  Ug/1  Ug/1  Ug/1  Ug/1
Units  Ug/1  Ug/1  Ug/1  Ug/1  Ug/1  Ug/1  Ug/1  Ug/1  Ug/1  Ug/1  Ug/1  Ug/1  Ug/1  Ug/1  Ug/1  Ug/1  Ug/1  Ug/1  Ug/1  Ug/1  Ug/1  Ug/1  Ug/1  Ug/1  Ug/1  Ug/1  Ug/1  Ug/1  Ug/1  Ug/1  Ug/1  Ug/1  Ug/1  Ug/1  Ug/1  Ug/1  Ug/1  Ug/1  Ug/1  Ug/1  Ug/1  Ug/1  Ug/1  Ug/1  Ug/1  Ug/1  Ug/1  Ug/1  Ug/1  Ug/1  Ug/1  Ug/1  Ug/1  Ug/1  Ug/1  Ug/1  Ug/1  Ug/1  Ug/1  Ug/1  Ug/1  Ug/1  Ug/1  Ug/1  Ug/1  Ug/1  Ug/1  Ug/1  Ug/1  Ug/1  Ug/1  Ug/1  Ug/1  Ug/1  Ug/1  Ug/1  Ug/1  Ug/1  Ug/1  Ug/1  Ug/1  Ug/1  Ug/1  Ug/1  Ug/1  Ug/1  Ug/1  Ug/1  Ug/1  Ug/1  Ug/1  Ug/1  Ug/1  Ug/1  Ug/1  Ug/1  Ug/1  Ug/1  Ug/1  Ug/1  Ug/1  Ug/1  Ug/1  Ug/1  Ug/1  Ug/1  Ug/1  Ug/1  Ug/1  Ug/1  Ug/1  Ug/1  Ug/1  Ug/1  Ug/1  Ug/1  Ug/1  Ug/1  Ug/1  Ug/1  Ug/1  Ug/1  Ug/1  Ug/1  Ug/1  Ug/1  Ug/1  Ug/1  Ug/1  Ug/1  Ug/1  Ug/1  Ug/1  Ug/1  Ug/1  Ug/1  Ug/1  Ug/1  Ug/1  Ug/1  Ug/1  Ug/1  Ug/1  Ug/1  Ug/1  Ug/1  Ug/1  Ug/1  Ug/1  Ug/1  Ug/1  Ug/1  Ug/1  Ug/1  Ug/1  Ug/1  Ug/1  Ug/1  Ug/1  Ug/1  Ug/1  Ug/1  Ug/1  Ug/1  Ug/1  Ug/1  Ug/1  Ug/1  Ug/1  Ug/1  Ug/1  Ug/1  Ug/1  Ug/1  Ug/1  Ug/1  Ug/1  Ug/1  Ug/1  Ug/1  Ug/1  Ug/1  Ug/1  Ug/1  Ug/1  Ug/1  Ug/1  Ug/1  Ug/1  Ug/1  Ug/1  Ug/1  Ug/1  Ug/1  Ug/1  Ug/1  Ug/1  Ug/1  Ug/1  Ug/1  Ug/1  Ug/1  Ug/1  Ug/1  Ug/1  Ug/1  Ug/1  Ug/1  Ug/1  Ug/1  Ug/1  Ug/1  Ug/1  Ug/1  Ug/1  Ug/1  Ug/1  Ug/1  Ug/1  Ug/1  Ug/1  Ug/1  Ug/1  Ug/1  Ug/1  Ug/1  Ug/1  Ug/1  Ug/1  Ug/1  Ug/1  Ug/1  Ug/1  Ug/1  Ug/1  Ug/1  Ug/1  Ug/1  Ug/1  Ug/1  Ug/1  Ug/1  Ug/1  Ug/1  Ug/1  Ug/1  Ug/1  Ug/1  Ug/1  Ug/1  Ug/1  Ug/1  Ug/1  Ug/1  Ug/1  Ug/1  Ug/1  Ug/1  Ug/1  Ug/1  Ug/1  Ug/1  Ug/1  Ug/1  Ug/1  Ug/1  Ug/1  Ug/1  Ug/1  Ug/1  Ug/1  Ug/1  Ug/1  Ug/1  Ug/1  Ug/1  Ug/1  Ug/1  Ug/1  Ug/1  Ug/1  Ug/1  Ug/1  Ug/1  Ug/1  Ug/1  Ug/1  Ug/1  Ug/1  Ug/1  Ug/1  Ug/1  Ug/1  Ug/1  Ug/1  Ug/1  Ug/1  Ug/1  Ug/1  Ug/1  Ug/1  Ug/1  Ug/1  Ug/1  Ug/1  Ug/1  Ug/1  Ug/1  Ug/1  Ug/1  Ug/1  Ug/1  Ug/1  Ug/1  Ug/1  Ug/1  Ug/1  Ug/1  Ug/1  Ug/1  Ug/1  Ug/1  Ug/1  Ug/1  Ug/1  Ug/1  Ug/1  Ug/1  Ug/1  Ug/1  Ug/1  Ug/1  Ug/1  Ug/1  Ug/1  Ug/1  Ug/1  Ug/1  Ug/1  Ug/1
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Units Spraneter Chloroform (Trichloromethane) Up (1
Parameter  Storoform  Chloroform (Trichloromethane)  Bromochloromethane  Chloroathane  Chloroathane  Storoathane  •

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Y LABORATORIES

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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

Laboratory Report

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

96843 Honolulu , HI ATIM: Ron Fenstemacher Honolulu

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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

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

Honolulu , HI 96843 ATTN: Ron Fenstemacher

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

Parameter 4:Bromofluoroberwene Toluene-d8 1:2:Dichleroetmane-d4	Percent Recovery 105 93	Acceptable Range 803-320 80 - 120 80 - 120



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#### MONTGOMERY LABORATORIES

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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 # 941202078 Sample ID WAIPAHU WELL III HOLE #5 Project

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

<b>61</b>	Parameter	Units	Actual	Found	7Recv
Control LCS1	1,1,1-Toichtoronthum	ug/l	4	4.28	107
LCS1	1,1,2,2-Tetrachloroethane	ug/l	4	3.93	98
LCSI	1 1 2-Irichlorasthame	ug/i	4	4.07	102
LCS1	1,1-Dichloroethane	ug/t	4	4.65	116
Ecsi	1 1-bichlaroethylene	ug/l	4	4.29	107
LCS1	1,2,4-Trichlorobenzene	ug/l	4	3.76	94
LCSI.	1 2-Dichlorgethane	ve/t	6	4.14	104
LCS1	1,2-Dichloropropane	ug/l	4	4.20	105
acsi i	1,3-blichLaropropene	ug/l	8	8.09	101 102
LCS1	p-Dichlorobenzene (1,4-DCB)	ug/l	4	4.07 4.29	107
£251:	Benzene	ug/L		4.27	107
LCS1	cis-1,2-Dichloroethylene	ug/l	4	4.22	106
LCS1	Chlorobenzene	up/t	4	4.62	116
LCS1	Carbon Tetrachloride	ug/l	4	3.85	96
tCSI	Bronoform	Ug/1	4	4.21	105
LCS1	Chloroform (Trichloromethane)	ug/l ug/i		4.08	102
£CS1	Chierodibromomethane.	ug/l	4	4.20	105
LCS1	Bromodichloromethane	ug/L	2	4.52	113
acsi	Dichloromethane	ug/l	4	4.36	109
LCS1	Ethyl benzene  #fluorotrichloromethane(Freoni)	ug/l	4	4.18	104
a cs1	XXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXXX	ug/l	8	8.99	112
LCS1	m,p-Xylenes o-Xylene	Ug/1	4	4.42	110
LCS1	o-Dichlorobenzene (1,2-DCB)	ug/l	4	4.01	100
LCS1	Tetrachioroethylene (PCE)	ug/l	4	4.29	107
LCS1	Styrene	ug/l	4	4.34	108
LCSI	trans-1,2-bichloroethylane	Jug/1	4	4.18	104
LCS1	Trichloroethylene (TCE)	ug/l	4	4.25	106
LCST	TrichloratrifluoroethanelFreon	ug/l	4	4:53	713
LCS1	Toluene	ug/l	4	4.30	108
LCS1	Vinyl Chloride (VC)	1\pu	4	3.41	85
THE RESERVE OF THE PERSON OF THE PERSON OF THE PERSON OF THE PERSON OF THE PERSON OF THE PERSON OF THE PERSON OF THE PERSON OF THE PERSON OF THE PERSON OF THE PERSON OF THE PERSON OF THE PERSON OF THE PERSON OF THE PERSON OF THE PERSON OF THE PERSON OF THE PERSON OF THE PERSON OF THE PERSON OF THE PERSON OF THE PERSON OF THE PERSON OF THE PERSON OF THE PERSON OF THE PERSON OF THE PERSON OF THE PERSON OF THE PERSON OF THE PERSON OF THE PERSON OF THE PERSON OF THE PERSON OF THE PERSON OF THE PERSON OF THE PERSON OF THE PERSON OF THE PERSON OF THE PERSON OF THE PERSON OF THE PERSON OF THE PERSON OF THE PERSON OF THE PERSON OF THE PERSON OF THE PERSON OF THE PERSON OF THE PERSON OF THE PERSON OF THE PERSON OF THE PERSON OF THE PERSON OF THE PERSON OF THE PERSON OF THE PERSON OF THE PERSON OF THE PERSON OF THE PERSON OF THE PERSON OF THE PERSON OF THE PERSON OF THE PERSON OF THE PERSON OF THE PERSON OF THE PERSON OF THE PERSON OF THE PERSON OF THE PERSON OF THE PERSON OF THE PERSON OF THE PERSON OF THE PERSON OF THE PERSON OF THE PERSON OF THE PERSON OF THE PERSON OF THE PERSON OF THE PERSON OF THE PERSON OF THE PERSON OF THE PERSON OF THE PERSON OF THE PERSON OF THE PERSON OF THE PERSON OF THE PERSON OF THE PERSON OF THE PERSON OF THE PERSON OF THE PERSON OF THE PERSON OF THE PERSON OF THE PERSON OF THE PERSON OF THE PERSON OF THE PERSON OF THE PERSON OF THE PERSON OF THE PERSON OF THE PERSON OF THE PERSON OF THE PERSON OF THE PERSON OF THE PERSON OF THE PERSON OF THE PERSON OF THE PERSON OF THE PERSON OF THE PERSON OF THE PERSON OF THE PERSON OF THE PERSON OF THE PERSON OF THE PERSON OF THE PERSON OF THE PERSON OF THE PERSON OF THE PERSON OF THE PERSON OF THE PERSON OF THE PERSON OF THE PERSON OF THE PERSON OF THE PERSON OF THE PERSON OF THE PERSON OF THE PERSON OF THE PERSON OF THE PERSON OF THE PERSON OF THE PERSON OF THE PERSON OF THE PERSON OF THE PERSON OF THE PERSON OF THE PERSON OF THE PERSON OF THE PERSON OF THE PERSON OF THE PERSON OF THE PERSON OF THE PERSON OF THE PERSON OF THE PERSON OF THE PERSON OF T	7. (4.35) 1. (4.1.4.1.4.1.1.1.1.1.1.1.1.1.1.1.1.1.1.1				



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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 # 941202078
 Sample ID WAIPAHU WELL III HOLE #5
 Project

 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 XRecv
MBLK	1:1,1,2:Yetrachtoroethane	ug/l	ND	NO .
MBLK	1,1,1-Trichloroethane	ug/l	KO	ND
MBLK	1.1,2,2-Tetrachlorogthane	179/1	NO	HD
KBLK	1,1,2-Trichloroethane	ug/l	ND	ND
MBLK	1,1-0 ichLoroethane	up/l	ND	NO .
MBLK	1,1-Dichloroethylene	ug/l	ND	ND
MBLK	1 1-0 ichi orapropene	vg/1	NO	HD
MBLK	1,2,3-Trichlorobenzene	ug/l	ND	ND
HELK	1.2,3-Trachiaropropene	up/l	ND	MO .
MBLK	1,2,4-Trichlorobenzene	ug/l	ND	ND
MELK	1,2,4-Trimethylbenzene	Ug/U	ND	HD
MBLK	1,2-Dichloroethane	ug/l	ND	ND
HELK	1y2-0ichtoropropage	up/l	ND .	NO *
MBLK	1,3,5-Trimethylbenzene	ug/l	ND	ND
MBEK	1,3-Dichteropropane	pg/1	ND	MD
MBLK	p-Dichlorobenzene (1,4-DCB)	ug/l	ND	ND
MBLK	2,2-Dichloropropere	ug/l	ND	WD .
MBLK	2-Butanone (MEK)	ug/l	ND	ND
MBLK	2-Chloroethylvinylether	Ug/L	MD .	HD
MBLK	o-Chlorotoluene	ug/l	ND	CO
HBLK	p-Chlorotoluere	ug/l	ND	KD .
MBLK	4-Hethyl-2-Pentanone (HIBK)	ug/l	ND	ND
MBLK	Benzene	ug/L	NO	HD
KBLK	Bromobenzene	ug/l	KD	ND
HELK	Bromomethane (Hethyl Bromide)	40/L	ND .	KO
MBLK	cis-1,2-Dichloroethylene	ug/l	ND	ND .
MBLK.	Chlarobenzene	ug/i	NO.	ND .
MBLK	Carbon Tetrachloride	ug/l	ND	ND
MBLK	cis-1,3-Dichteropropene	ug/i	ND	ND.
MBLK	Bromoform	ug/l	ND	ND .
MBLK	Chloroform (Trichteromethane)	tig/l	NO .	ND



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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 # 941202078 Sample ID WAIPAHU WELL III HOLE #5 Project
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 XRecv
MBLK States	Bromochitoromethane	Ug/1	NO.	<b>NO</b>
MBLK	Chloroethane	ug/l	ND	ND
MBLK	Chiaromethane(Methyl Chiaride)	ug/1	NO	<b>9</b> (0
MBLK	Chlorodibromomethane	ug/(	ND	ND
#GLK	Dibromomethere	ug/l	ND	NO.
MBLK	Bromodichloromethane	ug/l	ND	ND
MBLK	Dichloromethere	Lig/L	MC	ND
MBLK	Ethyl benzene	ug/l	ND	ND
MBLK	**Dichlarodifluaromethere	ug/l	ND	MD
MBLK	Fluorotrichloromethane(Freon1)	ug/l	ND	ND
MBLK	HexachLorobuted ene	- Ug/L	NO +	MD
MBLK	Isopropylbenzene	ug/l	ND	ND
MBLX	m-Dichlorabenzene (1/3-DCB)	ug/l	ND	NO.
MBLK	m,p-Xylenes	ug/ţ	ND	ND
MBLK	Haphthalene	vg/1	NO .	ND
MBLK	n-Butylbenzene	ug/l	ND	ND
HBLK	n-Propylbenzene	ug/l	ND	NO
HBLK	o-Xylene	ug/l	ND	ND
MBLK	o-Dichlorobenzene (1,2-008)	ug/i	NO.	HD .
MBLK	Tetrachloroethylene (PCE)	ug/l	ND	ND
MELK	p-Isopropyltaluene	ug/l	ND.	NO.
MBLK	sec-Butylbenzene	ug/l	ND	ND
MBLK	Styrena	Ug/1	NO .	MD.
HBLK	trans-1,2-Dichloroethylene	ug/l	ND	ND
HELK	Kert-Butylbenzene	ug/i	ND .	NO.
MBLK	Trichloroethylene (TCE)	ug/l .	ND	ND
#BLY	Trichlorotrifluoroethane(Freon	ug/i	40	<b>W</b> D
MBLK	trans-1,3-Dichloropropene	ug/l	ND	ND
MBLK	Toluene	ug/l	ND	NO .
MBLK	Vinyl chloride (VC)	ug/l	ND	NO
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Report #: 17105

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## 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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# APPENDIX D

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



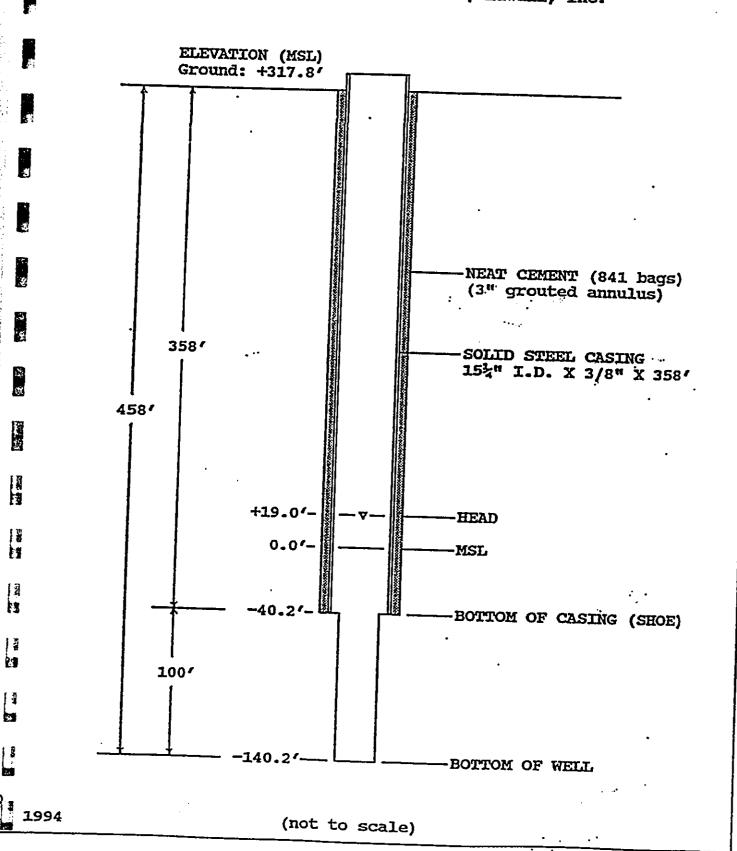


## WELL COMPLETION REPORT

2.	STATE WELL NO. 2400	-08 WELL NAME WA	AIPAHU III #1	INIANA ORUE
	LOCATION: Address T	AM HWY ACROAS PEC	M WATER OFFI	ISLAND OAHU Tex Map Key 9-4-05:74
3.	DRILLING OR PLING NO	TALLATION CONTRACTOR	ROBCON MOSS **	1 x map Key 9-4-05:74
4,	CONTRACTORS C-67 LIC	CENSE NUMBER C-16	437	MALL, INC.
5.		PERFORMED WORK JO		•
6.				•
7.		OTION FAILING, AI		-
**	(HOTEL Report must be summired wit	G COMPLETION 7/22/	94	•
8.	GROUND ELEVATION (IT	nan 317.83 h	•	
	Top of Drilling Pla		•	
		Platform above Ground sur	among the	•
	Booch Mark and I	Method Used to Determine	Gentland Elementes State	Γι. 
9.	DOILLEDIAL AA		Aloning Elevation DAR	SURVEY A.
	DRILLER'S LOG: Pepth (ft.) Flock Description;	Person of the Control of the Control	<b>A</b>	Wate
0~	6 11 RED VERY	Remarks, Deter (1).) 용O판만	163 to 290 Bi	Description, Pernarks, Dates
11		Y BOULDERS		LUE GREY VERY HARD JUE GREY LITTLE BRO
28	to 78 BROWN ME		312 b 338 G	
7.8	to 138 BROWN GRE	Y MED HARD	The same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the same of the sa	REY BROWN MED HARD
43,	to 153 BLUE ROCK	VERY HARD.		EY & BROWN LAYERS
45.	to 163 BROWN GRE	Y MED HARD	443 to 458 GR	EX & BROWN BOFT
	******		ded, continue on back.)	
10,	TOTAL DEPTH OF WELL		<u>58</u>	•
11.	HOLE SIZE: 22		t. to 15	8 ft. below ground
	14 3	/4 Inch dla. from 35	58 ft. to 45	8 ft. below ground
		Inch dia. from	ft. to	it below ground
12.	CASING INSTALLED:	Property 4		in paint finnin
		ln. I.D. x . 375 In. wall	solid section to358	ft. below ground
			perforated section to	The state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the s
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14.	INITIAL WATER LEVEL	299 ft. below ground.	Date and time of meass	100minut 7 /2 /0 /
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	INITIAL TEMPERATURE	34ppm 70.6`` *F	Date and time of sample	
10.	DATE OF DULIN MOTAL	70.0	Date and time of sample	ling 7/14/94
17.	DATE OF PUMP INSTALION:	THOM		
10.		AP 1 1 1 -		
	Pump Type, Make,	Serial No.		Capacity
	MICKOT IVOS. FILM., V	OCAGA, IDC		
	Depth of Pump Inta	ke setting tt.	below, wh	ich elevation is
	Depth of bottom of	ainine n. pe	dow, which	ch elevation is
		n.		
	Pumping Head is	Reference Point (R.	P.) Used:	which elevation is
19.	Pumping Head is _ PUMPING TESTS:		5 - 4 - 4 - 4 - 4 - 4 - 4 - 4 - 4 - 4 -	***************************************
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12s	Pumping Head is PUMPING TESTS:  Date 7/14/94 Start water level End water level Depth of well (hours) (ppm) down to BTEP TEST ATTA	ft. below R.P. ft. below R.P. ft. below R.P. ft. below R.P. ft. below R.P. ft. (ppm) * F	Start water lave End water lave Depth of well Bepend Au Time (hours) (ap	the below the below the below the below the below the below the below the below the below the below the below the below the below the below the below the below the below the below the below the below the below the below the below the below the below the below the below the below the below the below the below the below the below the below the below the below the below the below the below the below the below the below the below the below the below the below the below the below the below the below the below the below the below the below the below the below the below the below the below the below the below the below the below the below the below the below the below the below the below the below the below the below the below the below the below the below the below the below the below the below the below the below the below the below the below the below the below the below the below the below the below the below the below the below the below the below the below the below the below the below the below the below the below the below the below the below the below the below the below the below the below the below the below the below the below the below the below the below the below the below the below the below the below the below the below the below the below the below the below the below the below the below the below the below the below the below the below the below the below the below the below the below the below the below the below the below the below the below the below the below the below the below the below the below the below the below the below the below the below the below the below the below the below the below the below the below the below the below the below the below the below the below the below the below the below the below the below the below the below the below the below the below the below the below the below the below the below the below the below the below the below the below the below the below the below the below the below the below the below the below the below the below the below the below the be
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E3 Time	Pumping Head is PUMPING TESTS:  Date 7/14/94 Start water level End water level Depth of well peed from Dram (hours) (ppm) down to BTEF TEST ATTA	ft. below R.P. ft. below R.P. ft. below R.P. ft. below R.P. ft. below R.P. ft. (ppm) * F	Start water lave End water lave Depth of well Bepend And Time (hours) (ap 10 10 10 10 10 10 10 10 10 10 10 10 10	the below the below the below the below the below the below the below the below the below the below the below the below the below the below the below the below the below the below the below the below the below the below the below the below the below the below the below the below the below the below the below the below the below the below the below the below the below the below the below the below the below the below the below the below the below the below the below the below the below the below the below the below the below the below the below the below the below the below the below the below the below the below the below the below the below the below the below the below the below the below the below the below the below the below the below the below the below the below the below the below the below the below the below the below the below the below the below the below the below the below the below the below the below the below the below the below the below the below the below the below the below the below the below the below the below the below the below the below the below the below the below the below the below the below the below the below the below the below the below the below the below the below the below the below the below the below the below the below the below the below the below the below the below the below the below the below the below the below the below the below the below the below the below the below the below the below the below the below the below the below the below the below the below the below the below the below the below the below the below the below the below the below the below the below the below the below the below the below the below the below the below the below the below the below the below the below the below the below the below the below the below the below the below the below the below the below the below the below the below the below the below the below the below the below the below the below the below the below the below the below the below the below the below the below the be
12:s Time	Pumping Head is PUMPING TESTS:  Date 7/14/94 Start water level End water level Depth of well peed from Dran (hours) (ppm) down to BTEP TEST ATTA	ft. below R.P. ft. below R.P. ft. below R.P. ft. below R.P. ft. below R.P. ft. below R.P. ft. below R.P. ft. below R.P. ft. below R.P. ft. below R.P. ft. below R.P. ft. below R.P. ft. below R.P. ft. below R.P. ft. below R.P. ft. below R.P. ft. below R.P. ft. below R.P. ft. below R.P. ft. below R.P. ft. below R.P. ft. below R.P. ft. below R.P. ft. below R.P. ft. below R.P. ft. below R.P. ft. below R.P. ft. below R.P. ft. below R.P. ft. below R.P. ft. below R.P. ft. below R.P. ft. below R.P. ft. below R.P. ft. below R.P. ft. below R.P. ft. below R.P. ft. below R.P. ft. below R.P. ft. below R.P. ft. below R.P. ft. below R.P. ft. below R.P. ft. below R.P. ft. below R.P. ft. below R.P. ft. below R.P. ft. below R.P. ft. below R.P. ft. below R.P. ft. below R.P. ft. below R.P. ft. below R.P. ft. below R.P. ft. below R.P. ft. below R.P. ft. below R.P. ft. below R.P. ft. below R.P. ft. below R.P. ft. below R.P. ft. below R.P. ft. below R.P. ft. below R.P. ft. below R.P. ft. below R.P. ft. below R.P. ft. below R.P. ft. below R.P. ft. below R.P. ft. below R.P. ft. below R.P. ft. below R.P. ft. below R.P. ft. below R.P. ft. below R.P. ft. below R.P. ft. below R.P. ft. below R.P. ft. below R.P. ft. below R.P. ft. below R.P. ft. below R.P. ft. below R.P. ft. below R.P. ft. below R.P. ft. below R.P. ft. below R.P. ft. below R.P. ft. below R.P. ft. below R.P. ft. below R.P. ft. below R.P. ft. below R.P. ft. below R.P. ft. below R.P. ft. below R.P. ft. below R.P. ft. below R.P. ft. below R.P. ft. below R.P. ft. below R.P. ft. below R.P. ft. below R.P. ft. below R.P. ft. below R.P. ft. below R.P. ft. below R.P. ft. below R.P. ft. below R.P. ft. below R.P. ft. below R.P. ft. below R.P. ft. below R.P. ft. below R.P. ft. below R.P. ft. below R.P. ft. below R.P. ft. below R.P. ft. below R.P. ft. below R.P. ft. below R.P. ft. below R.P. ft. below R.P. ft. below R.P. ft. below R.P. ft. below R.P. ft. below R.P. ft. below R.P. ft. below R.P. ft. below R.P. ft. below R.P. ft. below R.P. ft. below R.P. ft. below R.P. ft. below R.P. ft. be	Start water lave End water lave Depth of well Bapeed And Time (nours) (op 10 10 10 10 10 10 10 10 10 10 10 10 10	tt. below tt. below tt. below tt. below tt. below tt. below tt. below tt. below tt. below tt. below
10:s Time	Pumping Head is PUMPING TESTS:  Date 7/14/94 Start water level End water level Depth of well peed fixe Cra (nours) (spm) down to BTEF TEST ATTA	ft. below R.P.  ft. below R.P.  ft. below R.P.  ft. below R.P.  ft. below R.P.  ft. pemp.  (ff.) (ppm) *F  (ff.) (ppm) *F  (ff.) (ff.) (ppm) *F  (ff.) (ff.) (ppm) *F  (ff.) (ppm) *F  (ff.) (ppm) *F	Start water lave End water lave End water lave Depth of well Repead And Inne (hours) (ap 10 10 10 10 10 10 10 10 10 10 10 10 10	tt. below  R. below  R. below  R. below  R. below  R. below  R. below  R. below  R. below  R. below  R. below  R. below  R. below  R. below  R. below  R. below  R. below  R. below  R. below  R. below  R. below  R. below  R. below  R. below  R. below  R. below  R. below  R. below  R. below  R. below  R. below  R. below  R. below  R. below  R. below  R. below  R. below  R. below  R. below  R. below  R. below  R. below  R. below  R. below  R. below  R. below  R. below  R. below  R. below  R. below  R. below  R. below  R. below  R. below  R. below  R. below  R. below  R. below  R. below  R. below  R. below  R. below  R. below  R. below  R. below  R. below  R. below  R. below  R. below  R. below  R. below  R. below  R. below  R. below  R. below  R. below  R. below  R. below  R. below  R. below  R. below  R. below  R. below  R. below  R. below  R. below  R. below  R. below  R. below  R. below  R. below  R. below  R. below  R. below  R. below  R. below  R. below  R. below  R. below  R. below  R. below  R. below  R. below  R. below  R. below  R. below  R. below  R. below  R. below  R. below  R. below  R. below  R. below  R. below  R. below  R. below  R. below  R. below  R. below  R. below  R. below  R. below  R. below  R. below  R. below  R. below  R. below  R. below  R. below  R. below  R. below  R. below  R. below  R. below  R. below  R. below  R. below  R. below  R. below  R. below  R. below  R. below  R. below  R. below  R. below  R. below  R. below  R. below  R. below  R. below  R. below  R. below  R. below  R. below  R. below  R. below  R. below  R. below  R. below  R. below  R. below  R. below  R. below  R. below  R. below  R. below  R. below  R. below  R. below  R. below  R. below  R. below  R. below  R. below  R. below  R. below  R. below  R. below  R. below  R. below  R. below  R. below  R. below  R. below  R. below  R. below  R. below  R. below  R. below  R. below  R. below  R. below  R. below  R. below  R. below  R. below  R. below  R. below  R. below  R. below  R. below  R. below  R. below  R. below  R. be
12:s Time	Pumping Head is PUMPING TESTS:  Date 7/14/94 Start water level End water level Depth of well peed fixe Cra (nours) (spm) down to BTEF TEST ATTA	ft. below R.P. ft. below R.P. ft. below R.P. ft. below R.P. ft. below R.P. ft. below R.P. ft. below R.P. ft. below R.P. ft. below R.P. ft. below R.P. ft. below R.P. ft. below R.P. ft. below R.P. ft. below R.P. ft. below R.P. ft. below R.P. ft. below R.P. ft. below R.P. ft. below R.P. ft. below R.P. ft. below R.P. ft. below R.P. ft. below R.P. ft. below R.P. ft. below R.P. ft. below R.P. ft. below R.P. ft. below R.P. ft. below R.P. ft. below R.P. ft. below R.P. ft. below R.P. ft. below R.P. ft. below R.P. ft. below R.P. ft. below R.P. ft. below R.P. ft. below R.P. ft. below R.P. ft. below R.P. ft. below R.P. ft. below R.P. ft. below R.P. ft. below R.P. ft. below R.P. ft. below R.P. ft. below R.P. ft. below R.P. ft. below R.P. ft. below R.P. ft. below R.P. ft. below R.P. ft. below R.P. ft. below R.P. ft. below R.P. ft. below R.P. ft. below R.P. ft. below R.P. ft. below R.P. ft. below R.P. ft. below R.P. ft. below R.P. ft. below R.P. ft. below R.P. ft. below R.P. ft. below R.P. ft. below R.P. ft. below R.P. ft. below R.P. ft. below R.P. ft. below R.P. ft. below R.P. ft. below R.P. ft. below R.P. ft. below R.P. ft. below R.P. ft. below R.P. ft. below R.P. ft. below R.P. ft. below R.P. ft. below R.P. ft. below R.P. ft. below R.P. ft. below R.P. ft. below R.P. ft. below R.P. ft. below R.P. ft. below R.P. ft. below R.P. ft. below R.P. ft. below R.P. ft. below R.P. ft. below R.P. ft. below R.P. ft. below R.P. ft. below R.P. ft. below R.P. ft. below R.P. ft. below R.P. ft. below R.P. ft. below R.P. ft. below R.P. ft. below R.P. ft. below R.P. ft. below R.P. ft. below R.P. ft. below R.P. ft. below R.P. ft. below R.P. ft. below R.P. ft. below R.P. ft. below R.P. ft. below R.P. ft. below R.P. ft. below R.P. ft. below R.P. ft. below R.P. ft. below R.P. ft. below R.P. ft. below R.P. ft. below R.P. ft. below R.P. ft. below R.P. ft. below R.P. ft. below R.P. ft. below R.P. ft. below R.P. ft. below R.P. ft. below R.P. ft. below R.P. ft. below R.P. ft. below R.P. ft. below R.P. ft. below R.P. ft. below R.P. ft. below R.P. ft. be	Start water lave End water lave End water lave Depth of well Repead And Inne (hours) (ap 10 10 10 10 10 10 10 10 10 10 10 10 10	tt. below tt. below tt. below tt. below tt. below tt. below tt. below tt. below tt. below tt. below
Time	Pumping Head is PUMPING TESTS:  Date 7/14/94 Start water level End water level Depth of well peed fixe Cra (nours) (spm) down to BTEF TEST ATTA	ft. below R.P.  ft. below R.P.  ft. below R.P.  ft. below R.P.  ft. below R.P.  ft. pemp.  (ff.) (ppm) *F  (ff.) (ppm) *F  (ff.) (ff.) (ppm) *F  (ff.) (ff.) (ppm) *F  (ff.) (ppm) *F  (ff.) (ppm) *F	Start water lave End water lave Depth of well Depth of well Repead And Note (hours) (ap 10 10 10 10 10 10 10 10 10 10 10 10 10	tt. below  R. below  R. below  R. below  R. below  R. below  R. below  R. below  R. below  R. below  R. below  R. below  R. below  R. below  R. below  R. below  R. below  R. below  R. below  R. below  R. below  R. below  R. below  R. below  R. below  R. below  R. below  R. below  R. below  R. below  R. below  R. below  R. below  R. below  R. below  R. below  R. below  R. below  R. below  R. below  R. below  R. below  R. below  R. below  R. below  R. below  R. below  R. below  R. below  R. below  R. below  R. below  R. below  R. below  R. below  R. below  R. below  R. below  R. below  R. below  R. below  R. below  R. below  R. below  R. below  R. below  R. below  R. below  R. below  R. below  R. below  R. below  R. below  R. below  R. below  R. below  R. below  R. below  R. below  R. below  R. below  R. below  R. below  R. below  R. below  R. below  R. below  R. below  R. below  R. below  R. below  R. below  R. below  R. below  R. below  R. below  R. below  R. below  R. below  R. below  R. below  R. below  R. below  R. below  R. below  R. below  R. below  R. below  R. below  R. below  R. below  R. below  R. below  R. below  R. below  R. below  R. below  R. below  R. below  R. below  R. below  R. below  R. below  R. below  R. below  R. below  R. below  R. below  R. below  R. below  R. below  R. below  R. below  R. below  R. below  R. below  R. below  R. below  R. below  R. below  R. below  R. below  R. below  R. below  R. below  R. below  R. below  R. below  R. below  R. below  R. below  R. below  R. below  R. below  R. below  R. below  R. below  R. below  R. below  R. below  R. below  R. below  R. below  R. below  R. below  R. below  R. below  R. below  R. below  R. below  R. below  R. below  R. below  R. below  R. below  R. below  R. below  R. below  R. below  R. below  R. below  R. below  R. below  R. below  R. below  R. below  R. below  R. below  R. below  R. below  R. below  R. below  R. below  R. below  R. below  R. below  R. below  R. below  R. below  R. below  R. below  R. below  R. below  R. below  R. be

WAIPAHU WELLS III NO. 2400-09 (WELL #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 <sup>°</sup>	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.)

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

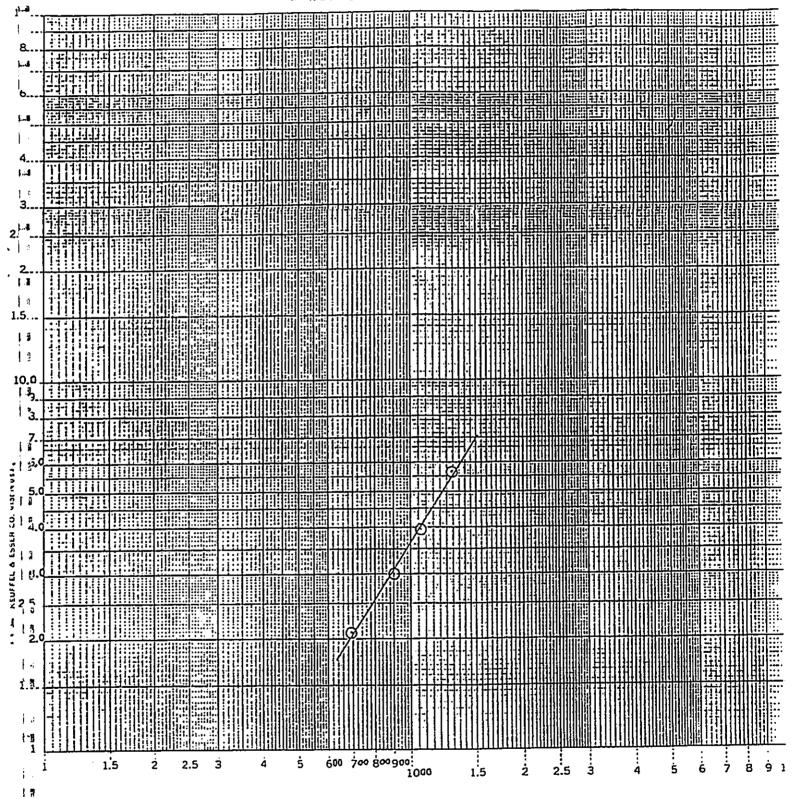
## WAIPAHU WELLS III NO. WELL #1

Location : THK: 9-4-03
Elevation at ground : +317.8 ft.
Elevation at bottom of well: -140.2 ft.
Elevation at end of casing : -40.2 ft.
Diameter of casing : 15½ in. : TMK: 9-4-05:74 -40.2 ft. 15k in. I.D. Head : +19.0 ft.
Airline Depth : 340 ft.
Pump Depth (Suction) : 351 ft.
Drilling completed : July 1994
Drilling company : Roscoe Moss Ha
Date of Yield-Drawdown test: July 14, 1994 : July 1994 : Roscoe Moss Hawaii, Inc.

75	<u>Time</u>	( <u>dbw)</u>	Drawdown (ft.)	Cl (ppm)	Temperature (°F)	Remarks
1	1115 1120 1140 1150	683 690	2.54 2.08	34	70.8 70.7	(17.85 psi static) started pumping sample
	1200 1205 1210 1220	692 890 896	2.08 3.00 3.00	. 32	70.7	sample changed rate
7	1235 1250 1300	902 906 903	3.00 3.00 3.00	. <b>32</b>	70.6 70.7 .70.7 70.7	sample
170 170 170	1305 1310 1320	1073 1070	3.92 3.92	. •	70.6 70.6	changed rate
la <b>J</b>	1335 1345 1350 1405	1059 1059 1298	3.92 3.92 5.66	34	70.6 70.7	sample changed rate
174	1420 1435 1445	1302 1294 1294	5.66 5.66 5.66	- ' 34	70.6 70.5 70.6 70.6	sample
72	1450 1451 1453		4.50 4.27			stopped pumping
7.3	1454 1455 1457 1458	-	3.69 3.58 <sup>.</sup> .11 .00			cleared airline

## WAIPAHU WELLS III NO. 2400-09

#### SPECIFIC CAPACITY



(¤dbw) Ú

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

Date <u>Time</u>	'(dbu)' O	Drawdown <u>(ft.)</u>	(DDM)	Temperature 	Remarks
7/15/94 0945 1000	(Fri)				17.70 psi (static)
1020	1019	3.24	34	70.7	started pumping first sample
1030	1029	3.47	•	70.7	TTYOC SUMPLE
1045 1100	1029	3.47		70.7	
1115	1026 1019	3.47 3.47		70-7	
1130	<b>1019</b>	3.47		70.7 70.7	
1145	1019	3.47		70.7	
1200 1300	1014 1026	3.47		70.6	
1400	1019	3.47 3.47		70.6 70.6	
1500	1012	3.47		70.7	
1800	1007	3.47		70.7	
2100 2400	1012 1014	3.24 3.47		70.7 70.7	
	(Sat)	3447		70.7	
0300	1014	3.70		70.7	
0600 0900	1012	3.70		70.7	
1000	1019 1026	3.24 3.58	34	70.7	
1200	998	3.58		70.6 70.7	average rate: 1006 gpm
1500	997	3.58		70.7	1000 GPM
1800 2100	998 1000	3.14 3.14		70.7	
2400	1000	3.14		70.7 70.7	
2400 7/17/94 (	(Sun)			70.7	
0300	1000	3.14 .	••	70.7	
0900	1000 1000	3.14 3.03		70.7	
1000	995	3.70	34	70.7 70.6	average 2 day
1200	984	4.05		70.7	rate: 998 gpm
1500 1800	984 984	4.05		70.7	<b>352</b>
2100	984	2.66 2.66		70.7 70.7	
2400	984	2.66		70.7	
7/18/94 ( 0300	Hon)				
0600	968 952	2.66 2.66		70.7	
0900	984	2.89		70.7 70.7	
1000	979	2.77	34 .	70.6	average 3 day
1200 1500	978 979	3.01 3.01		70.7	rate: 986 gpm
1800	999	3.01		70.7 70.7	
2100	1013	3.01		70.7	
2400 7/19/94 (1	1014 Tue)	3,.01		70.7	
0300	1009	3.01		70.7	
0600	1014	3.12		70.7	
0900	1004	3.01		70.7	
1000 1200	995 1000	3.01 2.89	34	70.6	average 4 day
1500	986	2.89		70.7 70.7	rate:989 gpm
1800	1003	3.12		70.7	
2100 2400	1006 1008	3.01		70.7	•
	red)	3.12		70.7	
0300 `	1010	3.12		70.7	
0600	1022	3.24		70.7	
0955 1000	995	3.01	34	70.6	
1001		2.54			stopped pumping average 5 day
1002		2.54			rate: 992 gpm
1003 1004		1.16		•	yem
1005		.70 .12			
1006		:00			full recovery
		_			recovery

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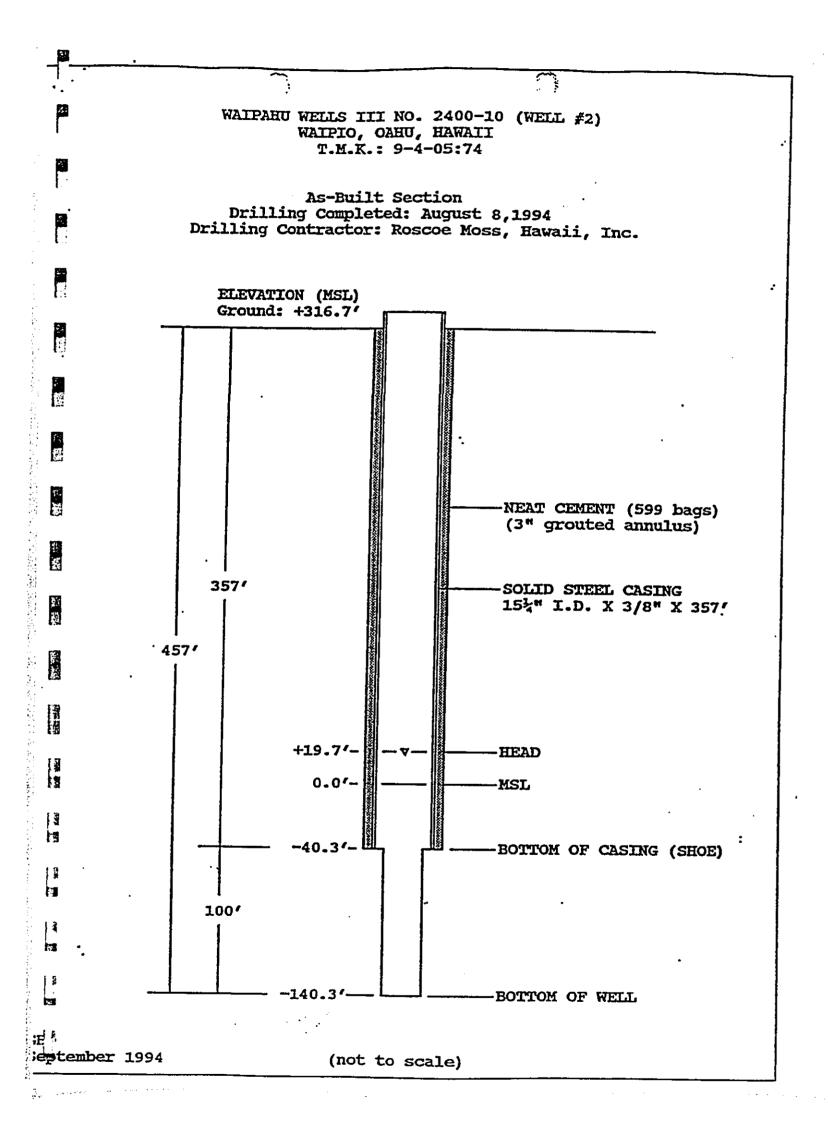
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# State of Hawaii COMMISSION ON WATER RESOURCE MANAGEMENT Department of Land and Natural Resources

## WELL COMPLETION REPORT

Management, P.O. Box 821, Hopolulu, Hawall 96009. An ad-built dra call the Commission Regulation Branch at 587-0225.	withing to days after well completion to the Commission on Water Resources of the well and chemical analysis should also be submitted. For assistant
· · · · · · · · · · · · · · · · · · ·	
1. STATE WELL NO. 2400-10 WELL NAME 2. LOCATION: Address KAM HWY ACROSS ES	WAIPAHU III #2 ISLAND OAHU
3. DRILLING OF PULL INSTALLATION CONTRACT	KOM WATERO CENTERS.
	TANKE INC.
- THE OFFICE TOPINER	-16437
The are supplied to the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of t	
110/00/1011 - 112/20	
7. DATE OF WELL DRILLING COMPLETION 8/2 (NOTE: Report must be augmined within 30 days after the date)	6/94
8. GROUND ELEVATION (msl)316.88 ft	n. 23 2
Top of Drilling Platform (msl)	h.
Height of Drilling Platform above Ground	
Bench Mark and Method Used to Determ	Ine Ground Elevation Page Comments
9. DRILLER'S LOG: Water Level	i little in the second second
Depth (fl.) Rock Description, Remarks, Dates 18.3	Water Lau
0 to 23 RED SOFT DIRT 23 to 63 BROWN GREY MED HARD	100 6109 RED MEDIUM SOFT
63 to 70 RED BROWN MED SOFT	189 6220 BLUE GREY VERY HARD 220 6234 RED BROWN MEDIUM SOED
70 to 146 BROWN GREY MED HARD	234 h240
146 to 163 BLUE GREY VERY HARD 163 to 180 BROWN GREY MED HARD	348 to 381 BLUE GREV MED HARD 200
	381 to 442 GREY BROWN MED HARD 298
10. TOTAL DEPTH OF WELL BELOW GROUND 45	1 449 469 Separate =
A A A A A A A A A A A A A A A A A A A	<u></u>
14.5 Inch dia, from	3.d.7 It. below ground
inch dla. from	II. Delow ground
12, CASING INSTALLED:	ft, loft. below ground
	all solid section to 357 ft. below ground
<u>N/A</u> In. I.D. x In. w	all perforated section toft. below ground
Type of Perforation N/A	in paidle dipplio
13. ANNULUS: Grouted from 0	ft below ground to 357 ft below ground
Gravel packed from N/A	the below ground to N/A it. below ground
14. INITIAL WATER LEVEL 298 It, below group	
AC INSTALL OF BORDER 24	Date and time of measurement 07/28/94
16. INITIAL TEMPERATURE 70.6° F	Date and time of sampling 08/17/94
17. DATE OF PUMP INSTALLATION	Date and time of sampling 08/17/94
18. PUMP INSTALLATION:	-
Purma Tuna Maka Sadal Ma	
Motor type, H.P., Voltage, rpm	Capacity gpr
	D bolous
Death of borrow of skilling	It. below, which elevation is
Pumping Head is ft.	below, which elevation is
	(R.P.) used:, which elevation is
Date <u>08/17/94</u> Slart water level	Date 08/24/94
End water levelft. below R.P.	Start water levelft. below R.P.
Depth of well to below R.P.	End water level It. below R.P.
	Depth of well ft. below R.R.
Elepsed Rate Draw- Cr. Temp. Time (hours) (gpm) down (ft.) (ppm) + F	Elapsed Pass Draw Ct. Temp. Three (hours) (gpm) down (ft.) (ppm) * F
10	Thire (hours) (gpm) down (ft.) (ppin) • F ·
b 2000 Dame - 12 Comp	o
BWS DATA ATTACRED	BWS DATA ATTACHED
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Remarks:	to to to to to to to to to to to to to t
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Remarks:  (If more space is nee  (If more space is nee  (If more space is nee  Contractor (print) ROSCOE MOSS HAWAII, INC.	Title FIELD SUPERINTENDENT;
Remarks:  (If more space is nee  (If more space is nee  (If more space is nee  Contractor (print) ROSCOE MOSS HAWAII, INC.	to to to to to to to to to to to to to t
Remarks:  (If more space is nee  (If more space is nee  Contractor (print) ROSCOE MOSS HAWAII, INC.  Signature	Title FIELD SUPERINTENDENT;  Date 10/18/94
Remarks:  (If more space is nee  (If more space is nee  Contractor (print) ROSCOE MOSS HAWAII, INC.	Title FIELD SUPERINTENDENT;



## 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 (ft.)	Drift (inches)	Drift (inches per any 100 ft.)
0 20 40 60 80 100 120 140 160 180 200 220 240 260 280 300 320 340 357	.42 1.38 2.00 2.50 3.42 3.99 4.56 4.63 4.92 6.07 7.22 7.80 9.21 8.28 8.04 8.54 9.00 9.42	3.42 3.58 3.17 2.68 2.58 3.50 5.17 4.73 * 6.35 4.52 2.37 1.43 1.24 1.41 (per 97 ft.)

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<sup>\*</sup> The maximum drift of 6.35 inches per any 100 feet of depth occurs between 160 feet and 260 feet.

# WAIPAHU WELLS III NO. 2400-10" WELL #2

Pocarron	: TMK: 9-4-05:74 : +316.7 ft.
missission at hottom of Wells	: -140.3 ft.
Elevation at end of casing	40-3 70-
Diameter of casing	: 15k in. I.D.
	: +19.7 ft.
Head	340 ft.
num north (Suction)	354 ft.
- 1331loked	August 1994
printing company	ROSCOE HOSS Hawall, Inc.
Drilling company	: August 17, 1994

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	Time	( <u>dbur)</u>	Drawdown (ft.)	(bbu)	Temperature (°F)	Remarks
222	0845 0850	•				(18.10 psi static) started pumping
	0900	695	1.96			
	0910	683	1.96			
14	0930	700	1.96			lo #1
	0945	690	1.96	34	70.6	sample #1 changed rate
	0950				•	Changed zero
r 72	0955	956	3.58			
	1010	956	3.58			
ł <b>H</b>	1025	956	3-58		70.6	gample #2
	1045	951	3.58	34	70.0	changed rate
r n	1050					<b></b>
3	1055	1148	4.97			
3	1110	1150	4.97			
	1125	1148	4.97	34	70.6	sample #3
ļ 3	1145	1148	4.97	24	,,,,,	changed rate
3	1150		6 10		<u></u>	
. 2	1155	1327	6.12 6.12		**	
	1210	1309	6.12		•	
1	1225	1322	6.12	34	70.6	sample #4
	1245	1313	0.11			stopped pumping
t - 39	1250		.35			
	1255		.11			
1 2	1300		.11			
15	1305	-				
			•			

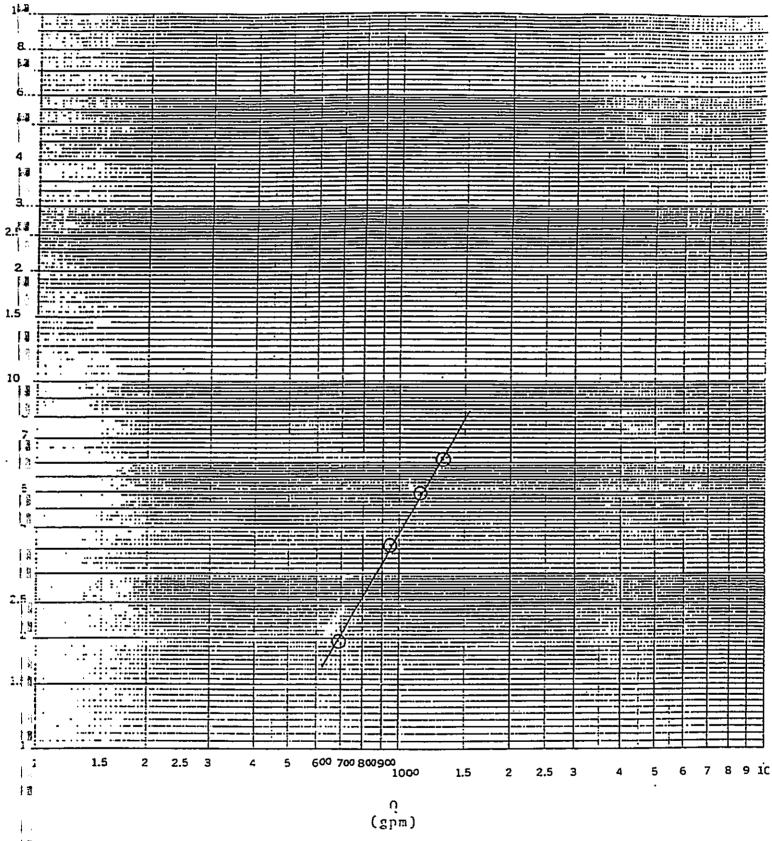
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## WAIPARU WELLS III NO. 2400-10

#### SPECIFIC CAPACITY



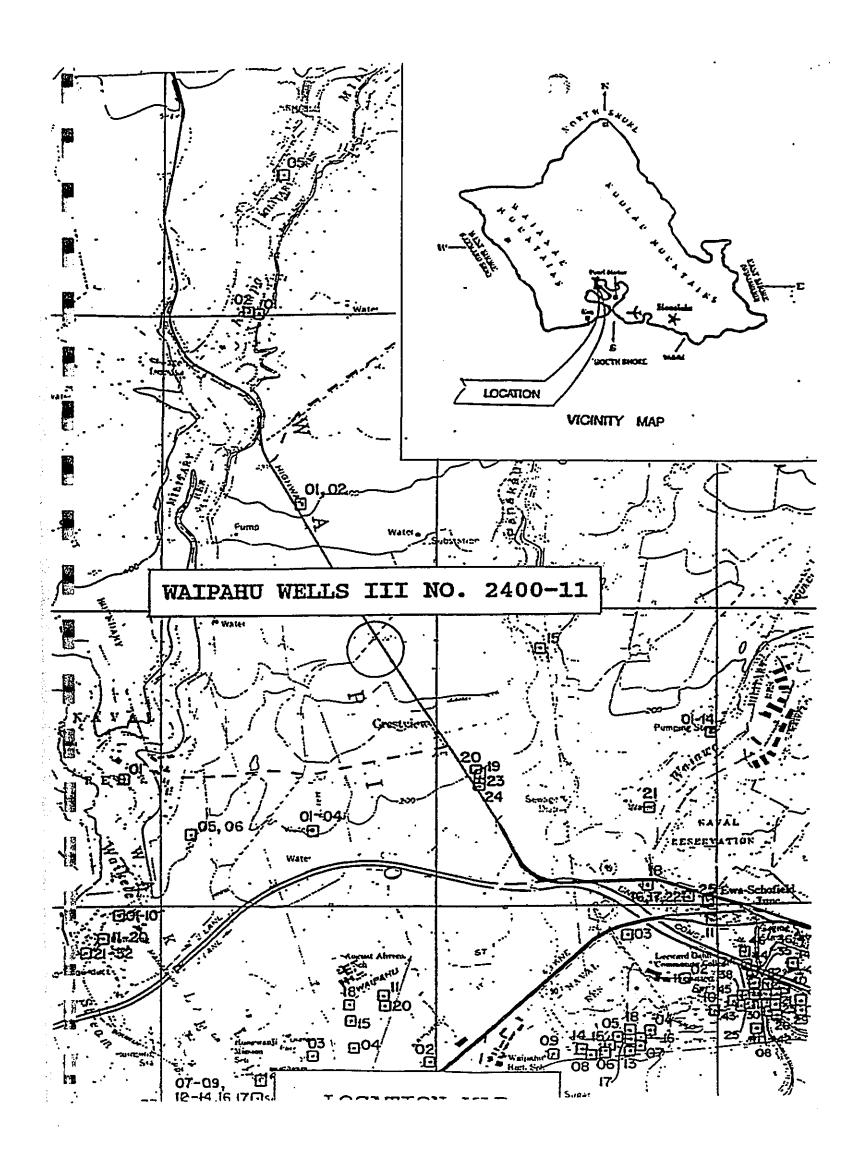
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# WAIPAHU WELLS III NO. 2400-10 WELL #2 LONG TERM PUMPING TEST: 8/22/94 to 8/25/94

-	Date Time	(map)	Drawdown (ft.)	Cl (maa)	Temperature °F	<u>Remarks</u>
£	8/22/94	(Mon)	<u></u>		·, <del></del>	18.10 psi
	0945 1000	(1.011)				(static) started pumping
•	1010 1020	1014 1017	3.35 3.35	34	70.7	sample
	1030 1040	1033 1033	3.46 3.46			
•	1050 1100	1034 1034	3.46 3.46			
	1110	1031 1029	3.46 3.35 3.35			
<b></b>	1120 1130 1140	1020 1014	3.35 3.23 3.23	•		
*	1150 1200	1014 1014	3.23 3.23 3.12			
<b>B</b> A	1300 1400	1008 1002	3.23			
	1500 1800	1000 1000	3.23 3.35			
<b>8</b> .4	1830 2100	1000 1000	3.35 3.23			
<u>'</u>	2400 8/23/94	1000 (Tue)	3.23			
EJ	0100	1000	3.35 3.23			•
建	0600 0800	1000 1000	3.35 3.35			
*	0900 1000	1000 1007	3.35 3.23	1.		average rate:
N N	1005 1100	1005	3.23	34	70.6	sample
1.33	1200 1300	1000 1000	3.35 3.23 3.23			
	1400 1500	1000 1000	3.23 3.23 3.23			•
1.50	1800 2100	1000 1000	3.23			
	2400 8/24/94	1000 (Wed)	3.23			
	0300	1000 1000	3.23 3.23			narowago 2 data
	0800 0900	1000 1000	3.46 3.46	••	70 C	average 2 day rate: 1005 gpm sample
	1000 1200	1012 1000	3.46 3.35 3.35 3.35 3.35 3.35 3.35	34	70.6	Pampre
3	1500	1000 1000	3.35		•	
	1800 2100 2400 8/25/94	1000	3.35			
74	0300	TOOG	3.35			average 3 day
	0600 0900	1000 1000	3.35 3.35 3.23	34	70.6	average 3 day rate: 1000 gpm sample
	0950 1000	988		34	, 600	stopped pumping
	1001		2.42 2.31			
1	1004 1005		2.31 2.08 1.96 1.85			~•
	1006 1007 1008		1.73 1.62			
	1008 1009 1010		1.73 1.62 1.50 1.38 1.15	• •		
	1010		1.15			
	1011 1012 1013		1.04 .92 .11			clear airline
	1015					

Total pumpage (72 hours): 4,319,300 gallons
Average pumpage per day: 1,439,767 gallons
Average pumpage rate: 1,000 gallons per minute

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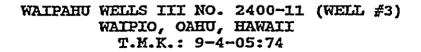


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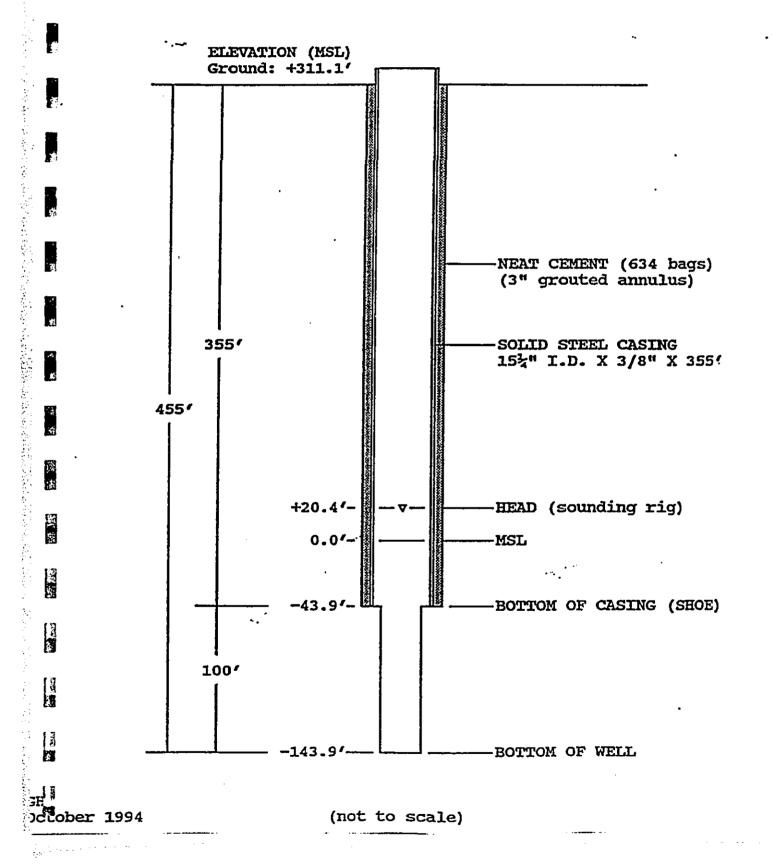
# State of Hawaii COMMISSION ON WATER RESOURCE MANAGEMENT Department of Land and Natural Resources

## WELL COMPLETION REPORT

	Instructions: Please print or type and submit completed Hanagement, P.O. Box 621, Horotuki, Hawaii 96609. An as- call the Commission Regulation Branch at 587-0225.	toport within 30 di	tys that well comply and and charmical and	etton to the Commissi Mysis should also be su	on on Water Resource
i	1. STATE WELL NO. 2400-11 WELL 2. LOCATION: Address KAM HWY ACROSS	NAME WAIPAH	U WELLS III 4	3 ISLAND	OAHU
	3. DRILLING OR PUMP INSTALLATION CON 4. CONTRACTOR'S C-57 LICENSE NUMBER 5. NAME OF DRILLER WHO PERFORMED V 6. TYPE OF RIG/CONSTRUCTION FAILING	YORK JOHN CA	17701	AII, INC.	
	8. GROUND ELEVATION (mgl) 311.1	09/23/94	JIARY	· ·	
	Top of Drilling Platform (msl) 3: Height of Drilling Platform above G Bench Mark and Method Used to D	13.1 ft.	2 d Elevation BW	ft. S SURVEY 4	
	Depth (ft.) Rock Description, Remarks, Dates  0 to 31 RED BROWN SOFT	ter Lavol (tt.)	Depth (ft.) Roc	* Description, Remark REY BROWN VERY	Water Leye ne, Cetse (ft.)
	31 to 147 BROWN GREY MED HARD 147 to 164 BLUE GREY HARD 164 to 201 GREY MED HARD 201 to 227 BLUE GREY HARD TO MED HA 227 to 251 GREY BROWN HARD LOOSE	·28 31 22	8 to 314 R 4 to 400 B	ROWN GREY MED UE GREY LITTL US Grey CHIE	HARD 293 E. BROWN 203
	The state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the state of the s		ft.		
ave.	13 Inch dia, front 12 CASING INSTALLED:	om <u>355</u> om	ft. to 35 ft. to 45 ft. to		ground
AN SER	17 83/6/10/10/05	in. wali perfora N/A	ted section to	ft. below	
# #	Gravel packed from N/A	It below	* **	/A the below	ground
· · · · · · · · · · · · · · · · · · ·	14. INITIAL WATER LEVEL 293.1 ft. below 15. INITIAL CHLORIDE 30 16. INITIAL TEMPERATURE 70.5 17. DATE OF PUMP INSTALLATION	pm Date a*F Date a	nd time of meas nd time of samp nd time of samp	Urement <u>09/23</u> ling <u>09/23</u> ling <u>09/23</u>	/94 /94 /94
	18. PUMP INSTALLATION:  Pump Type, Make, Serial No.  Motor type, H.P., Voltage, rom		<del></del>	. Capacity	gpm
13	Depth of Pump Intake Setting Depth of bottom of airline Pumping Head is  ft.	tt. below_	, which	nich elevation is	ft.
	Date 9/30/94 Start water level 293.1 ft. below	R.P.	Start water leve	which elevation is 94 293 1	ft. below R.P.
 	Espeed Pase Draw Ct. Te Time (hours) (opm) down (ft.) (opm)	R.P.	Depth of Well speed Ra (hours) (gpi	ARE Draw- m) down (IL)	The below R.P.
	DATA ATTACHED		DA	TA: ATTACHED	
	Remarks:	e is needed, comuni e is needed, comuni	·	•	
,	Contractor (print) ROSCOE MOSS HAWAII, I			ELD SUPERINTEN	IDENT
4	Signature Tracy Punnish			11/22/94	
	For Onlier's Use: Job Name Job No	\$ <del>\$</del>	r Official Use: ngrtuda	Well No	



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 : 15½ 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

谱	Time	( <u>dbur)</u> Ö	Drawdown (ft.)	(ppm)	Temperature	Remarks
2	0855					17.97 static
¥	0905					head (airline)
	0905	715	0 21	20	70.5	started pumping
	0920	692	2.31 2.31	30	70.5 70.5	sample #1
	0935	705	2.31		70.4	
N	0950	697	2.31		70.4	
	1000	037	2.54		70.4	
2.98	1005	692	2.42		70.4	
	1020	691	2.31		70.4	
	1030	692	2.31	30	70.4	sample #2
	1035			20		changed rate
C 20	1050	922	3.46		70.3	-imiged acce
1	1105	917	3.46		70.3	
1.3	1120	906	3.35		70.3	
	1130	912	3.35	30	70.3	sample #3
ļ <b>Ņ</b>	1135					changed rate
1	1140	1113	4.50		70.2	<b>3</b>
	1155	1101	4.50		70.2	
	1215	1105	4.50		70.2	
1 9	1230	1105	4.50	30	70.2	sample #4
	<b>12</b> 35					changed rate
PA.	1240	1285	6.00		70.2	_
	1255	1330	6.00		.70.3	
1.1	1320	1319	6.00		70.2	
	1340	1325	6.00		70.3	
	1345	1325	6.00		70.3	sample #5
	1350					stopped pumping
	1351		1.50			
14	1352					well recovered

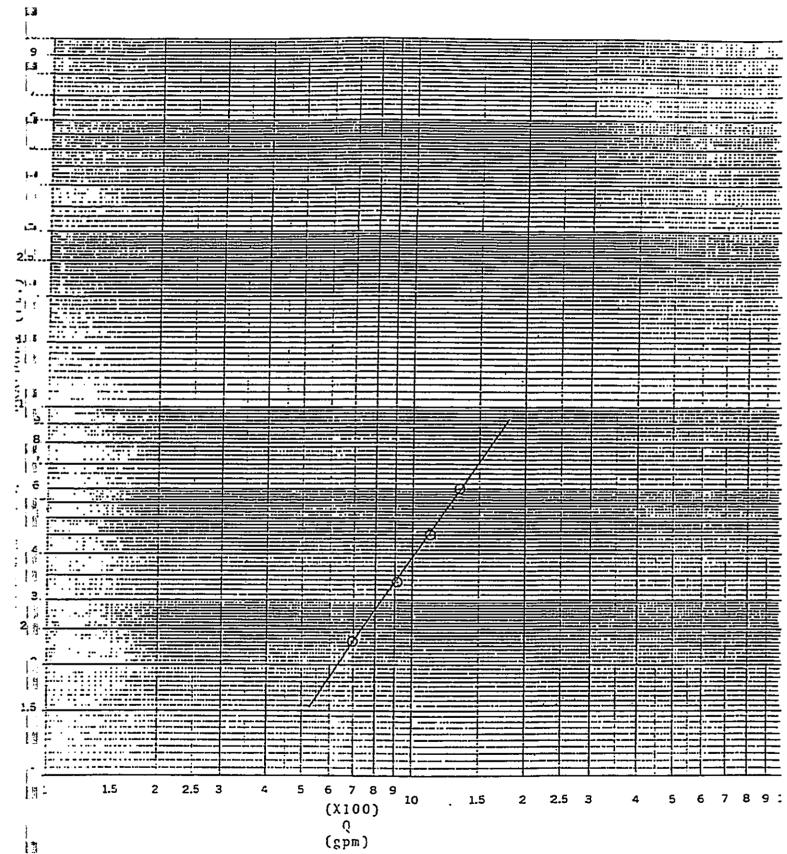
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WATPAHU WELLS III NO. 2400-11

## WFLL #3 SPECIFIC CAPACITY



## WAIPAHU WELLS III NO. 2400-11 Well #3

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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	Drift	Drift (inches per		
(ft.)	(inches)	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		
<sup>l</sup> 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		
<b>280</b>	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.)		
		•		

<sup>\*</sup> 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 WELL #3 LONG TERM PUMPING TEST: 10/17/94 to 10/20/94

e e						
1	Date	Q	Drawdown	Cl	Temperature	• •
•	Time	(atom)	(ft.)	(mag)	<u>°F</u>	<u>Remarks</u>
0.00		<del>-1,-11,1-</del>	•	*		10 20/ atatia
	10/17/94	(Monday)				18.20' static
	0955	• •	• •	•		head started pumping
	1.000				70.2	sample #1
t m	1011	1043	3.69	30	70.2	Sambre Lr
	1025	1073	3.81		70.3 70.3	
22	1045	1043	3.58		70.3 70.3	
	1100	1045	3.58		70.3 70.2	
62 <b>4</b>	1120	1042	3.58		70.2	
	1145	1042	3.58		70.2	
	1200	1034	3.58			
	1500	1026	3.58	: -		
550	1800	997	3.58			
	2100	990	3.35			
2	2400	991	3.35			
	10/18/94	(Tuesday)	0.05			
121	0300	989	3.35			
	0600	989	3.92			•
[3]	0900	982	3.81	32		sample #2
	1000	985	3.46	32		average rate:
<b>F.</b> 競	1200	982	3.81			1001 gpm
	1500	979	3.81			7002 Jr.
1	1800	997	3.46			
	2100	995	3.46			
12	2400	993	3.46			
	10/19/94	(Wednesday)	2 40			
l'A	0300	990	3.46			
	0600	986	3.46			
	0900	986	3.58	32		sample #3
3	1000	1054	3.69	32		average 2 day
1.33	1200	1020	3.69			rate: 995 gpm
	1500	1020	3.69			
3	1800	1031	3.92			
3	2100	1026	3.81			
1.2	2400	1045	3.81			
	10/20/94	(Thursday)	2 01			
3	0300	1025	3.81			
2	0600	1032	3.81			
LH	0900	1040	3.69		70.3	
	0930	1043	3.58	32	70.3	sample #4
19	0950	1045	3.58	24	,0.5	stopped pumping
	1000					<u></u>
¥.		(72 ho	urcl. 4 366	.000 മുവ	ons	• .

Burney Commence Commence

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

Honolulu Board of Water Supply

rom subject

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1000

100

**ENGINEERING BRANCH** 

PLANNING BRANCH

WAIRAHU 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.

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** 

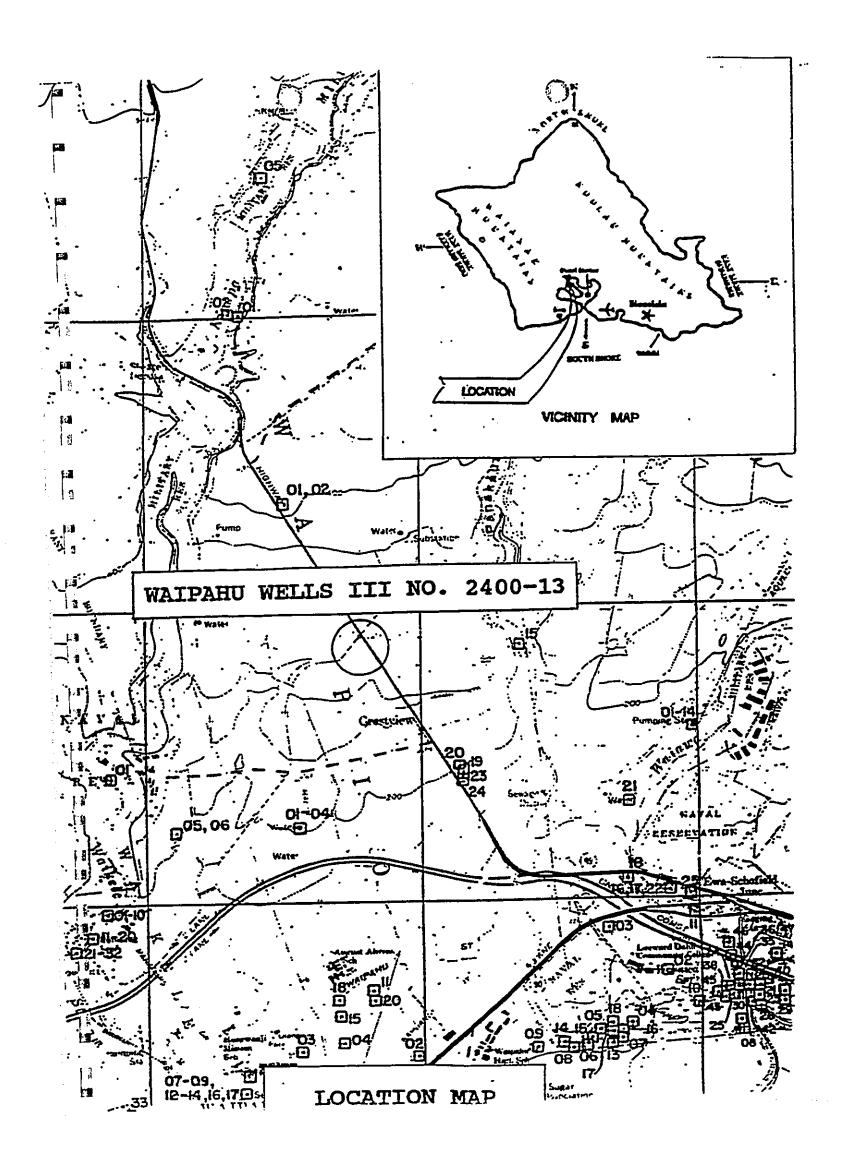
GHO:rk

cc:

Plant Operations H. Minakami

Engineering (A. Okada)

C. Lao

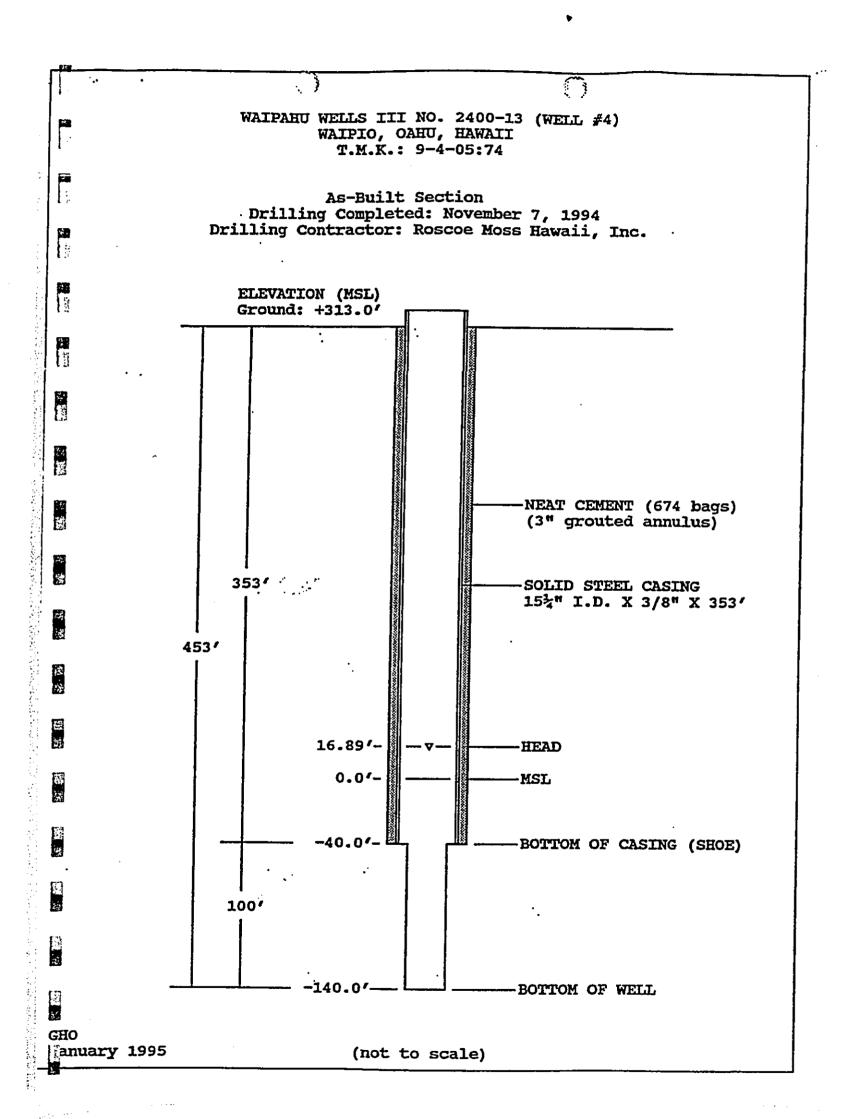




# State of Hawaii COMMISSION ON WATER RESOURCE MANAGEMENT Department of Land and Natural Resources

## WELL COMPLETION REPORT

1.				,	ebon to the Commission Mysic should also be subm	*****
2.	STATE WELL NO. LOCATION: Address	2400-13 WELL	NAME WAIPAH	<u>U III #4</u>	ISLANDO	
· 3.			SS WAIPIO GEN	IKY MARINARA ITAN	Tax Map Key 9-	4-05:74
4,	CONTRACTORS	P INSTALLATION CON -57 LICENSE NUMBER	C-16437	COE MUSS HAW	AII, INC.	
5.	NAME OF DRILLER	WHO PERFORMED V	NORK JOHN C	ABBALL		
6.	TYPE OF RIG/CON		ING 150 AIR		_	
7.	DATE OF WELL DR	ILLING COMPLETION	01/20/95	NOTAKT	Angelo Pages	
8.	GROUND ELEVATION	ON (msi) 313.0 ng Platform (msi) 3	ft. 315.0 ft.			
	Height of Dr	illing Platform above C and Method Used to	Pround surface	2	ft.	
8.	Driller's log:	· w	ater Level			Water Le
	0 ‰ 19 RED BRI 19 ₩ 141 GREY L	dotton, Remarks, Dates OWN MED SOFT ITTLE BROWN HARD		(2 \\ \omega \omega \omega \omega \omega \omega \omega \omega \omega \omega \omega \omega \omega \omega \omega \omega \omega \omega \omega \omega \omega \omega \omega \omega \omega \omega \omega \omega \omega \omega \omega \omega \omega \omega \omega \omega \omega \omega \omega \omega \omega \omega \omega \omega \omega \omega \omega \omega \omega \omega \omega \omega \omega \omega \omega \omega \omega \omega \omega \omega \omega \omega \omega \omega \omega \omega \omega \omega \omega \omega \omega \omega \omega \omega \omega \omega \omega \omega \omega \omega \omega \omega \omega \omega \omega \omega \omega \omega \omega \omega \omega \omega \omega \omega \omega \omega \omega \omega \omega \omega \omega \omega \omega \omega \omega \omega \omega \omega \omega \omega \omega \omega \omega \omega \omega \omega \omega \omega \omega \omega \omega \omega \omega \omega \omega \omega \omega \omega \omega \omega \omega \omega \omega \omega \omega \omega \omega \omega \omega \omega \omega \omega \omega \omega \omega \omega \omega \omega \omega \omega \omega \omega \omega \omega \omega \omega \omega \omega \omega \omega \omega \omega \omega \omega \omega \omega \omega \omega \omega \omega \omega \omega \omega \omega \omega \omega \omega \omega \omega \omega \omega \omega \omega \omega \omega \omega \omega \omega \omega \omega \omega \omega \omega \omega \omega \omega \omega \omega \omega \omega \omega \omega \omega \omega \omega \omega \omega \omega \omega \omega \omega \omega \omega \omega \omega \omega \omega \omega \omega \omega \omega \omega \omega \omega \omega \omega \omega \omega \omega \omega \omega \omega \omega \omega \omega \omega \omega \omega \omega \omega \omega \omega \omega \omega \omega \omega \omega \omega \omega \omega \omega \omega \omega \omega \omega \omega \omega \omega \omega \omega \omega \omega \omega \omega \omega \omega \omega \omega \omega \omega \omega \omega \omega \omega \omega \omega \omega \omega \omega \omega \omega \omega \omega \omega \omega \omega \omega \omega \omega \omega \omega \o	ck Description, Remarks, rev_red brown UE_GREY_MED_HAR	297
- <u>}</u> {	11 to 181 GREY VE	RY HARD UE VERY HARD			REY BROWN MED HA	0 <u>297</u> RO 297
33		UE MED HARD	297 297	# # T		
10,	TOTAL DEPTH OF V	A more in VELL BELOW GROUN	pace is needed, com	ft.	,	<del></del>
11.		22 Inch dla, f			353 ft. below g	mund
	<u>1</u>	.4 1/2 Inch dia. f			453 ft. below g	
12.	. CASING INSTALLED	inch dia. f		fL to	ft. below g	
12.	. Onsing Marketed	. 25 In. I.D. x <u>. 375</u>	in wall solid a	ection to <u>353</u>	h halmer m	
	- N	A in, I.D, x	_ in. wall perfora	ited section to	ft, below g	
	. Type		A Hai panana	ner section to	tr perów 8	round
13.	4 4 44 44 44 4 4 4 4	red from 0		ground to	353 It. below g	found
	Grav	el packed from NA		v ground to	ft. below g	
14.	INITIAL WATER I EVE	=1 207 <b>t</b> e bolon	t seemed Date .			
15.	INITIAL WATER LEVE INITIAL CHLORIDE INITIAL TEMPERATU DATE OF PUMP INS	36	r ground, Date a	und time of mea	surement10/27	/94
16.	INITIAL TEMPERATU	RE 71 00	ppm Date a	ing time of sem	pring1/5/	95
17.	DATE OF PUMP INS	TALLATION	L _ Date a	ma rime or serui	pring1/5/95	
	PUMP INSTALLATION					•
•	Pump Type. I	Make, Serial No.		•	Canadh.	
	Motor type, H	I.P., Voltage, rpm	<del></del>		Capacity_	gp
	Depth of Rum	p.intaka Setting	ft. holow		dich ciamtica le	
		Langua Agrang	ft. helow		inch elevation is	
	Depth of botto	on of airline			KII DIGYADON AS	
	Depth of Pum Depth of botto Pumping Hee	om of airline				
19.	Fumping mea					
19.	PUMPING TESTS: Date 1/5/05	Reference	Point (R.P.) use	d:	, which elevation is	
	PUMPING TESTS: Date1/5/95	Reference	Point (R.P.) use	d:	, which elevation is	· · · · · · · · · · · · · · · · · · ·
	PUMPING TESTS: Date1/5/95	Reference	e Point (R.P.) use w R.P.	d:	, which elevation is of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control	tt. below R.
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EI:	PUMPING TESTS:  Date 1/5/95 Start water level End water level Depth of well  speed Rese (nours) (spm)	297 ft. belo 297 ft. belo 297 ft. belo 453 ft. belo	e Point (R.P.) use w R.P. w R.P. w R.P.	d:  Date 1/10/ Start water lev  End water lev  Depth of well	which elevation is set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set of the set	_tt. below R. _tt. below R. _tt. below R
E MIT	PUMPING TESTS: Date 1/5/95 Start water level End water level Depth of well speed Rate (nours) (npm)	Reference 297 ft. belove 297 ft. belove 453 ft. belove Ctraw- Ct- down (ft.) (ppm)	w R.P. w R.P. w R.P. w R.P. Temp.	d:  Date 1/10/ Start water lev  End water lev  Depth of well	, which elevation is of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control of the control	_tt. below R. _tt. below R. _tt. below R
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E	PUMPING TESTS: Date 1/5/95 Start water level End water level Depth of well speed Rate (nours) (npm)	Reference 297 ft. belove 297 ft. belove 453 ft. belove Ctraw- Ct- down (ft.) (ppm)	w R.P. w R.P. w R.P. w R.P. Temp.	d: Date 1/10/ Start water level End water level Depth of well Espaced A (c) (c)	which elevation is 297 vel 297 vel 297 453 coe Crew- pm) down (ft.)	tt. below Rtt. below Rtt. below Rtt. below Rtt. below Rtt. below R.
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Time	PUMPING TESTS: Date 1/5/95 Start water level End water level Depth of well speed Rate (nours) (npm)	Reference  297 ft. belove 297 ft. belove 453 ft. belove Craw- Ct. clown (ft.) (ppm)  ST. DATA ATTACHED.	Point (R.P.) use w R.P. w R.P. Temp. F Tin	d: Date 1/10/ Start water level End water level Depth of well Espeed A In (hours) (g	which elevation is 297 vel 297 vel 297 453 coe Crew- pm) down (ft.)	tt. below R.I. tt. below R.I. tt. below R.I tt. below R.I
El	PUMPING TESTS:  Date 1/5/95 Start water level End water level Depth of well speed Rate (nours) (spm)  to STEP TES  Remarks:	Reference  297 ft. belove 297 ft. belove 453 ft. belove Craw- Ct- down (ft.) (ppm)  ST. DATA ATTACHED.  (If more spirit	Point (R.P.) use w R.P. w R.P. Temp. F Tin	d: Date 1/10/ Start water lev End water lev Depth of well en (hours) (g	, which elevation is of yell 297 el 297 453 Erew pm) down (tt.)	tt. below R.  tt. below R.  tt. below R.  Temp ppm)  F
E	PUMPING TESTS: Date 1/5/95 Start water level End water level Depth of well speed Rese (hours) (spm)  50 STEP TES 10 Remarks:	Reference 297 ft. belove 297 ft. belove 453 ft. belove Covern (ft.) (ppm)  ST. DATA ATTACHED.  (If more spin	Point (R.P.) use w R.P. w R.P. w R.P. Temp. F The	d: Date 1/10/ Start water lev End water lev Depth of well en (hours) (g	, which elevation is  05 vel 297 el 297 453 pm) down (n.)	_it. below R.F _it. below R.F _it. below R.F Ct- Temp. ppm) F
E	PUMPING TESTS: Date 1/5/95 Start water level End water level Depth of well speed Rese (hours) (spm)  50 STEP TES 10 Remarks:	Reference  297 ft. belove 297 ft. belove 453 ft. belove Craw- Ct- down (ft.) (ppm)  ST. DATA ATTACHED.  (If more spirit	Point (R.P.) use w R.P. w R.P. w R.P. Temp. F The	d: Date 1/10/ Start water lev End water lev Depth of well en (hours) (g	, which elevation is of yell 297 el 297 453 Erew pm) down (tt.)	tt. below R.  tt. below R.  tt. below R.  tt. below R.  Temp ppm)  F
E) Contra	PUMPING TESTS: Date 1/5/95 Start water level End water level Depth of well apeed Rate (nours) (cpm)  50 STEP TE	Reference  297 ft. belove 297 ft. belove 453 ft. belove Craw- Ct- down (ft.) (ppm)  ST. DATA ATTACHED.  (If more spin	Point (R.P.) use w R.P. w R.P. w R.P. Temp. Tin  tice is needed, contin	d: Date 1/10/ Start water lev End water lev Depth of well en (hours) (g	which elevation is 297 el 297 el 297 el 297 el Craw- pm) down (t.) TERN DATA ATTAC	tt. below R. ft. below R. ft. below R. ft. below R. ft. below R. ft. below R. ft. below R. ft. below R. ft. below R. ft. below R. ft. below R. ft. below R. ft. below R. ft. below R. ft. below R. ft. below R. ft. below R.
E) Time Contro	PUMPING TESTS:  Date 1/5/95 Start water level End water level Depth of well apeed Rate (nours) (cpm)  50 STEP TE	Reference  297 ft. belove 297 ft. belove 453 ft. belove Crawe Ct. down (ft.) (ppm)  ST. DATA ATTACHED.  (If more spin	Point (R.P.) use w R.P. w R.P. w R.P. Temp. Temp. Temp. Temp. Temp. Temp. Temp. Temp. Temp. Temp. Temp. Temp. Temp. Temp. Temp. Temp. Temp. Temp. Temp. Temp. Temp. Temp. Temp. Temp. Temp. Temp. Temp. Temp. Temp. Temp. Temp. Temp. Temp. Temp. Temp. Temp. Temp. Temp. Temp. Temp. Temp. Temp. Temp. Temp. Temp. Temp. Temp. Temp. Temp. Temp. Temp. Temp. Temp. Temp. Temp. Temp. Temp. Temp. Temp. Temp. Temp. Temp. Temp. Temp. Temp. Temp. Temp. Temp. Temp. Temp. Temp. Temp. Temp. Temp. Temp. Temp. Temp. Temp. Temp. Temp. Temp. Temp. Temp. Temp. Temp. Temp. Temp. Temp. Temp. Temp. Temp. Temp. Temp. Temp. Temp. Temp. Temp. Temp. Temp. Temp. Temp. Temp. Temp. Temp. Temp. Temp. Temp. Temp. Temp. Temp. Temp. Temp. Temp. Temp. Temp. Temp. Temp. Temp. Temp. Temp. Temp. Temp. Temp. Temp. Temp. Temp. Temp. Temp. Temp. Temp. Temp. Temp. Temp. Temp. Temp. Temp. Temp. Temp. Temp. Temp. Temp. Temp. Temp. Temp. Temp. Temp. Temp. Temp. Temp. Temp. Temp. Temp. Temp. Temp. Temp. Temp. Temp. Temp. Temp. Temp. Temp. Temp. Temp. Temp. Temp. Temp. Temp. Temp. Temp. Temp. Temp. Temp. Temp. Temp. Temp. Temp. Temp. Temp. Temp. Temp. Temp. Temp. Temp. Temp. Temp. Temp. Temp. Temp. Temp. Temp. Temp. Temp. Temp. Temp. Temp. Temp. Temp. Temp. Temp. Temp. Temp. Temp. Temp. Temp. Temp. Temp. Temp. Temp. Temp. Temp. Temp. Temp. Temp. Temp. Temp. Temp. Temp. Temp. Temp. Temp. Temp. Temp. Temp. Temp. Temp. Temp. Temp. Temp. Temp. Temp. Temp. Temp. Temp. Temp. Temp. Temp. Temp. Temp. Temp. Temp. Temp. Temp. Temp. Temp. Temp. Temp. Temp. Temp. Temp. Temp. Temp. Temp. Temp. Temp. Temp. Temp. Temp. Temp. Temp. Temp. Temp. Temp. Temp. Temp. Temp. Temp. Temp. Temp. Temp. Temp. Temp. Temp. Temp. Temp. Temp. Temp. Temp. Temp. Temp. Temp. Temp. Temp. Temp. Temp. Temp. Temp. Temp. Temp. Temp. Temp. Temp. Temp. Temp. Temp. Temp. Temp. Temp. Temp. Temp. Temp. Temp. Temp. Temp. Temp. Temp. Temp. Temp. Temp. Temp. Temp. Temp. Temp. Temp. Temp. Temp. Temp. Temp. Temp. Temp. Temp. Temp. Temp. Temp. Temp. Temp. Temp. Temp. Temp. Temp. Temp. Temp. Temp. Temp. Temp. Temp	d: Date 1/10/ Start water lev End water lev Depth of well en (hours) (g to 10 0MG to 10 0MG to 10 0MG to 10 0MG to 10 0MG Title 10 0MG	which elevation is 297 el 297 el 297 el 297 el Craw- pm) down (n.) TERN DATA ATTAC	tt. below R. ft. below R. ft. below R. ft. below R. ft. below R. ft. below R. ft. below R. ft. below R. ft. below R. ft. below R. ft. below R. ft. below R. ft. below R. ft. below R. ft. below R. ft. below R. ft. below R.



#### 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	
140	9.14	6.19
160	8.49	5.96
180	8.14	4.29
200	8.25	3.54
220	9.37	4.21
240	10.15	4.07
260	11.40	4.04
280		3.62
300	11.25	3.49
320	10.77	
340	9.62	2.16
345	8.91	2.83
243	8.41	3.01 (per 85 ft.)

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

# WAIPAHU WELLS III NO. 2400-13 WELL #4

	THK: 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 It.
Diameter of casing :	15% in. I.D.
	16.89 ft.
Airline Depth :	340 ft.
Pump Depth (suction) :	352 ft.
Drilling completed :	November 7, 1994
DETERMINE COMPTOCO	Roscoe Moss Hawaii, Inc.
Date of Yield-Drawdown test:	

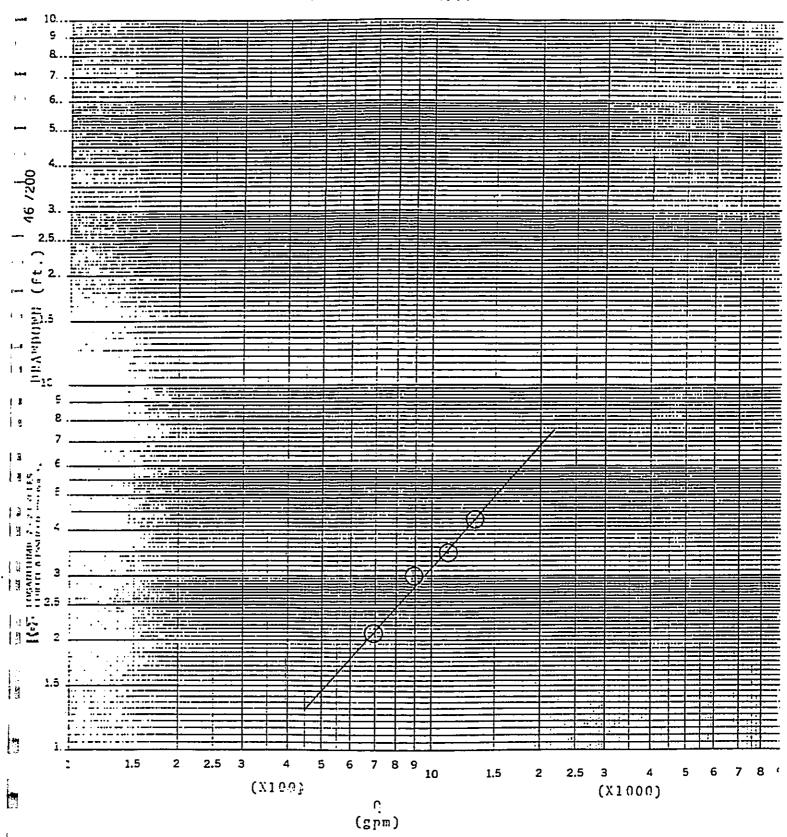
	<u>Time</u>	( <u>dbw)</u>	Drawdown (ft.)	Cl (ppm)	Temperature	Remarks
						16.89' static
<b>. 2</b>	0850					head (airline)
	0905					started pumping
	0917	710	1.73	36	71.2	sample #1
. w	0923	706	1.73		71.4	_
1.18	0930	706	2.08		71.4	
1	0945	697	1.85		71.4	•
	1000	699	2.08		71.4	
t 19	1010	697	2.08	36		sample #2
1	1015					changed rate
12	1017	898	2.66		71.1	
	1025	889	3.00		71.1	
1 72	1029	920				
4	1035	935	3.00		71.1	
Į 🗷	1040	901				
	1050	906	3.00		71.2	
F 24	1110	896	3.00	36	71.2	sample #3
	1115					changed rate
3	1119	1105 '	3.35		71.0	_
	1140	1093	3.46		71.0	•
13	1200	1101	3.46		71.0	
[]  - <b>  []</b>	1210	1101 ·	3.46	36	70.9	sample #4
- [3	1215				<b></b>	changed rate
	1219	1307	4.27		71.0	
12	1230	1319	4.27		70.9	
	1250	1310	4.27		70.8	
£B	1310	1310	4.27		70.8	
	1330	1310	4.27	36	70.8	sample #5
E3	1335					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	Q	Drawdown .	Cl	Temperature <u>°F</u>	
	Time	(dbm)	(ft.)	(maga)	<u>•</u> F	<u>Remarks</u>
	1/10/95	(Tuesday)				
	0950					16.54' static
i.	1000					head (airline) started pumping
4	1010	995	2.42	36	70.9	sample #1
	1030	1008	2.54		71.0	
17-1	1050 1110	1015 1008	2.65 2.77		70.9	•
**	1130	1015	2.88		71.0 71.0	
_	1200	1005	2.88		, 1.0	
ės:	1300	1008	3.00			
<b>4</b> 4	1400 1500	1010 1008	3.23			•
<b>F</b> 2	1600	1009	3.35 3.46			
	1700	1010	3.58			
	1800	1008	3.81			
25	1900	1006	3.81			
	2000 2100	·1010 1008	4.04			
	2200	1005	4.04 4.27			
	2300	1005	4.27			
	2400	1005	4.27			
MON	1/11/95 (	(Wednesday)	•			
as As	0100 0200	1000 1000	4.27			
	0300	1000	4.27 4.27			
	0400	1000	4.27			
<b>数</b>	0500	1000	4.27			
120	0600	1000	4.27			
	0700 0800	1002 1001	4.39			
122	0900	1001	4.39 4.39			
K.	1000	1012	4.39	38	71.0	sample #2
	1100	1009	4.39		72.00	average
123	1200	1006	4.39			rate: 1006 gpm
i.	1300 1400	1002 1004	4.39			32
<b>39</b>	1500	1000	4.39 4.27			
	1600	1003	4.27		•	
麓	1700	1004	4.39			
±¥.	1800	1003	4.50		•	
	1900 2000	1004 1004	4.50		•	
<b>29</b> 7	2100	1004	4.62 4.62		•	
<b>建</b>	2200	1002	4.62		•	
	2300	1001	4.62		•	
<b>(3)</b>	2400	1001	4.73			
te: I						

```
1/12/95 (Thursday)
0100 1002
                 1002
                                 4.73
4.73
    0200
                 1002
    0300
                 1002
                                 4.85
    0400
                 1000
                                 4.85
    0500
                 1017
                                 4.85
                 1018
   0600
                                 4.73
   0700
                                4.73
4.73
4.73
                 1010
   0800
                 1003
   0900
                  999
   1000
                  998
                                4.96
                                               38
                                                                            sample #3
average 2 day
rate: 1004 gpm
                                                             71.0
   1100
                  996
                                4.96
   1200
                  994
                                4.96
   1300
                  996
                                4.85
   1400
                1000
                                4.85
   1500
                1001
                                4.85
   1600
                1001
                                4.85
   1700
                1001
                                4.85
   1800
                1001
                                4.85
   1900
                1002
                                4.96
  2000
                               4.96
5.08
                1001
  2100
                1000
  2200
2300
                1001
                                5.08
                1009
                               5.08
2400
1/13/95
0100
               1011
                               5.08
          (Friday)
1010
                               5.19
4.96
5.08
  0200
               1019
  0300
               1002
  0400
               1003
                               5.08
               1002
  0500
                               5.08
  0600
               1003
                               5.08
               1012
  0700
                               5.08
  0800
                              5.08
               1009
  0900
               1000
 0940
0955
               1007
                               5.08
                                                            71.0
71.5
               1002
                              5.08
                                             38
                                                                           sample #4
  1000
                                                                           stopped pumping
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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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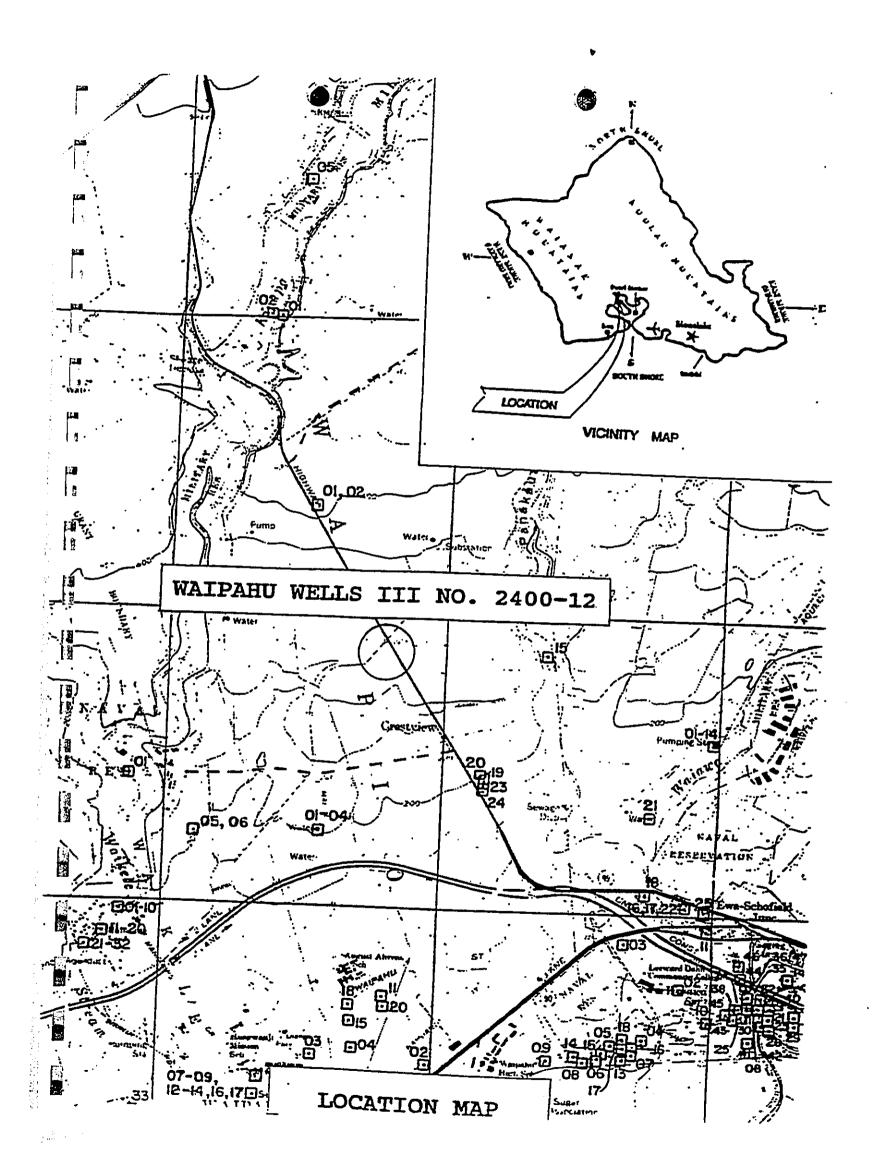
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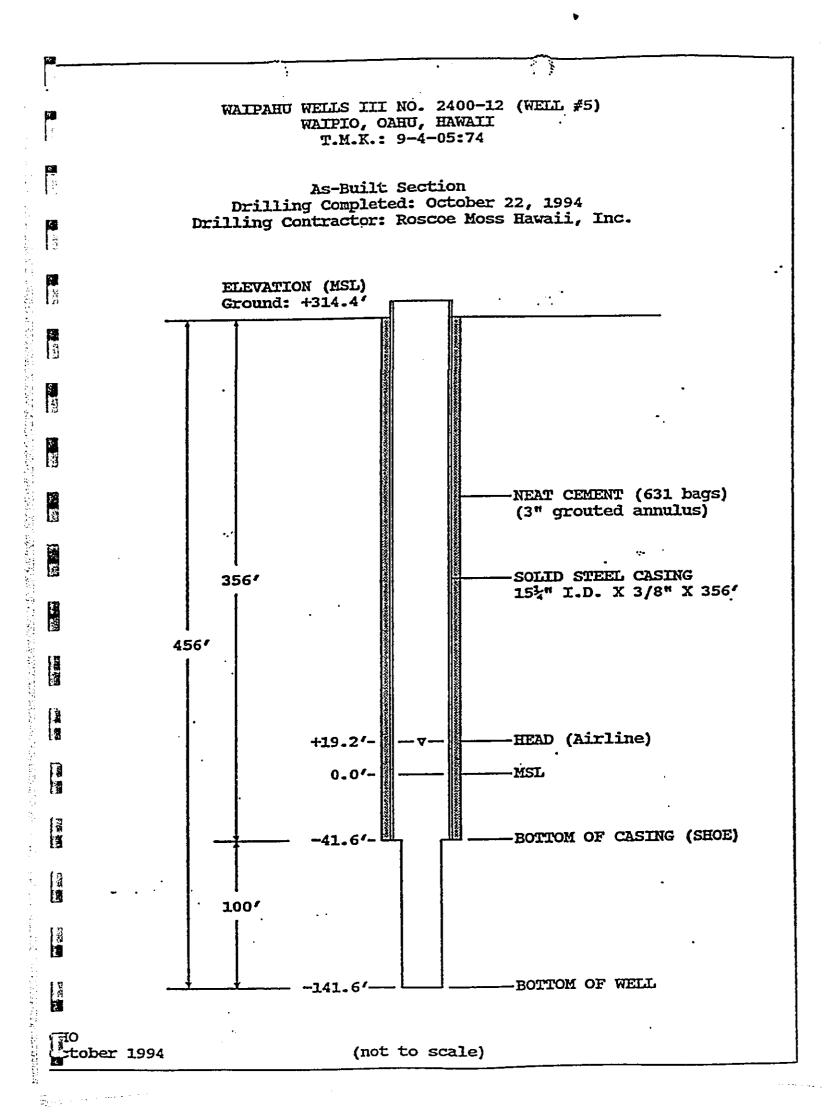
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# State of Hawaii COMMISSION ON WATER RESOURCE MANAGEMENT Department of Land and Natural Resources

	. /				eatta Alli	u Natur	al Reso	urces		'
			WE	LL COM	PLETIOI	N REPO	) DRT	<b>花</b> 筠。		· BC
Mana Call II	venons: Please gement, P.O. Bo re Commission I	print or type ar ox 621. Honolulu, l Regulation Branci	nd submit com Hawaii 95809, / h at 587-0225,	pieted report w warb filud-ea N	fillin so day	s after well and chem	completion	to the Com	nasion on y	Valor Basou
1, 2,	STATE WEI	I NO oron					-		2	LOI MANISTER
3. 4.	DRILLING C	R PUMP INST	ALLATION (	CONTRACTO	R ROSCO	ENTRY E MOSS	HAWAII,	Map Kay INC.	OAHU 4 9 9 4 4 - 05	974 
5. 6. 7.	NAME OF D	RILLER WHO	PERFORME	D WORK	JOHN CA					
8.	GROUND EL	EVATION (ms	1		2/94					
	dor Heigh	a cy Dallice bi	orm (mal)	316:4	ft.	2	4			
9. ( De:	DRILLER'S LO	I main ding Mi	ethod Used	to Determine Water Level	Ground (		BWS SU	RVEYn		
	86 R to 147 B to 165 R to 288 B to 319 B	ROWN GREY HE GREY HE GREY VE UE GREY VE UE GREY VE	JET JED HARD JED HARD RY HARD ME RED	297'	_319 _346 _362 _391	pm (tt.) to 346 to 362 to 391 to 456 to	BLUE ( BLUE ( GREY E	CAPTION, PARTI GREY MED GREY HARD GREY MED ROWN MED	HARD	Water Love (ft.) 297 ! 297 ! 297 !
10 To 11. H	otal depth Ole size:	OF WELL BE	LOW GROU	JND456	0	ft.			•	
. 12. C/	asing insta	14 k	Inch dia inch dia	. from	356	44 4 -	356 456	ft. below	w ground w ground	
		<u>15.25</u> _in.   <u>NA</u> in.	I.D, X		solid sections to the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the section of the	on to	356	ft. belov	w ground w ground	
13. AN	NULUS:	Type of Period Grouted from Gravel packet	}	NA					Y ground	
	TIAL WATER	LEVEL 295. DE	2 th belo	w ground, (	Date and t	ime of m	AND IT DATES	ft_below	•	
. 17, DAT	TE OF PUMP	INSTALLATIC	70 00					10/10 10/10 10/10		
. 18. PU)	NSTALLA Pump Ty	NTON: pe, Make, Ser	ial No.							<del></del>
1	Depth of	Pump Imake S	Setting		. 1 .				y	_
•	rumping	Mead is	ne n	ft. belo	w		which eleving	rvation is _ ation is		ft.
	PING TESTS	<b>:</b>	Reference	Point (R.P.)	) used:		, which	elevation b	3	
. Stan	water level water level		ft. belo	₩ R.P.	, 40	te <u>11</u> ut water i	190 IOA		ft. bel	
Dept	h of well		ft. belo	w R.P. w R.P.	Enc	d water le	evel	·	ft. beld	ow R.P.
<sup>5</sup> Elapsed Time (hour	Aide (gpm)	<b>A</b>	a.	Temp.	Bares	4	Dana	Draw-	tr. belo	OW R.P. Temp.
	<u> </u>			<del></del>	£-	(m) (		down (fL)	(ppm)	• <del>F</del>
	DATA	ATTA	CHED		% % %			AL T		
,					- R		/\ _	_A_L T_/	-CHE	<b>D</b>
Rema	rks:	· · · · · · · · · · · · · · · · · · ·		ce is needed, d						******
Contractor (	orint) s	USCOE MOSS		ce is needed, o	onthue on t					•
Signature	ک ۱۳۳۳ رخته	COSCOE MOSS	WINI IS	ANC.		Title	FIELD	SUPERINT	ENDENT	
				51		Dale_	12/13/	94		, 
I POT DOMETS US	ma:	_ Job No		1)	For Office Langitude	M Um: 158 O	0 13	Wed No.	2400-1	2
				14	71				L Control	- II



#### 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: 15½ inches I.D.
Pulley Height: 20.00 ft.
Maximum allowable drift/any 100': 10.17\*\*

Depth	Drift	Drift (inches per
(ft.)	(inches)	<u>any 100 ft.)</u>
_	r <sub>at</sub>	
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
260	12.04	6.21
280	13.52	5.63
300	14.42	5.73
320	15.13	<b>*</b> 6.63
340	16.02	
350		5.90
	16.47	4.49 (per 90 ft.)

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<sup>\*</sup> 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

Location : TMK: 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.

Head : +19.2 ft.

Airline Depth : 340 ft.

Pump Depth (suction) : 352 ft.

Drilling completed : October 22, 1994

Drilling company : Roscoe Hoss Hawaii, Inc.

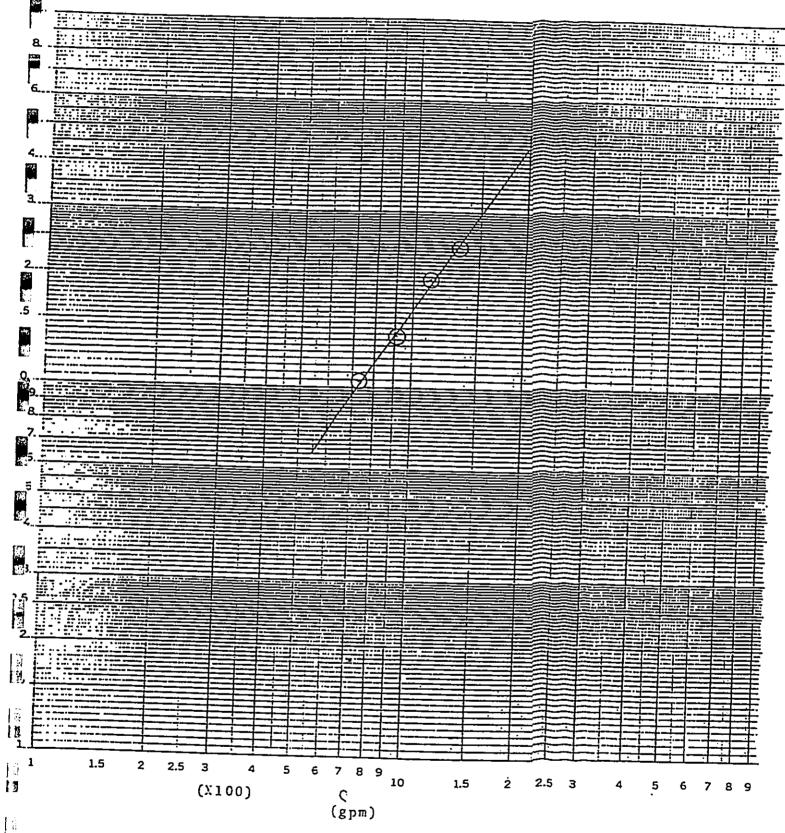
Date of Yield-Drawdown test: November 10, 1994

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Time	Q (qpm)	Drawdown (ft.)	(DDM)	Temperature	Remarks -
0905	(19.40	psi, 44.81	ft.)		19.2' static
0928	same a	above a	-		head (airline)
0930					started pumping
0936	705	1.04	38	70-9	sample #1
0945	787	1.15		70-8	
1000	711	1.15		70.8	
1015	726	1.15		70.8	-1-40
1025	726 ·	1.15	38	<b>-</b> .	sample #2
1030					changed rate
1034	908 .	1.38		70.7	
1045	910	1.38		70.7	
1100	901	1.38		70-7	
1115	902	1.38		70.7	
1125	902	1.38	36		sample #3
1130					changed rate
1134		1.84			
1137	1095	1.96		70-7	
1145	1095	1.96		70.7	
1200	1105	1.96		70.7	
1215	1089	1.96		70.7	
<b>1225</b> ·	1109	1.96	36	70.6	sample #4
1230					changed rate
1236	1345	2.42		70.6.	
1255	1333	2.42		70.7	
1315	1336	2.42		70-7	e-
1325	1333	2.42	36	70.7	sample #5
1330					stopped pumping
1331		-80			
1332		.00			

WAIPAHU WELLS-III NO. 2400-12 SPECIFIC CAPACITY

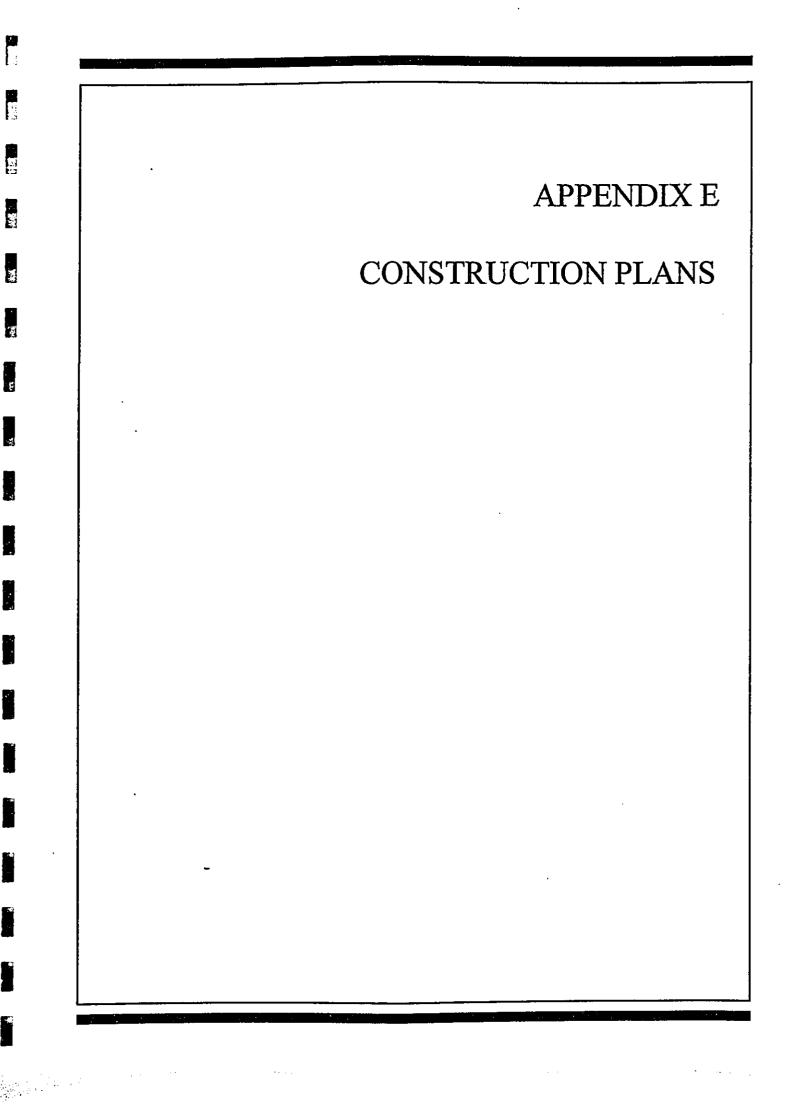


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# WAIPAHU WEILS III NO. 2400-12 WEIL #5 LONG TERM PUMPING TEST: 11/28/94 to 12/01/94

¥*			•			·
	Date	Q	Drawdown	Cl	Temperature	
¥*	<u>Time</u>	(apm)	<u>(ft.)</u>	<u>(maga)</u>	<u>- °F</u>	<u>Remarks</u>
Tild	<b>77</b> (20 (0 (					
: :	11/28/94	(Monday)				19.2' static
:1.3	0945	•	••		<b>;</b>	head (airline)
	1000	1007		20	70.0	started pumping
126	1004	1027	1.38	38	70.8	sample #1
	1009	1038	7 04		70 7	•
113	1015	1038	1.84		70.7	•
	1030	1045	1.84		70-7	
<b>3</b>	1045 1100	1045	1.84 1.61		70.7	
	1130	1045 1038	1.61		70.7 70.6	
E.9	1200	1034	1.61		70.7	
	1330	1022	1.61		70.7 70.7	
722	1500	1000	T.0T			
25	1800	1000	1.50			
:23	2100	1035	1.61			
	2400	1043	1.73			
70	11/29/94	(Tuesday)	4	. •		•
Ø.	0300	1043	1.73	•		
1841	0600	1043	1.73			
	0900	1034	1.64			· · ·
3.5	1000	1027	1.61	36	70.7	sample #2
	1200	1000	1.68			average rate:
. BALL	1500~	1026	1.80_	4	:	1036 gpm ·
	1800	1034	1.73			2000 Abm
幾	2100	1017	1.61			•
338	2400	1026	1.64			
	11/30/94	(Wednesday)				
	0300	1026	1.84			
XV SE	0600	. 1034	1.84			
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	1000	1031	1.61	36	70.7	sample #3
	1200	1034	1.66			average 2 day
	1500	1026	1.73			rate: 1035 gpm
<u>.</u>	1800	1017	1.66			
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- জ	2400	1008	1.82			•
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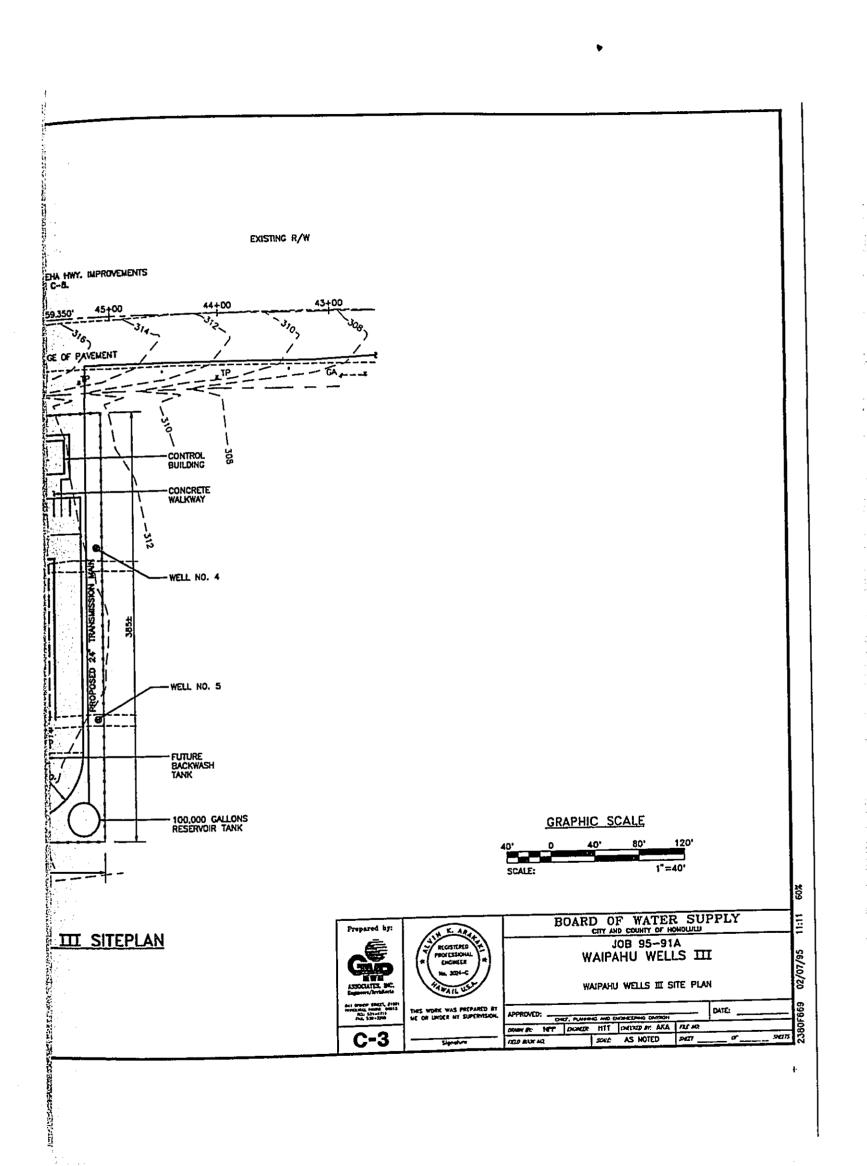
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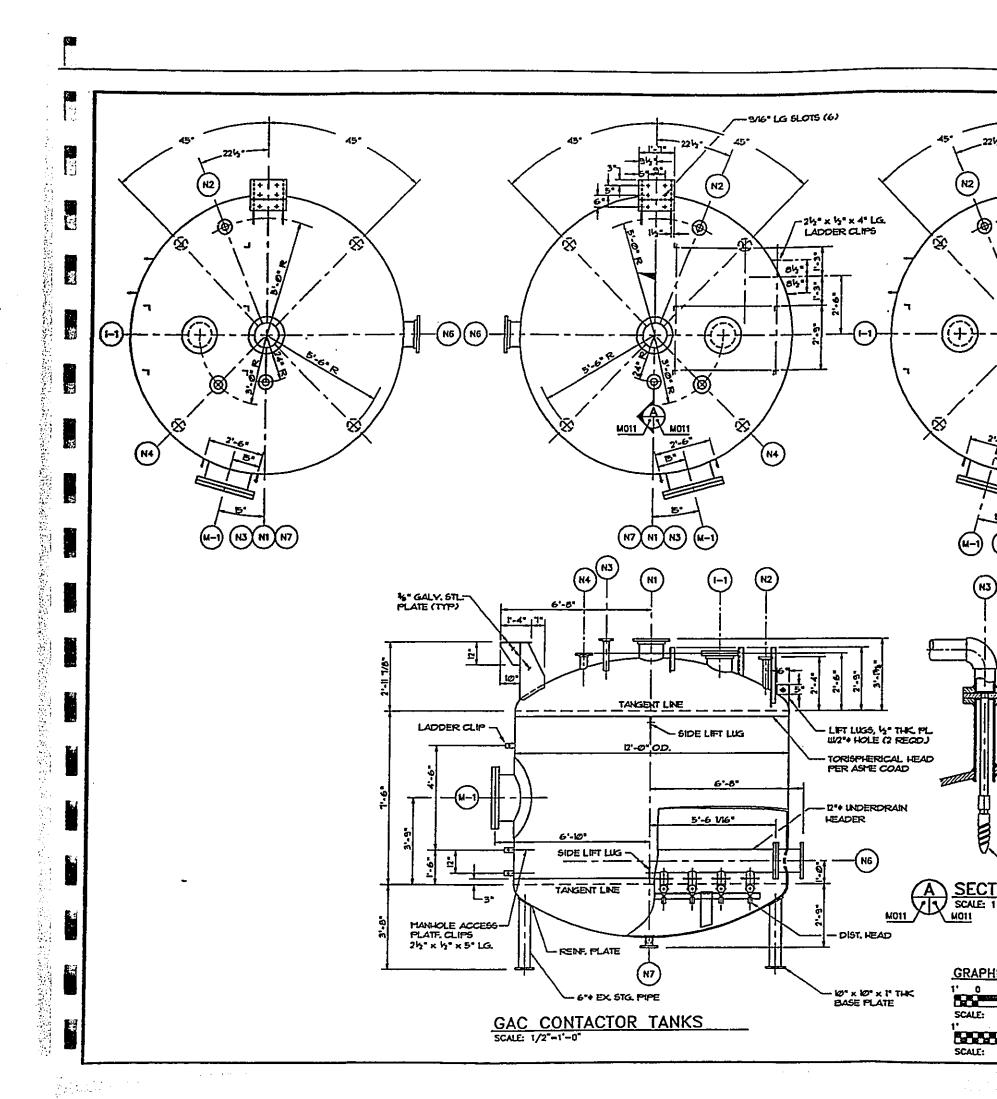
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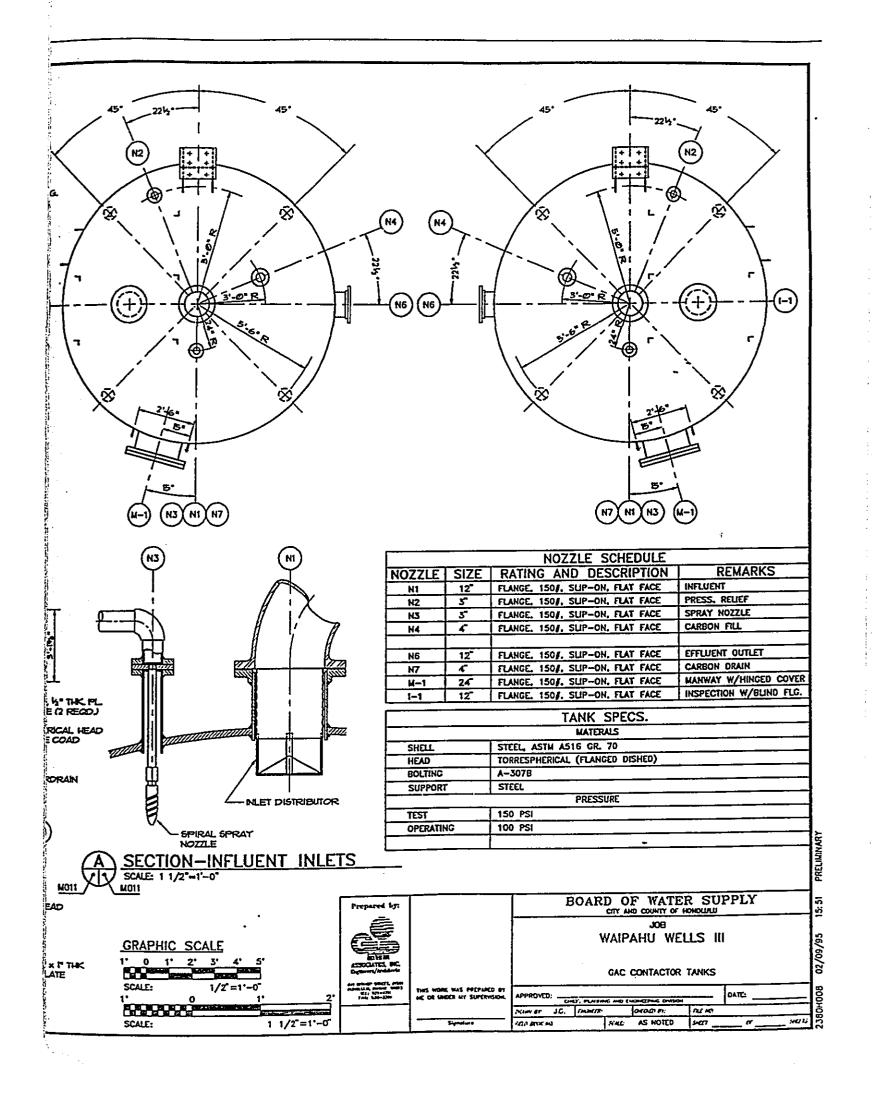
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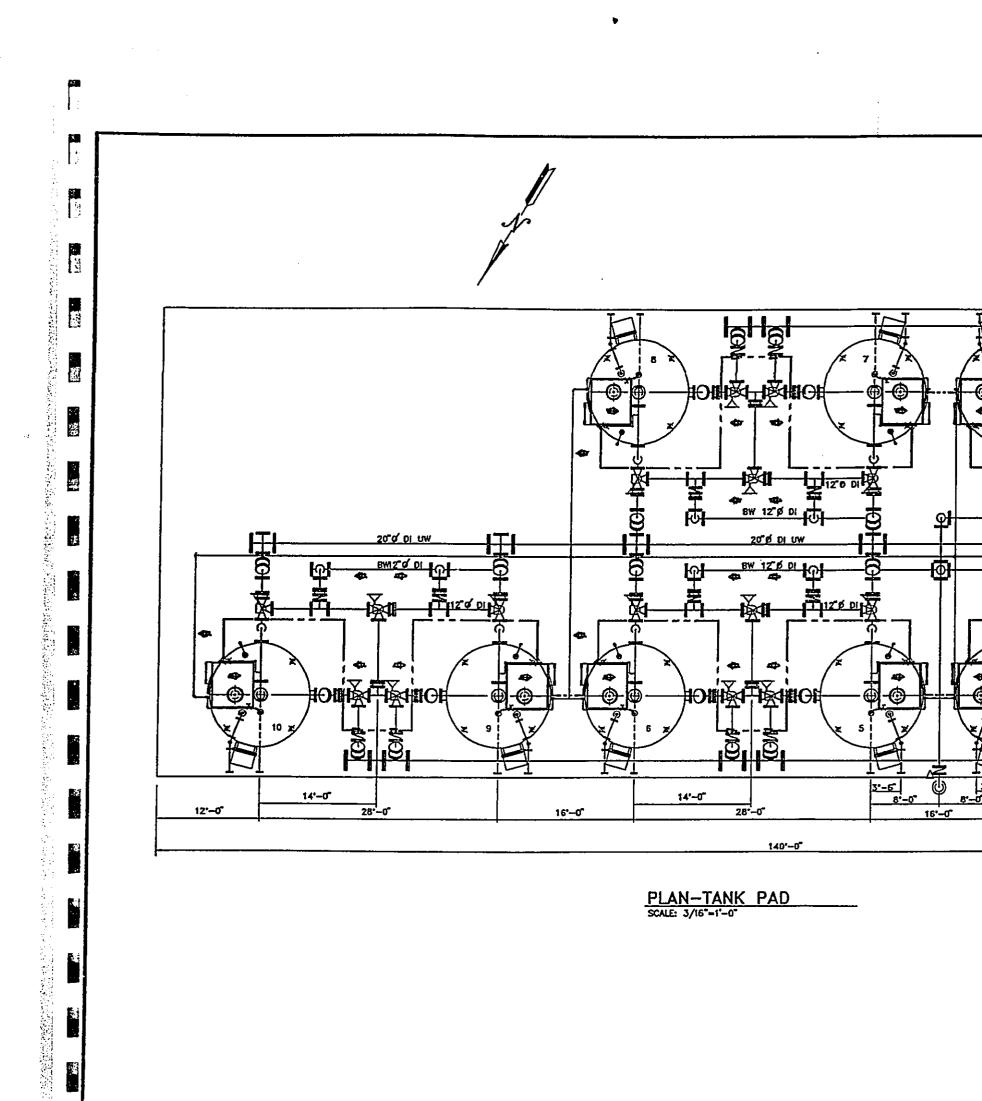
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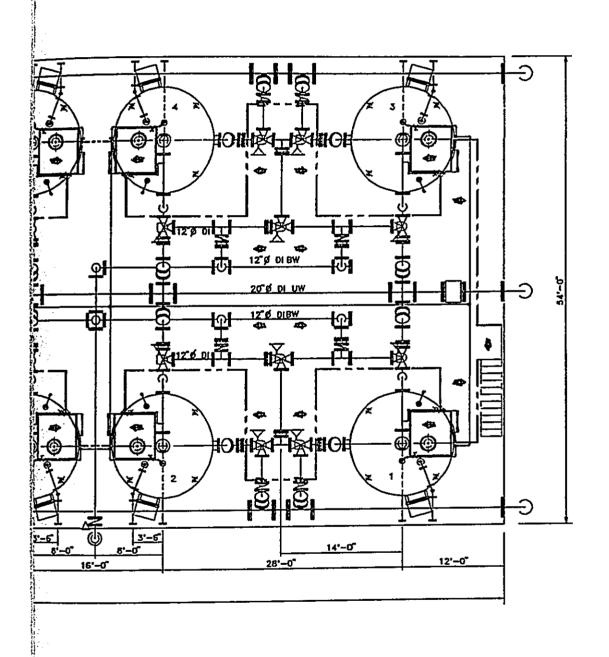


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BOARD OF WATER SUPPLY

12:46

WAIPAHU WELLS III

PLAN-TANK PAD

APPROVED: CHIEF, PRANSHING AND ENGINEERING DIVISION DATE:

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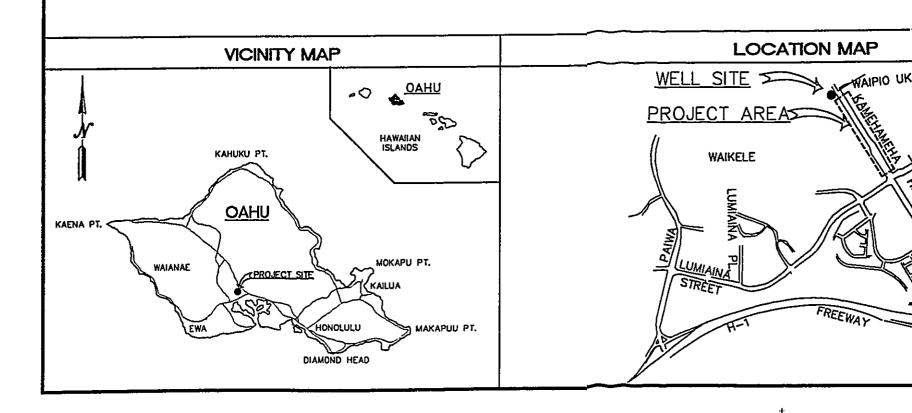
FROM: WAIPIO UKA STREET TO

BOARD OF WATER CITY AND COUNTY OF HONOLULU, HA

PREPARED BY:

## GMP ASSOCIATE

ENGINEERS/ARCHITECT HONOLULU, HAWAII



). 95 - 91B

# 24 INCH TRANSMISSION MAIN

REET TO LUMIAINA STREET

WATER SUPPLY ITY OF HONOLULU JLU, HAWAII

PARED BY:

OCIATES, INC.

RS/ARCHITECTS LULU, HAWAII

TION MAP	APPROVED	
WAIAWA ST.  WAIAWA INTERCHANGE	MANAGER AND CHIEF OF ENGINEERING BOARD OF WATER SUPPLY  CHIEF, 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 DATE 13:54 190%
	SHEET 1 OF	T_1.

# INDEX OF DRAWINGS

DRAWING NO.	TITLE
	nne
T-1	TITLE SHEET, LOCATION MAP AND VICINITY MAP
T-2	INDEX OF DRAWINGS AND NOTES
T-3	LOCATION PLAN AND LEGEND
	CIVIL
C-1	TYPICAL WATER SECTIONS - 1
C-2	TYPICAL WATER SECTIONS - 2
C-3	PLAN AND PROFILE - STA. 0+00 TO 6+00
C-4	PLAN AND PROFILE - STA. 6+00 TO 16+00
C-5	PLAN AND PROFILE - STA. 16+00 TO 23+00
C-6	TRAFFIC CONTROL PLAN AND NOTES
C-7	TRAFFIC CONTROL PLAN - 2
C-8	TRAFFIC SIGNAL LOOP PLAN AT WAIPIO UKA
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#### HTCO NOTES:

- THE CONTRACTOR SHALL NOTIFY HAWAIAN TELEPHONE COMPANY (HTCO) AT 483-8085 TWO WERKS BEFORE STARTING EXCAVATION TO ARRANGE FOR FIELD LOCATION OF ALL EXISTING TELEPHONE CABLES AND/OR DUCT LINES.
- 2. THE CONTRACTOR SHALL EXCAVATE AND BACKFLL 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.
- THE CONTRACTOR SHALL NOTIFY HTCO IMMEDIATELY AT 611 AFTER MY DAMAGES TO HTCO CABLES, DUCT LINES, PULLBOXES, MANHOLES, HANDHOLES, POLES AND GUYS. THE CONTRACTOR WILL BE HELD LIABLE FOR ALL DAMAGES TO HTCO FACRUTIES.
- 6. REPAIR WORK ON DAMAGED CABLES SHALL BE DONE BY HTCD AND ANY OTHER WORK INVOLVING EXISTING UNDERGROUND FACILITIES SHALL BE DONE BY THE CONTRACTOR IN THE PRESENCE OF HTCD 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 HTCO RECORDS SECTION LOCATED AT 3239 ILALENA STREET, 380 FLOOR (ABY-3) TWO WEEKS PRIOR TO START OF CONSTRUCTION. HOURS OF BUSINESS IS 7:00 AM. TO 11:00 AM. AND 11:30 AM. TO 3:00 P.M. MONDAY THRU FRIDAY EXCEPT HOLIDAYS.
- 9. THE COSTS OF ANY TEMPORARY RELOCATION OF HTCO FACULTES DONE FOR THE CONVENIENCE OF THE CONTRACTOR SHALL BE BORNE BY THE CONTRACTOR, UNLESS OTHERWISE NOTED.
- 10. SHOULD IT BECOME NECESSARY TO TEMPORARILY RELOCATE ANY HTCO FACULTES TO ENABLE THE CONTRACTOR TO PERFORM HIS WORK IN A SAFE MANNER IN FULFILLING HIS CONTRACT OBLIGATIONS, THESE TEMPORARY RELOCATIONS WILL BE DONE BY HTCO, OR BY THE CONTRACTOR UNDER HTCO'S SUPERVISION, 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.

#### WATER NOTES

- 1. 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," YOLUME 1, DATED 1985, THE "APPROVED MATERIAL UST AND STANDARD DETAILS FOR WATER SYSTEM CONSTRUCTION," YOLUME 2, DATED 1985, AND THE "WATER SYSTEM EXTERNAL CORROSION CONTROL STANDARDS," YOLUME 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 EXISTENCE AND LOCATION OF UNDERGROUND UTILITIES AND STRUCTURES AS SHOWN ON THE PLANS ARE FROM THE LATEST AVAILABLE DATA, BUT ARE NOT GUARANTEED AS TO THE ACCURACY OR THE ENCOUNTERING OF OTHER OBSTACLES DURING THE COURSE OF THE WORK, THE CONTRACTOR SHALL NOT ASSUME THAT WHERE NO UTILITIES ARE SHOWN, THAT NONE EXIST.
- 5. THE CONTRACTOR SHALL BE SOLELY RESPONSIBLE FOR ALL ASSUMPTIONS, DEDUCTIONS, OR CONCLUSIONS HE MAY MAKE OR DERIVE FROM THE SUBSURFACE INFORMATION OR DATA FURNISHED ON THE PLANS. THE CONTRACTOR MUST SATISFY HIMSELF THROUGH HIS OWN INVESTIGATIONS AS TO WHAT SUBSURFACE CONDITIONS ARE TO BE ENCOUNTERED.
- 6. 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 CONSTRUCTION ACTIVITY AND SHALL PAY FOR ALL DAMAGES TO AND FOR THE PROTECTION OF EXISTING UTILITIES AND STRUCTURES.
- 7. 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 CRADE MAY BE CHANGED IF THERE ARE ANY CONFLICTS WITH ANY EXISTING UNDERGROUND UTILITIES AND STRUCTURES, WHETHER SHOWN ON THE PLANS OR NOT. PAYMENT FOR WORK INCLUDED IN THIS PARAGRAPH WILL BE MADE UNDER THE APPROPRIATE BID ITEMS UNDER THE PROPOSAL, AND NO ADDITIONAL COMPENSATION WILL BE CONSIDERED.
- 8. 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.
- 9. ANY COST WHEN DIRECTED BY THE BOARD OF WATER SUPPLY INCURRED BY GASCO, HECO, OR HICO BY THIS PROJECT SHALL BE PAID BY THE BOARD OF WATER SUPPLY THROUGH THE CONTRACTOR. THE PAYMENT SHALL BE ONLY FOR THE ACTUAL COST AS SHOWN ON THE UTILITY COMPANY INVOICE. NO PAYMENT WILL BE MADE FOR PROFIT, TAX, OVERHEAD AND BOND COST.
- 10. IF THE CONTRACTOR ELECTS NOT TO EXPOSE AND VERIFY ALL EXISTING UNDERGROUND 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.
- 1. 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.
- 13. RESTORATION OF PAVEMENT SHALL BE IN ACCORDANCE WITH THE DETAILS SHOWN ON THE PLANS AND DONE WITH EQUIVALENT TO, OR BETTER, QUALITY MATERIALS.
- 14. UNLESS OTHERMSE SPECIFIED, CHLORINATION OF NEW MAINS SHALL BE DONE BY THE CONTRACTOR, WITH BOARD OF WATER SUPPLY'S INSPECTOR COORDINATING THE WORK. FOR DETAILS, CONTACT THE BWS PLANNING AND ENGINEERING DIVISION, ENGINEERING BRANCH, CONSTRUCTION SECTION.
- 15. ALL WATER MAIN TRENCHES IN STATE-DWNED HIGHWAYS SHALL BE BACKFILLED ACCORDING TO THE TRENCH RESTORATION DETAIL AS SHOWN ON THE PLANS. WATER MAIN TRENCHES IN PRIVATELY-OWNED STREETS 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 CURRENT STANDARD SPECIFICATIONS FOR ROAD, AND BRIDGE CONSTRUCTION, AND THE SPECIFICATION FOR INSTALLATION OF MISCELLANEOUS IMPROVEMENTS WITHIN STATE HIGHWAYS, OF THE STATE HIGHWAYS DIVISION.
- 16. 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.

WATER NO

17. SHOULD MAJOR T

18. <u>PIPE ALTERNATIV</u> A. DUCTILE IRON

- B. POLYWNYL C PIPES AND F OF POLYWIN OF P.V.C. F BID ON BY WORK, ADD IN THE PLA DESIGN WO BE CONSIDE FOR P.V.C. RESPONSIBE BE INSTALL
- C. CONCRETE C MANUFACTUR EXPOSED A

PAYMENT FOR P BID FOR D.J. PIP

- 19. DURING NON-WO COVERED WITH P FOR TRAFFIC.
- 20. UNLESS OTHERW PLUGGED WITH ( PLUGGING WILL I VARIOUS ITEMS SIZE AND TYPE
- 21. ALL SALVAGE M THE KALIHI BWS
- 22. ALL WATER MAIN HYDROSTATIC TO PRESENCE OF T
- 23. MECHANICAL JO SHAPE, AS DES CAST IRON AND TO-JOB BASIS.
- 24. ALL AIR RELIEF OF 0 TO 150 P

### WATER NOTES (CONT.)

- 17. SHOULD MAJOR TREE ROOTS 2" AND GREATER BE ENCOUNTERED DURING CONSTRUCTION, THESE ROOTS SHALL BE CUT AND SEALED WITH ASPHALTIC
- 18. PHPE ALTERNATIVES:
  A. DUCTRE IRON PIPES SHALL BE CLASS 52, WRAPPED WITH POLYETHYLENE.
  - B. POLYMNYL CHLORIDE PPES SHALL BE CLASS 150. ALL VALVES, CAST IRON PIPES AND FITTINGS SHALL BE WRAPPED WITH POLYETHYLENE. HO BENDING OF POLYMNYL CHLORIDE PIPES WILL BE PERMITTED. THE INSTALLATION OF P.V.C. PIPE ACCORDING TO THE PLANS AND SPECIFICATIONS AS BID ON BY THE CONTRACTOR, MAY REQUIRE ADDITIONAL DESIGN 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 CONSIDERED INCIDENTAL TO THE UNIT PRICE BID IN THE PROPOSAL FOR P.V.C. 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.
  - C. CONCRETE CYLINDER 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 D.I. PIPE, VALVES AND FITTINGS.

- 19. DURING NON-WORKING HOURS, THE TRENCHES ON STATE HIGHWAYS SHALL BE COVERED WITH NON-SKID STEEL PLATES AND ALL LANES MAINTAINED OPEN FOR TRAFFIC.
- 20. 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 INCOENTAL TO THE VARIOUS ITEMS OF THE PROPOSAL. THE CONTRACTOR SHALL VERIFY THE SIZE AND TYPE OF LINE TO BE PLUGGED.
- 21. ALL SALVAGE MATERIALS SHALL BE CLEANED, REPAINTED AND DELIVER TO THE KALIHI BWS CORPORATION YARD.
- 22. ALL WATER MAINS AND APPURITENANCES, SHALL BE SUBJECTED TO A HYDROSTATIC TEST PRESSURE OF 150 PSI BY THE CONTRACTOR IN THE PRESENCE OF THE BOARD OF WATER SUPPLY INSPECTOR.
- 23. 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-
- 24. ALL AIR RELIEF VALVES SHALL HAVE A MINIMUM WORKING PRESSURE RANGE OF 0 TO 150 PSL

#### HECO NOTES:

- THE LOCATION OF HAWAHAN ELECTRIC COMPANY'S (HECO) OVERHEAD AND UNDERGROUND FACILITIES SHOWN ON THE PLANS ARE FROM EXISTING RECORDS WITH VARYING DEGREES OF ACCURACY AND ARE NOT CUARANTEED AS SHOWN. THE CONTRACTOR SHALL EXERCISE EXTREME CAUTION WHENEVER CONSTRUCTION CROSSES OR IS IN CLOSE PROXMITY OF UNDERGROUND LIKES AND SHALL MAINTAIN ADEQUATE CLEARANCE WHEN OPERATING EQUIPMENT WITHIN OR UNDER ANY OVERHEAD LIKES.
- THE CONTRACTOR SHALL COMPLY 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 DIVISION LOCATED AT 820 WARD AVERUE, 4TH FLOOR, TWO WEEKS PRIOR TO STARTING CONSTRUCTION. REFER TO HECO REQUEST NUMBER AT THAT TIME.
- FOR VERFICATION 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.
- WHEN TRENCH EXCAVATION IS ADJACENT TO OR BENEATH HECO EXISTING STRUCTURES OR FACILITIES, THE CONTRACTOR IS RESPONSIBLE FOR PROPERLY SHEETING AND BRACING THE EXCAVATION AND STABILIZING THE EXISTING GROUND TO RENDER IT SAFE AND SECURE FROM POSSIBLE SLIDES, CAVE-INS AND SETTLEMENTS, AND FOR PROTECTING EXISTING STRUCTURES OR FACILITIES WITH BEAMS, STRUTS, OR UNDER-PRINNING 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.
- 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.
- 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.
- 10. ANY DAMAGE TO HECO'S FACULTIES WILL BE REPORTED MANEDIATELY TO HECO'S TROUBLE DISPATCHER AT PH. 543-7874
- ALL HECO OVERHEAD AND UNDERCROUND FACILITIES SHALL BE PROTECTED AT ALL TIMES BY THE CONTRACTOR DURING CONSTRUCTION. COSTS FOR DAMAGES TO HECO FACULTIES SHALL BE BORNE. BY THE CONTRACTOR. THIS REPAIR WORK SHALL BE DONE BY HECO, OR BY THE CONTRACTOR UNDER HECO'S SUPERVISION.
- THE CONTRACTOR SHALL INDEANRY, DEFEND AND HOLD HARBLESS HECD FROM AND AGAINST ALL LOSSES, DAMAGES CLAIMS AND ACTIONS, ALL EXPENSES INCODENTAL TO SUCH LOSSES, DAMAGES, CLAIMS OR ACTION, BASED UPON OR ARSING 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 ROBENITY SHALL NOT SE APPLICABLE TO ANY LIABILITY UPON THE SOLE REGUGENCE OF HECO.

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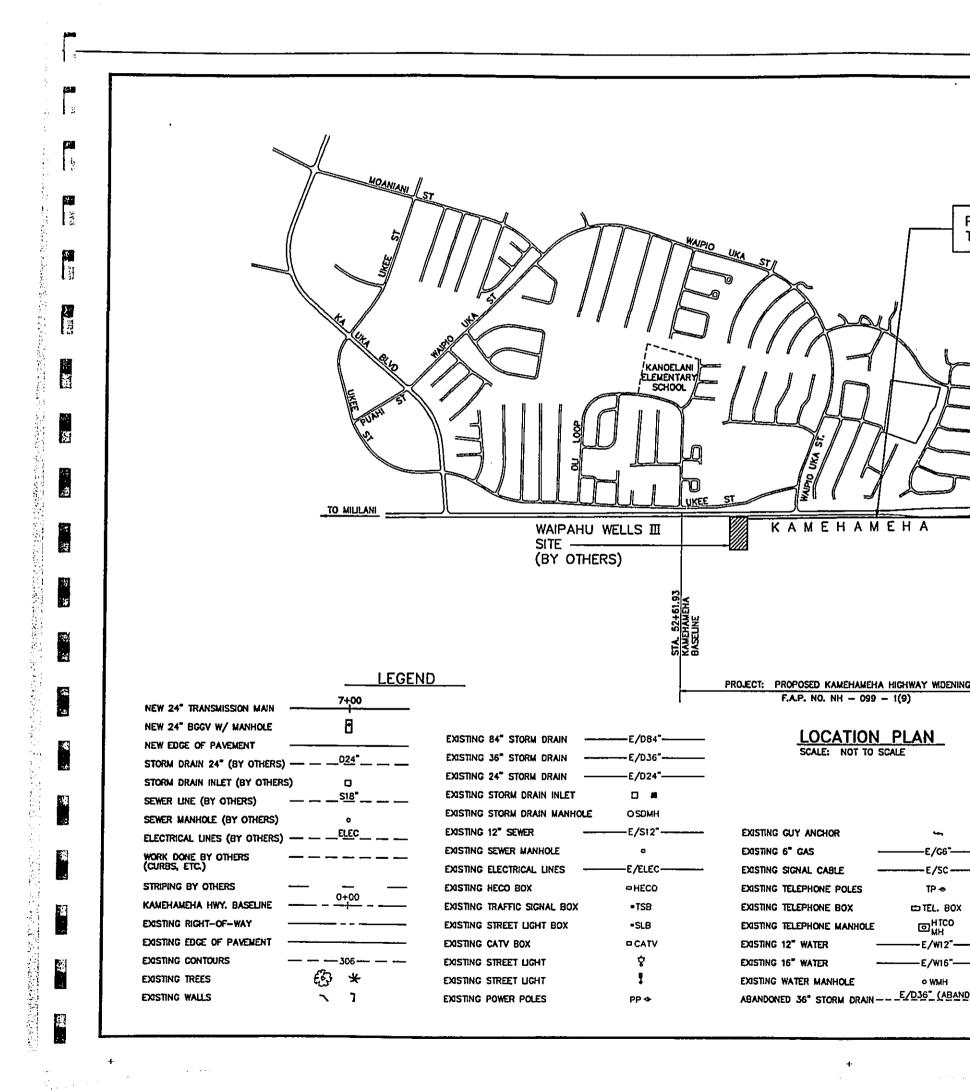
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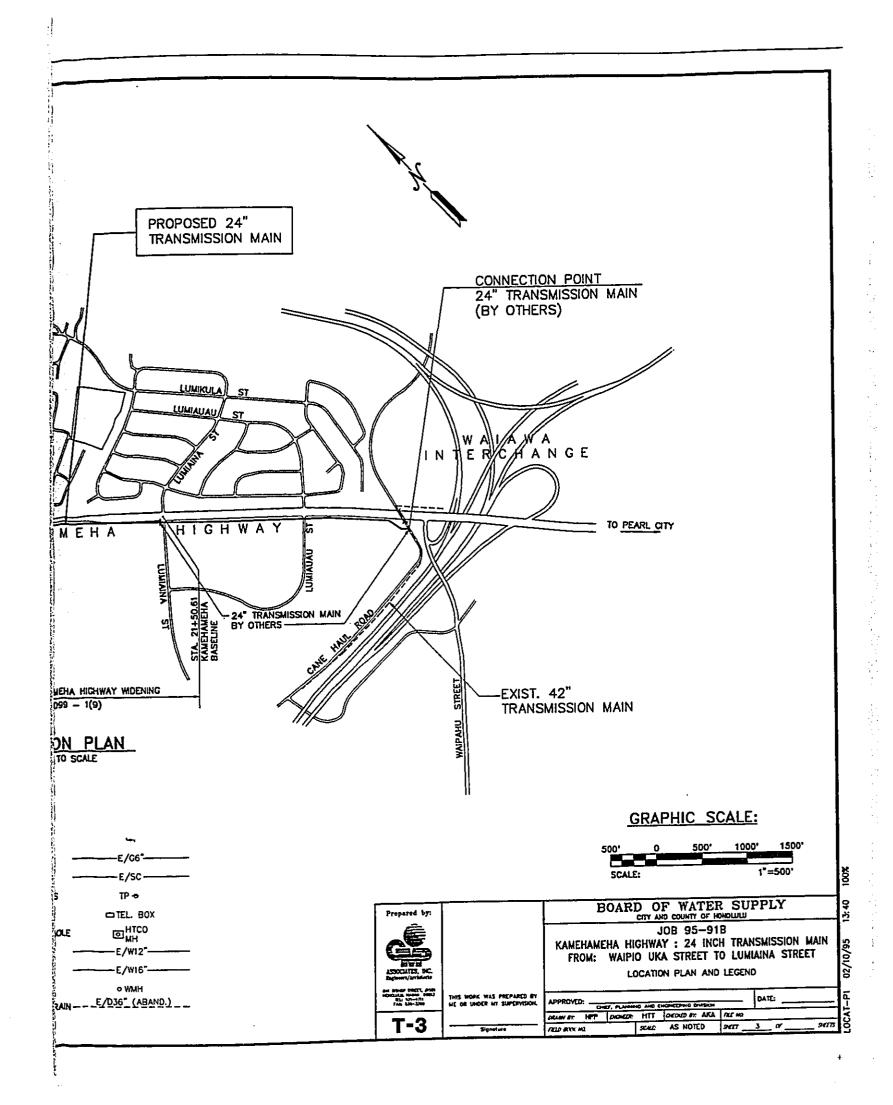
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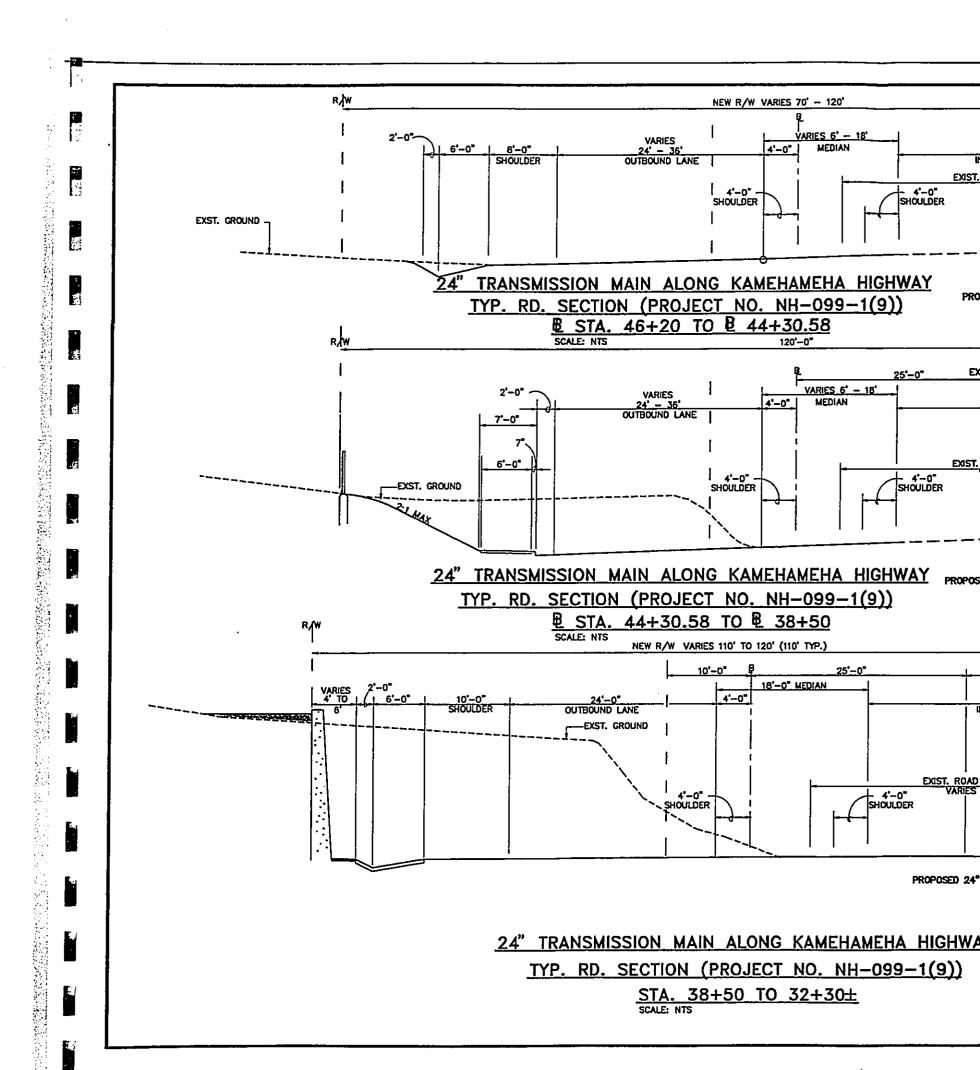
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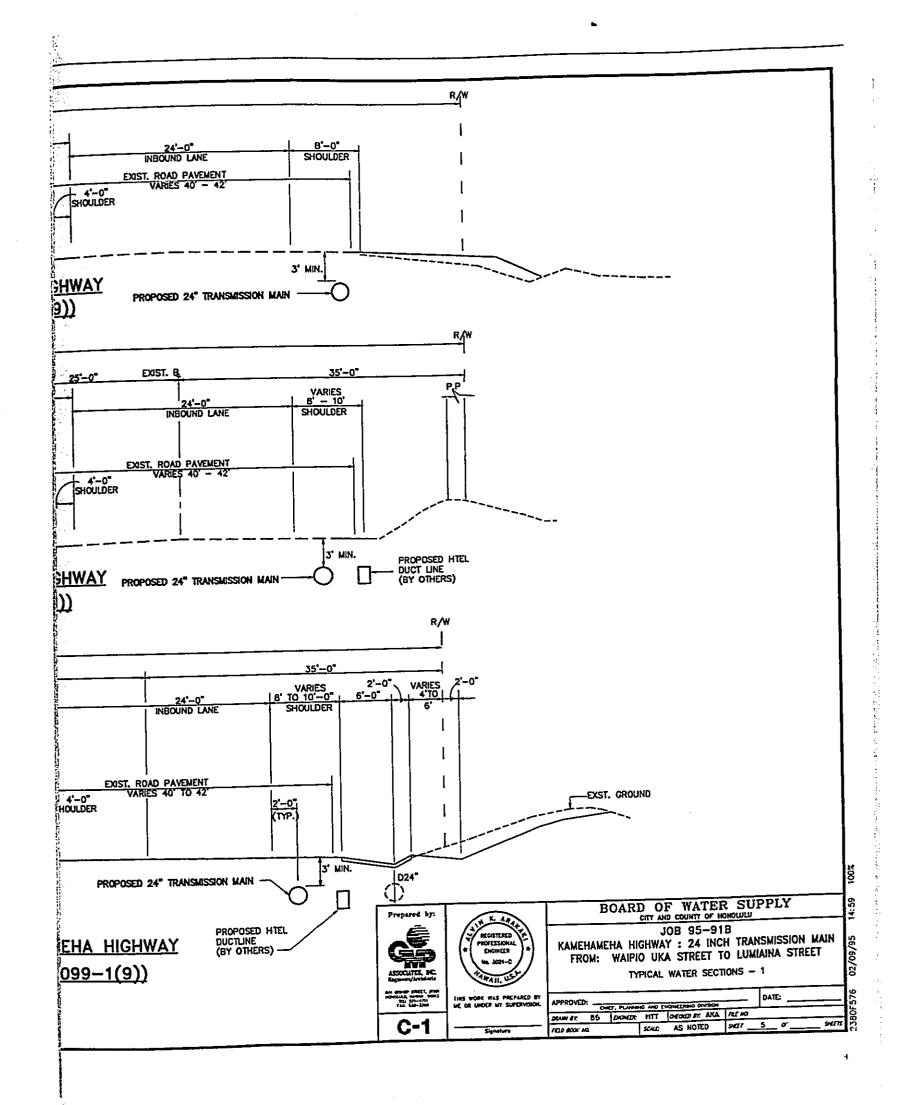
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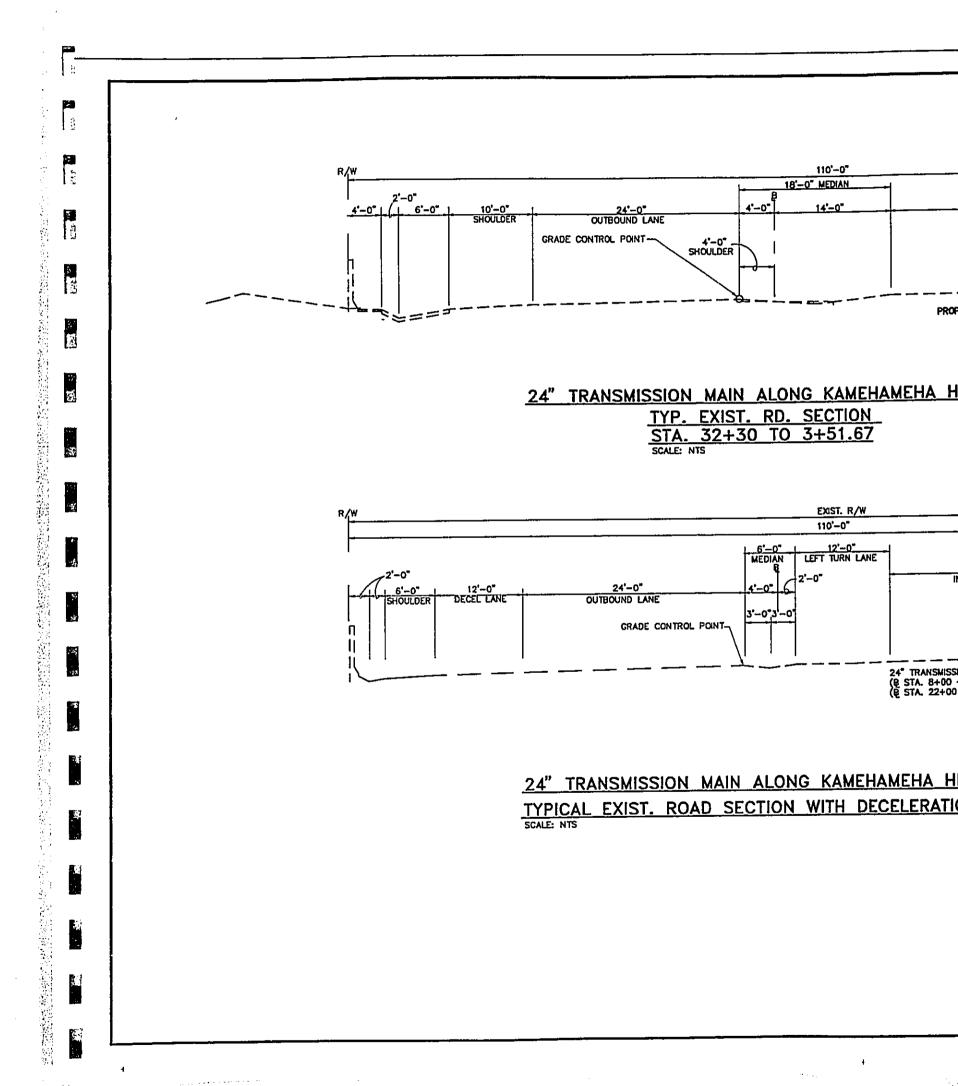


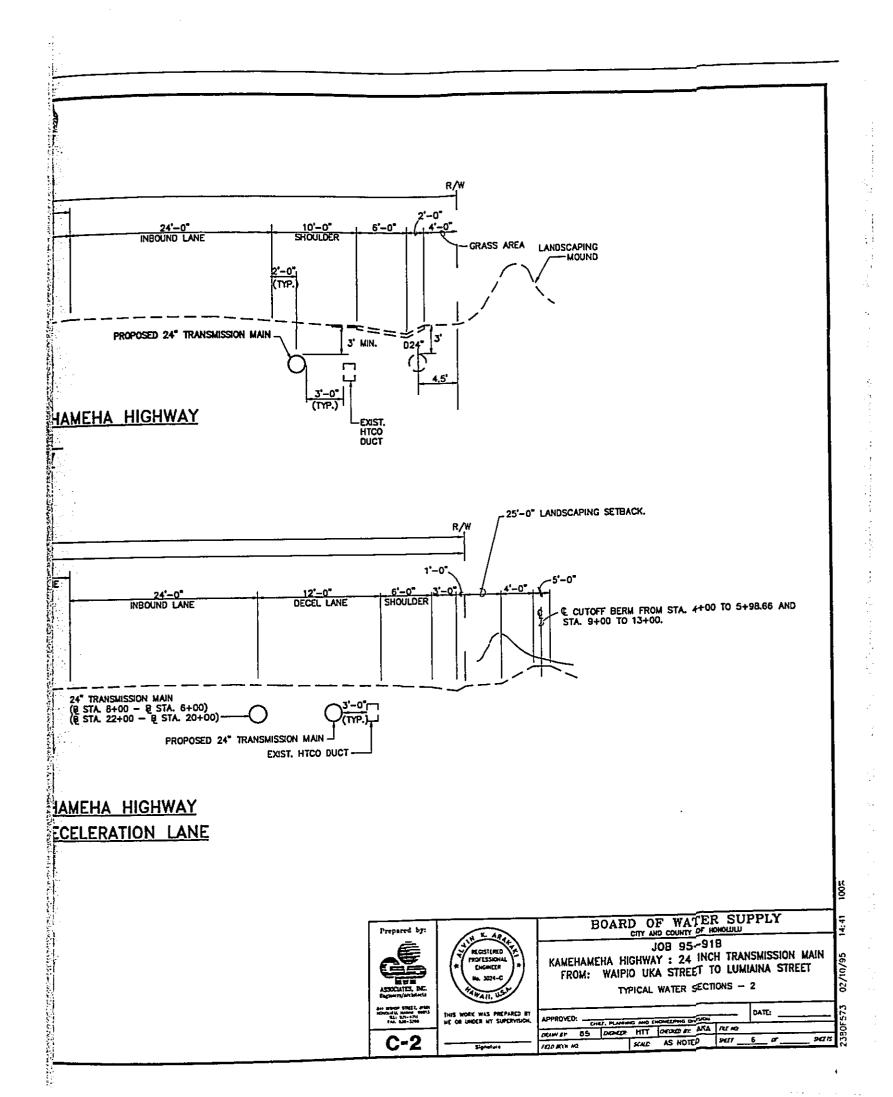
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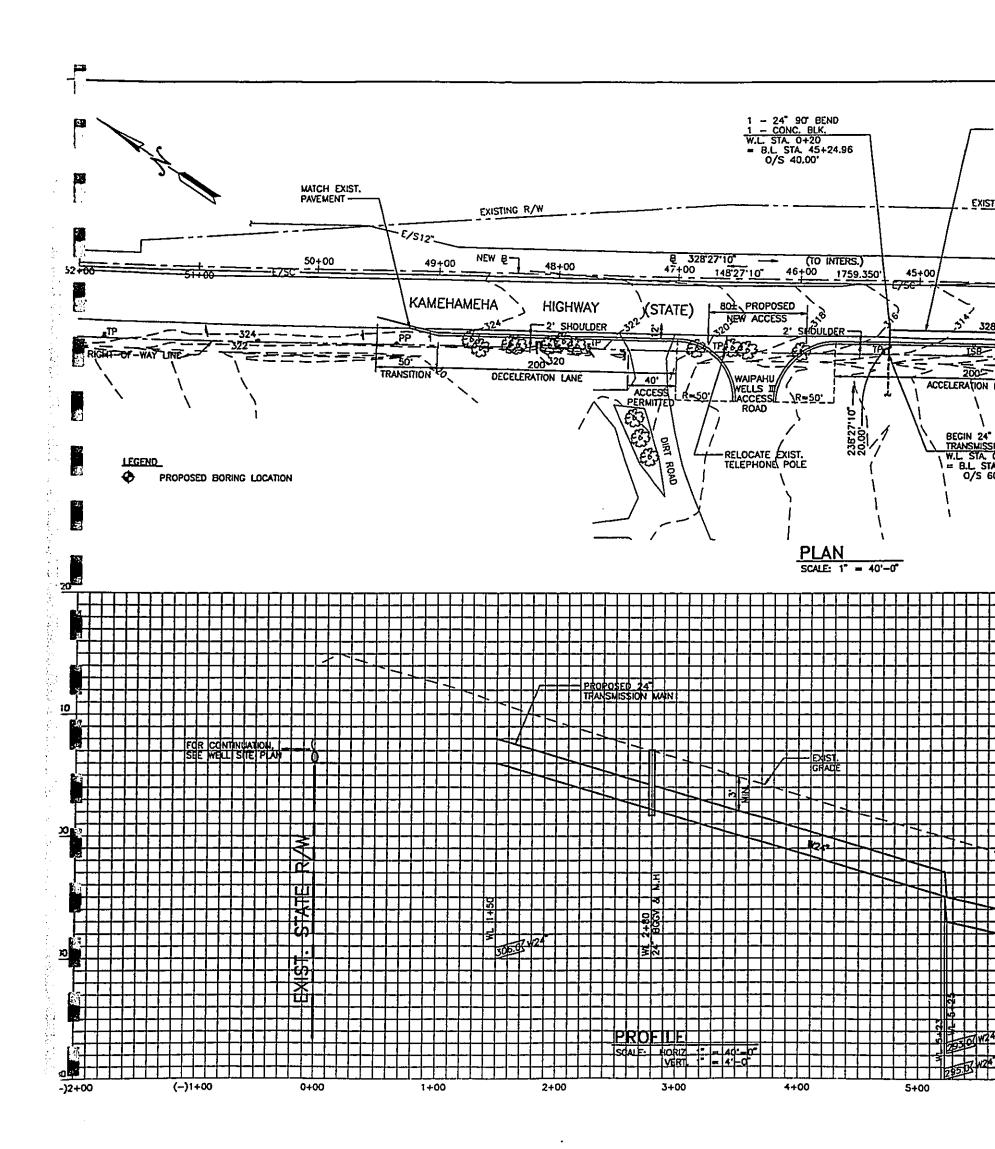


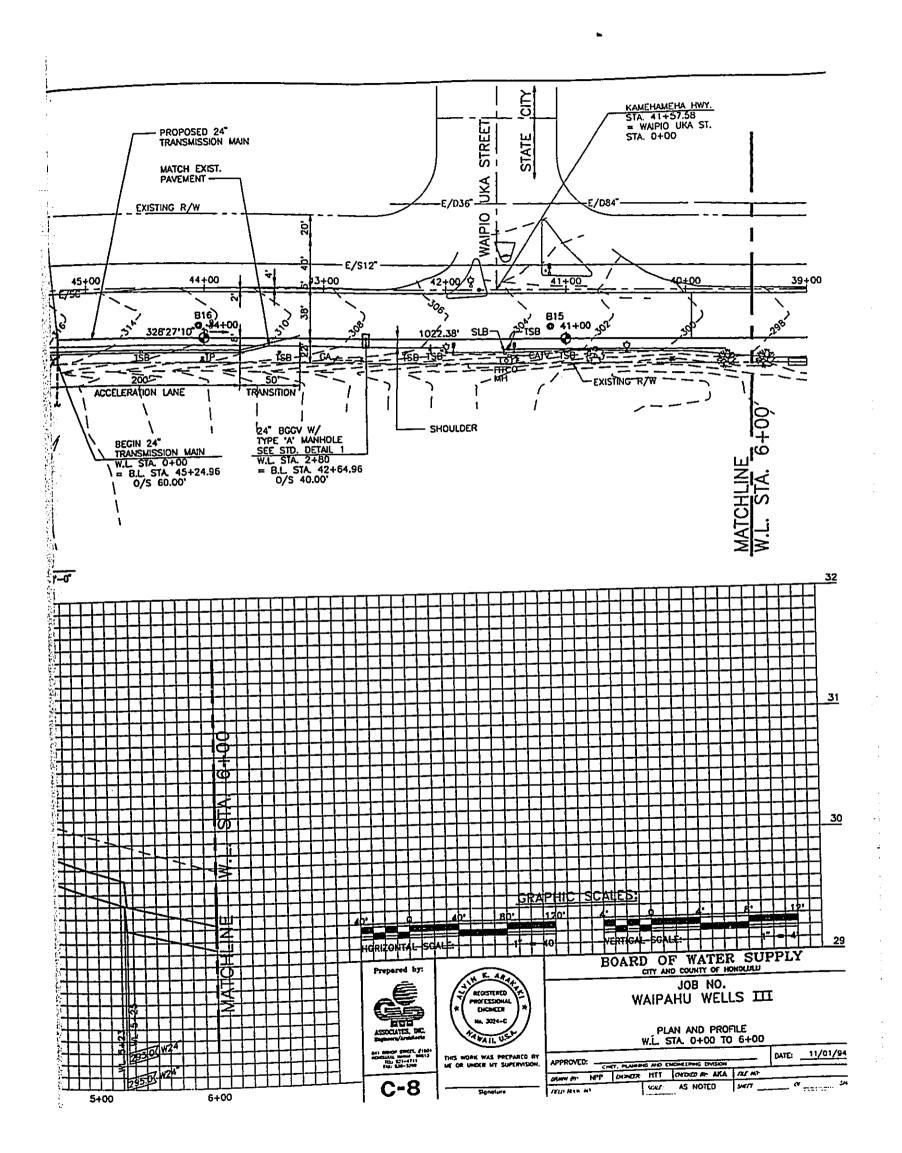


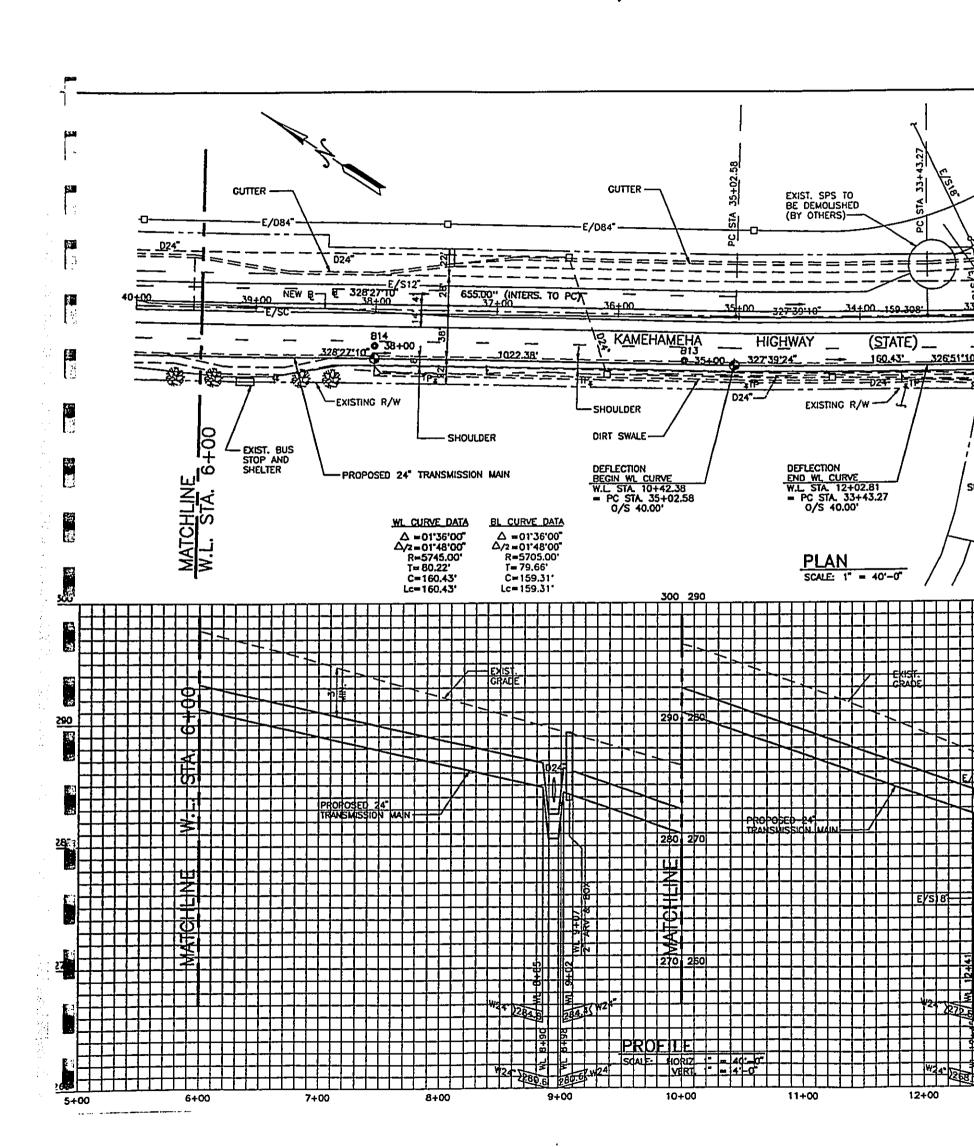
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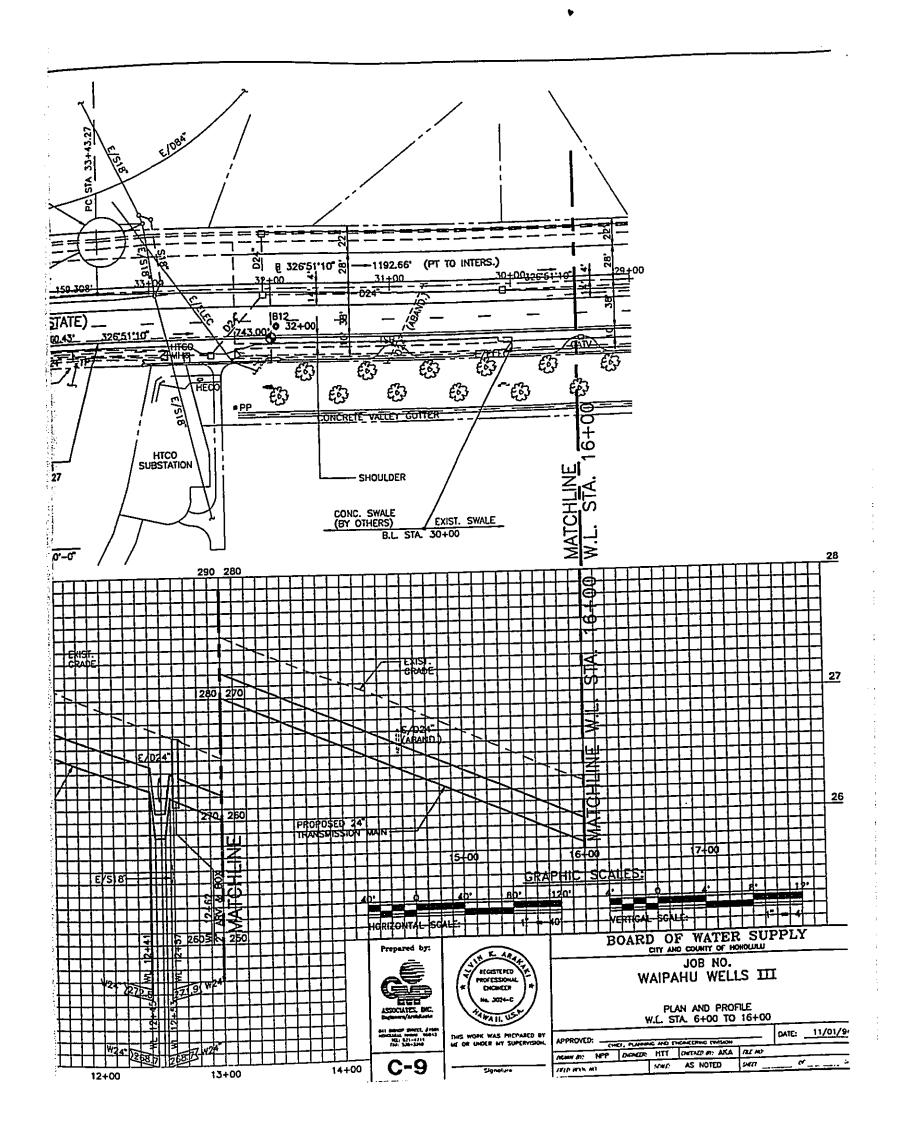


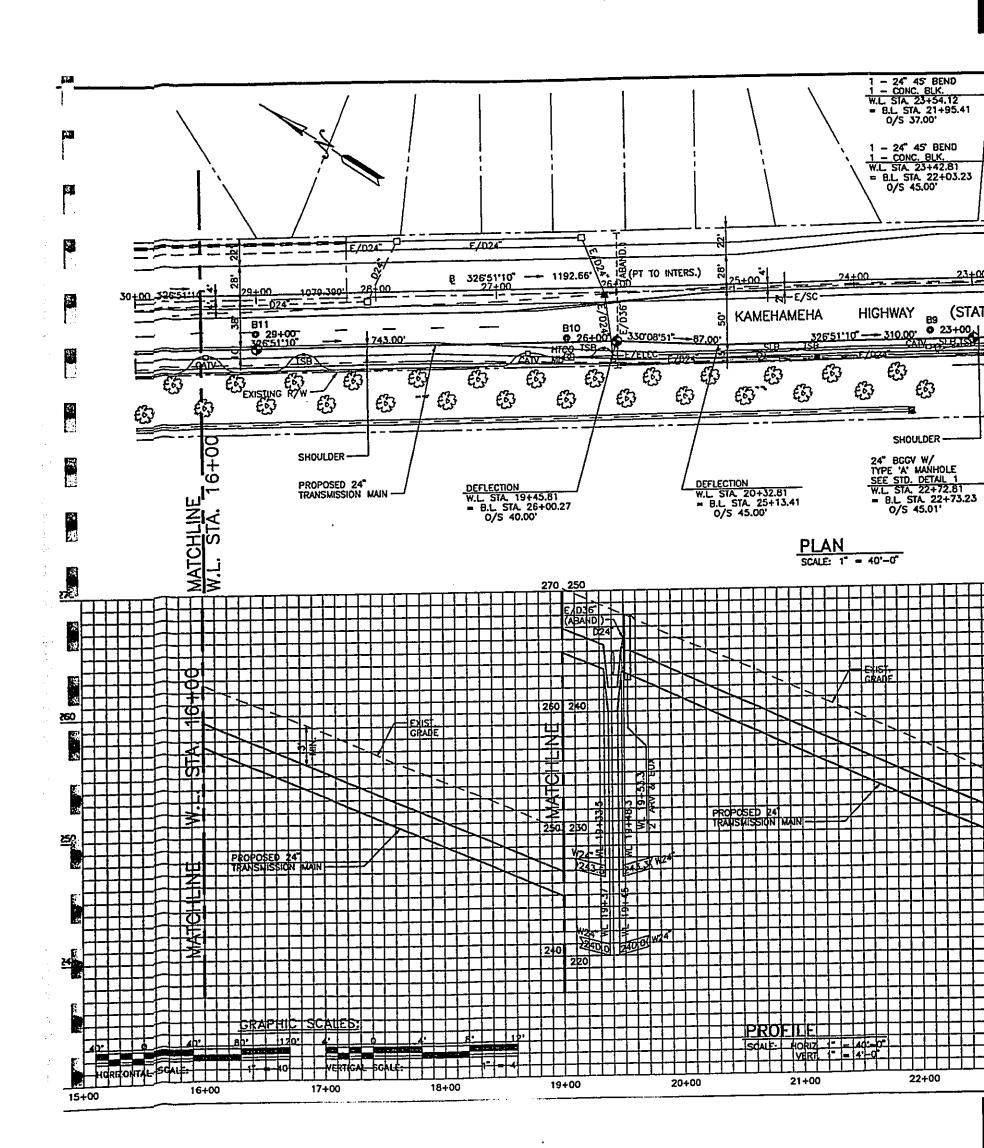


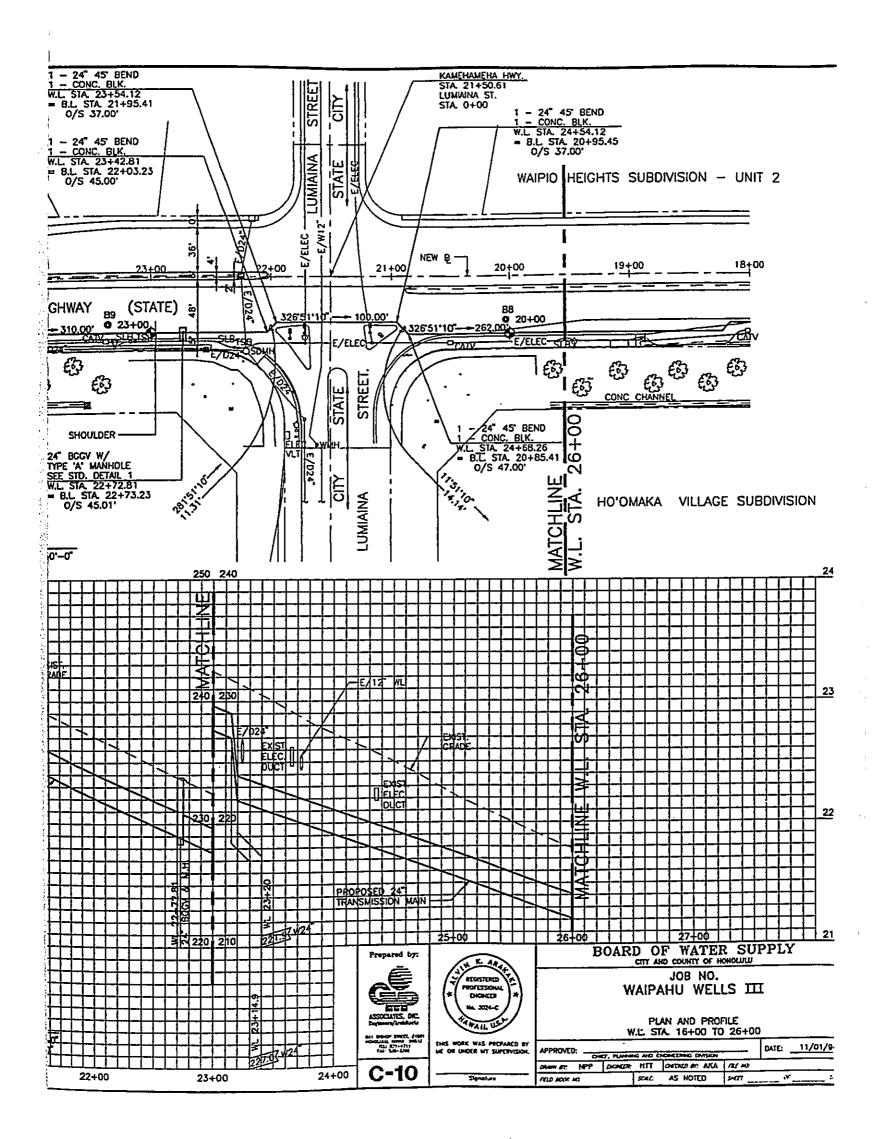


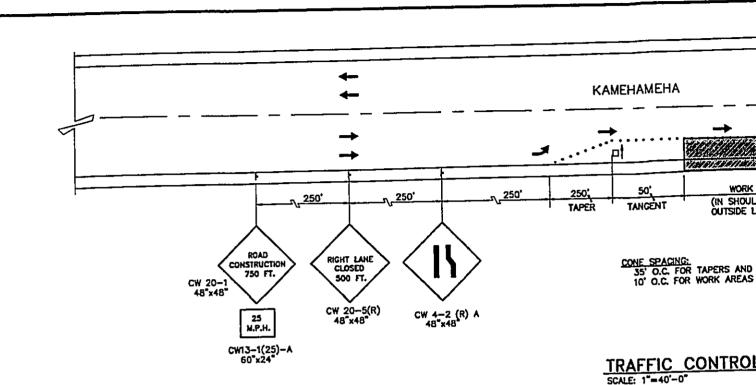












## NOTES FOR CONSTRUCTION WITHIN STATE RIGHT-OF-WAY

- 1. THE CONTRACTOR SHALL OBTAIN A CONSTRUCTION PERMIT FROM THE STATE'S HIGHWAY DISTRICT ENGINEER AT 727 KAKON STREET PRIOR TO COMMENCEMENT OF WORK WITHIN STATE HIGHWAY RIGHT-OF-WAY.
- 2. CONSTRUCTION AND RESTORATION OF ALL EXISTING HIGHWAY FACILITIES WITHIN STATE RIGHT-OF-WAY SHALL BE DONE IN ACCORDANCE WITH ALL APPLICABLE SECTIONS OF THE CURRENT STANDARD SPECIFICATIONS FOR ROAD AND BRIDGE CONSTRUCTION. AND THE SPECIFICATION FOR INSTALLATION OF MISCELLANEOUS IMPROVEMENTS WITHIN STATE HIGHWAYS. OF THE STATE HIGHWAYS DIVISION.
- 3. ALL LANES SHALL BE OPENED TO TRAFFIC DURING THE MORNING PEAK HOURS FROM 5:00 A.M. TO 8:30 A.M. AND DURING THE AFTERNOON PEAK HOURS FROM 3:00 P.M. TO 6:00 P.M., AND DURING OFF—WORK HOURS. DURING WORKING HOURS ONLY ONE LANE OF KAMEHAMEHA HIGHWAY SHALL BE CLOSED AT ANY ONE TIME.
- THE CONTRACTOR SHALL PROVIDE, INSTALL, AND MAINTAIN ALL NECESSARY SIGNS, LIGHTS, FLARES, BARRICADES, MARKERS, CONES AND OTHER PROTECTIVE FACILITIES AND SHALL TAKE ALL NECESSARY PRECAUTIONS FOR THE PROTECTION AND FOR THE CONVENIENCE AND SAFETY OF PUBLIC TRAFFIC, ALL SUCH PROTECTIVE FACILITIES AND PRECAUTIONS TO BE TAKEN SHALL CONFORM WITH THE "ADMINISTRATIVE RULES OF HAWAII GOVERNING THE USE OF TRAFFIC CONTROL DEVICES AT WORK SITES ON OR ADJACENT TO PUBLIC STREETS AND HIGHWAYS" ADOPTED BY THE DIRECTOR OF TRANSPORTATION, AND THE CURRENT U.S. FEDERAL HIGHWAY ADMINISTRATION "MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES FOR STREETS AND HIGHWAYS, PART VI— TRAFFIC CONTROL FOR HIGHWAY CONSTRUCTION AND MAINTENANCE OPERATIONS" IF LANE CLOSURES ARE REQUIRED DURING CONSTRUCTION, A TRAFFIC CONTROL PLAN SHALL BE INCORPORATED INTO CONSTRUCTION PLANS AND MUST BE APPROVED BY THE DIVISION PRIOR TO THE ISSUANCE OF THE PERMIT.
- 5. THE MINIMUM PAVEMENT STRUCTURE SHALL CONSIST OF:

  4" ASPHALT CONCRETE, 8" ASPHALT CONCRETE BASE AND 12" AGGREGATE SUBBASE, OR MATCH EXISTING PAVEMENT STRUCTURE, WHICHEVER IS GREATER.
- 6. NO MATERIAL AND/OR EQUIPMENT SHALL BE STOCKPILED OR OTHERWISE STORED WITHIN HIGHWAY RIGHTS-OF-WAY EXCEPT AT LOCATIONS DESIGNATED IN WRITING AND APPROVED BY THE DISTRICT ENGINEER.
- 7. COMPACTION TESTS SHALL BE TAKEN IN ACCORDANCE WITH THE SPECIFICATIONS FOR INSTALLATIONS OF MISCELLANEOUS IMPROVEMENTS WITHIN STATE HIGHWAYS, AS FOLLOWS:
  - A. SUBBASE: AT EACH LIFT AT EVERY 50 LINEAR FEET OF TRENCH.
  - B. BASE COURSE: AT EACH LIFT AT EVERY 50 LINEAR FEET OF TRENCH.
  - C. ASPHALT CONCRETE PAVEMENTAT EACH LIFT AT EVERY 50 LINEAR FEET OF TRENCH.
- 8. PRIOR TO COMMENCING TRENCH EXCAVATION WORK, THE CONTRACTOR SHALL TAKE A PROFILE ALONG THE NEW CENTERLINE OF UTBLITY TRENCH AND THAT SUCH INFORMATION SHALL BE USED IN THE VERIFICATION OF RESTORING THE ROADWAY TO ITS ORIGINAL CONDITION, A COPY OF THE PROFILE SHALL BE SUBMITTED TO THE DISTRICT ENGINEER.
- 9. THE CONTRACTOR SHALL BE REQUIRED TO PROVIDE ADEQUATE, SAFE, NON-SKID BRIDGING MATERIAL OVER THE TRENCH, INCLUDING SHORING, WHEN TRENCHING IN PAVEMENT AREAS TO HANDLE ALL TYPES OF VEHICULAR TRAFFIC.
- 10. NO TRENCH SHALL BE OPENED MORE THAN 100 FEET IN ADVANCE OF THE INSTALLED AND TESTED PIPE.

- 11. LONGITUDINAL DRAINGE ALONG THE HIGHWAY SHALL BE
- 12. PAVEMENT STRIPING SHALL BE DONE BY CONTRACTOR.
- 13. APPROVAL OF PERMIT CONSTRUCTION PLANS SHALL BE THEREOF FROM THE DATE OF NOTIFICATION OF APPROVE EVENT CONSTRUCTION DOES NOT COMMENCE WITHIN THIS APPLICANT WILL BE REQUIRED TO RESUBMIT HIS CONSTREVIEW AND APPROVAL.
- ALL REGULATORY, GUIDE AND CONSTRUCTION SIGNS AN INTENSITY REFLECTIVE SHEETING.
- CONTRACTOR SHALL INFORM THE STATE PERMIT OFFICE DAYS PRIOR TO CLOSING ANY LANES.
- DRIVEWAY SHALL BE KEPT OPEN UNLESS THE OWNERS RIGHTS-OF-WAYS ARE OTHERWISE PROVIDED FOR SATIS
- 17. WHERE PEDESTRIAN WALKWAYS EXIST. THEY SHALL BE OR OTHER FACILITIES FOR PEDESTRIANS SHALL BE PROBETWEEN WALKWAYS AT INTERSECTIONS SHALL LIKEWIS
- 18. THE CONTRACTOR SHALL REFERENCE TO THE SATISFAC EXISTING TRAFFIC SIGNS, POSTS AND PAVEMENT MARKI OF CONSTRUCTION. THE CONTRACTOR SHALL REPLACE REPAIR ALL TRAFFIC SIGNS, POSTS AND PAVEMENT MA UNLESS DIRECTED OTHERWISE BY THE DISTRICT ENGINE
- 19. THE CONTRACTOR SHALL EXERCISE CARE WHEN EXCAV. EXISTING FACILITIES SHALL BE IMMEDIATELY REPORTED CITY OR STATE AGENCY. THE REPAIR WORK SHALL BE
- 20. THE CONTRACTOR SHALL NOTIFY THE HIGHWAY LIGHTIN SOOT, THREE (3) WORKING DAYS PRIOR TO COMMENCIN

### GENERAL NOTES FOR TRAFFIC CONTROL

- THE PERMITEE SHALL MAKE MINOR ADJUSTMENTS AT II STRUCTURES, ETC., TO FIT FIELD CONDITIONS.
- CONES OR DELINEATORS SHALL BE EXTENDED TO A PO APPROACHING TRAFFIC.
- TRAFFIC CONTROL DEVICES SHALL BE INSTALLED SUCH FROM THE WORK AREA SHALL BE PLACED FIRST. THE PROGRESSIVELY TOWARD THE WORK AREA.

## FFIC CONTROL PLAN

G THE HICHWAY SHALL BE MAINTAINED.

SE DONE BY CONTRACTOR.

PRUCTION PLANS SHALL BE VALID FOR A PERIOD OF ONE YEAR F NOTIFICATION OF APPROVAL TO THE APPLICANT. IN THE NOT COMMENCE WITHIN THIS ONE—YEAR PERIOD, THE D TO RESUBBIT HIS CONSTRUCTION PLANS FOR DIVISION'S

CONSTRUCTION SIGNS AND BARRICADES SHALL BE OF HIGH

THE STATE PERMIT OFFICE (831-6712) AT LEAST TWO (2)

PEN UNLESS THE OWNERS OF THE PROPERTY USING THESE RWISE PROVIDED FOR SATISFACTORILY.

NS EXIST. THEY SHALL BE MAINTAINED IN PASSABLE CONDITION DESTRIANS SHALL BE PROVIDED. PASSAGE BETWEEN WALKWAYS RECTIONS SHALL LIKEWISE BE PROVIDED.

ERENCE TO THE SATISFACTION OF THE DISTRICT ENGINEER, ALL STS AND PAVEMENT MARKINGS PRIOR TO THE COMMENCEMENT NITRACTOR SHALL REPLACE OR REPAIR ALL TRAFFIC SIGNS, POSTS AND PAVEMENT MARKINGS DISTRIBUTED BY HIS ACTIVITIES, BY THE DISTRICT ENGINEER OR HIS REPRESENTATIVE.

ERGISE CARE WHEN EXCAVATING IN THIS AREA, DAMAGES TO THE E IMMEDIATELY REPORTED TO THE RESPECTIVE UTILITY COMPANIES, REPAIR WORK SHALL BE DONE AT THE CONTRACTOR'S EXPENSE.

TIFY THE HICHWAY LIGHTING AND TRAFFIC SIGNAL SUPERVISOR, NAYS PRIOR TO COMMENCING WORK IN THIS AREA (834-4581).

#### TRAFFIC CONTROL PLAN

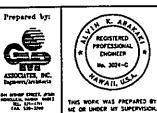
MINOR ADJUSTMENTS AT INTERSECTIONS, DRIVEWAYS, BRIDGES, IELD CONDITIONS.

ILL BE EXTENDED TO A POINT WHERE THEY ARE VISIBLE TO

HALL BE INSTALLED SUCH THAT THE SIGN OR DEVICE FARTHEST L BE PLACED FIRST. THE OTHERS SHALL THEN BE PLACED WORK AREA.

- REGULATORY AND WARNING SIGNS WITHIN THE CONSTRUCTION ZONE THAT ARE IN CONFLICT WITH THE TRAFFIC CONTROL PLANS SHALL BE REMOVED OR COVERED. ALL SIGNS SHALL BE RESTORED UPON COMPLETION OF THE WORK.
- 5. FLAGGERS AND /OR POLICE OFFICERS SHALL BE IN SIGHT OF EACH OTHER OR IN DIRECT COMMUNICATION AT ALL TIMES.
- 6. WHEN REQUIRED BY THE ISSUING OFFICE, THE PERMITTEE SHALL INSTALL A FLASHING ARROW SIGNAL OR CHANGEABLE MESSAGE BOARD AS SHOWN ON THE TRAFFIC CONTROL PLANS, OR AS DIRECTED BY THE STATE INSPECTOR/ENGINEER.
- 7. THE CONTRACTOR SHALL NOTIFY THE OAHU 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
- 8. ALL TRAFFIC LANES SHALL BE A MINIMUM OF 10 FEET WIDE.
- ALL CONSTRUCTION WARNING SIGNS SHALL BE PROMPTLY REMOVED OR COVERED WHENEVER THE MESSAGE IS NOT APPLICABLE OR NOT IN USE.
- 10. THE BACKS OF ALL SIGNS USED FOR TRAFFIC CONTROL SHALL BE APPROPRIATELY COVERED TO PERCLUDE THE DISPLAY OF INAPPLICABLE SIGN MESSAGES (i.e., WHEN SIGNS HAVE MESSAGES ON BOTH FACES).
- 11. AT END OF EACH DAY'S WORK OR AS SOON AS THE WORK IS COMPLETED, THE PERMITTED SHALL REMOVE ALL TRAFFIC CONTROL DEVICES NO LONGER NEEDED TO PERMIT FREE AND SAFE PASSAGE OF PUBLIC TRAFFIC. REMOVAL SHALL BE IN THE REVERSE ORDER OF INSTALLATION.
- 12. REPLACE PERMANENT PAVEMENT MARKINGS AND TRAFFIC SIGNS UPON COMPLETION OF EACH PHASE WORK TO THE SATISFACTION OF THE STATE INSPECTOR/ENGINEER.





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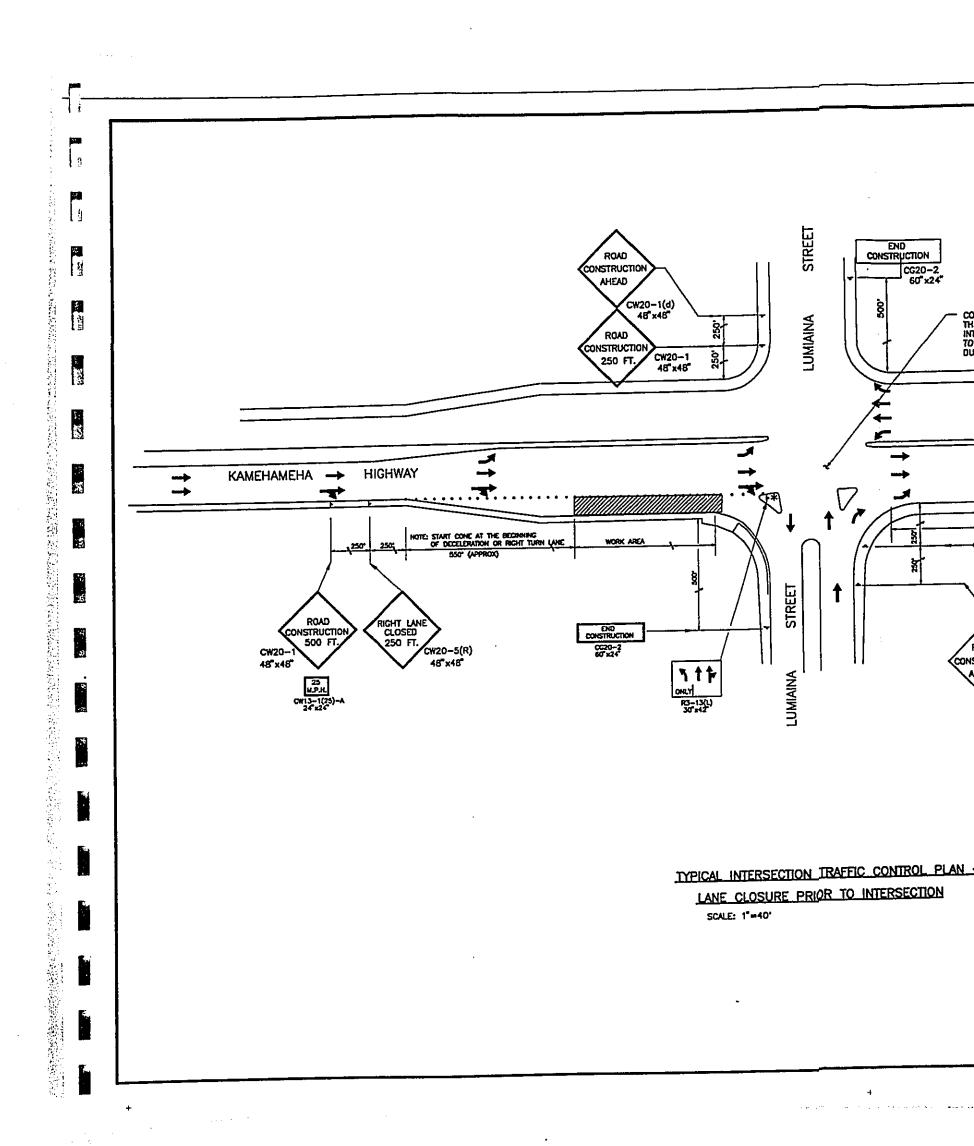
BOARD OF WATER SUPPLY JOB 95-91B

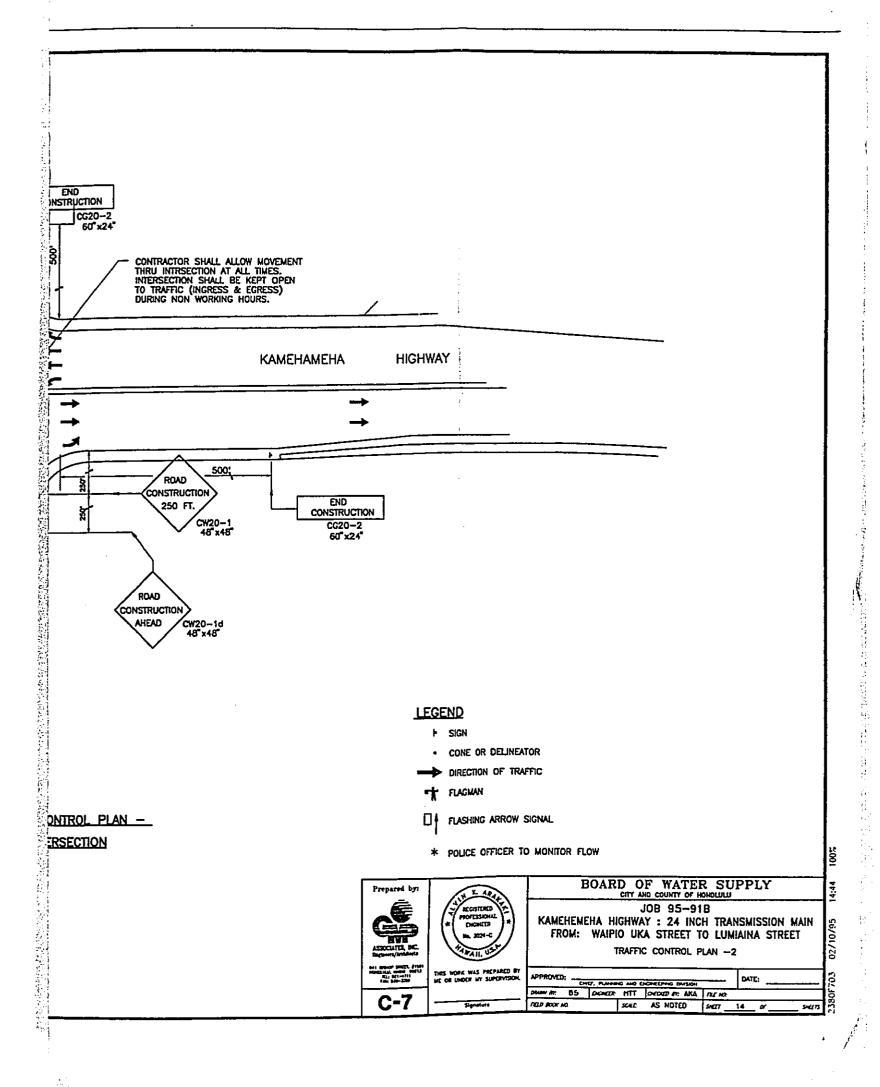
KAMEHAMEHA HIGHWAY : 24 INCH TRANSMISSION MAIN FROM: WAIPIO UKA STREET TO LUMIAINA STREET

TRAFFIC CONTROL PLAN & NOTES

DATE: APPROVED: \_ CHEF. PLANNING AND ENGINEERING DIV NUMBER BS DIEMEDE HITT ONEOLOGIE AND FRE NO SCALD AS NOTED S 5027

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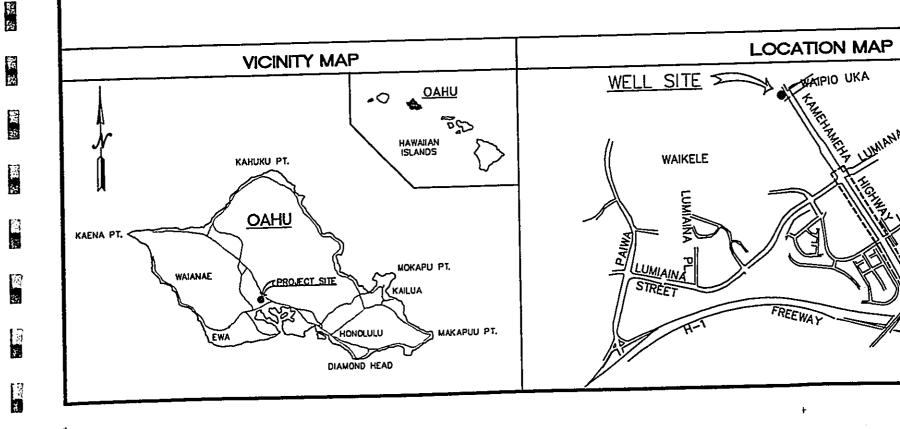
FROM: LUMIAINA STREET TO W

BOARD OF WATER CITY AND COUNTY O HONOLULU, H

PREPARED BY:

## GMP ASSOCIAT

ENGINEERS/ARCHITE HONOLULU, HAWA



14.55

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# 24 INCH TRANSMISSION MAIN

TO WAIAWA INTERCHANGE

WATER SUPPLY ITY OF HONOLULU JLU, HAWAII

PARED BY:

DCIATES, INC.

S/ARCHITECTS

TON MAP	APPROVED		
PROJECT AREA  WAIAWA INTERCHANGE	MANAGER AND CHIEF OF ENGINEERING BOARD OF WATER SUPPLY  CHIEF, 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	
	SHEET 1 OF		

#### INDEX OF DRAWINGS DRAWNG SHEET TITLE NO. NO. TITLE SHEET, LOCATION MAP AND VICINITY MAP T-1 2 INDEX OF DRAWINGS AND WATER NOTES T-2 LOCATION PLAN AND LEGEND T-3 TYPICAL WATER SECTIONS - 1 C-1 PLAN AND PROFILE - STA. 23+00 TO 33+00 5 C-2 PLAN AND PROFILE - STA. 33+00 TO 43+00 6 PLAN AND PROFILE - STA. 43+00 TO (-)7+00 7 C-4 8 TRAFFIC CONTROL PLAN AND NOTES C-5 TRAFFIC CONTROL PLAN - 2 9 C-6 TRAFFIC CONTROL PLAN - 3 10 C-7 TRAFFIC CONTROL PLAN - 4 11 C-8 12 C-8 DETOUR PLAN TRAFFIC SIGNAL LOOP PLAN AT LUMIAINA STREET 13 C-10 TRAFFIC SIGNAL LOOP PLAN AT LUMIAUAU STREET 14 C-11 PRESSURE REDUCING/SUSTAINING VALVE VAULT 15 C-12 STRUCTURAL NOTES AND DETAILS 16 5-1 FOUNDATION PLAN, TOP PLAN AND SECTIONS FOR PRESSURE REDUCING/SUSTAINING VALVE VAULT 17 S-2 HTCO NOTES: THE CONTRACTOR SHALL MOTEY HAMMAN TELEPHONE COMPANY (HTCO) AT 483-8085 TWO WEEKS BEFORE STARTING EXCAVATION TO ARRANGE FOR FIELD LOCATION OF ALL EXISTING TELEPHONE CABLES AND/OR DUCT LINES. THE CONTRACTOR SHALL EXCAVATE AND BACKFUL 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. FOR RELOCATION OF ANY TELEPHONE CABLES AND/OR DUCT LINES, THE CONTRACTOR SHALL NOTIFY HTCO THRTY (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. THE CONTRACTOR SHALL NOTIFY HTCO IMMEDIATELY AT 511 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. 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. THE CONTRACTOR SHALL OBTAIN AN EXCAVATION PERMIT CLEARANCE FROM HTCO RECORDS SECTION LOCATED AT 3239 MALENA STREET, 3RD FLOOR (ABY-3) TWO WEEKS PRIOR TO START OF CONSTRUCTION. HOURS OF BUSINESS IS 7:00 AM. TO 11:00 AM. AND 11:30 AM. TO 3:00 P.M.

THE COSTS OF ANY TEMPORARY RELOCATION OF HTCO FACULTIES DONE FOR THE CONVENIENCE OF THE CONTRACTOR, UNLESS OTHERWISE NOTED.

SHOULD IT BECOME NECESSARY TO TEMPORARLY RELOCATE ANY HTCO FACILITIES TO ENABLE THE CONTRACTOR TO PERFORM HIS WORK IN A SAFE MANNER IN FULFILLING HIS CONTRACT DBLIGATIONS, THESE TEMPORARY RELOCATIONS WILL BE DONE BY HTCO, OR BY THE CONTRACTOR UNDER HTCO'S SUPERVISION, WITH ALL COSTS AND COORDINATION TO BE BORNE BY THE CONTRACTOR.

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.

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#### WATER NOTES

- 1. 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 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.
- 3. 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.
- 4. THE EXISTENCE AND LOCATION OF UNDERGROUND UTILITIES AND STRUCTURES AS SHOWN ON THE PLANS ARE FROM THE LATEST AVAILABLE DATA, BUT ARE NOT CUARANTEED AS TO THE ACCURACY OR THE ENCOUNTERING OF OTHER OBSTACLES DURING THE COURSE OF THE WORK. THE CONTRACTOR SHALL NOT ASSUME THAT WHERE NO UTILITIES ARE SHOWN, THAT NONE EXIST.
- 5. THE CONTRACTOR SHALL BE SOLELY RESPONSIBLE FOR ALL ASSUMPTIONS, DEDUCTIONS, OR CONCLUSIONS HE MAY MAKE OR DERIVE FROM THE SUBSURFACE INFORMATION OR DATA FURNISHED ON THE PLANS. THE CONTRACTOR MUST SATISFY HIMSELF THROUGH HIS OWN INVESTIGATIONS AS TO WHAT SUBSURFACE CONDITIONS ARE TO BE ENCOUNTERED.
- 6. 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 CONSTRUCTION ACTIVITY AND SHALL PAY FOR ALL DAMAGES TO AND FOR THE PROTECTION OF EXISTING UTILITIES AND STRUCTURES.
- 7. 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 ANY 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.
- B. 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.
- 9. ANY COST WHEN DIRECTED BY THE BOARD OF WATER SUPPLY INCURRED BY GASCO, HECO, OR HTCO BY THIS PROJECT SHALL BE PAID BY THE BOARD OF WATER SUPPLY THROUGH THE CONTRACTOR. THE PAYMENT SHALL BE ONLY FOR THE ACTUAL COST AS SHOWN ON THE UTILITY COMPANY INVOICE. NO PAYMENT WILL BE MADE FOR PROFIT, TAX, OVERHEAD AND BOND COST.
- IO. 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-CUIT" 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 PAVENENT SHALL BE IN ACCORDANCE WITH THE DETAILS SHOWN ON THE PLANS AND DONE WITH EQUIVALENT TO, OR BETTER, QUALITY MATERIALS.
- 14. UNLESS OTHERWISE SPECIFIED, CONNECTIONS TO EXISTING WATER MAINS AND CHLORINATION OF NEW MAINS SHALL BE DONE BY THE CONTRACTOR, WITH BOARD OF WATER SUPPLYS INSPECTOR COORDINATING THE WORK. FOR DETAILS, CONTACT THE BWS PLANNING AND ENGINEERING DIVISION, ENGINEERING BRANCH, CONSTRUCTION SECTION.
- 15. 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.
- ALL WATER MAIN TRENCHES IN STATE—OWNED HIGHWAYS SHALL BE BACKFILLED ACCORDING TO THE TRENCH RESTORATION DETAIL AS SHOWN ON THE PLANS. WATER MAIN TRENCHES IN PRIVATELY—OWNED STREETS 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 CURRENT STANDARD SPECIFICATIONS FOR ROAD AND BRIDGE CONSTRUCTION, AND THE SPECIFICATION FOR INSTALLATION OF MISCELLANEOUS IMPROVEMENTS WITHIN STATE HIGHWAYS. OF THE STATE HIGHWAYS DIVISION.

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> 6. ALL AIR REL OF 0 TO 15

## WATER NOTES (CONT.)

- THE CONTRACTOR SHALL BE RESPONSIBLE FOR THE PROPER DISPOSAL OF CHLORINATED WATER TO SAF(GUARD PUBLIC HEALTH AND ENVIRONMENT IN ACCORDANCE WITH APPLICABLE DEPARTMENT OF HEALTH REQUIREMENTS.
- 18. SHOULD MAJOR TREE ROOTS 2" AND GREATER BE ENCOUNTERED DURING CONSTRUCTION, THESE ROOTS SHALL BE CUT AND SEALED WITH ASPHALTIC
- 19. PIPE ALTERNATIVES:
  A. DUCTILE IRON PIPES SHALL BE CLASS 52, WRAPPED WITH POLYETHYLENE.
  - B. POLYVINYL CHLORIDE PIPES SHALL BE CLASS 150. ALL VALVES, CAST IRON PIPES AND FITTINGS SHALL BE WRAPPED WITH POLYETHYLENE. NO BENDING OF POLYVINYL CHLORIDE PIPES WILL BE PERMITTED. THE INSTALLATION OF P.V.C. PIPE ACCORDING TO THE PLANS AND SPECIFICATIONS AS BID ON BY THE CONTRACTOR, MAY REQUIRE ADDITIONAL DESIGN 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 CONSIDERED INCIDENTAL TO THE UNIT PRICE BID IN THE PROPOSAL FOR P.V.C. 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.
  - C. CONCRETE CYLINDER 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 DL. PIPE., VALVES AND FITTINGS.
- 20. DURING NON-WORKING HOURS, THE TRENCHES ON STATE HIGHWAYS SHALL BE COVERED WITH NON-SKID STEEL PLATES AND ALL LANES MAINTAINED OPEN
- UNLESS OTHERWISE SPECIFIED, ALL ABANDONED LINES SHALL BE CUT AND PLUGGED WITH CLASS DWS z000 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 PLUGGED.

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- 22. ALL SALVAGE MATERIALS SHALL BE CLEANED, REPAINTED AND DELIVER TO THE KALINI BWS CORPORATION YARD.
- 23. ALL WATER MAINS AND APPURTENANCES, 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. 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.
- 25. 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-
- 26. ALL AIR RELIEF VALVES SHALL HAVE A MINIMUM WORKING PRESSURE RANGE OF 0 TO 150 PSL.

#### HECO NOTES:

- THE LOCATION OF HAWAIIAN ELECTRIC COMPANY'S (HECO) OVERHEAD AND IMPOERGROUND FACULTIES SHOWN ON THE PLANS ARE FROM EXISTING RECORDS WITH VARTING DEGREES OF ACCURACY AND ARE NOT CUARANTEED 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 OVERSEAD LINES.
- THE CONTRACTOR SHALL COUPLY WITH THE STATE OF HAWAI'S OCCUPATIONAL SAFETY AND HEALTH LAW (DOSH).
- THE CONTRACTOR SHALL GETAIN AN EXCAVATION PERMIT FROM HECO'S MAPPING AND RECORDS DIVISION LOCATED AT 820 WARD AVENUE, 4TH FLOOR, TWO WEEKS PRIOR TO STARTING CONSTRUCTION, REFER TO HECO REQUEST NUMBER AT THAT TIME.
- FOR VERFICATION 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.
- 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 SLIDES, CAVE-INS AND SETTLEMENTS, AND FOR PROTECTING EXISTING STRUCTURES OR FACULTIES WITH BEAMS, STRUTS, OR UNDER-PRINNING TO FULLY PROTECT THESE FROM DAMAGE.
- FOR POLE BRACHG 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 FACULTIES, 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 RECESSARY TO TEMPORARILY RELOCATE ANY HECO FACULTIES TO ENABLE THE CONTRACTOR TO PERFORM HIS WORK IN A SAFE AND EXPEDITIOUS MANNER IN FULFILLING HIS CONTRACT OBLICATIONS, THESE TEMPORARY RELOCATIONS WILL BE DONE BY HECO, OR BY THE CONTRACTOR UNDER HECO'S SUPERVISION, WITH ALL COSTS BEING BORNE BY THE CONTRACTOR.
- ANY UNFORESEEN CONFLICT THAT WOULD RESULT IN THE REDESIGN OR RELOCATION (EITHER TELEPORARY OR PERMANENT) OF HECO'S ELECTRICAL FACULTES 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.
- 10. ANY DAMAGE TO HECO'S FACULTIES WILL BE REPORTED IMMEDIATELY TO HECO'S TROUBLE DISPATCHER
- ALL HECO OVERHEAD AND UNDERGROUND FACULTIES SHALL BE PROTECTED AT ALL TIMES BY THE CONTRACTOR DURING CONSTRUCTION. COSTS FOR DAMAGES TO HECO FACULTIES SHALL BE BORNE BY THE CONTRACTOR. THIS REPAIR WORK SHALL BE DONE BY HECO, OR BY THE CONTRACTOR UNDER HECO'S SUPERVISION.
- THE CONTRACTOR SHALL INDENINFY, DEFEND AND HOLD HARMLESS HECD FROM AND AGAINST ALL LOSSES, DAMACES CLAMS AND ACTIONS, ALL EXPENSES INCIDENTAL TO SUCH LOSSES, DAMACES, CLAMS OR ACTION, BASED UPON OR ARISING OUT OF DAMACE TO PROPERTY OR INJURIES TO PROSONS, 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 INDENINTY SHALL NOT BE APPLICABLE TO ANY LIABILITY UPON THE SOLE NEGLICENCE OF RECO.

Prepared by: 

T-2

REGISTERED PROFESSIONA ENGINEER

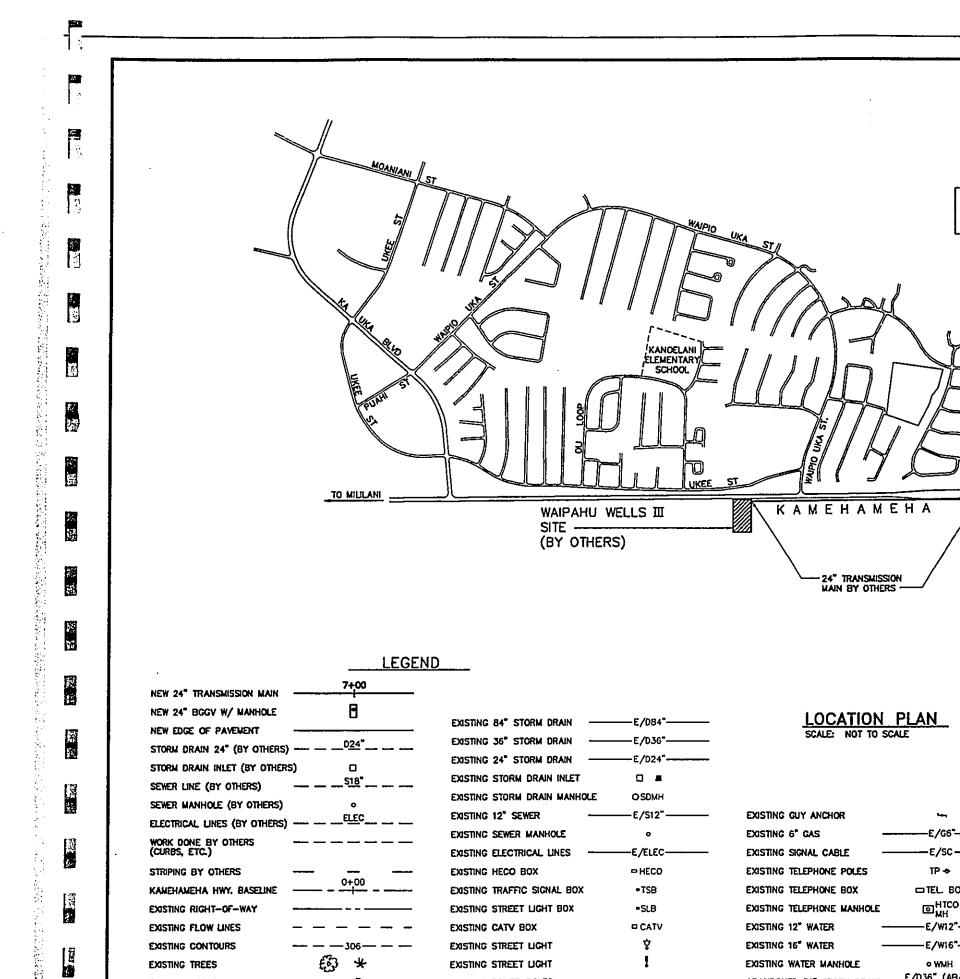
BOARD OF WATER SUPPLY CITY AND COUNTY OF HOHOLULU

JOB 95-91C KAMEHAMEHA HIGHWAY : 24 INCH TRANSMISSION MAIN FROM: LUMIAINA STREET TO WAIAWA INTERCHANGE

INDEX OF DRAWINGS AND NOTES

DATE: APPROVED: CHES, PLANNING AND ENGINEEPING DIVISION ST AKA DE M SCALE AS NOTED SALT!

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EXISTING STREET LIGHT

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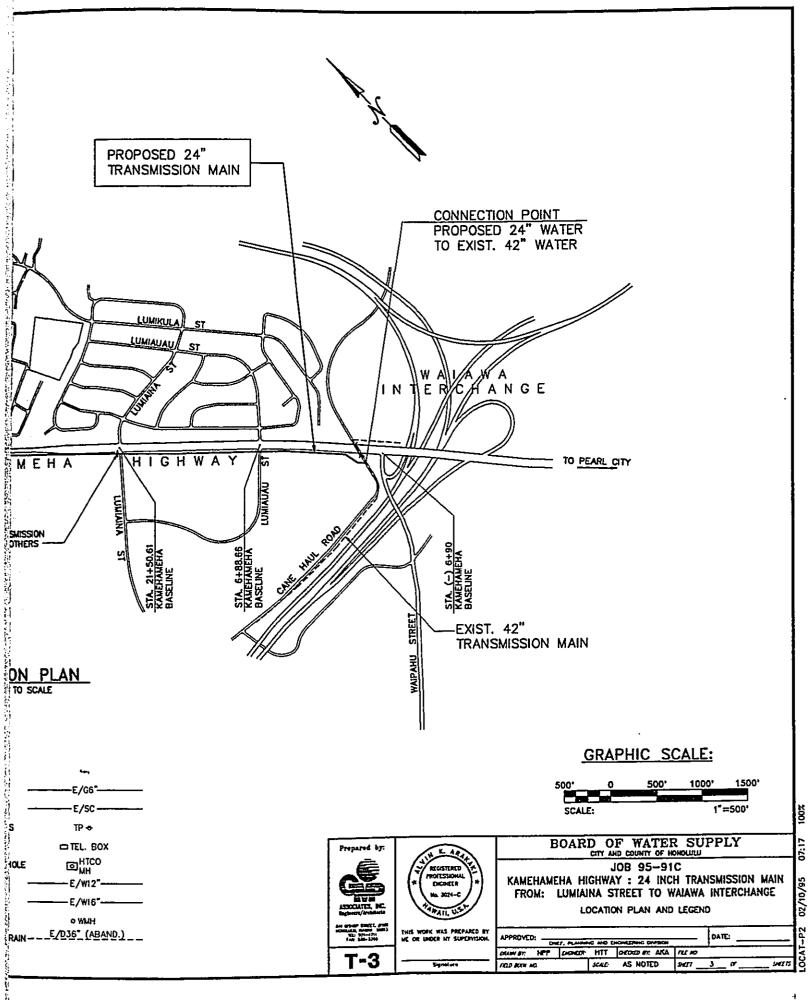
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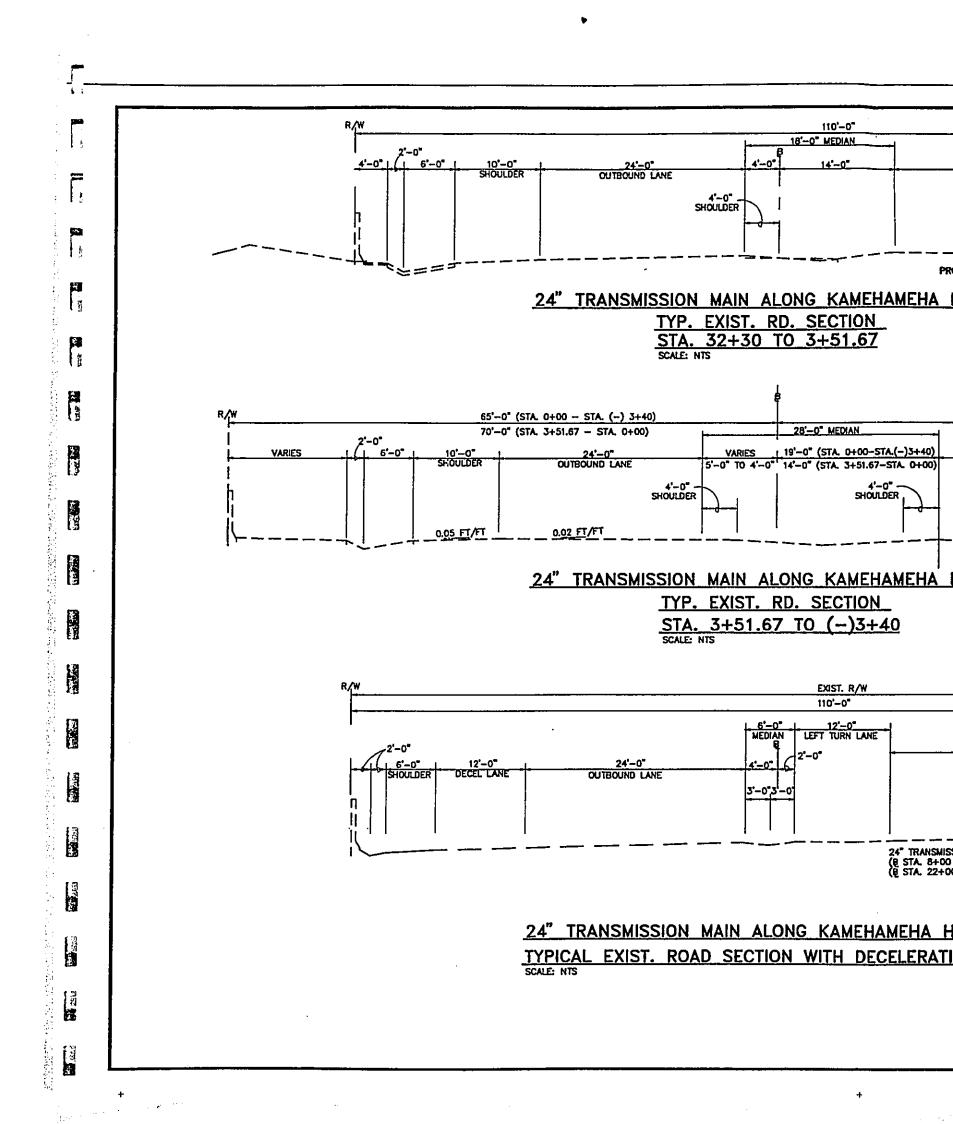
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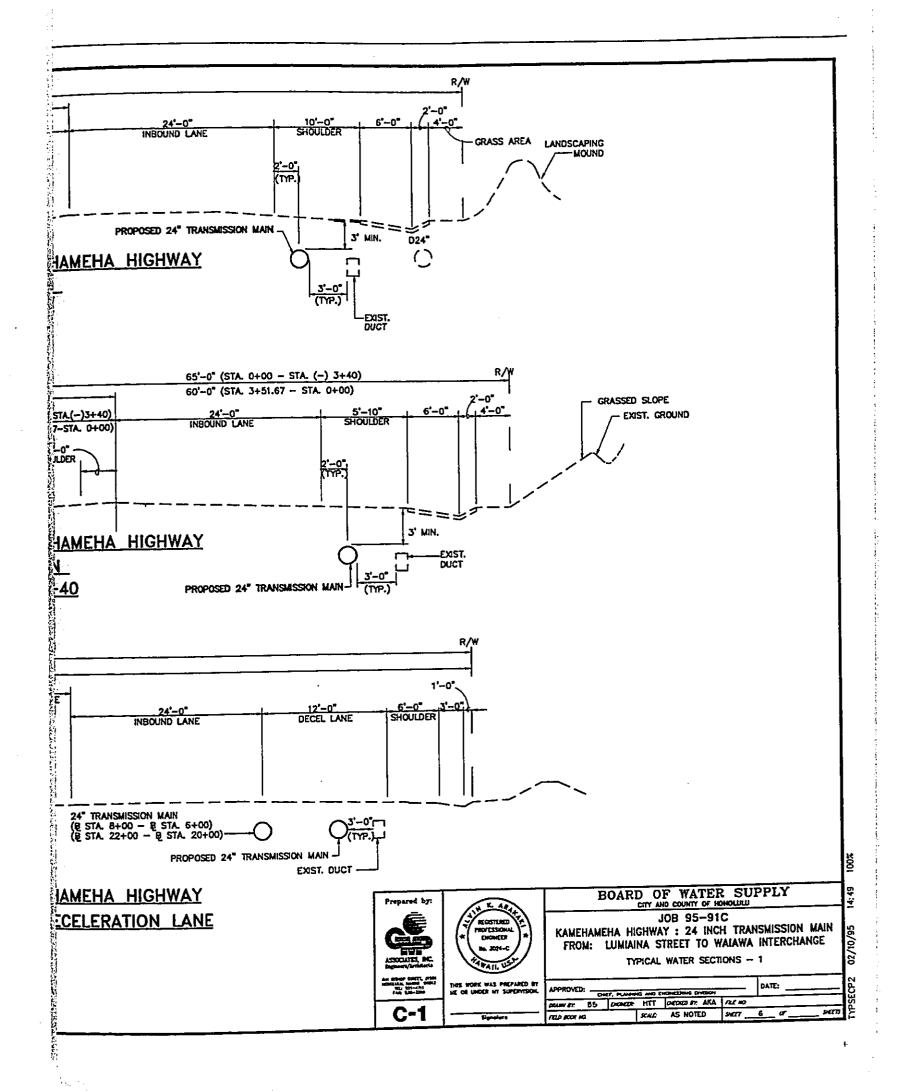
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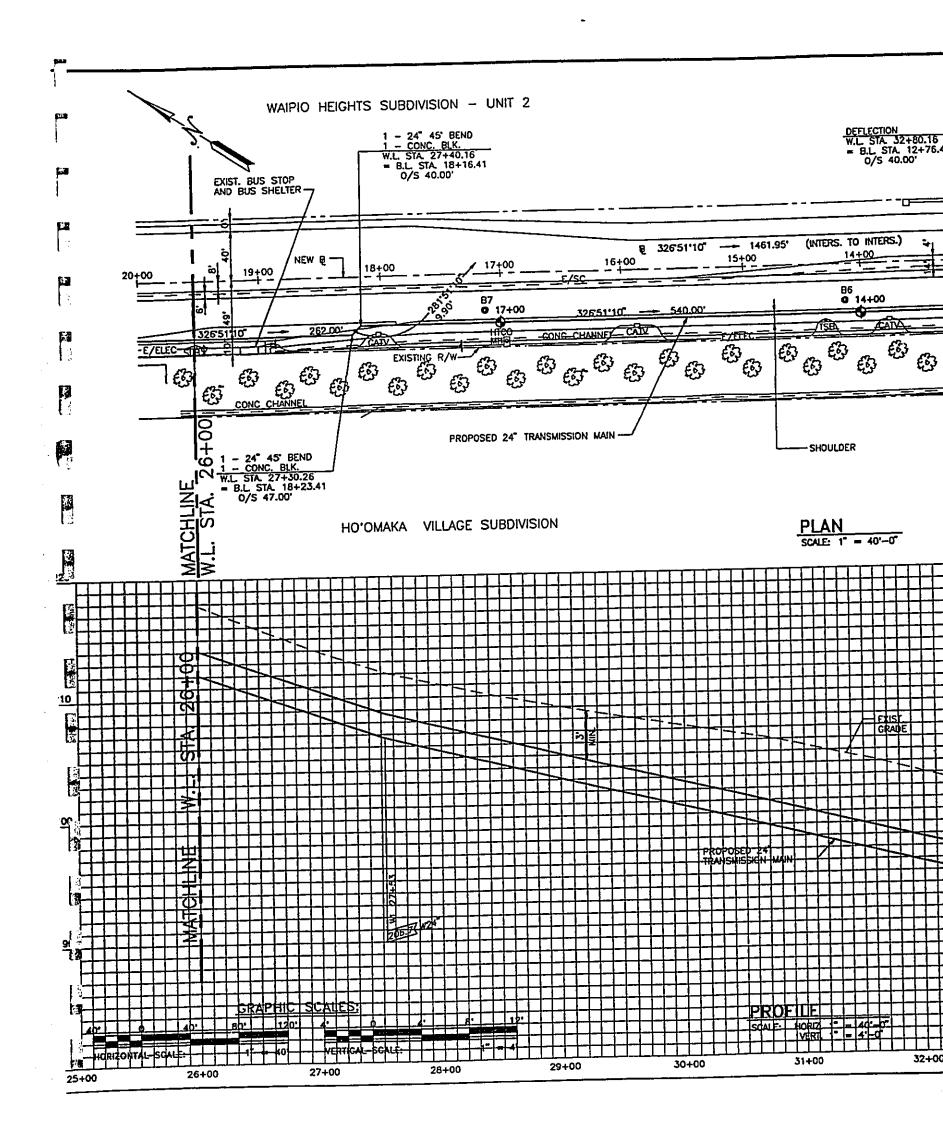
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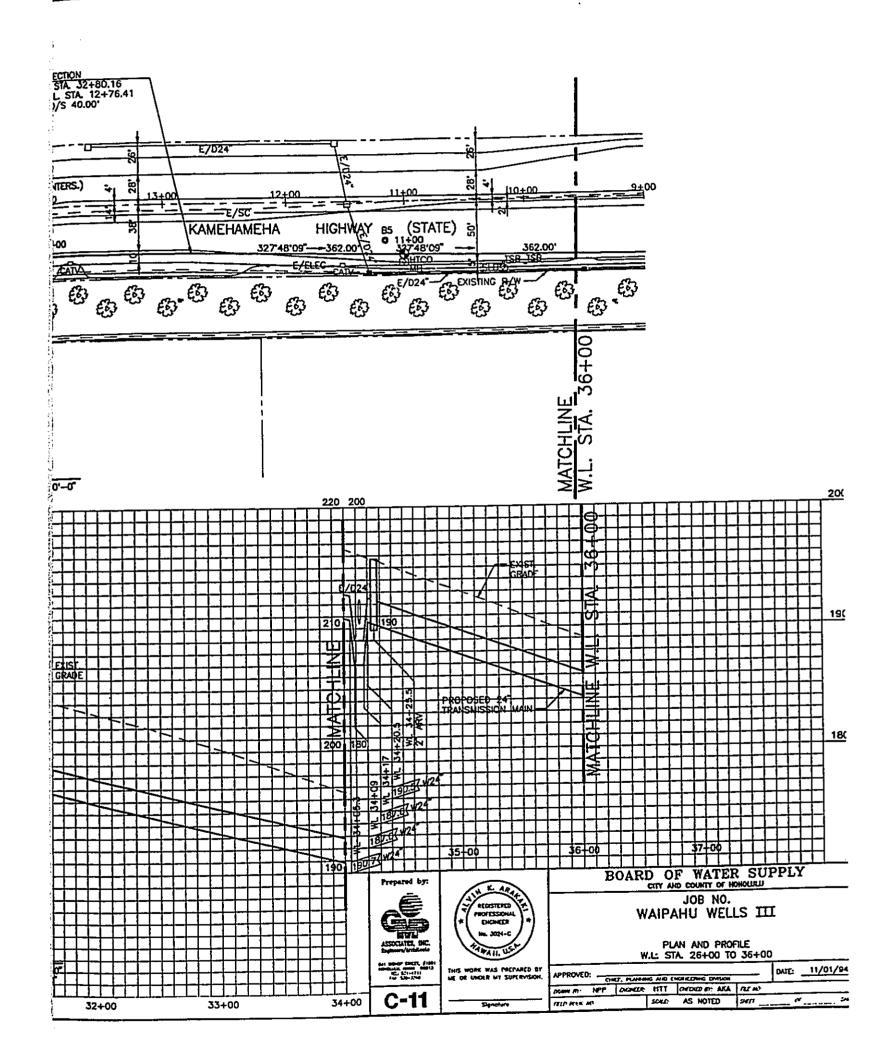
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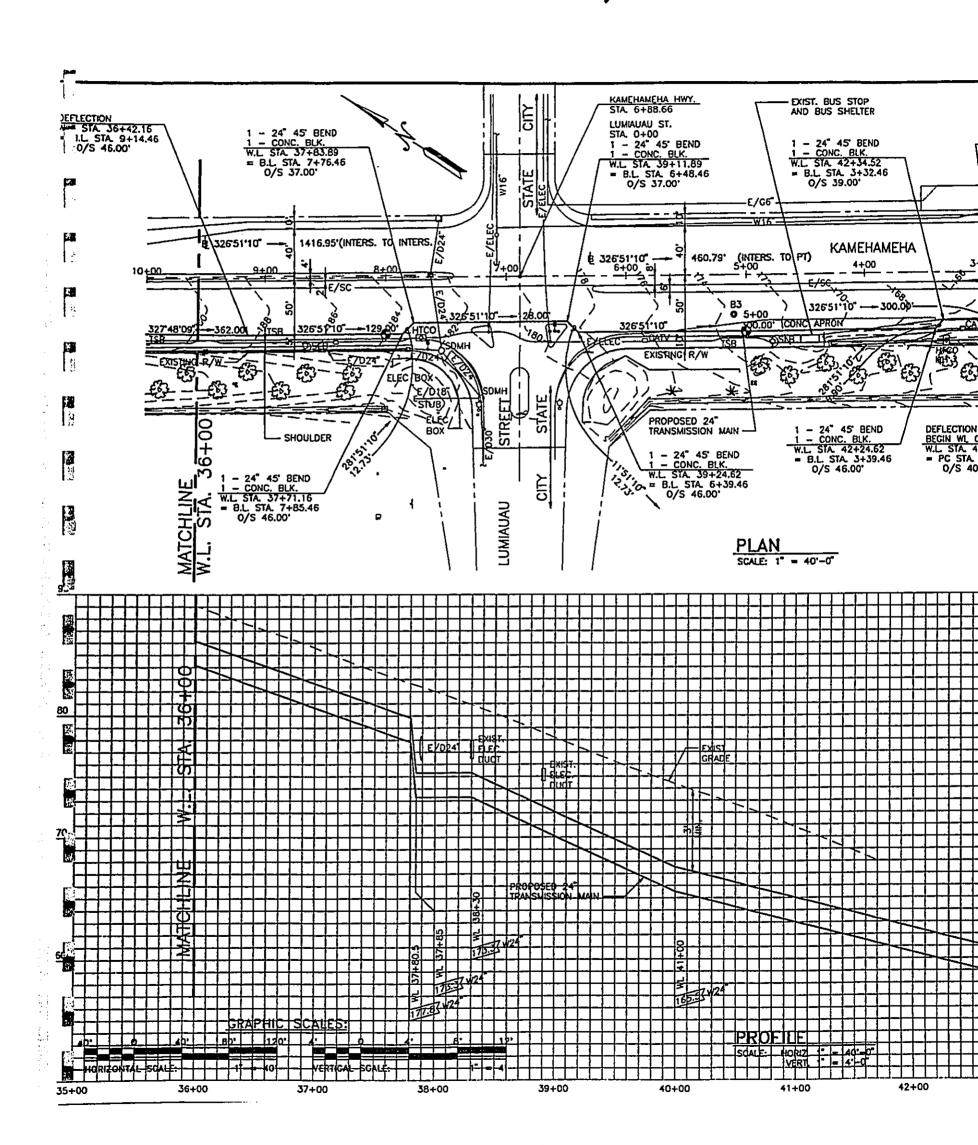


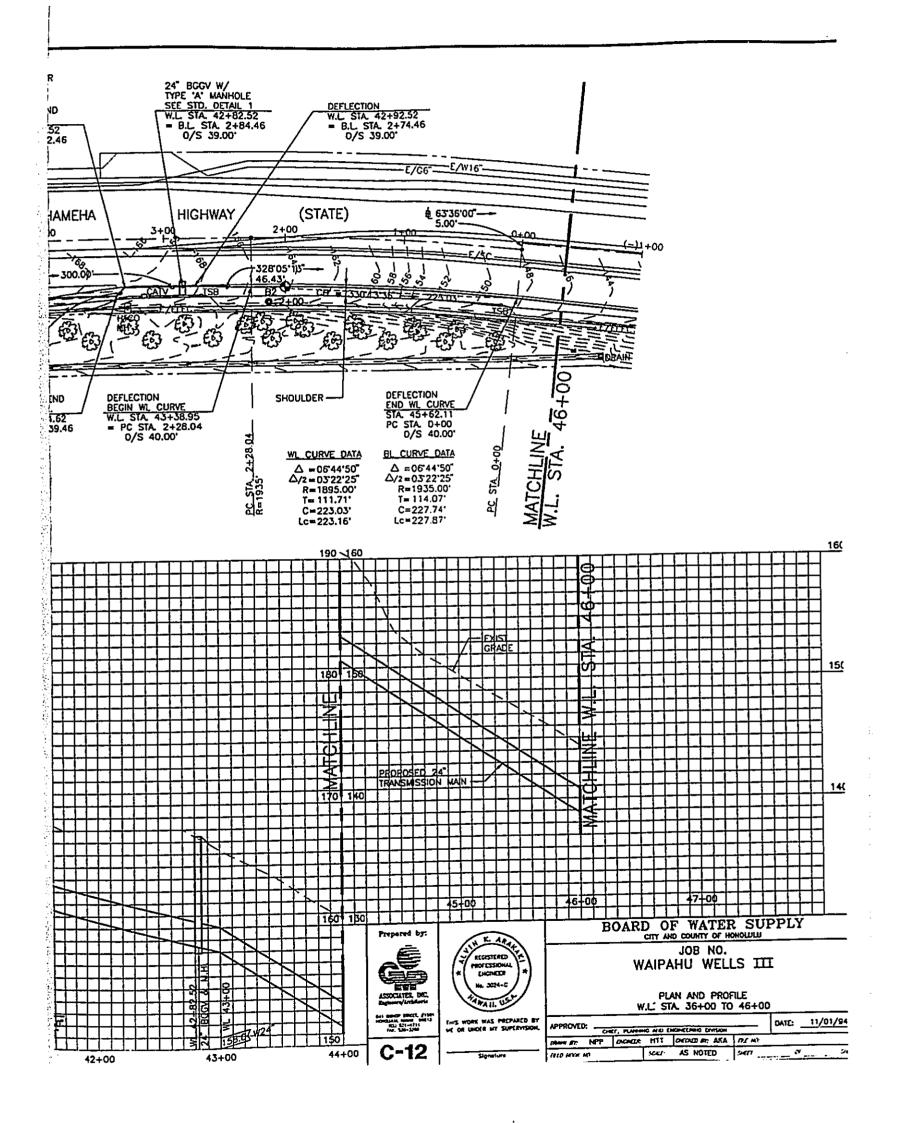


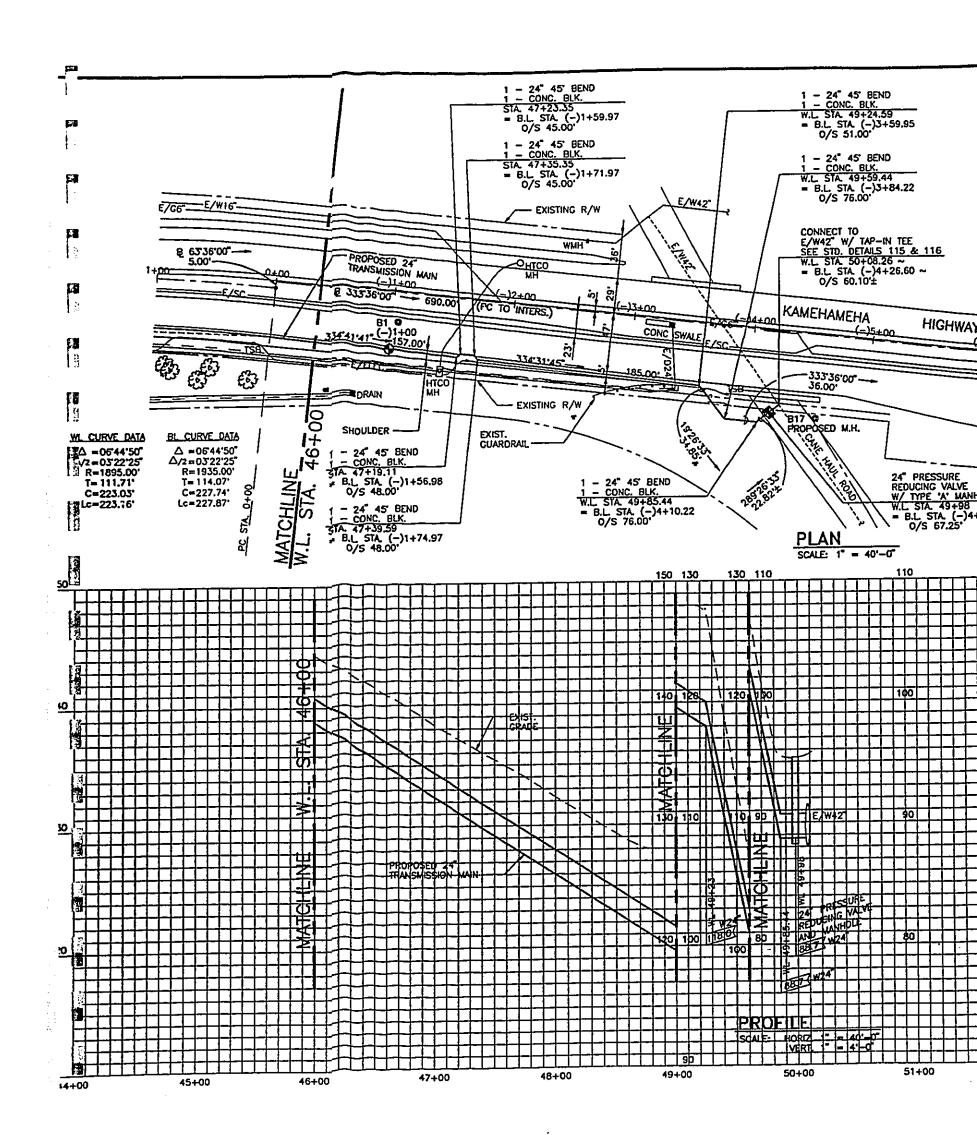


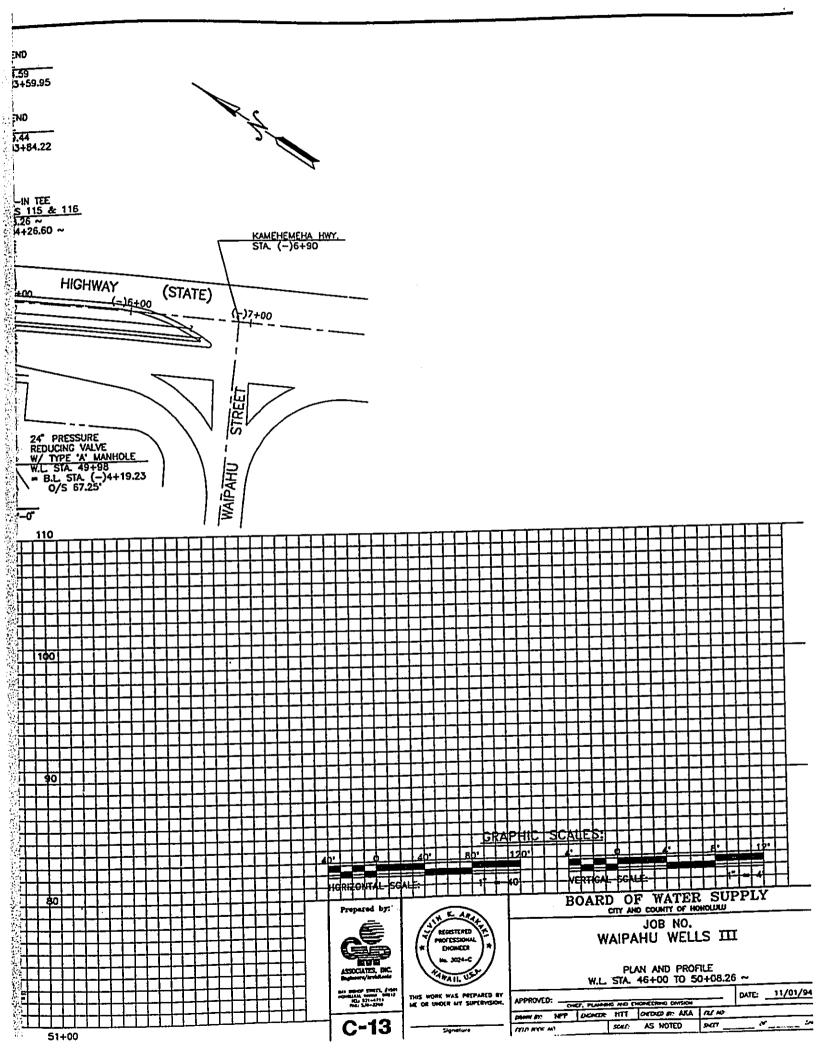


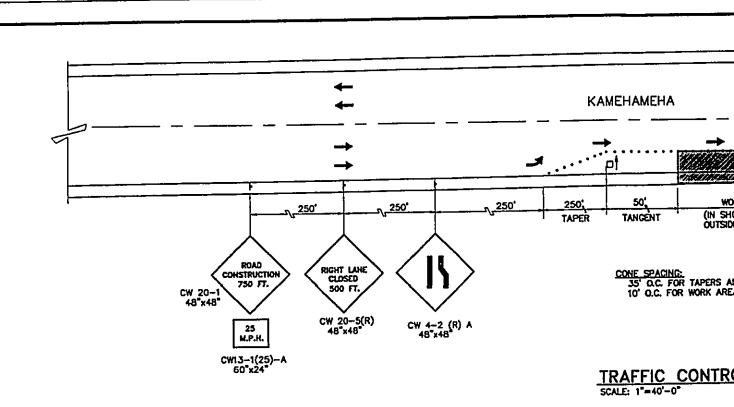












### NOTES FOR CONSTRUCTION WITHIN STATE RIGHT-OF-WAY.

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- 1. THE CONTRACTOR SHALL OBTAIN A CONSTRUCTION PERMIT FROM THE STATE'S HIGHWAY DISTRICT ENGINEER AT 727 KAKOI STREET PRIOR TO COMMENCEMENT OF WORK WITHIN STATE HIGHWAY RIGHT-OF-WAY.
- CONSTRUCTION AND RESTORATION OF ALL EXISTING HIGHWAY FACILITIES WITHIN STATE RIGHT-OF-WAY SHALL
  BE DONE IN ACCORDANCE WITH ALL APPLICABLE SECTIONS OF THE CURRENT STANDARD SPECIFICATIONS FOR
  ROAD AND BRIDGE CONSTRUCTION, AND THE SPECIFICATION FOR INSTALLATION OF MISCELLANEOUS
  IMPROVEMENTS WITHIN STATE HIGHWAYS, OF THE STATE HIGHWAYS DIVISION.
- 3. ALL LANES SHALL BE OPENED TO TRAFFIC DURING THE MORNING PEAK HOURS FROM 5:00 A.M. TO 8:30 A.M. AND DURING THE AFTERNOON PEAK HOURS FROM 3:00 P.M. TO 6:00 P.M., AND DURING OFF-WORK HOURS. DURING WORKING HOURS ONLY ONE LANE OF KAMEHAMEHA HIGHWAY SHALL BE CLOSED AT ANY ONE TIME.
- I. THE CONTRACTOR SHALL PROVIDE, INSTALL, AND MAINTAIN ALL NECESSARY SIGNS, LICHTS, FLARES, BARRICADES, MARKERS, CONES AND OTHER PROTECTIVE FACILITIES AND SHALL TAKE ALL NECESSARY PRECAUTIONS FOR THE PROTECTION AND FOR THE CONVENIENCE AND SAFETY OF PUBLIC TRAFFIC, ALL SUCH PROTECTIVE FACILITIES AND PRECAUTIONS TO BE TAKEN SHALL CONFORM WITH THE "ADMINISTRATIVE RULES OF HAWAII 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 HIGHWAY ADMINISTRATION "MANUAL ON UNIFORM TRAFFIC CONTROL DEVICES FOR STREETS AND HIGHWAYS, PART VI.— TRAFFIC CONTROL FOR HIGHWAY CONSTRUCTION AND MAINTENANCE OPERATIONS" IF LANE CLOSURES ARE REQUIRED DURING CONSTRUCTION.

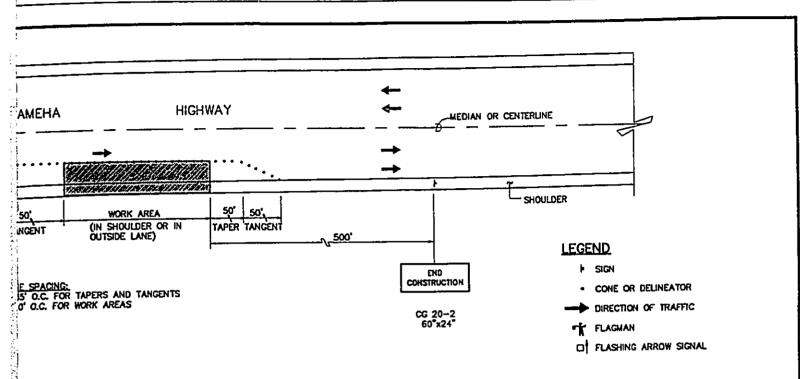
  A TRAFFIC CONTROL PLAN SHALL BE INCORPORATED INTO CONSTRUCTION PLANS AND MUST BE APPROVED BY THE DIVISION PRIOR TO THE ISSUANCE OF THE PERMIT.
- 5. THE MINIMUM PAVEMENT STRUCTURE SHALL CONSIST OF:

  4" ASPHALT CONCRETE, 8" ASPHALT CONCRETE BASE AND 12" AGGREGATE SUBBASE, OR MATCH EXISTING PAVEMENT STRUCTURE, WHICHEVER IS GREATER.
- 6. NO MATERIAL AND/OR EQUIPMENT SHALL BE STOCKPILED OR OTHERWISE STORED WITHIN HIGHWAY RIGHTS-OF-WAY EXCEPT AT LOCATIONS DESIGNATED IN WRITING AND APPROVED BY THE DISTRICT ENGINEER.
- 7. COMPACTION TESTS SHALL BE TAKEN IN ACCORDANCE WITH THE SPECIFICATIONS FOR INSTALLATIONS OF MISCELLANEOUS IMPROVEMENTS WITHIN STATE HIGHWAYS, AS FOLLOWS:
  - A. SUBBASE: AT EACH LIFT AT EVERY 50 LINEAR FEET OF TRENCH.
  - B. BASE COURSE: AT EACH UFT AT EVERY 50 LINEAR FEET OF TRENCH.
  - C. ASPHALT CONCRETE PAVEMENTAT EACH LIFT AT EVERY 50 LINEAR FEET OF TRENCH.
- 8. PRIOR TO COMMENCING TRENCH EXCAVATION WORK, THE CONTRACTOR SHALL TAKE A PROFILE ALONG THE NEW CENTERLINE OF UTILITY TRENCH AND THAT SUCH INFORMATION SHALL BE USED IN THE VERIFICATION OF RESTORING THE ROADWAY TO ITS ORIGINAL CONDITION. A COPY OF THE PROFILE SHALL BE SUBMITTED TO THE DISTRICT ENGINEER.
- 9. THE CONTRACTOR SHALL BE REQUIRED TO PROVIDE ADEQUATE, SAFE, NON-SKID BRIDGING MATERIAL OVER THE TRENCH, INCLUDING SHORING, WHEN TRENCHING IN PAVEMENT AREAS TO HANDLE ALL TYPES OF VEHICULAR TRAFFIC.
- 10. NO TRENCH SHALL BE OPENED MORE THAN 100 FEET IN ADVANCE OF THE INSTALLED AND TESTED PIPE.

- 11. LONGITUDINAL DRAINGE ALONG THE HIGHWAY SHALL
- 12. PAVEMENT STRIPING SHALL BE DONE BY CONTRACTO
- 13. APPROVAL OF PERMIT CONSTRUCTION PLANS SHALL THEREOF FROM THE DATE OF NOTIFICATION OF APPR EVENT CONSTRUCTION DOES NOT COMMENCE WITHIN APPLICANT WILL BE REQUIRED TO RESUBMIT HIS CONREVIEW AND APPROVAL.
- 14. ALL REGULATORY, GUIDE AND CONSTRUCTION SIGNS INTENSITY REFLECTIVE SHEETING.
- 15. CONTRACTOR SHALL INFORM THE STATE PERMIT OFFI DAYS PRIOR TO CLOSING ANY LANES.
- 16. DRIVEWAY SHALL BE KEPT OPEN UNLESS THE OWNER RIGHTS-OF-WAYS ARE OTHERWISE PROVIDED FOR SA
- 17. WHERE PEDESTRIAN WALKWAYS EXIST. THEY SHALL E OR OTHER FACILITIES FOR PEDESTRIANS SHALL BE P BETWEEN WALKWAYS AT INTERSECTIONS SHALL LIKEV
- 18. THE CONTRACTOR SHALL REFERENCE TO THE SATISF EXISTING TRAFFIC SIGNS, POSTS AND PAVEMENT MAY OF CONSTRUCTION. THE CONTRACTOR SHALL REPLAREPAIR ALL TRAFFIC SIGNS, POSTS AND PAVEMENT UNLESS DIRECTED OTHERWISE BY THE DISTRICT ENGI
- 19. THE CONTRACTOR SHALL EXERCISE CARE WHEN EXC EXISTING FACILITIES SHALL BE IMMEDIATELY REPORTE CITY OR STATE AGENCY. THE REPAIR WORK SHALL I
- 20. THE CONTRACTOR SHALL NOTIFY THE HIGHWAY LIGHT SDOT, THREE (3) WORKING DAYS PRIOR TO COMMEN

#### GENERAL NOTES FOR TRAFFIC CONTR

- THE PERMITEE SHALL MAKE MINOR ADJUSTMENTS AT STRUCTURES, ETC., TO FIT FIELD CONDITIONS.
- 2. CONES OR DELINEATORS SHALL BE EXTENDED TO A APPROACHING TRAFFIC.
- TRAFFIC CONTROL DEVICES SHALL BE INSTALLED SU FROM THE WORK AREA SHALL BE PLACED FIRST. TH PROGRESSIVELY TOWARD THE WORK AREA.



## FFIC CONTROL PLAN

THE HIGHWAY SHALL BE MAINTAINED.

E DONE BY CONTRACTOR.

RUCTION PLANS SHALL BE VALID FOR A PERIOD OF ONE YEAR NOTIFICATION OF APPROVAL TO THE APPLICANT, IN THE NOTIFICATION WITHIN THIS ONE—YEAR PERIOD, THE TO RESUBLIT HIS CONSTRUCTION PLANS FOR DIVISION'S

CONSTRUCTION SIGNS AND BARRICADES SHALL BE OF HIGH

THE STATE PERMIT OFFICE (831-6712) AT LEAST TWO (2) LANES.

EN UNLESS THE OWNERS OF THE PROPERTY USING THESE MISE PROVIDED FOR SATISFACTORILY.

S EXIST. THEY SHALL BE MAINTAINED IN PASSABLE CONDITION DESTRIANS SHALL BE PROVIDED. PASSAGE BETWEEN WALKWAYS RECTIONS SHALL LIKEWISE BE PROVIDED.

ERENCE TO THE SATISFACTION OF THE DISTRICT ENGINEER, ALL
ITS AND PAVEMENT MARKINGS PRIOR TO THE COMMENCEMENT
THRACTOR SHALL REPLACE OR REPAIR ALL TRAFFIC SIGNS,
POSTS AND PAVEMENT MARKINGS DISTRIBUTED BY HIS ACTIVITIES,
BY THE DISTRICT ENGINEER OR HIS REPRESENTATIVE.

RCISE CARE WHEN EXCAVATING IN THIS AREA. DAMAGES TO THE IMMEDIATELY REPORTED TO THE RESPECTIVE UTILITY COMPANIES. REPAIR WORK SHALL BE DONE AT THE CONTRACTOR'S EXPENSE.

IFY THE HIGHWAY LIGHTING AND TRAFFIC SIGNAL SUPERVISOR, LYS PRIOR TO COMMENCING WORK IN THIS AREA (834—4581).

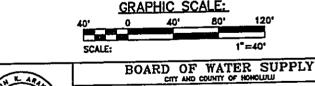
#### TRAFFIC CONTROL PLAN

INOR ADJUSTMENTS AT INTERSECTIONS, DRIVEWAYS, BRIDGES, ILD CONDITIONS.

L BE EXTENDED TO A POINT WHERE THEY ARE VISIBLE TO

ALL BE INSTALLED SUCH THAT THE SIGN OR DEVICE FARTHEST BE PLACED FIRST. THE OTHERS SHALL THEN BE PLACED WORK AREA.

- REGULATORY AND WARNING SIGNS WITHIN THE CONSTRUCTION ZONE THAT ARE IN CONFLICT WITH THE TRAFFIC CONTROL PLANS SHALL BE REMOVED OR COVERED. ALL SIGNS SHALL BE RESTORED UPON COMPLETION OF THE WORK.
- 5. FLAGGERS AND /OR POLICE OFFICERS SHALL BE IN SIGHT OF EACH OTHER OR IN DIRECT COMMUNICATION AT ALL TIMES.
- 6. WHEN REQUIRED BY THE ISSUING OFFICE, THE PERMITTEE SHALL INSTALL A FLASHING ARROW SIGNAL OR CHANGEABLE MESSAGE BOARD AS SHOWN ON THE TRAFFIC CONTROL PLANS, OR AS DIRECTED BY THE STATE INSPECTOR/ENGINEER.
- 7. THE CONTRACTOR SHALL NOTIFY THE OAHU 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.
- 8. ALL TRAFFIC LANES SHALL BE A MINIMUM OF 10 FEET WIDE.
- 9. ALL CONSTRUCTION WARNING SIGNS SHALL BE PROMPTLY REMOVED OR COVERED WHENEVER THE MESSAGE IS NOT APPLICABLE OR NOT IN USE.
- 10. THE BACKS OF ALL SIGNS USED FOR TRAFFIC CONTROL SHALL BE APPROPRIATELY COVERED TO PERCLUDE THE DISPLAY OF INAPPLICABLE SIGN MESSAGES (i.e., WHEN SIGNS HAVE MESSAGES ON BOTH FACES).
- 11. AT END OF EACH DAY'S WORK OR AS SOON AS THE WORK IS COMPLETED, THE PERMITTED SHALL REMOVE ALL TRAFFIC CONTROL DEVICES NO LONGER NEEDED TO PERMIT FREE AND SAFE PASSAGE OF PUBLIC TRAFFIC, REMOVAL SHALL BE IN THE REVERSE ORDER OF INSTALLATION.
- 12. REPLACE PERMANENT PAVEMENT MARKINGS AND TRAFFIC SIGNS UPON COMPLETION OF EACH PHASE WORK TO THE SATISFACTION OF THE STATE INSPECTOR/ENGINEER.



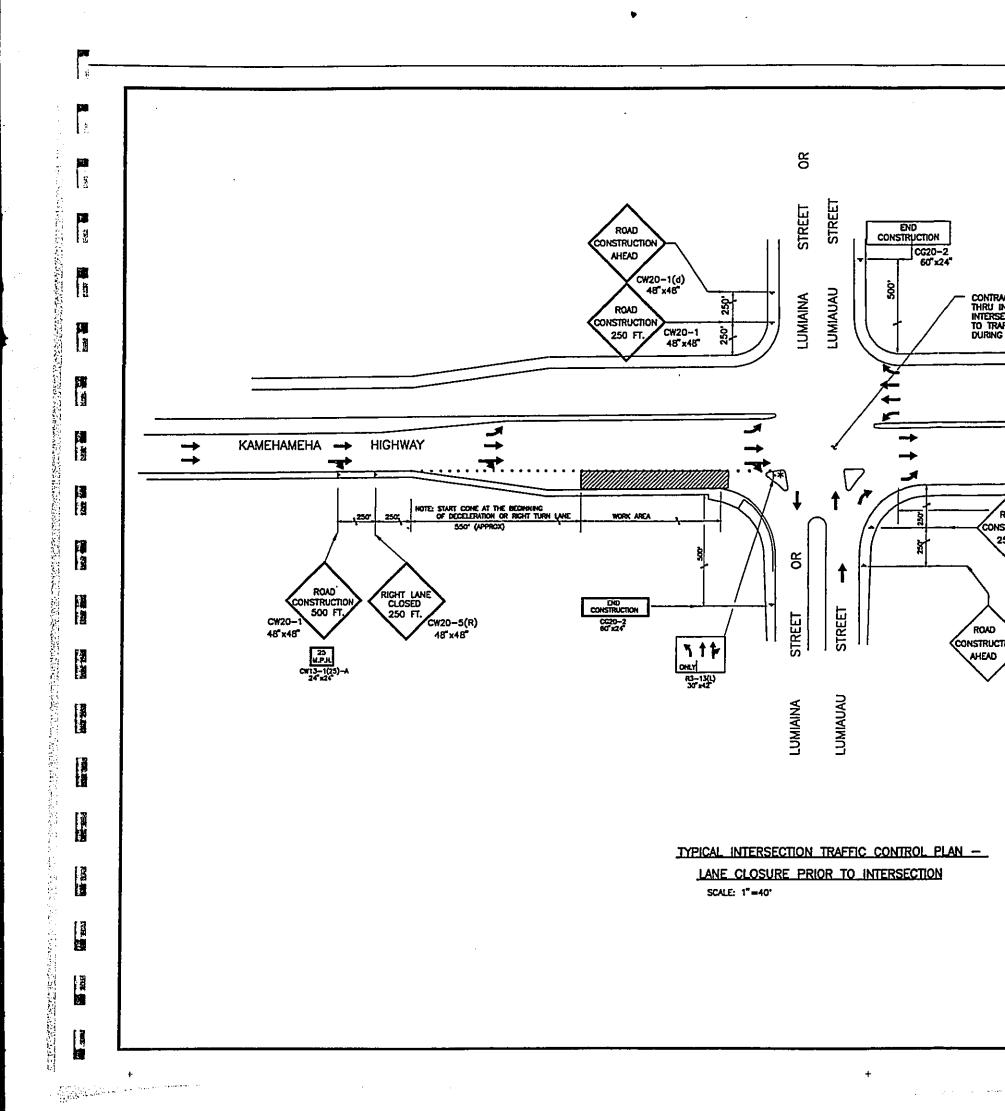


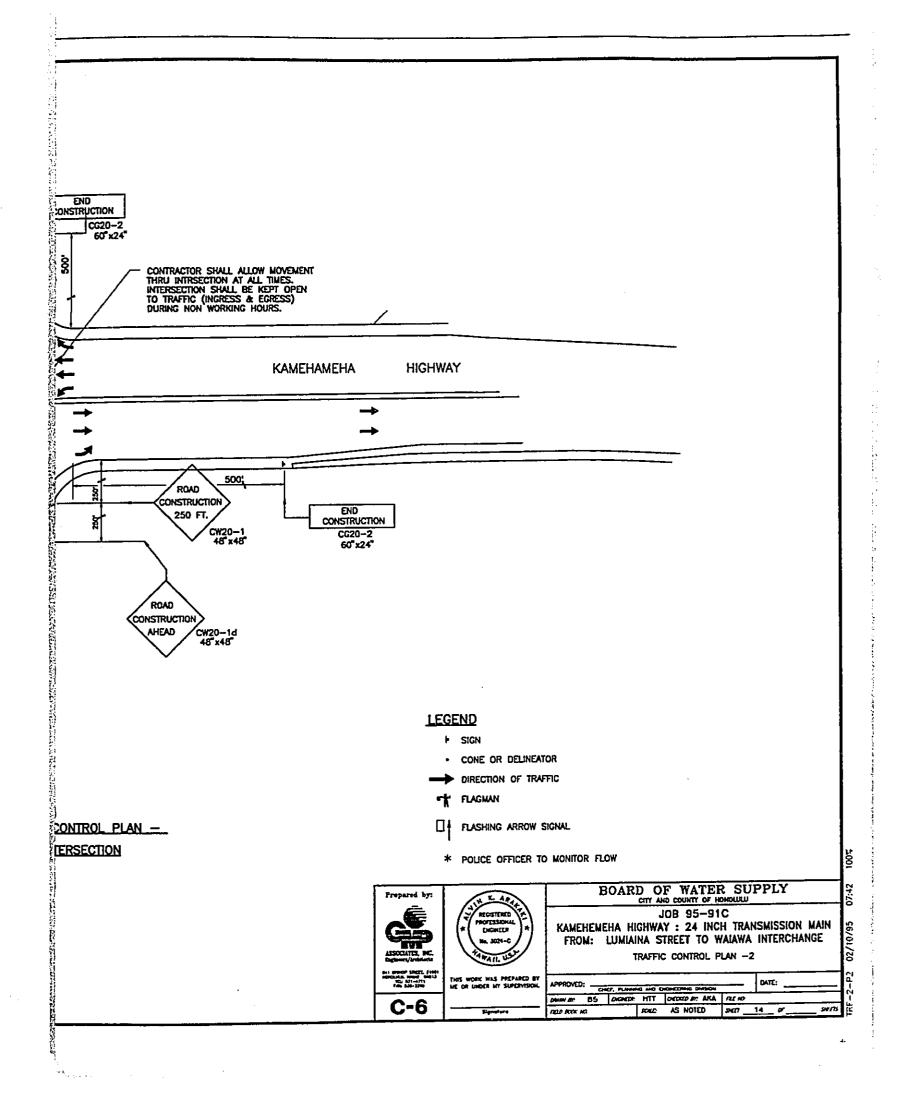


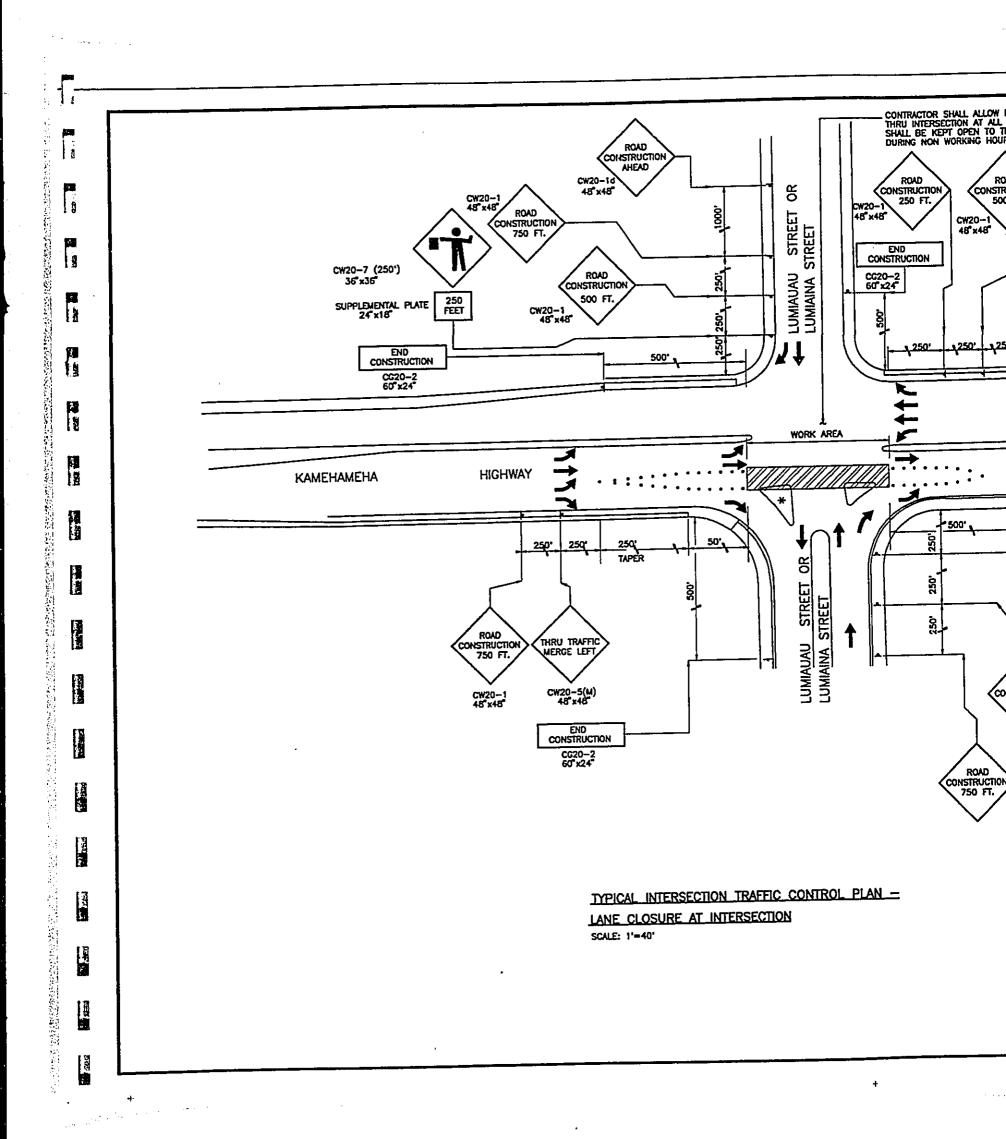
JOB 95-91C KAMEHAMEHA HIGHWAY: 24 INCH TRANSMISSION MAIN FROM: LUMIAINA STREET TO WAIAWA INTERCHANGE TRAFFIC CONTROL PLAN & NOTES

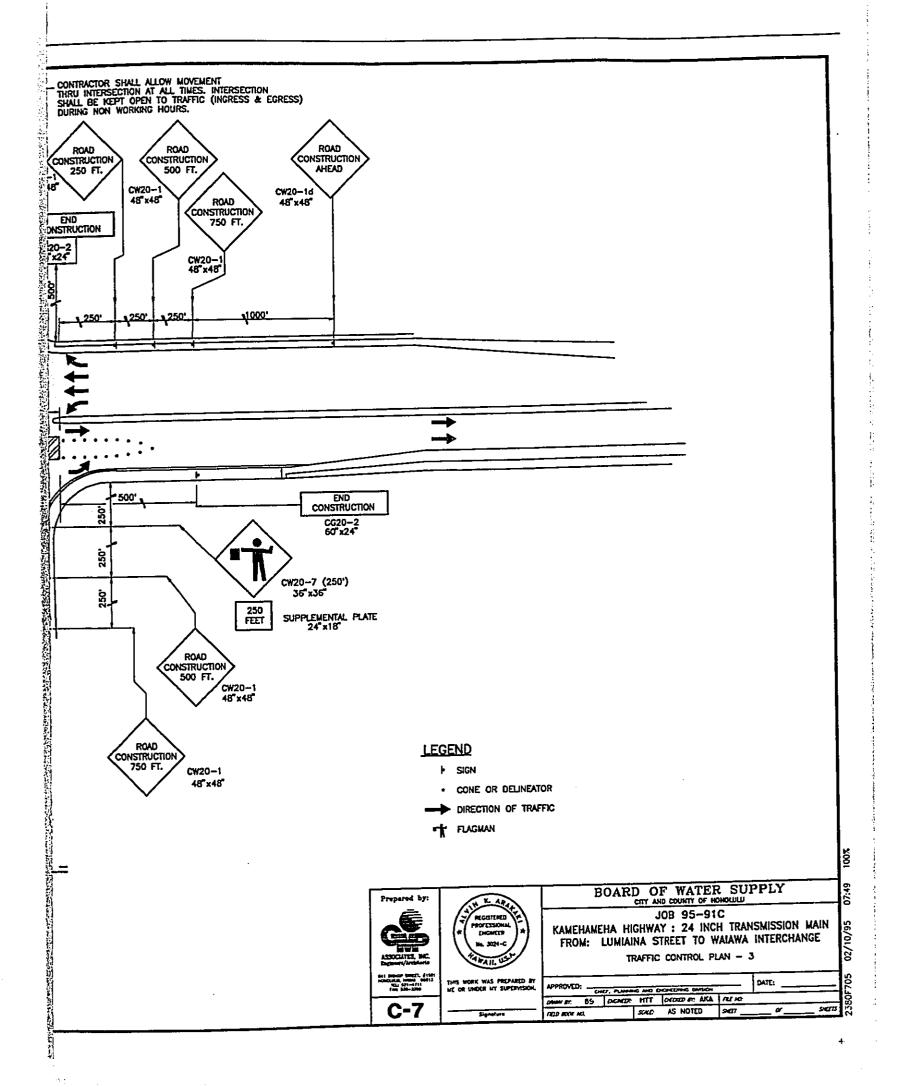
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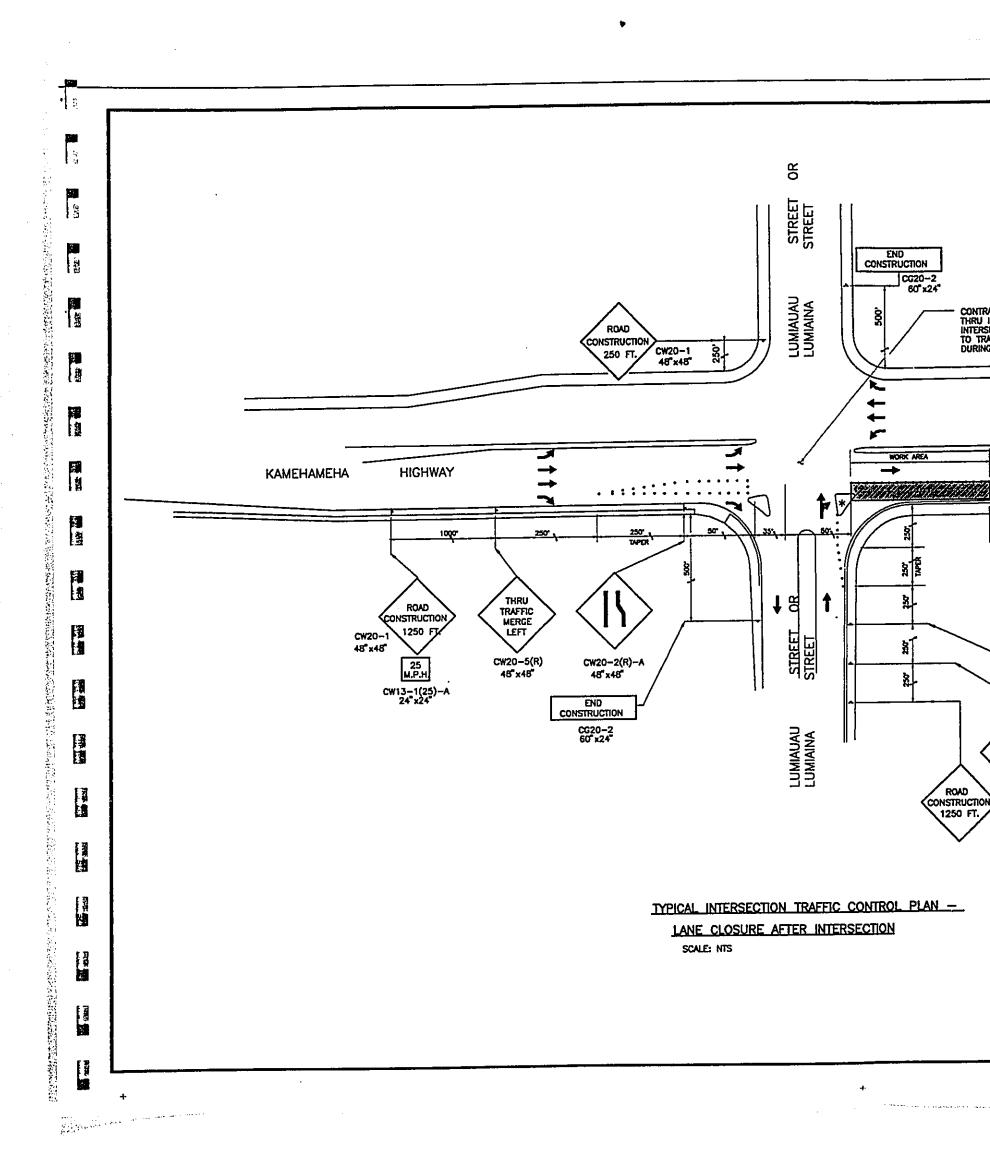
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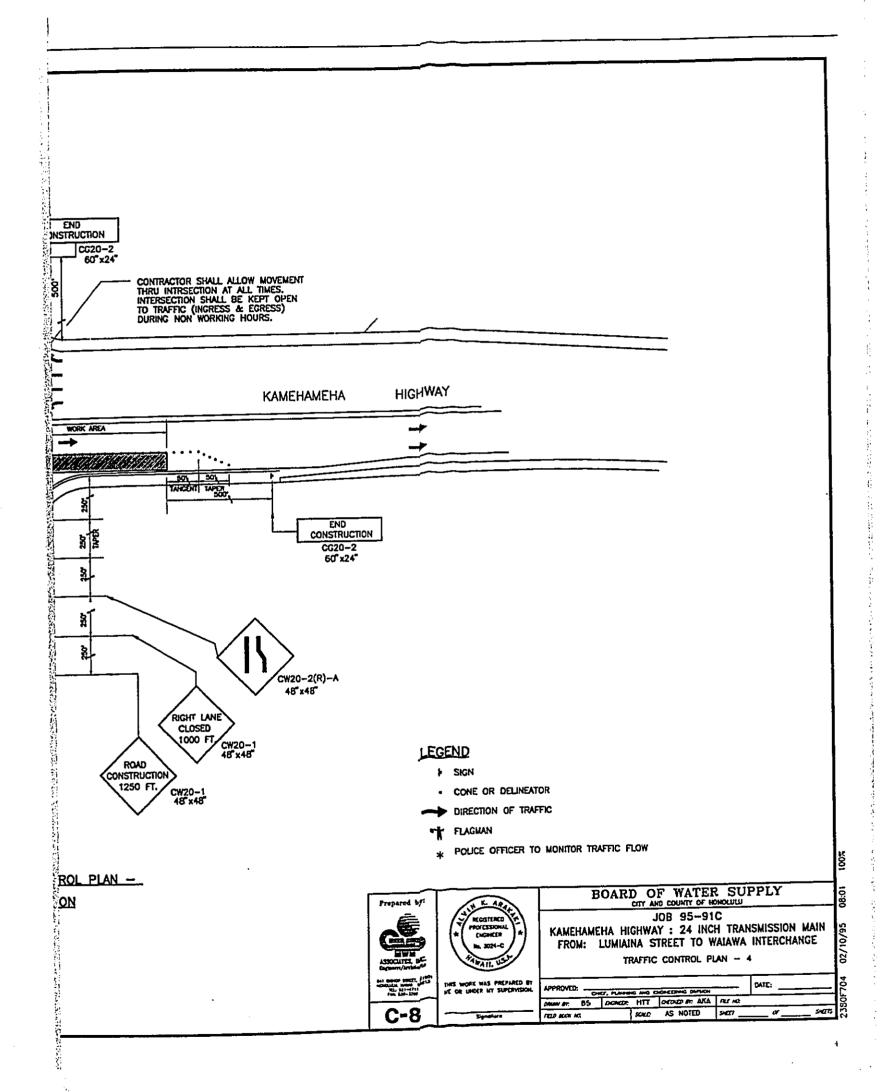


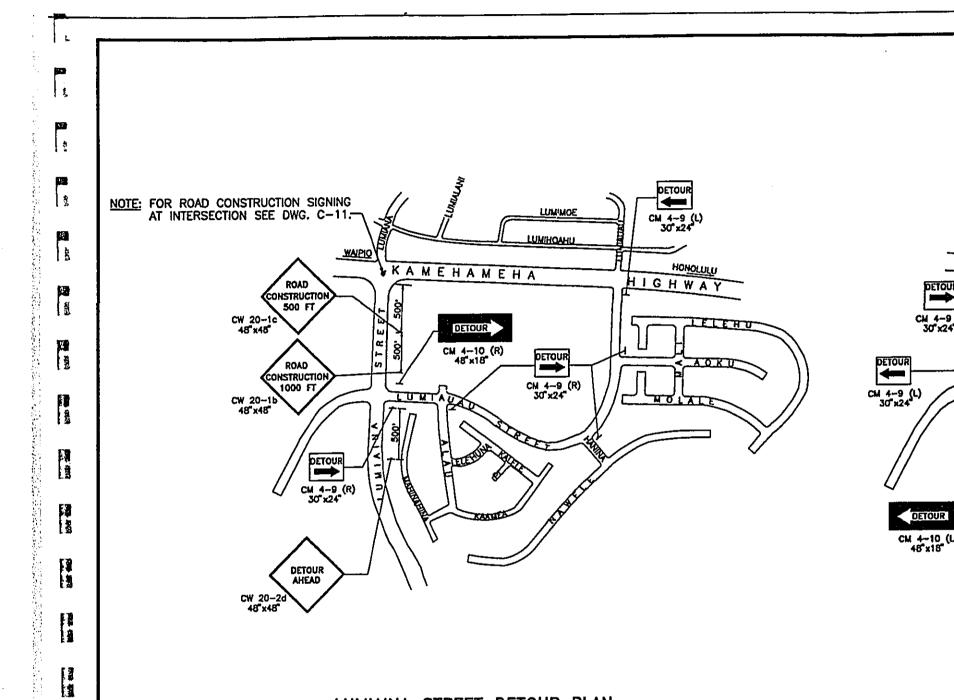












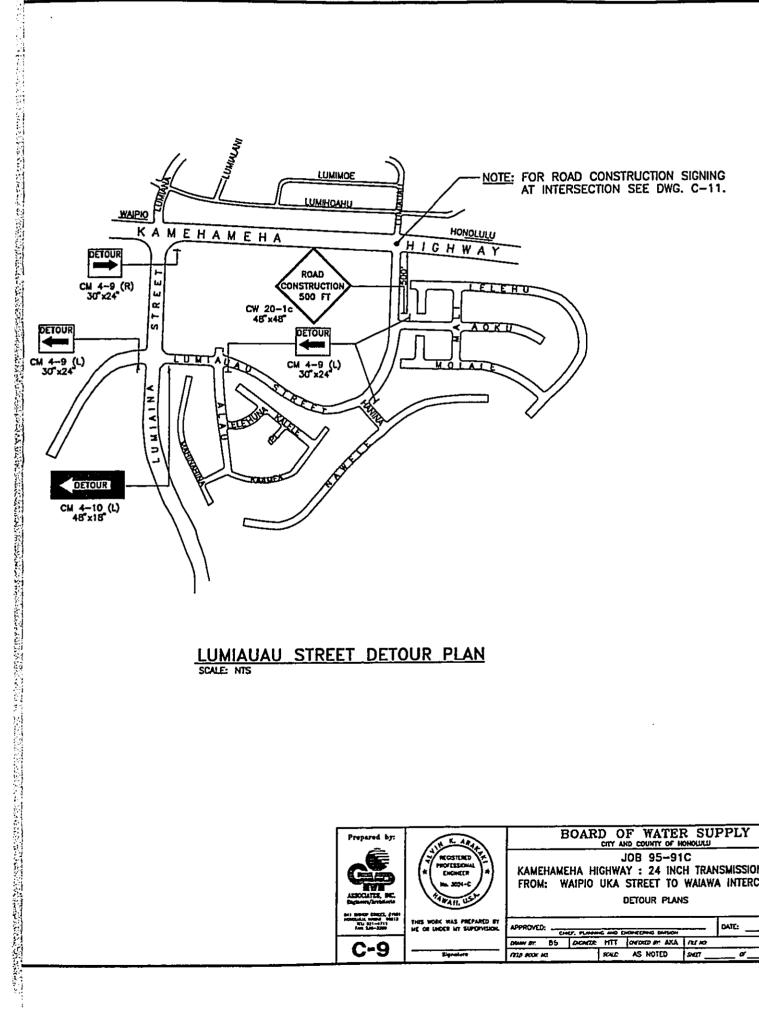
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LUMIAUAU STREET DETOUR PLAN SCALE: NTS



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BOARD OF WATER SUPPLY

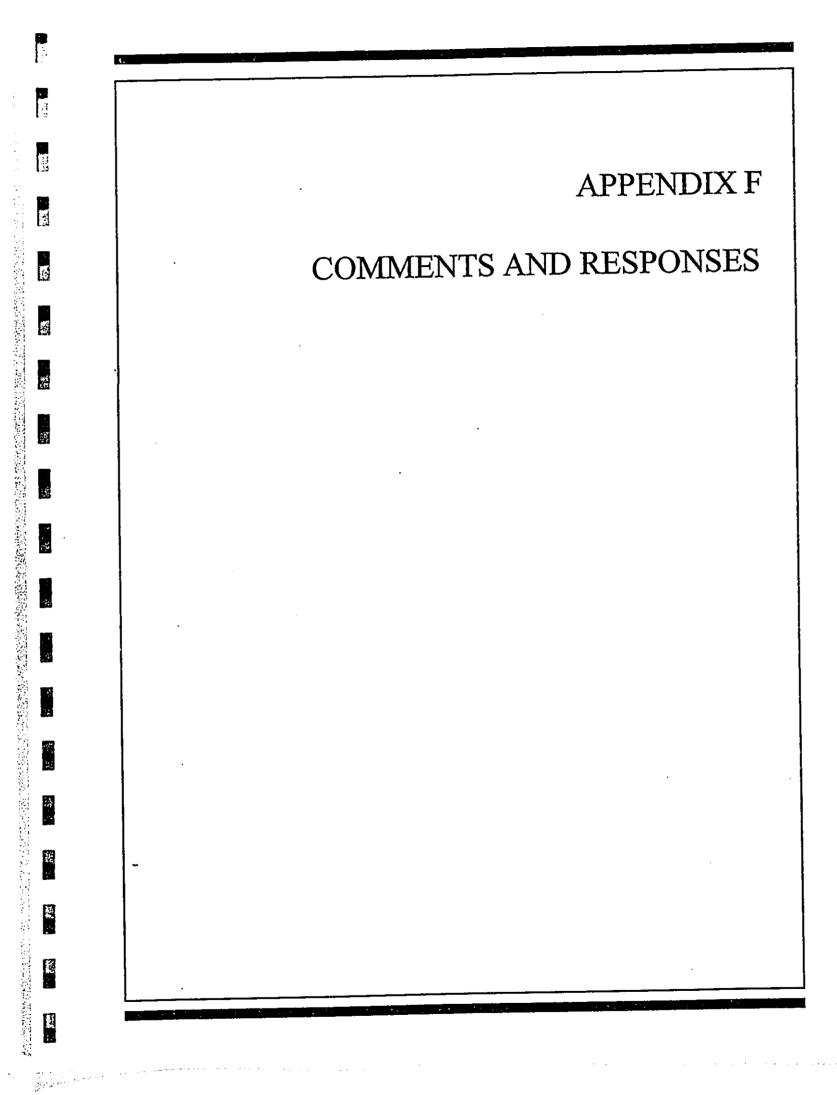
JOB 95-91C KAMEHAMEHA HIGHWAY: 24 INCH TRANSMISSION MAIN FROM: WAIPIO UKA STREET TO WAIAWA INTERCHANGE

DETOUR PLANS

APPROVED: CONT. PLANNING AND ENGINEERING DAMAGE

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#### EA COMMENTS AND RESPONSES

The following agencies were consulted in the review of the Draft Environmental Assessment for the Waipahu Wells III Station.

#### ADDRESSEE

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#### DATE COMMENTS RECEIVED

January 19, 1995

#### STATE AGENCIES

Department of Health
Environmental Management Division
Safe Drinking Water Branch
919 Ala Moana Blvd.
Honolulu, HI 96814

Department of Health Environmental Management Division Clean Water Branch 919 Ala Moana Blvd. Honolulu, HI 96814

Department of Land and Natural Resources Commission of Water Resource Management Kalanimoku Building 1151 Punchbowl Street, Room 130 Honolulu, HI 96813

January 6, 1995

January 25, 1995

Land Use Commission Old Federal Building 3335 Merchant Street, Room 104 Honolulu, HI 96813

Office of Environmental Quality Control 220 S. King Street, 4th Floor Honolulu, HI 96813

1200

DATE COMMENTS RECEIVED

ADDRESSEE CITY AND COUNTY OF HONOLULU AGENCIES January 31, 1995 Department of Land Utilization 650 S. King Street, 7th Floor Honolulu, HI 96813 January 17, 1995 Planning Department 650 S. King Street, 7th Floor Honolulu, HI 96813 Department of Wastewater Management 650 S. King Street, 14th Floor Honolulu, HI 96813 Building Department 650 South King Street Honolulu, HI 96813 Department of Public Works 650 South King Street Honolulu, HI 96813 Department of Transportation Services 650 South King Street Honolulu, HI 96813 1 Board of Water Supply 630 South Beretania Street 温 Honolulu, HI 96813 OTHER AGENCIES 7 February 7, 1995 University of Hawaii 量 Geography Department 2424 Maile Way . T Proteus 443 Honolulu, HI 96822 City Council

Honolulu City council Honolulu, HI 96813

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DATE COMMENTS RECEIVED

#### ADDRESSEE

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Waipahu Neighborhood Board No. 22 c/o Neighborhood Commission City Hall, Room 400 Honolulu, HI 96813

All of the comments received have been addressed in the appropriate sections of the Final Environmental Assessment.

Copies of the agency's comments and our responses are included in this section.

ENJAMIN J. CAYETANO
GOVERNOR OF HAWAII

13



LAWRENCE MITKE

in reply, please refer to: EMD /

January 19, 1995

Mr. Michael M. Miyahira, P.E. Environmental Engineer GMP Associates, Inc. 841 Bishop Street, Suite 1501 Honolulu, Hawaii 96813

Dear Mr. Miyahira:

SUBJECT: COMMENTS ON THE DRAFT ENVIRONMENTAL ASSESSMENT (EA) FOR THE PROPOSED WAIPAHU WELLS III STATION, TMK: 9-4-05:74, WAIPAHU, OAHU

Thank you for the opportunity to review and comment on the subject document. We have examined the draft EA and have the following comments:

The Waipahu III wells will serve the Board of Water Supply's Waipahu-Ewa-Waianae system (Public Water System No. 335).

- 1. All public water system owners and operators are required to comply with Hawaii Administrative Rules, Title 11, Chapter 20, Rules Relating to Potable Water Systems.
- Section 11-20-29 of Chapter 20 requires that all new sources of potable water serving a public water system be approved by the Director of Health prior to its use. Such an approval is based primarily upon the submission of a satisfactory engineering report which addresses the requirements set in Section 11-20-29.
- 3. The engineering report must identify all potential sources of contamination and evaluate alternative control measures which could be implemented to reduce or eliminate the potential for contamination, including treatment of the water source. In addition, water quality analyses, performed by a laboratory certified in the State of Hawaii, must be submitted as part of the report to demonstrate compliance with all drinking water standards. Additional tests may be required by the Director upon his review of the information submitted.

Mr. Michael M. Miyahira January 19, 1995 Page 2

If you should have any questions, please contact the Safe Drinking Water Branch, Engineering Section, at 586-4258.

Sincerely,

Chillian Wong, P.E., Chief

Safe Drinking Water Branch

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BENJAMIN J. CAYETANO GOVERNOR OF HAWAII

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SMP ASSOCIATES, IN.



'95 JHN 26 HI 10 26 STATE OF HAWAII
DEPARTMENT OF LAND AND NATURAL RESOURCES
ON WATER RESOURCE MANAGE COMMISSION ON WATER RESOURCE MANAGEMENT P. O. BOX 621 HONOLULU, HAWAII 96809 JAN 25 1995

MICHAEL D. WILSON CHAIRPERSON

ROBERT S. NAKATA J. DOUGLAS ING, ESQ. ROBERT G. GIRALD DAVID A. NOBRIGA DR. LAWRENCE MIIKE

> RAE M. LOUI, P.E. DEPUTY

Mr. Michael M. Miyahira GMP Associates, Inc. 841 Bishop Street Suite 1501 Honolulu, Hawaii 96813

Dear Mr. Miyahira:

Draft Environmental Assessment Waipahu Wells III Station

In review of your Draft EA, we wish to clarify the statement on page 2-3, that the pumps in question will have a permitted use of 3.0 mgd. While the proposed use is 3.0 mgd, the permit process has not yet reached the stage suggested in this statement.

On July 28, 1993, the state Commission on Water Resource Management (CWRM) gave a planning allocation of 5.839 mgd to the Honolulu Board of Water Supply (BWS) from the Waipahu-Waiawa Aquifer System, with the allocation's distributional assignment to wells to be determined through discussions between BWS, U.S. Geological Survey (USGS), and CWRM.

On November 17, 1993, the Commission approved a Well Construction and Pump Installation Permit for Waipahu Wells III, for up to five wells, each with installed pump capacity of 1000 gpm. The permit does not constitute a determination of correlative rights; the quantity to be withdrawn could be reduced in the future; and permitted pump capacity is not guaranteed in the future. The permit states that, upon completion of the well construction and pump installation work, the BWS would declare which portion of the 5.839 mgd allocation was to be assigned to this source. To date, well completion reports for three of the five wells have been received.

On October 19, 1994, the Commission approved a Water Use Permit for 143,500 gpd from this source. The permit is held by the Department of Hawaiian Home Lands, with the condition that the permit be transferred to BWS when BWS assumes control of the wells.

The portion of the BWS' 5.839 mgd allocation from this aquifer system to be assigned to Waipahu Wells III has not yet been determined.

If you have any questions, please call Charley Ice at 587-0251.

Sincerely,

RAE M. LOUI Deputy Director

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#### STATE OF HAWAII

DEPARTMENT OF BUSINESS, ECONOMIC DEVELOPMENT & TOURISM LAND USE COMMISSION

Room 104, Old Federal Building 335 Merchant Street Honolulu, Hawaii 96813 Telephone: 587-3822

January 6, 1995



Mr. Michael M. Miyahira, P.E. GMP Associates, Inc. 841 Bishop Street, Suite 1501 Honolulu, Hawaii 96813

Dear Mr. Miyahira:

Subject: Draft Environmental Assessment (DEA) for the Waipahu Wells III Station

We have reviewed the DEA for the subject project transmitted with your letter of January 4, 1995. We confirm that the well site, as represented on Figure 3-1, is located within the State Land Use Agricultural District, and that the 24-inch transmission main, as represented on Figure 2-1, is located within both the State Land Use Agricultural and Urban Districts.

We have no other comments to offer at this time. We appreciate the opportunity to comment on this matter.

Should you have any questions, please feel free to call me or Bert Saruwatari of our office at 587-3822.

Sincerely,

FESTHER UEDA Executive Officer

EU:th

cc: OEQC

BENJAMIN J. CAYETANO GOVERNOR OF HAWAII

RECEIVEL FAP ASSCOIATES, IN



'95 JAN 27 AM 9 DEPARTMENT OF LAND AND NATURAL RESOURCES

January 20, 1995

STATE HISTORIC PRESERVATION DIVISION 33 SOUTH KING STREET, 6TH FLOOR HONOLULU, HAWAII 96813

MICHAEL D. WILSON, CHAIRPERSON BOARD OF LAND AND NATURAL RESOURCES

DEPUTY GILBERT COLOMA-AGARAN

AQUACULTURE DEVELOPMENT

AQUATIC RESOURCES CONSERVATION AND

**ENVIRONMENTAL AFFAIRS** CONSERVATION AND

RESOURCES ENFORCEMENT CONVEYANCES

FORESTRY AND WILDLIFE
HISTORIC PRESERVATION
DIVISION
LAND MANAGEMENT

WATER AND LAND DEVELOPMENT

Michael M. Miyahira, P. E. Environmental Engineer GMP Associates, Inc. 841 Bishop Street, Suite 1501 Honolulu, Hawaii 96813

Dear Mr. Miyahira:

LOG NO: 13623

DOC NO: 9501EJ07

Draft Environmental Assessment (DEA) for the Waipahu

Wells III Station Waipi'o, 'Ewa, O'ahu TMK: 9-4-05:074

Thank you for the opportunity to review the DEA for the Waipahu Wells III Station. A review of our records shows that there are no known historic sites at the project location. These lands are fallow pineapple fields, where it is unlikely that historic sites will be found. Therefore, we believe that this project will have "no effect" on historic sites.

Sincerely,

Den Hibbard, Administrator

State Historic Preservation Division

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EUGENE S. IMAI

COMPTROLLER

MARY PATRICIA WATERHOUSE
DEPUTY COMPTROLLER

LETTER NO. (P) 1061.5

STATE OF HAWAII

DEPARTMENT OF ACCOUNTING AND GENERAL SERVICES

P. O. BOX 119, HONOLULU, HAWAII 96810

FEB 2 1995

Mr. Michael M. Miyahira Environmental Engineer GMP Associates, Inc. 841 Bishop Street, Suite 1501 Honolulu, Hawaii 96813

Dear Mr. Miyahira:

Subject: Waipahu Wells III Station

Waipio, Oahu, Hawaii

Draft Environmental Assessment

Thank you for the opportunity to review the subject action. 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.

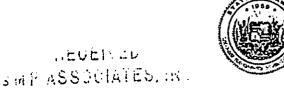
Very truly yours,

gordon matsuoka

State Public Works Engineer

RY:jk

BENJAMIN J. CAYETANO



DIRECTOR
DEPUTY DIRECTORS
GLENN M. OKIMOTO
SAM CALLEJO

IN REPLY REFER TO:

STP 8.6583

# '95 FEB 9 HI 9 34 STATE OF HAWAII

869 PUNCHBOWL STREET HONOLULU, HAWAII 96813-5097

February 6, 1995

Mr. Michael M. Miyahira, P. E. Environmental Engineer GMP Associates, Inc. 841 Bishop Street, Suite 1501 Honolulu, Hawaii 96813

Dear Mr. Miyahira:

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Subject: Draft Environmental Assessment (DEA)
Waipahu Wells III Station

Thank you for your letter of January 4, 1995, requesting our comments on the subject DEA.

The proposed project is not anticipated to have a significant impact on our State transportation facilities. However, 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.

Bayanhile

Very truly yours,

KAZU HAYASHIDA Director of Transportation DEPARTMENT OF LAND UTILIZATION

## CITY AND COUNTY OF HONOLULU

650 SOUTH KING STREET HONOLULU, HAWAII 96813 • (808) 523-4432

JEREMY HARRIS

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SMF ASSOCIATES.

Patrick T. Onishi

DIRECTOR

LORETTA K.C. CHEE DEPUTY DIRECTOR

95-00056 (DT)

January 31, 1995

Mr. Michael M. Miyahira, P.E. Environmental Engineer GMP Associates, Inc. 841 Bishop Street, Suite 1501 Honolulu, Hawaii 96813

Dear Mr. Miyahira:

Draft Environmental Assessment (EA)
Waipahu Wells III Station
Tax Map Key: 9-4-5: 74

Thank you for the opportunity to review the Board of Water Supply's proposal to install five 1,000-gallon-per-minute pumps, a 0.1 million-gallon overflow storage reservoir, control building, transmission main, Bailey pressure-reducing valve, access road, landscaping, fencing, irrigation system, electrical equipment and appurtenances. The proposals are classified as a Utility Installation, Type B in the Land Use Ordinance. Therefore, a Conditional Use Permit (CUP), Type 1, must be obtained from our department. Enclosed is a copy of the DLU Master Application Form and instruction sheet for filling a CUP application.

The project area is located in the State Agricultural District. A State Special Use Permit is not required as the proposals are considered a permissible use within the agricultural district under Chapter 205-4.5 (a) (7), Hawaii Revised Statutes.

Should you have any questions regarding the CUP and SUP, please call our Zoning District Changes Branch at 523-4299.

Very truly yours,

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Director of Land Utilization

PTO:dt Enclosures

95-00056.djt

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# CITY AND COUNTY OF HONOLULU DEPARTMENT OF LAND UTILIZATION

850 South King Street, 7th Floor Honolulu, Hawali 96813

#### **DLU MASTER APPLICATION FORM**

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77	All specified materials and fees must accompany this form; incomplete applications could delay processing. You are encouraged to consult with department staff in completing the application. Please call the appropriate phone number given in the "Instructions for Filing" sheet.  Please print legibly or type the required information.							
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# CORRECTION

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

# CITY AND COUNTY OF HONOLULU DEPARTMENT OF LAND UTILIZATION

650 South King Street, 7th Floor Honolulu, Hawaii 96813

## **DLU MASTER APPLICATION FORM**

<b>550</b>	PLEASE ASK FOR THESE INST	dditional data, drawing/plans, and fee requirements are listed on a separate sheet titled "Instructions for Filing." LEASE ASK FOR THESE INSTRUCTIONS.							
	All specified materials and fees must accompany this form; incomplete applications could delay processing. You are encouraged to consult with department staff in completing the application. Please call the appropriate phone number given in the "Instructions for Filing" sheet.  Please print legibly or type the required information.								
	PERMIT REQUESTED (Check one or more as appropriate):								
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70	Conditional Use Permits:  Type 1 Type 2	Site Plan Review	ш						
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The above approval does not constitute approval of any other required permits, such as building permits.

City and County of Honolulu Department of Land Utilization

Instructions for Filing a CONDITIONAL USE PERMIT, TYPE 1 (CUP-1) Application LUO Sections 4.40, 8.30-5.

With your completed application form, please submit:

## 1. Written Information

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- a. Indicate section(s) of the Land Use Ordinance (LUO) which provide for the proposed conditional use.
- b. Indicate how the site is suitable for the proposed use, considering site location, topography, infrastructure and natural features.
- c. Indicate the proposed use will not alter the character of the surrounding area in a manner substantially limiting, impairing, or precluding the use of the surrounding properties for the principal uses presented in the underlying zoning district. Also indicate how the use at the proposed location will provide a service or facility which will contribute to the general welfare of the community-at-large or surrounding neighborhood.
- d. If the use is proposed on leased land, a copy of the lease agreement must be submitted.

Note: A developer, owner or lessee (holding a recorded lease for the property, the unexpired term of which is more than 5 years from the date of filing of the application) may file an application for a CUP-1 provided the use is permitted in the

## 2. <u>Drawings/Plans</u>

Three copies of accurate scale drawings of the land parcel(s) and any adjacent land affected by the proposal, showing, when pertinent, easements, slope, and all existing and proposed locations of structures, streets, property lines, uses, driveways, pedestrian walks, off-street parking and loading spaces, yards (front, side, and rear), and landscaped areas.

## 3. Fees

\$100. Fees are payable to the Director of Finance, and are not

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#### 4. Additional Notes

 RECORDED FEE OWNER is the person or corporate entity that owns the land in fee simple.

APPLICANT is the person or entity proposing the action. It may be the recorded fee owner or a lessee.

AUTHORIZED AGENT is the person who is processing the permit(s). This is the person that the Department will contact for additional information. Again, it may be the same person as the recorded fee owner, or the applicant. The authorized agent may also be the project architect or contractor. For government agencies, the authorized agent is the contact person for the project.

If you are filing as an agent, supply the information for the owner and applicant and submit a letter authorizing you to act as an agent.

- b. To avoid errors or delays, supply all the required information. Fill out all blanks on the application form clearly, concisely, completely, and sign the application.
- c. For information on how to complete your application, please call the Zoning District Change Branch, at 523-4299.
- d. If your project proposal requests multiple Department of Land Utilization (DLU) permits, (e.g., Conditional Use Permit and Special Management Area Use Permit), call the Land Use Coordination Division at 523-4254 for information on the sequencing of permits.
- e. The Director, where applicable, will consider traffic flow and control; access to and circulation within the property; off-street parking and loading; sewerage; drainage and flooding; refuse and service areas; utilities; screening and buffering; signs; setbacks; yards and other open spaces; lot dimensions; height; bulk and location of structures; location of all proposed uses; hours and manner of operation; noise, lights, dust, odor and fumes.
- f. Before submission of an application for a Conditional Use Permit, the applicant is encouraged to notify the neighborhood board in whose district the project is to be located. For information regarding the appropriate neighborhood board to contact, call the Neighborhood Commission at 523-4087.

(0317L/30L) 9/12/86 PLANNING DEPARTMENT

## CITY AND COUNTY OF HONOLULU

650 SOUTH KING STREET HONOLULU, HAWAII 96813

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JEREMY HARRIS

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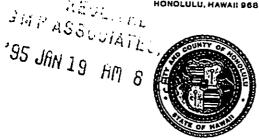
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CHERYL D. SOON

ACTING CHIEF PLANNING OFFICER

CAROLL TAKAHASHI

DEPUTY CHIEF PLANNING OFFICER

RS 1/95-0014

January 17, 1995

Mr. Michael M. Miyahira, P.E. Environmental Engineer GMP Associates, Inc. 841 Bishop Street, Suite 1501 Honolulu, Hawaii 96813

Dear Mr. Miyahira:

Draft Environmental Assessment for the Waipahu Wells III Station

Thank you for giving us the opportunity to review the Draft Environmental Assessment (EA) for the Waipahu Wells III Station.

The Central Oahu Development Plan Public Facilities Map (DPPFM) shows a symbol for the Waipahu Wells III Station. That amendment reflected the project as a non-potable water source. However, the EA implies that the well will provide a potable water source. This needs to be clarified.

Page 3-1 indicates that the Development Plan Land Use designation is AG-1. This is incorrect as AG-1 is a zoning designation. Figure 3-2 is a zoning, not a Development Plan Land Use map. The title of Figure 3-2 should be changed. The Development Plan Land Use designation for the site is Agriculture. A Development Plan Land Use map for the area should be included.

Page 5-2 mentions that the site may have been selected in part due to water quality data based on nearby wells. Our understanding is that exploratory wells were drilled at the site to determine the water quality since the site was previously used for sugarcane and may have been exposed to pesticides which may have contaminated the water supply. It would be helpful

Mr. Michael M. Miyahira, P.E. GMP Associates, Inc. January 17, 1995
Page 2

if the findings of that study were provided to show the feasibility of the project. A discussion of the water quality and any mitigating measures necessary would be helpful.

Thank you for your cooperation in this matter.

Sincerely,

CHERYL D. SOON

Acting Chief Planning Officer

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PLANNING DEPARTMENT

## CITY AND COUNTY OF HONOLULU

650 SOUTH KING STREET HONOLULU, HAWAH 96813

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CHERYL D. SOON

ACTING CHIEF PLANNING OFFICER
CAROLL TAKAHASHI

R.

DEPUTY CHIEF PLANNING OFFICER

RS 1/95-0014

February 9, 1995

Mr. Michael M. Miyahira, P.E. Environmental Engineer GMP Associates, Inc. 841 Bishop Street, Suite 1501 Honolulu, Hawaii 96813

Dear Mr. Miyahira:

Draft Environmental Assessment (DEA) for the Waipahu Wells III Station

Please refer to our correspondence dated January 17, 1995. Contrary to what was indicated in our previous response to the Draft Environmental Assessment, the Waipahu Wells III Station is designated on the Central Oahu Development Plan Public Facilities Map (DPPFM) as a potable water source. The other comments in the letter remain valid and applicable.

Thank you for your cooperation in this matter.

Sincerely,

Clerate Orm CHERYL D. SOON

Acting Chief Planning Officer

BOARD OF WATER SUPPLY

CITY AND COUNTY OF HONOLULU

630 SOUTH BERETANIA STREET

HONDLULU, HAWAII 98843

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FACSINILE COVER	LETTER
PAGES TRANSMITTED: 4 (INCLUDING COVER SHEET)  TO: COMPANY: GMP  ATTENTION: TET  FAX NO.: 539 - 3269	DATE: 2/7/45
FROM: ALDY  PLANNING AND ENGINEERING DIVISION  FAX NO. (808) 527-6195	
SUBJECT: WAIPAHU WELLS	

IN CASE OF TRANSMISSION PROBLEMS, PLEASE CONTACT SENDER AT (808) 527-6279. THANK YOU.

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

**REMARKS:** 



# University of Hawai'i at Mānoa

Environmental Center
A Unit of Water Resources Research Center
Crawford 317 • 2550 Campus Road • Honolulu, Hawat'i 96822
Telephone: (808) 950-7301 • Facsimile: (000) 956-3900

February 7, 1995 EA:0102

Mr. Andy Okada City and County of Honolulu Board of Water Supply 630 South Beretania Street Honolulu, Hawaii 96813

Dear Mr. Okada:

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Draft Environmental Assessment Waipahu Wells III Station Waipahu, Oahu

The proposed project involves installation of five 1000 gpm pumps, a 0.1 million gallon overflow storage reservoir, a control building, and a transmission main. The five pumps, which should yield a total pump capacity of 7.5 mgd, will supplement the potable water supply for the increasing populations in Waipahu, Waipio, and Kapolei.

We have reviewed the Draft Environmental Assessment (EA) with the assistance of Dave Penn, Geography; and Paul Berkowitz of the Environmental Center.

## Conflict of Interest

It seems highly inappropriate for an approving agency to review their own application! The inherent conflict of interest removes much of the incentive to draft an effective environmental assessment.

## Sustainable Yield

Any proposal to remove groundwater from an aquifer should contain some discussion of the aquifer's sustainable yield. How much water can be taken from the aquifer without adversely affecting the quantity and quality of groundwater available for future use? This Draft EA fails to discuss sustainable yield altogether. Thus it is difficult to evaluate the impacts of this project on future groundwater availability.

An Equal Opportunity/Affirmative Action Institution

Mr. Andy Okada February 7, 1995 Page 2

This document also fails to mention how the proposed wells relate to the network of existing wells in the region. The impact of the five new pumps needs to be examined in conjunction with other existing wells, current pumping levels, and sustainable yield figures.

If regional demand exceeds sustainable yield, then salt water intrusion may occur, making the water brackish and nonpotable.

In short, given the lack of information presented, it is impossible to determine if the proposed project will result in significant environmental effects, as stipulated by Section 11-200-12 of the Hawaii Administrative Rules. However, the project clearly has the potential to impose significant impacts in at least three areas: (1) "detrimentally affects air or water quality," (2) "involves a substantial degradation of environmental quality," and (3) "curtails the range of beneficial uses of the environment." Thus, pusuant to Section 343-5(b), an EIS "shall be required if the agency finds that the proposed action may have a significant effect on the environment."

#### Water Quality

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The chronology presented in the Draft EA seems somewhat vague. Section 2 discusses potential actions to take after drilling test wells and evaluating the water quality results, while Appendix A indicates that the test wells have already been drilled.

Since it appears that the test wells have been drilled, water quality data should be presented. Rather than hinting at the need for Granular Activated Carbon (GAC) water treatment units, this need should be either confirmed or rejected. Furthermore, in order to monitor water quality in the future, baseline data for the aquifer ought to be provided.

### **Excess Capacity**

The five pumps have a total maximum pump capacity of 7.5 mgd, while the Commission on Water Resource Management has authorized a permitted use of only 3 mgd. Why does pump capacity exceed permitted use by two-and-a-half times? This seems to go well beyond normal excess capacity reserves.

## Water Allocation

Generally applicants must complete the Hawaii Revised Statutes Chapter 343 process before water use permits are issued. Have the permits been issued to the landowner or to the Board of Water Supply (BWS)? What are the total planned uses by all users? What are the total planned uses by the BWS? The developer's contribution to developing this water source should be explicitly stated. What commitments has the BWS made to developers? These are important questions in evaluating how the proposed project

Mr. Andy Okada February 7, 1995 Page 3

conforms to the Hawaii Water Plan.

To allow others to more fully understand this project, the water use permit applications should be appended to this Draft EA.

On August 16, 1994, the Department of Hawaiian Home Lands (DHHL) filed an application for a water use permit from Waipahu Wells III (well nos. 2400-09 to 13). The DHHL intends to use this water to supply the municipal needs of the Princess Kahanu Estates. The intentions of the DHHL are noticeably absent from the statement on future water allocation. Have the DHHL applications been considered, and what is their status?

#### Incomplete Data

Appendix A provides data for only four of the five proposed wells. Also only one of the five wells has an attached Well Completion Report. Where is the rest of the data?

## Conclusion

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The applicant's justification for a Negative Declaration is based on largely irrelevant issues. Since the proposed project basically involves groundwater uptake, the principle environmental concern should be the impact on the quantity and quality of groundwater available from the aquifer. This Draft EA conspicuously fails to discuss this issuel Therefore we recommend that these concerns be addressed before the project is approved. To ignore the impacts on the aquifer, especially at a time when aquifer withdrawals are at or near their sustainable limits, is simply unacceptable.

Sincerely,

John Harrison

Environmental Coordinator

ce: OEQC
GMP Associates, Inc.
Roger Fujioka
David Penn
Paul Berkowitz



魔

February 10, 1995

Engineers/Architects

Dr. John T. Harrison
Environmental Coordinator
Environmental Center, Crawford 317
University of Hawaii
2250 Campus Road
Honolulu, Hawaii 96822

Re: Draft Environmental Assessment for the Waipahu Wells III Station

Dear Mr. Harrison:

Thank you for your February 7, 1995 comments on the subject project. Our response to your comments is as follows:

## Conflict of Interest

According to Section 343-5, HRS, "For Agency Actions, the agency proposing the action is responsible for preparing an environmental assessment, reviewing the document, submitting the document to OEQC for publication, and issuing a Notice of Determination. A Notice of Determination is a letter which accompanies an environmental assessment stating that the action will either have no significant impact, resulting in the issuance of a Negative Declaration or may have a significant impact resulting in the issuance of a Environmental Impact Statement Preparation Notice. In essence, with Negative Declarations, the proposing and accepting authority are one and the same".

## Sustainable Yield

On July 28, 1993, the State Commission on Water Resource Management (CWRM) gave a planning allocation of 5.839 million gallons per day (mgd) to the Honolulu Board of Water Supply from the Waipahu-Waiawa Aquifer System, with the allocation's distributional assignment to wells to be determined through discussions between BWS, U.S. Geological Survey, and CWRM.

The allocation of 5.839 mgd was decided upon after evaluating the sustainable yield of the Waipahu-Waiawa Aquifer System. Therefore, the proposed withdrawal amount of 3.0 mgd at the Waipahu Wells III Station is within the allocated amount.

941 Bichon Stroot - Suito 1501 - Hanalide Haumii 05012 - Talanhana 1800) 501,4711 - Fav. 1900) 520,2250





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We do not believe that a discussion of the network of existing wells in the region is necessary. The impact of the five new wells on other existing wells, reservoirs, and tramsmission mains has already been hydraulically analyzed by the BWS through their master plans.

#### Water Quality

Water quality data has been added to the Final EA in Appendix E.

Granular Activated Carbon (GAC) water treatment units have been added to the Final EA.

The Board of Water Supply periodically samples its wells for NIPDWR parameters and retains the information as baseline data.

#### **Excess Capacity**

To clarify your understanding, the Commission on Water Resource Management has not authorized a permitted use of 3.0 mgd yet. The amount of 3.0 mgd is the proposed use.

The five pumps have a total maximum capacity of 7.5 mgd, however not all of the pumps will be operating at once. Three pumps are needed to attain 3.0 mgd. The remaining pumps are backup units in case of breakdowns or periodic maintenance.

## Water Allocation

As stated earlier in this letter, the water allocation issue for this project has been mostly resolved, the only remaining question being the distribution of this amount among the area wells being developed. The allocation decision by CWRM has already taken into consideration the potential impacts on the sustainable yield of the affected aquifer and the potential water quality impacts. In addition, all decisions of the CWRM follow the Hawaii Water Plan. Finally, the BWS has previously identified major planned uses for their Leeward system water through their periodically updated master plans. Thus, the impacts of their proposed developments on their existing system infrastructure have already been evaluated by these documents, and by any accompanying environmental assessments or environmental impact statements.

Copies of the water use permits are in Appendix D.

On October 19, 1994, the Commission approved a Water Use Permit for 143,500 gpd from the Waipahu Wells III Station. The permit is held by the Department of Hawaiian Home



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Engineers/Architects

Lands, with the condition that the permit be transferred to BWS when BWS assumes control of the wells.

## Incomplete Data

Appendix A now includes data, including the Well Completion Report, for all five of the

## Conclusion

The quantity of groundwater available from the affected aquifer has been studied by the BWS and the CWRM, thereby resulting in the BWS allocation of 5.839 mgd. The quality of the groundwater has made it necessary to install GAC treatment units. The proposed project is expected to supplement the current BWS system in Leeward Oahu.

We appreciate your input on this project.

Sincerely,

GMP ASSOCIATES, INC.

Michael M. Miyahira, P.E. Environmental Engineer



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February 10, 1995

Engineers/Architects

Cheryl D. Soon, Acting Chief Planning Officer City and County of Honolulu Planning Department 650 South King Street Honolulu, Hawaii 96813

Re: Draft Environmental Assessment for the Waipahu Wells III Station

Dear Ms. Soon:

Thank you for your January 17, 1995 comments on the subject project. Our response to your comments is as follows:

- 1. A discussion with Lin Wong at the Planning Department resulted in the removal of the reference to the project as a non-potable source. The Planning Department has issued a new letter of response dated February 9, 1995 stating that Waipahu Wells III is designated as a potable water source.
- 2. The title of Figure 3-2 has been changed to read "City and County Zoning Map". In addition, a Development Plan Land Use map has been included in the Final EA.
- 3. Water quality results from the Board of Water Supply have been included in the Appendix. The GAC treatment units are being provided to treat well water contaminants.

We appreciate your input on this project.

Sincerely,

GMP ASSOCIATES, INC.

Michael M. Miyahira, P.E. Environmental Engineer

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February 10, 1995

Engineers/Architects

Rae M. Loui, Deputy Director State of Hawaii Department of Land and Natural Resources Commission on Water Resource Management Kalanimoku Building 1151 Punchbowl Street, Room 130 Honolulu, Hawaii 96813

> **Draft Environmental Assessment** Re:

for the Waipahu Wells III Station

Dear Mr. Loui:

Thank you for your January 25, 1995 comments on the subject project. Our response to your comments is as follows:

- We have clarified the statement on page 2-3 of the Final EA to read "proposed use 1. of 3.0 mgd" instead of "permitted use of 3.0 mgd".
- The Final EA has been revised to include the planning allocation of 5.839 mgd to the 2. Honolulu Board of Water Supply (BWS) from the Waipahu-Waiawa Aquifer System.
- The Final EA has been revised to include the Water Use Permit held by the 3. Department of Hawaiian Home Lands for 143,500 gpd from the Waipahu Wells III Station.

We appreciate your input on this project.

Sincerely,

GMP ASSOCIATES, INC.

Michael M. Milyahira, P.E.

Environmental Engineer



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February 10, 1995

Engineers/Architects

William Wong, Chief State of Hawaii Environmental Management Division Department of Health Safe Drinking Water Branch 919 Ala Moana Blvd. Honolulu, Hawaii 96814

Re: Draft Environmental Assessment

for the Waipahu Wells III Station

Dear Mr. Wong:

Thank you for your January 19, 1995 comments on the subject project. An engineering report for new potable water sources, which addresses the requirements set in Section 11-20-29, will be submitted to the DOH as soon as possible.

We appreciate your input on this project.

Sincerely,

GMP ASSOCIATES, INC.

Michael M. Miyahira, P.E. Environmental Engineer



February 10, 1995

Engineers/Architects

Patrick T. Onishi
City and County of Honolulu
Department of Land Utilization
650 South King Street
Honolulu, Hawaii 96813

Re: Draft Environmental Assessment

for the Waipahu Wells III Station

Dear Mr. Onishi:

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Thank you for your January 31, 1995 comments on the subject project. Our response to your comments is as follows:

- 1. A Conditional Use Permit, Type 1 application will be submitted to the DLU.
- We agree that a State Special Use Permit is not required as the project proposals are considered a permissible use within the agricultural district under Chapter 205-4.5
   (a) (7), Hawaii Revised Statutes.

We appreciate your input on this project.

Sincerely,

GMP ASSOCIATES, INC.

Michael M. Miyahira, P.E. Environmental Engineer