OFFICES OF COMMUNITY ASSISTANCE

MARYANNE W. KUSAKA MAYOR



MATILDA A. YOSHIOKA

KENNETH N. RAINFORTH EXECUTIVE ON HOUSING

COUNTY OF KAUAI RECEIVED HOUSING AGENCY

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July 12, 1999

C:\DOW\LH2\OEQC_EA.FNL

Ms. Genevieve Salmonson, Director Office of Environmental Quality Control 235 South Beretania Street, Suite 702 Honolulu, HI 96813

Dear Ms. Salmonson:

Subject

Final Environmental Assessment (EA) Finding of No significant Impact

Lihue & Hanamaulu Water Development Projects, Phase III and Hanamaulu Well No. 4 Water Development Project: Pukaki Well, Hanamaulu Well Nos. 3 & 4, Control Tank,

Control Valve Station and Appurtenances

T.M.K. 3-8-02: portion 2 Lihue, Kauai, Hawaii

The Kauai County Housing Agency and the Department of Water have reviewed the comments received during the 30-day public comment period which began on May 8, 1999. We have determined that the project will not have significant environmental effects and have issued a finding of no significant impact declaration. Please publish the notice of availability in the July 23, 1999 OEQC Environmental Notice.

We have enclosed a completed OEQC Bulletin Publication form, four copies of the final EA, and the project summary on disk. Please call Mr. Dennis Alkire at 808-241-6814 if you have any questions.

Sincerely,

MATILDA A. YOSHTOKA

Director

DENNIS ALKIRE

Project Coordinator

enclosures

c: Ernest Lau, DOW
 Keith Fujimoto, DOW

Equal Housing Opportunity

AN EQUAL OPPORTUNITY EMPLOYER

1999-08-08-KA-FEA-

FILE COPY

FINAL ENVIRONMENTAL ASSESSMENT

PROJECTS, PHASE III ANAMAULU WELL NO. 4 WATER DEVELOPMENT WATER DEVELOPMENT PROJECT

Pukaki Well, Hanamaulu Well Nos. 3 & 4, Control Tank and Appurtenances

For the:
County of Kauai
HOUSING AGENCY
and
DEPARTMENT OF WATER

July 1999

FUKUNAGA AND ASSOCIATES, INC.

Consulting Engineers
1388 Kaplolanl Boulevard, Second Floor
Honolulu, Hawaii 96814
(808) 944-1821

FINAL ENVIRONMENTAL ASSESSMENT

LIHUE AND HANAWAULU WATER DEVELOPMENT PROJECTS, PHASE III and HANAWAULU WELL NO. 4 WATER DEVELOPMENT PROJECT

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and HANAMAULU WELL NO. 4 WATER DEVELOPMENT PROJECT

Pukaki Well, Hanamaulu Well Nos. 3 & 4, Control Tank and Appurtenances

> T.M.K. 3-8-02:2 Lihue, Kauai, Hawaii

Proposing Agencies:
County of Kauai
HOUSING AGENCY
and
DEPARTMENT OF WATER

Submitted Pursuant to Chapter 343, HRS

Responsible Official: Malet Yorking D	ate: 7/2999
Matilda A. Yoshioka	7
Director '	
Responsible Official: D. A. D.	
	ate: <u> </u>
Ernest Y.W. Lau	, ,
Department of Water, Manager & Chief Engin	eer

Prepared by:
Fukunaga & Associates, Inc.
1388 Kapiolani Boulevard, Second Floor
Honolulu, Hawaii 96814

July 1999

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I. INTRODUCTION

A. GENERAL INFORMATION

The County of Kauai Housing Agency (KCHA) and the Department of Water (DOW) desire to construct three new water source development projects in the Lihue area to improve the existing water system capabilities to meet the growing needs. The three wells, Pukaki Well and Hanamaulu Well Nos. 3 and 4, are within 1 mile of each other, and are located over the same aquifer. See Figure 1.

This environmental assessment evaluates the final phase, Phase III, of two projects identified as the Lihue Water Development Project – Pukaki Well, KCHA Project No. 5699 (DOW Project No. 96-1) and the Hanamaulu Water Development Project – Hanamaulu Well No. 3, KCHA Project No. 5702 (DOW Project No. 96-2). In addition, this environmental assessment evaluates the drilling, casing, testing and anticipated development of an additional well, Hanamaulu Well No. 4, DOW No. Project 98-30.

The Finding of No Significant Impact (FONSI) for the Lihue and Hanamaulu Water Development Projects were published for Phases I and II. The FONSI for Phase I, which included the drilling, casing, and testing of Pukaki Well and Hanamaulu Well No. 3 was published on May 8, 1997. Phase II included the 16-inch transmission main from the proposed control tank (part of Phase III) connecting to the existing distribution system, and the 8-inch main connecting Pukaki Well to the 16-inch transmission main. The FONSI for Phase II was published on August 23, 1998. Phase III of the Lihue and Hanamaulu Water Development Projects covers development of the two wells, construction of the control tank and control valve station connection to the 16-inch transmission main (Phase II), and electrical control modifications. The segmentation of the environmental assessment for Phases II and III was necessary due to expiring funds and separate design and construction schedules.

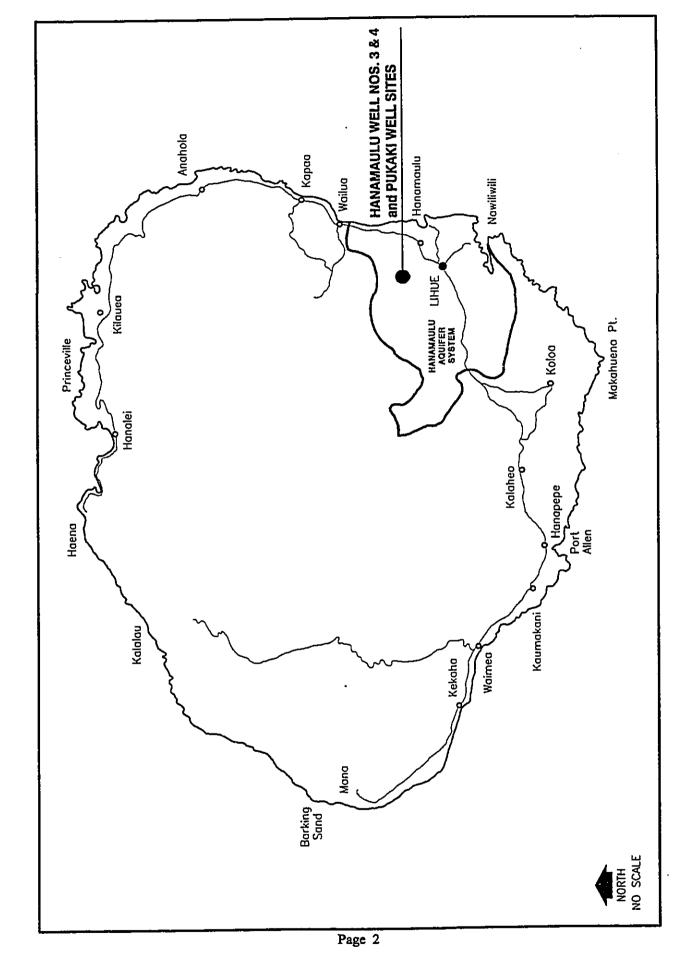
B. PROPOSING AGENCY

The proposing agencies for the projects are the County of Kauai Housing Agency and the Department of Water.

II. PURPOSE OF THE PROJECTS

The three phases of the Lihue and Hanamaulu Water Development Projects and the Hanamaulu Well No. 4 Development Project involve development of three deep well water sources, control tank, control facilities, an 8-inch transmission main, a 16-inch transmission main, and minor electrical control modifications at the existing Hanamaulu and Kilohana Reservoirs as shown in Figure 2. The proposed projects will supplement the 393' service zone of the Lihue Water System which is comprised of six deep wells at Kilohana, four 1

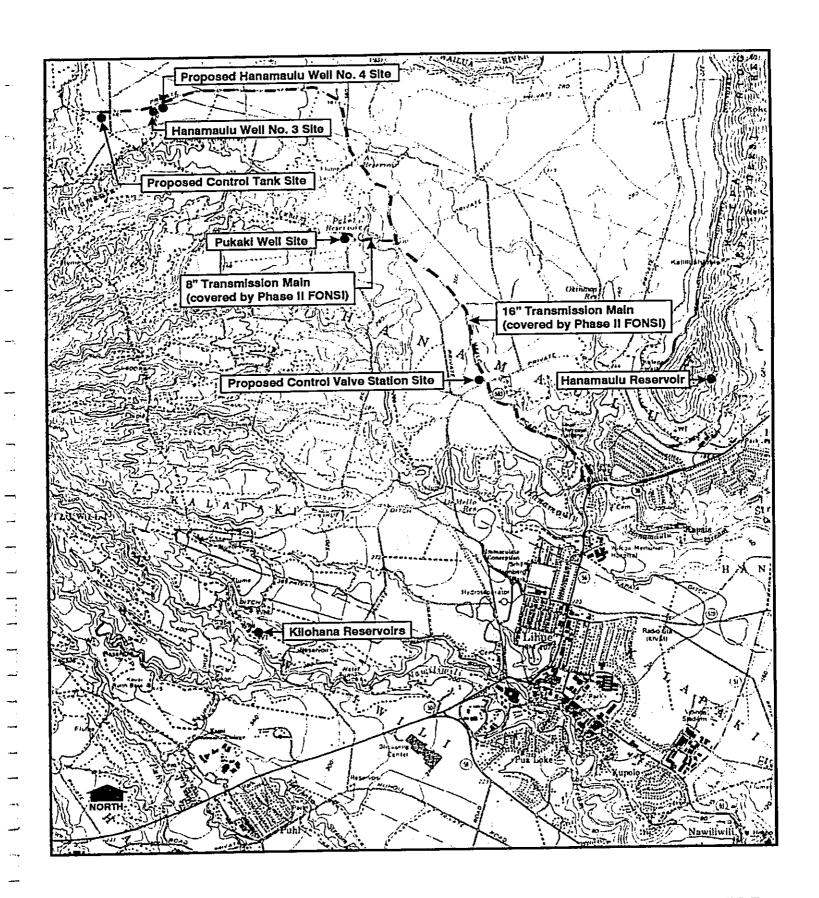
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ISLAND OF KAUAI

COUNTY OF KAUAI
Linue and Hanamaulu Water Development Projects

FIGURE 1



COUNTY OF KAUAI

LOCATION MAP

Lihue and Hanamaulu Water Development Projects

FIGURE 2

million gallon (MG) storage reservoirs (two Kilohana Reservoirs, one Puhi Reservoir, and one Hanamaulu Reservoir) and associated transmission and distribution mains. The current well capacity serving the Lihue System is approximately 2.32 mgd based on a 16-hour operating period. The system is also supplemented with water from two other water systems, Puhi and Wailua Water Systems. Based on the 1990 Kauai Water Use and Development Plan, the DOW will need to supply the Lihue Water System with 4.94 mgd by the year 2010.

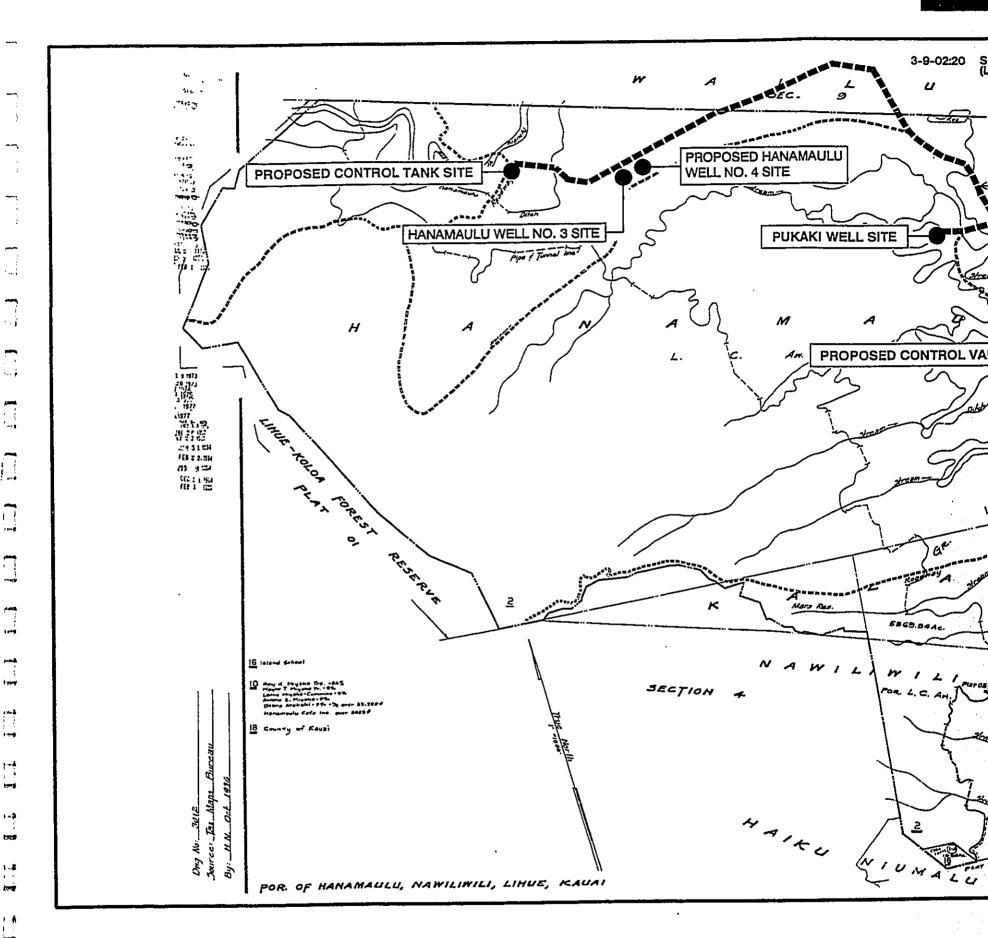
The Lihue and Hanamaulu Water Development Projects and the Hanamaulu Well No. 4 Development Project were initiated because growth and expansion of the Lihue service area have generated potable water demands that exceed the capacities of the existing well sources. Additionally, existing pumpage has been reduced by more than 20 percent because of dropping well water levels. Consequently, the Department of Water is currently restricting water requests for developments and subdivisions in the Hanamaulu area until additional source and storage facilities are developed. The development of additional potable water sources for the Lihue Water System has been given the highest priority.

III. LIHUE WATER DEVELOPMENT - KCHA PROJECT NO. 5699 (DOW PROJECT NO. 96-1)

A. LIHUE WATER DEVELOPMENT PROJECT LOCATION

The Pukaki Well site is located approximately 3 miles northwest of Lihue, 0.1 miles west of Pukaki Reservoir (part of Hanamaulu Stream), 0.5 miles south of Aii Reservoir, and 0.7 miles southeast of Kapaia Reservoir. The project site is on lands owned by Lihue Plantation Company, Ltd., and identified by TMK 3-8-02:2. See Figures 2 and 3. Pukaki Well has been designated as State Well No. 0023-02, and was constructed in July 1998. Pumping test results indicate that Pukaki Well is capable of supplying about 130 gpm with a drawdown of 206 feet. Pump test data are included in Appendix A1.

Following construction of the well source improvements, the Pukaki Well project site will be subdivided from Lihue Plantation Company lands, and the County of Kauai will become the legal owners of the well site. Access and utility easements will also be obtained.

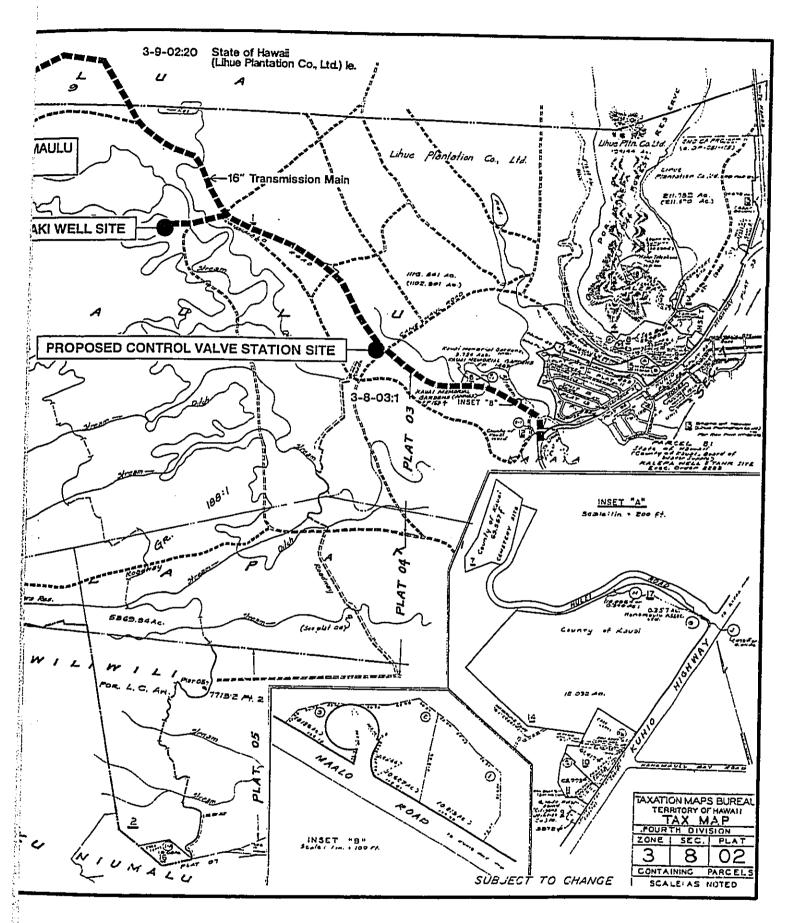


COUNTY OF KAUAI

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Lihue and Hanamaulu Water Development Projects



TAX MAP KEY: 3-8-02:2

B. PROPOSED PROJECT

Developing Pukaki Well into a production well will involve the installation of a line shaft vertical turbine pump (pump rating at 120 gpm) with a water pre-lubrication system, pump discharge piping, the construction of a pump control building, pump controls and appurtenances, chlorination facilities, radio telemetry link to the control tank, and electrical work. Other improvements to the well site include a drainage system, fencing, and asphalt concrete paving.

A Special Purpose Grant from the Department of Housing and Urban Development will fund the proposed Lihue Water Development Project. There are no restrictions on the water allocation for the project.

IV. HANAMAULU WATER DEVELOPMENT PROJECT NO. 5702 (DOW PROJECT NO. 96-2)

A. HANAMAULU WATER DEVELOPMENT PROJECT LOCATION

The Hanamaulu Water Development Project includes the following three sites:

- Hanamaulu Well No. 3
- Control Tank
- Control Valve Station

The Hanamaulu Well No. 3 site is located approximately 4 miles northwest of Lihue, and 0.2 miles northwest of Kapaia Reservoir. The control tank site is approximately 2,000 feet west of the well site, and the site for the control valve station is about 2 miles makai, off Maalo Road. The project sites are on lands owned by Lihue Plantation Company, Ltd., and identified by TMK 3-8-02:2. See Figures 2 and 3.

Hanamaulu Well No. 3 has been designated as State Well No. 0124-02, and was constructed and tested from August through October 1998. Pumping test results indicate Hanamaulu Well No. 3 is capable of supplying about 160 gpm with a drawdown of 345 feet. Pump test data are included in Appendix A2.

Following construction of the well source improvements, the Hanamaulu Well No. 3, control tank and control valve station sites will be subdivided from Lihue Plantation Company lands, and the County of Kauai will become the legal owners of the sites. Access and utility easements will also be obtained.

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B. PROPOSED PROJECT

The Hanamaulu Water Development Project includes developing Hanamaulu Well No. 3, constructing the control tank and control valve station, and minor electrical control modifications at the existing Kilohana and Hanamaulu Reservoirs.

- Developing Hanamaulu Well No. 3 into a production well will involve the
 installation of a line shaft vertical turbine pump (pump rating at 160 gpm) with a
 water pre-lubrication system, pump discharge piping, the construction of a pump
 control building, pump controls and appurtenances, chlorination facilities, radio
 telemetry to the control tank, and electrical work. Other improvements to the well
 site include a drainage system, fencing, and asphalt concrete paving.
- 2. The 100,000 gallon stainless steel control tank is proposed to be located on a site approximately 2,000 feet west of the Hanamaulu Well No. 3 site (see Figure 2), and would control the pump start and stop operations at Hanamaulu Well No. 3, Pukaki Well and future wells in the vicinity. Other improvements to the well site include a drainage system, fencing, and asphalt concrete paving.
- 3. The Control Valve Station is proposed to be located on a site approximately 2 miles southeast of the control tank site (see Figure 2). The control valve station would control flow out of the control tank and would be linked by radio telemetry to the control tank, and Kilohana and Hanamaulu Reservoirs. The control valve station would consist of above ground piping, valves, fittings, and appurtenances, fencing and asphalt concrete paving.

The Hanamaulu Water Development Project will serve the low and moderate income residents of the Hanamaulu community, and will be funded by a Community Development Block Grant from the Department of Housing and Urban Development. The water produced by Hanamaulu Well No. 3 will be allocated to the Hanamaulu community.

V. HANAMAULU WELL NO. 4 DEVELOPMENT PROJECT - DOW PROJECT NO. 98-30

A. HANAMAULU WELL NO. 4 DEVELOPMENT PROJECT LOCATION

The proposed Hanamaulu Well No. 4 project site is adjacent to the existing Hanamaulu Well No. 3 site. Similarly, the project site is on lands owned by Lihue Plantation Company, Ltd., and identified by TMK 3-8-02:2. See Figures 2 and 3.

Upon successful completion of the well drilling and testing, and construction of the well source improvements, the Hanamaulu Well No. 4 project site will be subdivided from

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Lihue Plantation Company lands, and the County of Kauai will become the legal owners of the sites. Access and utility easements will also be obtained as required.

B. USGS INFORMATION

The U.S. Geological Survey (USGS) drilled and cased the Northeast Kilohana monitor well during the period from June 6 to August 1995 to study the hydrology and geology of the area. The ground elevation at the well is 466.42 feet. The well is 10 inches in diameter by 1,047 feet deep (bottom is at -581 feet elevation), and is cased with 4-inch steel pipe (alternating sections of solid and perforated walls) down to -566 feet elevation. During seven days of sustained pumping at an average rate of 316 gallons per minute, the maximum drawdown was 49.54 (initial static water level elevation was 375.5 feet).

C. PROPOSED PROJECT

The proposed Hanamaulu Well No. 4 site is located approximately 150 feet northeast of the existing Hanamaulu Well No. 3, and as close as practicable to the existing USGS well.

The proposed project will occur in two phases, which include the following major tasks:

Phase I

- 1. Drilling and casing the well.
- 2. Pump testing the aquifer at a rate up to 700 gallons per minute (gpm). Anticipated flow rate is 300 gpm.
- 3. Obtaining water quality data and analyses in accordance with the Department of Health, Hawaii Administrative Rules, Title 11, Chapter 20 requirements.

The well design documents will conform with the Department of Land and Natural Resources (DLNR) well construction standards and will address best management practices. The time anticipated to complete the drilling, casing and testing is 6 months. The estimated cost is \$600,000.

Phase II

Developing Hanamaulu Well No. 4 into a production well will involve the installation of a line shaft vertical turbine pump (pump rating anticipated to be 300 gpm) with a water pre-lubrication system, pump discharge piping, pump controls and appurtenances, radio telemetry link to the control tank, and electrical work. The control building on the Hanamaulu Well No. 3 site will also serve the proposed Hanamaulu Well No. 4. The chlorination facilities and a portion of the controls housed in the control building will be shared by the two wells. Other

Page 8

improvements to the well site include connecting to the Hanamaulu Well No. 3 drainage system, fencing, and asphalt concrete paving.

VI. DESCRIPTION OF THE ENVIRONMENT - COMMON TO THE PROJECTS

A. LAND CLASSIFICATION AND ZONING

State and County laws and regulations govern Land use policies. The State Land Use Commission classifies all State lands as Urban, Rural, Agricultural, or Conservation with the intent to accommodate growth and development and to retain the natural resources of the area. More detailed land use zoning for the State designated land classifications is regulated by the Comprehensive Zoning Ordinance (CZO) for the County of Kauai. County zoning designations include:

A Agriculture

O Open

PF Public Facilities

R Resort

RR Rural Residential

UR Urban

UMU Urban Mixed Use

The project sites are located on lands that have been designated for Agriculture by both the State Land Use Commission and the County General Plan. See Figures 4 and 5 for zone designations. The Kauai Planning Commission during the public hearing held November 24, 1998 approved a land use and zoning permit.

B. PHYSICAL FEATURES

1. Topography

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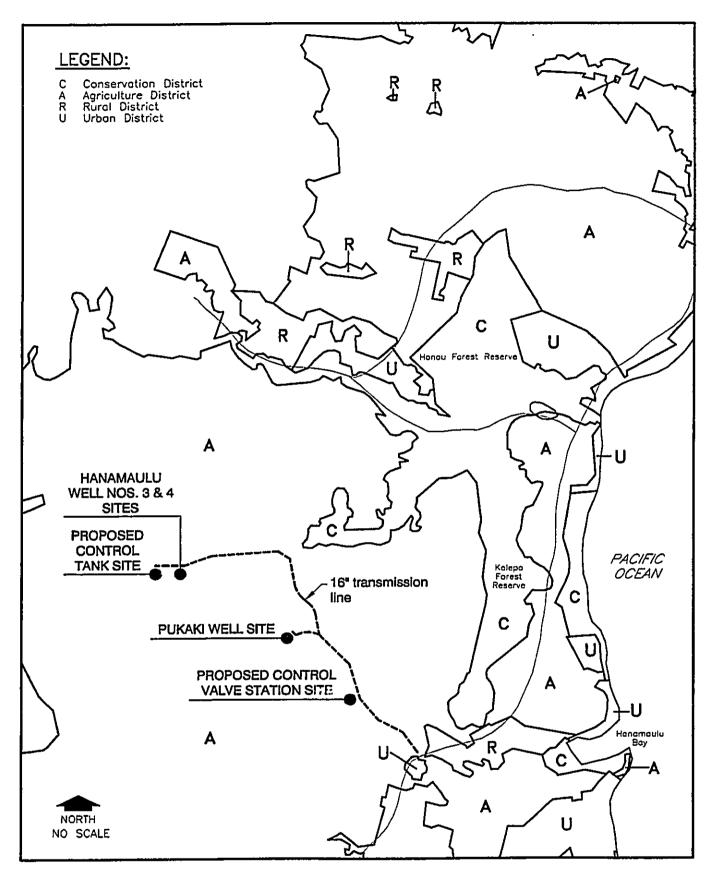
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The Pukaki Well site is on a knoll in sugar cane fields, and adjacent to an existing private cane haul road.

The Hanamaulu Well No. 3, proposed Hanamaulu Well No. 4, and control tank sites are located on relatively flat areas currently used for cultivating sugar cane, and adjacent to an existing private cane haul road. A small irrigation ditch which flows to Kapaia Reservoir lies to the east of the well sites. A ravine lies to the west of the control tank site.

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COUNTY OF KAUAI

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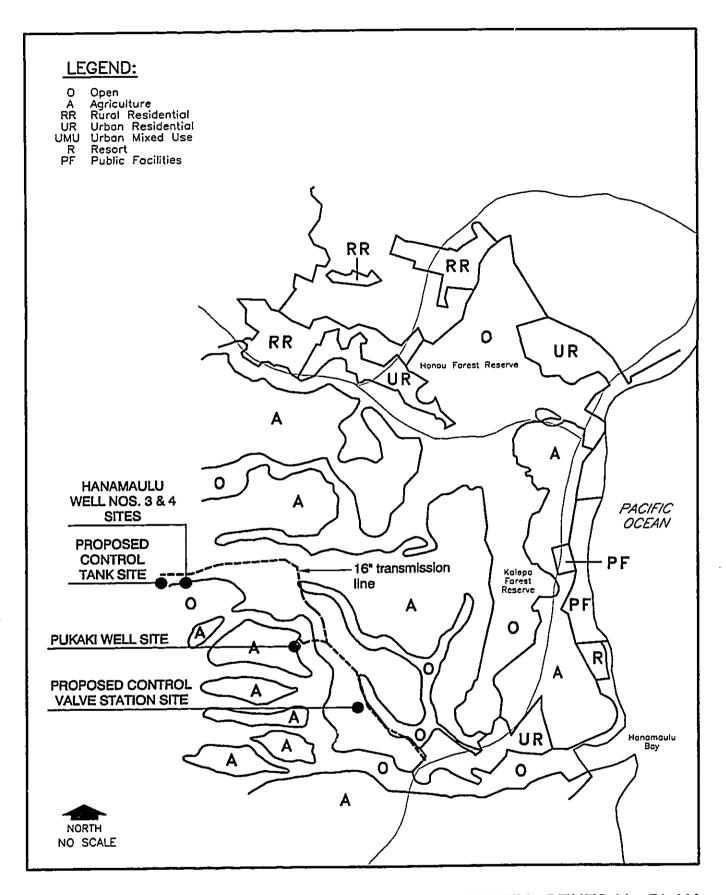
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STATE LAND USE MAP

Linue and Hanamaulu Water Development Projects

FIGURE 4



COUNTY OF KAUAI

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KAUAI COUNTY GENERAL PLAN

The control valve station site is also relatively flat, and was formerly used for sugar cane. A well was drilled on the site, but testing indicated a low well yield and plans for development are indefinite. The site is surrounded by sugar cane fields, and is bound by an irrigation ditch and Maalo Road on the East Side and a cane haul road on the south side.

2. Soils

According to the Soil Survey issued in 1972 by the U.S. Department of Agriculture Soil Conservation Service (USDA-SCS), the soil in the area surrounding the well sites and proposed control tank site are characterized as Kapaa silty clay, 3 to 8 percent slopes (KkB). The soil type is acidic, provides slow runoff, and there is little erosion hazard. The soil at the proposed control valve station site is characterized as Puhi silty clay loam, 3 to 8 percent slopes (PnB). The soil type also is acidic, provides slow runoff, and the erosion hazard is slight. See Figure 6.

3. Hydrogeology (Reference: Molokoa Hydrologic Study, January 1995)

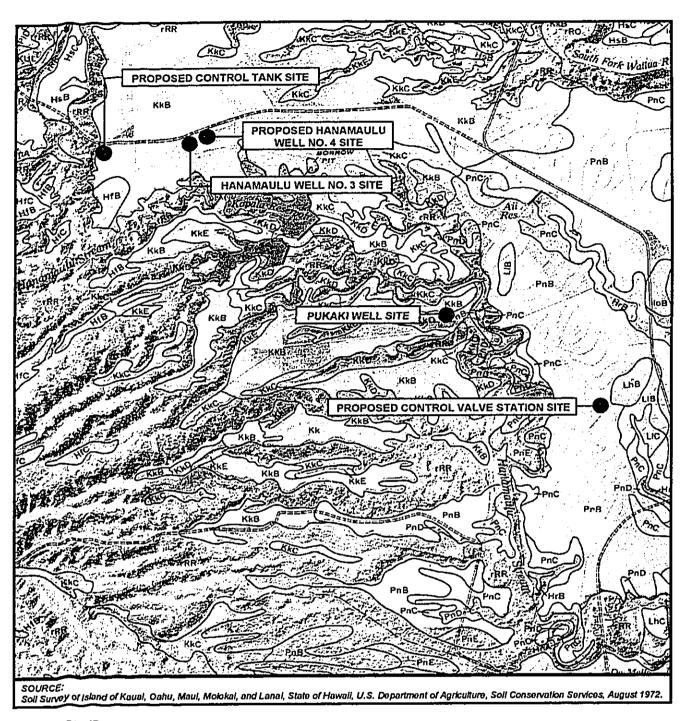
The hydrogeologic study area covers most of the area designated as the Hanamaulu Aquifer System by the State Commission on Water Resource Management (1990). The aquifer system extends in an east-west direction from Waialeale-Kahili Mountains west of Lihue Town to Hanamaulu Bay, and in a north-south direction from Wailua River to Haupu Ridge. See Figures 7 and 8. The study area is situated in the "Lihue Depression," a large somewhat circular geologic feature in the eastern part of the island, bounded by the Waialeale-Kahili Mountains on the west, Makaleha Mountain on the north, Kalepa Ridge on the east and Haupu Ridge on the south.

a. Volcanic Activity

The "Lihue Depression" was formed by a collapse on the eastern slopes of Kauai during the shield-building period more than two million years ago (Waimea Canyon volcanic series). A long period of erosion followed the shield-building period and the island became deeply eroded. Kalepa Ridge and Haupu Ridge are outlying remnants of the thin-bedded Waimea Canyon lavas (Napali formation). A major stream cut the now-buried deep erosional gap between Kalepa and Haupu Ridges.

Volcanic activity resumed with the eruption of the Koloa volcanic series. Lavas of the Koloa volcanic series were more massive and less permeable than the Napali formation, and buried much of the eastern half of the island.

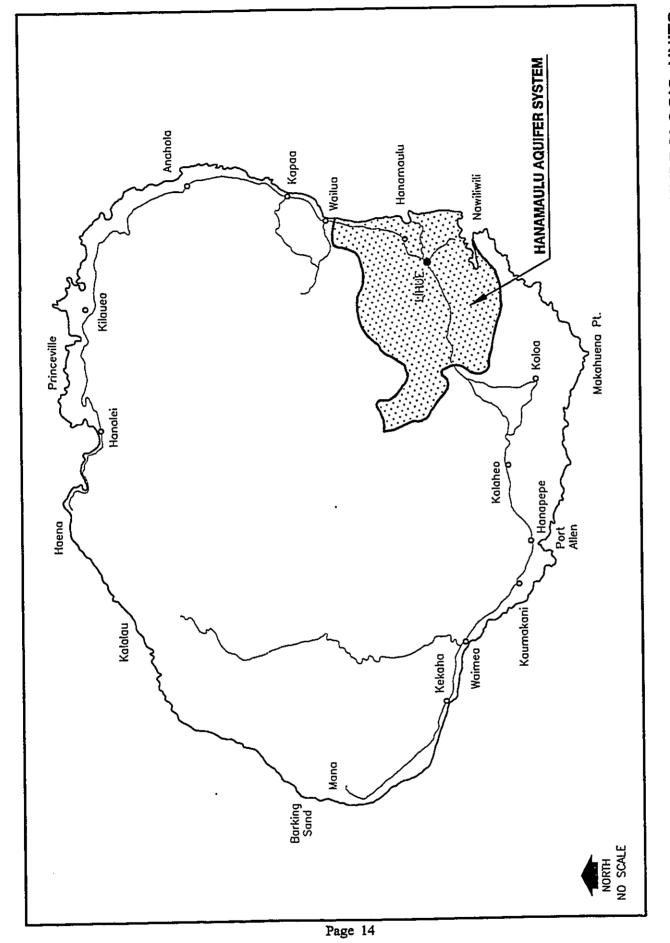
Page 12



LEGEND:	HfB	Halli gravelly silty clay, 3-8% slopes	LhB	Lihue siity clay, 0-8% slopes
	HſC	Halii gravelly silty clay, 8-15% slopes	LhC	Lihue silty clay, 8-15% slopes
	НгВ	Hanalei silty clay, deep water table	L1C	Lihue gravelly silty clay, 8-15% slopes
	HsB	Hanamaulu silty clay, 3-8% slopes	Llb	Lihue graveily silty clay
	HsC	Hanamaulu silty clay, 8-15% slopes	MZ	Marsh
	HnA	Hanalei silty clay, 0-2% slopes	PnB	Puhi silty clay loam, 3-8% slopes
	toB	loleau silty clay loam, 2-6% slopes	PnC	Puhi silty clay loam, 8-15% slopes
	KkB	Kapaa silty clay, 3-8% slopes	PnD	Puhi silty clay loam, 15-25% slopes
	KKC	Kapaa silty clay, 8-15% slopes	PnE	Puhi silty clay loam, 25-40% slopes
	KKD	Kapaa silty clay, 15-25% slopes	rRR	Rough broken land
	KKE	Kapaa silty clay, 25-40% slopes		

COUNTY OF KAUAI

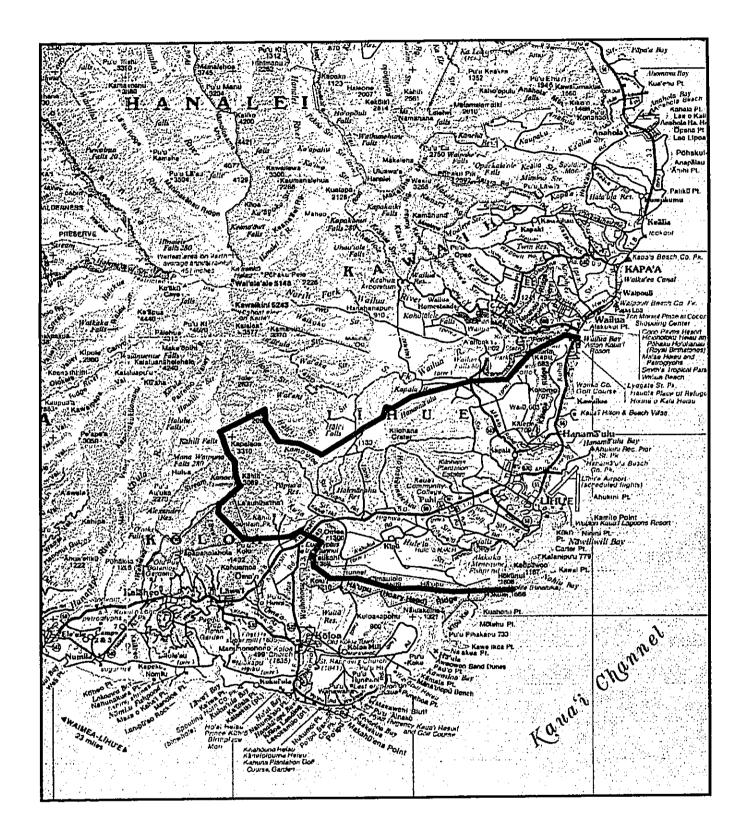
USDA/SCS SOIL MAP



ISLAND OF KAUAI - HYDROLOGIC UNITS

COUNTY OF KAUAI
Lihue and Hanamaulu Water Development Projects

FIGURE 7



COUNTY OF KAUAI

HANAMAULU AQUIFER SYSTEM

Lihue and Hanamaulu Water Development Projects

FIGURE 8

In the "Lihue Depression" a small subsidiary shield volcano developed from Kilohana Crater. Lava flows and ash deposits gradually filled the southern half of the depression, flowing seaward around the southern end of Kalepa Ridge and building the gentle ground slopes of the Lihue Town area.

b. High-Level Groundwater

High-level groundwater results from the combination of high rainfall and overall low permeability of the Koloa lavas. Theories on the cause of the high-level groundwater differ. The high-level may result from bodies of water perched on beds of relatively low permeability lavas, soil and ash (*Molokoa Hydrologic Study*), or the high-level may be part of a completely saturated groundwater system (USGS Ground Water in the Southern Lihue Basin, Kauai, Hawaii, 1998). High-level groundwater was first confirmed by a deep exploratory well drilled in 1961 at the old Lihue Grammar School site. Groundwater elevation measurements in the exploratory well during drilling revealed a 438-foot thick body of fresh high-level groundwater extending to a depth of 248 feet below mean sea level. A number of test holes about 1.5 miles mauka of the exploratory well also confirmed the occurrence of high-level groundwater.

c. Basal Groundwater

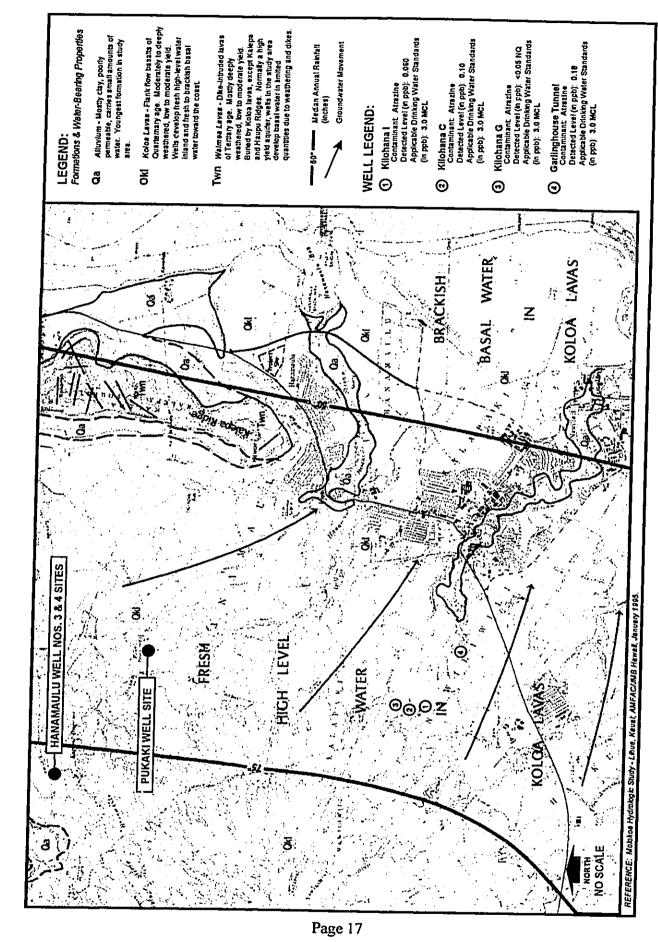
The 1961 investigations and measurements at the old Lihue Grammar School exploratory well also determined the occurrence of basal groundwater in the underlying layers of the high-level groundwater. The top of the basal aquifer was determined to be approximately 180 feet to 248 feet below mean sea level.

d. Regional Groundwater Movement

The general movement of groundwater in the study area is eastward and southeastward. See Figure 9. Groundwater in the northern part of the study area was determined to move mostly southward toward Lihue, but some may move northward toward Wailua River.

e. Estimated Groundwater Yield

According to the State Water Resources Protection Plan, Vol. I and II (June 1990), the Hanamaulu Aquifer System receives an average rainfall volume of 217 million gallons per day (mgd), of which about 48% is lost to evapotranspiration, 16% is lost to runoff, and 36% or 79 mgd becomes groundwater. The sustainable yield of the Hanamaulu Aquifer System has been estimated at approximately 40 mgd.



REGIONAL GROUNDWATER MOVEMENT & GROUNDWATER CONTAMINATION COUNTY OF KAUAI REGIONAL Lihue and Hanamaulu Water Development Projects

f. Existing Wells and Water Use

The existing producing potable water wells within the Hanamaulu Aquifer are listed in the following table. The domestic potable water consumption for 1996 supplied by the Lihue Water System (County of Kauai) was approximately 2.74 mgd.

Name	Primary Source	Standby Source	State Well No.	Aquifer	Pump Capacity (mgd)	1996 Water Use (mgd)
Kauai County Departm	nent of Water	r;				
Garlinghouse Tunnel	x		5823-01	High-Level	1.152	
Kilohana A		x	5923-01	Basal	0.59	
Kilohana B	х		5923-02	High-Level	1.008	
Kilohana C	x		5923-03	High-Level	0.144	
Kilohana F		x	5923-04	High-Level	0.576	
Kilohana G	x		5923-05	High-Level	0.216	
Kilohana I	х		5923-07	High-Level	1.008	
Kokolau Tunnel 🚓	x		5725-01	High-Level	0.432	
Old Grammar School	х		5822-02	Basal	0.216	
Puhi 1	x		5824-01	Basal	0.288	
Puhi 2		x	5824-03	High-Level	0.144	
Puhi 3	x		5824-05	High-Level	0.432	
Kalepa Ridge Well ♦	x		5921-01	Basal	0.173	
TOTAL				-	6.379	2.72
Lihue Plantation Comp	any:					
Sugar Mill 🋦			5822-01	Basal	0.53	0.30

- Kokolau Tunnel presently not in use.
- ♦ Kalepa Ridge Well currently in use.
- ▲ 1991 data. Per Lihue Plantation, potable well not verified.

4. Climate

Annual rainfall within the vicinity of the wells ranges between 70 and 80 inches per year. The temperature ranges from an average high of 80°F to an average low of

65°F. The northeasterly trade winds, which prevail throughout the year, result in winds with velocities averaging 20 miles per hour.

5. Flood and Tsunami

The Federal Emergency Management Agency Flood Insurance Rate Map (FIRM) panel 150002 0140C dated March 4, 1987, designates the well sites within Zone X, areas determined to be outside of the 500-year flood plain. Therefore, impact of the projects on the flood zones is not expected.

C. WATER QUALITY

Water quality analyses for Pukaki Well and Hanamaulu Well No. 3 were performed in accordance with the Department of Health, Hawaii Administrative Rules, Title 11, Chapter 20, Potable Water System Rules. Additional water quality data are available for wells within the vicinity which include the USGS Pukaki Reservoir monitor well (near Pukaki Well and about 1 mile southeast of the Hanamaulu Well No. 3 site) and the Northwest Kilohana monitor well (about 2 miles west of the Hanamaulu Well No. 3 site). Data are not available for the USGS Northeast Kilohana monitor well (located near Hanamaulu Well No. 3). Refer to the Appendix B for water quality data.

Pukaki Well, Hanamaulu Well No. 3 and the proposed Hanamaulu Well No. 4 are located in the midst of existing sugar cane fields, and are subject to potential contamination from the leaching of fertilizers and herbicides used in cultivation. Nitrate, a good indicator of contamination by fertilizers, was found to occur at very low concentrations for Pukaki Well, Hanamaulu Well No. 3 and nearby wells as listed in the following table. These concentrations are well within the maximum contaminant level (MCL) of 10 mg/l (nitrate-nitrogen).

Atrazine, an herbicide, has been reported at less than 0.00005 to 0.0002 mg/l in the Kilohana Wells I, C, and G, and at the Garlinghouse Tunnel, and a trace level of 0.00006 mg/L atrazine was detected at Hanamaulu Well No. 3. See Figure 9. These values are well below the maximum contaminant level of 0.003 mg/l (State CWRM, Water Quality Plan, 1992, p. III-19, and the Department of Health Administrative Rules Chapter 11-20, 1992). Water quality analyses for Pukaki Well, Pukaki Reservoir and Northwest Kilohana monitor wells did not find atrazine at detectable levels. Chromium, mercury, and diethylphthalate were detected in some of the wells as listed in the following table, but levels are well below the MCL.

Dichloromethane was initially detected in both Pukaki Well and Hanamaulu Well No. 3. Dichloromethane is a laboratory solvent used during water quality analyses; therefore, another sample was obtained from each well and analyzed. Dichloromethane was not detected in either well.

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Contaminants	MCL	Pukaki Well	Hanamaulu Well No. 3	USGS Pukaki Reservoir Well	NW Kilohana Monitor Well
Nitrate-N (mg/L)	10	0.23	1.2	0.2	0.1
Chromium (mg/L)	0.1	0.0074	0.0058	0.007 & 0.011	0.014
Mercury (mg/L)	0.002	0.0003	ND	ND	ND
Methylene chloride (mg/L)	0.005	0.0136	0.0015	ND	ND
Diethylphthalate (mg/L)	0.006	0.0007	0.0006	ND	ND
Atrazine (mg/L	0.003	ND	0.00006	ND	ND

ND: Not Detected

Pukaki Well and Hanamaulu Well No. 3 waters meet the chemical safe drinking water standards. Biological test results do not meet the DOH requirements; however, it is likely that the water samples were contaminated and did not accurately represent the water quality. The proposed Hanamaulu Well No. 4 water quality is anticipated to be similar to Hanamaulu Well No. 3 results. Additional sampling and testing will be done after the wells are developed, and will be monitored by the DOH.

D. ARCHAEOLOGICAL AND HISTORICAL CONSIDERATIONS

The project sites are located in the middle of cultivated cane fields. The State Historic Preservation Division records indicate that there are no known archeological sites at the project locations. If construction work uncovers any archaeological remains, work will cease and an archaeological survey will be conducted.

E. FLORA

The surrounding vegetation for miles around is cultivated sugar cane. The lands are highly disturbed, and the existence of endangered species in the project area is unlikely.

F. FAUNA

Animals found in the area include field mice, rats, geckos, and small feral animals. Birds include doves of various kinds, mynahs, cardinals, and pheasants. Amphibians such as toads and frogs are also found in the area. The project sites are highly disturbed, and it is unlikely that any rare or endangered species of animal life inhabit the areas.

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VII. PROBABLE IMPACTS AND MITIGATIVE MEASURES – COMMON TO THE PROJECTS

A. SHORT TERM IMPACTS

1. Air Quality

There will be an increase in dust and vehicular exhaust emissions in the vicinity of the project areas during construction. Dust control measures will be used to reduce dust if it becomes a problem. Exhaust emission should not have any significant effect on the area because prevailing winds should disperse any exhaust gas concentration.

2. Erosion

The five sites will be graded; disturbed areas will either be paved or grassed. The Contractor will be required to implement erosion and sediment control measures during construction. Grading and soil disturbance will be minimized, and areas that are disturbed will be properly graded and revegetated to prevent erosion. The Contractor will be instructed to minimize the time of construction, retain ground cover until the latest practicable date to complete construction, and construct drainage control features early in the construction time schedule. Continued maintenance will be required for nine months from the accepted completion date of the planting period to ensure proper revegetation.

3. Excess Water Discharge

Disposal of excess water generated from hydrotesting and chlorination of the project components, and storm water runoff will be accomplished by the Contractor in compliance with all applicable National Pollutant Discharge Elimination System (NPDES) requirements.

4. Traffic

Traffic will increase due to the construction activities along Maalo Road and along the private cane haul roads used by Lihue Plantation Company. The increased traffic will be temporary only lasting the length of the construction period. Disruptions to Lihue Plantation Company operations by the traffic will be minimized through conscientious efforts by the Contractor to confine the construction activities to a limited area.

5. Noise

There will be an increase in noise from the construction activity. However, the increased noise should not have any adverse impacts since the construction area is isolated in the middle of cane fields and a few miles from any residential area. All

noise generated by the construction activity shall conform to the noise regulations established by the State Department of Health.

B. LONG TERM IMPACTS

Long term impacts are generally those impacts related to the operation of the proposed water development projects. Any potential negative long term impacts associated with the implementation of the projects will be mitigated by appropriate and low profile design, and competent, efficient, and effective operations and maintenance.

1. Land Use

The Pukaki Well, Hanamaulu Well No. 3, proposed Hanamaulu Well No. 4, control tank, and control valve station sites are designated for Agriculture by the State Land Use Commission. The total land area required for the sites is less than one acre; therefore, the well development projects will not have significant negative impacts on agricultural lands.

2. Hydrology

a. Surface Water

The proximity of the Pukaki Well site to the drainage ditch and Pukaki Reservoir, and the proximity of the Hanamaulu Well Nos. 3 and 4 sites to the irrigation ditch and Kapaia Reservoir indicate the possibility of surface water contamination and streamflow reduction. The design and construction of the wells address these concerns.

The operation of the deep well pumps requires the discharge of air and flushing water before the well water can be conveyed to the control tank. The air and flushing water from the Pukaki Well site would be discharged to a subsurface seepage drain. The air and flushing water from the Hanamaulu Well Nos. 3 and 4 sites would be discharged to the nearby unlined irrigation ditch flowing to Kapaia Reservoir. The quality of the flushing water would generally be potable and is expected to be of a better quality than the receiving surface water. Improvements at the discharge location would be made to minimize erosion.

b. Ground Water and Existing Wells

The development of Pukaki Well and Hanamaulu Well Nos. 3 and 4 is anticipated to have little effect on the water resources in the area. The total pumping capacity of the wells is 580 gpm (300 gpm anticipated for Hanamaulu Well No. 4) and assuming a maximum pump running time of 16 hours a day,

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the average withdrawal and water use would be approximately 0.56 mgd. The estimated sustainable yield of the Hanamaulu Aquifer System is 40 mgd. The current pumping capacity of water sources tapping the Hanamaulu Aquifer System totals approximately 5 mgd or 12.5 percent of the aquifer yield. Therefore, in comparison with the 40 mgd yield, the 0.56 mgd pumped by the proposed projects would increase the withdrawal from the aquifer by an additional 1.4 percent or a total withdrawal rate of 13.9 percent.

The existing wells at Kilohana are not expected to be affected by the development of the Pukaki Well and Hanamaulu Well Nos. 3 and 4. The closest existing water well is approximately 2 miles away from the Pukaki Well site and farther from Hanamaulu Well Nos. 3 and 4 sites.

c. Water Quality

Pukaki Well and Hanamaulu Well No. 3 meet the DOH chemical drinking water standards. Hanamaulu Well No. 4 water quality is anticipated to be similar to Hanamaulu Well No. 3, and will be confirmed during the pump testing.

Confirmation that the wells meet the DOH biological drinking water standards also will be done after the pumps are installed. Additional sampling and biological testing will be performed, and will be monitored by the DOH.

3. Flora and Fauna

The project areas have been previously cleared for sugarcane cultivation and ranching. There are no indications of rare or endangered flora or fauna in the project area.

4. Air Quality

No long term negative impacts on air quality resulting from the proposed projects are anticipated.

5. Visual Impacts

The visual impacts of the proposed projects, specifically the proposed control tank, are not expected to be significant. The proposed control tank location is on private lands presently owned by Lihue Plantation Company, and is surrounded by cane fields. The closest public road (Maalo Road) is over one mile away, and the tank height perceived by the public will be less than one-tenth on an inch. In addition, the control tank will be painted an earthtoned color to match the surrounding environment as approved by Lihue Plantation Company.

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Overhead power lines will be extended from the present termination near the control valve station site, along Maalo Road and the cane haul road to the Control Tank site. Visual impacts will be similar to the existing lines along the lower portion of Maalo Road.

6. Noise

Motor noise from the line shaft pump is not expected to be a problem due to the project site isolation. However, sound attenuation devices will be installed in the future, if necessary.

7. Archaeological/Historical Sites

No long term negative impacts on historical and archaeological sites are anticipated. The well, control tank, and control valve station sites are located in the middle of cultivated cane fields, and lands are highly disturbed. State Historic Preservation Division records indicate that there are no known archeological sites at the proposed sites. If construction work uncovers any archaeological remains, work will cease and an archaeological survey will be conducted.

8. Public Health and Safety

Public health and safety is of the utmost importance, and measures will be taken to ensure protection. All of the facilities will be surrounded by a fence. The water from the wells will be disinfected by chlorination; and the chlorination facilities will be designed, installed, and maintained in accordance with all applicable safety codes. State DOH regulations will be followed; therefore, no public health or safety problems associated with the water system improvements are anticipated.

VIII. ALTERNATIVES TO THE PROPOSED PROJECTS

A. NO ACTION ALTERNATIVE

Growth and expansion of the Lihue service area have generated potable water demands that have surpassed the capacities of the existing well sources. Additionally, existing pumpage has been reduced by more than 20 percent because of the large demands and dropping well water levels. Abandoning the projects will result in limiting further growth and housing developments in the Lihue area until alternate water sources are identified and developed. This is contrary to the County's long-range regional development plan; therefore, the No Action Alternative is unacceptable.

B. ALTERNATIVE SITES

The siting of exploratory wells is based on hydrologic, hydrogeologic, land ownership and availability, and engineering studies for the particular location. The County of Kauai considered several alternate sites and will be drilling additional exploratory wells at several nearby sites.

C. ALTERNATIVE WATER SOURCES

Alternative water sources such as desalination and use of surface water were considered, but rejected because of higher construction, operation, maintenance and administration costs. Wastewater reuse and nonpotable water supplies, rainfall catchment, and water conservation are discussed below.

1. Wastewater Reuse and Nonpotable Water Supplies

Wastewater reuse and nonpotable water supplies are potentially viable alternative water sources. Treated wastewater effluent is available from the Lihue Wastewater Treatment Plant serving the Lihue Town area. The amount of treated effluent currently available is about 1.3 mgd, and is committed to Kauai Lagoons Resort Company for reuse on their golf courses. Wastewater reuse is being accomplished, and will continue to be encouraged and pursued as a means for conserving potable water supply resources.

2. Rainfall Catchment

Rainfall catchment involves the construction of a series of ditches and reservoirs to intercept rainfall runoff from large areas of land, and is an ideal water source for agricultural use. According to the *Kauai Water Use and Development Plan*, January 1990, over 80 percent of water used on Kauai is by sugarcane plantations which rely on rainfall catchment (surface waters) as the primary water source. The Lihue Plantation Company, utilizes rainfall catchment as its primary water source to meet the sugarcane irrigation requirements; therefore, "infrastructure" is available. However, if any surface water source is used to supply municipal drinking water systems, it is subject to the DOH Surface Water Treatment Rule, which requires costly and cumbersome treatment, monitoring and reporting. Consequently, the immense cost of constructing, operating, and maintaining a water treatment facility renders this alternative infeasible and unacceptable.

3. Water Conservation

Water conservation programs can be used to better meet future water demands, and are typically implemented when a water shortage is likely. Conservation programs generally fall into two major categories: Water System Conservation and Consumer Conservation. Water system conservation is the responsibility of the water purveyor, and entails careful monitoring of all water in the transmission and distribution systems. County water uses such as for fire fighting and street and sewer flushing could be targeted for more efficient use. Additionally, detection and repair of leaks in the transmission and distribution system would be effective in reducing water "demands." DOW currently is in the process of establishing a water conservation plan.

Consumer conservation is the responsibility of the consumer, and could reduce the per capita consumption. Consumers are encouraged to use water saving utilities, to detect and repair leaks within their property, and in general, to minimize wasteful water use.

Water conservation is an environmentally beneficial practice regardless of the water supply situation. However, Kauai experiences a very wet climate and has an abundant groundwater and surface water supply. The water sources for the Lihue Water System are within the Hanamaulu Aquifer, which has a sustainable yield of 40 mgd. The average water use in 1996 was approximately 2.74 mgd, less than 7 percent of the estimated sustainable yield. Even with further development of well water sources, the water use will be a mere fraction of the aquifer yield. Although it is a practice that should be observed by all consumers, water conservation will not provide the quantity of water required to meet demands. Therefore, water conservation is deemed an insufficient alternative.

IX. IRREVERSIBLE AND IRRETRIEVABLE COMMITMENTS OF RESOURCES

There are several irreversible commitments of resources including land and financial resources to construct capital improvements, and to operate and maintain the wells, control tank, and various controls. Land commitment for the wells, control tank, control valve station sites is minimal, and financial commitment for capital improvements and operations and maintenance are necessary.

The long-term responsibility of the Department of Water to provide adequate water supplies to the Hanamaulu and Lihue communities supports the implementation of the proposed projects; therefore, the commitment of land, labor, materials, energy, equipment and financial resources that are practically irreversible and irretrievable are warranted.

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X. PERMITS AND APPROVALS REQUIRED

A. APPROVALS

- 1. Lihue Plantation Company, Ltd.
- 2. State Department of Health Engineering report conforming to Section 11-20-29 after testing and before using well water.
- 3. State Office of Environmental Quality Control
 Environmental Assessment for Well Development and Control Valve Station Construction
- 4. County of Kauai Housing Agency
 Environmental Assessment for Well Development and Control Tank and Control
 Valve Station Construction
- 5. County of Kauai Department of Water Environmental Assessment for Well Development and Control Tank and Control Valve Station Construction
- State Commission on Persons with Disabilities
 Plans and Specifications conformance with American Disabilities Act

B. PERMITS

- 1. Use Permit, County of Kauai, Planning Department
- 2. Pump Installation Permit, State Commission on Water Resource Management
- 3. National Pollutant Discharge Elimination System Permit, State of Hawaii, Department of Health

XI. AGENCIES AND ORGANIZATIONS CONSULTED

A. FEDERAL GOVERNMENT

- U.S. Department of Agriculture, Soils Conservation Service
- U.S. Department of the Interior, Fish and Wildlife Service
- U.S. Department of the Interior, Geological Survey

B. STATE GOVERNMENT

Department of Agriculture
Department of Land and Natural Resources
Commission on Water Resource Management
State Historic Preservation Division
Department of Hawaiian Home Lands
Department of Health
Clean Water Branch
Safe Drinking Water Branch
Office of Environmental Quality Control
Office of Hawaiian Affairs

C. COUNTY GOVERNMENT

Planning Department
Department of Water
Housing Agency

XII. FINDINGS AND DETERMINATION

A. FINDINGS

Based upon the guidelines and provisions of Title 11, Chapter 200, Environmental Impact Statement Rules and Chapter 343, HRS, the findings of this environmental assessment are:

1. <u>Involves an irrevocable commitment to loss or destruction of any natural or cultural resource;</u>

The proposed projects will not cause any loss or destruction of a natural or cultural resource. As described in this assessment, the proposed project sites have been researched extensively with no findings of significant impacts. Any discovery of archaeologically significant resources uncovered during the construction will be handled in compliance with the requirements of the State of Hawaii, Department of Land and Natural Resources.

2. Curtail the range of benefic: uses of the environment;

The projects are enhancing the beneficial use of the environment, as they are drawing upon the naturally occurring groundwater supply in the area to serve a growing demand for drinking water by the community. The project sites are limited to the wells, control tank, and control valve station sites. The required land area is a small fraction of the total area that is available for agriculture in the vicinity, and the projects provide valuable groundwater for the Lihue Water System.

3. Conflict with the State's long-term environmental policies or goals and guidelines as expressed in Chapter 344, Hawaii Revised Statutes, and revisions thereof and amendments thereto, court decisions or executive orders;

The proposed projects are in accordance with the guidelines set forth in the State Environmental Policy Chapter 344, Hawaii Revised Statutes.

4. Substantially affects the economic or social welfare of the community or State;

The proposed projects will serve to increase the amount of potable water available for the Lihue Water System, which cannot meet the current maximum daily demand. They will enhance the welfare of the community by increasing the potable water source capacity to users.

5. Substantially affect public health;

The proposed projects will not affect public health in a negative way.

6. <u>Involves a substantial secondary impact, such as population changes or effects on public facilities;</u>

The proposed projects will connect to the existing water distribution system to serve the current maximum daily demand for the existing population. It will not involve any substantial secondary impacts.

7. <u>Involves a substantial degradation of environmental quality:</u>

The proposed projects will not involve any substantial degradation of environmental quality. As described in this assessment, the impacts on the environment are minimal.

8. <u>Is individually limited but cumulatively has considerable effect upon the environment or involve a commitment for larger actions:</u>

As described in this assessment, the proposed projects do not have any significant impacts or effects upon the environment or involve any commitment for larger actions.

9. Substantially affect a rare threatened or endangered species, or its habitat;

There are no known endangered species of flora or fauna in the vicinity of the project sites that would be disturbed.

10. Detrimentally affect air or water quality or ambient noise levels;

The proposed projects provide potable groundwater for human use and consumption. They will not detrimentally affect air or water quality, or ambient noise levels.

11. Affects or is likely to suffer damage by being located in an environmentally sensitive area, such as a flood plain, tsunami zone, beach, erosion-prone area, geologically hazardous land, estuary, freshwater, or coastal waters;

As discussed in detail in this assessment, the proposed projects do not detrimentally affect any environmentally sensitive areas.

12. Substantially affects scenic vistas and view planes identified in county or state plans or studies;

The proposed projects do not affect any scenic vistas or view planes identified in county or state plans or studies.

13. Requires substantial energy consumption.

As described in this assessment, the proposed projects will require energy to pump water from Pukaki Well and Hanamaulu Well Nos. 3 and 4 to the new control tank. The amount of energy to construct, operate, and maintain the proposed projects would be a small fraction of the total amount of energy currently being used in the area. The proposed projects will not require substantial energy consumption.

B. DETERMINATION

Based upon the above data and analyses, the proposed projects are not anticipated to have significant adverse impacts on the coastal waters, local ecology, hydrology, and atmosphere. Mitigative measures will be implemented as deemed necessary and as required by the governmental agencies. A Finding of No Significant Impact determination (Environmental Impact Statement document is not required) has been issued.

XIII. REFERENCES

- 1. AMFAC/JMB Hawaii, Inc., <u>Lihue-Hanamaulu Master Planned Community</u>, <u>Preliminary Engineering Report for Water Requirements</u>, September 16, 1994. Prepared by Kodani and Associates, Inc.
- 2. AMFAC/JMB Hawaii, Molokoa Hydrologic Study, Lihue, Kauai, January 1995. Prepared by Water Resources Associates.
- 3. County of Kauai, Department of Water, <u>Final Environmental Assessment</u>. <u>Lihue and Hanamaulu Water Development Projects</u>, <u>Phase I Pukaki Well and Hanamaulu Well No. 3</u>, August 1998. Prepared by Fukunaga and Associates, Inc.
- 4. County of Kauai, Department of Water, <u>Technical Reference Document for the Kauai Water Use and Development Plan</u>, January 1990. Prepared by R.M. Towill Corporation.
- 5. County of Kauai, Housing Agency, <u>Final Environmental Assessment for Lihue & Hanamaulu Water Development Projects Phase II Installation of Connecting Pipelines</u>, August 1998. Prepared by Par En Inc., dba Park Engineering.
- 6. Results of Drilling and Testing DOW-Pukaki Well (0023-02), Lihue Basin, Kauai, November 1998. Prepared by Water Resource Associates.
- 7. State of Hawaii, Commission on Water Resource Management, Department of Land and Natural Resources, <u>Kauai Water Use and Development Plan</u>, February 1992. Prepared by R.M. Towill Corporation.
- 8. State of Hawaii, Commission on Water Resource Management, Department of Land and Natural Resources, State Water Resources Protection Plan, Vol. I & II, June 1990. Prepared by George A.L. Yuen & Associates, Inc.
- 9. U.S. Department of Agriculture, Soil Conservation Service, Soil Survey, Islands of Kauai, Oahu, Maui, Molokai, and Lanai, State of Hawaii, August 1972.
- 10. U.S. Geological Survey, <u>Ground Water in the Southern Lihue Basin, Kauai, Hawaii, Water-Resources Investigations Report 98-4031</u>, 1998.
- 11. University of Hawaii, Department of Geography, Atlas of Hawaii, Second Edition, University of Hawaii Press, 1983.

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APPENDIXA:
PUMPTEST DATA

PUMP TEST DATA
Pukaki Well



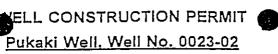
Signature

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

WELL COMPLETION REPORT

4/25/97 WCR Form

(Che	ck Appropriate Box		I (Permanent) Pump	
Instru Mana essist	ictions: Please print gement, P.O. Box 62 ance call the Commis	or type and submit completed report with 1, Honolulu, Hawaii 96809. An as-built d ssion Regulation Branch at 587-0225, or 1	nin 30 days after well com rawing of the well and ch -800-468-4644 Extension	npletion to the Commission on Water Resource emical analysis should also be submitted. Fo 70225.
1. 2.	State Well No.:_ Location/Addre	0023-02 Well Name: Puk ss: Lihue Basin	aki	Island: <u>Kauai</u> Tax Map Key: <u>3-8-2:2</u>
P	ART I.	WELL CONSTR	RUCTION REPOR	et a same a
5. 6. 7.	Type of rig/cons Date(s) Well Cor GROUND ELEV Well Ben DRILLER'S LOG	Description, Water Level, Dates, etc. Description of the Electric of the Elec	completed: 7/3/8/ evel, msl): evel, msl): evel, msl): evelpths (ft.)	ft. Elevation(msl): ft. by permit) Rock Description, Water Level, Dates, etc. EROUN WEATHER ED MARIC: RED MAD
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11.	-	: 12 in. l.D. x 3/8_ in. v	vall solid section to vall perforated section	
12.	Annulus:	Grouted from Sucrete Gravel packed from	_ ft. below ground to_	ft. below ground
14. 15. 16.	Initial chloride: Initial temperatu PUMPING TES (1) Step-Drawdor Start water le End water le Aquifer Pump Te As-built drawings	el: 9/.83 ft. below ground. ppm re: ppm TS: Reference Point (R.P.) used: wn Test Date 7///38 evel ///56 ft. below R.P. evel 372.88 ft. below R.P. est Procedures data & graphs (1/9/96) s attached attached? Yes No	Date and time of so Date and time of m Section Asver (2) Long-tel Start w End wa	t, which elevation is ft. m Aquifer Test Date // / ft. below R.P. ater level // / ft. below R.P. ater level // / ft. below R.P.
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Sig	nature	- Cy Man	Date	= 11/E9/98
- 1	veyor (print)	Ronald Casuga		. 4332
Sig	nature	See attached		February 26, 1999
And	olicant (print)	COUNTY OF KAUAL DEPT.	of water	



in accordance with Department of Land and Natural Resources, Commission on Water Resource Management's Administrative Rules, Section 13-168, entitled "Water Use, Wells, and Stream Diversion Works", this document permits the construction and testing of Pukaki Well (Well No. 0023-02) at Lihue Basin, Kauai, TMK 3-8-2:2, subject to the Hawaii Well Construction & Pump Installation Standards (1/23/97) which include but are not limited to the following good library. to the following conditions:

- The Chairperson of the Commission on Water Resource Management (Commission), P.O. Box 621, Honolulu, HI 95809, shall be notified, in writing, at least two (2) weeks before any work authorized by this permit commences.
- The well construction permit shall be for construction and testing of the well only. A minimum one-inch diameter monitor tube shall be permanently installed, in a manner acceptable to the Chairperson, to accurately record water levels. The permittee shall coordinate with the Chairperson and conduct a pumping test in accordance with the Standards (a pump testing worksheet is attached). The permittee shall submit to the Chairperson the test results as a basis for supporting an application to install a permanent pump and withdraw water for use. No permanent pump may be installed until a pump installation permit is approved and issued by the Chairperson. 2.
- In basal ground water, the depth of the well may not exceed one-fourth (1/4) of the theoretical thickness (41 times initial head) of the basal ground water unless otherwise authorized by the Chairperson. 3.
- The permittee shall incorporate mitigation measures to prevent construction debris from entering the aquatic environment, to schedule work to avoid periods of high rainfall, and to revegetate any cleared areas as soon as possible.
- In the event that subsurface cultural remains such as artifacts, burials or concentrations of shells or charcoal are encountered during construction, the permittee shall stop work and contact the Department's Historic Preservation Division (587-0045) immediately. 5.
- The proposed well construction shall not adversely affect existing or future legal uses of water in the area, including any surface water or established instream flow standards. This permit or the authorization to construct the well shall not constitute a determination of correlative 6. water rights.
- The following shall be submitted to the Chairperson within sixty (60) days after completion of work:

 a. Well completion report, (attached Part I, Well Construction Report).

 b. Elevation (referenced to mean sea level, msl) survey by a Hawaii-licensed surveyor. 7.

- As-built sectional drawing of the well.

 Plot plan and map showing the exact location of the well.

 Complete pumping test records, including time, pumping rate, drawdown, chloride content, and other data.
- 8. The permittee shall comply with all applicable laws, rules, and ordinances, and non-compliance may be grounds for revocation of this permit.
- The well construction permit application is incorporated into this permit by reference and is subject to the Hawaii Well Construction & Pump Installation Standards (1/23/97). 9.
- The permit may be revoked if work is not started within six (6) months after the date of approval or if work is suspended or abandoned for six (6) months, unless otherwise specified. The work proposed in the well construction permit application shall be completed within two (2) years from the date of permit approval, unless otherwise specified. The permit may be extended by the Chairperson upon a showing of good cause and good-faith performance. A request to extend the permit shall be submitted to the Chairperson no later than three (3) months prior to the date the permit expires. If the commencement date is not met, the Commission may revoke the permit after giving the permittee notice 10. of the proposed action and an opportunity to be heard.
- If the well is not to be used it must be properly capped. If the well is to be abandoned then the permittee must apply for a well abandonment permit in accordance with §13-168-12(f) prior to any well sealing or plugging work.
- Special conditions in the attached cover transmittal letter are incorporated herein by reference.

Date of Approval: July 21, 1997 Expiration Date: July 21, 1997	MICHAEL D. WILSON, Chairperson Commission on Water Resource Management
I have read the conditions and terms of this permit and understand as a prerequisite and underlying condition of my ability to proceed permit condition may be grounds for revocation and fines of up to	ed. I also understand that non-compliance with any
Permittee's Signature 4.W. Jul	Date:
Printed Name: Ernest Y. W. Lau	Firm or Title: Manager & Chief Engineer
Driller's Signature: The Must	License #: C 19 137 Date: 4/6/98
Printed Name: CLEE MUELLER Please sign both copies of this permit, return one to the Cha	Firm or Title: RAINBOW DAILLING
Please sign both copies of this permit, return one to the Cha	irperson, and retain the other for your records.
Attachment USGS Department of Health/ Safe Drinking Water, Wastewater, and Robert Vorfeld, Lihue Plantation Co.	1 Clean Water Branches

ENJAMIN J. CAYETANO



ROBERT G. GIRALD DAVID A. NOBRIGA LAWRENCE H. MIIKE

RICHARD H. COX HERBERT M. RICHARDS, JR.

MICHAEL D. WILSON

RAE M. LOUI, P.E. DEPUTY

STATE OF HAWAII

DEPARTMENT OF LAND AND NATURAL RESOURCES

COMMISSION ON WATER RESOURCE MANAGEMENT

P. O. BOX 521

HONOLULU, HAWAII 96809 COUNTY OF MAUAI

JUL 23 1997

Mr. Ernest Lau Kauai Department of Water P.O. Box 1706 Lihue, Hawaii 96766-5706

Dear Mr. Lau:

REF:CWRM-SS

Well Construction Permit Pukaki (Well No. 0023-02)

Enclosed are two (2) copies of your approved Well Construction Permit for the captioned well(s) which authorizes well construction activities but excludes installation work for your permanent pump. As part of the Chairperson's approval, the following special conditions were added and are part of your permit under Permit Condition 12:

Special Conditions

The well shall be cased with new steel casing conforming to one of the manufacturing standards listed in Hawail Well Construction and Pump Installation Standards (January, 1997) and in the standards of AWWA publication ANSI/AWWA A100-90, as may be amended. The physical properties of the steel shall conform to ASTM A-242, ASTM A53, Type E or S, Grade B, or approved equal. The well casing shall be manufactured in accordance with applicable sections of ASTM A139, as may be amended. 1.

This permit <u>does not</u> authorize work for your permanent pump installation. Approval and issuance of your pump installation permit is contingent upon completed application and information provided to and accepted by Commission staff as required in the Well Construction & Pump Installation Standards (1/23/97) and any special conditions performed under this permit. Please note that special conditions may simply highlight application deviations from the Standards.

The well owner is responsible for <u>all</u> conditions of the permit. This includes ensuring that the well construction contractor, or other party who constructs the well(s), submits a completed Part I of the Well Completion Report form (enclosed) within sixty (60) days after the well construction work is completed. Be advised that you may be subject to fines of up to \$1000 per day for any violations of your permit conditions. per day for any violations of your permit conditions.

To validate your permit, please sign and have the contractor sign both permit originals and return one for our files. Also, copies of the aquifer pump test worksheet and the well completion report form are enclosed for your use. Please provide all the information in this packet to your well drilling contractor.

Also attached for your information is a copy of the Department of Health's review comments.

If you have any questions, please call the Commission staff at 587-0218 or toll-free at 274-3141, extension 70218. Lene

Aloha,

MICHAEL D. WILSON

Chairperson

Enclosures

LONG-TERM AQUIFER 1EST DATA

Pumped Well No	Observation well no ft.
Target Q9P	mer in the desirator in the contract of the co
Water level measurements by: ☐ steel	P
START TEST Date:	Hour of day:
Flow Meter Reading Start: 99	als Data in this table is for:

Flow N	Aeter Readin	g Start:	ga	ls				,
Suggested elapsed .time	Actual elapsed time	Depth to water	Drawdown	Pumping rate			Temp.	Data in this table is for. Description Well
(min)	(min)	(nearest :* 0,01 ft) :	to nearest	Q (gpm)	EC (µmhos)	CI (mg/l)	°C	Remarks
0	0	116,75	0.00					Start test
1	1.05	214.77	98.02	/				
1.5	1.55	215,13	98.38	156				
2							<u>.</u>	
2.5	2.55	215.44	98.69		•			
3	3.55	216,20	99.45			· .	·	
4	4,20	216.47	99.72	,			•	
5	4,50	217.09	100,34					
6	6.05	218,29	101,54					
7	7.10	219.17	102,42				•	
8.	8.i0	220.08	<i>/03.3</i> 3	152:4			•	
10	10,40	221,44	104.69				•	
15	15.40	229.14	107,39	1507				
20	20,10	226,34	109.59				•	
25	25.10	228.88	112,13				•	
30	30.20	232,16	115.41	155				
40	39.50	236.88	120-13					
50	50.20	241.84	125.09					
60	59.50	24248	125,73	· · ·			•	
70	69,50	243.51	126.76					
80	80,20	24127	127.52	147.4				·
90	90	2.15.13	128.38	146.3				
100	100	245.63	128-88					
150	150	245.13	128.38				•	
200	200		128.67					
250	250	246.21	129.46]			

-	ume t (min)	(min)	Depth to water (nearest 0.01 ft)	Drawdown 4 (unadjusted to nearest 0.01 ft)	Pumping rate Q (gpm)	EC (µmhos)	Cl' (mg/l)	Temp.	Data in this table is for: □ Pumped Well □ Observation Well Remarks
ļ	300	300	248.00	131.25	145.2				•
	400	1370	251.33						
	500	1400	257.7/		142.5				
	600	600	271.54					.	
	700	720	278.92		145.4				
	800	840	27892		145.4			1.	
	900	900	278,0		143,7				
	1000	1020	28242		144,7				
	1500	1500	298.60		141,9				
	2000	1930	318,46	1 1	145,2			 	
	2500	2525	36008	1	144.9				
	3000	3000	366.00		135.3				<i>b</i>
	4000	4020	349.67		135.6				REDUCE FLOW
	5000	5020	330.10		130,2				PRIE TO 135 G M
	6000	6000	351.83	<i>235.33</i>	134,3				
	7000	7020	329.79	213.02	124.5			•	
Γ	8000	8020	329,44	212.69	131.2			·	
	9000	9000	326.23	209,48	130.2			•	
	10000	10020	326.92	210.17	130,8			•	Max possible duration.
-	14400	14400	321.17	204.42	129,4				water level or quality did not stabilize for any 24 period
				Use same ending drawdown figure as start for recovery	0				Begin recovery data next page Flow meter reading at end of pumped period:

FOR MONITOR WELL DETAIL SEE ATIMENED REPORTS

ume f (min)	Actual elapsed time (min)	Depth to water (neziest 0.01 h)	Recovery (unadjusted to nearest 0.01 ft)	Pumping rate Q (gpm)	EC (umhos)	C(1°	Temp.	Data in this table is for: Description Pumped Well Observation Well Remarks
C	0	321.17		0				Start recovery
1	<u></u>	280	163.25	0		1	•	
1.5	<u></u>	266	149.25	0				
2		264	147.25	0.				
2.5	<u></u>	262	145.25	0				
3	<u>.l</u>	259	142.25	0			,	
4	<u> </u>	254	/37.25	0			•	
5		250	/33.25	0				
6	<u> </u>	245	128.25	0			•	
7	<u></u>	240	123.25	0			•	
8	<u>1 </u>	236	119,25	0			•	
10		227	110.25	0				
15		208	91.25	0			•	
20		193	76.25	0				
-25		181	64.25	0				
. 30		175	58.25	0				
40		165	48.25	0.				
50		158	41.25	0				
60		154	37.25	.0			•	
70		151	34.25	0				
80		149	32.25	0			<u>.</u>	
90		148	31,25	0			•	
100			30.35	0				
150		144,2	27.45	0				
200			25.54	0				
250		140.80	24.05	0			,	☐ 80% recovery achieved ☐ 80% recovery not achieved

END TEST Date: 7/31/98 Hour of day: 1.500	
ADDITIONAL REMARKS:	
Person in charge of pump test (print): C. LEE MUELLER	

Signature:

The signature above indicates that the data reported on this form is accurate and true to the best of the person's knowledge who operated this aquifer test.

CWRM LTAT Form 1/9/96

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	MSL
ا الله الله الله الله الله الله الله ال	SURFACE ELEVATION TO 43' 24" 10 CONDUCTOR SET
	L'GROUTED WITH 40 SACKS NEAT CEMENT
0000	
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	*
000000000000000000000000000000000000000	
000	
	22" × 12" ANNULUS GROWTED WITH 12 405 TREMIE MIX
165'	CEMENT BASKETS @ 160' £ 165' STEEL PING @165'
	CEMENT BASKE !
_	·
	-
	CASING DEFTH 395' SIZE 12" WALL 3/8" TYPE ASTM 242
395'	CASING DEPTH 393 GIZE 12
	•
-	
	OWNER COUNTY OF KAUAL
	. OWNER COUNTY V.
	WELL PUKAKI
- 1	PERMIT = 0023-02 TMK 3-8-2:2
12. (a. 4.7)	
1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	HOLESIZE 22" CONTRACTOR RAINBOW DRILLING SPECIALISTS,
810'	TOTAL DEPTH 810
	LICENSE # 19/37 DATE 11/29/93
	SIGNED RME

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Bench Mark Elevation = 345.88 -Northeast Corner Box Cut

> New Well . 5' x 5' Concrete Slab



THIS MORK WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION

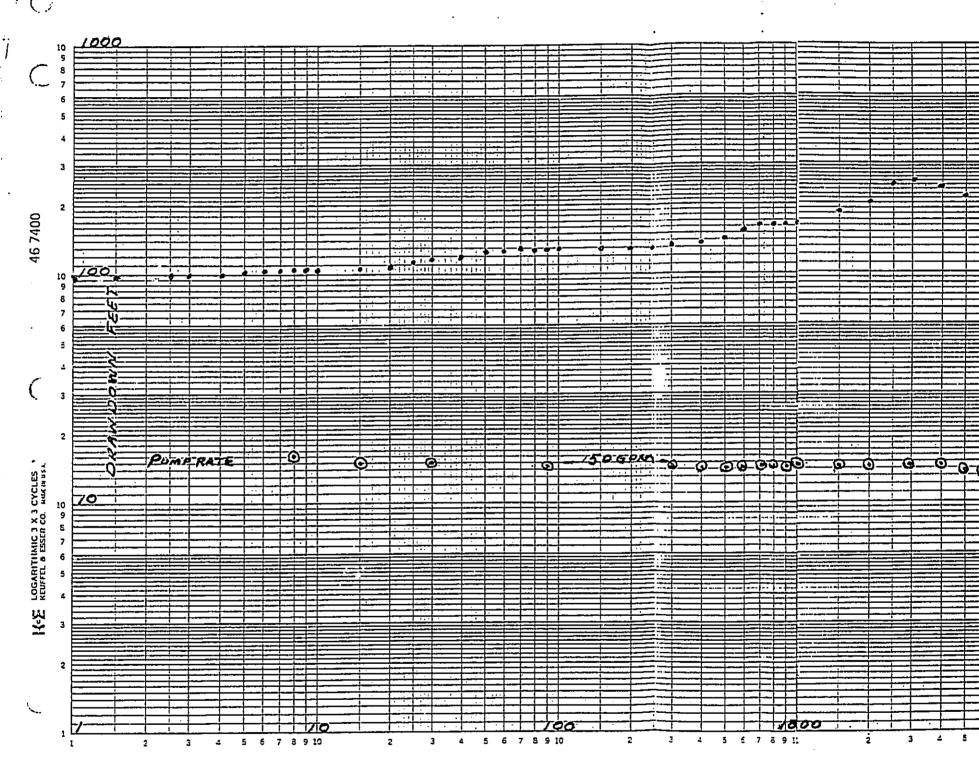
Licensed Professional Land St Certificate No. 4332

NEW PUKAKI WELL

February 26, 1999

KODANI AND ASSOCIATES, INC.

8.5" X II"=1.0 Sq. Ft.



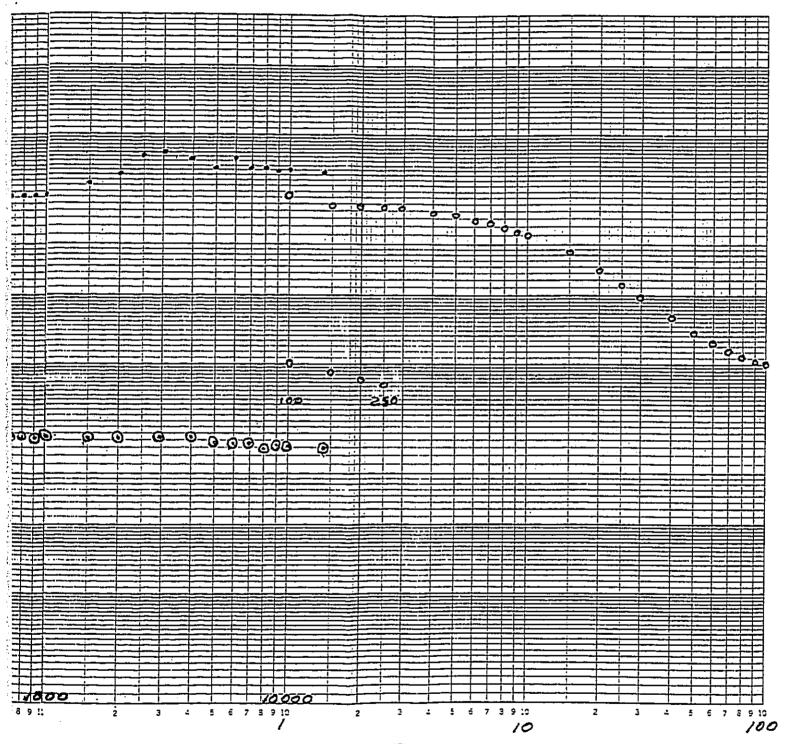
TIME MINUTES

COUNTY OF KAUAI

PUKAKI WELL

PERMIT # 0023-02 TMK 3-8-2:2

LONG TERM TEST 7/30/98 RATE 1306AM



RECOYERY

MINUTES

PUKAKI WELL - STEP TEST Date Conducted: July 11, 1998

	Time	Flow (gpm)	Depth to Water (feet)	Drawdown (feet)	Time	Flow (gpm)	Depth to Water (feet)	Drawdown (feet)
	7:30 7:50 7:57:50	100	111.50 111.08 137.79	42 26.29	10:16:20 10:17:40 10:25	. 100	172.86	.61.36
_	7:59:20 8:00	100 100	137.79 137.42	26.29 25.92	10:23:10 10:24	120 120	172.63	61.13
	8:00:30 8:01:20	100 100	125.83 120.38	14.33 8.88	10:27:35 10:28:20	120 120	176.78 177.94	65.28 66.44
	8:02:40	100			10:29	120	178.64	67.14
- ,	8:04	100	145.71	34.21	10:31:20	120	180.44	68.94
	8:06:04 8:07:10	100	155.08	43.58	10:32:20	120	181.06	69.56
	8:08	100 100	156.48 158.04	44.98 46.54	10:34:30 10:39	120	181.75	70.25
	8:09:30	100	160.88	49.38	10:39	120 120	183.35	73 05
٠	8:10:30	100	162.98	51.48	10:42:40	120	184.28	71.85 72.78
	8:12:25	100	165.13	53.63	10:46:35	120	184.78	73.28
,	8:13:40	100	166.21	54.71	10:54:40	120	188.78	77.28
	8:15:20	100	168.17	56.67	10:58:30	120	189.58	78.08
	8:18:55	100	167.83	56.33	10:59	120	189.54	78.14
	8:20	100	167.27	55.77	10:59:20	120	189.75	78.25
	8:21:30	100	167.35	55.85	11:01:20	120	190.05	78.55
÷ '	8:22:25	100	167.33	55.83	11:10	120	191.92	80.42
,*	8:23:40	100	167.33	55.83	11:12:50	120	190.88	79.38
	8:29	100	167.67	56.17	11:15:20	120	191.17	79.67
"	8:34:50	100	167.96	56.46	11:27:40	120	189.25	77.75
-	8:39:50	100	168.96	57.46	11:31	120		
1	8:44	100	169.69	58.19	11:32:10	120	189.63	78.13
	8:47:30	100	160 70	E0 00	11:35:30	120	189.96	78.46
	8:49:20 8:55:30	100 100	169.79	58.29	11:41	120	189.67	78.17
	9:03:50	100	170.83 173.10	59.33 61.60	11:46:20 11:48:50	120 120	189.19	77.69
ال	9:11:50	100	173.15	61.65	11:50:20	120	188.92	77.42
	9:16:20	100	172.65	61.15	11:53			
-)	9:17:15	100	172.48	60.98	11:55			
_ }	9:22	100	172.38	60.88	11:56:40	150	200.19	88.69
	9:27:45	100	172.29	60.79	12:03	150	204.71	93.21
7	9:32:20	100	172.38	60.88	12:03:30	150	204.96	93.46
1	2:21:33	100	172.42	60.92	12:07:25	150	207.40	95.90
	9:44	100	172.31	60.81	12:10	150	208.96	97.46
 1	9:51:30	100	172.40	60.90	12:16:20	150	211.33	99.83
	9:51:30 9:54:30 10:00	100	172.38	60.88	12:20:10	150	212.25	100.75
		100	172.83	61.33	12:29:20	150	215.19	103.69
	10:03:30	100	173.04		. 12:30:30	150	215.60	104.10
!	10:06:30	100	173.15	61.65	12:32:20	150	215.71	104.21
	10:09	100	173.11	61.61	12:35	150	216.13	104.63
·	10:13:10	100	173	61.50	12:40	150	216.71	105.21

		•					~
in a second						•	
- <u>`</u> .			_			Depth to	Drawdown_
		Depth to	Drawdown	Time	Flow	Water .	(feet)
Time	Flow	Water (feet)	(feet)		(dōw)	(feet)	
	(abw)	(Teer)		10.05.40	200	354.73	243.23 -
12:42:40				16:05:40 16:10	200	356.33	244.83
12:43:20	150	217	105.50	16:15:10	200	357.92	246.42
12:48:30	150		105.77	16:19:50	200	358.92	247.42
12:53	150		105.73 105.72	16:26:20	200	359.92	248.42
12:57:30	150		105.83	16:27:20		. 262 60	249.19
13:03:30) 217.33	203.00	16:30:50	200	360.69 361.35	249.85
13:05:45		216.69	105.19	16:35:10			250.42
13:12:30 13:15:20			105.08	16:40:10			251.72
13:13:20			105.03	16:45:20 16:49:20			252.65
13:10:20				16:53:20		368.71	257.21
13:24:30	200		118.98 124.94	16:54:20	200	369.42	257.92
13:30	200		137.46	16:55:10	200		258.38
13:39	200	0 248.96	137.40	16:56:30	200		259.21 260.35
13:40	20	0 259.88	148.38	16:58:20	200 200		261.38
13:49:10 13:55:20			153.60	17:00:10	200	5,2.00	~
14:01	20	0 269.44	157.94	chut đơm	n at 17:0	0:20.	
14:01:30	20	0 270.10	158.60	Silut don			
14:01:50) 20		159.17 159.63				_
14:02:10			160.17	Recovery	7		
14:02:40	20		165.42			n	Drawdown
14:08	20 20		165.77			Depth to Water	(feet)
14:08:30 14:14:40			171.38	Time		(feet)	,
14:15:10		0 283.71	172.21.			(2020)	
14:15:50	20			17:02:16	5	320.71	209.21-
14:17:40	0 20			17:02:2		315.71	204.21
14:20	20			17:02:40	0	313.71	202.21 200.21
14:23:1	5 20 20			17:02:5		311.71 310.71	199.21
14:30 14:35:3				17:03:03		309.71	198.21
14:38:1			191.14	17:03:0:		308.71	197.21
14:40:3	_	00 304.49	192.99	17:03:2 17:03:2		307.71	196.2.
14:44:5	-	o 307.92		17:03:2		306.71	
14:49:4	0 20	00 308.94	197.44	17:03:4		305.71	194.21
14:56:1	- ·	313.20		17:03:5	1	304.71	
15:00:1	_	00 317.47 00 320.90		17:04:0	0	303.71	
15:03:5	-	00 320.90 00 323.73		17:04:0	7	302.71 301.71	
15:07:4 15:12:5		00 325.9	7 214.47	17:04:1		300.71	
15:12:5	· ·	00 327.5	7 216.07	17:04:2 17:04:2		299.71	188.2_
15:25:4	_	00 335.3	223.80	17:04:2		298.71	187.21
15:29:1	0 2	00 337.7	226.20	17:04:4		297.71	
15:33	2	00 339.2		17:04:5	53	296.71	
15:38:2		00 340.4 00 341.3		17:05:0	00	295.71	
15:44:2		00 341.3 00 341.9	_	17:05:0		294.71 293.71	
15:49:3		00 349.1		17:05:		292.73	
15:55 16:00		00 352.5		17:05:	4 5	222. (.	-
10.00	_						• •
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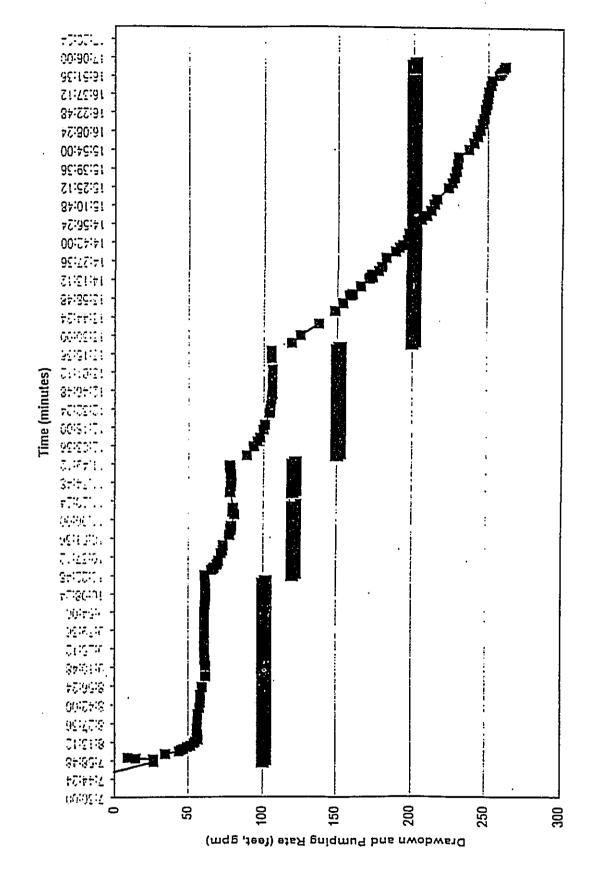
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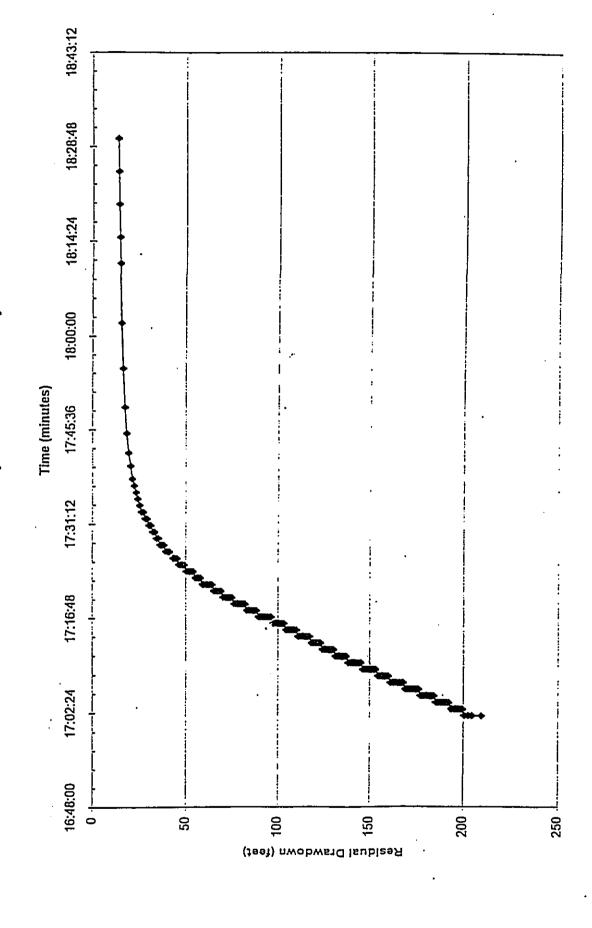
				_	
Time	Depth to Water (feet)	Drawdown (feet)	Time	Depth to Water (feet)	Drawdow: (feet)
17:05:33	291.71	180.21	17:12:00	241.71	130.21
17:05:40 17:05:49	290.71 289.71	179.21 178.21	17:12:08 17:12:15	240.71 239.71	129.21 128.21
17:05:57	288.71	177.21	17:12:23	238.71	127.21
17:06:04	287.71	176.21	17:12:32	237.71	126.21
17:06:12 17:06:20	286.71 285.71	175.21	17:12:42 17:12:54	236.71	125.21
17:06:20	284.71	174.21 173.21	17:12:54 .	235.71 234.71	124.21 123.21
17:06:35	283.71	172.21	17:13:13	233.71	122.21
17:06:42	282.71	171.21	17:13:23	232.71	121.21
17:06:50 17:06:57	281.71 280.71	170.21 169.21	17:13:31 17:13:41	231.71 230.71	120.21 119.21
17:07:05	279.71	168.21	17:13:53	229.71	118.21
17:07:12	278.71	167.21	17:14:03	228.71	117.21
17:07:20	277.71	166.21	17:14:13	227.71	116.21
17:07:28 17:07:36	276.71 275.71	165.21 164.21	17:14:21 17:14:30	226.71 225.71	115.21 _. 114.21
17:07:44	274.71	163.21	17:14:39 .	224.71	113.21
17:07:52	273.71	162.21	17:14:47	223.71	112.21
17:07:59 17:08:07	272.71 271.71	161.21 160.21	17:14:54 17:15:04	222.71 221.71	111.21 110.21
17:08:14	270.71	159.21	17:15:11	220.71	109.21
17:08:22	269.71	158,21	17:15:20	219.71	108.21
17:08:29 17:08:37	268.71 267.71	157.21 156.21	17:15:28 17:15:36	218.71	107.21
17:08:44	266.71	155.21	17:15:36	217.71 216.71	106.21 105.21
17:08:53	265.71	154.21·	17:15:52	215.71	104.21
17:09:00 17:09:08	264.71	153.21	17:16:00	214.71	103.21
17:09:08	263.71 262.71	152.21 151.21	17:16:09 17:16:17	213.71 212.71	102.21 101.21
17:09:23	261.71	150.21	17:16:25	211.71	100.21
17:09:30	260.71	149.21	17:16:33	210.71	99.21
17:09:38 17:09:44	259.71 258.71	148.21 147.21	17:16:43 17:16:50	209.71 208.71	98.21 97.21
17:09:52	257.71	146.21	17:17:00	207.71	96.21
17:10:00	256.71	145.21	17:17:08	206.71	95.21
17:10:09 17:10:17	255.71 254.71	144.21 143.21	17:17:17 17:17:25	205.71 204.71	94.21 93.21
17:10:25	253.71	142.21	17:17:25	204.71	92.21
17:10:33	252.71	141.21	17:17:42	202.71	91.21
17:10:41 17:10:48	251.71 250.71	140.21	17:17:50 17:17:59	201.71	90.21 89.21
17:10:48	249.71	139.21 138.21	17:17:59	200.71 199.71	88.21
17:11:04	248.71	137.21	17:18:16	198.71	87.21
17:11:12	247.71	136.21	17:18:26	197.71	86.21
17:11:20 17:11:28	246.71 245.71	135.21 134.21	17:18:34 17:18:44	196.71 195.71	85.21 84.21
17:11:35	244.71	133.21	17:18:53	194.71	83.21
17:11:44	243.71	132.21	17:19:02	193.71	82.21
17:11:52	242.71	131.21	17:19:12	192.71	81.21
	•			•	
				•	

•	Time	Water	Drawdown (feet)	Time	Depth to Water (feet)	Drawdowr (feet)
	17:19:30 17:19:48 17:19:48 17:19:59 17:20:18 17:20:28 17:20:38 17:20:40 17:21:19 17:21:40 17:21:21 17:22:21 17:22:35 17:	Watee 1.71111111111111111111111111111111111	(feet) 2111111111111111111111111111111111111	17:31:35 17:32:02 17:32:41 17:33:58 17:33:58 17:35:34 17:36:28 17:36:28 17:36:28 17:36:28 17:37:41 17:38:56 17:40:43 17:45:35 17:45:35 17:45:35 18:02:10 18:11:40 18:15:00 18:25:00 18:25:00 18:30:00	Water .	
	17:29:21 17:29:46 17:30:09 17:30:38 17:31:03	145.7 144.7 143.7 142.7	1 34.21 1 33.21 1 32.21			•

Pukaki Step Drawdown Test

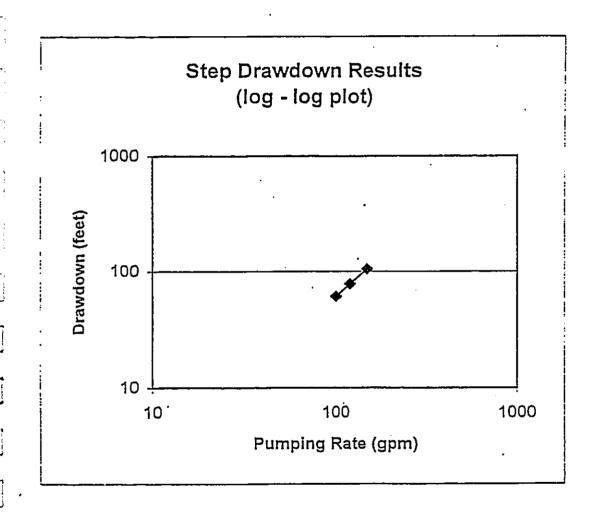


Pukaki Well Step Drawdown Recovery



Stabilized Drawdown and Pumping Rate Data

Pumping	Stabilized
Rate	Drawdown
(gpm)	(feet)
-100	61
120	78
150	105



PUKAKI WELL - CONSTANT-RATE TEST

Date Started: July 20, 1998

SHUT DOWN - July 30, 1998

Approximate ground elevation: 345' (msl)

Time	Flow (gpm)	Depth to Water (feet)	Water level Elevation (feet)	Drawdown Rema (feet)	rks
06:30	0	116.75			
09:00	0	116.75	228.25		
09:00:30	REMARKS	S: Started	Pumping.	3" meter broken,	using 6"
		meter	•		
09:01:35		214.77^{-}	130.23	98.02	
09:02:05		215/13	129.88	98.38	
09:02:35		215.44	129.56	98.69	
09:03:35		216.20	128.80	99.45 ·	,
09:04:20		216.47	128.53	99.72	
09:04:50		/217.09	127.91	100.34	
09:05	156.0	22.000			
09:05:35	150.0	217.77	127.23	101.02	
09:06:05		218.29	126.71	101.54	
		218.71	126.29	101.96	
09:06:30		219.17	125.83	102.42	
09:07:10		219.82	125.18	103.07	
09:07:40	150 4	219.02	123.10		
09:08	152.4	000 00	124.92	103.33	
09:08:10		220.08	124.29	103.96	
09:08:30		220.71		104.38	
09:09:10		221.13	123.88	104.69	
09:10:40		221.44	123.56	104.96	
09:11:10		221.71	123.29		
09:11:35		222.04	122.96	105.29	
09:12:05		222.57	122.43	105.82	
09:12:35		222.77	122.23	106.02	
09:13:10		223.13	121.88	106.38	
09:13:40		223.52	121.48	106.77	
09:14	150.9				
09:14:10		223.74	121.26	106.99	
09:15:40		224.14	120.86	107.39	·
09:16:25		224.68	120.32	107.93	
09:18:20		225.25	119.75	108.50	
09:19:00		225.74	119.26	108.99	
09:19:20		226.04	118.96	109.29	
09:19:40		226.14	118.86	109.39	
09:20:10		226.34	118.66	109.59	
09:20:20		226.68	118.32	109.93	
		226.74	118.26	109.99	
09:20:50		227.20	117.80	110.45	
09:21:20		227.20	117.66	110.59	
09:21:45	140 0	221.34			
09:22	149.8	227.58	117.42	110.83	
09:22:20			117.16	111.09	
09:22:50		227.84	116.99	111,26	
09:23:15		228.01	110.33	111;20	

Time	Flow (gpm)	Depth to Water (feet)	Water level Elevation (feet)	Drawdown (feet)	Remarks
09:23:40 09:24:00 09:24:40 09:25:10 09:25:25 09:25:50 09:26:10 09:26:40 09:27:10 09:27:30 09:28:00 09:28:50	•	228.05 228.27 228.60 228.88 229 229.38 229.64 229.93 230.08 230.33 230.66 231.96	116.95 116.73 116.40 116.13 116 115.63 115.36 115.07 114.92 114.67 114.34 113.04	111.30 111.52 111.85 112.13 112.25 112.63 112.89 113.18 113.33 113.58 113.58	
09:29:20 09:29:50		221.34 221.68	123.66 123.32	104.59 104.93	
09:30 09:30:20 09:30:50 09:31:50 09:31:50 09:32:20 09:32:50 09:33:50 09:34:20 09:35:20 09:35:20 09:36:20 09:36:20 09:37:20 09:37:50 09:38:20 09:38:20 09:38:20	153.0	232.16 232.38 232.57 232.86 233.58 233.58 234.04 234.24 234.50 234.73 235.36 235.36 235.36 235.54 235.54 235.54 235.54 235.54 235.55	112.84 112.43 112.14 111.74 111.47 111.42 110.96 110.76 110.50 110.27 109.96 109.69 109.69 109.54 109.69 109.54 109.79 108.79 108.58 108.42	115.41 115.63 115.82 116.11 116.51 116.83 117.29 117.49 117.75 117.98 118.56 118.71 118.79 119.46 119.67 119.83	
09:39:50 09:40:20 09:40:50 09:41:50 09:42:20 09:42:50 09:43:20 09:43:50 09:44:50 09:44:50 09:45:50 09:45:50 09:46:50	158.6	236.88 237.24 237.59 237.88 238.22 238.58 238.88 239.20 239.54 239.83 240.08 240.36 240.59 241.30	108.13 107.76 107.41 107.13 106.78 106.42 106.13 105.80 105.46 105.17 104.92 105 104.64 104.41 103.70	120.13 120.49 120.84 121.13 121.47 121.83 122.45 122.79 123.08 123.33 123.25 123.61 123.84 124.55	,

\$20 × 0 × 3

Time	Flow (gpm)	Depth to Water (feet)	Water level Elevation (feet)	(feet)	Remarks
09:47:50 09:47:50 09:48:50 09:48:50 09:48:50 09:49:50 09:50:50 09:51:50 09:51:50 09:51:50 09:53:53:50 09:555:55:56:50 09:555:556:50 09:556:50 09:557:58:50 09:557:58:50 09:557:58:50 09:557:58:50 09:557:58:50 09:557:50	 	Water) 241.568 241.86 241.886 241.886 241.89 241.99 241.99 241.99 241.99 242.242 242.242 242.29 242.29 242.29 242.38 242.42 242.38 242.42 242.42 242.38 242.42 242.38 242.42 242.38	level Elevation (feet) 103.41 103.44 103.32 103.14 103.13 103.16 103.23 103.17 103.05 103.17 103.05 103.77 103.05 103.77 103.05 103.17 103.05 103.17 103.10 103.23 102.55 102.55 102.55 102.55 102.46	(feet) 124.84 124.81 125.11 125.13 125.15 125.09 125.09 125.25 125.25 125.25 125.32 125.32 125.32 125.32 125.36 125.54 125.58 125.58 125.70 125.73 125.79	Remarks
10:00:50 10:01:20 10:01:50 10:02:20 10:03:20 10:03:50 10:04:20 10:05:20 10:05:50 10:06:20 10:06:50 10:07:20 10:07:50 10:08:50 10:08:50 10:09:50 10:09:50 10:10:50		242.54 242.61 242.81 242.83 242.93 243.04 243.16 243.16 243.24 243.24 243.48 243.48 243.48 243.48 243.48 243.48 243.63 243.63 243.68	102.46 102.39 103 102.19 102.17 102.07 101.96 101.94 101.88 101.84 101.76 101.76 101.76 101.56 101.56 101.52 101.56 101.52 101.52 101.38 101.38	125.79 125.86 125.95 126.08 126.08 126.31 126.31 126.49 126.49 126.49 126.69 126.73 126.73 126.73 126.73 126.73	

Time	Flor (gpm)	w Depth to Water (feet)		Drawdown (feet)	Remarks
*		and the state of t		and an exercise and the same of	
10:11:20	٠.	243.65	101.35		•
10:11:50				126.90	
10:12:20		243.71		126.96	
		243.82		127.07	
10:12:50		243.75		-127	
.10:13:20		243.86 ·	101.14	127.11	•
10:13:50		.243.92	101.08	127.17	
10:14:20		243.91	101.09	127.16	
10:15	147.4				
10:15:20		243.98	101.02	127.23	
10:15:50		243.92	101.08	127.17	
10:16:20		. 244	101	127.25	
10:16:50		244.01			
10:17:20		244.08	100.92	127.33	
10:18:20		244.15	100.85		
10:19:20	,	244.17	100.83		
10:20:20		244.27	100.73		
10:23		244.39			
	153.2	244.94	100.06	127.64	
10:35		245.35		128.19	
10:40		245.63	99.65 99.38	128.60	
10:45	148 5	245.90	99.10	128.88	
10:50	440.5	246.04		129.15	
10:55			98.96	129.29	
11:00		246.21	98.79	129.46	
11:05		246.23	98.77	129.48	
11:10		245.71	99.29	128.96	
11:15	146.3	245.40	99.60	128.65	
11:20	140.3	245.13	99.88	128.38	
11:25		245.09	99.91	128.34	
11:30		245.08	99.92	128.33	
11:35		245.13	99.88	128.38	
11:40		245.29	99.71	128.54	
11:45			99.73	128.52	
11:50			99.71	128.54	
11:55		245.29	99.71	128.54	4
12:00		245.48	99.52	128.73	
12:05		245.46	99.54	128.71	
12:10		245.44	99.56	128.69	
		245.35	99.65	128.60	
12:15		245.41	99.59	128.66	
12:20		245.42	99.58	128.67	
12:25		245.48	99.52	128.73	
12:30		245.49	99.51	128.74	
12:35		245.40	99.60	128.65	
12:40		245.44	99.56	128.69	
12:45	150.9	245.46	99.54	128.71	
12:50		245.60	99.40	128.85	
12:55		245.79	99.21	129.04	
13:00		245.83	99.17	129.08	
13:05		245.99	99.01	129.24	

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						•	
					Drawdown	Remarks	
	Time	Flow	Depth to	Water	(feet)	Kemains	
		(gpm)	Water	level	-		
	•		(feet)	Elevation	•		
				(feet)		er and the second of the second of the	
	Applicate Compat		enti sar inna	148 2 GALLAN	129.46		
	13:10.		246.21	.98.79	129.75		
	13:15		246.50	98.50	129.96	•	_
	13:20		246.71	98.29	130.38	:	
	13:25		247.13	97.88	130.75.		
	13:30		247.50	97.50	130.77		
	13:35		247.52	97.48	131.02	•	•
	13:40		247.77	97.23	130.92		
	13:45		247.67	97.33	131.17	•	
	13:50 .		247.92	97.08	131.29	•	
	13:55		248.04	96.96	131.25 T	look water sample.	
	14:00	145.2	248	97	131.25		
	14:05		248	97	131.21		
	14:10		247.96	97.04	131.21		
	14:15		247.96	97.04	131.75	•	•
	14:20		248.50	96.50	132.33	·	
	14:25		249.08	95.92	132.33		
	14:30		249.46	95.54			*1
	14:35		249.88	95.13	133.13 133.67		
	14:40		250.42	94.58	133.07	Water temp.: 25	
	14:42					Macci cempi	4 1
	deg.C.				- 7.4 00		
	14:45		250.83	94.17	134.08		_
	14:50	142.9	251	94	134.25		
	15:00		251.10	93.90	134.35		~
	15:30		251.33	93.67	134.58		
	16:00	149.5	252.13	92.88	135.38	•	
	17:00	142.5	257.71	87.29	140.96	ann m	
	4,	REMARKS:	Adjusted	flow rate	back to 150	gpiii	
	18:00	147.9	268.73	76.27	151.98		
	19:00	146.2	271.54	73.46	154.79 156.46		
	20:00	145.0	273.21	71.79	750.40		
		REMARKS:	Change sh	nift.	162.17	•	,
	21:00	145.4	278.92	66.08	702.1	Took water sample.	
	22:00	144.5	275.33	69.67	162.17	100% "4001 54	-
	23:00	145.4	278.92	66.08	102.11		
							 ,
	7/21/9	В			161.25		
	00:00	143.2	278	67	161.33	•	
	01:00	146.1	278.08	66.92			
•	02:00	144.7		62.58			
	03:00	142.7		61.75		Took water sample.	
	04:00	145.9	283	62			****
	05:00	143.9	288.25	56.75			
•	06:00	146.7		54.25			-
	07:00	147.1		44.96	•		
	08:00	144.9		45.75	100 75		***
٠	09:00	145.1		45.50		Adjusted flow rate	
	10:00	141.9		46.40		<i>-</i>	
	11:00	144.7	300.15	44.85	103.40		• = +

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Time

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Flow Depth to
                                         Drawdown Remarks
                                  Water
               (gpm)
                     Water
                                  level
                                             (feet)
                       (feet)
                              Elevation
                                  (feet)
                                            242 ....
          143.6 358.75 REMARKS: Opened valve
   02:00
                                -13.75
   02:30
   03:00
             144.9
                   360.08 -15.08
                                           243.33
   03:40
          REMARKS:
                    Opened valvE
   04:00
            147.9
                       363
                                  -18
                                           246.25
          REMARKS:
   04:30
                    Opened valve
   05:00
            143.6
                    366.75
                             -21.75
                                              250
   05:15
          REMARKS:
                   Opened valve
   06:00
            148.1
                    371.08
                             -26.08
                                           254.33
  07:00
            144.4
                    371.04
                               -26.04
                                           254.29
  08:00
            146.2
                    371.24
                               -26.24
                                          254.49
  09:00
            144.0
                    372.02
                               -27.02
                                          255.27
  09:16
         REMARKS:
                   Opened valve
  09:44
         REMARKS:
                   Opened valve
  10:00
            144.9
                    375.13
                               -30.13
                                          258.38
  10:30 REMARKS: Adjusting flow rate to 136 gpm (44sec/100gal)
  11:00
            135.3
                      366
                                 -21
                                          249.25
                    359.14
  12:00
            139.4
                               -14.14
                                          242.39
            136.7
 13:00
                   354.81
                               -9.81
                                          238.06
 14:00
           137.9
                    353
                                  -8
                                          236.25
 15:00
           137.0
                   352.42
                               -7.42
                                          235.67
 16:00
           137.0
                  351.64
                               -6.64
                                         234.89
 16:30
        REMARKS:
                  Took water sample.
 17:00
         136.6
                   353.67
                            -8.67
                                         236.92
 18:00
          137.0
                   352.76
                               -7.76
                                         236.01
 19:00
                   353.21
           136.0
                              .-8.21
                                         236.46
 20:00
           138.2
                  353.71
                               -8.71
                                         236.96
 21:00
           137.7
                   354.29
                               -9.29
                                         237.54
22:00
           135.7
                   353.50
                               -8.50
                                         236.75
 23:00
           140.3
                   351.33 ·
                               -6.33
23:05
                                         234.58
       REMARKS: Closed valve.
 7/24/98
00:00
          134.5
                  352.33
                              -7.33
                                         235.58
       REMARKS:
00:05
                 Opened valve.
01:00
          135.4
                  352.75
                            -7.75
02:00
          135.4
                  350.17
                              -5.17
                                        233.42
03:00
          137.0
                   351 ·
                               -6
04:00
                                        234.25
          135.6
                  349.67
                              -4.67
                                        232.92
05:00
          135.8
                  351.33
                              -6.33
06:00
                                        234.58
          136.4
                  350.77
06:30
                                        234.02
       REMARKS:
                 Opened valve.
07:00
          136.3
                  349.85
                             -4.85
                                        233.10
08:00
          136.7
                  351.46
                              -6.46
                                        234.71
08:30
                  351.13
          135.9
                              -6.13
09:00
                                        234.38
          135.4
                  350.23
                              -5.23
09:30
                                        233.48
          135.7
                  351.06
                              -6.06
                                        234.31
```

Time	f) (gp	m) Water	Water level Elevation (feet)	(feet)	Remarks
10:0		3 351.38	-6.38	224 62	
11:0	0 135.:	2 349.15	-4.15	234.63	
11:3	0 134.	7 349.74	-4.74	232.40 232.99	
12:00	0 136.0	350.08	-5 08	232.33	•
12:49	REMARKS	: Closed va	ıl.ve	233.33	
13:00	134.3	351.83	-6.83	235.08	
13:30	REMARKS:	Changed f	low rate to	130 gpm	•
14:00	,	341	4	224.25	
.15:00		337.71	7.29	220.96	
16:00			8	220.25	
17:00		337.79	7.21	221.04	
18:00		335.58	9.42	218.83	
19:00 20:00		335.63	9.38	218.88	
20:00		336.71	8.29	219.96	
22:00	•	336.83	8.17	220.08	
23:00	130.9	335.17	9.83	218.42	
23.00	131.3	336.21	8.79	219.46	
7/25/	98 Saturda				
00:00	131.2	335,46			
00:05	REMARKS.	Opened val	9.54	218.71	
01:00	135.6	335.46		_	
01:05	REMARKS:	Closed val	9.54	218.71	
.02:00	128.5	331.92	13.08	~~	
03:00	130.3	332 13	12.88	215.17	
04:00	129.6	331.63	13.38	215.38	
05:00	129.6 129.3	330.92	14.08	214.88	
-06:00	147.3	329.77	15.23	214.17 213.02	
06:30	REMARKS:	Opened val	ve.	213.02	
07:00	130.6	330.25		213.50	
08:00 09:00	129.8	331.65	13.35	214.90	
10:00	129.6	329.76	15.24	213.01	
11:00	130.1	328,40	16.60	211.65	
12:00	131.7 129.5	331.67	13.33	214.92	
13:00	129.7	330.03	14.97	213.28	
14:00	130.5	329.32	15.68	212.57	
15:00	130.7	329.78	15.22	213.03	
15:45	REMARKS:	329.08.	15.92	212.33	
16:00	130.4	Opened valv			
17:00	131.9	331.86	14.68	213.57	
17:45	REMARKS:	Closed valv	13.14	215.11	
18:00	130.5	331.40	13.60	314 65	
19:00	130.2	330.10	14.90	214.65	
20:00	130.7	329.55	15.45	213.35	
21:00	130.1	329.42	15.58	212.80 212.67	
21:40	REMARKS:	Closed valv	e	~~~ 0 /	
	•				

Time	Flow (gpm)	Depth to .Water (feet)	level Elevation	Drawdown (feet)	Remarks
			(feet)		
22:00	131.2	329.44		212.69	
22:30	REMARKS:				
23:00		329.44	15.56	212.69	
7/26/9				•	
00:00	130.8		15.10	213.15	. :
01:00	130.6	328.48	16.52	211.73	
02:00	130.8	328.31 330.50 330.42	16.69	211.56	<i>'</i> .
03:00	130.8	330.50	14.50	213.75	
04:00 05:00	131.2	330.42	14.58	213.67	
05:00	REMARKS:	טבב	! 3	213.25	
06:00		329.83	15.17	213.08	
07:00	130.3	330.08	14.92	213.08	
	REMARKS:	Opened val	lve.	2,0.00	
08:00		328.46	16.54	211.71	
09:00	131.2	330.16		213.41	
10:00	129.5	327.88	17.13	211.13	
11:00	129.5	327.08	17.92	210.33	
12:00	130.2	328.13 327.24	16.88	211.38	
13:00	130.4	327.24	17.76	210.49	
14:00	129.3	327.10	17.90	210.35	
15:00	130.2	326.23	18.77	209.48	
·16:00		324.58	20.42	207.83	
17:00 18:00		324.52 325.15	20.48	207.77	
19:00			19.85 19.45	208.40 208.80	
20:00	130.1	327.10			
21:00	130.9	327.97	17.03		
22:00	130.3	326.88	18.13		
23:00	130.0	327.98	17.02	211.23	
7/27/98	Monday				
00:00	129.6	326.65	· 18.35	209.90	
01:00	129.4	326.75	18.25	210	
02:00	129.1	325.69	19.31	208.94	
03:00	129.6	325.09	19.91	208.34	
04:00	129.3	323.50	21.50	206.75	
05:00 06:00	129.1	323.38	21.63	206.63	
07:00	129.8 131.5	323.69	21.31	206.94	
08:00	130.8	325.67 326.92	19.33 18.08	208.92 210.17	
09:00	129.6	324.35	20.65	207.60	
10:00	128.8	323.33	21.67	206.58	
11:00	129.6	324.11	20.89	207.36	
12:00	129.8	324.24	20.76	207.49	
13:00	129.5	323.56	21.44	206.81	
14:00	129.8	324.24	20.76	207.49	
15:00	129.9	324.94	20.06	208.19	

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Time	(gpm)	Depth to Water (feet)		(feet)	
16:00 17:00 18:00 19:00 20:00 21:00 22:00 23:00	129.3	323.34 323.97 325.75 325.59 325.09 323.83	21.66 21.03 19.25 19.41 19.91 21.17 21.33 21.49	206.59 207.22 209 208.84 208.34 207.08 206.92 206.76	err. N.
7/28/98 001:00 01:00 02:00 03:00 04:00 05:00 07:00 09:00 11:00 14:00 15:00 17:00 18:00 19:00 20:00 20:00 20:00	130.3 129.4 129.5 130.6 129.3 129.7 129.0 129.7 130.1 129.6 129.4	322.67 322.46 322.21 321.04 321.34 321.59 321.41 320.81 320.74 321.55 321.55 321.59 321.59 321.29 322.47 322.47 322.68	22.334 22.354 22.59 23.59 23.861 23.49 24.89 24.89 24.81 23.51 24.91 21.73 22.31 23.31 23.	206.92 205.71 205.46 205.46 204.38 204.86 204.66 204.66 204.84 204.84 204.84 204.84 204.84 204.84 205.44 205.20 206.20 206.20 206.21	•
7/29/98 00:00 01:00 02:00 03:00 04:00 05:00 06:00 07:00 08:00 09:00 10:00 11:00 12:00	Wednesda 129.9 131.7 129.8 130.4 131.5 129.5 130.8 130.3 130.2 130.3 129.5 129.7	323.52 324.10 322.13 321.42 323.98 323.17 323.14 323.56 324.50 323.65 322.44 322.44	21.48 20.90 22.88 23.58 21.02 21.83 21.86 21.44 20.50 21.35 22.19 22.56 22.54	206.77 207.35 205.38 204.67 207.23 206.42 206.39 206.81 207.75 206.90 206.06 205.69 205.71	

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Time	Flow (gpm)	Depth to Water (feet)	Water level Elevation (feet)	Drawdown (feet)	Remarks
13:00 14:00 15:00 16:00 17:00 18:00 20:00 21:00 22:00 23:00	130.2 130.4 129.9 130.2 129.6	323.32 323.63 324.46 323.33 321.96 322.74 322.50 322.41 323 322.71 322.80	21.68 21.38 20.54 21.67 23.04 22.26 22.50 22.59 22.29 22.29	206.57 206.88 207.71 206.58 205.21 205.99 205.66 206.25 205.96 206.05	· .
7/30/98 00:00 01:00 02:00 03:00 04:00 05:00 06:00 07:00 08:00 09:00 09:15:00	130.5 130.2 130.7 129.6	322.42 322.65 322.47 322.92 322.42 322.75 321.96	. 22.58 22.35 22.53 22.08 22.58 22.25 23.04 23.44 24.08 23.83	205.67 205.90 205.72 206.17 205.67 206 205.21 204.81 204.17 204.42	hut down.

PUKAKI WELL - CONSTANT-RATE TEST Date Started: July 20, 1998 SHUT DOWN - July 30, 1998

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Time	Depth to Water (feet)	Elevation (ft)	Drawdown (feet)	Remarks
7/30/98 09:15:00 09:15:52 09:15:58 09:16:03 09:16:08 09:16:11 09:16:14 09:16:17 09:16:17 09:16:21 09:16:23 09:16:23	Thursday REMARKS: 283 280 278 274 273 272 271 270 269 268 267 266	Shut down. 62 65 67 71 72 73 74 75 76 77	166.25 163.25 161.25 157.25 156.25 155.25 154.25 153.25 152.25 151.25 150.25 149.25	
09:16:35	265	80	148.25	

Time	Depth to Water (feet)	Elevation (ft)	Drawdown (feet)	Remarks
2306630752099:45130752099:22099:451422222245699:22099:3300:331:3522:3522:3522:352:352:352:352:352:352:	Wfe 111109876543210988765432109876543210987654321098765432109876543210987654321098765443210987654432109876544321098765443210987654432109876544321098876544321098765443210987654432109876544321098765443210987654432109876544321098765444321098765444444444444444444444444444444444444	(f 12345678901234567890123456789012345678901234567890123456789012345678901234567	t 555555555555555555555555555555555555	Remarks
09:43:08 09:44:02 09:44:57 09:45:52 09:46:46	177 176 175 174 173	168 169 170 171 172	60.25 59.25 58.25 57.25 56.25	
09:46:46 09:47:42 09:48:37 09:49:35 09:50:35 09:51:39 09:52:43 09:53:48	172 171 170 169 168	172 173 174 175 176 177 178 179	56.25 55.25 54.25 53.25 52.25 51.25 50.25 49.25	
09:54:58	165	180	: 48.25	

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	Time	Depth to Water 1 (feet)	Elevation (ft)	Drawdown (feet)	Remarks
	09:56:10 09:57:28 09:58:56	164 163 162	181 182 183	47.25 46.25 45.25	
	10:00:23 10:01:53 10:03:30	161 160 159	184 185 186	44.25 43.25 .42.25	
	10:05:14 10:07:14 10:09:25	158 157 156	187 188 189	41.25 40.25 39.25 38.25	
	10:11:55 10:14:34 10:17:46 10:21:29	155 154 153 152	190 191 192 193	37.25 36.25 35.25	
	10:25:54 10:31:20 10:38:06	151 150 149	194 195 196	34.25 33.25 32.25	
ij	10:43 10:48 10:53 10:58	148.44 147.94 147.49 147.10	196.56 197.06 197.51 197.90	31.69 31.19 30.74 30.35	
	11:03 11:08 11:13	146.75 146.44 146.14	198.25 198.56 198.86	30 29.69 29.39	
	11:18 11:23 11:28	145.81 145.49 145.20	199.19 199.51 199.80	29.06 28.74 28.45 28.18	
g	11:33 11:38 11:43 11:48	144.93 144.67 144.43 144.22	200.07 200.33 200.57 200.78	27.92 27.68 27.47	
1	11:53 11:58 12:03	144 143.77 143.59	201 201.23 201.41	27.25 27.02 26.84	
	12:08 12:13 12:18	143.36 143.17 143.04 142.84	201.64 201.83 201.96 202.16	26.61 26.42 26.29 26.09	
	12:23 12:40 12:55 13:10	142.39 141.78 141.33	202.71 203.22 203.67	25.54 25.03 24.58	
	13:25 · 13:40 13:55	140.80 140.59 140.20	204.20 204.41 204.80	24.05 23.84 23.45	
	14:10 14:25 14:40 14:55	140.85 139.57 139.23 139	204.15 205.43 205.77 206	24.10 22.82 22.48 22.25	
	74:55	¥2.2	200		

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Time	Depth to Water (feet)	Elevation (ft)	Drawdown (feet)	Remarks
7/31/98				
08:00	130.27	214.73	13.52	
12:00	129.28	215.72	12.53	• •
15:00	128.43	216.57	11.68	

USGS Monitor Well - Pukaki

(To monitor constant rate well testing of the (DOW) Pukaki Well, which started at 9:00 am, 7/20/98)
(Measurements prior to those listed were made by Steve Gingrich, USGS)

(All measurements are from the lip of the sensor housing to water level. Approximate measuring point elevation: 322' msl.)

Time	USGS Sensor	Contractor Sensor
7/20/98 15:00 16:00 17:00 18:00 19:00 20:00 21:00 22:00	156.40 156.81 157.17 157.46 157.80 158.35 159.03 159.85	•
7/21/98 0:00 01:00 02:00 03:00 04:00 05:00 06:00 07:00 08:00 10:00 11:00 12:00 13:00 14:00 15:00 16:00 17:00 18:00 20:00 21:00 22:00	159.79 159.99 159.90 1600.65 1600.25 161.90 162.40 162.40 162.40 162.63 162.63 163.60 163.60 164.39 164.39 164.39 164.39	
7/22/98 0:00 01:00 02:00	164.55 164.80 164.25	

Time	USGS Sensor	Contractor Sensor
07:00 08:00 09:00 10:00 11:00	164.50 164.50 164.50 164.50 164.72 164.90 164.90 165.14 165.38 165.42 165.42 165.44 165.65 165.44 165.65	
7/23/98 0:00 01:00 02:00 03:00 04:00 05:00 06:00 07:00 08:00 10:00 11:00 14:30 14:30 15:00 17:00 19:00 20:00 21:30 22:00 23:00		? ? ?
7/24/98 0:00		163.10

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Sensor
                              Sensor
        01:00
                                163.15
        02:00
                                163.25
        03:00
                                163.20
        04:00
                                163.45
        05:00
                                163.30
        06:00
        07:00
                                162.88
08:00
                                162.17
        09:00
                                162.24
        10:00
                                162.31
        11:00
162.35
        12:00
                                162.31
        13:00
                                162.29
        13:21
                  Adjusted flow rate to 130 gpm
14:00
                                162.31
        15:00
                                162.32
        16:00
                                162.33
       17:00
                                162.34
       18:00
                                162.38
       19:00
                                162.34
       20:00
                                162.34
       21:30
                                162.38
       22:00
                                162.35
       23:00
                                162.33
7/25/98
                 Saturday
       0:00
                                162.34
01:00
                                162.35
       02:00
                                162.35
       03:00
                                162.35
       04:00
                                162.35
       05:00
                                162.35
       06:00
                                162.35
       07:00
                               162.35
       08:00
                               162.35
       09:00
                               162.34
       10:00
                               162.34
       11:00
Tan Marie
                               162.33
       12:00
                               162.33
       13:00
                               162.34
       14:00
                               162.35
       15:00
                               162.33
       16:00
                               162.34
       17:00
                               162.33
       18:00
                               162.33
       19:00
                               162.35
       20:00
                               162.35
21:00
                               162.34
       22:00
                               162.33
       23:00
                               162.34
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Time

USGS

Contractor

Time	USGS Sensor	Contractor Sensor
7/26/98 0:00 01:00 02:00 03:00 04:00 05:00 06:00 07:00 08:00 09:00 10:00 11:00 12:00 13:00 14:00 15:00 15:00 15:00 20:00 20:00 21:00 23:00		162.35 162.32 162.34 162.34 162.33 162.33 162.33 162.33 162.33 162.33 162.33 162.33 162.33 162.34 162.34 162.34 162.34 162.35
7/27/98 0:00 01:00 02:00 03:00 04:00 05:00 06:00 07:00 08:00 10:00 11:00 12:00 13:00 14:00 15:00 15:00 20:00 21:00 22:00 23:00	Monday	162.34 162.34 162.34 162.34 162.34 162.33 162.33 162.33 162.33 162.33 162.33 162.33 162.33 162.33 162.33 162.33 162.33

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	Time	USGS Sensor	Contractor Sensor
	7/28/98 0:00	Tuesday	162.30
	01:00 02:00 03:00 04:00		162.29 162.30 162.31 162.30
	05:00 06:00 07:00		162.31 162.29 162.29
1	08:00 09:00 10:00		162.29 162.33 162.33
	11:00 12:00 13:00 14:00		162.29 162.29 162.29 162.29
	15:00 16:00 17:00		162.29 162.29 162.28
	18:00 19:00 20:00 21:00		162.29 162.29 162.28 162.28
T.	22:00 23:00		162.29 162.29
	7/29/98 0:00 01:00 02:00	Wednesday	162.28 162.28
	03:00 04:00 05:00	·	162.28 . 162.28 162.29 162.30
I	06:00 07:00 08:00 09:00		162.29 162.29 162.29 162.27
	10:00 11:00 12:00		162.29 162.29 162.28
	13:00 14:00 15:00 16:00		162.29 162.29 162.30 162.29
	17:00 18:00 19:00		162.29 162.29 162.30
	20:00 21:00 22:00		162.30 162.29 162.30
	23:00		162.29
			• • •

Time	USGS Sensor	Contracto: Sensor		
7/30/98 0:00 -: 01:00 02:00 03:00 04:00 05:00 06:00 07:00 08:00 09:00	Thursday	162.28 162.29 162.29 162.29 162.30 162.29 162.29 162.29 162.29		
09:15	Shut down			

USGS Monitor Well - Pukaki RECOVERY - July 30, 1998

NOTE: Shut down was at 9:15, however, contractor's sounder was not working well. Therefore, using the USGS sounder.

Time	Depth to Water (feet)
09:41: 3 09:42: 3 09:43: 3 09:44: 3 09:45: 3 09:45: 3 09:47: 3 09:49: 3 09:49: 3 09:50: 3 09:51: 3 09:55: 3 09:55: 3 09:55: 3 09:55: 3 09:55: 3 09:55: 3	166.883 166.883 166.883 166.775 166.574 166.43 166.43 166.334 166.34 166.34 166.34 166.34 166.34 166.34 166.34 166.34
10: 3:03	166.12
10: 4:03	166.09
10: 5:03	166.07
10: 6:03	166.03

```
Water
                               (feet)
1
                              165.97
          10: 7:03
                              165.82
          10:10:03
                              165.75
          10:11:03
                              165.70
          10:12:03
165.67
          10:13:03
          10:14:03
                              165.65
          10:15:03
                              165.62
165.58
          10:16:03
          10:17:03
                              165.54
                              165.52
          10:18:03
                              165.52
10:19:03
          10:20:03
                              165.51
                              165.46
          10:21:03
                              165.41
          10:22:03
10:23:03
                              165.38
                              165.36
          10:24:03
                              165.32
          10:25:03
                              165.29
          10:26:03
                              165.27
          10:27:03
                              165.25
          10:28:03
10:29:03
                              165.23
                              165.21
          10:30:03
                              165.18
          10:31:03
          10:32:03
                              165.15
1
          10:33:03
                              165.13
                              165.10
          10:34:03
          10:35:03
                              165.08
                              165.05
          10:36:03
                              165.03
          10:37:03
                              164.99
          10:39:03
          10:40:03
                              164.96
                              164.94
          10:41:03
                              164.92
          10:42:03
          10:43:03
                              164.90
                              164.88
          10:44:03
                              164.86
          10:45:03
                              164.83
          10:46:03
          10:47:03
                              164.81
                              164.78
          10:48:03
          10:49:03
                              164.77
                              164.74
          10:50:03
                              164.73
           10:51:03
           10:52:03
                              164.71
                              164.69
           10:53:03
                               164.67
           10:54:03
                                      Contractor's sounder reading: 161.44
                               164.64
           10:56:03
                               164.60 Contractor's sounder reading: 161.41
           10:58:03
                                      Contractor's sounder reading: 161.38
                               164.57
           11: 0:03
          11: 2:03
11: 4:03
                               164.53
                               164.50 Contractor's sounder reading: 161.32
```

Depth to

Time

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Time	Depru re				
	Water				٠.
	(feet)				
		•	-	• •	
11: 6:03	164.45	Contractor's	sounder	reading:	161.29
11: 8:03	164.43	Contractor's	sounder	reading:	161.25
11:10:03		Contractor's	sounder	reading:	161.21
11:12:03	164.36				
11:18:03	164.24	Contractor's	sounder	reading:	161.08
11:23:03	164.19	Contractor's	sounder	reading:	161.02
11:28:03	164.11	Contractor's	sounder	reading:	160.97
11:33:03	164.04	Contractor's	sounder	reading:	160.89
	163.98				
	163.90			٧.	
	163.85				
	163.53				
	162.92				
13:35:03	162.70		•		
	162.33				
14:44:03	162.16				
15: 5:03	162.01				
15. 5.05	202.02				
7/31/98 Friday					
8: 0:00	157.86				
	157.30				
12: 0:00	156.86				
15: 0:00	120.00				

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CORRECTION

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

Time	Depth to	•,
	Water	
	(feet)	
11: 6:03 11: 8:03 11:10:03	164.45 Contractor's sounder reading: 164.43 Contractor's sounder reading: 164.40 Contractor's sounder reading:	161.25 161.25 161.21
11:12:03 11:18:03 11:23:03 11:28:03 11:33:03	164.36 164.24 Contractor's sounder reading: 164.19 Contractor's sounder reading: 164.11 Contractor's sounder reading: 164.04 Contractor's sounder reading:	160.97
11:38:03 11:43:03 11:48:03	163.98 163.90 163.85 163.53	
12:12:03 13:13:03 13:35:03 14:22:03	162.92 162.70 162.33	
14:44:03 15: 5:03	162.16 162.01	
7/31/98 Friday 8: 0:00 12: 0:00	157.86 157.30 156.86	

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PUMP TEST DATA

Hanamaulu Well No. 3

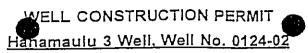


State of Hawaii COMMISSION ON WATER RESOURCE MANAGEMENT Department of Land and Natural Resources

WELL COMPLETION REPORT

4/25/97 WCR Form

(Check Appropriate Box)		(Permanent) Pump In:	
	type and submit completed report within Honolulu, Hawaii 96809. An as-buit dra In Regulation Branch at 587-0225 or 1-6	: 30 days ofter well comple wing of the well and chem :00=463-4644 Extension 70	ation to the Commission on Water licht prayant to lid also the con- 20b
1. State Well No.: 01 2. Location/Address	24-02 Well Name: <u>Hanai</u> : <u>Lihue Başin</u>	naulų 3	Island: <u>Kavai</u> Tax Map Key: <u>3-8-2:2</u>
PART I.	WELL CONSTRU	JCTION REPORT	. 19th of the later with the state of the st
4. Name of driller wh 5. Type of rig/constru 6. Date(s) Well Cons 7. GROUND ELEVA Well Bench 8. DRILLER'S LOG: Depths (ft.) Rock De		ompleted:	Hammer it. Elevation(mst):
9. Total depth of well 10. Hole size:	below ground: 560 finch dia. from 5 inch dia. from inch dia.	t. Compared ft. to ft.	ft. below ground ft. below ground ft. below ground
12 Appulus: G	routed from	ft. below ground to	π. pelow groung
13. Initial water level: 14. Initial chloride: 15. Initial temperature 16. PUMPING TESTS (1) Step-Drawdown Start water leve End water level 17. Aquifer Pump Test 18. As-built drawings	## Since the second of the sec	Date and time of me Date and time of sar Date and time of me Conunc Level (2) Long-tem Start wat End wate	asurement: /0/12/98 09.29 mpling: asurement: , which elevation is Aquifer Test Date /0/24/95 ter level 42/94 ft. below R Par level /3/280 ft. below R Par level
	(print) FR. MEZON DELLE 1110	C-57 Lic. No	19137
Signature	C. further)		
Surveyor (print) _ Signature _	Ronald Casuga See attached	Lic. No Date _	4332
Applicant (print)	COUNTY OF KAUAI, DEPT.		3/12/99



In accordance with Department of Land and Natural Resources, Commission on Water Resource Management's Administrative Rules, Section 13-168, entitled "Water Use, Wells, and Stream Diversion Works", this document permits the construction and testing of Hanamaulu 3 Well (Well No. 0124-02) at Lihue Basin, Kauai, TMK 3-8-2;2, subject to the Hawaii Well Construction & Pump Installation Standards (1/23/97) which include but are not limited to the following conditions: limited to the following conditions:

- The Chairperson of the Commission on Water Resource Management (Commission), P.O. Box 621, Honolulu, Hi 96809, shall be notified, in writing, at least two (2) weeks before any work authorized by this permit commences.
- The well construction permit shall be for construction and testing of the well only. A minimum one-inch diarneter monitor tube shall be permanently installed, in a manner acceptable to the Chairperson, to accurately record water levels. The permittee shall coordinate with the Chairperson and conduct a pumping test in accordance with the Standards (a pump testing worksheet is attached). The permittee shall submit to the Chairperson the test results as a basis for supporting an application to install a permanent pump and withdraw water for use. No permanent pump may be installed until a pump installation permit is approved and issued by the Chairperson. 2.
- In basal ground water, the depth of the well may not exceed one-fourth (1/4) of the theoretical thickness (41 times initial head) of the basal ground water unless otherwise authorized by the Chairperson. 3.
- The permittee shall incorporate mitigation measures to prevent construction debris from entering the aquatic environment, to schedule work to avoid periods of high rainfall, and to revegetate any cleared areas as soon as possible. 4.
- in the event that subsurface cultural remains such as artifacts, burials or concentrations of shells or charcoal are encountered during construction, the permittee shall stop work and contact the Department's Historic Preservation Division (587-0045) immediately. 5.
- The proposed well construction shall not adversely affect existing or future legal uses of water in the area, including any surface water or established instream flow standards. This permit or the authorization to construct the well shall not constitute a determination of correlative 6.
- The following shall be submitted to the Chairperson within sixty (60) days after completion of work:

 a. Well completion report, (attached Part I, Well Construction Report).

 b. Elevation (referenced to mean sea level, rnsl) survey by a Hawaii-licensed surveyor. 7.

As-built sectional drawing of the well.

Plot plan and map showing the exact location of the well.

Complete pumping test records, including time, pumping rate, drawdown, chloride content, and other data.

MICHAEL D. WILSON, Chairperson Commission on Water Resource Management

- The permittee shall comply with all applicable laws, rules, and ordinances, and non-compliance may be grounds for revocation of this permit. 8.
- The well construction permit application is incorporated into this permit by reference and is subject to the Hawaii Well Construction & Pump Installation Standards (1/23/97). 9.
- The permit may be revoked if work is not started within six (6) months after the date of approval or if work is suspended or abandoned for six (6) months, unless otherwise specified. The work proposed in the well construction permit application shall be completed within two (2) years from the date of permit approval, unless otherwise specified. The permit may be extended by the Chairperson upon a showing of good cause and good-faith performance. A request to extend the permit shall be submitted to the Chairperson no later than three (3) months prior to the date the permit expires. If the commencement date is not met, the Commission may revoke the permit after giving the permittee notice 10. of the proposed action and an opportunity to be heard.
- If the well is not to be used it must be properly capped. If the well is to be abandoned then the permittee must apply for a well abandonment permit in accordance with §13-168-12(f) prior to any well sealing or plugging work. 11.
- Special conditions in the attached cover transmittal letter are incorporated herein by reference. 12.

Date of Approval: Expiration Date:	July 21, 1997 July 21, 1997	MICHAEL D. WILSON, Chairperson Commission on Water Resource Management
as a prerequisite a	nditions and terms of this permit and underst and underlying condition of my ability to pro- ay be grounds for revocation and fines of up	
Permittee's Signate	ire. It cfw. Ju	Date: 4/6/98
Printed Name:	Ernest Y. W. Lau	Firm or Title: Manager & Chief Engineer
 Driller's Signature:	(for photh)	License #C 1913 7 Date: 4/6/98
Printed Name:	C. LEE MUELLER	Firm or Title: RAINBOW DRILLING
Please sign both	copies of this permit, return one to the C	Firm or Title: RAINBU DRILLING SPECIALISTS Chairperson, and retain the other for your records.
Attachment : US		

Department of Health/ Safe Drinking Water, Wastewater, and Clean Water Branches Robert Vorfeld, Linue Plantation Co.



P2: 08

ROBERT G. GIRALD

MICHAEL D. WILSON

DAVID A. NOBRIGA LAWRENCE H. MIIKE RICHARD H. COX HERBERT M. RICHARDS, JR.

PAE M. LOUI, P.E. DEPUTY

REF:CWRM-SS

STATE OF HAWAII
DEPARTMENT OF LAND AND NATURAL RESOURCES
COMMISSION ON WATER RESOURCE MANAGEMENT " P. O. BOX 621 HONOLULU, HAWAII 96809 County is mailed

JUL 23 1997

Mr. Ernest Lau Kauai Department of Water P.O. Box 1706 Lihue, Hawaii 96766-5706

Dear Mr. Lau:

Well Construction Permit Hanamaulu 3 (Well No. 0124-02)

Enclosed are two (2) copies of your approved Well Construction Permit for the captioned well(s) which authorizes well construction activities but excludes installation work for your permanent pump. As part of the Chairperson's approval, the following special conditions were added and are part of your permit under Permit Condition 12:

Special Conditions

- The well shall be constructed with a casing string having a minimum length of solid 1. casing equal to 90 percent of the depth measured from the ground surface to the top of the selected aquifer.
- The well shall be cased with new steel casing conforming to one of the manufacturing 2. standards listed in Hawaii Well Construction and Pump Installation Standards (January, 1997) and in the standards of AWWA publication ANSI/AWWA A100-90, as may be amended. The physical properties of the steel shall conform to ASTM A-242, ASTM A53, Type E or S, Grade B, or approved equal. The well casing shall be manufactured in accordance with applicable sections of ASTM A139, as may be amended.
- 3. To prevent surface contamination, the annular space of all cased non-artesian wells (except monitor wells designed for immediate and short-term monitoring purposes and subsequent abandonment) must be sealed with grout from the ground surface to a minimum depth of 500 feet or 70% of the vertical distance between the ground surface and the top of the aquifer selected for exploration, long-term monitoring, or development, whichever depth is less.

Mr. Ernest Lau Page 2

This permit does not authorize work for your permanent pump installation. Approval and issuance of your pump installation permit is contingent upon completed application and information provided to and accepted by Commission staff as required in the Well Construction & Pump Installation Standards (1/23/97) and any special conditions performed under this permit. Please note that special conditions may simply highlight application deviations from the Standards.

The well owner is responsible for all conditions of the permit. This includes ensuring that the well construction contractor, or other party who constructs the well(s), submits a completed Part I of the Well Completion Report form (enclosed) within sixty (60) days after the well construction work is completed. Be advised that you may be subject to fines of up to \$1000 per day for any violations of your permit conditions.

To validate your permit, please sign and have the contractor sign both permit originals and return one for our files. Also, copies of the aquifer pump test worksheet and the well completion report form are enclosed for your use. Please provide all the information in this packet to your well drilling contractor.

Also attached for your information is a copy of the Department of Health's review comments.

If you have any questions, please call the Commission staff at 587-0218 or toll-free at 274-3141, extension 70218. Lenore

Aioha,

MICHAEL D. WILSON

Chairperson

LONG-TERM AQUIFER 1651 DATA

Pumped Well No. <u>0124-02</u> Pumped Well Name <u>HANALA</u> Target Q <u>150</u>	gpm gpm	Observation well no
Water level measurements by: E	steel tape	☑ pressure transducer ☐ airline

START TEST Date: 10/26/98 Hour of day: 08:40

Flow	Meter	Reading	Start:	569	<u> 6800 </u>	_gals_

			Decudeus I	- 				Data in this table is for:
Suggested elapsed	Actual elapsed	Depth to .	Drawdown	Pumping			Temp.	☐ Pumped Well
time	time	water	(unadjusted	rate	EC .:	СГ	or of	☐ Observation Well
1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	10.5	(nearest X) 0.01 ft)	to nearest	; Q (gpm)	(rwyos)	(mg/l)	° c	Remarks
(min) .	·· (mln)		0.00			 		Start test
		83,45				<u> </u>		
1						ļ		
1.5							<u> </u>	
2							<u>.</u>	
2.5			•				<u> </u>	
3								
4							<u> </u>	
5	5	126.39	42,94	150				
6						<u> </u>	·	
7				•			<u> </u>	
8							<u> </u>	
10	10	129.98	46.53	150	<u> </u>			
15		133.70		150	<u> </u>		<u> </u>	
20		134,94	T	150			·-	
25	25	138.26	1	150	<u> </u>		<u>.</u>	<u> </u>
30	30	141,43	1	150			<u> </u>	
40	40	145.96	62.51	150			<u> </u>	
50	50	• •	66.67	150	<u> </u>		•	
60	60	152,9	T	150	<u> </u>		•	
70	70	155.60	1 '	150			·	
80	80		74.28	150				
90			76,53				<u> </u>	
100	100		77.28	1			<u>.</u>	
150	160		1 81.49					
20	005	166.14	82.69	150				
25	0 260				3		<u> </u>	

	Suggester	d Actual	Dooth	L Danuarda	1		 .	·	
	elapsed	elapsed	Depth	Drawdown	Pumping		1	Temp.	Data in this table is for:
	time	time	water	(unadjusted	rate	ļ	İ	*F	Pumped Well
		, z	(nearest	to nearest	Q	EC	CF CF	or	Observation Well Remarks
	(min)	(min)	0.01 ft)	0.01 ft)	(gpm)	(mupos)	(mg/l)	<u>.c</u>	Remarks
į	300		169,88	86.43	148.33		<u></u>		•
	400	1300	170,8	87,36	148.33	}	-	•	
	500	300	170,8	87.37	148,33	1			
	600	620	170.4		1				
	700	680	169.97						·
	800	800	170.00					·	
	900	920	166.4		145.00			•	
	1,000	980	178.07		i50.00			•	
	1500	1320	182.49	L	148,33	•			
L	2000	2000	183.46	100.01	146.67				
	2500	2480	191.37	107.92	i48.33				
	3000	3020	193.32		148.33				
Γ	4000	4020	197.48		146.67			·	
Γ	5000	4980	200.86	117.41					
Γ	6000	6000	212,78		<i>148,3</i> 3 <i>145,</i> 83				
	7000	6150	215.25	131.80	1-				
	8000	0.00	<u> </u>	13/100	150.00				
	9000								
	10000	•	<u> </u>					<u> </u>	Max possible duration,
L						1		- 1	water level or quality did not
l	.			Use same	0				stabilize for any 24 period Begin recovery data
1	İ		ļ	ending drawdown	ļ]	1	next page
1	j			figure as	ļ	1			Flow meter reading at
	.			start for	[j	- 1	end of pumped period:
1	1	ſ		recovery			ĺ	- 1	6596100 gals
Щ.	 -	<u>-</u>				1	- 1	ĺ	

SEE ATTACHED DATA SHEETS FOR MONITOR WELL DETAILS

	Suggested	Actual	T		 	· · · · · · · · · · · · · · · · · · ·			
	elapsed	elapsed	Depth to	Recovery	Bumaiaa	1		-	Data in this table is for:
	time	time	water	4	Pumping rate		}	Temp.	☐ Pumped Well
	£	2	(nearest	(unadjusted to nearest	Q	EC	cr	or	☐ Observation Well
	(min)	(njn)	0.01 R)	0.01 ह)	(gpm)	(jumhos)	(mg/l)	°c	Remarks
				·	0			,	Start recovery
	1	_!			0				•
ļ	1.5				0			•	
	2	1			0.			•	
	2.5	- /J	178,12	94.67	0				
	3				0	·		•	
	4				0			•	
	5				0			•	
	6				0			•	
L	7	7.5	152.29	68.84	0			•	
_	8				0			•	
	10	12,5	134.86	51.41	0			•	
-	15	17.5	123.01	39.56	0				
L	20	22,5	109.84	26.39	0				
-	25	27.5	102,52	19.07	0				
L	30	32.5	98.4-5	15.00	0				
-	40	42.5	95,19	11.74	О				
-	50 60	52.5	93-67	10.22	0			•	
\vdash	70	62,5	92.82	9,37	.0			•	
\vdash	80		· · .		0				
-				·	0				
-	90				0				
-	100				0			•	
L	150				0			•	
L	200				0				
L	250				0				80% recovery achieved 80% recovery not achieved

END TEST	Date: 10/30/98	Hour of day: <u>/ <i>5</i> の</u> 5
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ADDITIONAL REMARKS:

Person in charge of pump test (print): Coler MusiceR

Signature:_

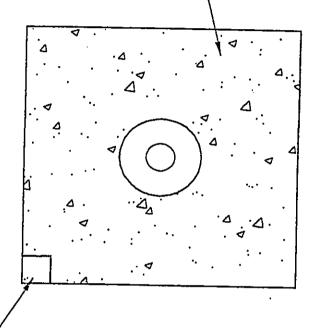
The signature above indicates that the data reported on this form is accurate and true to the best of the person's knowledge who operated this aquifer test.

CWRM LTAT Form 1/9/96

	SURFACE FORVATION MSL
10000	PE" HOLF DRILLED TO 19'
10000	11 3/2" ID 3/2" WALL A-53 CONDUCTOR SET
1100 33	@ 19' AND GROUTED WITH NEAT CEMENT.
3	·
0,0	•
300	
0.0	
	22" × 12" ANNULUS GROUTED TO SURFICE W/ 1040 TREME MIX.
	22"× 12" ANNOLOS: CIRCOTO 125' É /20'
25' S	CEMENT BASKETS @ 125' \$ 120' STEEL RING @ 125'
1 11111111	STEEL RING 19 1
	•
	•
	·
	3/"
	CASING DEMH 270' SIZE 12"10 WALL 3/8" TYPE ASTM 242
270'	INSTALLED AS SOLID CASING, MECANICALLY PERFORATED
	FROM 135' TO 265' ON 9/16/98
,	
·	
	OWNER COUNTY OF KAURI
. "	WELL HANAMAULU # 3
	PARMIT = 0124-02 TMK 3-8-2:2
	HOLESIZE 22" CONTRACTOR RAMSON DRILLING SPECIALISTS/NC
560'	Torne Desth 560
	LICENSE # 19137 DATE 11/29/93
1	
1	SIGNED : Ju II/ m) RME

New Well ——— 5' x 5' Concrete Slab





Bench Mark Elevation = 466.89 Southwest Corner Box Cut

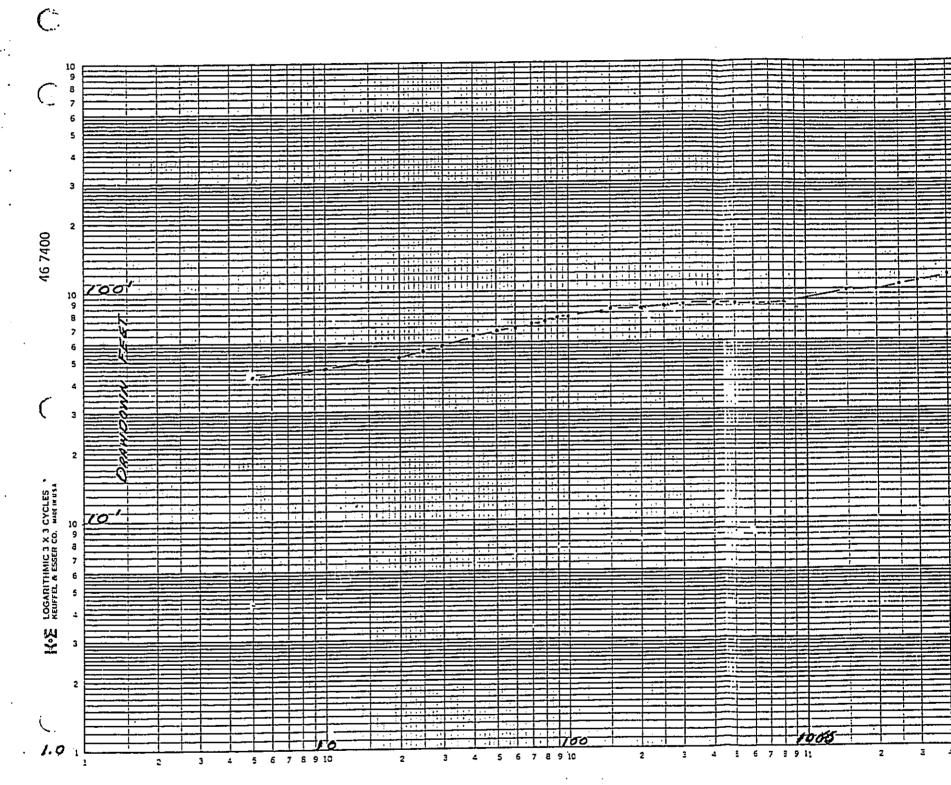


THIS WORK WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION

NEW HANAMAULU WELL

February 26, 1999

Licensed Professional Land/Jurveyor Certificate No. 4352



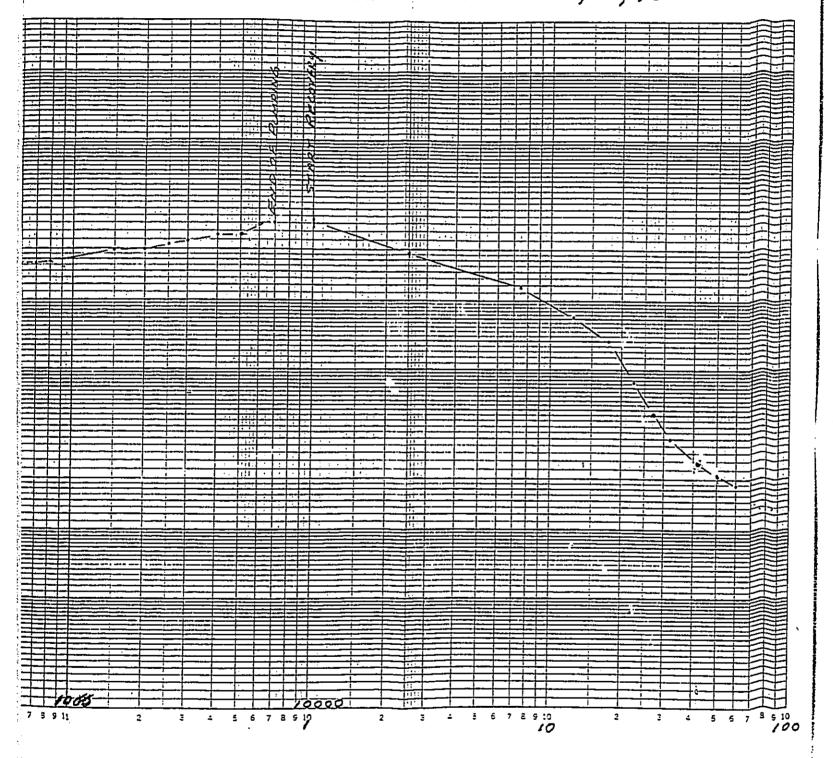
TIME MINUTES

COUNTY OF KAUAI

HANAMAULU #3

PERMIT # 0124-02 TMK 3-8-2:2

LONG TERM TEST 10/26/98 RATE 1509PM



Step-Drawdown Test at Hanamaulu Well #3 Date Conducted: October 12, 1998

Time	Rate (gpm)	DTW. (feet)	Drawdown (feet)		Water Level Elevation
Static Wate	er Level:	81.70	0	466	384.30
9:09:20	Start Pumping	9			
9:12:50	100	112.74	31.04		353.26
9:13:50	100	111.00	29.30	•	355.00
9:14:50	100	111.66	29.96		354.34
9:15:50	100	111.51	29.81		354.49
9:16:50	100	111.69	29.99		354.31
9:17:50	100	111.96	30.26	•	354.04
9:18:50	100	112.00	30.30		354.00
9:19:50	100	112.28	30.58		353.72
9:20:50	100	112.60	30.91		353.40
9:21:50	100	112.96	31.26		353.04 352.77
9:22:50	100	113.23	31.53		352.77
9:23:50	100	113.34	31.65 31.98		352.32
9:24:50	100	113.68 113.75	32.05		352.32
9:25:50	100 100	114.00	32.30		352.20
9:26:50 9:27:50	100		32.74		351.56
9:28:50	100	114.44			351.56
9:29:50	100	114.71	33.01		351.29
9:30:50	100	114.85	33,16		351.15
9:31:50	100	115.00	33.30		351.00
9:32:50	100	115.35	33.66		350.65
9:33:50	100	115.36	33.67		350.64
9:34:50	100	115.51	33.81		350.49
9:35:50	100	115.68	33.98		350.32
9:36:50	100	115:75	34.06		350.25
9:37:50	100	115.80	34.10		350.20
9:38:50	100	115.71	34.01		350.29
9:39:50	100	115.61	33.92		350.39
9:40:50	. 100	115.58	33.89	•	350.42
9:41:50	100	115.73	34.03		350.27
9:42:50	100	115.69	33.99		350.31
9:43:50	100	115.71	34.01		350.29
9:44:50	100	115.77	34.07		350.23 349.73
9:49:50	100	116.27	34.57		349.73
9:54:50	100	116.50 117.21	34.80 35.51		348.79
9:59:50	100 100	117.48	35.78		348.52
10:04:50	100	117.73	36.03		348.27
10:09:50 10:14:50	100	118.00	36.30		348.00
10:14:50	100	118.11	36.42		347.89
10:19:50	100	118.42	36.72		347.58
10:24:50	100	118.46	36.76	•	347.54
10:34:50	100	118.78	37.08		347.22
10:39:50	100	118.72	37.02		347.28
10:44:50	. 100	118.79	37.09		347.21
· ·					

Time	Rate (gpm)	DTW (feet)	Drawdown (feet)	Water Level Elevation	- wa
10:49:50	Change r	ate to 14	0 ~~~	.:	
10:51:50	140			220 84	
10:52:50	140	126.22		339.74	_
10:53:50	140	126.15		339.78	
10:54:50	140	127.38		339.85	
10:55:50	140			338.63	
		127.84	46.15	338.16	
10:56:50	140	128.00	46.30	. 338.00	
10:57:50	140	128.21	46.51	337.79	
10:58:50	140	128.27	46.57	337.73	
10:59:50	140	128.35	46.66	337.65	
11:04:50	140	129.65	47.95	336.35	
11:09:50	140	131.51	49.81	334.49	, -
11:14:50	140	133.24	51.54	332.76	
11:19:50	140	134.19	52.49	331.81	
11:24:50	140	135.15	53.45	330.85	
11:29:50	140	136.13	54.43	329.88	
11:34:50	140	136.95	55.25	329.05	1
11:39:50	140	137.51	55.81	328.49	
11:44:50	140	137.93	56.23	328.07	my
11:49:50	140	138.45	56.75	327.55	
11:54:50	140	138.76	57.06	327.24	1
11:59:50	140	139.22	57.52	326.78	
12:04:50	140	139.58	57.89	326.42	*****
12:09:50	140	139.64	57.94	326.42	***
				320.36	
12:10:50	Change ra	te to 160	gpm	·	B-1.
12:11:50	160	142.58	60.89	323.42	1
12:12:50	160	144.27	62.57	321.73	
12:13:50	160	145.97	64.27	320.03	674
12:14:50	160	147:50	65.80	318.50	1
12:15:50	160	148.96	67.26	317.04	*n#
12:16:50	160	149.58	67.89	316.42	
12:17:50	160	150.52	68.82	315.48	8:4)
12:18:50	160	151.08	69.39	314.92	series.
12:19:50	160	151.31	69.61	314.69	
12:24:50	160	151.13	69.43	314.88	
12:29:50	160	150.63	68.93	315.38	
12:34:50	160	153.18	71.48		prop. I
12:39:50	160	156.20	74.50	312.82	
12:44:50	160	157.93		309.80	# - g
12:49:50	160	157.93	76.23	308.07	**************************************
			77.51	306.79	•
12:54:50	160	160.08	78.39	305.92	
12:59:50	160	160.75	79.05	305.25	"
13:04:50	160	161.34	79.65	304.66	en f
13:09:50	160	161.58	79.89	304.42	
13:10:20	Change rat	te to 200	crom		
13:10:50	200	162.01	80.31	303.99	ra ra
13:11:50	200	165.26	83.56	303.99	
13:12:50	200	167.96	86.26		į
-0.12.50	200	207.90	00.20	298.04	E
•				•	****



Time	Rate (gpm)	DTW (feet)	Drawdown (feet)	·Water Level Elevation
13:13:50 13:14:50 13:15:50 13:16:50 13:17:50 13:19:50 13:24:50 13:24:50 13:29:50 13:34:50 13:34:50 13:44:50 13:54:50 13:54:50 14:04:50 14:09:50 14:14:50 14:19:50 14:24:50 14:24:50 14:29:50 14:34:50 14:39:50	200 200 200 200 200 200 200 200 200 200	170.96 173.19 175.16 177.06 179.00 180.50 182.07 188.43 199.85 202.66 205.65 204.66 205.65 208.16 211.61 214.24 215.77 217.04 218.85 220.30 224.48	89.26 91.49 93.46 95.30 97.80 106.73 111.8.16 120.96 122.96 123.96 129.95 129.95 129.95 129.95 134.07 135.36 137.16 139.60 142.78	295.04 292.81 290.84 288.94 287.00 285.50 283.93 277.57 272.96 269.47 266.15 263.33 261.34 260.35 257.84 254.39 251.76 252.25 248.96 247.15 245.25 243.70 241.52
14:44:50 14:49:50 14:54:50 14:59:50	200 200 200 200	225.80 226.73 227.50 228.10	144.10 145.03 145.80 146.41	240.20 239.27 238.50 237.90

STEP TEST RECOVERY - October 12, 1998

Time	difference (seconds)	DTW	Drawdown	Water Elevation
15:00:59		218	136.30	248
15:01:30	31	217	135.30	249
15:01:40	10	216	134.30	250
15:01:48	8	215	133.30	251
15:01:54	6	214	132.30	252
15:02:01	7	213	131.30	253
15:02:10	9	212	130.30	254 .
15:02:17	7	211	129.30	255
15:02:24	7	210	128.30	256
15:02:36	12	209	127.30	257
15:02:51	15	208	126.30	258
15:03:00	9	207	125.30	259
15:03:13	13	206	124.30	260
15:03:23	10	205	123.30	261
15:03:35	12	204	122.30	262

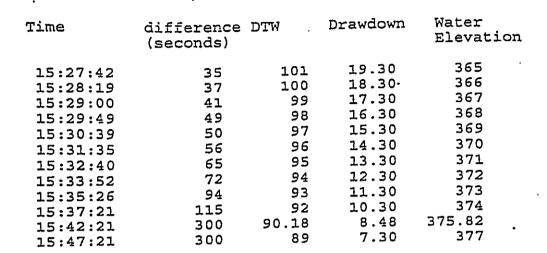
_		1
7	4	-)
	,	_

					•		
Time	difference I (seconds)	WTC	Drawdown	Water Elevation	,		
15:03:44	9	203	121.30	263			
15:03:53	9	202	120.30	264			
15:04:02	وَ	201	119.30	265			
15:04:11	9	200	118.30	266			
15:04:20	. <u> </u>	199	117.30	267			
15:04:30	10	198	116.30	268			
15:04:39	9	197	115.30	269			
15:04:50	11	196	114.30	270			
15:04:57	7	195	113.30	271			
15:05:07	10	194	112.30	272			
15:05:16	9	193	111.30	273		•	
15:05:26	10	192	110.30	274			
15:05:35		191	109.30	275			
15:05:44	9 9 9 ·	190	108:30	276			
15:05:53	9 ·	189	107.30	277			
15:06:02	9	188	106.30	278			
15:06:11	9 9 8	187	105.30	279			
15:06:19	8	186	104.30	280			
15:06:28	9	185	103.30	281			• • •
15:06:41	13	184	102.30	282			_
15:06:53	12	183	101.30	283			
15:07:03	10	182	100.30	284			
15:07:11	8	181	99.30	285			
15:07:20	9	180	98.30	286			
15:07:29	9	179	97.30 ⁻	287			****
15:07:39	10	178	96.30	288			
15:07:48	9	177	. 95.30	289			
15:07:58	10	176	94.30	290			
15:08:07	9	175	93.30	291			
15:08:16 15:08:26	9	174	92.30	292			****
15:08:26	10	173 ·	91.30	293			٠.
15:08:45	10 9	172 171	90.30 89.30	294 .			
15:08:54	9	170	88.30	295			
15:09:04	10	169	87.30	296 297			
15:09:12	8	168	86.30	298			
15:09:22	10	167	85.30	299			
15:09:32	10	166	84.30	300			*
15:09:42	10	165	83.30	301			i
15:09:51	9	164	82.30	302			
15:10:00	9	163	81.30	303			
15:10:11	11	162	80.30	304			-
15:10:20	9	161	79.30	305			
15:10:30	10	160	78.30	306			5-1
15:10:40	10	159	77.30.	307			a. 1
15:10:50	10	158	76.30	308			.
15:10:59	9	157	75.30	309			1
15:11:09	10	156	74.30	310			23
15:11:19	10	155	73.30	311			Ľ3
15:11:29	. 10	154	72.30	312			
15:11:39	10	153	71.30	313			, . , .
						ļ	1

Time	difference (seconds)	DTW .	Drawdown	Water Elevation
15:12:30 15:12:30 15:12:30 15:12:30 15:12:30 15:12:30 15:13:30 15:13:30 15:13:30 15:13:42 15:13:43:56 15:14:43 15:14:43 15:14:43 15:14:43 15:15:16:33 15:16:33 15:16:33 15:16:33 15:16:33 15:17:38 15:18:19:34 15:19:34 15:19:30 15:19:30 15:19:30 15:19:30 15:20 15:22 15:		21098765432109887654321098765432109876543210987654321098765432109876543210987654321098765432109876543210987654321098765432109876543210987654321098765443210987654432109876544321098765444444444444444444444444444444444444	00000000000000000000000000000000000000	
15:25:37 15:26:08 15:26:35 15:27:07	28 31 27 32	105 104 103 102	23.30 22.30 21.30 20.30	361 362 363 364

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Time		alculate ate gpm)	DTW (feet)	Drawdown (feet)	Water Level Elevation
6:30:00	5696800 Remarks: St	art Duma	83.45	0	382.55
8:40:00 8:45:00	5697800	7.41	126.39	42.94	339.61
8:50:00	5698600	160.00	129.98	46.53	336.02
8:55:00	5699300	140.00	133.70	50.25	332:30
9:00:00	5700100	160.00	134.94	51.49	331.06
9:05:00	5700800	140.00	138.26	54.81	327.74
9:10:00	5701600	160.00	141.43	57.98	324.57
9:15:00	5702300	140.00	143.57	60.12	322.43
9:20:00	5703000 5703800	140.00 160.00	145.96 148.45	62.51 65	320.04 317.55
9:25:00 9:30:00	5704500	140.00	150.12	66.67	315.88
9:35:00	5705300	160.00	151.38	. 67.93	314.62
9:40:00	5706000	140.00	152.98	69.53	313.02
9:45:00	5706800	160.00	154.35	70.90	311.65
9:50:00	5707500	140.00	155.62	72.17	310.38
9:55:00	5708300	160.00	156.82	73.37	309.18
10:00:00	5709000	140.00	157.73	74.28 75.47	308.27 307.08
10:10:00 10:20:00	5710500 5712000	150.00 150.00	158.92 159.98	76.53	306.02
10:20:00	5713400	140.00	160.73	77.28	305.27
10:40:00	5714900	150.00	161.21	77.76	304.79
10:50:00	5716400	150.00	162.13	78.68	303.87
11:00:00	5717800	140.00	163.36	79.91	302.64
11:20:00	5720800	150.00	164.94	81.49	301.06
11:40:00	5723800	150.00	165.56	82.11	300.44
12:00:00	5726700	145.00 · 148.33	166.14 167.88	82.69 84.43	299.86 298.12
13:00:00 14:00:00	5735600 5744500	148.33	159.88	86.43	296.12
15:00:00	5753400	148.33	170.81	87.36	295.19
15:00:00	5753400	148.33	170.81	87.36	295.19
16:00:00	5762200	146.67	170.51.	87.06	295.49
17:00:00	5771100	148.33	170.82	87.37	295.18
18:00:00	5779800	145	170.87	87.42	295.13
19:00:00	5788500		170.45	87.00	295.55
20:00:00	5797300	146.67	169.97 170.18	86.52 86.73	296.03 295.82
21:00:00 22:00:00	5806000 5814700	145 145	170.18	86.55	295.02
	ks: Adjuste			00.55	250.00
23:00:00	5823500	146.67	175.82	92.37	290.18
10/27/98					•
0:00:00	5832500	150	178.07	94.62	287.93
1:00:00	5841400	148.33	178.72	95.27	287.28
2:00:00	5850300	148.33	179.27	95.82	286.73
3:00:00	5859200	148.33	179.72	96.27	286.28

X M

Time		Calculate Rate (gpm)	DTW (feet)	Drawdown (feet)	Water Level Elevation	٠.
4:00:00 5:00:00 6:00:00 7:00:00 8:00:00 Remark	5868100 5877000 5885900 5894800 5903700	148.33 148.33 148.33 148.33 148.33 ed rate (c	180.44 181.65 180.99 182.24	96.99 98.20 97.54	286.01 285.56 284.35 285.01 283.76	
9:00:00 10:00:00 11:00:00 11:00:00 12:00:00 13:00:00 14:00:00 15:00:00 17:00:00 18:00:00 19:00:00 20:00:00 21:00:00 Remarks 22:00:00 23:00:00	5912600 5921500 5930400 5939300 5948200 5957000 5965900 5974700 5983600 5992400 6001300 6010100 6019000	148.33 148.33 148.33 148.33 146.67 148.33 146.67 148.33 146.67 148.33 146.67 148.33	183.82 182.49 183.17 183.80 183.22 182.89 183.40 183.33 183.28 183.46 183.50 183.69 186.50 pen)	100.35 99.77 99.44 99.95 99.83 100.01 99.85 100.24 103.05	282.18 283.51 282.83 282.20 282.78 283.11 282.60 282.67 282.72 282.72 282.72 282.70 282.31 279.50 276.23 275.56	
10/28/98						•
0:00:00 1:00:00 2:00:00 3:00:00 4:00:00 5:00:00 Remarks		148.33 148.33 148.33 148.33 146.67 148.33 d rate (o)	191.79 pen)	107.70 107.76 107.92 107.57 106.49 108.34	274.85 274.79 274.63 274.98 276.06 274.21	
6:00:00 7:00:00 8:00:00 9:00:00 10:00:00 11:00:00 Remarks 13:00:00 14:00:00 15:00:00 16:00:00 17:00:00 19:00:00	6161200 6170200 6179100 6187900 6196800 6205700 6214500 6223300	146.67 148.33 148.33 146.67 Adjusted 148.33 150 148.33 146.67 148.33 148.33	192.52 193.22 192.83 193.22 193.32 192.56	109.07 109.77 109.38 109.77 109.87	273.48 273.48 272.78 273.17 272.78 272.68 273.44 ceased rate) 269.84 269.84 269.46 270.33 270.21 269.90 269.98 271.97	
21:00:00 22:00:00	6232100 6240900	146.67 146.67	193.43 193.07	109.98 109.62	272.57 272.93	

Time		alculate ate gpm)	DTW (feet)	Drawdown (feet)	Water Level Elevation
23:00:00 Remarks	6249700 s: Adjuste	146.67 d rate (o	193.03 pen)	109.58	272.97
10/29/98					
0:00:00 1:00:00 2:00:00 3:00:00 4:00:00 Remarks 5:00:00 6:00:00 7:00:00	6302900 6311800 6320700 6329500 6338300	148.33 146.67 146.67	197.48 197.68 pen) 198.88 199.68 200.16 199.09	112.44 113.12 112.93 114.03 114.23 115.43 116.23 116.71 115.64 115.25	270.11 269.43 269.62 268.52 268.32 267.12 266.32 265.84 266.91 267.30
10:00:00 10:00:00 11:00:00	6347200 6347200 6356000	148.33 148.33 146.67	199.03 199.03 198.53	115.58 115.58 115.08	266.97 266.97 267.47
Remarks 12:00:00 13:00:00 14:00:00 15:00:00 16:00:00 17:00:00 19:00:00 20:00:00 Remarks 21:00:00	6364900 6373800 6373800 6391500 6400300 6409100 6418000 6426800 6436200 6436200 6445000 6454100	148.33 146.67 146.67 146.67 148.33 146.67	200.54 202.07 202.60 202.07 201.37 200.97 200.86 200.35 215.66 or - incident	118.62 119.15 118.62 117.92 117.52 117.41 116.90 132.21 reased rpm 131.09 132.75	251.46 249.80
23:00:00	6463100	150	218.43	134.98	247.57
0:00:00 1:00:00 2:00:00 3:00:00 4:00:00 5:00:00 6:00:00 7:00:00 8:00:00 10:00:00 11:00:00 12:00:00	6472100 6481000 6489900 6498700 6507600 6516500 6525300 6534100 6551800 6551800 6560700 6569500 6578250 6587100	150 148.33 148.33 146.67 148.33 146.67 148.33 146.67 148.33 146.67 148.33 146.67	219.10 218.93 219.01 217.90 217.22 217.08 216.70 215.41 215.12 214.57 213.95 213.40 212.78 213.16	135.65 135.48 135.56 134.45 133.77 133.63 133.25 131.96 131.67 131.12 130.50 129.95 129.33 129.71	246.90 247.07 246.99 248.10 248.78 248.92 249.30 250.59 250.88 251.43 252.05 252.60 253.22 252.84

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Time		Calculate Rate (gpm)	e DTW (feet)	Drawdown (feet)	
	6596100 Remarks:			131.80	250.75
RECOVERY -	October 3	0, 1998			•
Time	DTW (feet)	Drawdown (feet)			
14:02:25	Pump Shut	-down			
-14:05:00 -14:10:00 -14:15:00 -14:20:00 -14:25:00 -14:30:00 -14:35:00 14:40:00 -14:45:00 14:50:00 -14:55:00	152.29 134.86 123.01 109.84 102.52 98.45 96.45 95.19 94.38	15 13 11.74 10.93 10.22 9.71	313.71 331.14 342.99 356.16, 363.48 367.55 369.55 370.81 371.62		
11/ 2/98			•		•
6:30:00	83.77	.32	382.23		

USGS Monitor Well (N.E. Kilohana)
Date Conducted: October 26, 1998

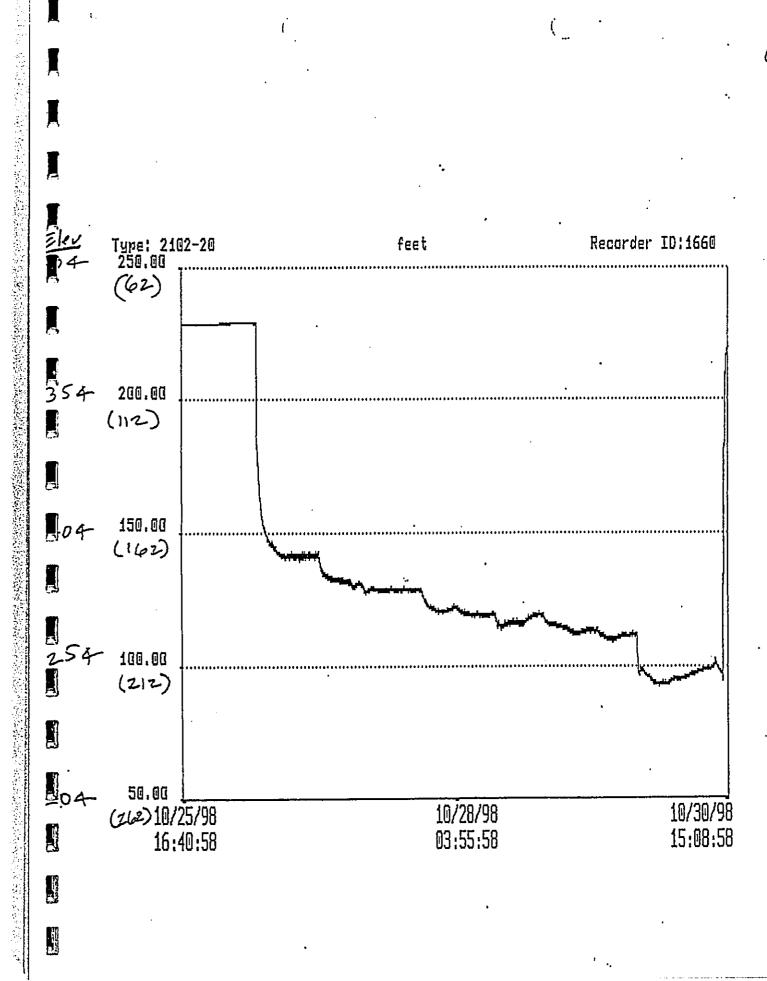
Time ·	Reading (feet)	Time	Reading (feet)
6:30:00 8:45:00 8:50:00 8:55:00	87.93 89.98 90.82 91.27 91.85	9:00:00 10:00:00 11:00:00 12:00:00 13:00:00	99.87 99.93 100.00 100.05
9:00:00 9:10:00 9:15:00 9:20:00 9:25:00	92.24 92.56 92.88 93.12	14:00:00 15:00:00 16:00:00 17:00:00	100.11
9:30:00 9:35:00 9:40:00	93.33 93.53 93.71 93.88	18:00:00 19:00:00 20:00:00 21:00:00	100.32 100.40 100.45 100.47
9:45:00 9:50:00 9:55:00 10:00:00	94.03 94.18 94.31	22:00:00 23:00:00 10/28/98	100.53
10:10:00 10:20:00 10:30:00 10:40:00	94.58 94.71 94.95 95.11 95.27	0:00:00 1:00:00 2:00:00	100.61 100.66 100.70
10:50:00 11:00:00 11:20:00 11:40:00	95.40 95.69 95.92	3:00:00 4:00:00 5:00:00 6:00:00	100.71 100.72 100.77 100.79
12:00:00 13:00:00 14:00:00 15:00:00	96.11 96.58 96.96 97.30 97.61	7:00:00 8:00:00 9:00:00 10:00:00	100.84 100.87 100.91 100.92
16:00:00 17:00:00 18:00:00 19:00:00	97.81 97.83 98.18 98.30	11:00:00 12:00:00 13:00:00 14:00:00	100.95 100.96 100.96 100.99
20:00:00 21:00:00 22:00:00 23:00:00	98.47 98.68 98.83	15:00:00 16:00:00 17:00:00 18:00:00	101.00 101.03 101.03 101.04
10/27/98	00.04	19:00:00 20:00:00 21:00:00	101.04 101.05 101.07
0:00:00 1:00:00 2:00:00 3:00:00	99.04 99.14 99.23 99.34	22:00:00 23:00:00	101.12
4:00:00 5:00:00 6:00:00	99.44 99.53 99.60	10/29/98	i01.18
7:00:00 8:00:00	99.69 99.77	1:00:00 2:00:00	101.19 101.19

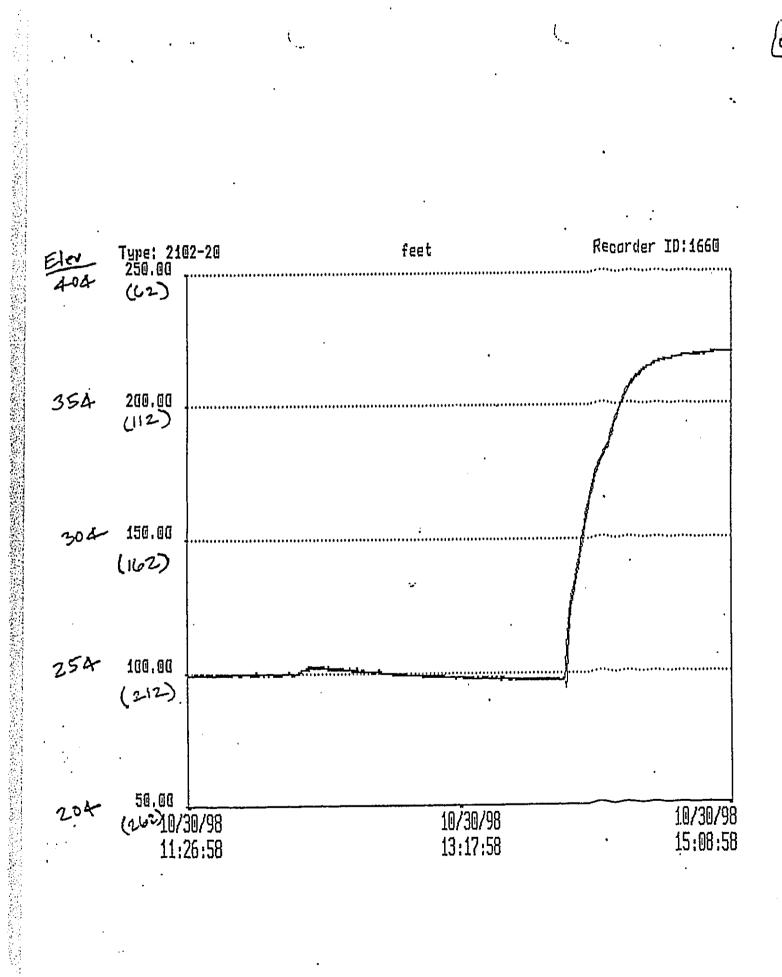
Time	Reading (feet)	· •	rime	Reading (feet)	x	
3:00:00 4:00:00 5:00:00 6:00:00 7:00:00 8:00:00 9:00:00	101.20 101.22 101.24 101.26 101.28 101.32	,	14:40:00 14:45:00 14:50:00 14:55:00 15:00:00	97.32 96.90 96.59 96.34 96.11		
10:00:00 11:00:00 12:00:00 13:00:00 14:00:00 15:00:00 16:00:00 17:00:00 19:00:00 20:00:00 21:00:00	101.35 101.36 101.37 101.37 101.37 101.38 101.40 101.40 101.40 101.40 101.47		6:30:00	88.14		
23:00:00	101.53					**************************************
0:00:00 1:00:00 2:00:00 3:00:00	101.53 101.53 101.53 101.53					2
4:00:00 5:00:00 6:00:00 7:00:00 8:00:00 9:00:00	101.53 101.54 101.56 101.60 101.60 101.62	•				dieta.
10:00:00 11:00:00 12:00:00 13:00:00	101.62 101.62 101.61 101.60 101.59					1) en
	October 30, 1998	;				§ . 8 ₫
14:02:25	Pump Shut-down			•		(F)

14:05:00 14:15:00 14:20:00 14:25:00

14:30:00 14:35:00 101.58 101.34 100.76 100.07

99.29 98.52 97.83





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APPENDIX B:

WATER QUALITY ANALYSES

WATER QUALITY ANALYSES

Pukaki Well



 $\mathcal{A}_{\mathcal{A}}^{\pm}(x) = \mathcal{A}^{\pm}(x) + \cdots + \mathcal{A}^{\pm}(x)$

MONTGOMERY WATSON LABORATORIES

553 East Walnut Street Pasadena, California 91101 818 568 6400; Fax: 818 568 6324; 1 800 566 LABS (1 800 566 5227)

Laboratory Report

for

Kauai Water Department P.O. Box 1706

Lihue , HI 96766

Attention: Wayne Hinazumi Fax: (808) 245-5813

MONTGOMERY WATSON LABS.

AUG 1 g 1998

HDS Hillary Strayer

Report#: 45378 PHASEV · • (*) \$1



MONTGOMERY WATSON LABORATORIES

555 East Walnut Street Pasadena, California 91101 B18 568 6400; Fax: 818 568 6324; 1 800 568 LARS (1 800 566 5227) Report Comments #45378

Group Comments

(Endothall) Matrix Spike recovery is greater than acceptable limit. The LCS is within acceptance criteria and data was reported. GG 08/07/98.

TCDD was anlayzed by Quanterra Environmental Sercvices. GG 08/09/98.

(515.1) LCS recoveries fail low for acifluorfen, high for DCPA. Acifluorfen is not a regulated compound, method defines as qualitative only. Sample is ND for DCPA. QIR-GC-98-115.

(980723082)

NO2-N

Analyzed past holding time. See QIR.



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MONTGOMERY WATSON LABORATORIES

555 East Walnut Street Pasadena, California 91101 B18 568 6400; Fax: 818 568 6324; 1 800 568 LABS (1 800 566 5227) Report Comments #45378

Group Comments

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(Endothall) Matrix Spike recovery is greater than acceptable limit. The LCS is within acceptance criteria and data was reported. GG 08/07/98.

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(515.1) LCS recoveries fail low for acifluorfen, high for DCPA. Acifluorfen is not a regulated compound, method defines as qualitative only. Sample is ND for DCPA. QIR-GC-98-115.

(980723082)

NO2-N

1

Analyzed past holding time. See QIR.

Report	Summary	of	positive	results.	PR45378
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	mary of positive results, PR453	Result	MDL	IINU
Analyzed	980723082 PUKAKI			ONTI
)7/29/98)7/31/98)7/31/98)7/31/98)7/29/98)7/23/98)7/23/98)7/30/98)7/31/98)7/31/98)8/05/98)7/27/98)7/25/98)7/25/98)7/25/98	Data Entry Chromium, Total, ICAP/MS Data Entry Methylene chloride Diethylphthalate Nitrate as NO3 by IC Nitrate-N by IC Data Entry Data Entry Alkalinity Calcium, Total, ICAP Fluoride Lab pH Mercury Specific Conductance	07/30/9 7.4 08/05/9 13.6 0.7 1.0 0.23 07/31/9 08/04/9 110 15 0.11 8.1 0.3 285	5.000 .500 .500 .440 .100	UG UG MG MG MG MG MG UN UM
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MONTGOMERY WATSON LABORATORIES

555 East Wainut Street Pasadena, California 91101 818 568 6400; Fax: 818 568 6324; 1 800 568 LABS (1 800 566 3227) Laboratory Report #45378

Kauai Water Department
Wayne Hinazumi
P.O. Box 1706
Lihue , HI 96766

Samples Received 23-jul-1998 14:36:48

I					•	•		المراجع والمراجع
"repared	Analyzed	QC Batch#	Method	Analyte	Result	, Units	MDL	Dilution
KAKI	(98072	3082)	Sampled	on 07/22/98				
	07/31/98	81769	(ML/S2320B) Alkalinity	110	mg/l	2.0	1
8/05/98	08/05/98	81814	(EPA/ML 200.7) Calcium, Total, ICAP	15	mg/1	1.0	1
	07/28/98	81365	(NL/SH 4500C)	() Cyanide	XD	mg/l	0.025	1
07	07/28/98	81291	(ML/S2510B) Specific Conductance	285	umho/cm	4.0	1
_07/27/98	08/03/98	81908	(ML/RPA 548.1) Endothall	ND	ug/1	5.0	1
	07/27/98	81211	(KL/SH 4500P) Fluoride	0.11	mg/l	0.10	1
•]	07/30/98	81536	(ML/RPA 547) Glyphosata	ND	ug/l	6.0	1
07/31/98	07/31/98	81627	(EPA/ML 245.1) Mercury	0.3	ug/l	0.50	1
10	07/24/9B	81374	(ML/EPA 300.0) Nitrite, Nitrogen by IC	ND	mg/l	0.10	1
-	07/25/98	81103	(ML/SM 4500H) Lab pH	8.1	Units	0.0010	1
07/31/98	08/03/98		(XPA 1613) 2,3,7,8 - TCDD	ND	PGL	1.5	1
			525 Semivo	platiles by GC/MS			•	
-37/27/98	07/29/98	81458) 2,4-Dinitrotoluene	ND	ug/l	0,10	Ē
07/27/98	07/29/98	81458) alpha-Chlordane	ND	ug/1	0.050	1
7/27/98	07/29/98	81458	(ML/EPA 525.2) Acenaphthylene	מא	ug/1	0.10	_
	07/29/98	81458	(ML/EPA 525.2	Alachlor	ND	ug/l	0.050	1 .
07/27/98	07/29/98	81458	(ML/EPA 525.2) Aldrin	ND	ug/1	0.050	1
27/27/98	07/29/98	81458	(ML/EPA 525.2) Anthracene	ND	ug/1	0.020	=
7/27/98	07/29/98	81458	(ML/EPA 525.2) Atrazine	ND	ug/l	0.020	1
07/27/98	07/29/98	81458	(ML/EPA 525.2	Benz (a) Anthracene	ND	ug/1	0.050	1
07/27/98	07/29/98	81458	(ML/EPA 525.2) Benzo(a) uvrene	ND	ug/1	0.030	1
7/27/98	07/29/98	81458		Benzo(b)Fluoranthene	ND	ug/l	0.020	. 1
_7/27/9B	07/29/98	81458	{ ML/EPA 525.2	Benzo(g,h,i)Perylene	ND	ug/1	0.020	1
07/27/98	07/29/98	81458		Benzo(k) Fluoranthene	ND	ug/1	0.020	1
7/27/98	07/29/98	81458		Di (2-Ethylhexyl) phthalate	ND	ug/1	0.60	1
7/27/98	07/29/98	81458		Bucylbenzylphthalate	מא	ug/1 ug/1		1
07/27/98	07/29/98	81458	•	Bromacil	מא	ug/1 ug/1	0.50	1
07/27/98	07/29/98	81458	• • • • • • • • • •	Butachlor	ND	ug/1 ug/1	2.0	1
7/27/98	07/29/98	81458	•	Caffeine	סא	ug/1	0.050	1
7/27/98	07/29/98	81458	•	Chrysene	מא	-	0.020	1
07/27/98	07/29/98	81458		Dibenz(a,h)Anthracene	ND	ug/1	0.020	1
1		-	,, ,		112	ug/l	0.050	1 .



MONTGOMERY WATSON LABORATORIES

555 East Wainut Street Pasadena, California 91101 818 568 6400; Fax: 818 568 6324; 1 800 566 LABS (1 800 566 5227) Laboratory Report #45378

Kauai Water Department (continued)

Prepared	Analyzed	QC Batch#	Method	Analyte	Result	Units	MDL	Dilucio
7/27/98	07/29/98	81458	(ML/EPA 525.2) Di-{2-Ethylhexyl}adipate	ND	. ug/l	0.60	1
7/27/98	07/29/98	81458	(ML/EPA 525.2) Diethylphthalate	0.7	ug/l	0.50	1 .
7/27/98	07/29/98	81458	(ML/EPA 525.2) Dieldrin	מא	ug/1	0.20	1
7/27/98	07/29/98	81458	(ML/EPA 525.2) Dimethylphthalate	ND	ug/1	0.50	1
7/27/98	07/29/98	81458	(ML/EPA 525.2) Dimethoate	340	ug/1	10	1
7/27/98	07/29/98	81458	(ML/EPA 525.2) Di-n-Butylphthalate	ND	ug/l	0.50	1
7/27/98	07/29/98	81458	(ML/EPA 525.2) Endrin	ND	ug/1	0.10	1
7/27/98	07/29/98	81458	(ML/EPA 525.2) Fluorene	ND	ug/l	0.050	1
7/27/98	07/29/98	81458	(ML/EPA 525.2) gamma-Chlordane	ND	ug/l	0.050	1
7/27/98	07/29/98	81458	(ML/EPA 525.2) Hexachloropenzene	סא	ug/l	0.050	ı
7/27/98	07/29/98	81458	(ML/EPA 525.2) Hexachlorocyclopentadiene	מא	ug/l	0.050	1
7/27/98	07/29/98	81458	(ML/EPA 525.2) Heptachlor	ND	ug/l	0.040	1
7/27/98	07/29/98	81458	(ML/EPA 525.2) Heptachlor Epoxide	ND	ug/l	0.020	1
7/27/98	07/29/98	81458	(ML/EPA 525.2) Indeno(1,2,3,c,d)Pyrene	סמ	ug/l	0.050	1
7/27/98	07/29/98	81458	(ML/EPA 525.2) Isophorone	סא	ug/1	0.50	1
7/27/98	07/29/98	81458	(ML/EPA 525.2) Lindane	מא	ug/1	0.020	1
7/27/98	07/29/98	81458	(ML/EPA 525.2) Methoxychlor	מא	ug/1	0.050	1
7/27/98	07/29/98	81458	(ML/EPA \$25.2) Metribuzin	מא	ug/l	0.050	1
7/27/98	07/29/98	81458	(ML/EPA 525.2) Molinate	מא	ug/l	0.20	1
7/27/98	07/29/98	81458	(ML/EPA 525.2) Metolachlor	סא	ug/1	0.050	1
7/27/98	07/29/98	81458	{ ML/EPA 525.2	trans-Nonachlor	מא	ug/l	0.050	1
7/27/98	07/29/98	81458	(ML/EPA 525.2) Pentachlorophenol	ND	ug/l	1.0	1
7/27/98	07/29/98	81458	(ML/EPA 525.2) Phenanthrene	ND	ug/l	0.020	1
7/27/98	07/29/98	81458	(ML/EPA 525.2) Prometryn	ND	ug/l	0.50	1
7/27/98	07/29/98	81458	(ML/EPA 525.2	Propachlor	- ND	ug/l	0.050	1
7/27/98	07/29/98	81458	(ML/EPA 525.2	Pyrene	ND	ug/1	0.050	1
7/27/98	07/29/98	81458	(ML/EPA 525.2	Simazine	ND	ug/l ·	0.050	1
7/27/98	07/29/98	81458	(ML/EPA 525.2	Thiobencarb	ND	ug/l	0.20	1
7/27/98	07/29/98	81458	(ML/EPA 525.2	Trifluralin	ND	ug/l	0.10	1
			(Surrogate	Perylene-d12	93	* Rec		
			Aldicarbs			•		
	07/28/98	81419	(ML/EPA 531.1	3-Hydroxycarbofuran	ND	ug/l	2.0	1
	07/28/98	81419		Aldicarb (Tamik)	ИD	ug/l	0.50	ı
	07/28/98	81419	(ML/EPA 531.1	Aldicarb sulfone	ND	ug/1	0.80	1
	07/28/98	81419	/ MT./FDA 531 1 1	Aldicarb sulfoxide	מא	ug/l	0.50	1



MONTGOMERY WATSON 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 #45378

Kauai Water Department (continued)

Tepared	Analyzed	QC Batch#	Method	Analyte	Result	Units	MDL.	Dilution .
U)	07/28/98	81419	(ML/EPA 531.1)	Baygon	ИD	, ug/1	2.0	1
	07/28/98	81419	(ML/EPA 531.1)	Carbofuran (Furadan)	ND	ug/1	0.90	1
1	07/28/98	81419	(ML/EPA 531.1)	Carbaryl	מא	na\I	2.0	1
5	07/28/98	B1419	(ML/EPA 531.1)	Methiocarb	ND	ug/1	2.0	ı .
	07/28/98	81419	(ML/EPA 531.1)	Methomyl	ND	na\1	1.0	1
1	07/28/98	81419	(ML/EPA 531.1)	Oxamyl (Vydate)	ND	ug/l	2.0	1 ·
			(Surrogate)	BDMC	90	t Rec		
_			Diquat and	Paraquat				
25/98	07/27/98	81363	(ML/EPA 549.1)	Diquat	מא	ug/1	0.40	1
25/98	07/27/90	81363	(EPA 549.1)	Paraquat	ND	ug/l	2.0	1
			EDB and DB	CP by GC-ECD				
28/98	07/29/98	81457	(ML/EPA 504.1)	Dibromochloropropane (DBCP)	ND	ug/1	0.010	1
7/28/98	07/29/98	81457	(ML/EPA 504.1)	Ethylene Dibromide (EDB)	ND	ug/1	0.010	1
1			(Surrogate)	1,2-dibromopropane	96	% Rec		
.5			Herbicides	by 515.1				
7/24/98	07/30/98	81517	(ML/EPA 515.1)	-	ND	ug/l	0.20	1
24/98	07/30/98	81517	(ML/EPA 515.1)	2,4,5-TP (Silvex)	ND	ug/1	0.20	1
24/98	07/30/98	81517	(ML/EPA 515.1)	2,4-D	ND	ug/1	0.10	1
7/24/98	07/30/98	81517	(ML/EPA 515.1)	2,4-DB	ND	ug/l	2.0	1
24/98	07/30/98	81517	(ML/EPA 515.1)	Dichlorprop	מא	ug/l	0.50	1
24/98	07/30/98	81517	(ML/EPA 515.1)	Acifluorfen (qualitative)	ND	ug/l	0.20	1
7/24/98	07/30/98	81517	(ML/EPA 515.1)	Bentazon ·	ND	na/J	0.50	1
7/24/98	07/30/98	81517	(ML/EPA 515.1)	Dalapon (qualitative)	ND	ug/l	1.0	1
24/98	07/30/98	81517	(ML/EPA 515.1)	3,5-Dichlorobenzoic acid	סמ	ug/l	0.60	1
7-24/98	07/30/98	01517	(ML/EPA 515.1)	DCPA	MD	ug/l	0.20	1
7/24/98	07/30/98	81517	(ML/EPA 515.1)	Dicamba	ND	ug/1	0.080	1
24/98	07/30/9B	81517	(ML/BPA 515.1)	Dinoseb	ND	ug/l	0.20	1
24/98	07/30/98	81517	(ML/EPA 515.1)	Pentachlorophenol	ND	ug/1	0.040	1
7/24/98	07/30/98	81517	(ML/EPA 515.1)	Picloram	ND	ug/l	0.10	1
24/98	07/30/98	81517		4-Nitrophenol (qualitative) 2,4-Dichlorophenylacetic acid	ND 106	ug/l * Rec	S.O	1



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Kauai Water Department (continued)

Prepared	Analyzed	QC Batch#	Method	Analyte	Result	Units	MDL	Dilutio
						. •		
			ICPMS Meta	als				
7/31/98	07/31/98	B1637	{ EPA/ML 200.8) Arsenic, Total, ICAP/MS	מא	ug/1	5.0	1
7/31/98	07/31/98	81637	(EPA/ML 200.8) Barium, Total, ICAP/MS	ND	ug/l	10	1
7/31/98	07/31/98	81637	(EPA/ML 200.8) Beryllium, Total, ICAP/MS	ND CM	ug/1	1.0	1
7/31/98	07/31/98	81637	(EPA/ML 200.8) Cadmium, Total, ICAF/MS	ND	ug/1	0.50	1
7/31/98	07/31/98	81637	(EPA/ML 200.8) Chromium, Total, ICAP/MS	7.4	ug/l	5.0	1
7/31/98	07/31/98	81637	(EPA/ML 200.8) Copper, Total, ICAF/MS	ND	ug/1	50	1
7/31/98	07/31/98	81637	(EPA/ML 200.8) Nickel, Total, ICAP/MS	ND	ug/1	5.0	1
7/31/98	07/31/98	81637	(EPA/ML 200.8) Lead, Total, ICAP/MS	מא	ug/l	5.0	1
7/31/98	07/31/98	81637	(EPA/ML 200.8) Antimony, Total, ICAP/MS	פא	ug/1	2.0	1
7/31/98	07/31/98	81637	(EPA/ML 200.8) Selenium, Total, ICAP/MS	ND	ug/l	5.0	1
7/31/98	07/31/98	81637	(EPA/ML 200.8) Thallium, Total, ICAP/MS	מא	ug/1	1.0	1
			Nitrate by	r IC as NO3 & N				
	07/23/98	81259	(ML/EPA 300.0) Nitrate-N by IC	0.23	mg/1	0.10	1
	07/23/98	81259	(ML/EPA 300.0) Nitrate as NO3 by IC	1.0	mg/1	0.44	i
			SDWA Pesti	.cides				
7/28/98	07/31/98	81697	(ML/EPA 508) PCB 1016 Aroclor	11D	ug/1	0.10	1
7/28/98	07/31/98	81697	(ML/EPA 508) PCB 1221 Aroclor	מא	ug/1	0.10	1 ,
7/28/98	07/31/98	81697	(ML/EPA 508) PCB 1232 Aroclor	ND	ug/l	0.10	1
7/28/98	07/31/98	81697	(ML/EPA 508) PCB 1242 Aroclor	ND	ug/l	0.10	1
7/28/98	07/31/98	81697	(ML/EPA 508	PCB 1248 Aroclor	ND	ug/1	0.10	1
7/28/98	07/31/98	81697	(ML/EPA 508) PCB 1254 Aroclor	ND	ug/l	0.10	1
7/28/98	07/31/98	81697	(ML/EPA 508	PCB 1260 Aroclor	ND	ug/1	0.10	1
7/28/98	07/31/98	81697	(ML/EPA 508	Alpha-BHC	מא	ug/1	0.010	1
7/28/98	07/31/98	81697	(ML/EPA 508)	Alachlor (Alamex)	ND	ug/1	0.050	1
7/28/98	07/31/98	81697	(ML/EPA 508	Aldrin	ИD	ug/l	0.010	1
7/28/98	07/31/98	81697	(ML/EPA 508)	Beta-BHC	ND	ug/1	0.010	1
//28/98	07/31/98	81697	(ML/EPA 508)	Chlordane	ND	ug/l	0.10	1
//28/98	07/31/98	81697	(ML/EPA 508)	Chlorthalonil (Draconil, Brave)	ND	ug/1	0.010	1
/28/98	07/31/98	81697	(ML/EPA 508)	Delta-BHC	ND	ug/1	0.010	1
/28/98	07/31/98	81697	(ML/EPA 508)	ססס יק, ססס	ND	ug/1	0.010	1
7/28/98	07/31/98	81697	(ML/EPA 508)	p,p' DDE	ND	ug/l	0.010	1

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Kauai Water Department (continued)

Prepared	Analyzed	QC Batch#	Method	Analyce	Result	Units	MDL	Dilucion
1/28/98	07/31/98	81697	(ML/EPA SO8) p,p' DDT	מא	ug/1	0.010	1
7/28/98	07/31/98	81697	(HL/EPA 508) Dieldrin	ND	ug/1	0.010	1
728/98	07/31/98	81697	(ML/EPA 508) Endrin Aldehyde	מא	ug/1	0.010	1
-/28/98	07/31/98	81697	(ML/EPA 508) Endrin	מא	ug/1	0.010	1
7/28/98	07/31/98	81697	(ML/EPA 508) Endosulfan I (alpha)	מא	ug/l	0.610	1
/28/98	07/31/98	81697	(ML/EPA 508) Endosulfan II (beta)	ND	ug/1	0.010	1
//28/98	07/31/98	81697	(ML/EPA 508	} Endosulfan sulfate	מא	ug/l	0.010	1
7/28/98	07/31/98	81697	(ML/EPA 50B) Heptachlor	ND	ug/1	0.010	1
7/28/98	07/31/98	81697	(ML/EPA 508) Heptachlor Epoxide	מא	ug/1 .	0.010	1
1/28/98	07/31/98	81697	(ML/EPA 508) Lindane (gamma-BHC)	MD	ug/1	0.010	1
7/28/98	07/31/98	81697	(ML/EPA 508) Methoxychlor	ND	ug/l	0.050	1
7/28/98	07/31/98	81697	(ML/EPA 508) Toxaphene	ND	ug/1	0.50	1
ļ			(Surrogate) Dibutyl Chlorendate	116	¥ Rec		
į			(Surrogate) Tetrachlorometaxylene	116	* Rec		
r			Volatile	Organic Compounds				
	07/31/98	81765	(ML/EPA 502.2) 1,1,1,2-Tetrachloroethane	ND	ug/1	0.50	· 1
•	07/31/98	81765	(ML/EPA 502.2) 1,1,1-Trichloroethane	ND	ug/1	0.50	1
	07/31/98	81765	('ML/EPA 502.2) 1,1,2,2-Tetrachloroethane	ND	ug/1	0.50	1
	07/31/98	81765	(ML/EPA 502.2) 1,1,2-Trichloroethane	ND	ug/l	0.50	1
!	07/31/98	81765	(ML/EPA 502.2) 1,1-Dichloroethane	ND	ug/1	0.50	1
	07/31/98	81765	(ML/EPA 502.2) 1,1-Dichloroethene	ND	ug/l	0.50	1
	07/31/98	81765	(ML/EFA 502.2) 1,1-Dichloropropene	מא .	ug/l	0.50	1
	07/31/98	81765	(ML/EPA 502.2) 1,2,3-Trichloropropane	ND	ug/1	0.50	1
	07/31/98	81765	(ML/EPA 502.2) 1,2,3-Trichlorobenzene	ND	ug/1	0.50	1
2	07/31/98	81765	(ML/EPA 502.2) 1,2,4-Trichlorntanzene	ND	ug/l	0.50	1
	07/31/98	81765	(ML/EPA 502.2) 1,2,4-Trimethylbenzene	ND	ug/l	0.50	1
•	07/31/98	81765	(ML/EPA 502.2	} 1,2-Dichloroethane	ND	ug/1	0.50	1
_	07/31/98	81765	(ML/EPA 502.2) 1,2-Dichlorobenzene	ND	ug/1	0.50	1
	07/31/98	81765	(ML/EPA 502.2) 1,2-Dichloropropane	אם	ug/1	0.50	1
i	07/31/98	81765	(ML/EPA 502.2) 1,3,5-Trimethylbenzene	מא	ug/1	0.50	1
	07/31/98	81765	(ML/EPA 502.2) 1,3-Dichlorobenzene	ND	ug/1	0.50	1
Ì	07/31/98	81765	(ML/EPA 502.2) 1,3-Dichloropropane	מא	ug/l	0.50	1
	07/31/98	81765	(ML/EPA 502.2) 1,4-Dichlorobenzene	מא	ug/1	0.50	1
	07/31/98	81765	(ML/EPA 502.2) 2,2-Dichloropropane	מא	ug/1	0.50	1
ì	07/31/98	81765	(ML/EPA 502.2) 2-Chlorotoluene	ND	ug/l	0.50	1



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Kauai Water Department (continued)

Prepared	Analyzed	QC Batch#	Method	Analyte	Result	Units	MDL	Dilut	
	07/31/98	81765	(ML/EPA 502.2) 4-Chlorotoluene	ND	ug/1	0.50	1	
	· 07/31/98	81765	(ML/EPA 502.2) Bromodichloromethane	ND	ug/l	0.50	1	
	07/31/98	81765	{ ML/EPA 502.2) Benzene	ND	ug/1	0.50	1	-
	07/31/98	81765	(ML/EPA 502.2) Bromobenzene	ND	ug/1	0.50	1	
	07/31/98	81765	(ML/EPA 502.2) Bromochloromethane	ND	ug/1	0.50	1	
	07/31/98	81765	(ML/EPA 502.2) Bromomethane	מא	ug/1	0.50	1	-
	07/31/98	81765	(ML/EPA 502.2) cis-1,2-Dichloroethene	ND	ug/1	0.50	1	
	07/31/98	81765	(ML/EPA 502.2) Chlorobenzene	מא	ug/1	0.50	1	
	07/31/98	81765	(ML/EPA 502.2) Carbon tetrachloride	מא	ug/1	0.50	1	
	07/31/98	81765	(ML/EPA 502.2) cis-1,3-Dichloropropene	מא	ug/1	0.50	1	
	07/31/98	81765) Bromoform	ND	ug/1	0.50	1	٠.,
	07/31/98	81765	(ML/EPA 502.2)) Chloroform	ND	ug/l	0.50	1	
	07/31/98	81765	(ML/EPA 502.2)) Chloroethane	מא	ug/1	0.50	1	
	07/31/98	81765	(ML/EPA 502.2)) Chloromethane	ND	ug/1	0.50	1	
	07/31/98	81765	(ML/EPA 502.2)) Dibromochloromethane	· ND	ug/1	0.50	1	•
	07/31/98	81765	(ML/EPA 502.2)	1,2-Dibromo-3-chloropropane	MD	ug/1	1.0	1	,
	07/31/98	81765		Dibromomethane	ИД	ug/l	0.50	1	
	07/31/98	81765	(ML/EPA 502.2)	Dichlorodifluoromethane	ND	ug/1	0.50	1	٠
	07/31/98	81765		1,2-Dibromoethane	מא	ug/1	0.50	1	
	07/31/98	81765	(ML/EPA 502.2)	Ethylbonzene	ND	ug/1	0.50	1	***
	07/31/98	81765		Hexachlorobutadiene	ND	ug/l	0.50	1	k
	07/31/98	81765	(ML/EPA 502.2)	Isopropylbenzene	ND	ug/l	0.50	1	J . 1.
	07/31/98	81765		Methylene chloride	13.6	ug/1	0.50	1	
	07/31/98	81765	(ML/EPA 502.2)		מא	ug/1	0.50		
	07/31/98	81765		Mothyl tert-butyl ether	ND	ug/1	5.0	1	•
	07/31/98	81765	(ML/EPA 502.2)		מא	ug/1	0.50		
	07/31/98	81765	(ML/EPA 502.2)		ND	ug/1	0.50	1	•
	07/31/98	81765	(ML/EPA 502.2)		ND	ug/1	0.50	1	*-
	07/31/98	81765	(ML/EPA 502.2)		ND	ug/1	0.50	_	
	07/31/98	81765	(ML/EPA 502.2)	Tetrachloroethylene (PCE)	ND	ug/1	0.50	1 ,	5.
	07/31/98	81765		p-Isopropyltoluene	מא	ug/1	0.50	_	8
	07/31/98	81765	(ML/EPA 502.2)		מא	ug/l	0.50	1	5
	07/31/98		(ML/EPA 502.2)		מא	ug/1	0.50	_	
	07/31/98			trans-1,2-Dichloroethene	מא	ug/1 ug/1	0.50	1 •	:: 1
	07/31/98			tert-Butylbenzene	מא	ug/l		1	14
	07/31/98			Trichloroethylene (TCE)	מא	ug/1 ug/1	0.50	1	
			·			-9/I	0.50	1	ď



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Kauai Water Department (continued)

prepared	Analyzed	QC Batch#	Method	Analyte		Result	Units .	WDL .	Dilution
F	07/31/98	81765	(ML/EPA 502.2) Trichlorot	rifluoroethane (Freon	ND	' ug/l	., 0.50	·····································
_	07/31/98	81765	(ML/EPA 502.2	} trans-1,3-	Dichloropropene	ND	ug/l	0.50	1
周	07/31/98	81765	(ML/EPA 502.2) Toluene		ND	ug/l	0.50	1
7.7	07/31/98	81765	(ML/EPA 502.2) Trichlorof	luoromethane	MD	ug/l	0.50	1
	07/31/98	81765	(ML/EPA 502.2	} Vinyl chlo:	ride	ND	ug/1	0.30	1
			(Surrogate) Bromofluore	obenzene-ELCD	85	₹ Rec		
			(Surrogate) Bromofluore	obenzene-PID	90	1 Rec		
			(Surrogate) Chlorofluo:	robenzene-ELCD	93	* Rec		
			(Surrogate) Chlorofluo:	rcbenzene-PID	93	* Rec		



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Kauai Water Department

	· · · · · · · · · · · · · · · · · · ·	
	QC Batch #81103	Lab PH
QC DUP	Analyte Spiked sample	Spiked Recovered Yield (%) Limits (%) RPD (%) lab # 98 0724111 (0.00 - 0.00)
	QC Batch #81211	Fluoride
QC MS LCS1 LCS2 MBLK MS	Analyte Spiked sample Fluoride Fluoride Fluoride Fluoride Fluoride	Spiked Recovered Yield (%) Limits (%) RPD (%) Lab # 98 0722065 (0.00 - 0.00) 0.87
	QC Batch #81259	Nitrate by IC as NO3 & N
QC MS LCS1 LCS2 MS	Analyte Spiked sample Nitrate-N Nitrate-N Nitrate-N	Spiked Recovered Yield (%) Limits (%) RPD (%) Lab # 9 ⁸ 0722074 (0.00 - 0.00) 2.5 2.6 104.0 (90.00 - 110.00) 2.5 2.6 104.0 (90.00 - 110.00) 0.00
MBTK N2D	Nitrate-N Nitrate as NO3 by IC	2.5 2.0 80.0 (75.00 - 125.00) 2.5 2.0 80.0 (75.00 - 125.00) 0.00
	QC Batch #81291	Specific Conductance
DUP OC	Analyte Spiked sample	Spiked Recovered Yield (%) Limits (%) RPD (%) Lab # 98 0722195 (0.00 - 0.00)

Spikes which exceed Limits and Method Blanks with positive results are highlighted by <u>Underlining.</u> Criteria for MS and DUP are not applicable for ICR monitoring.

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Kauai Water Department (continued)

	QC Batch #81363	Diquat	and Paraqu	ıat	·
HBLK LCS1 MBLK QC	Analyte Spiked sample Diquat Diquat Diquat	Spiked Lab # 98 10.0 ND - 10.0	Recovered Yie 0723052 9.64 96.4 9.66 86.6	ld (%) Limits (%) { 0.00 - 0.00 } { 70.00 - 130.00 } .	RPD (%
MBTK FC31	Paraquat Paraquat	10.0 ND	10.7 107.0	(70.00 - 130.00)	
n3	Paraquat	10.0	9.45 94.9	(70.00 - 130.00)	
	QC Batch #81365	Cyanide	e		
CC NS LCSI NBLK NS NS	Analyte Spiked sample Cyanide Cyanide Cyanide Cyanide Cyanide	Spiked Lab # 98 0.10 ND 0.096 0.096	Recovered Yiel 0723082 0.094 94.0 0.088 91.7 0.090 93.8	d (%) Limits (%) (0.00 ~ 0.00) (90.00 ~ 110.00) (80.00 - 120.00) (80.00 - 120.00)	RFD (%)
	QC Batch #81374	Nitrite	, Nitrogen		
иs QC	Analyte Spiked sample Nitrite, Nitrogen by IC	Lab # 98	Recovered Yield 0724107	(0.00 - 0.00)	RPD (%)
LCS2 MBLK	Mitrite, Mitrogen by IC Mitrite, Mitrogen by IC		0.98 98.0 0.97 97.0	(90.00 - 110.00) (90.00 - 110.00)	1.0
KSD KSD	Mitrite, Mitrogen by IC Mitrite, Mitrogen by IC		1.04 104.0 1.05 105.0	(80.00 - 120.00) (80.00 - 120.00)	0.96

Spikes which exceed Limits and Method Blanks with positive results are highlighted by Underlining. Criteria for MS and DUP are not applicable for ICR monitoring.



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Kauai Water Department (continued)

QC Batch #81419

Aldicarbs

δc	Analyte	Spiked	Recovered	Yield (%)		
LCS1	3-Rydroxycarbofuran	20.0	19.8	99.0	•••	RPD (%)
MBLK	3-Hydroxycarbofuran	מא		33.0	(80.00 - 120.00)	
rs	3-Eydroxycarbofuran	20.0	29.0	100.0		
ns	Spiked sample	Lab # 98	0723082	100.0	(80.00 - 120.00)	
LCSI	Aldicarb (Temik)	20.0	13.6	93.0	(0.00 - 0.00)	
HBLK	Aldicarb (Tamik)	מא	20.0	33.0	(80.00 - 120.00)	
нs	Aldicarb (Temik)	20.0	20.5	102.5		
LCS1	Aldicarb sulfons	20.0	18.6	93.0	(80.00 - 120.00)	
MBLE	Aldicarb sulfone	ЖD		33.0	(80.00 - 120.00)	
KS	Aldicarb sulfone	20.0	19.7	98.5		
LCSl	Aldicarb sulfoxide	20.0		99.0	(80.00 - 120.00)	
MBLK	Aldicarb sulfoxide	ND		35.0	(80.00 - 120.00)	
MS	Aldicarb sulfoxide	20.0	20.0	100.0		
LCS1	Baygon	20.0		98.5	(80.00 - 120.00)	
MBLK	Baygon	ND		J0.3	(80.00 - 120.00)	
MS	Baygon	20.0	19.7	98.5	4	
LCS1	Carbofuran (Furadan)			99.0	(80.00 - 120.00)	
MBLX	Carbofuran (Furadan)	ND		77.0	(80.00 - 120.00)	
NS	Carbofuran (Furadan)	20.0	19.9 5	9.5		
LCS1	Carbaryl		•	6.0	(80.00 - 120.00)	
MBLX	Carbaryl	ХD			(80.00 - 120.00)	
иs	Carbaryl	20.0	20.0 1	00.0		
LCS1	Methiocarb		•	6.0	(80.00 - 120.00)	
MBLK	Mathiocarb	מא			(80.00 - 120.00)	
KS	Nethiocarb	20.0	L9.4 9	7.0		
LCS1	Kethomyl		•	6.0	(80.00 - 120.00)	
MBLX	Methomyl				(80.00 - 120.00)	
¥S	Methomyl	20.0 1	9.8 99	9.0		
LCS1	Oxamyl (Vydate)				(80.00 - 120.00)	
XBLX	Oxamyl (Vydate)	and a			(80.00 ~ 120.00)	
из	Oxamyl (Vydate)	20.0 1	9.8 99	.0	(80.00 - 120.00)	

Spikes which exceed Limits and Method Blanks with positive results are highlighted by <u>Underlining.</u> Criteria for MS and DUP are not applicable for ICR monitoring.



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MBLK

Alachlor

MONTGOMERY WATSON LABORATORIES

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Kauai Water Department (continued)

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	QC Batch #81457	EDB an	d DBCP	by GC-EC	מי	
oc.	Analyte	Spiked	Recovered	Yield (%)	Limits (%)	RPD (%)
DUP	Spiked sample	Lab # 98	0723275		(0.00 - 0.00)	
MS.	Spiked sample	Lab # 98	0723274		(0.00 - 0.00)	
DUP	Dibromochloropropane (DBCP)	0.11	0.11		(0.00 - 20.00)	0.0
LCSI	Dibromochloropropane (DBCP)	0.10	0.11	110.0	(60.00 - 140.00)	
LCS2	Dibromochloropropane (DBCP)	0.10	0.10	100.0	(60.00 - 140.00 }	9.5
MBLK	Dibromochloropropane (DBCP)	ND				
MS	Dibromochloropropane (DBCP)	0.10	0.09	90.0	(60.00 - 140.00)	
DUP	Ethylene Dibromide (EDB)	0.26	0.26		(0.00 - 20.00)	0.0
LCS1	Ethylene Dibromide (EDB)	0.10	0.10	100.0	(60.00 - 140.00)	
LCS2	Ethylene Dibromide (EDB)	0.10	0.09	90.0	(60.00 - 140.00 }	11
MBLK	Ethylene Dibromide (EDB)	ND				
ЖS	Ethylene Dibromide (EDB)	0.10	0.10	100.0	(60.00 - 140.00)	
DUP	1,2-dibromopropane (surr)	100	101		(60.00 - 140.00)	101.0
LCS1	1,2-dibromopropana (surr)	100	101	101.0	(60.00 - 140.00)	
LCS2	1,2-dibromopropane (surr)	100	90	90.0	(60.00 - 140.00)	12
MBLK	1,2-dibromopropane (surr)	100	100	100.0		
KS	1,2-dibromopropane (surr)	100	90	90.0	(60.00 - 140.00)	
	QC Batch #81458	525 Se	mivolat	iles by	GC/MS	
QC	Analyte	Spiked	kecovered	Yield (%)	Limits (%)	RPD (%)
LCS1	alpha-Chlordane	2	2.21	110.5	(70.00 - 130.00)	
HBLE	alpha-Chlordane	ЖD				
MS	alpha-Chlordane	2	2.06	103.0	(70.00 - 130.00)	
MBLE	Dissinon	MD				
KS	Spikad sample	Lab # 98	0722204		(0.00 - 0.00)	
LCS1	Acenaphthylene	2	1.87	93.5	(70.00 - 130.00)	
MILK	Acenaphthylene	מא				
жs	Acenaphthylene	2	1.68	84.0	(70.00 - 130.00)	
LCS1	Alachlor	2	2.14	107.0	(70.00 - 130.00)	

Spikes which exceed Limits and Mathod Blanks with positive results are highlighted by <u>Underlining.</u>
Criteria for MS and DUP are not applicable for ICR monitoring.

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Kauai Water Department (continued)

M5	Alachior	2	2.14	107.0	(70.00 - 130.00)
LCS1	Aldrin	2	2.05	102.5	(70.00 - 130.00)
MBLK	Aldrin	מא			•
MS	Aldrin	2	1.99	99.5	(70.00 - 130.00)
LCS1	Anthracene	2	2.03	101.5	{ 70.00 - 130.00 }
MBLK	Anthracene	ND			•
MS	Anthracene	2	1.85	92.5	{ 70.00 - 130.00 }
LCS1	Atrazine	2	2.08	104.0	(70.00 - 130.00)
MBLK	Atrazine	ND			
MS	Atrazine	2	2.19	109.5	(70.00 - 130.00)
LCSI	Benz (a) Anthracene	2	1.90	95.0	(70.00 - 130.00)
MBLK	Benz (a) Anthracene	ND			·
MS	Benz (a) Anthracene	2	1.87	93.5	(70.00 - 130.00)
LCS1	Benzo(a)pyrene	2	1.99	99.5	(70.00 - 130.00)
MBLK	Benzo(a) pyrene	מא			
MS	Benzo(a)pyrene	2	1.75	87.5	(70.00 - 130.00)
LCS1	Benzo(b) Fluoranthene	2	2.16	108.0	(70.00 - 130.00)
MBLK	Benzo (b) Pluoranthene	ND			·
MS	Benzo (b) Fluoranthene	2	2.01	100.5	(70.00 - 130.00)
LCS1	Benzo (g, h, i) Perylene	2	1.97	98.5	(70.00 - 130.00)
MBLK	Benzo (g, h, i) Perylene	מא			
MS	Benzo (g, h, i) Porylene	2	1.75	87.5	(70.00 - 130.00)
LCS1	Benzo(k) Pluoranthene	2	2.03	101.5	(70.00 - 130.00)
MBLK	Benzo (k) Fluoranthene	ND			
MS	Benzo(k) Fluoranthene	2	1.96	98.0	(70.00 - 130.00)
LCS1	Di (2-Ethylhexyl) phthalate	2	2.18	109.0	(70.00 - 130.00)
MBLK	Di (2-Ethylhexyl) phthalate	ND			
MS	Di (2-Ethylhexyl) phthalate	2	2.46	123.0	(70.00 - 130.00)
LCS1	Butylbenzylphthalate	2	1.90	95.0	(70.00 - 130.00)
MBLK	Butylbenzylphthalate	ND			
MS	Butylbenzylphthalate	2	2.17	108.5	(70.00 - 130.00 }
MBLK	Bromacil	;1TD			
MBLK	Butachlor	ND			
LCS1	Caffeine	2	2.19	109.5	(70.00 - 130.00 }
MBLK	Caffeine	מא			
MS	Caffeine	2	1.90	95.0	(70.00 - 130.00)
LCS1	Chrysene ·	2	2.08	104.0	(70.00 - 130.00)
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Spikes which exceed Limits and Method Blanks with positive results are highlighted by <u>Underlining.</u> Criteria for MS and DUP are not applicable for ICR monitoring.

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MONTGOMERY WATSON LABORATORIES

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Laboratory QC Report 2#45378

555 East Wainut Street Pazadena, California 91101 818 568 6400; Fax: 818 568 6324; 1 800 566 LABS (1 800 566 5227)

Kauai Water Department (continued)

маьк	Chrysene	מא			
MS	Chrysene	2	2.06	103.0	(70.00 - 130.00)
LCS1	Dibenz (a, h) Anthracene	2	2.10	105.0	(70.00 - 130.00)
MBLK	Dibenz (a, h) Anthracene	ND			
MS	Dibenz (a, h) Anthracene	2	1.82	91.0	(70.00 - 130.00)
LCS1	Di-(2-Ethylhexyl)adipate	2	2.16	108.0	(70.00 - 130.00)
MBLK	Di-(2-Ethylhexyl)adipate	ND		•	
MS	Di-(2-Ethylhexyl)adipate	2	2.03	101.5	(70.00 - 130.00)
LCSI	Diethylphthalate	2	2.10	105.0	(70.00 - 130.00)
MBLK	Diethylphthalate	ND			
MS	Diethylphthalate	2	2.21	110.5	(70.00 - 130.00)
MBLK	Dieldrin	ND			
LCS1	Dimethylphthalate	2	2.22	111.0	(70.00 - 130.00)
MBLK	Dimethylphthalate	ND			
MS	Dimethylphthalate	2	2.16	108.0	(70.00 - 130.00)
MBLK	Dimethoate	ND			
LCS1	Di-n-Bucylphchalace	2	2.27	113.5	(70.00 - 130.00)
MBLK	Di-n-Butylphthalace	ND			
MS	Di-n-Butylphthalate	2	1.54	77.0	{ 70.00 - 130.00 }
LCS1	Endrin	2	2.04	102.0	(70.00 - 130.00)
MBLK	Endrin	ND			
MS	Endrin	2	2.11	105.5	(70.00 - 130.00)
LCSl	Fluorene	2	2.21	110.5	(70.00 - 130.00)
MBLK	Fluorene	ИД			
MS	Fluorene	2	2.09	104.5	(70.00 - 130.00)
LĊS1	gamma-Chlordane	2	2.17	108.5	(70.00 - 130.00)
MBLK	gamma-Chlordane	ND			
MS	gamma-Chlordane	2	2.09	104.5	(70.00 - 130.00)
LCSI	Hexachlorobenzene	2	2.04	102.0	(70.00 - 130.00)
MBLK	Hexachlorobenzana	ND			
MS	Hexachlorobenzene .	2	1.93	96.5	(70.00 - 130.00)
LCS1	Hexachlorocyclopentadiene	2	2.08	104.0	(70.00 - 130.00 }
MBLK	Hexachlorocyclopentadiene	ND			
MS	Hexachlorocyclopentadiene	2	1.72	86.0	(70.00 - 130.00)
LCS1	Heptachlor	2	2.05	102.5	(70.00 - 130.00)
MBLK	Heptachlor	ND			
MS	Heptachlor	2	2.08	104.0	(70.00 ~ 130.00 }

Spikes which exceed Limits and Hethod Blanks with positive results are highlighted by <u>Underlining</u>. Criteria for MS and DUP are not applicable for ICR monitoring.



MONTGOMERY WATSON LABORATORIES

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Kauai Water Department (continued)

		_	2.12	106.0	(70.00 - 130.00)
LCS1	Heptachlor Epoxide	2	2.12	100.0	4
MBLK	Heptachlor Epoxide	ND	2.14	107.0	(70.00 - 130.00)
MS	Heptachlor Epoxide	2		101.0	(70.00 - 130.00)
LCSI	Indeno(1,2,3,c,d) Pyrene	2	2.02	101.0	•
MBLK	Indeno(1,2,3,c,d) Pyrene	ИD		94.0	(70.00 - 130.00)
MS	Indeno(1,2,3,c,d) Pyrene	2	1.88	74.0	• ***
MBLK	Isophorone	ND		98.0	(70.00 - 130.00)
LCS1	Lindane	2	1.96	76.0	•
MBLK	Lindane	פא		100.5	(70.00 - 130.00)
MS	Lindane	2	2.01	102.0	(70.00 - 130.00)
LCS1	Methoxychlor	2	2.94	102.0	,
MBLK	Methoxychlor	ND			(70.00 - 130.00)
MS	Methoxychlor	2	2.22	111.0	()(
MBLK	Mecribuzin	ИD			(70.00 - 130.00)
LCSl	Molinate	2	2.19	109.5	, ,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,
MBLK	Molinate	ND		400 5	(70.00 - 130.00)
MS	Molinate	2	2.19	109.5	()2000
MBLK	Mecolachior	ND			(70.00 - 130.00)
LCS1	trans-Nonachlor	2	2.08	104.0	(10100
MBLK	trans-Nonachlor	ND	_		(70.00 - 130.00)
MS	trans-Nonachlor	2	2.19	109.5	(70.00 - 130.00)
LC51	Pentachlorophenol	8	7.72	96.5	(10100
MBLK	Pentachlorophenol	ND		0	(70.00 - 130.00)
MS	pentachlorophenol	8	10.3	128.8	(70.00 - 130.00)
LCS1	Phenanthrene	2	2.02	101.0	,
MBLK	Phenanthrene	ND			(70.00 - 130.00)
MS	Phenanthrene	2	1.94	97.0	(70.00
MBLK	Prometryn	ND			
MBLK	Propachlor	ND		-	(70.00 - 130.00)
LCS1	Pyrene	2	2.09	104.5	(/0:00
MBLK	Pyrene	ND			(70.00 - 130.00)
MS	Pyrene	2	2.16	108.0	(70.00 - 130.00)
LCS1	Simazine	2	2.27	113.5	()0.00
MBLK	Simazine	ND			(70.00 - 130.00)
MS	Simazine	2	2.15	107.5	(70.00 ~ 130.00)
LCS1	Thiobencarb	2	2.04	102.0	()0.00
MBLK	Thiobencarb	ND			
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Spikes which exceed Limits and Method Blanks with positive results are highlighted by <u>Underlining.</u>
Criteria for MS and DUP are not applicable for ICR monitoring.

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MBLK

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Kauai Water Department (continued)

2)	MS	Thiobencarb	2	2.07	103.5	(70.00 - 130.00)	
,	MBLK	Trifluralin	מא		•	•	
رخ.		QC Batch #81517	Herbic	ides by	y 515.1		
-	QC	Analyte	Spikad	Recovered	Yield (%)	Limits (%)	RPD (%)
- 9	LCS1	2,4,5-T	0.50	0.56	112.0	(68.00 - 166.00)	
£,	MBLK	2,4,5-T	ND CTK				
	жs	2,4,5-T	0.50	0.55	110.0	(68.00 - 166.00)	
	LCSI	2,4,5-TP (Silvex)	0.50	0.34	108.0	(42.00 - 226.00)	
-3	MBLK	2,4,5-TP (Silvex)	ND				
	ЖS	2,4,5-TP (Silvex)	0.50	0.55	110.0	{ 42.00 - 226.00 }	
	, LCS1	2,4-D	1.00	1.1	110.0	{ 49.00 - 214.00 }	
	MBLK	2,4-D	מא				
	MS	2,4-D	1.00	1.1	110.0	(45.00 - 214.00)	
	LCS1	2,4-DB	4.00	3.1	77.5	(48.00 - 126.00)	
	MBLK	2,4-DB	ЖD				
(, ,)	XS	2,4-DB	4.00	4.5	112.5	(48.00 - 126.00)	
_	LCS1	Dichlorprop	1.50	1.6	106.7	(46.00 - 168.00)	
	MBLK	Dichlorprop	ND				
	MS	Dichlorprop	1.50	1.6	106.7	(46.00 - 168.GO)	
	иs	Spiked sample	Lab # 98	0723048		(0.00 - 0.00)	
	LCS1	Acifluorien (qualitative)	0.50	0.26	52.0	(74.00 - 168.00)	
	MBLK	Acifluorfen (qualitative)	ND				
	KS	Acifluorfen (qualitative)	0.50	0.43	86.0	(74.00 - 168.00)	
483	lcs1	Bentason	1.00	1.1	110.0	(70.00 - 170.00)	
	HBLE	Bentason	ND				
CI	ЖS	Bentaron	1.00	1.2	120.0	(70.00 - 170.00)	
	LCS1	Dalapon (qualitative)	6.50	6.0	92.3	(40.00 - 160.00)	
	XBLK	Dalapon (qualitative)	מוג				
	NS	Dalapon (qualitative)	6.50	5.6	86.2	(40.00 - 160.00)	
	rcs1	3,5-Dichlorobenzoic acid	0.50	0.51	102.0	(53.00 - 151.00 }	
628	XBLK	3,5-Dichlorobenzoic acid	מא				
	K3	3,5-Dichlorobenzoic acid	0.50	0.53	106.0	(53.00 - 151.00)	
	LCS1	DCPA	0.50	0.58	116.0	(44.00 - 104.00)	

Spikes which exceed Limits and Method Blanks with positive results are highlighted by <u>Underlining.</u>
Criteria for MS and DUP are not applicable for ICR monitoring.



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Kauai Water Department (continued)

MS	DCPA	0.50	0.59	118.0	(44.00 - 104.00)	
LCS1	Dicamba	0.50	0.50	100.0	(38.00 - 232.00)	
MBLK	Dicamba	ND			.,	
MS	Dicamba	0.50	0.51	102.0	(38.00 - 232.00)	
LCS1	Dinoseb	1.00	0.63	63.0	(0.00 - 85.00)	
MBLK	Dinoseb	ND				
MS	Dinoseb	1.00	0.70	70.0	(0.00 - 85.00)	
LCS1	Pentachlorophenol	0.50	0.46	92.0	(36.00 - 224.00)	
MBLK	Pentachlorophenol	מא				
MS	Pentachlorophenol	0.50	0.53	106.0	(36.00 - 224.00)	
LCS1	Picloram	0.50	0.47	94.0	(45.00 - 138.00)	
MBLK	Picloram	ND				
MS	Picloram	0.50	0.51	102.0	(45.00 - 138.00)	
LCS1	4-Nicrophenol (qualitative)	0.50	0.52	104.0	(60.00 - 202.00)	
MBLK	4-Nitrophenol (qualitative)	ND				
MS	4-Nitrophenol (qualitative)	0.50	0.56	112.0	(71.00 - 202.00)	
LCS1	2,4-Dichlorophenylacetic acid	100.	106	106.0	(70.00 - 130.00)	
MBLK	2,4-Dichlorophenylacetic acid	100	107	107.0		
MS	2,4-Dichlorophenylacetic acid	100	107	107.0	(70.00 - 130.00)	
	QC Batch #81536	Glypho	sate			
QC	Analyte	Spiked	Recovered	Yield (%)	Limits (%)	RPD (%)
MS	Spiked sample	Lab # 98	0722002		(0.00 - 0.00)	
LCS1	Glyphogate	50	52.2	104.4	(70.00 - 130.00)	
MBLK	Glyphosate	ND				
ЖS	Glyphosate	50	49.3	98.6	(70.00 - 130.00)	
	QC Batch #81627	Mercur	Y			
QC	Analyte	Spiked	Recovered	Yield (%)	Limits (%)	RPD (%)
MS	Spiked sample	Lab # 98	80723263	,	(0.00 - 0.00)	
LCS1	Hercury	1.56	1.68	107.7	(85.00 - 115.00)	
LCS2	Mercury	1.56	1.50	96.2	(85.00 ~ 115.00)	11
MBLK	Mercury	ND			,	

Spikes which exceed Limits and Method Blanks with positive results are highlighted by <u>Underlining.</u>
Criteria for MS and DUP are not applicable for ICR monitoring.

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Kauai Water Department (continued)

	MS	Mercury	1.56	1.76	112.8	{ 80.00 - 120.00 }	
F 5	MSD	Mercury	1,56	1.73	110.9	(80.00 - 120.00)	1.7
	1102	wareary	2.20			,	
5		QC Batch #81637	ICPMS	Metals			
-			- 13 3			Limits (%)	RPD (%)
	QC	Analyte	Spiked		Yield (*)	(85,00 - 115,00)	REL (4)
- 1	LCS1	Arsenic, Total, ICAP/HS	20	19.5	97.5	(00.00 - 220.00)	
	MBLK	Arsenic, Total, ICAP/MS	ND			(85.00 - 115.00)	
	LCS1	Barium, Total, ICAP/NS	100	99.7	99.7	(05.00 - 115.00)	
	MBLK	Barium, Total, ICAP/MS	ND			{ 85.00 - 115.00 }	
	LC\$1	Beryllium, Total, ICAP/MS	5	4.73	94.6	(00:00 - 111:00)	
	NBLK	Beryllium, Total, ICAP/HS	ЖD			(85,00 - 115.00)	
	LC91	Cadmium, Total, ICAP/MS	20	19.6	98.0	(05.00 - 115.00)	
F3	MBLK	Cadmium, Total, ICAP/HS	ИД			(85.00 - 115.00)	
	LCS1	Chromium, Total, ICAP/HS	100	94.7	94.7	(99:00 - 113:00)	
	XBLX	Chromium, Total, ICAP/HS	ND			(85.00 - 115.00)	
農	LCS1	Copper, Total, ICAP/MS	100	102	102.0	(65.00 - 115.00)	
	XBLK	Copper, Total, ICAP/MS	ND				
19	LCS1	Nickel, Total, ICAP/MS	50	48.8	97.6	(85.00 - 115.00)	
	MBLK	Nickel, Total, ICAP/HS	ND				
V-52	LCS1	Lead, Total, ICAP/MS	20	19.1	95.5	(85.00 - 115.00)	
	MBLK	Lead, Total, ICAP/MS	ND				
	LC\$1	Antimony, Total, ICAP/KS	5 0	46.5	93.0	(85.00 - 115.00)	
	MBLK	Antimony, Total, ICAP/MS	ND				
	LCS1	Selenium, Total, ICAP/MS	20	20.3	101.5	(85.00 - 115.00)	
	MBLX	Selenium, Total, ICAP/MS	מא			. 	
	LCS1	Thallium, Total, ICAP/MS	20	18.9	94.5	(85.00 - 115.00)	•
	MBLE	Thallium, Total, ICAP/MS	ND				
2 27							
		QC Batch #81697	SDWA P	esticio	ies		
		ge Batta #01057	52/11 1				
	gc .	Analyte	Spiked	Recovered	Yield (%)	Limits (%)	RPD (%)
	MBLK	PCB 1016 Arcelor	MD				
	MBLE	PCB 1221 Aroclor	ж		•		
)/BLK	PCB 1232 Aroclor	ND				

Spikes which exceed Limits and Method Blanks with positive results are highlighted by <u>Underlining.</u>
Criteria for MS and DUF are not applicable for ICR monitoring.



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MONTGOMERY WATSON LABORATORIES

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Kauai Water Department (continued)

LCS1	PCB 1242 Aroclor	0.500	0.509	101.8	(70.00 - 130.00)
MBLK	PCB 1242 Aroclor	ND			·
MBLK	PCB 1248 Aroclor	ND			, *
MBLX	PCB 1254 Aroclor	ND			
MBLK	PCB 1260 Aroclor	ND			
LCS1	Alpha-BHC	0.050	0.054	108.0	(62.00 - 122.00)
MBLK	Alpha-BHC	ND			, 55155 - 122:50)
MS	Alpha-BHC	0.056	0.056	112.0	(62.00 - 122.00)
MS	Spiked sample	Lab # 98	0722206		(0.00 - 0.00)
MBLK	Alachlor (Alanex)	ND			, 1110 - 0.00
LCSI	Alachlor (Alanex)	0.100	0.105	105.0	(70.00 - 130.00)
MS	Alachlor (Alanex)	0.100	0.102	102.0	(70.00 - 130.00)
LCS1	Aldrin	0.050	0.045	90.0	(56.00 - 116.00)
MBLK	Aldrin	מא			1 20.00 ,
rs em	Aldrin	0.050	0.051	102.0	(56.00 - 116.00)
LCS1	Beta-BHC	0.050	0.052	104.0	(65.00 - 125.00)
MBLK	Beta-BHC	ИD			
MS	Beca-BHC	0.050	0.051	102.0	(65.00 - 125.00)
MBLK	Chlordane	ND			1 223.00 ,
LC\$1	Chlorthalonil (Draconil, Bravo)	0.100	0.103	103.0	(61.00 - 121.00)
MBLK	Chlorthalonil (Draconil, Bravo)	מא			1.1.00 /
MS	Chlorthalonil (Draconil, Bravo)	0.100	0.104	104.0	(61.00 - 121.00)
LCS1	Delca-BHC	0.050	0.054	108.0	(68.00 - 136.00)
MBLK	Delta-BHC	מא			220100 /
MS	Delta-BHC	0.050	0.058	116.0	(68.00 - 136.00)
LCS1	ססס יק.ק	0.100	0.106	106.0	(77.00 - 137.00)
MBLK	ממם אים, מ	ND			,
MS	b.b, DDD	0.100	0.107	107.0	(77.00 - 137.00)
LCS1	b'b, pDE	0.100	0.111	111.0	(63.00 - 135.00)
MBLK	b'b, pos	מא			,
MS	p,p' DDE	0.100	0.112	112.0	(77.00 - 137.00)
LCS1	p,p' DDT	0.100	0.109	109.0	(62.00 - 162.00)
MBLK	p,p' DDT	ND			,
MS	p,p' DDT	0.100	0.117	117.0	(62.00 - 162.00)
LCS1	Dieldrin	0.100	0.110	110.0	(57.00 - 117.00)
MBLK	Dieldrin	ND			
MS	Dieldrin	0.100	0.110	110.0	(57.00 - 117.00)

Spikes which exceed Limits and Method Blanks with positive results are highlighted by <u>Underlining.</u> Criteria for MS and DUP are not applicable for ICR monitoring.

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MONTGOMERY WATSON LABORATORIES

555 East Walnut Street Pasadena, California 91101 818 568 6400; Fax: 818 568 6324; 1 800 566 LABS (1 800 566 5227) Laboratory QC Report #45378

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(58.00 - 118.00)

Kauai Water Department (continued)

Endrin Aldehyde

		0.200	0.051		, ,
MBLK	Endrin Aldehyde	ND			•
MS `	Endrin Aldehyde	0.100	0.085	85.0	(58.00 - 118.00)
LCS1	Endrin	0.100	0.108	108.0	{ 58.00 - 118.00 }
MBLK	Endrin	מא			
MS	Endrin	0.100	0.112	112.0	(58.00 - 118.00)
LCS1	Endosulfan I (alpha)	0.050	0.052	104.0	(57.00 - 117.00)
MBLK	Endosulfan I (alpha)	ND			
MS	Endosulfan I (alpha)	0.050	0.053	106.0	(62.00 - 122.00)
LCS1	Endosulfan II (beta)	0.100	0.105	105.0	(62.00 - 122.00)
MBLK	Endosulfan II (beta)	ND			
MS	Endosulfan II (beta)	0.100	0.104	104.0	(62.00 - 122.00)
LCS1	Endosulfan sulfate	0.100	0.116	116.0	(56.00 - 148.00)
MBLK	Endosulfan sulfate	ND			
MS	Endosulfan sulfate	0.100	0.115	115.0	(56.00 - 148.00)
LCS1	Gamma-BHC (Lindane)	0.050	0.056	112.0	(59.00 - 119.00)
MBLK	Gamma-BHC (Lindane)	ND			
MS	Gamma-BHC (Lindane)	0.050	0.062	124.0_	(59.00 - 119.00)
LCSI	Heptachlor	0.050	0.050	100.0	(63.00 - 133.00)
MBLK	Heptachlor	מא			
MS	Heptachlor	0.050	0.058	116.0	(63.00 - 133.00)
LCS1	Heptachlor Epoxide	0.050	0.056	112.0	(57.00 - 117.00)
MBLK	Heptachlor Epoxide	ND			
MS	Heptachlor Epoxide	0.050	0.056	112.0	(57.00 - 117.00)
LCS1	Methoxychlox	0.500	0.616	123.2	(64.00 - 146.00)
MBLK	Methoxychlor	ND			
MS	Methoxychlor	0.500	0.614	122.8	(64.00 - 146.00)
LCSI	Tetrachlorometaxylene (surr)	100	103	103.0	(70.00 - 130.00)
MBLK	Tetrachlorometaxylene (surr)	100	108	108.0	
MS	Tetrachlorometaxylene (surr)	100	114	114.0	(70.00 - 130.00)
LCS1	Dibutyl chlorendate (surr)	100	124	124.0	{ 70.00 - 130.00 }
MBLK	Dibutyl chlorendate (surr)	100	120	120.0	
MS	Dibutyl chlorendate (surr)	100	120	120.0	(70.00 - 130.00)
MBLK	Toxaphene	ND			

0.100

0.094

94.0

Spikes which exceed Limits and Method Blanks with positive results are highlighted by <u>Underlining.</u> Criteria for MS and DUP are not applicable for ICR monitoring.



MONTGOMERY WATSON LABORATORIES

555 East Walnut Street Pasadens, California 91101 818 568 6400; Fax: 818 568 6324; 1 800 566 LABS (1 800 566 5227) Laboratory QC Report #45378

Kauai Water Department (continued)

	QC Batch #81765	Volati	le Orga	nic Comp	ounds	,
gc	Analyte	Spiked	Recovered	Yield (%)	Limits (%)	RPD (%)
LCS1	1,1,1,2-Tetrachloroethane	4.00	4.56	114.0	(80.00 - 120.00)	
MBLK	1,1,1,2-Tetrachlorosthane	ND CK			•	
LCS1	1,1,1-Trichloroethane	4.00	4.79	119.8	(80.00 - 120.00)	
MBLK	1,1,1-Trichloroethans	ND			•	
LCSI	1,1,2,2-Tetrachloroethane	4.00	4.39	109.7	(80.00 - 120.00)	
MBLX	1,1,2,2-Tetrachloroethane	סא				
LCS1	1,1,2-Trichlorosthane	4.00	4.36	109.0	(80.00 - 120.00)	
MBLX	1,1,2-Trichloroethane	2712				
LCS1	1,1-Dichloroethane	4.00	4.57	114.2	(80.00 - 120.00)	
MBLK	1,1-Dichlorosthane	ND				
LCS1	1,1-Dichloroethene	4.00	4.60	115.0	(80.00 - 120.00)	
HBLK	1,1-Dichloroethene	ND				
LCS1	1,1-Dichloropropens	4.00	4.62	115.5	(80.00 - 120.00)	
MBLK	1,1-Dichloropropens	18TD				1
rear	1,2,3-Trichloropropane	4.00	4.54	113.5	(80.00 - 120.00)	
MBLK	1,2,3-Trichloropropans	ND				
LCS1	1,2,3-Trichlorobensens	4.00	3.90	97.5	(80.00 - 120.00)	
MBLE	1,2,3-Trichlorobenzene	MD				
LCS1	1,2,4-Trichlorobenzene	4.00	3.82	95.5	(80.00 - 120.00)	
MBLK	1,2,4-Trichlorobenzene	ND				
LCS1	1,2,4-Trimethylbenzens	4.00	4.36	109.0	(80.00 - 120.00)	
MBLK	1,2,4-Trimethylbenzene	ND				
LCS1	1,2-Dichloroethane	4.00	4.66	116.5	(80.00 - 120.00)	
HBLK	1,2-Dichloroethane	ND				
LCS1	1,2-Dichlorobenzene	4.00	4.23	105.8	(80.00 - 120.00)	
MBLK	1,2-Dichlosobenzene	ЖD			(80.00 - 120.00)	
LCS1	1,2-Dichloropropane	4.00	4.56	114.0	(80.00 - 120.00)	
MBLK	1,2-Dichloropropane	HD			(80.00 - 120.00)	
LCS1	1,3,5-Trimethylbenzene	4.00	4.50	112.5	(80.00 - 120.00)	
MBLK	1,3,5-Trimethylbenzone	ХD			(00 00 - 100 00)	
LCS1	1,3-Dichlorobenzene	4.00	4.24	106.0	(80.00 - 120.00)	
MBLK	1,3-Dichlorobenzane	ND				

Spikes which exceed Limits and Method Blanks with positive results are highlighted by <u>Underlining.</u>
Criteria for MS and DUP are not applicable for ICR monitoring.

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MONTGOMERY WATSON LABORATORIES

533 East Walnut Straet Pazadena, California 91101 818 568 6400; Fax: 818 568 6324; 1 800 566 LABS (1 800 566 5227) Laboratory QC Report #45378

Kauai Water Department (continued)

LCS1	1,3-Dichloropropane	4.00	4.26	106.5	(80.00 - 120.00)
MBLK	1,3-Dichloropropane	מא			•
LCS1	1,4-Dichlorobenzene	4.00	4.20	105.0	(80.00 - 120.00 }
MBLK	1,4-Dichlorobenzene	מא			
LCS1	2,2-Dichloropropane	8.00	B.72	109.0	(80.00 - 120.00)
MBLK	2,2-Dichloropropane	מא			
.LCS1	2-Chlorotoluene	4.00	4.39	109.7	(80.00 - 120.00)
MBLK	2-Chlorotoluene	מא			
LC51	4-Chlorotoluene	4.00	4.30	107.5	(80.00 - 120.00)
MBLK	4-Chlorotoluene	ND			
LCS1	Bromodichloromethane	4.00	4.43	110.8	(80.00 - 120.00)
MBLK	Bromodichloromethane	ND			
LCS1	Banzene	4.00	4.40	110.0	(80.00 - 120.00)
MBLK	Benzene	ND			
LCS1	Bromobenzene	4.00	4.25	106.2	(80.00 - 120.00)
MBLK	Bromobenzene	ND			
LCS1	Bromochloromethane	4.00	4.40	110.0	(80.00 - 120.00 }
MBLK	Bromochloromethane	ND			
LCS1	Bromomethane	2.00	2.28	114.0	(80.00 - 120.00)
MBLK	Bromomethane	ND			
LCS1	cis-1,2-Dichloroethene	4.00	4.43	110.8	(80.00 - 120.00)
MBLK	cis-1,2-Dichloroethene	ND			
LCS1	Chlorobenzana	4.00	4.46	111.5	(80.00 - 120.00)
MBLK	Chlorobenzene	ND			
LCS1	Carbon tetrachloride	4.00	4.75	118.8	(80.00 - 120.00)
MBLK	Carbon tetrachloride	ND			
LCS1	cis-1,3-Dichloropropene	4.00	4.47	111.8	(80.00 - 120.00)
MBLK	cis-1,3-Dichloropropene	ND			
LCS1	Bromoform	4.00	4.41	110.2	(80.00 - 120.00)
MBLK	Bromoform	ND			
LCS1	Chloroform	4.00	4.67	116.8	(80.00 - 120.00)
MBLK	Chloroform	מא			
LCS1	Chloroethane	2.00	2.23	111.5	(80.00 - 120.00)
MBLK	Chloroethane	ND			
LCS1	Chloromethane	2.00	2.38	119.0	(80.00 - 120.00)
MBLK	Chloromethane	ND			
LCS1	Dibromochloromethane	4.00	4.47	111.8	(80.00 - 120.00)

Spikes which exceed Limits and Method Blanks with positive results are highlighted by <u>Underlining.</u>
Criteria for MS and DUP are not applicable for TCR monitoring.



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MONTGOMERY WATSON LABORATORIES

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Kauai Water Department (continued)

MBLK	Dibromochloromethane	ND			
LCS1	1,2-Dibromo-3-chloropropane	4.00	4,39	109.7	(80.00 - 120.00)
rcsi	Dibromomethane	4.00	4.52	113.0	(80.00 - 120.00)
MBLK	Dibromomethana	ND			
LCS1	Dichlorodifluoromethane	2.00	2.15	107.5	(80.00 - 120.00)
MBLK	Dichlorodifluoromethane .	מא			
LCS1	1,2-Dibromoethane	4.00	4.27	106.7	(80.00 - 120.00)
LCS1	Ethylbenzene	4.00	4.46	111.5	(80.00 - 120.00)
MBLK	Ethylbenzene	ND			
LCS1	Hexachlorobutadiene	4.00	4.34	108.5	(80.00 - 120.00)
MBLK	Hexachlorobutadiene	ND			
LCSi	Isopropylbenzene	4.00	4.51	112.8	(80.00 - 120.00)
MBLK	Isopropylbenzene	ND			
LCS1	Mathylane chloride	4.00	4.45	111.2	(80.00 - 120.00)
MBLK	Methylene chloride	ND			
LCS1	m+p-Xylenes	8.00	8.35	104.4	(80.00 - 120.00)
MBLK	m+p-Xylenes	ND			
LCS1	Methyl tert-butyl ether	40.0	39.3	98.2	(80.00 - 120.00)
MBLK	Methyl tert-butyl ether	ND			
LCS1	Naphchalene	4.00	3.92	98.0	(80.00 - 120.00)
MBLK	Naphthalene	ND			
LCS1	n-Butylbenzene	4.00	4.32	108.0	(80.00 - 120.00)
MBLK	n-Butylbenzene	מא			
LCS1	n-Propylbenzene	4.00	4.54	113.5	(80.00 - 120.00)
MBLK	n-Propylbenzane	מא			
FC27	o-Xylene	4.00	4.36	109.0	. (80.00 - 120.00)
MBLK	o-Xylene	ND			
LCS1	Tetrachloroethylene (PCE)	4.00	4.70	117.5	(80.00 - 120.00)
MBLK	Tetrachloroethylene (PCE)	מא			
LCS1	p-Isopropylcoluene	4.00	4.42	110.5	(80.00 - 120.00)
MBLK	p-Isopropyltoluene	ND			
LCS1	sec-Butylbenzene	4.00	4.51	112.8	(80.00 - 120.00)
WBLK	sec-Butylbenzene	ND			
LCS1	Styrene	4.00	4.35	108.7	(80.00 - 120.00)
MBLK	Styrene	ND			
LCS1	Chlorofluorobenzena (surr) PID	100	106	106.0	(80.00 - 120.00)
MBLK	Chlorofluorobenzene (surr) PID	100	94	94.0	

Spikes which exceed Limits and Method Blanks with positive results are highlighted by <u>Underlining.</u>
Criteria for MS and DUP are not applicable for ICR monitoring.

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MONTGOMERY WATSON LABORATORIES

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Laboratory QC Report #45378

Kauai Water Department (continued)

ÆĢ.	LCS1	Bromofluorobenzene (surr) FID	100	108	108.0	(80.00 - 120.00)
	MBLK	Bromofluorobenzena (surr) PID	200	89	89.0	,
100	LCS1	Chlorofluorobenzene (surr) ELC	100	110	110.0	(80.00 - 120.00)
	MBLK	Chlorofluorobenzene (surr) ELC	100	90	90.0	
	LCS1	Bromofluorobenzene (surr) ELCD	200	103	103.0	(80.00 - 120.00)
_	MBLK	Bromofluorobenzene (surr) ELCD	100	89	89.0	
ı	LCS1	trans-1,2-Dichloroethene	4.00	4.52	113.0	(80.00 - 120.00)
Ţ.	MBLK	trans-1,2-Dichloroethene	מא			
	LCS1	tert-Butylbenzene	4.00	4.50	112.5	(80.00 - 120.00)
	MBLK	tert-Butylbenzene	ND			
	LCS1	Trichloroethylene (TCE)	4.00	1.68	117.0	(80.00 - 120.00)
	MBLK	Trichloroethylene (TCE)	ND			
_	MBLK	Trichlorotrifluoroethane (Freon	ND			
	LC\$1	Trichlorocrifluoroethane (Freon	2.00	2.34	117.0	(80.00 - 120.00)
C)	LCS1	trans-1,3-Dichloropropene	4.00	4.45	111.2	(80.00 - 120.00)
	MBLK	trans-1,3-Dichloropropene	ND			
	LCSI	Toluene	4.00	4.41	110.2	(80.00 - 120.00)
3	MBLK	Toluene	ND			
	LCS1	Trichlorofluoromethana	2.00	2.10	105.0	(80.00 - 120.00)
	MBLK	Trichlorofluoromethane	ND			
圜	LCS1	Vinyl chloride	2.00	2.25	112.5	(80.00 - 120.00)
7,50	MELK	Vinyl chloride	ND			

QC Batch #81769

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Alkalinity

ÖC.	Analyte	Spiked	Recovered	Yield (%)	Limits (%)	RPD (%)
NS	Spiked sample	Lab # 98	0723082		(0.00 - 0.00)	
rcsi	Alkalinity	96.2	95.6 9	9.4	(90.00 - 110.00)	•
LCS2	Alkalinity	96.2	95.8 9	9.6	(90.00 - 110.00)	0.21
MBLK	Alkalinity	XD				
KS	Alkalinity	96.2	. 89.0 9	2.5	(80.00 - 120.00)	
KSD	Alkalinity	36.2	90.0 9	3.6	(80.00 - 120.00)	1.1

Spikes which exceed Limits and Nethod Blanks with positive results are highlighted by Underlining. Criteria for MS and DOF are not applicable for ICR monitoring.



MONTGOMERY WATSON LABORATORIES

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Kauai Water Department (continued)

(QC Batch #81814	Calciu	n, Tota	al, ICAP	•	
QC	Analyte	Spiked	Recovered	Yield (%)	Limits (%)	RPD (%)
MS.	Spiked sample	Lab # 98	0723262		(0.00 - 0.00)	
LCS1	Calcium, Total, ICAP	50	50.4	100.8	(90.00 - 110.00)	
LCS2	Calcium, Total, ICAP	50	50.0	100.0	(90.00 - 110.00)	0.80
MBLK	Calcium, Total, ICAP	ND			•	
MS	Calcium, Total, ICAP	50	47.0	94.0	(80.00 - 120.00)	
MSD	Calcium, Total, ICAP	50	47.0	94.0	(80.00 - 120.00)	0.00
	QC Batch #81908	Endoth	all			
QC	Analyte	Spiked	Recovered	Yield (%)	Limits (%)	RPD (%)
HS.	Spiked sample	Lab # 98	0722004		(0.00 - 0.00)	
LCS1	Endothall	25	25.9	103.6	(80.00 - 120.00)	
KBLK	Endothall	ND				
MS	Endothall	25	37.8	151.2	(80.00 - 120.00)	

Spikes which exceed Limits and Method Blanks with positive results are highlighted by Underlining. Criteria for MS and DUP are not applicable for ICR monitoring.



(III) MONTGOMERY WATSON LABORATORIES

555 E. Walnut Street Pasadena, CA 91101 (626) 568-6400 Fax: (626) 568-6324

Ship to: Quanterra Environmental Services

880 Riverside Parkway

W. Sacramento, CA 95605 (916) 374-4348

Bill Recipient: FEDEX ACCT: 2060-8019-1

SUB LAB CONTACT Nannie Estrada Blanket Purchase Order 1846 OM Please refer to this number on Report & Invoice MWL GROUP # 45378 PO Sub#: 98- 1060

7/24/98

Please provide results by Fax &Mail

Altention: Martha Frost, Subcontract Administrator ext 6437

								980723082	阿尔拉斯斯斯特的	Number	MWL Lab	Please Use
			· ·	ن	Br.	2		PUKAKI			Client Sample ID for Reference only	
								7/22/98	光和松岭	Date	Sample Report	
								8/8/98	TE LEVEL TO THE	Needed On	Report	
								TCDD-DW BY 1613B	Espientisten in sustantisten in septimiser i		Analysis Requested	
								DW	ALC: N. P.	•	Matrix	
								2			# of	
							•	1 L AMB GLASS	阿斯斯斯斯		Containers	

RECEIVED BY: Chulchy Date: 7	RELINQUISHED BY MARTIN DEMESA		SPECIAL REQUIREMENTS:
Date: 7-25-98 1015 An Acknowledgment of Receipt is requested	Date: 7/24/98	8-52-640	red havol cont.

CC (1973)

@uanterra

Quanterra Incorporated 880 Riverside Parkway West Sacramento, California 95605

916 373-5600 Telephone 916 372-1059 Fax Environmental Services KAUAT 45378

August 6, 1998 QUANTERRA INCORPORATED PROJECT NUMBER: 300604 PO/CONTRACT: SUB 98-1060/Group # 45378

Martha Frost
Montgomery Watson Laboratories
555 East Walnut Street
Pasadena, CA 91101

Dear Ms. Frost:

This report contains the analytical results for the one aqueous sample which was received under chain of custody by Quanterra Incorporated on 25 July 1998.

The case narrative is an integral part of this report.

If you have any questions, please feel free to call.

Sincerely,

Nanny Estrada
Nanny Estrada

Project Manager

Advanced Technology

NE/m



TABLE OF CONTENTS

QUANTERRA INCORPORATED PROJECT NUMBER 300604

Case Narrative

Quanterra's Quality Assurance Program

Sample Description Information

Chain of Custody Documentation

2,3,7,8-TCDD - Method 1613B
Includes Sample(s): 1
Method Blank Sheet
Sample Data Sheet
Laboratory QC Report



CASE NARRATIVE

QUANTERRA INCORPORATED PROJECT NUMBER 300604

Detection limits for dioxins are reported on a sample specific basis and all results are recovery corrected per the isotope dilution technique.

There were no anomalies associated with this report.



QUANTERRA INCORPORATED QUALITY CONTROL PROGRAM

Quanterra has implemented an extensive Quality Control (QC) program to ensure the production of scientifically sound, legally defensible data of known documentable quality. This QC program is based upon requirements in "Test Methods for Evaluating Solid Waste", USEPA SW-846, Third Edition. It applies whenever SW-846 analytical methods are used. It also applies in whole or in part whenever project requirements fail to specify some aspect of QC practices described here. It does not apply when other well defined QC programs (e.g. CLP or CLP-like) are specified. This is Quanterra's base QC program for environmental analysis.

.Definitions:

Quality Control Batch. The quality control (QC) batch is a set of up to 20 field samples plus associated laboratory QC samples that are similar in composition (matrix) and that are processed within the same time period with the same reagent and standard lots.

Surrogate. A surrogate (or internal standard) is an organic compound similar in chemical behavior to the target analyte, but not normally found in environmental samples. Surrogates (or IS) are added to all samples in a batch to monitor the effects of both the matrix and the analytical process on accuracy.

Method Blank. A method blank (MB) is a control sample prepared using the same reagents used for the samples. As part of the QC batch, it accompanies the samples through all steps of the sample extraction and cleanup procedure. The method blank is used to monitor the level of contamination introduced to a batch of samples as a result of processing in the laboratory.

Laboratory Control Sample. A laboratory control sample (LCS) is prepared using a well characterized matrix (e.g., reagent water or Ottawa sand) that is spiked with known amounts of representative analytes. Alternate matrices (e.g., glass beads) may be used for soil analyses when Ottawa sand is not appropriate. As part of a QC batch, it accompanies the samples through all steps of the sample extraction and cleanup process. The LCS is used to monitor the accuracy of the analytical process independent of possible interference effects due to sample matrix.

<u>Duplicate Control Sample.</u> A duplicate laboratory control sample (DCS) consists of a pair of LCSs analyzed within the same QC batch to monitor precision and accuracy independent of sample matrix effects.



SAMPLE DESCRIPTION INFORMATION for Montgomery Watson Laboratories

 Lab ID
 Client ID
 Matrix
 Sampled Date
 Received Date

 300604-0001-MB 300604-0001-SA
 Method Blank 980723082 PUKAKI
 AQUEOUS AQUEOUS 22 JUL 98
 25 JUL 98 25 JUL 98

.



2,3,7,8-TCDD Method 1613B HIGH RESOLUTION

Client Name: Montgomery Watson Laboratories
Client ID: Method Blank
Lab ID: 300604-0001-MB
Matrix: AQUEOUS Sampled: NA
Authorized: 25 JUL 98 Prepared: 31 Sampled: NA Prepared: 31 JUL 98

Received: NA Analyzed: 05 AUG 98

Sample Amount Column Type 1.00 L DB-5

Detection Limit Data Parameter Result Units Qualifiers

Dioxins

2,3,7,8-TCDD ND pg/L 1.5

% Recovery

13C-2,3,7,8-TCDD 89

Reported By: Teri Stone

Approved By: Clark Pickell

The cover letter is an integral part of this report.

Rev 230787



2,3,7,8-TCDD Method 1613B HIGH RESOLUTION

Received: 25 JUL 98 Analyzed: 03 AUG 98

Client Name: Montgomery Watson Laboratories
Client ID: 980723082 PUKAKI
Lab ID: 300604-0001-SA
Matrix: AQUEOUS Sampled: 22
Authorized: 25 JUL 98 Prepared: 31 Sampled: 22 JUL 98 Prepared: 31 JUL 98

1.05 L DB-5 Sample Amount Column Type

Data Detection Qualifiers Units Limit Result Parameter

Dioxins

1.5 pg/L ND 2,3,7,8-TCDD

% Recovery

104 13C-2,3,7,8-TCDD

ND = Not detected NA = Not applicable

Reported By: Teri Stone

Approved By: Clark Pickell

The cover letter is an integral part of this report.

Rev 230787



LABORATORY CONTROL SAMPLE REPORT Advanced Technology Group - High Resolution Project: 300604

Category: 1613B-DW 2,3,7,8-TCDD by Method 1613B (Drinking Water)
Test: TCDD-1613B-EPA-DW
Matrix: AQUEOUS
QC Lot: 31 JUL 98-A
Concentration Units: pg/uL

Ánalyte	Concentration Spiked Measured	Accuracy(%) LCS Limits
2,3,7,8-TCDD	10.0 10.8	108 73-146
13C-2,3,7,8-TCDD	100 89.9	90 25-141

Calculations are performed before rounding to avoid round-off errors in calculated results.

Job =96-1

	Date: July	22,1998		
	SOUYCO: PU	IKAKİ (NOW SOUY	cowell)	
	collected a-	t 0920 on	7-22-98	
		indec Saito		
		sidual: Nonc -	a page 1 ages of 14 ages of 1 ages of	
	. Received in	n lab at 094	5 by c. sait	> Erefrigerated
	Tamp. (Ont	10) : 22.5°C	(on arrival)	
· · · · · · · · · · · · · · · · · · ·	JULY 13,	1998		rote: water had a yellowish
4		: # collform col		: TNTC / shoon color=
· · · · · · · · · · · · · · · · · · ·		End		
		control: (+		
				y en .
		116CFU	117 CFU Che	h
	:July 24,	1998 Time: 0	ბი <u>ა</u>	,
	in oc. date	7-23-48	7-23-90	7-23-98 (Time)
	:	176 1	3GB =====	=
	ics. control	+	+	+
	Ncg. control			Contid 5
	Market Country of the		en en en en en en en en en en en en en e	

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					2 - 1944 1940 - 1944 1940 - 1944	
	Contid PUKA	nki samplo				
:						
	Method: Heter	otrophic Plat	count.			
	1.0 m	L —	1.0 mL	0.1 mL	0.1 mL	
	TNTO	·	INTO	TNTC	TNTC	· ·
		٠.	•	<i>:</i> .		
	•••			. • · · •		
	control (ster	: (vtili)	(-)		-	
1000	HPC PYEPAIZE	l on July 2	2,1998			
.,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,	HPC propared	log only 2	.Z.1998	سه ۱۹۹۵ ها میدر پیدار در ۱۹۵۱ ها مودر افساد ا		
, , , , , , , , , , , , , , , , , , ,	HPC propared	l on only a	.2.1 <u>9</u> 98			
	HPC Propared	I on only a				
	HPC propared	1 on only 2	2.1998 			
	HPC Propared	I on only a				
	HPC Propared	I on only a	2.1998			
	HPC Propared	I on only a	2,1998			
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	HPC Propared	I on only a	2.1998			
	HPC Propared	I on only a	2.1998			

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	UNIV 21, 1998	And the second s
anna (Waya anna and)		7.74
PUKAKI (HAMAMAUIN)		
1510 7-21-98		A the second of
PH: 7.84	temp. 24.8	
	•	
•		a.c.s
		7

the state of the s

The state of the s
Avg. 3, 1998
(NON SOUTCE)
PUKAKI WOII 1145
PH : 7.73
turbidity: 0.71 NTU
conductivity: 239 ml
Hardness (total): 104mg/L
Hardnos (CA): 38mg/L
Formos (if) . So ity !
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		. s: =:
	ϵ .	
	AUNUST 7, 1998	Tr = _
	1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	
	(New So	
	special sample collected on 8-3-98 at 1145 from Pub	<u>ca</u>
,	Filter 25ml × 4	-
	Plate 1: Background: TNTC TAtypical	
	Plato 2: Background: TNTC Atypical	
· ·	Plate 3: Background: INTC	
	Plato 4: Background: TNTC . 4 Atypical > 1 typic	a
	sterility control begin: $(-)(-)(-)$ =nd: $(-)(-)(-)$	
	=nd: (-)(-)(-)	·
	Positive (ontrol: (+) Negative control: (-) Prepared on 7-31-98	
	Positive (ontrol: $(+)$	
	Positive control: (+) Negative control: (-) Prepared on 7-31-98 Positive on NA: (+)	
	Positive (ontrol: (+) Negative control: (-) Prepared on 7-31-98	
	Positive control: (+) Negative control: (-) Prepared on 7.31-98 Positive on NA: (+) The Negative on NA: (+) Pulsaki sample cort of 24 hr reading Aug. 6,1998 2 1100	
	Positive (ontrol: (+) Negative control: (-) Prepared on 7.31-98 Positive on NA: (+) Puraki sample count id 24 hr reading Aug. 6,1998 2 1100 ince, date: 8.5.98 8-5.98	
	Positive control: (+) Negative control: (-) Prepared on 7-31-98 Positive on NA: (+) Puraki sample cont d 24 hr reading Aug. 6,1998 2 1100 ince. date: 8-5-98 EGB EC Plate 1: +000 OGCO (Atypical)	
	Positive (ontrol: (+) Negative control: (-) Prepared on 7-31-98 POSITIVE DN NA: (+) THE NEGATIVE ON NA: (+) PUKAKI SAMPLE CONT id 24 hr reading Aug. 6,1998 2 1100 incc. date: 0.5-98 5-5-98 EGS EC Plato 1: (ATYPICAL) Plato 2: (ATYPICAL)	
	Positive (ontrol: (+) Negative control: (-) Prepared on 7-31-98 POSITIVE ON NA: (+) The Negative on NA: (+) Pukaki sample count id 24 hr reading Aug. 6, 1998 2 1100 ince. Ante: 2-5-98 3-5-98 EC Plato 1: +000 OCCO (Atypical)	

	UUIY 14,1998
	PUKAKI (HAMAMAUIU) 7-11-98
	Timo: 0809 (water is brown)
	Timo: 0809 (water is brown)
	<u> </u>
3	
	Timo: 0826
	CI-: 24ppm
	Timo: 0848
	C1-: 24ppm
	Timc: 1103
	CI-: 24 ppm
i	
	Timc: 1250
	C1: 24ppm

		40 S AP, W
The state of the s		e de la companya de l
	Time: 1411	
3		
	61-: 26 ppm	Na.
	Timo: 1019	•4*
	c1-: 26ppm	
		\
	time 1659 (Water is a little turbid)	
	di arrib (bala)	
	c1-: 26 ppm	
		_
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5411						
				UV		18
		Pukaki (Hand	maulu)			
		<u> </u>	7-15-98			
		0050 C1 : 26 P		<u> </u>	· · · · · · · · · · · · · · · · · · ·	
	2.	0730 C1- : 26 PS	7-15-98 om			
	3.	1130 CI-: 20PP	7.15.98			
-	: 	C1 . 2011				
	4		7-15-98			
	 	C1- 20 p	PM			· ·
		5. 1900	7-15-43			
		CI- 24	wald de	-		
<u> </u>		o: widnight	7-16-98			
			26ppm 7.16-98			
<u>.</u>		7. 0000 C1-:	20 pm		and the second second second second second second second second second second second second second second seco	
	· · ·		ي کند دوبيدوندين ني را محمد مي ميدون	المحمدية المعاددة المحاددة المعاددة ا		•

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	July 24, 1998	
PUKAKI		Thirt.
7-20-90 1000		
1. 1-10		
CIT 10 PP.		
2. 7-20-96 2200		
CI- 2Uppm	ر من من من من من من من من من من من من من	
3. 7-21-96 1030		
ci-: zurem		
0400 17.01.93 455		
4. 7-21-96 1955 C1- 20cpm	· ·	
5. 7.21-90 1630 CI 20ppm	*	
- CI- 20ppm		
6. 7-21-98 2130		
CI-: 26 ppm		
7. 7.12-90 0430		

4.12		
	: :	Pukaki contd
	ზ.	7-22-98 1030
		C1- 210ppm
5		
	9.	7-22-98 1650
		ci-: 26pm
		-
	10.	7-22-98 2230
		C1-: 26ppm
-) <i>i</i> .	7-23-48 0430
		CI- 20ppm
	12.	7-23-48 1030
<u></u>		ci- 2uppm
	13.	7-24-98 0030 (1230am)
		C1-: 28 ppm
		·

•



MONTGOMERY WATSON LABORATORIES
a Division of Montgomery Watson Americas, Inc.
555 East Walnut Street
Pasadena, California 91101
Tel: 626 568 6400 Fax: 626 568 6324
1 800 566 LABS (1 800 566 5227)

99 MAR 19 All: 17

Laboratory Report

for

Kauai Water Department P.O. Box 1706

Lihue , HI 96766

Attention: Wayne Hinazumi Fax: (808) 245-5813

MONTGOMERY WATSON LABS. SUBJUTTED ON

HDS Hillary Strayer

Report#: 52081

PHASEV

⇒port Summary of positive results, PR52081

Result

MDL

UNITS

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PUKAKI

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990223110 HANAMAULU 3

lalyzed

990223111 TRAV BLANK-HOLD



MONTGOMERY WATSON LABORATORIES
a Division of Montgomery Watson Americas, Inc.
555 East Walnut Street
Pasadana, California 91101
Tel: 626 558 6400 Fax: 626 568 6324
1 800 566 LABS (1 800 566 5227)

Laboratory Report #52081

Kauai Water Department Wayne Hinazumi P.O. Box 1706 Lihue , HI 96766

Samples Received 23-feb-1999 13:06:06

Prepared	Analyzed	QC Batch#	Method	Analyce	Result	Units	MDL	Dilution
?UKAKI	(990223	3109)	Sampled	I on 02/18/99		· · · · · ·		
			Regulated	i VOCs plus Lists 1&	:3			
	03/02/99	93004) 1,1,1,2-Tetrachloroethane	ND	ug/l	0.50	1
	03/02/99	93004) 1,1,1-Trichloroethane	ND	ug/1	0.50	1
	03/02/99	93004	(ML/EPA 524.2	1 1,1,2,2-Tetrachloroethane	מא	ug/1	0.50	1
	03/02/99	93004) 1,1,2-Trichloroethane	מא	ug/l	0.50	1
	03/02/99	93004	(ML/EPA 524.2) 1,1-Dichloroethane	מא	ug/l	0.50	1
	03/02/99	93004	(ML/EPA 524.2) 1,1-Dichloroethylene	מא	ug/1	0.50	1
	03/02/99	93004) 1,1-Dichloropropene	ND	ug/1	0.50	1
	03/02/99	93004	(ML/EPA 524.2) 1,2,3-Trichlorobenzene	סא	ug/1	0.50	1
	03/02/99	93004	(ML/EPA 524.2) 1,2,3-Trichloropropane	ND	ug/l	0.50	1
	03/02/99	93004	(ML/EPA 524.2	1 1,2,4-Trichlorobenzene	NO	ug/1	0.50	1
	03/02/99	93004	(ML/EPA 524.2) 1,2,4-Trimethylbenzene	ND	ug/1	0.50	1
	03/02/99	93004	(ML/EPA 524.2) 1,2-Dichloroethane	ND	ug/l	0.50	1
	03/02/99 ·	93004	(ML/EPA 524.2) 1,2-Dichloropropane	ND	ug/l	0.50	1
	03/02/99	93004	(ML/EPA 524.2) 1,3,5-Trimethylbenzene	מא	ug/1	0.50	1
	03/02/99	93004	(ML/EPA 524.2) 1,3-Dichloropropane	ND	ug/1	0.50	1
	03/02/99	93004	{ ML/EPA 524.2) p-Dichlorobenzene (1,4-DCB)	ND	ug/1	0.50	1
	03/02/99	93004	(ML/EPA 524.2) 2,2-Dichloropropane	מא	ug/l	0.50	1
	03/02/99	93004	(ML/EPA 524.2) 2-Butanone (MEK)	. מא	ug/1	5.0	1
	03/02/99	93004	(ML/EPA 524.2) o-Chlorotoluene	מא	ug/1	0.50	1
	03/02/99	93004	(ML/EPA 524.2) p-Chlorotoluene	מא	ug/l	0.50	1
•	03/02/99	93004	{ ML/EPA 524.2) 4-Methyl-2-Pentanone (MIBK)	מא	ug/1	5.0	1
	03/02/99	93004	{ ML/EPA 524.2) Benzene	ND	ug/l	0.50	1
	03/02/99	93004	(ML/EPA 524.2) Bromobenzene	מא	ug/l	0.50	1
	03/02/99	93004	(ML/EPA 524.2) Bromomethane (Methyl Bromide)	ND	ug/1	0.50	1
	03/02/99	93004	(HL/EPA 524.2) cis-1,2-Dichloroethylene	ND	ug/1	0.50	
	03/02/99	93004	(ML/EPA 524.2) Chlorobenzene	מא	ug/l	0.50	· · · · · · · · · · · · · · · · · · ·
	03/02/99	93004	(ML/EPA 524.2) Carbon Tetrachloride	ND	ug/l	0.50	1
	03/02/99	93004	(ML/EPA 524.2) cis-1,3-Dichloropropens	מא	ug/1	0.50	1
	03/02/99	93004	(ML/EPA 524.2) Bromoform	ND	ug/1	0.50	1
	03/02/99	93604	(ML/EPA 524.2) Chloroform (Trichloromethane)	ND	ug/l	0.50	1

epared	Analyzed	QC Batch#	Method	Amalyte	Result	Units	FOF.	Dilucio
-	03/02/99	93004	(ML/EPA 524.2)	Bromochloromethane	מא	ug/l	0.50	·
	03/02/99	93004	(ML/EPA 524.2	Chloroethane	מא	ug/1	0.50	1
	03/02/99	93004	(ML/EPA 524.2)	Chloromethans (Methyl Chloride)	פא	ug/1	0.50	1
	03/02/99	93004	(ML/EPA \$24:2)	Chlorodibromomethane	ND	ug/1	0.50	1
	03/02/99	93004	(ML/EPA 524.2)	Dibromomethane	סא	ug/1	0.50	1
•	03/02/99	93004	(ML/EPA 524.2)	Bromodichloromethane	מא	ug/1	0.50	1
	03/02/99	93004	(ML/EPA 524.2)	Dichloromethane	ND	ug/1	0.50	1
	03/02/99	93004	(ML/EPA 524.2)	Di-isopropyl ether	ND	ug/l	5.0	1
	03/02/99	93004	(ML/EPA 524.2)	Ethyl benzene	ND	ug/1	0.50	1
	03/02/99	93004	[ML/EPA 524.2]	Dichlorodifluoromechane	ND	ug/1	0.50	1
	03/02/99	93004	(ML/EPA 524.2)	Pluorotrichloromethane-Freonli	מא	ug/l	0.50	1
	03/02/99	93004	(ML/EPA 524.2)	Hexachlorobucadiene	מא	ug/l	0.50	1
	03/02/99	93004	(ML/EPA 524.2)	Isopropylbenze-e	ND	ug/l	0.50	1
	03/02/99	53004		m-Dichlorobenzene (1,3-DCB)	פוא	ug/1	0.50	1
	03/02/99	93004	(ML/EPA 524.2)		מא	na/J	0.50	1
	03/02/99	93004		Mothyl Tert-butyl ether (MTSE)	ND	ug/1	3.0	1
	03/02/99	93004	(ML/EPA 524.2)		ND	ug/1	0.50	1
	03/02/99	93004	{ ML/EPA 524.2 }	n-Butylbenzene	ND	ug/l	0.50	1
	03/02/99	93004	(ML/EPA 524.2)	n-Propylbenzene	ND	ug/1	0.50	1
	03/02/99		(ML/EPA 524.2)		מא	ug/l	0.50	1
	03/02/99	93004	(ML/EPA 524.2)	o-Dichlorobenzene (1,2-DCB)	ND	ug/l	0.50	1
	03/02/99			Tetrachloroethylene (PCE)	מא	ug/1	0.50	1
	03/02/99			p-Isopropyltoluene	מא	ug/1	0.50	1
	03/02/99		(ML/EPA 524.2)		מא	ug/1	0.50	1
	03/02/99		(ML/EPA 524.2)		ND	ug/1	0.50	1
	03/02/99			trans-1,2-Dichloroethylene	י אם	ug/1	0.50	1
	03/02/99			tert-amyl Hethyl Ether	מא	ug/1	3.0	1
	03/02/99 .			tert-Butyl Ethyl Ether	מא	ug/1	3.0	1
	03/02/99			tert-Butylbearene	מא	ug/1	0.50	1
	03/02/99			Trichloroethylene (TCE)	ND	ug/1	0.50	1
	03/02/99			Trichlororrifluoroethane (Freon	פוא	ug/l	0.50	1
	03/02/99			trans-1,1-Dichloropropene	מא	ug/l	0.50	_
	03/02/99		(ML/EPA 524.2)		סא	ug/1 ug/1	0.50	1
	03/02/99			Vinyl chloride (VC)	ND	ug/1		1
			_	1,2-Dichlorosthane-d4	105	ty/i % Rec	0.30	1
				4-Bromofluorobenzene	90	* Rec		



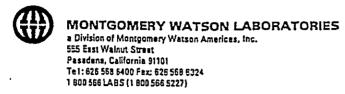
MONTGOMERY WATSON LABORATORIES
a Division of Montgomery Watson Americas, Inc.
555 East Walnut Straat
Pasadens, California 91101
Tel: 526 558 6400 Fax: 526 568 5324
1 800 556 LABS (1 800 566 5227)

Laboratory Report #52081

Prepared	Analyzed	QC Batch#	Hethod	Analyte	Resúlt	Units	HDL	Dilutio
			(Surrogate) Toluene-d8	98	* Rec		
JAMAK	ាច្រប 3 (១	9902231:	10) S	ampled on 02/19/99	•			
			Regulate	d VOCs plus Lists I	L&3			
	03/02/99	93004) 1,1,1,2-Tetrachloroethane	י אס	ug/1	0.50	1
	03/02/99	93004	(ML/EPA 524.2) 1,1,1-Trichloroethane	סמ	ug/1	0.50	1
	03/02/99	93004	(ML/EPA 524.) 1,1,2,2-Tetrachloroethane	ND	ug/l	0.50	1
	03/02/99	93004	(ML/EPA 524.	1) 1,1,2-Trichloroethane	סא	ug/1	0.50	1
	03/02/99	93004	('HL/EPA 524.	1) 1,1-Dichloroethane	ND	ug/1	0.50	1
	03/02/99	93004	(ML/EPA 524.) 1,1-Dichloroethylene	סא	ug/1	0.50	1
•	03/02/99	93004	(ML/EPA 524.) 1,1-Dichloropropene	ХD	ug/l	0.50	1
	03/02/99	93004	(ML/EPA 524.3) 1,2,3-Trichlorobenzene	מא	ug/l	0.50	1
	03/02/99	93004	(ML/EPA 524.3) 1,2,3-Trichloropropane	ND	ug/1	0.50	1
	03/02/99	93004	(ML/EPA 524.) 1,2,4-Trichlorobenzene	מא	ug/1	0.50	1
	03/02/99	93004	(ML/EPA 524.3) 1,2,4-Trimethylbenzene	ND	ug/l	0.50	1
	03/02/99	93004	(ML/EPA 524.3) 1,2-Dichloroethane	ND	ug/1	0.50	1
	03/02/99	93004	(ML/EPA 524.) 1,2-Dichloropropane	סא	ug/1	0.50	1
	03/02/99	93004	(ML/EPA 524.3) 1,3,5-Trimethylbenzene	מא	ug/l	0.50	1
	03/02/99	93004	(ML/EPA 524.) 1,3-Dichloropropane	סא	ug/1	0.50	1
	03/02/99	93004	(ML/EPA 524.	p-Dichlorobenzene (1,4-DCB	מא (ug/1 ⁻	0.50	1
	03/02/99	93004	(ML/EPA 524.3	2) 2,2-Dichloropropane	סזג	ug/1 '	0.50	1
	03/02/99	93004	(ML/EPA 524.3) 2-Butanone (MEK)	מא	ug/1	5.0	ı
	03/02/99	93004	(ML/EPA 524.) o-Chlorotoluene	סא	ug/l	0.50	1
	03/02/99	93004	(ML/EPA 524.) p-Chlorotoluene	מא	ug/1	0.50	1 .
	03/02/99	93004	(ML/EPA 524.) 4-Methyl-2-Pentanone (MIBK	מא (ug/l	5.0	1
	03/02/99	93004	(ML/EPA 524.) Bonzene	. ND	ug/l	0.50	1
	03/02/99	93004	(ML/EPA 524.) Bromobenzene	סא	ug/1	0.50	1
	03/02/99	93004	(ML/EPA 524.) Bromomethane (Methyl Bromi	de) ND	ug/l	0.50	1
	03/02/99	93004	(HL/EPA 524.	cis-1,2-Dichloroethylene	310	ug/1	0.50	1
	03/02/99	93004	(ML/EPA 524.	Chlorobenzene	מא	ug/1	0.50	1
	03/02/99	93004	(ML/EPA 524.) Carbon Tetrachloride	ND	ug/l	0.50	1
	03/02/99	93004	(ML/EPA 524.) cis-1,3-Dichloropropene	מא	ug/l	0.50	1
	03/02/99	93004	(ML/EPA 524.) Bromoform	סא	ug/l	0.50	1
	03/02/99	93004	(HL/EPA 524.) Chloroform (Trichlorometha	ne) ND	ug/1	0.50	1
	03/02/99	93004	(ML/EPA 524.	Browochloromethane	מונ	ug/1	0.50	1

Laboratory Report #52081

Prepared	Analyzed	QC Batch#	Hethod	Analyte	Result	Units	MDL	Dilutio
	03/02/99	93004	(ML/EPA 524.2) Chloroethane	מא	ug/1	0.50	1
	03/02/99	93004	(ML/EPA 524.2) Chloromethane (Methyl Chloride)	מא	ug/1	0.50	1
	03/02/99	93004	(ML/EPA 524.2) Chlorodibromomethane	ND	ug/1	0.50	1
	03/02/99	93004	(ML/EPA 524.2) Dibromomethane	ND	ug/l	0.50	1
	03/02/99	93004	(ML/EPA 524.2) Bromodichloromethane	מא	ug/l	0.50	1
	03/02/99	93004	(ML/EPA 524.2) Dichloromethane	ND	ug/l	0.50	1
	03/02/99	93004	(ML/EPA 524.2) Di-isopropyl ether	מא	ug/1	5.0	1
	03/02/99	93004	(ML/EPA 524.2) Ethyl benzene	ND	ug/l	0.50	1
	03/02/99	93004	(ML/EPA 524.2	Dichlorodifluoromethane	סא	ug/l	0.50	1
	03/02/99	93004	(ML/EPA 524.2	Fluorotrichloromethane-Freonl1	מא	ug/l	0.50	1
	03/02/99	93004	(ML/EPA 524.2	Hexachlorobutadiene	מא	ug/1	0.50	1
	03/02/99	93004	{ ML/EPA 524.2	Isopropylbenzene	ND	υg/l	0.50	1
	03/02/99	93004	(ML/EPA 524.2	m-Dichlorobenzene (1,3-DCB)	מא	ug/l	0.50	1
	03/02/99	93004	(ML/EPA 524.2	m,p-Xylenes	ND	ug/l	0.50	1
	03/02/99	93004	(ML/E524.2/624	Methyl Tert-butyl ether (MTBE)	ND	ug/l .	3.0	1
	03/02/99	93004	(ML/EPA 524.2	Naphthalene	ND	ug/1	0.50	1
	03/02/99	93004	(ML/EPA 524.2	n-Butylbenzene	ND	ug/l	0.50	1
	03/02/99	93004	(ML/EPA 524.2	n-Propylbenzene	ND	ug/l	0.50	1
	03/02/99	93004	(ML/EPA 524.2	o-Xylene	מא	ug/l	0.50	1
	03/02/99	93004	(ML/EPA 524.2	o-Dichlorobenzene (1,2-DCE)	ND	ug/1	0.50	1
	03/02/99	93004	(ML/EPA 524.2	Tetrachloroethylene (PCE)	ND	ug/l	0.50	1
	03/02/99	93004	(ML/EPA 524.2	p-Isopropyltoluene	ND	ug/1	0.50	1
	03/02/99	93004	(ML/EPA 524.2)	sec-Butylbenzene	ND	na/T	0.50	1
	03/02/99	93004	(ML/EPA 524.2)	Styrene	ND	ug/l	0.50	1
	03/02/99	93004	(ML/EPA 524.2)	trans-1,2-Dichloroethylene	ND	ug/1	0.50	1
	03/02/99 .	93004	(ML/EPA 524.2)	tert-amyl Methyl Ether	ND	ug/1	3.0	1
	03/02/99	93004	(ML/EPA 524.2)	tert-Butyl Ethyl Ether	מא .	ug/l	3.0	1
	03/02/99	93004	(ML/EPA 524.2)	tert-Butylbenzene	מא	ug/1	0.50	1
	03/02/99	93004	(ML/EPA 524.2)	Trichloroethylene (TCE)	ND	ug/1	0.50	1
	03/02/99	93004	(ML/EPA 524.2)	Trichlorotrifluoroethane (Freon	ND	ug/1	0.50	1
	03/02/99	93004	(ML/EPA 524.2)	trans-1,3-Dichloropropens	מונ	ug/1	0.50	1
	03/02/99	93004	(ML/EPA 524.2)	Toluene	ND	ug/l	0.50	1
	03/02/99	93004	(ML/EPA 524.2)	Vinyl chloride (VC)	ND	ug/l	0.30	1
			(Surrogate)	1,2-Dichloroethane-d4	110	t Rec		
			(Surrogate)	4-Bromofluorobenzene	87	t Rec		
			(Surrogate)	Toluene-d8	96	₹ Rec		



Laboratory Report #52081

Kauai Water Department (continued)

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	NK-HOL 03/02/99 03/02/99 03/02/99 03/02/99 03/02/99 03/02/99 03/02/99 03/02/99 03/02/99	93004 93004 93004 93004 93004 93004 93004 93004 93004	Regulated (ML/EPA 524.2 (ML/EPA 524.2	Sampled on 02/18/99 VOCs plus Lists 1&3) 1,1,1,2-Tetrachleroethane) 1,1,1-Trichleroethane) 1,1,2-Tetrachleroethane) 1,1,2-Trichleroethane) 1,1-Dichleroethane) 1,1-Dichleroethylene) 1,1-Dichleropropene	NA NA NA NA NA	ug/l ug/l ug/l ug/l ug/l	0.50 0.50 0.50	1 1 1 1 1	
	03/02/99 03/02/99 03/02/99 03/02/99 03/02/99 03/02/99 03/02/99 03/02/99	93004 93004 93004 93004 93004 93004 93004 93004	(ML/EPA 524.2 (ML/EPA 524.2 (ML/EPA 524.2 (ML/EPA 524.2 (ML/EPA 524.2 (ML/EPA 524.2 (ML/EPA 524.2 (ML/EPA 524.2) 1,1,1,2-Tetrachleroethane) 1,1,1-Trichleroethane) 1,1,2,2-Tetrachleroethane) 1,1,2-Trichleroethane) 1,1-Dichleroethane) 1,1-Dichleroethylene) 1,1-Dichleropropene	na Na Na	ug/l ug/l ug/l	0.50 0.50 0.50	1	
	03/02/99 03/02/99 03/02/99 03/02/99 03/02/99 03/02/99 03/02/99 03/02/99	93004 93004 93004 93004 93004 93004 93004 93004	(ML/EPA 524.2 (ML/EPA 524.2 (ML/EPA 524.2 (ML/EPA 524.2 (ML/EPA 524.2 (ML/EPA 524.2 (ML/EPA 524.2) 1,1,1-Trichloroethane) 1,1,2,2-Tetrachloroethane) 1,1,2-Trichloroethane) 1,1-Dichloroethane) 1,1-Dichloroethylene) 1,1-Dichloropropene	na Na Na	ug/l ug/l ug/l	0.50 0.50 0.50	1	
	03/02/99 03/02/99 03/02/99 03/02/99 03/02/99 03/02/99 03/02/99 03/02/99	93004 93004 93004 93004 93004 93004 93004	(ML/EPA 524.2 (ML/EPA 524.2 (ML/EPA 524.2 (ML/EPA 524.2 (ML/EPA 524.2 (ML/EPA 524.2) 1,1,2,2-Tetrachloroethane) 1,1,2-Trichloroethane) 1,1-Dichloroethane) 1,1-Dichloroethylene) 1,1-Dichloropropene	na Na Na	ug/l ug/l ug/l	0.50 0.50 0.50	1	
	03/02/99 03/02/99 03/02/99 03/02/99 03/02/99 03/02/99 03/02/99	93004 93004 93004 93004 93004 93004	(ML/EPA 524.2 (ML/EPA 524.2 (ML/EPA 524.2 (ML/EPA 524.2 (ML/EPA 524.2) 1,1,2-Trichloroethane) 1,1-Dichloroethane) 1,1-Dichloroethylene) 1,1-Dichloropropene	na Na	ug/1	0.50		
	03/02/99 03/02/99 03/02/99 03/02/99 03/02/99 03/02/99	93004 93004 93004 93004 93004	(ML/EPA 524.2 (ML/EPA 524.2 (ML/EPA 524.2 (ML/EPA 524.2) 1,1-Dichlorosthylens) 1,1-Dichlorosthylens) 1,1-Dichloropropens	NA	-		ı	•
	03/02/99 03/02/99 03/02/99 03/02/99 03/02/99	93004 93004 93004 93004	(ML/EPA 524.2 (ML/EPA 524.2 (ML/EPA 524.2) 1,1-Dichloroschylens) 1,1-Dichloropropens		ug/l			
	03/02/99 03/02/99 03/02/99 03/02/99 03/02/99	93004 93004 93004 93004	(ML/EPA 524.2 (ML/EPA 524.2) 1,1-Dichloropropene	NA		0.50	1	
000000000000000000000000000000000000000	03/02/99 03/02/99 03/02/99 03/02/99	93004 93004 93004	(ML/EPA 524.2			ug/l	0.50	1	
0	03/02/99 03/02/99 03/02/99 03/02/99	93004 93004		1 1 2 1 Tricklamakansasa	NA	ug/l	0.50	1	
0 0 0	03/02/99 03/02/99 03/02/99	93004	(ML/EPA 524.2) 1,2,3-Trichlorobenzene	NA	ug/l	0.50	1	
o o o	03/02/99) 1,2,3-Trichloropropane	NA	ug/l	0.50	1	
o o	03/02/99	03004	(ML/EPA 524.2) 1,2,4-Trichlorobenzene	NA	ug/1	0.50	1	•
0		93004	(ML/EPA 524.2	1,2,4-Trimethylbenzene	AN	ug/1	0.50	1	
0	03/02/99	93004	(ML/EPA 524.2) 1,2-Dichloroethane	NA	ug/I	0.50	1	
		93004	(ML/EPA 524.2) 1,2-Dichloropropane	NA	ug/1	0.50	1	
0	03/02/99	93004	(ML/EPA 524.2) 1,3,5-Trimethylbenzene	NA	ug/l	0.50	1	
	3/02/99	93004	(ML/EPA 524.2) 1,3-Dichloropropane	NA	ug/l	0.50	1	
0	3/02/99	93004	(ML/EPA 524.2) p-Dichlorobenzene (1,4-DCB)	NA	ug/1	0.50	1	
0	3/02/99	93004	(ML/EPA 524.2) 2,2-Dichloropropane	NA	ug/l	0.50	1	
0	3/02/99	93004	(ML/EPA 524.2) 2-Butanone (MEK)	NA	ug/1	5.0	1	
0	3/02/99	93004	(ML/EFA 524.2) o-Chlorotoluene	NA	ug/l	0.50	1	
0	3/02/99	93004	(ML/EPA 524.2) p-Chlorotoluene	NA	ug/l	0.50	1	
0	3/02/99	93004	(ML/EPA 524.2) 4-Methyl-2-Pentanone (MIBK)	NA	. ug/l	5.0	1	
0	3/02/99	93004	(ML/EPA 524.2) Benzene	NA	ug/1	0.50	1	
0	3/02/99	93004	(ML/EPA 524.2) Bromobenzene	NA	ug/1	0.50	1	
0	3/02/99	93004	(ML/EPA 524.2) Bromomethane (Methyl Bromide)	NA	ug/1	0.50	1	
o:	3/02/99	93004	(ML/EPA 524.2) cis-1,2-Dichloroethylene	NA	ug/1	0.50	1	
٥.	3/02/99	93004	(ML/EPA 524.2) Chlorobenzane	NA	ug/1	0.50	1	
0:	3/02/99	93004	(ML/EPA 524.2) Carbon Tetrachloride	NA	ug/l	0.50	1	
· a:	3/02/99	93004	(ML/EPA 524.2) cis-1,3-Dichloropropens	NA	ug/1	0.50	1	
·	3/02/99	93004	(ML/EPA 524.2) Bromoform	NA	ug/1	0.50	1	
**** o:	3/02/99	93004	(ML/EPA 524.2) Chloroform (Trichloromethane)	NA	ug/1	0.50	1	
0:	3/02/99	93004	(ML/EPA 524.2) Bromochloromethane	NA	ug/1	0.50	1	
ĝ∰j} o:	3/02/99	93004	(ML/EPA 524.2) Chloroethane	AK	ug/1	0.50	1	
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MONTGOMERY WATSON LABORATORIES
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epared	Analyzed	QC Batch#	Method	Analyce	Result	Units	MDL	Dilution
	03/02/99	93004	(ML/EPA 524.2) Chloromethane (Methyl Chloride)	NA	ug/l	0.50	1
* .	03/02/93	93004	(ML/EPA 524.2) Chlorodibromomethane	NA .	ug/l	0.50	1
	03/02/99	93004	(ML/EPA 524.2) Dibromomethane	NA	ug/l	0.50	1
	03/02/99	93004	(ML/EPA 524.2) Bromodichloromethane	NA	ug/l	0.50	1
	03/02/99	93004	(ML/EPA 524.2) Dichloromethane	NA	ug/l	0.50	1
	03/02/99	93004	(ML/EPA 524.2) Di-isopropyl ether	NA	ug/l	5.0	1
	03/02/99	93004	(ML/EPA 524.2	Ethyl benzene	NA	ug/l	0.50	1 .
	03/02/99	93004	(ML/EPA 524.2	Dichlorodifluoromethane	NA	ug/1'	0.50	1
	03/02/99	93004	(ML/EPA 524.2	Fluorotrichloromethane-Freonli	na	ug/1	0.50	1
	03/02/99	93004	(ML/EPA 524.2	Hexachlorobutadiene	NA	ug/l	0.50	1
	03/02/99	93004	(ML/EPA 524.2	Isopropylbenzene	NA	ug/l	0.50	1
7	03/02/99	93004	(ML/EPA 524.2)	m-Dichlorobenzene (1,3-DCB)	na	ug/l	0.50	1 .
;	03/02/99	93004	(ML/EPA 524.2	m,p-Xylenes	NA	ug/l	0.50	1
	03/02/99	93004	{ ML/E524.2/624 }	Methyl Tert-butyl ether (MTBE)	NA '	· ug/1	3.0	1
	03/02/99	93004	(ML/EPA 524.2)	Naphthalene	NA	ug/1	0.50	1
	03/02/99	93004	(ML/EPA 524.2)	n-Butylbenzene	NA	ug/l	0.50	1
1	03/02/99	93004	(ML/EPA 524.2)	n-Propylbenzene	NA	ug/l	0.50	1
	03/02/99	93004	(ML/EPA 524.2 ·)	c-Xylene	na	ug/l	0.50	1
	03/02/99	93004	(ML/EPA 524.2)	o-Dichlorobenzene (1,2-DCB)	NA	ug/l	0.50	1
	03/02/99	93004	(ML/EPA 524.2)	Tetrachloroethylene (PCE)	NA	ug/1	0.50	1
	03/02/99	93004	(ML/EPA 524.2)	p-Isopropyltoluene	NA	ug/1	0.50	1
	03/02/99	93004	(ML/EPA 524.2)	sec-Butylbenzene	NA	ug/1	0.50	1
	03/02/99	. 93004	[ML/EPA 524.2 }	Styrene	NA .	ug/l	0.50	1
1	03/02/99 .	93004	(ML/EPA 524.2)	trans-1,2-Dichloroethylene	NA	ug/l	0.50	1
	03/02/99	93004	(ML/EPA 524.2)	tert-amyl Methyl Ether	NA	ug/1	3.0	1
	03/02/99	93004	(ML/EPA 524.2)	tert-Butyl Ethyl Ether	NA	ug/1	3.0	1
	03/02/99	93004	(ML/EPA 524.2)	tert-Butylbenzene	NA	ug/1	0.50	1
	03/02/99	93004	(ML/EPA 524.2)	Trichlorosthylene (TCE)	NA	ug/1	0.50	1
	03/02/99	93004	(ML/EPA 524.2)	Trichlorotrifluoroethane (Freon	na .	ug/1	0.50	1
•	03/02/99	93004		trans-1,3-Dichloropropene	NA	ug/l	0.50	1
	03/02/99	93004	(ML/EPA 524.2)	Toluene	NA	ug/l	0.50	1
	03/02/99	93004	(ML/EPA 524.2)	Vinyl chloride (VC)	AM	ug/1	0.30	1
				1,2-Dichloroethane-d4	NA	* Rec		•
			-	4-Bromofluorobenzene	NA	* Rec		
. _				Toluene-dB	NA	* Rec		



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Kauai Water Department

Name		QC Batch #93004				01-15- (63	RPD (%)	
Maintail	QC	Amalyte	Spiked	Recovered	ATTE (#)	Limits (%)	NPD (4)	
	MBLK	1,1,1,2-Tetrachlorosthane	מא		•	/ 70 00 - 130 00 1		
	LCSl	1,1,1-Trichloroethane	4	3.99	99.8	(10.00 - 130.00)		
LCS1 1,1,2,7-Tetrachlorosthane MELK 1,1,2,7-Tetrachlorosthane MELK 1,1,2,7-Tetrachlorosthane MELK 1,1,2-Trichlorosthane MELK 1,1-Dichlorosthane MD	MBLK					/ 70 00 - 130 00 1		
1,1,2-Trichlorosthame	LCS1			3.71	92.8	(10.00 - 150.00)		٠
Mail	MBLK					/ 70 00 - 130 00 1		
Marco 1.1-Dichlorosthane	LCS1	1,1,2-Trichlorosthams	4	3.81	95.2	(70.00 - 250.00 /		-
CS1 1,1-Dichlorosthame	MBLK	1,1,2-Trichloroethane	•			/ 70 00 - 130 00 1		
	LCS1	1,1-Dichloroethane		3.76	94.0	(70.00 - 150.00 7		
	HBLK	1,1-Dichloroethans	-			(73 00 - 130 00 \		_
MBLK 1,1-Dickloropropens MD MBLK 1,2,3-Tricklorobenzene MD MBLK 1,2,4-Tricklorobenzene MD LCS1 1,2-Dicklorosthane MD LCS1 1,2-Dicklorosthane MD LCS1 1,2-Dickloropropane MD MBLK 1,2-Dickloropropane MD MBLK 1,2-Dickloropropane MD MBLK 1,2-Dickloropropane MD MBLK 1,3-Trimethylbenzene MD LCS1 1,3-Dickloropropane MD LCS1 1,3-Dickloropropane MD LCS1 1,3-Dickloropropane MD LCS1 p-Dickloropropane MD MBLK 1,3-Dickloropropane MD MBLK 2,2-Dickloropropane MD MBLK 2,2-Dickloropropane MD MBLK 2-Dickloropropane MD MBLK 2-Chlorosthylvinylether MD MBLK 2-Chlorotoluene MD MBLK 0-Chlorotoluene MD MBLK 0-Chlorotoluene MD MBLK 4-Methyl-2-Pentanone (MIBK) MD MBLK Benzeae MD MBLK Benzeae MD MBLK Benzeae MD MBLK Benzeae MD MBLK Benzeae MD MBLK Benzeae MD MBLK Benzeae MD	rcar	1,1-Dichloroethylens	_	4.42	110.5	()0.00 - 150.00)		
MBLK 1,2,3-Trichloropensame ND MBLK 1,2,3-Trichloropensame ND LCS1 1,2,4-Trichloropensame ND MBLK 1,2,4-Trichloropensame ND MBLK 1,2,4-Trichloropensame ND LCS1 1,2-Michloropensame ND LCS1 1,2-Dichloropensame ND LLCS1 1,3-Dichloropensame ND LLCS1 1,3-Dichloropensame ND LCS1 1,3-Dichloropensame ND LCS1 1,3-Dichloropensame ND LCS1 1,3-Dichloropensame ND LCS1 p-Dichloropensame (1,4-DCB) AD LCS1 p-Dichloropensame (1,4-DCB) ND MBLK 2,2-Dichloropensame ND MBLK 2-Gutanoma (MEK) ND MBLK 2-Gutanoma (MEK) ND MBLK 2-Gutanoma (MEK) ND MBLK 3-Chloropelusame ND MBLK 4-Methyl-2-Pentanoma (MIBK) ND MBLK Bensame ND MBLK Bensame ND MBLK Bensame ND	MELK	1,1-Dichloroethylene						••
MBLK 1.2.1-Trichloropropane ND LCS1 1.2.4-Trichlorobensene 4 3.87 96.8 (70.00 - 130.00) MBLK 1.2.4-Trichlorobensene ND MBLK 1.2.4-Trimethylbensene ND MBLK 1.2.5-trimethylbensene ND LCS1 1.2-Dichloroethane ND LCS1 1.2-Dichloropropane ND LCS1 1.2-Dichloropropane ND LCS1 1.2-Dichloropropane ND LCS1 1.3-Frimethylbensene ND LCS1 1.3-Dichloropropane ND LCS1 p-Dichlorobensene (1.4-DCB) 4 3.74 93.5 (70.00 - 130.00) MBLK 1.3-Dichloropropane ND LCS1 p-Dichlorobensene (1.4-DCB) ND MBLK 2.2-Dichloropropane ND MBLK 2.2-Dichloropropane ND MBLK 2.2-Dichloropropane ND MBLK 2.2-Dichloropropane ND MBLK 2-Butanone (MEK) ND MBLK 2-Chlorotchylvinylether ND MBLK 2-Chlorotchylvinylether ND MBLK 2-Chlorotchylvinylether ND MBLK 4-Methyl-2-Pentanone (MIBK) ND LCS1 Bensene ND MBLK Batzene ND MBLK Batzene ND	MBLK	1,1-Dichloropropens						_
LCS1 1,2.4-Trichlorobenzene ND MBLK 1,2.4-Trichlorobenzene ND LCS1 1,2-Dichlorosthane ND LCS1 1,2-Dichlorosthane ND LCS1 1,2-Dichlorosthane ND LCS1 1,2-Dichloropropane ND LCS1 1,3-Dichloropropane ND MBLK 1,2-Dichloropropane ND LCS1 1,3-Dichloropropane ND LCS1 p-Dichloropropane ND LCS1 p-Dichloropropane (1,4-DCB) ND MBLK 2,2-Dichloropropane ND MBLK 2,2-Dichloropropane ND MBLK 2-Dichloropropane ND MBLK 2-Chlorosthylvinylether ND MBLK 2-Chlorosthylvinylether ND MBLK 4-Methyl-2-Fentanone (MIBK) ND LCS1 Bensene ND MBLK Bensene ND MBLK Bensene ND MBLK Bensene ND MBLK Bensene ND MBLK Bensene ND MBLK Bensene ND MBLK Bensene ND MBLK Bensene ND MBLK Bensene ND MBLK Bensene ND	MBLK		•					
1.2.4-Trichlorobenzene	MBLK	1,2,3-Trichloropropens			20.0	/ 70.00 = 130.00 \		,
MBLK 1,2,4-Trimsthylbanzene ND	LCSI		_	3.87	30.8	()0.00 - 220100)		
LCS1 1,2-Dichlorosthane	MBLK	1,2,4-Trichlorobenzene						_
1,2-Dichlorosthane	MBLK	1,2,4-Trimethylbenzens	-			(70 00 - 130.00)		
1,2-Dichloropropane	LCSl	1,2-Dichloroethane		3.97	99.2	(70.00 - 150.00 7		
1,2-Dichloropropane ND	MBLE	1,2-Dichloroethane				(70 00 - 130-00)		,
MELK 1.3.5-Trimethylbenzene ND LCS1 1.3-Dichloropropane B 7.43 93.0 (70.00 - 130.00) MELK 1.3-Dichloropropane ND LCS1 p-Dichlorobenzene (1.4-DCB) 4 3.74 93.5 (70.00 - 130.00) MELK 2Dichloropropane ND MELK 2Dichloropropane ND MELK 2-Butanone (MEK) ND MELK 2-Chlorosthylvinylether ND MELK 0-Chlorotoluene ND MELK p-Chlorotoluene ND MELK 4-Methyl-2-Pentanone (MIBK) ND LCS1 Benzene 4 4.22 105.5 (70.00 - 130.00) MELK Betrzene ND MELK Bromobenzene ND	LCS1	1,2-Dichloropropane	- -	4.38	109.5	(70,00 - 130,00 /		
LCS1 1,3-Dichloropropane 8 7.43 93.0 (70.00 - 130.00) MBLK 1,3-Dichloropropane ND LCS1 p-Dichlorobenzene (1,4-DCB) 4 3.74 93.5 (70.00 - 130.00) MBLK p-Dichlorobenzene (1,4-DCB) ND MBLK 2,2-Dichloropropane ND MBLK 2-Butanone (MEK) ND MBLK 2-Chloroethylvinylether ND MBLK 0-Chlorotoluene ND MBLK p-Chlorotoluene ND MBLK 4-Mathyl-2-pentanone (MIBK) ND LCS1 Benzene 4 4.22 105.5 (70.00 - 130.00) MBLK Benzene ND MBLK Benzene ND	MBLK	1,2-Dichloropropade						
LCS1 1,3-Dichloropropane ND LCS1 p-Dichloropenane (1,4-DCB) 4 3.74 93.5 (70.00 - 130.00) NBLK p-Dichloropenane (1,4-DCB) ND NBLK p-Dichloropenane ND NBLK 2,2-Dichloropropane ND NBLK 2-Butanone (NEK) ND NBLK 2-Chlorosthylvinylather ND NBLK 2-Chlorosthylvinylather ND NBLK p-Chlorotoluene ND NBLK p-Chlorotoluene ND LCS1 Benzene (MIBK) ND NBLK Benzene ND NBLK Benzene ND NBLK Bromobenzene ND	MBLK	1,3,5-Trimethylbenzens				(70.00 - 130.00)		
LCS1 p-Dichlorobenzene (1,4-DCB) 4 3.74 93.5 (70.00 - 130.00) NBLK p-Dichlorobenzene (1,4-DCB) ND NBLK 2,2-Dichloropropane ND MBLK 2-Butanone (MEK) ND MBLK 2-Chlorosthylvinylether ND MBLK 0-Chlorotolusne ND MBLK p-Chlorotolusne ND MBLK 4-Methyl-2-Pentanone (MIBK) ND LCS1 Benzene ND MBLK Berrane ND MBLK Bromobenzene ND	LCS1	1,3-Dichloropropens	-	7.43	93.0	(/0.00 - 250.00 /		. –
Description of the component of the comp	MBLK		*			(20.00 = 130.00)		Sum.
MBLK 2,2-Dichloropropane ND MBLK 2-Butanone (MEK) ND MBLK 2-Chloroethylvinylether ND MBLK 0-Chlorotoluene ND MBLK p-Chlorotoluene ND MBLK 4-Methyl-2-Pentanone (MIBK) ND LCS1 Benzene ND MBLK Benzene ND MBLK Bromobenzene ND	LCS1	-		3.74	93.5	(/0.00 - 200.00 /		
MBLK 2-Butanone (MEX) ND MBLK 2-Chlorosthylvinylether ND MBLK 0-Chlorotoluene ND MBLK p-Chlorotoluene ND MBLK 4-Methyl-2-Pentanone (MIBK) ND LCS1 Benzene 4 4.22 105.5 (70.00 - 130.00) MBLK Benzene ND MBLK Bromobenzene ND	HBLK	p-Dichlorobensene (1,4-DCB)	-					_
MBLK 2-Chlorosthylvinylether ND MBLK 0-Chlorotoluene ND MBLK p-Chlorotoluene ND MBLK 4-Methyl-2-Pentanone (MIBK) ND LCS1 Benzene 4 4.22 105.5 (70.00 - 130.00) MBLK Benzene ND MBLK Bromobenzene ND	mblk	2,2-Dichloropropane						
MBLK o-Chlorotoluene ND MBLK p-Chlorotoluene ND MBLK 4-Methyl-2-Pentanone (MIBK) ND LCS1 Benzene 4 4.22 105.5 (70.00 - 130.00) MBLK Benzene ND MBLK Bromobenzene ND	Mblk	2-Butanone (MEK)						· -
HBLK p-Chlorotoluene NU MBLK 4-Methyl-2-Pentanone (MIBK) ND LCS1 Benzene 4 4.22 105.5 (70.00 - 130.00) MBLK Benzene ND HBLK Bromobenzene ND	KBLK	2-Chlorosthylvinylather						
MBLK 4-Methyl-2-Pentanone (MIBE) ND LCS1 Benzene 4 4.22 105.5 (70.00 - 130.00) MBLK Benzene ND MBLK Bromobenzene ND	MBLK	o-Chlorotoluene	•					
LCS1	HBLK	p-Chlorotoluene						• -
MBLK Benzene ND HBLK Bromobenzene ND	MBLK	4-Methyl-2-Pentanone (MIBK)			105 E	(70.00 4 130.00)		
MBLK Bromobenzene ND	LCS1	Benzane		4.22	102.2	(10100 - 730100)		
HBLK Bromobenzene ND	MBLK	Benzene						
MBLK Bromomethane (Mathyl Bromide) ND	mble							
	MBLK	Bromomethane (Methyl Bromide)	מנ					;·

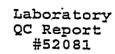
Spikes which exceed Limits and Method Blanks with positive results are highlighted by <u>Underlining.</u>
Criteria for MS and DUP are advisory only and not applicable for TCR monitoring.

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Kauai Water Department (continued)

•			•			
LCS1	cis-1,2-Dichloroethylene	4	4.23	105.8	(70.00 - 130.00)	
MBLK	cis-1,2-Dichlorosthylene	ND				
LCS1	Chlorobenzena	4	3.91	97.8	(70.00 - 130.00)	
MBLK	Chlorobenzene	ND			•	
LCS1	Carbon Tetrachloride	4	4.03	100.8	(70.00 - 230.00)	
MBLK	Carbon Tetrachloride	ND				
MBLK	cis-1,3-Dichloropropens	מא				
LC\$1	Bromoform	4	2.84	71.0	(70.00 - 130.00)	
MBLK	Bromoform	ND				
LCS1	Chloroform (Trichloromethane)	4	3.96	99.0	(70.00 - 130.00)	
WBLK	Chloroform (Trichloromethane)	ND			•	
MBLK	Bromochloromethane	ND			•	
MBLK	Chloroathana	ND				
MBLK	Chloromethane (Methyl Chloride)	ND				
LCS1	Chlorodibromomathane	4	3.61	90.2	(70.00 - 130.00)	
MBLK	Chlorodibromomethane	ND				
MBLK	Dibromomethane	ND				
LCS1	Bromodichloromethane	4	3.71	92.8	(70.00 - 130.00)	
MBLK	Bromodichloromethane	מא				
LCS1	Dichloromethane	4	4.10	102.5	(70.00 ~ 130.00)	
MBLK	Dichloromethane	מא				
MBLK	Di-isopropyl ether	ND				
LC\$1	Ethyl benzene	4	3.90	97.5	(70.00 - 130.00 }	
MBLK	Ethyl benzene	ND			·	
MBLK	Dichlorodifluoromethane	מא			,	
LCS1	Fluorotrichloromethane-Freonll	2	1.71	85.5	(70.00 - 130.00)	
MBLK	Fluorotrichloromethane-Freenll	מא				
MBLK	Hexachlorobutadiene	מא				
MBLK	Isopropylbenzene	ND				
MBLK	m-Dichlorobenzene (1,3-DCB)	ND				
LCS1	m,p-Xylenes	8	8.03	100.4	(70.00 - 130.00)	
MBLK	m,p-Xylenes	ND				
LCS1	Methyl Tert-butyl ether (MTBE)	8	8.84	110.5	(70.00 - 130.00 }	
MBLK	Methyl Tert-butyl other (MTBE)	מא				
MBLK	Naphthalene	ND				
MBLX	n-Butylbenzene	ND				
MBLK	n-Propylbenzene	מא				

Spikes which exceed Limits and Method Blanks with positive results are highlighted by <u>Underlining.</u>
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Laboratory QC Report

Kauai Water Department (continued)

LCS1	o-Xylene	4	3.93	98.2	(70.00 ~ 130.00)
MBLK	c-Xylene	ND			:
LCS1	o-Dichlorobenzene (1,2-DCB)	4	3.82	95.5	(70.00 + 130.00 }
MBLK	o-Dichlorobenzene (1,2-DCB)	מא			,
LCS1	Tetrachlorosthylene (PCE)	4	4.15	103.8	(70.00 - 130.00)
MBLK	Tatrachloroethylene (PCE)	ND			
MELK	p-Isopropyltoluene	מא			
MBLK	sec-Burylbenzene	ND			
LCS1	Styrene	4	3.76	94.0	(70.00 - 130.00)
MBLK	Styrene	ND	•		
LCS1	trans-1,2-Dichloroethylene	4	4.44	111.0	(70.00 - 130.00)
MBLK	trans-1,2-Dichloroethylene	ND			
MBLK	tert-amyl Methyl Ether	מא			
MBLK	tert-Butyl Ethyl Ether	ND			•
MBLK	tert-Butylbenzene	ND			
LCS1	Trichlorosthylene (TCE)	4	4.04	101.0	(70.00 - 130.00)
MBLK	Trichloroethylene (TCE)	מא			
LCS1	Trichlorotrifluoroethane (Freen	2	1.79	89.5	(70.00 - 130.00)
MBLK	Trichlorotrifluoroethane (Freen	ND			
MBLK	trans-1,3-Dichloropropene	ND			
LCS1	Toluene	4	4.06	101.5	(70.00 - 130.00)
MBLK	Toluene	ND			
LCS1	Vinyl chloride (VC)	2	1.68	84.0	(70.00 - 130.00)
MBLK	Vinyl chloride (VC)	ממ			

Spikes which exceed Limits and Method Blanks with positive results are highlighted by <u>Underlining.</u> -Criteria for MS and DUP are advisory only and not applicable for ICR monitoring.

WATER QUALITY ANALYSES

Hanamaulu Well No. 3



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SS CYCL SII: OH

Laboratory Report

for

Kauai Water Department P.O. Box 1706

Lihue , HI 96766

Attention: Wayne Hinazumi Fax: (808) 245-5813

MONTGOMERY WATSON LABS. SUBMITTED ON

NOV 13 1998

HDS Hillary Strayer

Report#: 48372

PHASEV

Montgomery Watson Laboratories , Los Angeles, CA 90051-3508 PHONE: 626-568-6400/FAX: 626-568-6324

ACKNOWLEDGMENT OF SAMPLES RECEIVED

Kauai Water Department

P.O. Box 1706 Lihue, HI 96766 Attn: Wayne Hinazumi

Customer Code: KAUAI Group#: 48372 Project#: PHASEV

Proj Mgr: Hillary Strayer Phone: (808) 245-5433

The following samples were received from you on 10/20/98. They have been scheduled for the tests listed beside each sample. If this information is incorrect, please contact your service representative. Thank you for using Montgomery Watson Laboratories.

Sample#	Sample I	d Tests Scheo	Matrix iuled	Sample
981020033		@DIQUAT (@ML531 (CNDW (NO3DW @NPS3 @F	10/19/98 IL502.2 @ML525 PESTSDW ENDOTHAL TCDI - NO2-N F
·		Test Ac	ronym Description	
Test Ac	ronym	Description		
@ME @ML @ML @ML @NC @NP @PE ALK CA CND EC END F, GLY HG NO2	B-DBC T-HI 502.2 525 531 3DW 93 STSDW W OTHAL	EDB and DBCP by TCPMS Metals Volatile Organic 525 Semivolatile Aldicarbs Nitrate by TC as Herbicides by 51 SDWA Pesticides Alkalinity Calcium, Total, Cyanide Specific Conduct Endothall Fluoride Glyphosate	ICAP ance n by IC	



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Report Comments #48372

Group Comments

(508) LCS recoveries fail low for endrin aldehyde and DDD. Neither compound is regulated. Sample results for these target analytes may be biased low. QIR-GC-98-194. (515.1) LCS recovery fails low for acifluorfen. Not a regulated compound, method defines as qualitative only. TCDD is analyzed by Quanterra Environmental Services. GG 11/12/98 .11/12/98.

Page

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Report Summary of positive results, PR48372

-		Result	MDL	UNITS
Analyzed	981020033 HANAMAULU WELL 3			
10/24/98 10/26/98 10/22/98 10/23/98 11/02/98 11/02/98 10/21/98 10/21/98 10/28/98 10/26/98 10/21/98 10/21/98 10/21/98	Data Entry Chromium, Total, ICAP/MS Data Entry Methylene chloride Atrazine Diethylphthalate Nitrate as NO3 by IC Nitrate-N by IC Data Entry Data Entry Alkalinity Calcium, Total, ICAP Lab pH Specific Conductance	10/27/98 5.8 10/27/98 1.5 0.06 0.6 5.3 1.2 10/30/98 11/03/98 77 7.09 7.0 225	5.000 .500 .050 .500 .440 .100 2.000 1.000 .001 4.000	UGL UGL UGL MGL MGL MGL MGL UNIT UMHO
10/21/30	DP-00			



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Laboratory Report #48372

Kauai Water Department Wayne Hinazumi P.O. Box 1706 Lihue , HI 96766

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Samples Received 20-oct-1998 13:41:09

Prepared	Analyzed	QC Batch#	Method	Analyte	Result	Units	MDL	Dilutio
LANAMAU	LU WELI	3 (98	1020033)	Sampled on 10/19	/98			
	10/26/98	86389	(HL/S2320B)	Alkalinity	77	mg/l	2.0	1
10/21/98	10/21/98	86117	(EPA/HL 200.7)	Calcium, Total, ICAP	7.09	mg/l	1.0	1
	10/27/98	86438	(NL/SH 4500CH)	Cyanide	ND	mg/l	0.025	1
	10/21/98	86095	(HI/S2510B)	Specific Conductance	225	nwpo\cw	4.0	1
10/26/98	11/04/98	86756	(ML/EPA 548.1)	Endothall	ND	ug/l	5.0	1
	10/30/98	86628	(HL/SH 4500F)	Pluoride	MD	mg/l	0.10	1
	10/26/98	B6377	(HL/EPA 547)	Glyphosate	31D	ug/l	6.0	1
10/30/98	10/30/98	8665B	(EPA/ML 245.1)	Mercury	ND	ug/l	0.50	1
	10/21/98	86384	(ML/EPA 300.0)	Nitrite, Mitrogen by IC	ND	mg/l	0.10	1
	10/21/98	86098	(HL/SH 4500H)	Lab pH	7.0	Unite	0.0010	1
11/03/98	11/07/98		(EPA 1613)	2,3,7,8 - TCDD	מא	PGL	2.B	1
			525 Semivo	latiles by GC/MS				
10/23/98	11/02/98	86720	(ML/EPA 525.2)	2,4-Dinitrotoluene	ND	ug/1	0.10	1
10/23/98	11/02/98	86720 .	{ ML/EPA 525.2 }	alpha-Chlordane	ND	ug/l	0.050	1
10/23/98	11/02/98	.86720	(ML/EPA 525.2)	Acenaphthylene	ND	ug/l	0.10	1
10/23/98	11/02/98	86720	(ML/EPA 525.2)	Alachlor	ND	ug/l	0.050	ı
10/23/98	11/02/98	86720	(ML/EPA 525.2)	Aldrin	אם י	ug/l	0.050	1
10/23/98	11/02/98	86720	(ML/EPA 525.2)	Anthracene	ND	ug/l	0.020	1
10/23/98	11/02/98	86720	(ML/EPA 525.2)	Atrazina	0.06	ug/l	0.050	1
10/23/98	11/02/98	86720	(ML/EPA \$25.2)	Benz (a) Anthracene	ND	ug/l	0.050	1
10/23/98	11/02/98	86720	(ML/EPA 525.2)	Benzo (a) pyrene	ND	ug/l	0.020	1
10/23/98	11/02/98	86720	(ML/EPA 525.2)	Benzo (b) Fluoranthene	ND	ug/l	0.020	1
10/23/98	11/02/98	86720	(ML/EPA 525.2)	Benzo (g, h, i) Perylene	ND	ug/l	0.050	1
10/23/98	11/02/98	86720	(ML/EPA 525.2)	Benzo (k) Fluoranthene	ND	ug/l	0.020	1
10/23/98	11/02/98	86720	(ML/EPA 525.2)	Di(2-Ethylhexyl)phthalate	ND	ug/l	0.60	1
10/23/98	11/02/98	86720	(ML/EPA 525.2)	Butylbenzylphthalate	ND	ug/l	0.50	1
10/23/98	11/02/98	86720	{ ML/EPA 525.2 }	Bromacil	ND	ug/l	2.0	1
10/23/98	11/02/98	86720	(ML/EPA 525.2)	Butachlor	מא	ug/1	0.050	1
10/23/98	11/02/98	86720	(ML/EPA 525.2)	Caffeine	מא	ug/l	0.020	1
10/23/98	11/02/98	86720	(ML/EPA 525.2)	Chrysene	ND	ug/1	0.020	1
10/23/98	11/02/98	86720	(ML/EPA 525.2 1	Dibenz (a, h) Anthracene	ND	ug/l	0.050	1



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Laboratory Report #48372

Prepared	Analyzed	QC Batch#	Merhod	Ana	llyte	Result	Units	MDL	Dilu	tio
10/23/98	11/02/98	. 86720	(ML/EPA 525.2) Di-	(2-Ethylhexyl)adipate	מא	ug/l	0.60	1	
10/23/98	11/02/98	86720	(ML/EPA 525.2			0.6	ug/1	0.50	1	
10/23/98	11/02/98	86720			aldrin	ND	ug/1	0.20	1	
10/23/98	11/02/98	86720) Din	nechylphthalate	ND	ug/l	0.50	1	
10/23/98	11/02/98	86720) Dim	methoate	מא	ug/1	10	1	
10/23/98	11/02/98	86720	••) Di-	n-Butylphthalate	ND	ug/1	0.50	1	
10/23/98	11/02/98	86720	• ••) End		ND	ug/1	0.10	1	
10/23/98	11/02/98	86720			iorene	ND	na\1	0.050	1	
10/23/98	11/02/98	86720) gan	nma-Chlordane	ND	ug/1	0.050	1	
10/23/98	11/02/98	86720	•		cachlorobenzene	ND	ug/l	0.050	1	
10/23/98	11/02/98	86720) Ker	kachlorocyclopentadiene	ND	ug/l	0.050	1	
10/23/98	11/02/98	86720	•		otachlor	ND	ug/l	0.040	1	
10/23/98	11/02/98	86720) Her	ptachlor Epoxide	ND	ug/l	0.020	1	
10/23/98	11/02/98	86720	• ••••	•	deno(1,2,3,c.d) Pyrene	מא	ug/1	0.050	1	
	11/02/98	86720	(ML/EPA 525.2	•		ND	ug/l	0.50	1	
10/23/98 10/23/98	11/02/98	86720	(ML/EPA 525.2			ND	ug/l	0.020	1	
	11/02/98	86720	• •		thoxychlor	ND	ug/l	0.050	1	
10/23/98 10/23/98	11/02/98	B6720	••		cribuzin	ND	ug/1	0.050	1	
	11/02/98	86720	(ML/EPA 525.2			ND	ug/1	0.20	1	
10/23/98	11/02/98	86720	• • • • • • • • • • • • • • • • • • • •		tolachlor	310	ug/l	0.050	1	
10/23/98	11/02/98	86720	• • • • • • • • • • • • • • • • • • • •		ans-Nonachlor	ИD	ug/1	0.050	1	
10/23/98	•	86720	, .,_,	•	ntachlorophenol	ND ·	ug/l	1.0	1	
10/23/98	11/02/98	86720	(ML/EPA 525.2			ND	ug/1	0.020	1	
10/23/98	11/02/98				ometryn	ND	ug/l	0.50	1	
10/23/98	11/02/98	86720	••	-	opachlor	ND	ug/1	0.050	1	
10/23/98	11/02/98	86720 86720	••) Py	-	ND	ug/1	0.050	1	
10/23/98	11/02/98		(ML/EPA 525.2	•	mazine	מא	ug/1	0.050	1	
10/23/98	11/02/98	86720 86720	••		iobencarb	ND	ug/1	0.20	1	
10/23/98	11/02/98	86720	(1,2,200 0=====	•	ifluralin	ND	ug/1	0.10	1	
10/23/98	11/02/98	89120	(Surrogate	•	rylene-dl2	92	* Rec			
			Aldicarbs							
	10/21/98	86219	(ML/EPA 531.1	} 3-	Hydroxycarbofuran	ND	ug/1	2.0	1	
	10/21/98	86219	(ML/EPA 531.1		dicarb (Temik)	מא	ug/1	0.50	1	
	10/21/98	86219	(ML/EPA 531.1) Al	dicarb sulfone	מא	ug/l	0.80	1	
	10/21/98	86219	(ML/EPA 531.1	1 87	diamet eulforide	ND	ug/1	0.50	1	



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Prepared	Analyzed	QC Batch#	Method	Analyte	Result	Units	MDL	Dilutio
-,	10/21/98	86219	(ML/EPA 531.1	Baygon	מא	ug/1	2.0	1
	10/21/98	86219	(ML/EPA 531.1) Carbofuran (Furadan)	מא	ug/1	0.90	1
•	10/21/98	86219	(ML/EPA 531.1) Carbaryl	מא	ug/1	2.0	1
	10/21/98	86219	(ML/EPA 531.1) Methiocarb	סא	ug/1	2.0	1
	10/21/98	86219	(ML/EPA 531.1	Methomyl	ND	ug/l	1.0	1
:	10/21/98	86219	(ML/EPA 531.1)	Oxamyl (Vydace)	ND	ug/1	2.0	1
			(Surrogate)	BDMC	106	* Rec	'	
			Diquat and	Paraquat				
10/20/98	10/26/98	86365	(ML/EPA 549.1)	Diquat	מא	ug/1	0.40	1
10/20/98	10/26/98	86365	(EPA 549.1)	Paraquat	ND	ug/1	2.0	1
			EDB and DB	CP by GC-ECD				
10/23/98	10/24/98	86376	(ML/EPA 504.1)	Dibromochloropropane (DBCP)	ND	ug/l	0.010	1
10/23/98	10/24/98	86376	(ML/EPA 504.1)	Ethylene Dibromide (EDB)	ND	ug/1	0.010	1
			(Surrogate)	1,2-dibromopropane	90	ł Rec		•
			Herbicides	by 515.1				
10/22/98	10/28/98	86562	(ML/EPA 515.1)	_	ND	ug/l	0.20	1
10/22/98	10/28/98	86562		2,4,5-TP (Silvex)	מא	ug/1	0.20	1
10/22/98	10/28/98	86562	(ML/EPA 515.1)	2,4-D	. אם	ug/l	0.10	1
10/22/98	10/28/98	86562	(ML/EPA 515.1)	2,4-DB	אם •	ug/1	2.0	1
10/22/98	10/28/98	86562	(ML/EPA 515.1)	Dichlorprop	ND	ug/l	0.50	1
10/22/98	10/28/98	86562	(ML/EPA 515.1)	Acifluorfen (qualitative)	ND	ug/1	0.20	1
10/22/98	10/28/98	86562	(ML/EPA 515.1)	Bentazon	ND	vg/1	0.50	1
10/22/98	10/28/98	86562	(ML/EPA 515.1)	Dalapon (qualitative)	ND	ug/l	1.0	1
10/22/98	10/28/98	86562	(ML/EPA 515.1)	3,5-Dichlorobenzoic acid	ND	1\eu	0.60	1
10/22/98	10/28/98	86562	(ML/EPA 515.1)	DCPA	ND	ug/1	0.20	1
10/22/98	10/28/98	86562	(ML/EPA 515.1)	Dicamba	ND	ug/1	0.080	1
10/22/98	10/28/98	86562	(ML/EPA 515.1)	Dinoseb	ND	ug/1	0.20	.1
10/22/98	10/28/98	86562	(ML/EPA 515.1)	Pentachlorophenol	ND	ug/1	0.040	1
10/22/98	10/28/98	86562	(ML/EPA 515.1)	Picloram	ND	ug/1	0.10	1
10/22/98	10/28/98	86562	(ML/EPA 515.1)	4-Nitrophenol (qualitative)	ND	ug/l	5.0	1
			(Surrogata)	2,4-Dichlorophenylacetic acid	108	* Rec		•



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Laboratory Report #48372

Kauai Water Department (continued)

Prepared	Analyzed	QC Batch#	Method	Analyte	Result	Units	MDL	Dilut	Eio
									
			ICPMS Met			ug/l	5.0	1	
0/26/98	10/26/98	86494) Argenic, Total, ICAP/MS	ND ND	ug/1 ug/1	10	1	
0/26/98	10/26/98	86494	{ EPA/ML 200.8) Barium, Total, ICAP/MS	מא	ug/1 ug/1	1.0	1	
0/26/98	10/26/98	B6494) Beryllium, Total, ICAP/MS	מא	ug/1	0.50	ī	
0/26/98	10/26/98	86494	(EPA/ML 200.8) Cadmium, Total, ICAP/M5	5.8	ug/1	5.0	1	
0/26/98	10/26/98	86494) Chromium, Total, ICAP/MS		ug/1	50	1	
0/26/98	10/26/98	86494) Copper, Total, ICAP/MS	ND ND	ug/1 ug/1	5.0	1	
10/26/98	10/26/98	86494) Nickel, Total, ICAP/MS		ug/1	5.0	1	
10/26/98	10/26/98	86494	(EPA/ML 200.8) Lead, Total, ICAP/MS	מא	ug/1	2.0	1	
10/26/98	10/26/98	86494	(EPA/ML 200.8) Antimony, Total, ICAP/MS	ND			1	
10/26/98	10/26/98	86494	(EPA/ML 200.8) Selenium, Total, ICAP/MS	ND	ug/1	5.0	1	
10/26/98	10/26/98	86494	(EPA/ML 200.8) Thallium, Total, TCAP/MS	ND	ug/l	1.0	•	
			Nitrate b	y IC as NO3 & N					
	10/21/98	86386) Nitrate-N by IC	1.2	mg/l	0.10	1.	
	10/21/98	86388) Nitrate as NO3 by IC	5.3	mg/l	0.44	1	
	21,,								
			SDWA Pest		ND	ug/l	0.070	1	
10/20/98	10/30/98	86718	(ML/EPA 508) PCB 1016 Aroclor	מא	ug/l	0.10	1	
10/20/98	10/30/98	86718	(ML/EPA 508) PCB 1221 Aroclor	, др. Ди	ug/1	0.10	1	
10/20/98	10/30/98	86718	(ML/EPA 508) PCB 1232 Aroclor	מא	ug/l	0.10	1	
10/20/98	10/30/98	86718	(ML/EPA 508) PCB 1242 Aroclor	ND	ug/1	0.10	1	
10/20/98	10/30/98	86718	(ML/EPA 508) PCB 1248 Aroclor	ND	ug/1	0.10	1	
10/20/98	10/30/98	86718	(ML/EPA 508) PCB 1254 Aroclor	מא	ug/l	0.10	1	
10/20/98	10/30/98	86718	(ML/EPA 508) PCB 1260 Aroclor	ND	ug/1	0.010	. 1	
10/20/98	10/30/98	86718	(ML/EPA 508) Alpha-BHC	иD	ug/1	0.050	1	
10/20/98	10/30/98	86718	(ML/EPA 508) Alachlor (Alanex)	ND	ug/1	0.010	1	
10/20/98	10/30/98	86718	(ML/EPA 508) Aldrin	ND	ug/1	0.010	1	
10/20/98	10/30/98	86718	(ML/EPA 508) Beta-BHC	מא	ug/1	0.10	1	
10/20/98	10/30/98	86718	(ML/EPA 508) Chlordano	מא	ug/1	0.010	1	
10/20/98	10/30/98	86718	(ML/EPA 508) Chlorthalonil (Draconil, Bravo)	ND	ug/1 ug/1	0.010	1	
10/20/98	10/30/98	86718	(ML/EPA 508) Delta-BHC	מא	ug/1	0.010	1	
10/20/98	10/30/98	86718	(ML/EPA 508) p,p' DDD	ND	ug/1 ug/1	0.010	1	
10/20/98	10/30/98	86718	(ML/EPA 508) p,p' DDE	מא	n3/1	0,010	•	

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repared	Analyzed	QC Batch#	Method	Analyte	Regult	Units	MDL	Dilutio
0/20/98	10/30/98	86718	(ML/EPA 508) p.p' DDT	ND	ug/1	0.010	1
0/20/98	10/30/98	86718	(ML/EPA 508) Dieldrin	ND	ug/l	0.010	1
10/20/98	10/30/98	86718	(ML/EPA 508) Endrin Aldehyde	ND	ug/1	0.010	1
10/20/98	10/30/98	86718	(ML/EPA 508) Endrin	ND	ug/l	0.010	1
0/20/98	10/30/98	86718	(ML/EPA 508) Endosulfan I (alpha)	ND	ug/1	0.010	1
0/20/98	10/30/98	86718	(ML/EPA 508) Endosulfan II (beta)	ND	ug/l	0.010	1
10/20/98	10/30/98	86718	(ML/EPA 508) Endosulfan sulfate	ND	ug/1	0.010	1
0/20/98	10/30/98	86718	(ML/EPA 508) Heptachlor	ND	ug/l	0.010	1
0/20/98	10/30/98	86718	(ML/EPA 508) Heptachlor Epoxide	ND	ug/l	0.010	1
10/20/98	10/30/98	86718	(ML/EPA 508) Lindane (gamma-BHC)	מא	ug/l	0.010	1
1.0/20/98	10/30/98	86718	(ML/EPA 508) Methoxychlor	מא	ug/l	0.050	1
0/20/98	10/30/98	86718	(ML/EPA 508) Toxaphene	סמ	ug/l	0.50	1
•	·		(Surrogate) Dibutyl Chlorendate	80	* Rec		
-			{ Surrogate) Tetrachlorometaxylene	104	t Rec		
			Volatile (Organic Compounds				
	10/22/98	B6341	(ML/EPA 502.2) 1,1,1,2-Tetrachloroethane	מא	ug/l	0.50	1
]	10/22/98	86341	(ML/EPA 502.2) 1,1,1-Trichloroethane	ND	ug/l	0.50	1
:	10/22/98	B6341	(ML/EPA 502.2) 1,1,2,2-Tetrachloroethane	מא	,ug/l	0.50	1
نہ	10/22/98	86341	(ML/SPA 502.2) 1.1,2-Trichloroethans	ND	ug/l	0.50	1
_	10/22/98	86341	(ML/EPA 502.2) 1,1-Dichloroethane	ND	ug/l	0.50	1
	10/22/96	86341	(ML/EPA 502.2) 1,1-Dichloroethene	ND .	ug/l	0.50	1
لم	10/22/98	86341	(ML/EPA 502.2) 1,1-Dichloropropene	מא	ug/1	0.50	1
	10/22/98	86341	(ML/EPA 502.2) 1,2,3-Trichloropropane	מא	ug/l	0.50	1 '
?	10/22/98	86341	(ML/EPA 502.2) 1,2,3-Trichlorobenzene	ND	ug/1	0.50	1
!	10/22/98	86341	(ML/EPA 502.2) 1,2,4-Trichlorobenzene	מא	ug/l	0.50	1
	10/22/98	86341	(ML/EPA 502.2) 1,2,4-Trimethylbenzene	ND	ug/1	0.50	1
7	10/22/98	86341	(ML/EPA 502.2) 1,2-Dichloroethane	ND	ug/l	0.50	1
•	10/22/98	86341	(ML/EPA 502.2) 1,2-Dichlorobenzene	ND	ug/1	0.50	1
٤	10/22/98	86341	(ML/EPA 502.2) 1,2-Dichloropropane	ND	ug/1	0.50	1
	10/22/98	86341	(ML/EPA 502.2) 1,3,5-Trimathylbenzene	ND	ug/l	0.50	1
7	10/22/98	86341	(ML/EPA 502.2) 1,3-Dichlorobenzene	ND	ug/1	0.50	1
)	10/22/98	86341	(ML/EPA 502.2) 1,3-Dichloropropane	ND	ug/l	0.50	1
	10/22/98	86341) 1,4-Dichlorobenzene	ND	ug/1	0.50	i
4	10/22/98	86341) 2,2-Dichloropropane	ND	ug/1	0.50	1
	10/22/98	86341) 2-Chlorotoluene	ND	ug/1	0.50	1



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Laborațory Report #48372

Kauai Water Department (continued)

repared	Analyzed	OC Batch	Method Analyte	Analyte	Result	Units	MDL	Dilutio		
	10/22/98	86341			4-Chlorotoluene	ND	ug/1	0.50	1	
	10/22/98	86341	(ML/EPA 502.2	-	Bromodichloromethane	ND	ug/1	0.50	1	
	10/22/98	86341	(ML/EPA 502.2			ND	ug/1	0.50	1	
	10/22/98	86341	(ML/EPA 502.2			ND	ug/1	0.50	1	
	10/22/98	86341			Bromochloromethane	סא	ug/1	0.50	1	
	10/22/98	86341	(ML/EPA 502.2)	Bromomethane	ND	ug/1	0.50	1	
	10/22/98	86341			cis-1,2-Dichloroethene	ND	ug/1	0.50	1	
	10/22/98	86341	(ML/EPA 502.2			ND	ug/1	0.50	1	
	10/22/98	86341			Carbon tetrachloride	ND	ug/1	0.50	1	
	10/22/98	86341			cis-1,3-Dichloropropene	מא	ug/1	0.50	1	
	10/22/98	86341	(ML/EPA 502.2			ND	ug/1	0.50	1	
	10/23/98	B6341	(ML/EPA 502.2)	Chloroform	ND	ug/l	0.50	1	
	10/22/98	86341	(ML/EPA 502.2		Chloroethane	ND	ug/1	0.50	1	
	10/22/98	86341	(ML/EPA 502.2	>	Chloromethane	ND	ug/1	0.50	1	
	10/22/98	B6341)	Dibromochloromcchane	ND	ug/l	0.50	1	
	10/22/98	86341	(ML/EPA 502.2)	1,2-Dibromo-3-chloropropane	ND	ug/l	1.0	1	
	10/22/98	86341	(ML/EPA 502.2) :	Dibromomethane	ND	ug/1	0.50	1	,
	10/22/98	B6341	(ML/EPA 502.2) 1	Dichlorodifluoromethane	ND	ug/1	0.50	1	
	10/22/98	86341	(ML/EPA 502.2	1 :	1,2-Dibromoethane	ND	ug/1	0.50	1	
	10/22/98	86341	(ML/EPA 502.2) 1	Ethylbenzene	מא	ug/l	0.50	1	٠
	10/22/98	86341	(ML/EPA 502.2) ;	iexachlorobutadiene	ND	ug/1	0.50	1	
	10/22/98	86341	(ML/EPA 502.2) :	sopropylbenzene	ND .	ug/1	0.50	1	-
	10/23/98	86341	(ML/EPA 502.2	1 (ethylene chloride	1.5	ug/1	0.50	1	•
	10/22/98	86341	(ML/EPA 502.2) 11	+p-Xylenes	מא	ug/1	0.50	1	
	10/22/98	86341	(ML/EPA 502.2) M	ethyl tert-butyl ether	ND	ug/l	5.0	1	•
	10/22/98	86341	(ML/EPA 502.2) N	Saphthalene	מא	ug/1	0.50	1	
	10/22/98	86341	(ML/EPA 502.2) n	-Butylbenzene	ND	ug/l	0.50		•
	10/22/98	86341	(ML/EPA 502.2) n	-Propylbenzene	ND	ug/l	0.50	1	
	10/22/98	86341	(ML/EPA 502.2) 0	-Xylene	ND	ug/1	0.50		
	10/22/98	86341	(ML/EPA 502.2) T	etrachloroethylene (PCE)	ND	ug/1	0.50	1	
	10/22/98	B6341			-Isopropyicoluene	ND	ug/1	0.50	1	
,	10/22/98	86341			ec-Butylbenzene	ND	ug/1	0.50	1	•-
	10/22/98	86341			tyrene	ND	ug/1		1	
1	10/22/98	86341	(ML/EPA 502.2)) t:	rans-1,2-Dichloroethene	מא	ug/1	0.50	1	•
	10/22/98	86341			ert-Butylbenzene	מא	ug/1	0.50	1	
1	0/22/98	86341			richloroethylene (TCE)	מא	ug/1	0.50 0.50	1	•

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Laboratory Report #48372

Kauai Water Department (continued)

Prepared	. Analyzed	QC Batch#	Method	Analyte	Result	Units	MDL	Dilution
	10/22/98	86341	(ML/EPA 502.2) Trichlorotrifluoroethane (Freon	מא	ug/l	0.50	
	10/22/98	86341	(ML/EPA 502.2) trans-1,3-Dichloropropens	ир	ug/1	0.50	
	10/22/98	86341	(ML/EPA 502.2) Toluene	ND	ug/1	0.50	
	10/22/98	86342	(ML/EPA 502.2) Trichlorofluoromethane	ND	ug/1	0.50	
	10/22/98	86341	(ML/EPA 502.2) Vinyl chloride	מא	ug/1	0.30	1
		•	(Surrogate) Bromofluorobenzene-ELCD	8.9	* Rec	0.30	1
			(Surrogate) Bromofluorobenzene-PID	84	* Rec		
			(Surrogate) Chlorofluorobenzene-ELCD	89	* Rec		
			(Surrogate) Chlorofluorobenzene-PID	89	₹ Rec		

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Kauai Water Department

	QC Batch #86095	Specifi	.c Condi	uctance		
QC DOP	Analyte Spiked sample	Spiked lab # 98	Recovered	Yield (%)	Limits (%) ((0.00 - 0.00)	RPD (%)
	QC Batch #86098	Lab pH				
QC DUP	Analyte Spiked sample	Spiked lab # 98	Recovered	Yield (%)	Limits (%)	RPD (%)
	QC Batch #86117	Calciu	m, Tota	l, ICAP		
		Spiked	Recovered	Yield (%)	Limits (%)	RPD (%)
QC	Analyte Spiked sample	Lab # 98	1016035		(0.00 - 0.00 }	
MS	Calcium, Total, ICAP	50	49.5	99.0	(85.00 - 115.00)	
LCS1	Calcium, Total, ICAP	50	50.2	100.4	(85.00 - 115.00)	1.4
LCS2	Calcium, Total, ICAP	ИБ				
MBLK	Calcium, Total, ICAP	50	47.0	94.0	(70.00 - 130.00)	
KS KSD	Calcium, Total, ICAP	50	45.8	91.6	(70.00 - 130.00)	2.6
	QC Batch #86219	Aldica	rbs			
		Spiked	Recovered	Yield (%)	Limits (%)	RPD (%)
0C	Analyte	20.0	20.0	100.0	(80.00 - 120.00)	
LCS1		ND				
MBLK		20.0	20.2	101.0	(80.00 - 120.00)	
жз	3-Eydroxycarbofuran	Lab # 98	1007165		(0.00 - 0.00)	
жs	spiked sample	20.0	18.6	93.0	(80.00 - 120.00)	
LCS1		310				
KB LJ	Aldicarb (Temik)	20.0	20.1	100.5	(80.00 - 120.00)	
из		20.0	19.1	95.5	(80.00 - 120.00)	}
LCS		ND				
MBLI	Aldicarb sulfons	20.0	19.2	96.0	(80.00 - 120.00	
ЖS		20.0	19.2	96.0	(80.00 - 120.00)
LCS:		MD				
MBL	Aldicarb sulfoxide	20.0	19.6	99.0	(80.00 - 120.00	1
MS	WIGIGATA SPECIAL-					

Spikes which exceed Limits and Method Dlamks with positive results are highlighted by <u>Underlining.</u>
Criteria for MS and DUP are advisory only and not applicable for ICR monitoring.

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Laboratory QC Report #48372

Kauai Water Department (continued)

LCS1	Baygon	20.0	19.8	99.0	(80.00 - 120.00)
MBLK	Baygon	ND			·
MS	Baygon	20.0	19.8	99.0	(80.00 - 120.00)
LCS1	Carbofuran (Furadan)	20.0	19.8	99.0	(80.00 - 120.00)
MBLK	Carbofuran (Furadan)	ND			
MS	Carbofuran (Furadan)	20.0	19.9	99.5	(80.00 - 120.00)
LCS1	Carbaryl	20.0	18.7	93.5	(80.00 - 120.00)
MBLK	Carbaryl ·	ND			
MS	Carbaryl	20.0	19.9	99.5	(80.00 - 120.00)
LCS1	Methiocarb	20.0	20.5	102.5	(80.00 - 120.00)
MBLK	Methiocarb	מא			
MS	Methiocarb	20.0	19.6	98.0	(80.00 - 120.00)
LCS1	Methomyl	20.0	19.2	96.0	(80.00 - 120.00)
MBLK	Methomyl	ND			
MS	Methomyl	20.0	19.9	99.5	(80.00 - 120.00)
LCS1	Oxamyl (Vydate)	20.0	20.1	100.5	(80.00 - 120.00)
MBLK	Oxamyl (Vydate)	מא			•
MS	Oxamyl (Vydate)	20.0	19.8	99.0	(80.00 - 120.00 }

QC Batch #86341

Volatile Organic Compounds

QC .	Analyte	Spiked	Recovered	Yield (%)	Limits'(%)	RPD (%)
LCS1	1,1,1,2-Tetrachloroethane	4.0	4.0	100.0	(80.00 - 120.00)	•
MBLK	1,1,1,2-Tetrachloroethane	ND				
LCS1	1,1,1-Trichloroethane	4.0	4.2	105.0	(80.00 - 120.00)	
HBLK	1,1,1-Trichloroethane	ND				
LCS1	1,1,2,2-Tetrachloroethane	4.0	4.6	115.0	(80.00 - 120.00)	
HBLK	1,1,2,2-Tetrachloroethane	מא				
LCS1	1,1,2-Trichloroethane	4.0	4.2	105.0	(80.00 - 120.00)	
MBLX	1,1,2-Trichloroethane	ND				
LC91	1,1-Dichloroethane	4.0	3.9	97.5	(80.00 - 120.00)	
MBLK	1,1-Dichloroethane	ND				
LCSl	1,1-Dichloroethene	4.0	3.8	95.0	[80.00 - 120.00 }	
HBLK	1,1-Dichloroethene	מא				
LCSl	1,1-Dichloropropene	4.0	4.2	105.0	(80.00 - 120.00)	
KBLK	1,1-Dichloropropene	ND				



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Kauai Water Department (continued)

LCS1	1,2,3-Trichloropropane	4.0	4.7	117.5	(80.00 - 120.00)
MBLK	1,2,3-Trichloropropane	ND			
LCS1	1,2,3-Trichlorobenzene	4.0	3.8	95.0	(80.00 - 120.00)
MBLK	1,2,3-Trichlorobenzene	ND			
LC51	1,2,4-Trichlorobenzene	4.0	3.5	87.5	(80.00 - 120.00)
MBLK	1,2,4-Trichlorobenzene	ND			
LCS1	1,2,4-Trimethylbenzene	4.0 •	3.7	92.5	(80.00 - 120.00 }
MBLK	1,2,4-Trimethylbenzene	מא			
LCS1 ·	1,2-Dichloroethane	4.0	4.0	100.0	(BO.00 - 120.00)
MBLK	1,2-Dichloroethane	ND			
LCS1	1,2-Dichlorobenzene	4.0	4.0	100.0	(80.00 - 120.00)
MBLK	1,2-Dichlorobenzene	ND			
LCS1	1,2-Dichloropropane	4.0	3.8	95.0	(80.00 - 120.00)
MBLX	1,2-Dichloropropane	ND			
LCS1	1,3,5-Trimethylbenzene	4.0	3.6	90.0	(80.00 - 120.00)
MBLK	1,3,5-Trimethylbenzene	מא			
LCS1	1,3-Dichlorobenzene	4.0	3.7	92.5	(80.00 - 120.00)
MBLK	1,3-Dichlorobenzene	ND			
LCS1	1,3-Dichloropropane	4.0	4.2	105.0	(80.00 - 120.00)
MBLK	1,3-Dichloropropane	ND			
LCS1	1,4-Dichlorobenzene	4.0	3.8	95.0	(80.00 - 120.00)
MBLX	1,4-Dichlorobenzene	ND			
LCS1	2,2-Dichloropropane	8.0	9.4	117.5	(80.00 - 120.00)
MBLK	2,2-Dichloropropane	ND			•
LCSI	2-Chlorotoluene	4.0	4.0	100.0	(80.00 - 120.00)
MBLK	2-Chlorotoluene	ND			
LCS1	4-Chlorotoluene	4.0	4.2	105.0	(80.00 - 120.00)
MBLK	4-Chlorotoluene	ND			
LCS1	Bromodichloromethane	4.0	3.9	97.5	(80.00 - 120.00)
MBLK	Bromodichloromethane	ND			
LCS1	Benzene	4.0	3.9	97.5	(B0.00 + 120.00)
MBLK	Benzene	ND			
LCS1	Bromobenzene	4.0	4.1	102.5	(80.00 - 120.00)
MBLK	Bromobenzene	ND			:
LCS1	Bromochloromethane	4.0	4.0	100.0	(80.00 - 120.00)
MBLK	Bromochloromethane	ND			•
LCS1	Bromomethane	2.0	2.9	95.0	(80.00 - 120.00)

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Laboratory QC Report #48372

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Kauai Water Department (continued)

MBLK	Bromomethane	ND			,
LCS1	cis-1,2-Dichloroethene	4.0	3.9	97.5	(80.00 - 120.00)
MBLK	cis-1,2-Dichloroethene	ND			•
LCS1	Chlorobenzene	4.0	3.8	95.0	(80.00 - 120.00)
MBLK	Chlorobenzene	מא			
LCS1	Carbon tetrachloride	4.0	4.2	105.0	(80.00 - 120.00)
MBLK	Carbon tetrachloride	ND			
LCS1	cis-1,3-Dichloropropene	4.0	3.8	95.0	(80.00 - 120.00)
MBLK	cis-1,3-Dichloropropene	ND			
LCS1	Bromoform	4.0	4.3	107.5	(80.00 - 120.00)
MBLX	Bromoform	ND		,	·
LCS1	Chloroform	10	11	110.0	(BO.00 - 120.00)
MBLK	Chloroform	ND			
LCS1	Chloroethane	2.0	1.9	95.0	(80.00 - 120.00 }
MBLK	Chloroethane	ND			•
LCS1	Chloromethane	2.0	2.0	100.0	(80.00 - 120.00)
MBLK	Chloromethane	ND			
LCS1	Dibromochloromethane	4.0	4.3	107.5	(80.00 - 120.00)
MBLK	Dibromochloromethana	ND			
LCS1	1,2-Dibromo-3-chloropropane	4.0	4.4	110.0	(80.00 - 120.00)
MBLK	1,2-Dibromo-3-chloropropane	ND			•
LCS1	Dibromomethane	4.0	4.5	112.5	(80.00 - 120.00)
MBLK	Dibromomethane	ND			•
LCS1	Dichlorodifluoromethane	2.0	2.0	100.0	(80.00 ~ 120.00 }
MBLK	Dichlorodifluoromethane	ИD			•
LCS1	1,2-Dibromoethane	4.0	4.4	110.0	(80.00 - 120.00 }
MBLK	1,2-Dibromoethane	מא			
LCS1	Ethylbenzene	4.0	3.9	97.5	(80.00 - 120.00)
MBLK	Ethylbenzene	ND			·
LCS1	Hexachlorobucadiene	4.0	3.5	87.5	(BO.00 - 120.00)
MBLK	Hexachlorobutadiene	מא	*		·
LCS1	Isopropylbenzene	4.0	3.8	95.0	{ 80.00 - 120.00 }
MBLX	Isopropylbenzene	ND			• • •
LCS1	Methylene chloride	4.0	4.1	102.5	(80.00 - 120.00)
MBLK	Methylane chloride	ИD			•
LCS1	m+p-Xylenes	8.0	7.8	97.5	(80.00 - 120.00)
MBLK	m+p-Mylenes	ND			

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Kauai Water Department (continued)

LCS1	Methyl tert-butyl ether	40	45	112.5	(80.00 - 120.00)
MBLK	Methyl tert-butyl ether	ND			, 220.00 /
LCS1	Naphthalene	4.0	4.0	100.0	(80.00 - 120.00)
MBLK	Naphthalene	ND			120.00 /
LCS1	n-Butylbenzene	4.0	3.6	90.0	(80.00 - 120.00)
MBLK	n-Butylbenzene	ND			
LCS1	n-Propylbenzene	4.0	3.5	87.5	(80.00 - 120.00)
MBLK	n-Propylbenzane	ND			220.00 /
LCS1	o-Xylene	4.0	3.7	92.5	(80.00 - 120.00)
MBLK	o-Xylene	ND			. 50100 - 220,00 /
LCS1	Tetrachloroethylene (PCE)	4.0	3.9	97.5	(80.00 - 120.00)
MBLK	Tetrachloroethylene (PCS)	ND			, 20.00 - 120.00 /
LC31	p-Isopropyltoluene	4.0	3.7	92.5	(80.00 - 120.00)
MBLK	p-Isopropyltoluene	מא			, , , , , , , , , , , , , , , , , , , ,
LCS1	sec-Butylbenzene	4.0	3.7	92.5	(80.00 - 120.00)
MBLK	sec-Butylbenzene	ND			(00.00 - 120.00)
LC\$1	Styrene	4.0	3.9	97.5	(80.00 - 120.00)
MBLK	Styrene	מא			(55.55 - 120.50)
LCS1	Chlorofluorobenzene (surr) PID	100	108	108.0	(80.00 - 120.00 }
MBLK	Chlorofluorobenzene (surr) PID	100	97	97.0	1 10100 1
LCS1	Bromofluorobenzene (surr) PID	100	113	113.0	(80.00 - 120.00)
MBLK	Bromofluorobenzene (surr) PID	100	105	105.0	220.00 ,
LCS1	Chlorofluorobenzene (surr) ELC	100	103	103.0	{ 80.00 - 120.00 }
MBLK	Chlorofluorobenzene (surr) ELC	100	95	95.0	
LCS1	Bromofluorobenzene (surr) ELCD	100	108	108.0	(80.00 - 120.00)
MBLK	Bromofluorobenzene (surr) ELCD	100	91	91.0	, 40100 - 120.00)
LCS1	trans-1,2-Dichloroethene	4.0	4.0	100.0	(80.00 - 120.00 }
MBLK	trans-1,2-Dichloroethene	מא		•	. 55555 - 125.55 /
LCS1	tert-Butylbenzene	4.0	3.8	95.0	(80.00 - 120.00)
MBLK	tert-Butylbenzene	ND			
LCS1	Trichlorosthylens (TCE)	4.0	3.6	95.0	(80.00 - 120.00)
MBLK	Trichloroethylene (TCE)	מא			1 10100 - 120.00 }
MBLK	Trichlorotrifluoroethane(Freon	ND			
LCS1	Trichlorotrifluoroethane (Freen	2.0	2.2	110.0	(80.00 - 120.00)
LCS1	trans-1,3-Dichloropropene	4.0	3.9	97.5	(80.00 - 120.00)
MBLK	trans-1,3-Dichloropropene	ND		- · · ·	
LCS1	Toluene	4.0	3.8	95.0	(80.00 - 120.00)
			-		TTA'AA }

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Kauai Water Department (continued)

1,2-dibromopropane (surr)

LC\$2

мац	X Toluene	ND			,	
LCS		2.0	1.9	95.0	(80.00 - 120.00)	
MBL		מא				
LCS		2.0	2.0	100.0	(80.00 - 120.00)	
MBL	•	מא				
• • • •						
	QC Batch #86365	Diquat	and Pa	araquat		
QC	Analyte	Spiked	Recovered	Yield (%)	Limits (%)	RPD (%)
жs	Spiked sample	Lab # 98	1020025		(0.00 - 0.00)	
LCS	•	10.0	10.3	103.0	(0.00 - 366.59)	
мві	<u>-</u>	ND				
MS	Diquat	10.0	9.9	99.0	(70.00 - 130.00)	
LCS	· · · · · · · · · · · · · · · · · · ·	10.0	8.4	54.0	(70.00 ~ 130.00)	
MBI	I Paraquat	ND		•		
MS	Paraquat	10.0	B. 6	86.0	(70.00 - 130.00)	
	QC Batch #86376	EDB and	d DBCP	by GC-EC	:D	
	20 2001 110001			•		
QC	Analyte	Spiked	Recovered	Yield (%)	Limits (%)	RPD (%)
DUE	Spiked sample	Lab # 98	1021039		(0.00 - 0.00)	
MS	Spiked sample	7.ab # 98	1020033		(0.00 - 0.00 }	
DUE	Dibromochloropropane (DBCP)	ЖD	מא		(0.00 - 20.00)	
LCS	1 Dibromochloropropane (DBCP)	0.05	0.05	100.0	(60.00 - 140.00)	
LCS	2 Dibromochloropropane (DBCP)	0.10	0.09	90.0	(60.00 - 140.00)	
MBI	X Dibromochloropropane (DBCP)	ND				
MS	Dibromochloropropane (DBCP)	0.10	0.09	90.0	(60.00 - 140.00)	
DÜI	Ethylene Dibromide (EDB)	ND	מא		{ 0.00 - 20.00 }	
LCS	1 Ethylene Dibromide (EDB)	0.05	0.05	100.0	(60.00 - 140.00)	
LCS		0.10	0.09	90.0	(60.00 - 140.00)	
МЭІ	K · Ethylene Dibromide (EDB)	ND				
MS	Ethylene Dibromide (EDB)	0.10	0.09	90.0	(60.00 - 140.00)	
נסמ	1,2-dibromopropane (surr)	100	99	99.0	(60.00 - 140.00)	
LCS	1 1,2-dibromopropane (surr)	100	95	95.0	(60.00 - 140.00)	

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(60.00 - 140.00) 15



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Kauai Water Department
(continued)

MBLK	1.2-dibromopropane (surr)	100	95	95.0	•	
MS	1,2-dibromopropane (surr)	100	91	91.0	(60.00 - 140.00)	
	OC Batch #86377	Glypho	sate			
QC	Analyte	Spiked	Recovered	Yield (%)	Limits (%)	RPD (%)
KS	Spiked sample	Lab # 98	1014097		(0.00 - 0.00)	
LCS1	Glyphosate	50	53.4	106.B	(70.00 - 130.00)	
HBLK	Glyphosate	MD				
MS	Glyphosate	50	54.6	109.2	(70.00 - 130.00)	
			_ >=! 4	1	TO	
	QC Batch #86384	Nitrit	e, Nici	rogen by	10	
QC	Analyte	Spikad	Recovered	Yield (%)	Limits (%)	RPD (%)
HS	Spiked sample	Lab # 98	1020033		(0.00 - 0.00)	
LCS1	Mitrite, Mitrogen by IC	1.0	1.07	107.0	(90.00 - 110.00)	
LCS2	Mitrite, Mitrogen by IC	1.0	1.05	105.0	(90.00 - 110.00)	1.9
MBLK	Mitrita, Mitrogen by IC	ND				
HS	Nitrite, Nitrogen by IC	1.0	1.05	105.0	(80.00 - 120.00)	
RSD	Mitrite, Mitrogen by IC	1.0	1.05	105.0	(80.00 - 120.00 }	0.00
					•	
	77 7-1-1-1-1-1-1-1-1-1-1-1-1-1-1-1-1-1-1	374 4	- h T	2 - 2 NO3	s. Nr	
	QC Batch #86388	NICTAL	e by i	C as NO3	0. 11	
oc.	Analyte	Spiked	Recovered	Yield (%)	Limits (%)	RPD (%)
NS.	Spiked sample	Lab # 98	1020033		(0.00 - 0.00)	
LCS1	Nitrate-N	2.5	2.65	106.0	(90.00 - 110.00)	
LCS2	Nitrate-N	2.5	2.65	106.0	(90.00 - 110.00)	0.00
KS	Nitrate-N	2.5	2.72	108.8	(75.00 - 125.00)	
MSD	Nitrate-N	2.5	2.72	108.8	(75.00 - 125.00)	0.00
MBLK	Hitrate as NO3 by IC	ND				

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Kauai Water Department (continued)

	QC Batch #86389	Alkali	nity		•	
QC	Amalyte	Spiked	Recovered	rield (%)	Limits (%)	RPD (%)
KS	Spiked sample	Lab # 98	1022259		(0.00 - 0.00)	,,,
LCS1	Alkalinity	96.2	98.6	102.0	{ 90.00 - 110.00 }	
LCS2	Alkalinity	96.2	98.5	101.6	(90.00 - 110.00)	0.10
MBLK	Alkalinity	ND				
ЖS	Alkalinity	96.2	92.7	95.6	{ 80.00 - 120.00 }	
MSD	Alkalinity	96.2	94.3	98.0	(80.00 - 120.00)	1.7
	QC Batch #86438	Cyanid	e			
QC	Analyte	Spiked	Recovered	Yield (%)	Limits (%)	RPD (%)
HS	Spiked sample	Lab # 98	1023022		(0.00 - 0.00)	• • • • • • • • • • • • • • • • • • • •
LCSl	Cyanide	0.10	0.108	108.0	(90.00 - 110.00)	
MBLK	Cyanide	XD				
MS	Cyanide	0.096	0.109	113.5	(80.00 - 120.00)	
MSD	Cyanide	0.096	0.112	116.7	(80.00 - 120.00)	2.7
•	QC Batch #86494	ICPMS 1	Metals		•	
QC	Analyte	Spiked	Recovered	Yield (%)	Limits (%)	RPD (%)
LCS1	Arsanic, Total, ICAP/MS	20	20.4	102.0	(85.00 - 115.00)	
HBLK	Arsenic, Total, ICAP/MS	מא				
LCS1	Barium, Total, ICAP/HS	100	101	101.0	(85.00 - 115.00)	
HBLK	Barium, Total, ICAP/MS	מא				
LCS1	Beryllium, Total, ICAP/MS	5	4.65	93.0	{ 85.00 - 115.00 }	
HELK	Beryllium, Total, ICAP/MS	ND				
LCS1	Cadmium, Total, ICAP/MS	20	19.9	99.5	(85.00 - 115.00)	
MBLX	Cadmium, Total, ICAP/HS	מא			•	
LCS1	Chromium, Total, ICAP/MS	100	95	95.0	(85.00 - 115.00)	
MBLK	Chromium, Total, ICAP/MS	ָ מזא			¥ *	
LCS1	Copper, Total, ICAP/MS	100	98	98.0	(85.00 - 115.00)	•

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Kauai Water Department (continued)

MBLK	Copper, Total, ICAP/MS	ND			•	
LCS1	Nickel, Total, ICAP/MS	50	51.1	102.2	(85.00 - 115.00 }	
MBLK	Nickel, Total, ICAP/MS	ND				
LCS1	Lead, Total, ICAP/MS	20	19.2	96.0	(85.00 - 115.00)	
MBLK	Lead, Total, ICAP/MS	ИD				
LCS1	Antimony, Total, ICAP/MS	50	46.9	93.8	(85.00 - 115.00)	
MBLK	Antimony, Total, ICAP/MS	. מא				
LCS1	Selenium, Total, ICAP/MS	20	19.4	97.0	(85.00 - 115.00)	
MBLK	Selenium, Total, ICAP/MS	מא				
LCS1	Thallium, Total, ICAP/MS	20	19.2	96.0	(85.00 - 115.00)	
MBLK	Thallium, Total, ICAP/MS	מא				
	QC Batch #86562	Herbic	ides by	7 515.1		
	ge Bacen #50502					
QC	Analyte	Spiked	Recovered	Yield (%)	Limits (%)	RPD (%)
LCS1	2,4,5-7	0.20	0.22	110.0	(68.00 - 166.00)	
MBLK	2,4,5-T	ND				
MS	2,4,5-T	0.20	0.21	105.0	(68.00 - 166.00)	
LCS1	2,4,5-TP (Silvex)	0.20	0.21	105.0	(42.00 - 226.00)	
MBLK	2,4,5-TP (Silvex)	מא				
KS	2,4,5-TP (Silvex)	0.20	0.20	100.0	(42.00 - 226.00 }	
LCS1	2,4-D	0.10	0.08	80.0	(49.00 - 214.00)	
KBLK	2,4-D	ИD				
KS	2,4-D	0.10	0.09	90.0	(49.00 - 214.00)	
rcsi	2,4-DB	2.00	2.0	100.0	(48.00 - 126.00)	
MBLK	2,4-DB	מא				
MS	2,4-DB	2.00	1.6	80.0	(48.00 - 126.00)	
LCS1	Dichlorprop	0.50	0.50	100.0	(46.00 - 168.00)	
MBLX	Dichlorprop	ND				
MS	Dichlorprop	0.50	0.41	82.0	(46.00 - 168.00)	
×3	Spiked sample	Lab # 98	1015006		(0.00 - 0.00)	
LCS1					{ 74.00 - 168.00 }	
2002	Acifluorfen (qualitative)	0.20	0.14	70.0	(/4:00 - 100:00 /	
Mark	Acifluorfen (qualitative) Acifluorfen (qualitative)	0.20 ND	0.14			
	•		0.14 0.12 0.50	60.0 100.0	(74.00 - 168.00) (70.00 - 170.00)	

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Kauai Water Department (continued)

MS	Bentazon	0.50	0.48	96.0	(70.00 - 170.00)
LCS1	Dalapon (qualitative)	1.00	0.94	94.0	(40.00 - 160.00 }
MBLK	Dalapon (qualitative)	ND			
MS	Dalapon (qualitative)	1.00	0.75	75.0	(40.00 - 160.00)
LCS1	3,5-Dichlorobenzoic acid	0.50	0.49	90.0	(53.00 - 151.00)
MBLK	3,5-Dichlorobenzoic acid	ND			
MS	3,5-Dichlorobenzoic acid	0.50	0.46	92.0	(53.00 - 151.00)
LC\$1	DCPA	0.20	0.17	85.0	(44.00 - 104.00)
MBLK	DCPA	ND			
MS	DCPA	0.20	0.20	100.0	(44.00 - 104.00)
LCS1	Dicamba	0.05	0.04	80.0	(38.00 - 232.00)
MBLK	Dicamba	מא			
MS	Dicamba	0.05	0.04	80.0	(38.00 - 232.00)
LCS1	Dinoseb	0.20	0.02	10.0	(0.00 - 85.00)
MBLK	Dinoseb	סא			
MS	Dinoseb	0.20	0.14	70.0	(0.00 - 85.00)
LCS1	Pentachlorophenol	0.04	0.03	75.0	(36.00 - 224.00)
MBLK	Pentachlorophenol	ND			
MS	Pentachlorophenol	0.04	0.03	75.0	(36.00 - 224.00)
LCS1	Picloram	0.10	0.09	90.0	(45.00 - 138.00)
MBLK	Picloram	מא			
MS	Picloram	0.10	0.10	100.0	(45.00 - 138.00)
LCS1	4-Nitrophenol (qualitative)	1.00	0.95	95.0	(60.00 202.00)
MBLK	4-Nitrophenol (qualitative)	ND			
MS	4-Nitrophenol (qualitative)	1.00	0.89	89.0	(60.00 - 202.00)
LCS1	2,4-Dichlorophenylacetic acid	100	128	128.0	(70.00 - 130.00)
MBLK	2,4-Dichlorophenylacetic acid	100	109	109.0	
MS	2,4-Dichlorophenylacatic acid	100	123	123.0	(70.00 - 130.00)

QC Batch #86628

Fluoride

QC	Analyte	Spiked	Recovered	Yield (%)	Limits (%)	RPD (%)
из	Spiked sample	Lab # 98	1023021		(0.00 - 0.00)	
LCSI	Fluorida	0.87	0.88	101.1	(90.00 - 110.00)	
LCS2	Fluoride	0.87	0.89	102.3	(90.00 - 110.00)	1.1
XBLK	Fluoride	מא				

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Kauai Water Department (continued)

	•						
		0.909	0.930	107.8	(80.00 - 120.00)		
MS	Fluorida	0.909	0.988	108.7	(80.00 - 120.00)	0.81	_
MSD	Pluoride	0.303					
	QC Batch #86658	Mercur	Y				
		Spiked	Recovered	Yield (%)	Limits (%)	RPD (%)	
QC	Analyte	Lab # 98	1027060		(0.00 - 0.00)		
HS	Spiked sample	1.56	1,56	100.0	(85.00 - 115.00)		-
LCSL	Hercury	1.56	1.56	100.0	(85.00 - 115.00)	0.00	
LCS2	Hercury						
HBLK	Mercury	ИĎ	1.53	98.0	(80.00 - 120.00)		
ЖS	Mexcury	1.56	1.44	92.0	(80.00 - 120.00)	6.1	
HSD	Harcury	1.56	4. **	•===			

	og D-4-h #96718	SDWA P	estici	des			
	QC Batch #86718	5					
		Spiked	Recovered	yield (%)	Limits (%)	RPD (%)	
ÖC	Analyte	מא					
MBLK	PCB 1016 Aroclor	מא					s
HBLK	PCB 1221 Aroclor	מא					(_ -
MBLK	PCB 1232 Aroclor	0.350	0.291	83.0	(70.00 - 130.00)		
LCSl	PCB 1242 Aroclor	*	*****		•		•
NBLK	PCB 1242 Aroclor	वार					•
XJEK	PCB 1248 Aroclor	מא					
MBLK	PCB 1254 Aroclor						 ,
MBLK	PCB 1260 Aroclor	ND '	0.043	86.0	(62.00 - 122.00)		p ¢
LCS1	Alpha-BHC	0.050	0.043	00.0	•		
MBLX	Alpha-BHC	ND	0.054	108.0	(62.00 - 122.00)		> 1
HS	Alpha-BHC	0.050		100.0	(0.00 - 0.00)		i
ЖS	Spiked sample	Lab # 98	1019005		, 5,12	•	41
HBLK	Alachlor (Alanex)	ЖD		77.0	(70.00 - 130.00 }		
LCS1	Alachlor (Alanex)	0.100	0.077		(70.00 - 130.00)		4
MS	Alachlor (Alanax)	0.100	0.099	59.0	(56.00 - 116.00)		g-4
LC91	Aldrin	0.050	0.028	56.0	(30.44 - WY9199)		• •
MBLX	Aldrin	ND			(56.00 - 116.00)		2.3
ЖS	Aldrin	0.050	0.051	102.0	(55.00 - 125.00)		
LCS1	Beta-BEC	0.050	0.040	80.0	[83.00 - 223.00)		£]

Spikes which exceed Limits and Mothod Blanks with positive results are highlighted by Underlining. Criteria for MS and DUP are advisory only and not applicable for ICR monitoring.

11

MONTGOMERY WATSON LABORATORIES a Division of Montgomery Watson Americas, Inc.
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1 800 568 LABS (1 800 568 5227)

Laboratory QC Report #48372

. . .-.-

Kauai Water Department (continued)

MBLK	Beta-BHC	מא			
MS	Beta-BHC	0.050	0.054	108.0	{ 65.00 -\\125.00 }
MBLK	Chlordana	ND	0.034	100.0	(03.00 - 125.00)
LCS1	Chlorthalonil (Draconil, Bravo)	0.100	0.071	71.0	(61.00 - 121.00)
MBLK	Chlorthalonil (Draconil, Bravo)	ND	*****	,,,,	(02:00 - 121:00)
MS	Chlorthalonil (Draconil, Bravo)	0.100	0.097	97.0	(61.00 - 121.00)
LÇS1	Delta-BHC	0.050	0.042	84.0	(68.00 - 136.00)
MBLK	Delta-BHC	מא			130.00 ,
MS	Delta-BHC	0.050	0.052	104.0	(68.00 - 136.00)
LCS1	מסס יף, ססס	0.100	0.076	76.0	(77.00 - 137.00)
MBLK	p,p' DDD	ND			, ,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,
MS	ססס ",ף,	0.100	0.086	86.0	(63.00 - 135.00)
LCS1	p,p' DDE	0.100	0.080	80.0	(63.00 - 135.00)
MBLX	b'b, DDR	ND			•
MS	p,p' DDE	0.100	0.107	107.0	(63.00 - 135.00)
LCS1	p,p' Dor	0.100	9.086	86.0	(62.00 ~ 162.00)
MBLK	p,p' DDT	ND			
MS	p,p' DDT	0.100	0.100	100.0	(62.00 - 162.00)
LCS1	Dieldrin	0.100	0.086	86.0	(57.00 - 117.00)
MBLK	Dieldrin	ND			
MS	Dieldrin	0.100	0.108	108.0	(57.00 - 117.00)
LCS1	Endrin Aldehyde	0.100	0.056	56.0	(58.00 - 118.00)
MBLK	Endrin Aldehyde	ND			•
MS	Endrin Aldehyde	0.100	0.067	67.0	(58.00 - 118.00)
LCS1	Endrin	0.100	0.088	E8.0	(58.00 - 118.00)
MBLK	Endrin	סא			
MS	Endrin	0.100	0.113	113.0	(58.00 - 118.00)
LCS1	Endosulfan I (alpha)	0.050	0.040	80.0	(57.00 - 117.00)
MBLK	Endosulfan I (alpha)	ND			
EM	Endosulfan I (alpha)	0.050	0.051	102.0	(62.00 - 122.00)
LCS1	Endosulfan II (beta)	0.100	0.081	81.0	{ 62.00 - 122.00 }
MBLK	Endosulfan II (beta)	ND			
MS	Endosulfan II (beta)	0.100	0.096	96.0	(62.00 - 122.00)
LCS1	Endosulfan sulfate	0.100	0.076	76.0	(56.00 - 148.00)
MBLX	Endosulfan sulfate	ND			
MS	Endosulfan sulfate	0.100	0.098	98.0	(56.00 - 148.00)
LCS1	Gamma-BHC (Lindane)	0.050	0.044	88.0	(59.00 - 119.00)

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Laboratory QC Report #48372

Kauai Water Department (continued)

MBLK	Gamma-BHC (Lindane)	ממ					•
MS	Gamma-BHC (Lindane)	0.050	0.054	108.0	(59.00 - '119.00)		
LC51	Heptachlor	0.050	0.033	66.0	(63.00 - 133.00)		 -
MBLK	Heptachlor	מא					•
MS	Heptachlor	0.050	0.059	116.0	(63.00 - 133.00)		
LCS1	Heptachlor Epoxide	0.050	0.042	84.0	(57.00 - 117.00)		_
MBLX	Heptachlor Epoxide	מא	•				
MS	Heptachlor Epoxide	0.050	0.055	110.0	(57.00 - 117.00)		
LCS1	Methoxychlor	0.500	0.386	77.2	(64.00 - 146.00)		
MBLK	Methoxychlor	מא					
MS	Methoxychlor	0.500	0.501	100.2	{ 64.00 - 146.00 }		•
LCS1	Tetrachlorometaxylene (surr)	100	77	77.0	(70.00 - 130.00)		
MBLK	Tetrachlorometaxylene (surr)	100	92	92.0			
MS	Tetrachlorometaxylene (surr)	100	102	102.0	(70.00 - 130.00)		f +
LCS1	Dibutyl chlorendate (surr)	100	84	84.0	(70.00 - 130.00)		
MBLK	Dibutyl chlorendate (surr)	100	104	104.0			
MS	Dibutyl chlorendate (surr)	100	96	96.0	(70.00 - 130.00)		
MBLK	Toxaphene	ND	•				**-
	QC Batch #86720	525 Se	mivol	atiles by	GC/MS		}
		Spiked	Recover	ed Yield (%)	Limits (%)	RPD (%)	-
QC	Analyte	2	2.01	100.5	(70.00 - 130.00)		
LCS1	alpha-Chlordane	מא			• • • • • • • • • • • • • • • • • • • •		
MBLK	alpha-Chlordane	2	2.05	102.5	(70.00 - 130.00)		
NS	alpha-Chlordane	ND	2.05		•		
HBLK	Diaginon	Lab # 98	1020025		(0.00 - 0.00)		
XS	Spiked sample	2	2.15	107.5	(70.00 - 130.00)		
LCS1	Acenaphthylene	מא					
MBLK	Acenaphthylene	2	2,03	101.5	(70.00 - 130.00)		
ЖS	Acenaphthylene	2	2.20	110.0	(70.00 - 130.00)		-
LCS1	Alachior	מא					p
MBLK	Alachlor	2	2.15	107.5	(70.00 - 130.00)		
KS	Alachlor	2	2.21	110.5	(70.00 - 130.00)		
LCS1	Aldrin	מא		_ -			
XBLX	Aldrin	2	2.06	103.0	(70.00 - 130.00)		
KS	Aldrin	•	00				

Spikes which exceed Limits and Method Blanks with positive results are highlighted by Underlining.

Criteria for MS and DUP are advisory only and not applicable for ICR monitoring.



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Kauai Water Department (continued)

LCS1	Anthracene	2	2.12	106.0	(70.00 - 130.00)
MBLK	Anthracene	ND			•
MS	Anthracene	2	1.98	99.0	(70.00 - 130.00 }
LCS1	Atrazine	2	2.12	106.0	(70.00 ~ 130.00)
MBLK	Atrazine	ND			
MS	Atrazin a	2	2.07	103.5	(70.00 - 130.00)
LCS1 .	Benz (a) Anthracene	2	2.07	103.5	(70.00 - 130.00 }
MBLK	Benz (a) Anthracene	ND			
MS	Benz (a) Anthracene	2	1.99	99.5	(70.00 - 130.00)
LCS1	Benzo (a) pyrene	2	1.93	96.5	(70.00 ~ 130.00)
MBLK	Benzo(a) pyrene	ND			
MS	Benzo(a) pyrene	2	2.09	104.5	(70.00 - 130.00)
LCS1	Benzo (b) Fluoranthene	2	2.01	100.5	(70.00 - 130.00 }
MBLK	Benzo (b) Fluoranthene	ND			
MS	Benzo (b) Fluoranthene	2	2.07	103.5	(70.00 - 130.00)
LCS1	Benzo (g, h, i) Perylene	2	2,13	106.5	{ 70.00 - 130.00 }
MBLK	Benzo(g,h,i)Perylene	ND			
MS	Benzo (g, h, i) Perylene	2	2.25	112.5	(70.00 - 130.00)
LCSL	Benzo (k) Fluoranthene	2	1.97	98.5	(70.00 - 130.00)
MBLK	Benzo(k) Fluoranthene	ND			
MS	Benzo (k) Pluoranthene	2	2.03	101.5	(70.00 - 130.00)
LCSI	Di(2-Ethylhexyl)phthalate	2	2.14	107.0	(70.00 - 130.00)
MBLK	Di(2-Ethylhexyl)phthalate	ND			•
MS	Di(2-Ethylhexyl)phthalate	2	2.16	108.0	(70.00 - 130.00)
LCSl	Butylbenzylphthalate	2	2,15	107.5	(70.00 - 130.00)
MBLK	Butylbenzylphthalate	ND			
MS	Butylbenzylphthalate	2	2.02	101.0	(70.00 - 130.00)
MBLK	Bromacil	מא			
MBLK	Butachlor	ИD			
LCS1	Caffeine	2	2.11	105.5	(70.00 - 130.00)
MBLK	Caffeine	ИD			
MS	Caffeine	2	2.05	102.5	(70.00 - 130.00)
LCS1	Chrysene	2	2,22	111.0	(70.00 - 130.00)
MBLK	Chrysena	ND			
MS	Chrysene	2	2.00	100.0	(70.00 - 130.00)
LCS1	Dibenz (a, h) Anthracene	· 2	1.95	97.5	(70.00 - 130.00)
MBLK	Dibenz (a, h) Anthracene	ND			

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Laboratory QC Report #48372

Kauai Water Department (continued)

					· ·
		_	2.12	106.0	(70.00 - 130.00)
MS	Dibenz (a, h) Anthracens	2	2.19	109.5	(70.00 - 130.00)
LCS1	Di-(2-Ethylhexyl)adipate	2	****		
MBLK	Di-(2-Ethylhexyl)adipate	מא	2.12	106.0	(70.00 - 130.00)
MS	Di-(2-Ethylhexyl)adipate	2	2.30	115.0	(70.00 - 130.00)
LCS1	Dischylphchalace	2	2.30		
MBLK	Diethylphthalate	ND	2.09	104.5	(70.00 - 130.00)
MS	Disthylphthalate	2	2.05		
MBLK	Dieldrin	מא	2.15	107.5	(70.00 - 130.00)
LC51	Dimethylphthalate	2	2.13		
MBLK	Dimethylphthalate	ND	2.03	101.5	(70.00 - 130.00)
MS	Dimethylphthalate	2	2.03	2021-	
MBLK	Dimethoato	ND	2.15	107.5	(70.00 - 130.00)
LCS1	Di-n-Bucylphchalace	2	2.13		
MBLK	Di-n-Butylphthalate	ND		91.0	(70.00 - 130.00)
MS	Di-n-Butylphthalate	. 2	1.82	117.5	(70.00 - 130.00)
LCS1	Endrin	2	2.35	227.0	
MBLK	Endrin .	ND		102.5	(70.00 - 130.00)
MS	Endrin	2	2.05	113.0	(70.00 - 130.00)
LCS1	Plugrene	2	2.26	22344	
MBLK	Fluorene	ND		204.5	(70.00 - 130.00)
MS	Fluorene	2	2.09	104.0	(70.00 - 130.00)
LCS1	gamma-Chlordane	2	2.08	104.5	•
MBLK	gamma-Chlordane	ND		99.0	(70.00 - 230.00)
MS	gamma-Chlordana	2	1.98	104.5	(70.00 - 130.00)
LCS1	Hexachlorobenzene	2	2.09	104.5	
MBLK	Hexachlorobenzene	ND		104.0	(70.00 - 130.00)
MS	Hexachlorobenzene	2	2.08	110.5	(70.00 - 130.00)
LCS1	Hexachlorocyclopentadiene	2	2.21	110.5	
MBLK	Hexachlorocyclopentadiene	מא	·	73.5	(70.00 - 130.00)
MS	Hexachlorocyclopentadiena	2	1.47	105.5	(70.00 - 130.00)
LCS1	Heptachlor	2	2.11	103.3	•
MBLK	Heptachlor	ND		100.0	(70.00 - 130.00)
MS	Reptachlor	2	2.00	107.0	(70.00 - 130.00)
LCS1	Heptachlor Epoxide	2	2.14	101.0	•
MBLK	Heptachlor Epoxide	מא		105.0	(70.00 - 130.00)
MS	Heptachlor Epoxide	2	2.10	102.0	(70.00 - 130.00)
LCS1	Indeno(1,2,3,c,d)Pyrene	2	2.04	102.0	•

Spikes which exceed Limits and Mathod-Dlanks-with-positive results are highlighted by Underlining, and . C. . . . Spikes which exceed tamble and not applicable for ICR monitoring.
Criteria for MS and DUP are advisory only and not applicable for ICR monitoring. \$ e. .

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Laboratory QC Report #48372

Kauai Water Department (continued)

MBLK	Indeno(1,2,3,c,d)Pyrene	ND			•
MS	Indeno(1,2,3,c,d) Pyrene	2	2.23	111.5	(70.00 - i30.00)
MBLK	Isophorone	ND			
LCS1	Lindane	2	2.02	101.0	(70.00 - 130.00)
MBLK	Lindane	ND			
MS	Lindane	2	1.97	98.5	(70.00 - 130.00)
LCS1	Methoxychlor	2	2.21	110.5	(70.00 - 130.00)
MBLK	Methoxychlor	ND			
MS	Methoxychlor	2	2.09	104.5	(70.00 - 130.00)
MBLK	Metribuzin	מא			
LCS1	Molinate	2	2.15	107.5	. (70.00 - 130.00)
MBLK	Molinate	מא			
MS	Molinate	2	2.09	104.5	(70.00 - 130.00)
MBLK	Metolachlor	ND			
LCS1	trans-Nonachlor	2	2.06	103.0	(70.00 - 130.00)
MBLK	trans-Nonachlor	ИD			
MS	trans-Nonachlor	2	1.82	91.0	(70.00 - 130.00)
LCS1	Pentachlorophenol	ß	8.63	107.9	(70.00 - 130.00)
MBLK	Pentachlorophenol	ND			
MS	Pentachlorophenol	8	8.07	100.9	{ 70.00 - 130.00 }
LCS1	Phenanthrene	2	2.09	104.5	(70.00 - 130.00)
MBLK	Phenanthrene	ND			
MS	Phenanthrene	2	2.04	102.0	(70.00 - 130.00)
MBLK	Prometryn	ND			
MBLK	Propachlor	ND			
LCS1	Pyrene	2	2.18	109.0	(70.00 - 130.00)
MBLK	Pyrene	ND			
MS	Pyrene	2	2.17	108.5	(70.00 - 130.00)
LCS1	Simazine	2	2.35	117.5	(70.00 - 130.00)
MBLK	Simazine	ND			
MS	Simazine	2	2.36	118.0	(70.00 - 130.00 }
LCS1	Thiobencarb	2	2.14	107.0	(70.00 - 130.00)
MBLK	Thiobencarb	ND			
MS	Thiobencarb	2	1.98	99.0	(70.00 - 130.00)
MBLK	Trifluralin	ND			

. . . Spikes which exceed Limits and Method-Blanks with positive results are highlighted by Underlining Criteria for MS and DUP are advisory only and not applicable for ICR monitoring.



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Kauai Water Department (continued)

QC Batch #86756

Endothall

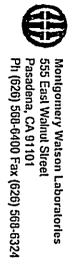
GC RS LCS1	Analyte Spiked sample Endothall	Spiked Lab # 98 .25 ND	Recovered 1023021 29.0	Yield (%)	Limits (%) { 0.00 - 0.00 } { 83.83 - 141.37 }	RPD (%)
KS KS	Endothall Endothall	25	27.3	109.2	(80.00 - 120.00)	

Spikes which exceed Limits and Mathod Blanks with positive results are highlighted by Underlining.

Criteria for MS and DUP are advisory only and not applicable for ICR monitoring.

Page

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Quanterra Environmental Services Ship To Nannie Estrada

Special Requirements

Source SOS B egosin A. egomo! 105- 627 SOS : 191 025 627 SOS : 187

MGCOCK

Est Code

Lab # for ID Client Sample ID for reference only

981020033 HANAMAULU WELL 3

Diaxin in drinking waler 1613b

10/19/98 dw

2 1L amber glass I no preso valive

Container

Dale Matrix

Submittal Form

Date 10/26/98

48382

98-2550

For prompt payment; send report & invoice to altention of: Martha Frost; Sub-Contract Administrator, ext 6437 Please refer to the MWL Project Number on all reports and invoices MWL Project # 48382 SubPO# 98-2550

Sub Lab Regenmoe#

Report 11/10/98 Formal required: FAX with QC+HARDCOPY (California State requires Hard Copy report for California Clients)

recoveries; melhod blank recoveries; Malrix Spike expected values & recoveries. 1. BATCH QC DATA; Duplicale expected values & recoveries; Lab Control Samples) expected values &

2. Sample extraction Date and Sample analysis Date.

Sample dilution factor.

5. Sample surrogate recovery & Sample Internal Standard recovery or IS area count in cover letter.

ІЯОТАЯОВАЈ ИОЅТАЙ ҮЯЭМОӘТИОМ

If you have any questions about the samples, please call MWL proj mgr Hillary Strayer 626-568-6412 6. A cover letter explaining any missed criteria or discrepancies. Please notify us if the report due date will not be met so we may inform our client.

Analysis Requested Sample

Recy in 1877 8h

Relinquished by:

Martin DeMesa

Sample Control 10/26/98

An Acknowledgement of Receipt is requested.

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id by

Quanterra 550

NOV 1 6 RECD

Quanterra Incorporated 880 Riverside Parkway West Sacramento, California 95605

916 373-5600 Telephone 916 372-1059 Fax

November 10, 1998

QUANTERRA INCORPORATED PROJECT NUMBER: 302340 PO/CONTRACT: MWL Project # 48382/SubPO# 98-2550

Martha Frost Montgomery Watson Laboratories 555 East Walnut Street Pasadena, CA 91101

Dear Ms. Frost:

This report contains the analytical results for the one aqueous sample which was received under chain of custody by Quanterra Incorporated on 27 October 1998.

The case narrative is an integral part of this report.

If you have any questions, please feel free to call.

Sincerely,

Nanny Estrada Project Manager

Advanced Technology

Manny Estrada

NE/rrl

.



TABLE OF CONTENTS

QUANTERRA INCORPORATED PROJECT NUMBER 302340

Case Narrative

Quanterra's Quality Assurance Program

Sample Description Information

Chain of Custody Documentation

2,3,7,8 - TCDD - Method 1613B

Includes Sample(s): 1

Method Blank Sheet

Sample Data Sheet

Laboratory Control Sample



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CASE NARRATIVE

QUANTERRA INCORPORATED PROJECT NUMBER 302340

Detection limits for dioxins and furans are reported on a sample specific basis and all results are recovery corrected per the isotope dilution technique.

There were no anomalies associated with this report.

• . .



QUANTERRA INCORPORATED QUALITY CONTROL PROGRAM

Quanterra has implemented an extensive Quality Control (QC) program to ensure the production of scientifically sound, legally defensible data of known documentable quality. This QC program is based upon requirements in "Test Methods for Evaluating Solid Waste", USEPA SW-846, Third Edition. It applies whenever SW-846 analytical methods are used. It also applies in whole or in part whenever project requirements fail to specify some aspect of QC practices described here. It does not apply when other well defined QC programs (e.g. CLP or CLP-like) are specified. This is Quanterra's base QC program for environmental analysis.

Definitions:

Quality Control Batch. The quality control (QC) batch is a set of up to 20 field samples plus associated laboratory QC samples that are similar in composition (matrix) and that are processed within the same time period with the same reagent and standard lots.

Surrogate. A surrogate (or internal standard) is an organic compound similar in chemical behavior to the target analyte, but not normally found in environmental samples. Surrogates (or IS) are added to all samples in a batch to monitor the effects of both the matrix and the analytical process on accuracy.

Method Blank. A method blank (MB) is a control sample prepared using the same reagents used for the samples. As part of the QC batch, it accompanies the samples through all steps of the sample extraction and cleanup procedure. The method blank is used to monitor the level of contamination introduced to a batch of samples as a result of processing in the laboratory.

Laboratory Control Sample. A laboratory control sample (LCS) is prepared using a well characterized matrix (e.g., reagent water or Ottawa sand) that is spiked with known amounts of representative analytes. Alternate matrices (e.g., glass beads) may be used for soil analyses when Ottawa sand is not appropriate. As part of a QC batch, it accompanies the samples through all steps of the sample extraction and cleanup process. The LCS is used to monitor the accuracy of the analytical process independent of possible interference effects due to sample matrix.

<u>Duplicate Control Sample.</u> A duplicate laboratory control sample (DCS) consists of a pair of LCSs analyzed within the same QC batch to monitor precision and accuracy independent of sample matrix effects.



SAMPLE DESCRIPTION INFORMATION for Montgomery Watson Laboratories

 Lab ID
 Client ID
 Matrix
 Sampled Date
 Received Date

 302340-0001-MB 302340-0001-SA
 Method Blank 981020033 HANAMAULU WELL 3
 AQUEOUS AQUEOUS 19 OCT 98
 27 OCT 98

....



2,3,7,8-TCDD Method 1613B HIGH RESOLUTION

Client Name: Montgomery Watson Laboratories
Client ID: Method Blank
Lab ID: 302340-0001-MB
Matrix: AQUEOUS Sampled: NA
Authorized: 27 OCT 98 Prepared: 03

Sampled: NA Prepared: O3 NOV 98

Received: NA Analyzed: 06 NOV 98

Sample Amount Column Type

Parameter

1.00 L DB-5

Result

Units

Detection Limit

Data Qualifiers

Dioxins

2,3,7,8-TCDD

ND

pg/L

2.8

% Recovery

13C-2,3,7,8-TCDD

86

ND = Not detected NA = Not applicable

Reported By: Teri Stone

Approved By: Nanny Estrada

The cover letter is an integral part of this report. Rev 230787



2,3,7,8-TCDD Method 1613B HIGH RESOLUTION

Client Name: Montgomery Watson Laboratories
Client ID: 981020033 HANAMAULU WELL 3
Lab ID: 302340-0001-SA
Matrix: AQUEOUS Sampled: 19
Authorized: 27 OCT 98 Prepared: 03

Sampled: 19 OCT 98 Prepared: 03 NOV 98 Received: 27 OCT 98 Analyzed: 07 NOV 98

Sample Amount Column Type 1.04 L DB-5

Parameter Detection Data Result Units Qualifiers Limit . . . Dioxins 2,3,7,8-TCDD ND pg/L 2.8

% Recovery

13C-2,3,7,8-TCDD 96

ND = Not detected NA = Not applicable

Reported By: Teri Stone

Approved By: Nanny Estrada

The cover letter is an integral part of this report.

Rev 230787



LABORATORY CONTROL SAMPLE REPORT Advanced Technology Group - High Resolution Project: 302340

Category: 1613B-DW 2,3,7,8-TCDD by Method 1613B (Drinking Water)
Test: TCDD-1613B-EPA-DW
Matrix: AQUEOUS
QC Lot: 03 NOV 98-A
Concentration Units: pg/uL

Analyte	Concentration Spiked Measured	Accuracy(%) LCS Limits
2,3,7,8-TCDD	10.0 11.0	110 73-146
13C-2,3,7,8-TCDD	100 84.9	85 25-141

Calculations are performed before rounding to avoid round-off errors in calculated results.

	KC ITYL H	
		_
- -	oct. 30,1996	
	Hanamaulu III (Keth F)	
1 1	10-28-98 0500 am	_
R · :	Turbidity: O.4 NTU	-
	CI-: 22 ppm	ı.
	10-29-96 0300am	
	Turbidity O.6.25,NTU	
	CI-: 22 ppm	٠,
••		; ;
(10-30-46 0300am	
•	Turbidity. 0.475 NTU.	P , - 9
	· · · · · · · · · · · · · · · · · · ·	
··· .	10.30-98 1520	
	Turbidity 0.4NTU	_
	CI-: 22 ppm	
•		_
£ 5.	id-27-98 0500	-
•	Turbidity: 5.1 NTU	
	CI-: 20 ppm	
		ر برت

Kern -

	OCT 26,1998	
	HANAMAULU TIT (Kith F)	
J.	10.26-98 0907	
	Turbidity: 36 NTU	
	CI- : 23 ppm	
2.	10.26-98 0937	
	Turbidity: 11 NTU	
	(1-: 21 ppm	
3.	10-26-98 1050	
`	TUI bidity: 3.8 NTU	
	c1-: 23ppm	
		- transfer
		The Property of the Property o

	Keith F.		
			_
October 22,1998			
Hanamaulu III (Krith F.		To the state of th	
101.101.101.01		1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	
1. 10-20-98 7:44am			
Tuybidity: 5.1 NTU	· · · · · · · · · · · · · · · · · · ·		
* CI-: 22ppm			
2.10-20-98 11:12 (am?)			
Tuibidity: 0.65NTU			
*C1-: 21 ppm		10/2/201	
3. 10-22-96 0803am			
Turbidity: 7-2 NTU			
*C1-: 22ppm			,
		1:	
+ CI- analyzed on 10-23-98			
			<u> </u>
The state of the s		Luppe .	<u>:_</u>

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1	No. 1911 1	* \
•		į
	Oct. 20,1998	
	Hanamaulu III 10-19-98 0735 tamp. 25.1°C (car1/cindes)	
	.7	
	conductivity: : 220 mat/cm \tag{tested on 10-22-98}	
_	conductivity: 228 mV/cm (Tosted on 10-20-48	
	turbidity 0.56 NTU	
	Total Hardness: 59.6 ppm } Tosted on 10-21-98	
	ca Hardness: 24.0 ppm	
	Monotorology: TUTZ	
	704000,7:00	
		_
		70
開発で	Little Rest. Character for the contract of the	

	•			NC - 111	۲.	_
The state of the s	· · · · · · · · · · · · · · · · · · ·		October 20,1998		:	
			Aanamaulu: II (Keith F) (TYTEX) III 1.	dunammand	lina	1 to
					1978	
- Area		١.	1500 10-16-98	mq00 P	1.1	
1			Turbidity: 0.05 NTU mastes	(hillings)		
*			CI- : 22 ppm			2 7
2			2. 2. 2. 3. 9R-W-31	im. 037 1		
		2.	2100 10-16-98 1770 17-3	(함10N(tF을)		
			Turbidity: 0.69 NTU		-	
			CI-: 22ppm			8
					:	
		3.	10-17-98 0300 10-16-98			1000
			Turbidity: 0.61 NTU		•	
1			ci-: 22 ppm .			1 9
					. Ares	
Character and Ch	<u> </u>	4.	0900 10-17-98	·	3	
		·	Turbidity: 0.61 NTU			
	<u></u>	_	c1-: 20 ppm		र अध्या	10
		·	·			
		5.	1500 10-17-98		N SAIN	
			Turbidity: 0.55 NTU.	uran ili tu di Pe-		
孋			CI 22ppm			
						a
13,55		स्ट्य	日本では、日本の日本の日本では、日本では、日本の日本の日本の日本の日本の日本の日本の日本の日本の日本の日本の日本の日本の日	A STATE OF S	元中的第三 型	

1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1		
Hillis		
	Hanamaulu II contid	h tony II akinannyisa
6.	-2100 Jan 10-17-98 W. W.	Treatile to the second of the
	Turbidity: 0.55 NTU.	66-1-1 0000 ut
	01- : 22ppm	. ATTU TES : Y'this at .
	The large state	0000 12 10 10
7.	0300 ··· 10-18-98 (0ir+	settled at bottom of container?
	TUYbidity: 0.6 NTU	Andrew Copy of the Copy
702	c1-: 20ppm	Januar Committee
		FORTE STORY
8.	0900 10-18-98	
	Turbidity: 0.61 NTU	
	C1-: 21 ppm	ANT IN G. O. WILLIAM
9	1500 10-19-98	
	Turbidity: 0.66 NTU	
	61-: 22 ppm	
10	2100 10-18-98	
	Turbiaty: 1.0 NTU	
	01: 22 ppm	
-		
Description of the second		

in the section	ì		7717
		Hanamaulu II contid	to the Total Telephone 1827
		#MCMITTHEWAY	1, to 2160 19-17-49.
		0500 10-19-98	GET FIRST TOWNS
		TUY birlity: 0.57 NTU	.es. 1412-č
		c1-: 21 ppm	
	12	0900 10-19-98	344(d ta) [23/34(54) three
	·	Turbidity: 0.56 NTU	- E3
	·	ci-: 22 ppm	
	·		
	17	5 1120 10-19-98	
	- 	Turbidity: 0.0 NTU	
	-,	61-: 21ppm	
		4 0900 10-16-98	(Tested on 10-21-95)1
	· : <u></u> :	4 0900 10-16-98 Turbidity: 0.66 NTU	
	*	c1-: 24 ppm	To the second se
	* <u> </u>		
星	~ `- <u>-</u>		
Wind the service of t			The second secon
			A Secretary of the secr
1.	•		

	oct. 16,1999	
anamaulu III (Koith F		
·		
1:00pm 10-15-98		
chioridos: 24ppm		
700 am 10-16-98		
chiorides: 24ppm		
Particular designs of the second seco		
the or in the late of the late		

The state of the s	10-1-98
	(Kaith) collected 10-1-98
	Housemark Wall = 3
-	199' turbidity: 17 NTU
	170' turbidity: 34 NTU
<i>3</i> .	150' turbidity: 53 NTU
<u> </u>	262' Turbidity: 42 NTU
5.	241' Turbidity: 29 NTU
	TOTAL PROPERTY OF THE PROPERTY
inds Marie	720' Turbidity: 32 NTU
	Supplied to the supplied to th
	23 HTLL
	22 NTU
3	
塑量	



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555 East Walnut Straet
Pasadena, California 91101
Tel: 626 568 6400 Fax: 626 588 6324
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S9 MAR 19 All: 17

Laboratory Report

for

Kauai Water Department P.O. Box 1706

Lihue , HI 96766

Attention: Wayne Hinazumi Fax: (808) 245-5813

MONTGOMERY WATSON LABS. SUBMITTED ON

MAR 1 2 1999

HDS Hillary Strayer

Report#: 52081 PHASEV

Report Summary of positive results, PR52081

Analyzed 990223109 PUKAKI
Analyzed 990223110 HANAMAULU 3
Analyzed 990223111 TRAV BLANK-HOLD

MDL

Result

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UNITS

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Laboratory Report #52081

Kauai Water Department Wayne Hinazumi P.O. Box 1706 Lihue , HI 96766

Samples Received 23-feb-1999 13:06:06

Prepared	Analyzed	QC Batch#	Method	Analyte	Result	Units	МОТ	Dilution
JKAKI	(990223	3109)	Sampled	on 02/18/99				
			Regulated	VOCs plus Lists 1&3				
	03/02/99	93004) 1,1,1,2-Tetrachloroethane	מא	ug/l	0.50	_
	03/02/99	93004) 1,1,1-Trichloroethane	ND	ug/1		1
	03/02/99 .	93004) 1,1,2,2-Tetrachloroethane	ND	ug/1	0.50 _. 0.50	1
	03/02/99	93004) 1,1,2-Trichloroethane	ND	ug/l	0.50	1
	03/02/99	93004) 1,1-Dichloroethane	מא	ug/l	0.50	1
	03/02/99	93004) 1,1-Dichloroethylene	מא	ug/1	0.50	7
	03/02/99	93004) 1,1-Dichloropropene	מא	ug/1	0.50	1
	03/02/99	93004	(ML/EPA 524.2) 1,2,3-Trichlorobenzene	ND	ug/1	0.50	1
	03/02/99	93004	(ML/EPA 524.2) 1,2,3-Trichloropropane	ND	ug/1	0.50	1
	03/02/99	93004		1 1,2,4-Trichlorobenzene	ND	ug/1	0.50	1
	03/02/99	93004) 1,2,4-Trimethylbenzene	ND	ug/1	0.50	1
	03/02/99	93004	(ML/EPA 524.2) 1,2-Dichloroethane	ND	ug/1	0.50	1
	03/02/99 ·	93004	(ML/EPA 524.2) 1,2-Dichloropropane	MD	ug/l	0.50	1
-	03/03/99	93004	(ML/EPA 524.2) 1,3,5-Trimethylbenzene	ND	ug/1	0.50	1
	03/02/99	93004	(ML/EPA 524.2) 1,3-Dichloropropane	פוא	ug/1	0.50	1
0	03/02/99	93004	(ML/EPA 524.2) p-Dichlorobenzene (1,4-DCB)	מא	ug/1	0.50	1
نــ	03/02/99	93004) 2,2-Dichloropropane	מא	ug/1	0.50	1
	03/02/99	93004) 2-Butanone (MEK)	. כוא	ug/l	5.0	1
	03/02/99	93004	(ML/EPA 524.2) o-Chlorotoluene	מא	ug/1	0.50	1
!	03/02/99	93004	(ML/EPA 524.2) p-Chlorotoluene	סא	ug/1	0.50	1
	03/02/99	93004	ML/EPA 524.2) 4-Methyl-2-Pentanone (MIBK)	ND	ug/1	5.0	1
	03/02/99	93004	(ML/EPA 524.2		מא	ug/1	0.50	1
	03/02/99	93004	(ML/EPA 524.2) Bromobenzene	מא	ug/1	0.50	1
 -	03/02/99	93004	(ML/EPA 524.2) Bromomethane (Methyl Bromide)	ND	ug/l	0.50	1
	03/02/99) cis-1,2-Dichlorosthylene	מא	ug/1	0.50	1
	03/02/99		(ML/EPA 524.2		מא	ug/l	0.50	1
	03/02/99	93004	(ML/EPA 524.2)) Carbon Tecrachloride	מא	ug/1	0.50	1
	03/02/99			cis-1,3-Dichloropropens	מא	ug/l	0.50	i
ب	03/02/99		(ML/EPA 524.2)		ND	ug/1	0.50	1
•	03/02/99	93004	(ML/EPA 524.2)	Chloroform (Trichloromethane)	מא	ug/l	0.50	1
								•



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Laboratory Report #52081

Prepared	Analyzed	QC Batch#	Method	Analyte	Result	Units	HDL	Dilution
	03/02/99	93004	(ML/EPA 524.2) Bromochloromethane	מא	ug/1	0.50	1
	03/02/99	93004	(ML/EPA 524.2) Chloroethane	ND	ug/1	0.50	2
	03/02/99	93004	(ML/EPA 524.2) Chloromethane (Methyl Chloride)	ND	ug/1	0.50	,1
	03/02/99	93004	(ML/EPA 524:2) Chlorodibromomethane	ND	ug/l	0.50	1
	03/02/99	93004	(ML/EPA 524.2) Dibromomethane	ND	ug/l	0.50	1
	03/02/99	53004	(ML/EPA 524.2) Bromodichloromethane	ND	ug/l	0.50	1
	03/02/99	93004	(ML/EPA 524.2) Dichloromethane	מא	ug/l	0.50	2
	03/02/99	93004	(ML/EPA 524.2) Di-isopropyl ather	סא	ug/l	5.0	1
	03/02/99	93004	(ML/EPA 524.2) Ethyl benzene	ND	ug/1	0.50	1
	03/02/99	93004	(ML/EPA 524.2) Dichlorodifluoromethane	מא	ug/l	0.50	1
	03/02/99	93004	(ML/EPA 524.2) Fluorotrichloromethane-Freonli	מא	ug/1	0.50	1
	03/02/99	93004	(ML/EPA 524.2) Kexachlorobutadiene	ND	ug/1	0.50	1
	03/02/99	93004	(ML/EPA 524.2) Isopropylbenzene	מא	ug/l	0.50	1
	03/02/99	93004	(ML/EPA 524.2) m-Dichlorobenzene (1,3-DCB)	פא	ug/1	0.50	1
	03/02/99	93004	(ML/EPA 524.2	m,p-Xylenes	סא	ug/1	0.50	1
	03/02/99	93004	(HL/E524.2/624	Methyl Tert-butyl ether (MTBE)	ND	ug/1	3.0	1
	03/02/99	93004	(ML/EPA 524.2	Naphthalene	ND	ug/l	0.50	1
	03/02/99	93004	(ML/EPA 524.2) n-Bucylbenzene	מה	ug/1	0.50	1
	03/02/99	93004	(ML/EPA 524.2) n-Propylbenzene	ND	ug/l	0.50	1
	03/02/99	93004	(HL/EPA 524.2) c-Xylene	ND	ug/1	0.50	1
	03/02/99	93004	(ML/EPA 524.2) o-Dichlorobenzene (1,2-DCB)	סא	ug/1	0.50	1
	03/02/99	93004	(ML/EPA 524.2) Tetrachloroethylene (PCE)	מא	ug/1	0.50	1
	03/02/99	93004	(ML/EPA 524.2) p-Isopropyltoluene	סא	ug/1	0.50	1
	03/02/99	93004	(ML/EPA 524.2) sec-Butylbenzene	מא	ug/l	0.50	1
	03/02/99	93004	(ML/EPA 524.2) Styrene	מא	ug/1	0.50	1
	03/02/99	93004	(ML/EPA 524.2	trans-1,2-Dichloroethylene	• אם	eg/1	0.50	1 .
	03/02/99	93004	{ ML/EPA 524.2) tert-amyl Methyl Ether	ND	ug/l	3.0	1
	03/02/99	93004	(ML/EPA 524.2) tert-Butyl Ethyl Ether	מא	ug/l	3.0	1
	03/02/99	93004	(ML/EPA 524.2) tert-Burylbenzene	סא	ug/1	0.50	1
	03/02/99	93004	(ML/EPA 524.2) Trichloroethylene (TCE)	מא	ug/l	0.50	1
	03/02/99	93004	(ML/EPA 524.2	Trichlorotrifluoroethane (Freon	ND	ug/1	0.50	1
	03/02/99	93004	(ML/EPA 524.2	trans-1,3-Dichloropropene	ND	ug/l	0.50	1
	03/02/99	93004	(ML/EPA 524.2	Toluene .	ND	ug/1	0.50	1
	03/02/99	93004	(ML/EPA 524.2) Vinyl chloride (VC)	מא	ug/1	0.30	1
			(Surrogate	1,2-Dichlorosthane-d4	105	ł Rec		
			(Surrogate	4-Bromofluorobenzene	90	* Rec		



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Laboratory Report #52081

repared	Analyzed	QC Barch#	Method	Analyte	Result	Units	MDL	Dilution
			(Surrogate) Toluene-d8	98	1 + Rec		
UAMAU	ти з (s	9902231:	10)	Sampled on 02/19/9	9			
			Regulat	ed VOCs plus Lists :	1&3			
	03/02/99	93004 .	(ML/EPA 524	1.2) 1,1,1,2-Tetrachloroethane	מא	ug/1	0.50	1
	03/02/99	93004	(ML/EPA 524	.2) 1,1,1-Trichloroethane	ND	ug/l	0.50	. 1
	03/02/99	93004	(ML/EPA 524	.2) 1,1,2,2-Tetrachloroethane	ND	ug/1	0.50	1
	03/02/99	93004	(ML/EPA 524	.2) 1,1,2-Trichloroethane	ND	ug/l	0.50	1
	03/02/99	93004	(ML/EPA 524	.2) 1,1-Dichloroethane	מא	ug/l	0.50	1
	03/02/99	93004	(ML/EPA 524	.2 } 1,1-Dichloroethylene	. 270	ug/1	0.50	1
•	03/02/99	93004	(ML/EPA 524	.2) 1,1-Dichloropropens	מא	ug/1	0.50	1
	03/02/99	93004	(ML/EPA 524	.2) 1,2,3-Trichlorobenzene	סא	ug/l	0.50	1
	03/02/99	93004	(ML/EPA 524	.2) 1,2,3-Trichloropropane	ND CIN	ug/l	0.50	1
	03/02/99	93004	(ML/EPA 524	.2) 1,2,4-Trichlorobensene	ND	ug/1	0.50	1
	03/02/99	93004	(ML/EPA 524	.2) 1,2,4-Trimethylbenzene	ND	ug/1	0.50	1
	03/02/99	93004	(ML/EPA 524	.2) 1,2-Dichloroethane	MD.	ug/1	0.50	1
	03/02/99	93004	{ ML/EPA 524	.2) 1,2-Dichloropropane	ND	ug/1	0.50	1
	03/02/99	93004	(ML/EPA 524	.2) 1,3,5-Trimethylbenzene	ND	ug/1	0.50	1
	03/02/99	93004	(ML/EPA 524	.2) 1,3-Dichloropropane	מא	ug/1	0.50	1
	03/02/99	93004	(ML/EPA 524	.2) p-Dichlorobenzene (1,4-DCB	מא (ug/1	0.50	1
	03/02/99	93004	(ML/EPA 524	.2) 2,2-Dichloropropane	ND	ug/l	0.50	1
	03/02/99	93004	(ML/EPA 524	.2) 2-Butanone (MEK)	ND	ug/1	5.0	1
	03/02/99	93004	(ML/EPA 524	.2) o-Chlorotoluena	ND	ug/1	0.50	1
	03/02/99	93004	(ML/EPA 524	.2) p-Chlorotoluene	ND	ug/1	0.50	1 .
	03/02/99	93004	(ML/EPA 524	.2) 4-Methyl-2-Pentanone (MIBK)	ם א	ug/l	5.0	1
	03/02/99	93004	(ML/EPA 524	.2) Benzene	. מא	ug/l	0.50	1
	03/02/99	93004	(ML/EPA 524	.2) Bromobenzene	מא	ug/l	0.50	1
	03/02/99	93004	(ML/EPA 524	.2) Bromomethane (Methyl Bromio	ie) ND	ug/l	0.50	1
	03/02/99	93004	(ML/EPA 524	.2) cis-1,2-Dichloroethylane	מא	ug/1	0.50	1
	03/02/99	93004	{ ML/EPA S24	•	ND	ug/l	0.50	1
	03/02/99	93004	(ML/EPA 524	·	ND	ug/1	0.50	1
	03/02/99	93004		.2) cis-1,3-Dichloropropens	מא	ug/l	0.50	1
	03/02/99	93004	(ML/EFA 524	• •	מא	ug/1	0.50	1
	03/02/99	93004	(ML/EPA 524	• • • • • •	ne) ND	ug/1	0.50	1
	03/02/99	93004	• • •	.2) Bromochloromathane	מא	ug/l	0.50	-



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Laboratory Report #52081

Propared	Analyzed	QC Batch#	Method	X	nalyte	Result	Units	MDL	Dilut
	03/02/99	93004	(ML/EPA 524.2) C	hloroethane	ND	ug/1	0.50	2
	03/02/99	93004	(ML/EPA 524.2	2) C	hloromethano (Methyl Chlorido)	ND	ug/l	0.50	1
	03/02/99	93004			hlorodibromomethane	ממ	ug/l	0.50	1
	03/02/99	93004	(ML/EPA 524.2	2) D	ibromomethane	מא	ug/l	0.50	1
	03/02/99	93004	(ML/EPA 524.2) B	romodichloromethane	ИD	ug/1	0.50	1.
	03/02/99	93004	(ML/EPA 524.2	2) D	ichloromethane	ND	ug/1	0.50	2
	03/02/99	93004	(ML/EPA 524.2	2) D	i-isopropyl ether	מא	ug/l	5.0	1
	03/02/99	93004	(ML/EPA 524.2	2) E	thyl benzeno	מא	ug/l	0.50	1
	03/02/99	93004	(ML/EPA 524.2	2) D	ichlorodifluoromethane	מא	na\J	0.50	1
	03/02/99	93004	(ML/EPA 524.2	2) F	luorotrichloromethane-Freonil	ИD	ug/l	0.50	1
	03/02/99	93004	(ML/EPA 524.3) H	exachlorobutadiene	סא	ug/l	0.50	1
	03/02/99	93004	(ML/EPA 524.2	2) I	*opropylbenzene	भग	na\r	0.50	1
	03/02/99	93004	(ML/EPA 524.2	2) m	-Dichlorobenzens (1,3-DCB)	310	ug/l	0.50	1
	03/02/99	93004	(ML/EPA 524.2	2) m	,p-Xylenes	ИD	na\1	0.50	1
	03/02/99	93004	(ML/E524.2/6	24) M	ethyl Terc-butyl ether (MTBE)	ND	ug/1 .	3.0	1
	03/02/99	93004	(ML/EFA 524.	2) N	Taphchalene	ХD	ug/l	0.50	1
	03/02/99	93004	(ML/EPA 524.	2) n	-Butylbenzene	ND	ug/l	0.50	1
	03/02/99	93004	(ML/EPA 524.	2) n	-Propylbenzene	ND	ug/l	0.50	1
	03/02/99	93004	(ML/EPA 524.	2) 0	-Xylene	ND	ug/l	0.50	1
	03/02/99	93004	(ML/EPA 524.	2) 0	-Dichlorobenzene (1,2-DCB)	סא	ug/l	0.50	1
	03/02/99	93004	(ML/EPA 524.	2) T	etrachloroethylene (PCE)	מא	ug/l	0.50	1
	03/02/99	93004	(ML/EPA 524.	2) p	-Isopropylcoluene	ND	ug/l	0.50	1
	03/02/99	93004	(ML/EPA 524.	2) #	sec-Butylbenzene	XD	na\r	0.50	1
	03/02/99	93004	(ML/EPA 524.	2) 5	Styrene	מא	ug/l	0.50	1
	03/02/99	93004	(ML/EPA 524.	2) =	rans-1,2-Dichloroethylene	מא	ug/l	0.50	1
	03/02/99	93004	(ML/EPA 524.	2) t	erc-amyl Methyl Ether	ND	ug/l	3.0	1
	03/02/99	93004	(ML/EPA 524.	2) t	ert-Butyl Ethyl Ether	. ND	ug/1	3.0	1
	03/02/99	93004	(ML/EPA 524.	2) t	terc-Butylbenzene	מא	ug/1	0.50	1
	03/02/99	93004	(ML/EPA 524.	2) 1	Trichlorosthylene (TCZ)	מא	ug/1	0.50	1
	03/02/99	93004	(ML/EPA 524.	2) 1	Trichlorotrifluoroethane (Freon	מא	ug/1	0.50	1
	03/02/99	93004	(ML/EPA 524.	2) t	rans-1,3-Dichloropropens	ָ אם	ug/l	0.50	1
	03/02/99	93004	(ML/EPA 524.	2) 7	Coluenc	מא	ug/1	0.50	1
	03/02/99	93004	(ML/EPA 524.	2) V	/inyl chloride (VC)	מא	na\j	0.30	1
			(Surrogate) 1	1,2-Dichloroethane-d4	110	* Rec		
			(Surrogate) 4	-Bropofluorobenzene	67	t Rec		
			(Surrogate) 1	Colueze-d8	96	ł Rec		



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Laboratory Report #52081

?repare	d Analyzed	QC Batch	# Method	Analyte	Result	Units	MOL	Dilution
ngav e	BLANK-HO	LD (99	0223111)	Sampled on 02/18/	99			
			Regulate	d VOCs plus Lists 1&3				
	03/02/99	93004	(ML/EPA 524.2) 1,1,1,2-Tetrachloroethane	NA	ug/1		
	03/02/99	93004	(ML/EPA 524.2) 1,1,1-Trichlorosthane	NA	ug/1	0.50	1
	03/02/99	93004) 1,1,2,2-Tetrachloroethane	NA	ug/1	0.50	<u>i</u>
_	03/02/99	93004) 1,1,2-Trichloroschane	NA	ug/1	0.50	ı .
	03/02/29	93004	(ML/EPA 524.2) 1,1-Dichloroethane	NA	ug/1	0.50	1
	03/02/99	93004) 1,1-Dichloroschylane	NA	ug/1	0.50	1
	03/02/99	93004	(ML/EPA 524.2) 1,1-Dichloropropene	NA	ug/1	0.50	ı
- ,	03/02/99	93004	(ML/EPA 524.2) 1,2,3-Trichlorobenzone	NA	ug/1	0.50	1
	03/02/99	93004	(ML/EPA 524.2) 1,2,3-Trichloropropane	NA	ug/1	0.50	1
	03/02/99	93004	(ML/EPA 524.2) 1,2,4-Trichlorobenzene	NA	ug/1	0.50	1
	03/02/99	93004	(ML/EPA 524.2) 1,2,4-Trimethylbenzane	NA	ug/1	0.50	1 .
,	03/02/99	93004	(ML/EPA 524.2) 1,2-Dichloroethane	NA	ug/l	0.50	1
	03/02/99	93004	(ML/EPA 524.2) 1,2-Dichloropropane	NA	ug/1	0.50	1
_	03/02/99	93004) 1,3,5-Trimethylbenzene	NA		0.50	1
7	03/02/99	93004) 1,3-Dichloropropane	NA	ug/l	0.50	1
أب	03/02/99	93004	(ML/EPA 524.2) p-Dichlorobenzene (1,4-DCB)	NA	ug/1	0.50	1
	03/02/99	93004	(ML/EPA 524.2) 2,2-Dichloropropana	NA.	ug/1	0.50	1
7	03/02/99	93004) 2-Butanone (MEK)	NA.	ug/1	0.50	1
i	03/02/99	93004) o-Chlorotoluene	NA.	ug/1	5.0	1
	03/02/99	93004) p-Chlorotoluene	na Na	ug/1	0.50	1
_	03/02/99	93004) 4-Methyl-2-Pentanone (MIBK)	NA NA	us/1	0.50	1
i	03/02/99	93004) Benzene	NA NA	. ug/1	5.0	1
j	03/02/99	93004	(ML/EPA 524.2) Bromobenzene	NA NA	ug/1	0.50	1
	03/02/99	93004	(ML/EPA 524.2) Bromomathane (Mathyl Bromide)	NA NA	ug/1	0.50	1
\	03/02/99	93004) cis-1,2-Dichloroethylene	NA .	ug/1	0.50	1
	03/02/99	93004) Chlorobenzene	NA.	ug/1	0.50	1
	03/02/99	93004) Carbon Tetrachloride	NA NA	ug/1	0.50	1
-i	03/02/99	93004) cis-1,3-Dichloropropens	NA NA	ug/1	0.50	1
	03/02/99	93004) Bromoform	NA NA	ug/1	0.50	1
क निर्म ११	03/02/99	93004) Chloroform (Trichloromethane)		ug/l	0.50	1
	03/02/99	93004) Bromochloromethane	NA	ug/l	0.50	1
	03/02/99 '	93004	(ML/EPA 524.2		NA.	ug/l	0.50	1
Haragarian Haragarian				. Amene na protito	NA	ug/1	0.50	1



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Laboratory Report #52081

Prepared	Analyzed	QC Batch#	Method	Analyce	Result	Unice	MDL	Dilucio
	03/02/99	93004	(ML/EPA 524.2) Chloromethane (Methyl Chloride)	NA	ug/1	0.50	1
	03/02/99	93004	(ML/EPA 524.2) Chlorodibromomethane	NA	ug/1	0.50	1
	03/02/99	93004	(ML/EPA 524.2) Dibromomethane	NA	ug/1	0.50	1
	03/02/93	93004	(ML/EPA 524.2) Bromodichloromethane	NA	ug/1	0.50	1
	03/02/99	93004	(ML/EPA 524.2) Dichloromethane	NA	ug/1	0.50	1
	03/02/99	93004	(ML/EPA 524.2	Di-isopropyl ether	NA	ug/1	5.0	1
	03/02/99	93004	(ML/EPA 524.2	Ethyl benzene	NA	ug/1	0.50	1 .
	03/02/99	93004	(ML/EPA 524.2	Dichlorodifluoromethane	NA	ug/l	0.50	1
	03/02/99	93004	(ML/EPA 524.2	Fluorotrichloromethane-Freenll	NA	ug/1	0.50	1
	03/02/99	93004	(ML/EPA 524.2	Hexachlorobutadiene	NA	\ug/l	0.50	1
	03/02/99	93004	(ML/EPA 524.2	Isopropylbenzene	NA	ug/l	0.50	1
	03/02/99	93004	(ML/EPA 524.2	m-Dichlorobenzana (1,3-DCB)	AK	ug/1	0.50	1
	03/02/99	93004	(ML/EPA 524.2	m,p-Xylenes	NA	ug/1	0.50	1
	03/02/99	93004	(ML/E524.2/624)	Methyl Tert-butyl ether (MTBE)	AK	ug/1	3.0	1
	03/02/99	93004	(ML/EPA 524.2	Naphthalene	NA	ug/1	0.50	1
	03/02/99	93004	(ML/EPA 524.2	n-Bucylbenzene	NA	ug/ 1	0.50	1
	03/02/99	93004	(ML/EPA 524.2	n-Propylbenzene	na	ug/1	0.50	1 .
	03/02/99	93004	(ML/EPA 524.2	o-Xylene	NA	ug/1	0.50	1
	03/02/99	93004	(ML/EPA 524.2	o-Dichlorobenzene (1,2-DCB)	NA	ug/1	0.50	1
	03/02/99	93004	(ML/EPA 524.2)	Tetrachloroethylene (PCE)	NA	ug/1	0,50	1
	03/02/99	93004	(ML/EPA 524.2)	p-Isopropyltoluene	NA	ug/1	0.50	1
	03/02/99	93004	(ML/EPA 524.2)	sec-Butylbenzene	NA .	ug/1	0.50	1
	03/02/99	93004	{ ML/EPA 524.2 }	Styrene	NA	ug/1	0.50	1
	03/02/99 -	93004	(ML/EPA 524.2)	trans-1,2-Dichloroethylene	NA	ug/1	0.50	1
	03/02/99	93004	(ML/EPA 524.2)	tert-amyl Methyl Ether	na	ug/1	3.0	1
	03/02/99	93004	{ ML/EPA 524.2 }	tert-Butyl Ethyl Ether	NA	ug/1	3.0	1
	03/02/99	93004	(ML/EPA 524.2)	tert-Butylbenzene	NA	\ug/l	0.50	1
	03/02/99	93004	(ML/EPA 524.2)	Trichlorosthylene (TCE)	NA	ug/1	0.50	1
	03/02/99	93004	(ML/EPA 524.2)	Trichlorotrifluoroethane (Freon	NA	ug/1	0.50	1
	03/02/99	93004		trans-1,3-Dichloropropens	NA	ug/1	0.50	1
	03/02/99	93004	(ML/EPA 524.2)	• • •	NA	ug/1	0.50	1
	03/02/99	93004	•	Vinyl chloride (VC)	NA	ug/1	0.30	1
				1,2-Dichloroethane-d4	NA	* Rec	•	=
			• •	4-Bromofluorobenzene	NA	* Rec		
<i>!</i> I			·	Toluene-ds	NA	* Rec		



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Kauai Water Department

	QC Batch #93004	Regula	ted VO	Cs plus I	ists 1&3	
QC	Analyte	Spikad	Recovered	Yield (%)	Limits (%)	RPD (%)
MBLK	1,1,1,2-Tetrachloroethane	ир				
LCS1	1,1,1-Trichloroethane	4	3.99	99.8	(70.00 - 130.00)	
MBLK	1,1,1-Trichloroethane	ND				
LCS1	1,1,2,2-Tetrachloroethane	4	3.71	92.8	(70.00 - 130.00)	
HBLK	1,1,2,2-Tetrachloroethane .	מא				
LCS1	1,1,2-Trichloroethane	4	3.81	95.2	(70.00 - 130.00)	
MBLX	1,1,2-Trichloroethans	מא				
LCS1	1,1-Dichloroethane	4	3.76	94.0	(70.00 - 130.00)	
MBLX	1,1-Dichlorosthane	ИD				
LCS1	1,1-Dichloroethylene	4	4.42	110.5	(70.00 - 130.00)	
MBLK	1,1-Dichloroethylene	ND				
HBLK	1,1-Dichloropropene	ND				
MBLK	1,2,3-Trichlorobenzano	ND				
KBLK	1,2,3-Trichloropropane	MD				
rcsi	1,2,4-Trichlorobenzene	4	3.87	96.8	(70.00 - 130.00)	
HBLK	1,2,4-Trichlorobenzana	ND				
KBLK	1,2,4-Trimethylbenzene	ИD				
LCS1	1,2-Dichloroethane	4	3.97	99.2	(70.00 - 130.00)	
MBLK	1,2-Dichloroethane	ND				
LCS1	1,2-Dichloropropane	4	4.38	109.5	(70.00 - 130.00)	
MBLK	1,2-Dichloropropane	MD	•			
MBLK	1,3,5-Trimethylbensene	ND				•
LCS1	1,3-Dichloropropane	8	7.43	93.0	(70.00 - 130.00 }	
MBLK	1,3-Dichloropropane	מא				•
LCS1	p-Dichlorobenzene (1,4-DCB)	4	3.74	93.5	(70.00 - 130.00)	
MBLK	p-Dichlorobenzene (1,4-DCB)	מא				
KBLE	2,2-Dichloropropane	ИD				
MBLK	2-Butanone (MEK)	ND				
MBLK	2-Chloroathylvinylether	ИD				
MBLX	o-Chlorotoluene	ND				·
HBLK	p-Chlorotoluene	ND				
HBLK	4-Methyl-2-Pentanone (MIBK)	ND				
LCS1	Benzena	4	4.22	105.5	(70.00 - 130.00)	
MBLK	Benzene	ИD				
HBLE	Bromobensens	מא				
MBLK	Bromomethane (Methyl Bromide)	ND				

Spikes which exceed Limits and Mathod Blanks with positive results are highlighted by Underlining. Criteria for MS and DUP are advisory only and not applicable for ICR monitoring.



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Laboratory QC Report #52081

Kauai Water Department (continued)

	•				
LCS	cis-1,2-Dichloroethylene	4	4.23	105.6	(70.00 - 130.00)
MBL	cis-1,2-Dichloroethylene	ND			1,1
LC51	Chlorobenzene	4	3.51	97.8	(70.00 - 130.00)
MBLK	Chlorobenzene	מא			•
LCS	Carbon Tetrachloride	4	4.03	100.8	(70.00 - 130.00)
MBLK	Carbon Tetrachloride	מא			•
MBLX	cis-1,3-Dichloropropene	ND			
LCS1	Bromoform	4	2.84	71.0	(70.00 - 130.00)
MBLK	Bromoform	ND			
LCS1	Chloroform (Trichloromethane)	4	3.96	99.0	(70.00 - 130.00)
MBLK	Chloroform (Trichloromethane)	ND			
MBLK	Bromochloromethane	ND			•
MBLK	Chloroethans	סא			
MBLK	Chloromethane (Methyl Chloride)	מא			
LC51	Chlorodibromomethane	4	3.61	90.2	(70.00 - 130.00)
MBLK	Chlorodibromomethane	מא			
MBLX	Dibromomethane	ND			
LCS1	Bromodichloromethane	4	3.71	92.8	(70.00 - 130.00)
MBLK	Bromodichloromethane	ND			, , , , , , , , , , , , , , , , , , , ,
LC\$1	Dichloromethane	4	4.10	102.5	(70.00 - 130.00)
MBLK	Dichloromethane	ND			
MBLK	Di-isopropyl ether	מא			
LCS1	Ethyl benzene	4	3.90	97.5	(70.00 - 130.00)
MBLK	Ethyl benzene	מא			
MBLK	Dichlorodifluoromethane	ND			
LCS1	Fluorotrichloromethane-Freenli	2 .	1.71	85.5 .	(70.00 - 130.00)
MBLK	Fluorotrichloromethane-Freonii	ND			
MBLK	Hexachlorobutadiene	ND			
MBLK	Isopropylbenzene	מא			
MBLK	m-Dichlorobenzene (1,3-DCB)	ND			
LCS1	m,p-Xylenes	8	8.03	100.4	(70.00 - 130.00)
MBLK	m,p-Xylenes	מוא			, , , , , , , , , , , , , , , , , , , ,
LCSl	Methyl Tert-butyl ether (MTBE)	8	8.64	110.5	(70.00 - 130.00)
MBLK	Methyl Tert-butyl ether (MTBE)	ND			
MBLK	Naphthalene	ND			
MBLK	n-Butylbenzene	ND			
MBLK	n-Propylbenzene	ND			

Spikes which exceed Limits and Method Blanks with positive results are highlighted by Underlining. Criteria for MS and DUP are advisory only and not applicable for ICR monitoring.

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Laboratory QC Report #52081

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Kauai Water Department (continued)

					(70.00 - 130.00)
LCS1	c-Xylene	4	3.93	98.2	(70.00 - 130.00)
MBLK	o-Xylene	ND			135 1
'LC51	o-Dichlorobenzene (1,2-DCB)	4	3.82	95.5	(70.00 - 130.00)
MBLK	o-Dichlorobenzene (1,2-DCB)	ND			
LCS1	Tetrachloroethylene (PCE)	4	4.15	103.8	(70.00 - 130.00)
MBLK	Tatrachloroethylene (PCE)	ND			
MBLX	p-Isopropyltoluene	ND			
MBLK	sec-Butylbenzene	ND			
LCS1	Styrene	4	3.76	94.0	(70.00 - 130.00)
MBLK	Styrene	ND			
LCS1	trans-1,2-Dichloroethylene	4	4.44	111.0	(70.00 - 130.00)
MBLK	trans-1,2-Dichloroethylene	ND			
MBLK	tert-amyl Methyl Ether	ИD			
MBLK	tert-Butyl Ethyl Ether	ND			
MBLK	tert-Butylbenzene	מאי			
LCS1	Trichlorosthylens (TCE)	4	4.04	101.0	(70.00 - 130.00)
MBLK	Trichlorosthylens (TCE)	ND			
LCS1	Trichlorotrifluoroethans (Freon	2	1.79	89.5	(70.00 - 130.00)
MBLK	Trichlorotrifluoroethane (Freon	ND			
MBLK	trans-1,3-Dichloropropene	ND			
LCS1	Toluene	4	4.06	101.5	(70.00 - 130.00)
MBLK	Toluene	ND			
LCS1	Vinyl chloride (VC)	2	1.68	84.0	(70.00 - 130.00)
MBLK	Vinyl chloride (VC)	ND			

Spikes which exceed Limits and Method Blanks with positive results are highlighted by Underlining. . 'Criteria for MS and DUP are advisory only and not applicable for ICR monitoring.

WATER QUALITY ANALYSES
USGS Pukaki Well



555 East Walnut Strast Pasadana, California 91101 818 568 6400; Faz: 818 568 6324; 1 800 566 LABS (1 800 566 5227)

SS MAY | P9: 3

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Laboratory Report

for

Kauai Water Department P.O. Box 1706

Lihue , HI 96766

Attention: Wayne Hinazumi Fax: (808) 245-5813

MONTGOMERY WATSON LABS.

APR 2 4 1996

Hillary Straye

Report#: 26390

eport Summary of positive results, PR26390

	<u>.</u>	Result	MDL	UNITS
nalyzed	960404046 PUKAKI			
1/10/96	Data Entry	04/17/96		 -
4/15/96	Chromium, Total, ICAP/MS	7.0	5.000	UGL
1/15/96	Nickel, Total, ICAP/MS	8.5	5.000	UGL _
1/10/96	Data Entry	04/12/96	2.000	
1/04/96	Nitrate -	0.88	.440	MGL
1/04/96	Nitrate-N'by IC	0.2	.100	MGL
1/12/96	Data Entry,	04/18/96	1200	
1/21/96	Data Entry	04/23/96		
1/10/96	Calcium, Total, ICAP	16	5.000	MGL
nalyzed	960404047 PUKAKI		•	_
1/10/96	Data Entry	04/17/96		
1/15/96	Chromium, Total, ICAP/MS	11	E 000	
1/15/96	Nickel, Total, ICAP/MS	24	5.000	UGL
1/10/96	Data Entry	04/12/96	5.000	ngr .
1/04/96	Nitrate	0.88	.440	VCT -
1/04/96	Nitrate-N by IC	0.2	.100	MGL T
1/12/96	Data Entry .	04/18/96	. 100	MGL
1/21/96	Data Entry	04/23/96		
1/10/96	Calcium, Total, ICAP	15	5.000	MGL.
- •	,	-	3.000	MOTI.



555 East Walnut Street Pazadena, California 51101 818 558 6400; Fax; 818 568 6324; 1 800 566 LABS (1 800 566 5227) Report Comments #26390

Group Comments

(ML525) J indicates that the result is below reporting limit Result for TCDD analysis submitted by Quanterra Environmental Services.
(508) LCS recoveries fail low for heptachlor and aldrin use 525 data for these compounds. LCS recovery fails high for endrin. Reference QIR-GC-96-070.

Page

1



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Kauai Water Department Wayne Hinazumi P.O. Box 1706 Lihue , HI 96766

Samples Received 04-apr-1996 14:42:33

Prepared	Analyzed	#EdoseE DO	Hechod	Amalyme	Result	baits	HOL	Dilution
UKAKI	(960404	046)	Sample	i on 04/02/96				•
04/10/96	04/10/96	41215	(EPA/MG 200.7) Calcium, Total, ICAP	16	=g/l	5.0	1
	04/13/96	48328	(XI/SH4500-C	7) Cyanide	מא	=g/l	0.025	1
04/08/96	04/11/96	48296	(ML/EPA 548.1	1 Endothall	363	ug/l	5.0	1 ~
	04/08/96	44094	(MPA/ML 340.2) Yluoride	. אם	= 9/1	0.10	1
	04/11/96	44301	(ML/EPA 547) Glyphosate	HID COM	ug/l	6.0	1
04/05/96	04/05/96	48032	. (XPA/NL 245.1) Kencury	מא	ug/l	0.50	1
	04/04/96	48117 .	(MT/EPA 300.0) Mitrite, Mitrogen by IC	מא	> 9/1	0.10	1
04/11/96	04/13/96		{ XPA 1613) 2,3,7,8 - 1000	מא	PGL	1.5	,
			525 Semi	volatiles by GC/MS				1.
04/10/96	04/17/96	48362	(HL/EFA 525.2) 2,4-Dinitrotoluene	מא	ug/1	0.10	1.
04/10/96	04/17/96	48362	(ML/EPA 525.2) alpha-Chlordane	מא	ug/1	0.050	1 ,
04/10/96	04/17/96	48362	(HL/EPA 525.2) Diazinon	NA	ug/1	0.10	1
04/10/96	04/17/96	48362	(ML/EPA 525.2) Acenaphthylene	ND .,	ug/l '	0.10	1
04/10/96	04/17/96	48362	(ML/BPA 525.2) Alachior	מא	ug/l	0.050	2 ° t
04/10/96	04/17/96	48362	[HL/EFA 525.2) Aldrin	νр .	ug/1	0.050	1
04/10/96	04/17/96	48362	(ML/EFA 525.2) Anthracene	מא	ug/l	0.020	1
04/10/96	04/17/96	48362	(HL/EPA 525.2) Atrarine	מא	ug/l	0.050	1 ,
04/10/96	04/17/96	48362	(ML/EPA 525.2) Renz(a) Anthracene	מא	ug/l	0.050	ı · '
04/10/96	04/17/96	41362	(ML/EFA 525.2) Benzo(a)pyrene	מא	ug/1	0.020	1
04/10/96	04/17/96	48362	{ ML/EPA 525.2	} Renzo(h)Fluoranthene	מא	ug/l	0.626	1
04/10/96	04/17/96	48362	(ML/EPA 525.2) Benzo(g,h,i)Perylene	מא	ug/1	0.050	1
04/10/96	04/17/95	48362	(ML/EPA 525.2	} Benic(k)Pluoranthene	מא	ug/l	0.620	1
04/10/96	04/17/56	48362	(ML/BPA 525.2) Di(2-Ethylhexyl)phthalate	מא '	ug/l	0.60	ı •-
04/10/96	04/17/96	48362	(ML/EPA 525.2) Butylbensylphthalats	, מא	ug/1	0.50	1 ,
04/10/56	04/17/36	48362	(HL/EPA 525.2) Bromacil	מא	ug/l	2.0	1
04/10/96	04/17/96	48362	(HL/EFA 525.2] Butachlor	מא	ug/1	0.050	`
04/10/96	04/17/96	48362	(ML/EPA 525.2) Caffeine	מא	ug/l	0.020	1
04/10/56	04/17/96	48362	(ML/EPA 525.2) Cirysens	מא	45/1	0.020	1
04/10/96	04/17/96	48362	(ML/EPA 525.2) Dibenz(a,h)Anthracene	מא	ug/1	0.050	1
04/10/96	04/17/96	41362	(ML/BPA 525.2) Di-(2-Ethylhexyl)adipate	HD	ug/1	0.60	. 1
04/10/96	04/17/96	41362	[HL/RPA 525.2) Dischylphchalate	ND	ug/l	. 0.50 -	

1



555 East Walnut Straet *
Pasadens, California 51101
818 568 6400; Fax: 818 568 6324;
1 800 566 LABS (1 800 566 5227)

Laboratory Report #26390

Propared	Analyzed	QC Batch#	Herbod		Analyte	Result	Units	HOL	Dilution
04/10/96	04/17/96	4#362	(HL/EPA 525.	2)	Dieldrin	ND	ug/1	0.20	1
04/10/96	04/17/96	48362	(ML/EPA 525.	2)	Dimechylphchalace	МD	ug/1	0.50	1
04/10/96	04/17/96	48362	(HL/EPA 525.	2)	Dimethoate	ЖD	ug/1	10	ı.
04/10/96	04/17/96	48362	(HL/EPA 525.	2)	Di-n-Butylphthalate	МО	ug/1	0.50	1
14/10/96	04/17/96	48362	(HL/EPA 525.:	2)	Endrin	ND	ug/1	0.10	1
4/10/96	04/17/96	48362	(ML/EPA 525.2	2)	Fluorene	MD	ug/1	0.050	1.
4/10/96	04/17/96	48362	(HL/EPA 525.3	2)	gamma-Chlordane	מא	ug/l	0.050	1
4/10/96	04/17/96	48362	(ML/EPA 525.2	2)	Hexachlorobenzene	360	ug/1	0.050	1
4/10/96	04/17/96	40362	(KL/EPA 525.2	2)	Hexachlorocyclopentadiene	מא	ug/l	0.050	ı
4/10/96	04/17/96	48362	(HL/EPA 525.2	•	Heptachlor	100	ug/1	0.040	1
4/10/96	04/17/96	48362	(HL/2PA 525.2	2)	Reptachlor Epoxide	מא	ug/l	0.020	1
4/10/96	04/17/96	48362	(HL/EPA 525.2	2)	Indeno(1,2,3,c,d) Pyrene	. מא	ug/1	0.050	1
4/10/96	04/17/96	48362	(HL/EPA 525.2	2)	Isophorone	פא	ug/l	0.50	1
4/10/96	04/17/96	48362	(HL/EPA 525.2	2)	Lindane	פא	ug/l	0.020	ı
4/10/96	04/17/96	48362	(HL/EPA 525.2	2 }	Methoxychlor	פא	ug/l	0.050	1
4/10/96	04/27/96	48362	(HL/EPA 525.2	:)	Metribusin	מא	ug/l	0.050	1
1/10/96	04/17/96	48362	(HL/EPA 525.2		Molinace	מא	ug/1	0.20	1
10/96	04/17/96	48362	(ML/EFA 525.2			ND	ug/1	0.050	1
1/10/96	04/17/96	48362			trans-Nonachlor	מא	ug/1	0.050	1 : : :
4/10/96	04/17/96	48362			Pentachlorophenol .	ND	ug/1	1.0	1
4/10/96	04/17/96	48362	(HC/EPA 525.2		Phenanchrene	מא	ug/l	0.020	. 1
1/10/96	04/17/96	48362	(HL/EPA 525.2		Prometryn	מא	ug/1	0.50	Ĺ
1/10/96	04/17/96	48362	(ML/RPA 525.2		Propachlor	מא	ug/1	0.050	1
/10/96	04/17/96	48362	(HL/EPA 525.2	. 1	Pyrese	מא	ug/1	0.050	. 1
1/10/96	04/17/96	48362	(HL/EPA 525.2		Simezine	מא	ug/1	0.050	1
/10/96	04/17/96	48362	(ML/EPA 525.2	•	Thiobencarb	מא	ug/l	0.20	1
1/10/96	04/17/96	48362	(ML/EPA 525.2)	Trifluralin	מא	ug/l	0.10	1
			(Surrogate)	Perylean-diz	106	. Y Rec		
			AB1803 -	EI	B and DBCP				
/05/96	04/10/96	41379	(HL/EPA 504)	Dibromochloropropame (DBCP)	סא	ug/l	0.010	1
/25/56	04/10/96	48379	(HL/BPA 504	1	Ethylene Dibromide (EDB)	מא	ug/l	0.010	" 1
			(Surrogata)	1,2-dibrosopropane	107	* Rec		
					· -				



MONTGOMERY WATSON LABORATORIES

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Laboratory Report #26390

Prepared	Analyzed	QC Batchs	Heshod	Analyte .	Result	. Vaics	MOL	Dilution
		•	•					
	•		Aldicarbs					
	04/09/96	48177	(ML/EPA 531.1)	3-Hydroxycarbofuran	3420	ug/1	2.0	1
	04/09/96	48177	(ML/EPA 531.1)	Aldicarb (Temik)	NO	ug/1	0.50	1
	04/09/96	48177	(HL/EPA 531.1)	Aldicarb sulfone	ЖD	ug/1	0.80	1
	04/09/96	48177	(ML/EPA 531.1)	Aldicarb sulfoxide	מא	ug/l	0.50	1
	04/09/96	48177	(HL/EPA 531.1)	Baygon	מא	ug/1	2.0	1
	04/09/96	48177	(ML/EPA 531.1)	Carbofuran (Puradan)	מא	ug/l	0.50	1
	04/09/96	48177	(HL/EPA 531.1)	Cambamyl	מא	ug/l	2.0	1
	04/09/96	48177	(ML/EPA 531.1)	Mechiocarb	מא	ug/1	2.0	1
	04/09/96	48177	(ML/EPA 531.1)	Hechomy1	מא	ug/1	1.0	1
	- 04/09/36	48177	(ML/EPA 531.1)	Oxamyl (Vydace)	מא	ug/1	2.0	1
			(Surrogate)	BDHC	102	* Rec		
			Diquat and	Paraquat				
4/08/96	04/11/96	48295	(HL/EPA 549 .)	Diquae	מא	ug/1	0.40	1.
4/08/96	04/11/96	48295	(EPA 549)	Paraquat	מא	ug/1	2.0	1 .
·	•		• .	•	•			
			Herbicides	by 515.1	•			
4/09/96	04/12/96	48449	(HL/EPA 515.1)	2,4,5-7	ж	ug/1	0.22	1.1
4/03/96	04/12/96	48449	(ML/EPA 515.1)	2.4,5-TP (Silvex)	מא	ug/1	0.22	1.1
4/05/96	04/12/96	48449	(HL/EFA 515.1)	2,4-D	מא	ug/1	0.11	1.1
4/09/96	04/12/36	48449	(HL/EPA 515.1)	2,4-DB ·	. מא	ug/l	2.2	1.1
4/09/96	04/12/96	48449	(KL/EFA 515.1)		מא	ug/1	0.55	1.1
4/03/96	04/12/96	48449	(HL/EFA 515.1)	Acifluorfen (qualitative)	פא	ug/l	0.22	1.1
4/05/56	04/12/96	48449	(ML/RPA 515.1)	Bentamon .	מא	ug/l	0.55	1.1
4/09/96	04/12/96	48449	{ ML/EPA 515.1 }	Dalapon (qualizati ve)	ND	ug/1	1.1	1.1
4/09/96	04/12/96	48445	(HL/EPA 515.1)	3.5-Dichlorobenzoic acid	ND.	ra/I	0.66	1.1
4/09/96	04/12/96	48447	(ML/EPA 515.1)	DCPA	HD	ug/l	0.22	1.1
4/05/56	04/12/96	48449	(HC/EPA 515.1)	Dicamba	מונ	ug/l	0.088	1.1
4/09/96	04/12/96	48449	(KL/EPA 515.1)	Dinoseh .	ND	nā\I	0.22	1.1
4/09/96	04/12/96 .	48445	(KL/EPA 515.1)	Pentachlorophenol	ЖD	nà\J	0.044	1.1.
4/09/96	04/12/96	48449	(HL/EPA 515.1)		מא	ug/1	0.11	1.1
4/09/96	04/12/96	48449	(ML/RPA 515.1)	4-Nitrophenol (qualitative)	, מונ	ug/1	5.5	1.1
	•		(Surrogate)	2,4-Dichlorophenylacetic acid	84	t Rec		•

555 East Walnut Straet Pasadena, California 91101 818 568 6400; Fax: 818 568 6324; 1 800 566 LABS (1 800 586 5227)

Laboratory Report #26390

Prapared	Analyzed	QC Batch#	Method	Analyte	Result	Units	нос	Dilucion
	•							
		•	ICPMS Met	als				
04/15/96	04/15/96	48333	(EPA/ML 200.8	} Arsenic, Total, ICAP/HS	≈	ug/l	5.0	1
04/15/96	04/15/96	48333	(EPA/HL 200.8	Barium, Total, ICAP/MS	סא	ug/l	10	1
04/15/96	04/15/96	48333	(EPA/HL 200.8) Beryllium, Total, ICAP/HS	מא	ug/l	1.0	1
04/15/96	04/15/96	48333	(EPA/ML 200.8) Cadmium, Total, ICAP/HS	סא	ug/l	0.50	1
04/15/96	04/15/96	48333	(EPA/MS 200.8) Chronium, Total, ICAP/MS	7.0	ug/l	5.0	1
04/15/96	04/15/96	48333	(EPA/ML 200.8) Copper, Total, ICAP/HS	מא	ug/l	20	1
04/15/96	04/15/96	48333	(EPA/ML 200.8) Nickel, Total, ICAP/MS	8.5	ug/l	5.0	1
04/15/96	04/15/96	48333	(EPA/ML 200.8) Lead, Total, ICAP/HS	כא	ug/l	5.0	1
04/15/96	04/15/96	48333	(EPA/ML 200.8) Ancidony, Total, ICAP/HS	מא	ug/l	2.0	1
04/25/96	04/15/96	48333	(EFA/ML 200.8) Selenium. Total, ICAP/HS	מא	ug/l	5.0	1
04/15/96	04/15/96	48333	(EPA/ML 200.8) Thallium, Total, ICAP/HS	מא	ug/1	1.0	1
			Nitrate b	y IC as NO3 & N				
	04/04/96	48129 .	(EFA/HL 300.0) Nitrate-N by IC	0.2	cg/l	0.10	1
	04/04/96	48129	(ML/EFA 300) Nitrate	0.88	mg/l	0.44	ı.
			SDWA Pest	icides				
04/08/96	04/21/96	48584	(ML/EPA 508) PCB 1016 Armelor	מא	ug/1	0.16	1
04/08/96	04/21/96	48584	(HL/EPA 508.) PCB 1221 Aroclor	כא	ug/1	0.10	1
04/08/96	04/21/96	48584	(ML/EPA 508) PCB 1232 Aroclor	מא	ug/l	0.10	1
04/08/56	04/21/96	48584	(HL/EPA 508) PCB 1242 Aroclor	מא	ug/l	0.10	1
04/08/96	04/21/96	48584	802 AG3\2H) FC3 1248 Aroclor	סא	ug/1	0.10	1
04/08/96	04/21/96	48584	{ HL/EPA 508) PCB 1254 Aroclor	כא	ug/l	0.10	1
04/08/96	04/21/96	48584	(ML/EPA 508) PCB 1260 Aroclor	כא	ug/l	0.10	1
36/80/40	04/21/96	48584	(HL/EPA 508) Alpha-EEC	מא	ug/l	0.010	1
04/08/96	04/21/56	48524	(ML/EPA 508	} Alachlor (Alamex)	מא	ug/l	0.050	1
04/08/96	04/21/96	48524	(HL/EPA 508) Aldrin	מא	ug/l	0.010	1
04/02/96	04/21/96	46584	(HL/EPA 508	} Beta-BEC	י כא	ug/l	0.010	1
04/08/96	04/21/96	48584	{ HCL/EPA 508) Chlordane	ир	ug/l	0.10	1
04/08/36	04/21/96	48584	{ HL/EPA SOB) Calorchalonil (Drcomil, Bravo)	כא	ug/l	0.010	1
04/02/96	04/21/96	48584	(HZ/EPA SOB) Delta-REC	כה	ug/l	0.010	1
04/08/56	04/21/96	48584	(HL/EPA 508) ססס	ND	ug/1	0.010	1
04/08/96	04/21/96	48524	(HT/EPA SOE) p.p' DDE	מא	ug/l	0.919	1



555 East Walout Street Pasadana, California 91101 818 568 6400; Fax: 818 568 6524; 1 800 566 LABS (1 800 566 5227) Laboratory Report #26390

repared	Analyzed	QC Batchs	Hechod	Analyce	Result (Unics	HDL	Dilucio
/08/96	04/21/96	48584	(HL/EPA 508) p.p' DDT	מא	ug/l	0.010	1
1/08/96	. 04/21/96	48584	(ML/EPA SOS) Dieldria	מא	ug/l	0.010	1
1/08/96	. 04/21/96	48584	(HL/EFA SOE) Endrin Aldehyde	מא	ug/1	0.910	1
/08/96	04/21/96	48584	(ML/EPA 508) Endrin	מא	ug/l	0.010	1
/08/96	04/21/96	48584	(HL/EPA SOS) Endosulfan I (alpha)	בא	ug/1	0.010	1
/08/96	04/21/96	48584	(MI/EPA SOE) Endosulfan II (beta)	. си	ug/1	0.010	1
/08/96	04/21/96	48584	(ML/EPA 508) Endosulfan sulface	סא	ug/1	0.010	1
/08/96	04/21/96	48584	(HL/EPA 508) Reptachlor	מא	ug/1	0.010	1
/08/96	04/21/96	48584	(ML/EPA 508) Reptachlor Epoxide	מא	ug/1	0.010	1
/08/96	04/21/96	48584	(HL/EPA 508) Lindane (gamma-BHC)	מא	ug/1	0.010	1
/08/96	04/21/96	48584	(HL/EPA 508)) Hethoxychlor	מא	ug/1	0.050	1
/08/96	04/21/96	48584	(HL/EPA SOS)) Toxaphene	מא	ug/1	0.50	1
			(Surrogate)	Dibutyl Chloresdate	112	7 Rec		-
•			(Surrogace)	Tetrachlorometaxylene	104	¥ Rec		
			Volatile O	rganic Compounds				
	04/10/96	48288	(HL/EPA 502.2)	1,1,1,2-Tetrachloroethane	ND	ug/1	0.50	.1
• •	04/10/96	48288	(ML/EPA 502.2)	1.1.1-Trichloroethane	νо .	ug/1	0.50	
	04/10/96	48288	(HL/EPA 502.2)	1,1,2,2-Tetrachloroethane	מא	ug/1	0.50	1
	04/10/96	48288	(HL/EPA 502.2)	1,1,2-Trichloroethane	מא	ug/l	0.50	1
	04/10/96	48288	(HL/EPA 502.2)	1,1-Dichlorosthane	מוא	ug/1	0.50	1 .:
	04/10/96	48288	(ML/EPA 502.2)	1,1-Dichloroethene	מוא	ug/1	0.50	<u> </u>
	04/10/96	48288	(ML/EFA 502.2)	1,1-Dichloropropene	ND	ug/1	0.50	1
	04/10/96	48288	(HL/EPA 502.2)	1,2,3-Trichloropropane	מא	ug/l	0.50	1
	04/10/96	48288	(ML/EFA 502.2)	1,2,3-Trichlorobenzene	מא	ug/l	0.50	1
	04/10/96	48258	(HL/EPA 502.2)	1,2,4-Trichlorobenzene	ND	ug/1	0.50	ī
	04/10/96	48288		1,2,4-Trimethylbenzene	, כווג	-s/- ug/l	0.50	1
	04/10/96	48288	(ML/EFA 502.2)	1,2-Dichloroschane	ND.	ug/1	0.50	1
	04/10/56	48288	(ML/EPA 502.2)	1,2-Dichlorobenzene	ND	ug/1	0.50	1
	04/20/96	48288 .	(HL/EPA 502.2)	1,2-Dichloropropane	מא	ug/l	0.50	1
	04/10/96	48288	(HCL/EPA 502.2)	1,3,5-Trimethylbenzene	HD CTE	ug/l	0.50	1
	04/10/96	48288		1,3-Dichlorobenzene	מא	ug/1	0.50	1
	04/10/96	48288	(HL/EPA 502.2)	1,3-Dichloropropane	מא	ug/1	0.50	i
	04/10/96	48288	(ML/EPA 502.2)	1,4-Dichlorobenzene	ND	-s/- ug/1	0.50	1 .
	04/10/96 :	46288	(ML/EPA 502.2)	2,2-Dichloropropana	ND	. 0g/l	0.50	ī
	04/10/96	42288	(ME/EPA 502.2)	2-Chlorotoluene	ж .	ug/l	0.50	1



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Prepared	Amalyzed	QC Batch#	нестод		Analyte	Result	Voits	HDL	Dilutio
	04/10/96	48288			4-Chlorocoluene	מא	ug/l	0.50	1
	04/10/96	48288	(HL/E7A 502.2)	Bromodichloromenhane	מזג	ug/l	0.50	1
	04/10/96	48288		}	Benrene	ND	ug/l	0,50	<u>.</u> .
	04/10/96	48288	(HL/EPA 502.2)	Bromobenzene	מא	ug/l	0.50	1
	04/10/96	48288	(ML/EPA 502.2	}	Bromochloromechane	מא	ug/1	0.50	1
	04/10/96	48288	(HL/EPA 502.2)	Bromomethane	מא	ug/l	0.50	1
	04/10/96	48288	(ML/EPA 502.2)	cis-1.2-Dichloroschene	ND	ug/l	0.50	1
	04/10/96	48288	(ML/EPA 502.2)	Chlorobenzene	ND	ug/l	0.50	1
	04/10/96	48288	(ML/EPA 502.2)	Carbon terrachloride	ND	ug/1	0.50	1
	04/10/96	48288	(ML/EPA 502.2	1	cis-1,3-Dichloropropene .	מא	ug/l	0.50	1
	04/10/96	48288	(ML/EPA 502.2)	Bronoform	מא	ug/1	0.50	1
	04/10/96	48288	(ML/EPA 502.2	}	Chloroform	. מא	ug/l	0.50	1
. •	04/10/96	48288	(ML/EPA 502.2)	Chlososthane	XD	ug/1	0.50	1
	04/10/96	48288	(HL/EPA 502.2	ì	Chloronethane	מא	ug/l	0.50	1
	04/10/96	48286	(ML/EPA 502.2)	Dibrosochloromechane .	מא	ug/l	0.50	1
	04/10/96	48288	(ML/EPA 502.2)	1.2-Dibromo-3-chloropropase	מא	ug/1	1.0	1
	04/10/96	48288			Dibromomethane	מא	ug/1	0.50	•
•	04/10/96	48288	(HCL/EPA 502.2	,	Dichlorodifluoromethane	מא	ug/l	0.50	
	04/10/96	46288	(HL/EPA 502.2)	1,2-Dibromoethane	מא	ug/l	0.50	1
	04/10/96	48288	(HEL/EPA 502.2)	Ethylbenzene .	מא	. ug/l	0.50	1
•	04/10/96	48268	(ML/EPA 502.2)	Rexachlorobutadiene	. סוא	. ug/l	0.50	· 1
	04/10/96	48288	(ML/EPA 502.2)	Isopropylbenzene	ND	ug/1	0.50	1
	04/10/96	48288			Hethylene chloride	מא	ug/l	0.50	1
	04/10/96	44288	(HL/EPA 502.2 .			מא	ug/1	0.50	1
	04/10/96	48286	(ML/EPA 502.2			ND	ug/1	0.50	
	04/10/96	48208			n-Bucylbensens	מא	ug/1	0.50	1.
	04/10/96	48288	(HL/EPA 502.2	7	n-Propylbenicis	HD	ug/1		1
	04/10/96	48288	(HL/EPA 502.2			מא	<i>ug</i> /1	0.50 0.50	1
	04/10/36	48288			Tetrachloroethene	סא	<i>n</i> ā∖;		.1
	04/10/56	48288			p-Isoprypylcolucce	סא	ug/l	0.50	<u>.</u> .
	04/10/56	46288			sec-Butylbenzene	ир		0.50	1
	04/10/96	48288			Styrene .	כא	ug/l	0.50	1
	04/10/96	48288			trans-1,2-Dichloroethere	סא	ug/1	0.50	
	04/10/36				cerc-Bucylbenzene	מא	ug/1	0.50	. 1
	04/10/96		(HE/BPA 502.2			פא	ug/l	0.50	1
	04/10/56				Frichlorospiiluoroschies (Preon	מא	ug/l ug/l	0.50	1



MONTGOMERY WATSON LABORATORIES

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1 800 555 LABS (1 800 556 527))

Laboratory Report : #26390

Prepare	d Analyzed		Hethod	Analyte	Result	, Voits	HDI,	Di	llucion
	04/10/96 04/10/96 04/10/96	******	(ML/EPA 502.2 (ML/EPA 502.2 (ML/EPA 502.2 (Surrogate (Surrogate (Surrogate) trans-1.3-Dichloropropene) Toluene) Trichlorofluoromechane) Vinyl chloride Bromofluorobenzene-ELCD Bromofluorobenzene-PLC Chlorofluorobenzene-FLCD Chlorofluorobenzene-PLD	มา มา มา มา มา 84 90 92	ug/1 ug/1 ug/1 ug/1 t Rec t Rec t Rec	0.50 0.50 0.50 0.50	1 1 1	
9UKAKI 04/10/96	(960404 04/10/96 04/13/96	48285	(EPA/HE 200.7)	on 04/03/96	ls				
04/08/36	04/11/96 04/08/96	48296 48094	(HIL/SH4500~CH 7) (HIL/ZPA 5 ⁴⁸ ·1) (EPA/HI 1 ⁴⁰ ·2)	Endothell	מא מא	=g/1 =g/1 =g/1	5.0 0.025 5.0	1 1 1	
04/05/96	04/11/96 04/05/96 04/04/96	48032	(EPA/NG 245-1)	Clyphosate	жo жo	=g/l ug/l ug/l	0.10 6.0 9.50	1	~
04/11/96	04/13/96	(XFA 1613)	Mitrita, Mitrogan by IC 2,3,7,8 - TCDD	жD	=g/1 PGL	0.10	1	
04/10/96 04/10/96 04/10/96 04/10/96	04/19/96 04/15/96 04/15/96	48362 (48362 (HL/EPA 525-2) : HL/EPA 525-2) : HL/EPA 525-2) :	Marinon	ND ND	n2/1 n2/1	0.10 0.050	1	Process C
04/10/96 04/10/96 04/10/96		48362 (48362 (HL/EPA 525-2) A HL/EPA 525-2) A HL/EPA 525-2) A HL/EPA 525-2) A	lachlor ldrin	אא סא סא סא	ug/l ug/l ug/l ug/l	0.10 0.10 0.050 0.050	1	Bow d
04/10/96 04/10/96	04/15/96 04/15/96	48362 (48362 (ML/EPA 525- ²) A ML/EPA 525- ²) Be	trarine no:(a) Anthracene no:(a) pyrene	מא מא מא	ug/l ug/l ug/l	0.020 0.050 0.050	1 1 1	6-cc -
04/10/96 (04/10/96 (04/15/96 04/15/96	18362 ()	CL/EPA 525. ²) Be CL/EPA 525. ²) Be CL/EPA 525. ²) Be	nzo(b) yluszanthese nzo(g,h,i) Perylene nzo(k) yluoranthese	מא מא מא מא	ug/1 ug/1 ug/1	0.020 0.020 0.050	1 1	9000 g
04/10/96 0	14/25/96 .4	E3E2 (H	C/57% 525.2) Di	(2-Sthylberyl)phthalaca tylbenrylphthalaca	מא מא מא	ug/l ug/l ug/l ug/l	0.020 0.60 0.50	1 1 1	•



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Laboratory Report #26390

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Prepared	Analyzed	QC Batch#	Xechod		Amalyco	Rosult \	Units	MDL	pilut	ion
04/10/96	04/15/96	48362	(ML/EPA 525.2)	Butachlor	מא	ug/1	0.050	1	
04/10/96	04/15/96	48362	(HL/EPA 525.2)	Caffeine	מא	ug/1	0.020	1	
04/10/96	04/15/96	48362	(ML/EPA 525.2)	CITYSORE	סא	ug/1	0.020	1	
04/10/96	04/15/96	48362	(NL/EPA 525.2	7	Dibens(a,b)Anchracene	מא	מ/פת	0.050	1	
04/10/96	04/15/96	48162	(ML/EPA 525.2	1	Di-(2-Ethylhexyl)adipace	1113	ug/1	9.60	1	
04/10/96	04/15/96	48362	(HL/EFA 525.2	}	Dischylphthalate	MD	ug/l	0.50	1	
04/10/96	04/15/96	48362	(HL/EPA 525.2	}	Dieldrin	מא	ug/l	0.20	1	
04/10/96	04/15/96	48362	(ML/EPA 525.2)	Dimethylphthalate) TO	ug/1	0.50	1	
04/10/96	- 04/15/96	48362	(ML/EPA 525.2)	Dimethoate	מא	#3\J	10	1	•
04/10/96	04/15/96	48362	(ML/EPA 525.2)	Di-n-Butylphthalate	ND	ug/l	0.50	1.	
04/10/96	04/15/96	48362	(HL/EPA 525.2	}	Endrin	310	ug/l	0.10	1	
04/10/96	04/15/96	48362	(HL/EPA 525.2)	Pluorene	34D	ug/l	0.050	1	
04/10/96	04/15/96	48362	(HL/EPA 525.2	}	gamma-Chlordane	ND	<i>u</i> g/1	0.050	1	
04/10/96	04/15/96	48362	(ML/EPA 525.2	}	Rexachloroben: ene	. אם	na\J	0.050	1	
04/10/96	04/15/96	48362.	(ML/EPA 525.2)	Hexachlorocyclopentadiene)TD	ug/l	0.053	1	
. 04/10/96	04/15/96	48362	(HL/EPA 525.2)	Heptachlor	ЖD	ug/l	0.040	1	
04/10/96	04/15/96	48362	{ HL/EPA 525.2	1	Heptachlor Epoxide	מא	ug/l	0.020	1.	•••
04/10/96	04/15/96	48362	(ML/BPA 525.2)	Indeno(1,2,3,c,d) Pyrene	מא	ug/l	0.050	ı.,	
04/10/96	04/15/96	48362	(HL/EPA 525.2.)	Isophorone	פא	ug/l	0.50	1	• •
04/10/96	04/15/96	44362	(HL/EPA 525.2)	Lindane	מא	ug/1	0.020	1	
04/10/96	04/15/96	46362	(ML/EPA 525.2)	Mechoxychlor	מא	ug/l	0.050	1 .	_ ::
04/10/96	04/15/96	48362	(HL/EPA 525.2)	Hetribusin	ХD	ug/l	c.050	1	
04/10/96	04/15/96	48362	(HL/EPA 525.2)	Molinate	XD	ug/l	0.20	1	
04/10/96	04/15/96	48362	(HL/EPA 525.2)	Hecolachior '	מא	ra\J	0.050	1	
04/10/96	04/15/96	48362	(HL/EPA \$25.2)	trans-Nonachlor	ND	ug/l	0.050	1	
04/10/96	04/15/96	48362	(HL/RPA 525.2)	Pencachlorophenol	. מא	ug/1	1.0	1	
04/10/96	04/15/96	48162	(ML/EPA 525.2)	Phenanthrene	ND	ug/l	0.020	1	
04/20/96	04/15/96	48362	(HL/EPA 525.2	}	Prometry-m	ж	ug/l	0.50	1	
04/10/96	04/15/96	44362	(HL/EPA 525.2)	Propachlor	NID.	45/1	0.050	ı	
04/10/96	04/15/96	48362	(ML/EPA 525.2)	Pyreze	. אם	ug/l	0.050	1	
04/20/96	04/15/96	41362	(HL/EPA 525.2)	Sinazine	מא	ug/1	0.050	1	
04/10/96	04/15/96	48362	(NL/XPA 525.2)	Thiobencarb	כזג	ug/1	0.20	1	
04/10/96	04/15/96	48362	(HL/EPA 525.2	1	Trifluralin	KO	ug/l	0.10	1	
			1 54		Semiles and 12	26	t Rec			



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zec	zed	C Batch	Hachod	Analyte	Result	Onits	ЮГ	ם	ilucios
			AB1803 -	EDB and DBCP					
/95	-	48379	(HEL/EPA 504	Dibromochloropropane (DBCP)	בחג	ug/1	0.010	1	
/96	96	48379	(HTL/EFA 504) Ethylene Dibromide (EDB)	מא	ug/1	0.010	-	
			(Surrogate) 1,2-dibrosopropane	118	* Rec		-	•
			Aldicarba	5					
/96	96	8177	(HL/EPA 531.1	1 3-Bydroxycarbofuran	מא	ug/1	2.0	1	
/96		8177	(HL/EPA 531.1) Aldicarb (Temik)	מא	ug/1	0.50	1	
/96		8177	(HL/EPA 531.1) Aldicarb sulfone	מא	ug/1	0.80	1	
/96		8177	(HL/EPA 531.1) Aldicarb sulfoxide	מא	ug/1	0.50	1	
/96		8177	(HL/E7A 531.1) Baygon	מא	ug/1	2.0	1	
/96		8177) Carbofuran (Furadan)	ND	ug/1	0.30	ı	
96		8177	(HL/EPA 531.1		ND CTK	ug/1	2.0	ì	
96		8177	{ HL/EPA 531.1		מא	ug/1	2.0	ī	
96		8177	(ML/EPA 531.1		KD.	ug/1	1.0	1	•
96	96	8177	(ML/EPA 531.1) Oxamyl (Vydate)	מא '	ug/1	2.0	1	
			(Surrogate) BDMC	101	* Rec		-	
			Diquat an	d Paraguat					:-
96		8295	(HL/EPA 549) Diquat	370	ug/1	0.40	٠,	****
96	6	8295	(EPA 549) Paraquat	. מא	ug/l	2.0	1	9
			Herbicide	s by 515.1					
96	٠ ٦	8449	{ ML/EPA 515.1		מא	ug/1			
96	٠.	8449	(HL/EPA 515.1) 2,4,5-TP {Silvex}	מא	ug/1	0.20	1	٠ ١
96	•	8449	(HL/EPA,515.1		ND ND	ug/l	0.10	1	
96	•	8449	(HL/EPA 515.1		מא	ug/1	2.0	1	,
9 6	6 4	B449 .	(HL/EPA 515.1) Dichlosprop	ND	ug/1	0.50	_	<u></u>
) 6	•	5449	(KL/EFA 515.1) Acifluories (qualicative)	מא	ug/1		1	
) 6		1449	(KL/EPA 515.1		מא,	ug/1 ug/1	0.20 6.56	1	···· .
6		1449	(ML/BPA 515.1) Dalapon (qualicative)	י מא	ug/1	1.0		•
16		1445) 3,5-Dichlorobenzoic acid	. פוא	ug/1	0.60	1	. –
6	-	1449	(KL/EPA 515.1		. מא	ug/1			
•	• •	445 .	(KL/EFA 515.1) Dicamba) NO	=		_	
•	• •	1445 .			•	•			49/1 0.20

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Prepared	Analyzed	QC Batch#	Method Analyte	Result	Units ,	KOL	Dilucion	
04/09/96	04/12/96	48449	(ML/EPA S15.1) Dinoseb	פא	ug/l	0.20	• 1	
04/09/96	04/12/96	48449	(ML/EFA 515.1) Fentachlorophenol	כא	ug/l	0.040	1	
04/05/96	04/12/96	48449	(ML/EPA 515.1) Picloram	वार	ug/l	0.10	1.	
04/05/56	04/12/96	48449	(ML/EDA 515.1) 4-Nitrophenol (qualitative)	ИD	ug/l	5.0	1	
			(Surrogate) 2.4-Dichlorophenylacetic acid	74	t Rec			
	•		ICPMS Metals					
04/15/96	04/15/96	48333	(EPA/ML 200.8) Arsenic, Total, ICAP/MS	MD	ug/l .	5.0	1	
04/15/96	04/15/96	48333	(EPA/ML 200.8) Barium, Total, ICAP/MS	34D	ug/l '	10	1	
04/15/96	04/15/96	48333	(EPA/ML 200.8) Beryllium, Total, ICAP/HS	מא	ug/l	1.0	1	
04/15/96	04/15/96	46333	(EPA/NL 200.8) Cadmium, Total, ICAP/HS	מא	ug/l	0.50	1	
04/15/96	04/15/96	48333	(EPA/MS 200.8) Chromium, Total, ICAP/MS	11	ug/l	5.0	1	
04/15/96	04/15/96	48333	(EPA/ML 200.6) Copper, Total, ICAP/MS	מא	ug/l	50	1	
04/15/96	04/15/96	46333	(EPA/ML 200.8) Nickel, Total. ICAP/MS	24	ug/1	\$.0	1	
04/15/96	04/15/96	48333	(EPA/ML 200.8) Lead, Total. ICAP/MS	ND	ug/l	5.0	1	
04/15/96	04/15/96	48333	(EPA/MI, 200.6) Antimony, Total, ICAP/MS	MB	ug/l	2.0	1	
04/15/96	04/15/96	48333	(EPA/ML 200.8) Selenium, Total, ICAP/MS	ND	ug/1	5.0	1	
04/15/96	04/15/96	48333	(EPA/ML 200.8) Thallium, Total, ICAP/MS	. ND	ug/1	1.0	<u> </u>	
		•	Nitrate by IC as NO3 & N					
	04/04/36	48131	(EPA/HL 300.0) Hitrate-H by IC	0.2	mg/l	0.10	1	
	04/04/96	48131	(ML/EPA 300) Nitrate	. 0.88	mg/l	0,44	1	
			SDWA Pesticides					
04/08/96	04/21/96	48584	{ HL/EPA 508 ' } PCB 1016 Aroclor	מא	ug/l	0.10	1	
04/08/96	04/21/96	48584	(MC/EPA 508) PCB 1221 Arcelor	מא	ug/1	0.10	1	
04/02/96	04/21/96	48584	(HL/EPA 508) PCB 1232 Aroclor	כזג	#2/I	0.20	1	
04/08/96	04/21/96	48584	(ML/EPA 508) PCB 1242 Aroclor	מא	ug/l	0.10	1	
04/08/96	04/21/96	48584	(ML/EPA 508) PCB 1248 Aroclor	מוג	ug/1	0.10	1	
04/08/96	04/21/96	48584	(NL/E7A 508) PCB 1254 Aroclor	OK	ug/1	0.10	1	
04/08/96	04/21/96	48584	(ML/EPA 508) PCB 1260 Aroclor	113	ug/l	0.10	1	
04/08/96	04/21/96	42584	(ML/EPA SOE) Alpha-BEC	ND.	ug/l	8.010	1	
04/08/96	04/21/96	48584	(ML/BPA 508 ·) Alachlor (Alanex)	מא	ug/1	0.050	1	
04/08/96	04/21/96	48584	(KC/EPA 508) Aldrin	HD	ug/1	0.010	1	
04/02/96	04/21/96	48584	(ML/EPA SOR) Betz-BEC	כא	ug/l	0.010	I	
04/01/96	04/21/96	48584	(ML/EFA 508) Chlordane	מא	ug/1	0.10	1	



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Prepared	Analyzed	QC Bacch#	Hethod	Amalyte	Result .	Thits	KDL	Dilucion
04/08/96	04/21/96	48584	(HL/EPA 508)	Chlorthalonil (Drconil, Bravo)	ND	ug/l	0.010	1
04/08/96	04/21/96	48584	(HL/EPA 508)	Delta-BEC	כוא	ug/1	0.010	1
04/08/96	04/21/96	48584	(HL/EPA 508)	מממ יק, ק	מא	ug/l	0.010	1
04/08/36	04/21/96	48584	(HL/EPA 508)	ספת יק,ק	סא	ug/1	0.010	1 -
04/08/96	04/21/96	48584	(HL/EPA 508)	ים, סכד יים, סכד	מא	ug/1	0.010	1
04/08/96	04/21/96	48584	(ML/EFA 508)	Dieldrin	מא	49/1	0.010	1
4/08/96	04/21/96	48584	(ML/EPA 508)	Endrin Aldebyde	מא	ug/l	0.010	1
14/08/96	04/21/96	48584	(HL/EPA 508)	Endrin	ND	ug/l	0.010	1
34/08/96	04/21/96	48584	(HL/EPA 508)	Endosulfan I (alpha)	מא	ug/1	0.010	1 .
4/08/96	04/21/96	48584	(HL/EPA 508)	Endosulfan II (beta)	סא	ug/1	0.010	1
4/08/96	04/21/96	48584	(HL/EPA 508)	Endosulfan sulfate	NO	ug/l	0.010	1 -
36/80/4	04/21/96	48584	(HL/EPA 508)	Heptichion	מא	ug/1	0.010	1
04/08/96	04/21/96	48584	(ML/EPA 508)	Heptachlor Epoxide	ND	ug/1	0.010	1
04/08/96	04/21/96	48584	(HL/EPA 508)	Lindane (gamma-BHC)	ND	ug/1	0.010	1 . ~
4/08/36	04/21/96	48584	(HL/EPA 508)	Hechoxychlor	ND	ug/1	0.050	1
4/08/96	04/21/96	48584	(HL/LPA 508)	Toxaphone), CDI	ug/l	0.50	1 ~
			(Surrogate)	Dibutyl Chlorendate .	128	¥ Rec		
			(Surrogate ')	Tetrachlorometaxylene	116	¥ Rec	·	- المانية المانية المانية المانية المانية المانية المانية المانية المانية المانية المانية المانية المانية المانية
			Volatile O	rganic Compounds				
	04/10/96	48288 .	(HL/EPA 502.2)	1,1,1,2-Tetrachloroethane	מא	ug/1	0.50	1
	04/10/96	46288	(ML/ZPA 502.2)	1,1,1-Trichloroethane	מא	ug/1	0.50	1
	04/10/96	48268	(HL/EPA 502.2)	1,1,2,2-Tetrachloroethane	מא	ug/l	0.50	1
	04/10/96	48286	(HL/EPA 502.2)	1.1.2-Trichlordechane	מא	ug/l	0.50	1
	04/10/96	48286	(HL/EPA 502.2)	1,1-Dichloroschane	בוא	ug/1	0.50	1 -
	04/10/96	48288	(ML/RPA 502.2)	1,1-Dichloroethere	, MD	49/1	0.50	1
	04/10/96	48268	(ML/EPA 502.2)	1,1-Dichloropropene	3423	ug/l	0.50	1.
	04/10/96	48288	(HL/EPA 502.2)	1,2,3-Trichloropropane	מא	· ug/l	0.50	1
	04/10/96	48284	(HCL/EPA 502.2)	1,2.3-Trichlorobensene	. ND	ug/l	0.50	1
	04/10/96	42268	(ML/EPA 502.2)	1,2,4-Trichlorobenzene	NO	ug/1	0.50	1
	04/10/96	48288	(HL/EPA 502.2)	1,2,4-Trinethylbensene	. 200	ug/1	0.50	1
	04/10/96	48288	(HL/EPA 502.2)	1,2-Dichloroethane	מא	ug/l	0.50	1
	04/10/96	48288	(HEL/EPA 502.2)	1.2-Dichlorobenzene	100	ug/1	0.50	1 .
	04/10/96	41288	•	1,2-Dichloropropane	ND	ug/1	0.50	ı · -
	04/10/96	48286	•	1.3.5-Trimethylbensene	מאֹב .	ug/1	0.50	1 ,-
					•	-		



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Prepared	Analyzed	QC Bacch#	Hechod	Analyte	Result	Vaits	MDL	Dilution
	04/10/96	48288	(HL/EPA 502.2) 1,3-Dichloropropane	מא	ug/l	0.50	1
	04/10/96	48288	(ML/EPA 502.2) 1,4-Dichlorobenzene	ND	ug/l	0.50	1
	04/10/96	48288	(ML/EPA 502.2	} 2,2-Dichloropropane	מא	ug/l	0.50	1
	04/10/96	48288	(ML/EPA 502.2) 2-Chlorecoluene	. מא	ug/l	0.50	1
	04/10/96	48288	(ML/EPA 502.2	} 4-Chlorocoluene	ND	ug/l	0.50	1
	04/10/96	48288	(HL/EPA 502.2	} Bronodichloromethane	MD	ug/l	0.50	1
	04/10/96	48288	(ML/EPA 502.2) Benzene	מא	na\J	0.50	1
	04/10/96	48288	(HL/EPA 502.2) Brosobenzene	ND	ug/l	0.50	1
	04/10/96	48286	(ML/EPA 502.2) Brosochloromethane	. כא	ug/2	0.50	1 .
	04/10/96	48288	(ML/EPA 502.2) Bromomethane .	ND	ug/1	0.50	1
	04/10/96	48288	{ ML/E7A 502.2) cis-1,2-Dichloroechene	מא	ug/1	0.50	1
	04/10/96	48288	(HL/EPA 502.2) Chlorobenzana	MD	ug/1	0.50	1
•	04/10/96	48288	(ML/EPA 502.2) Carbon tetrachloride	מא	ug/l	0.50	1
	04/10/96	48288	(ML/EPA 502.2) cis-1,3-Dichloropropese	MD	ug/l	0.50	1
	04/10/96	46288	(ML/EPA 502.2) Bromoform	ЖD	ug/l	0.50	1
	04/10/96	48288	(ML/EPA 502.2) Chloroform	ио	ug/l	0.50	1
	04/10/96	48288	(HL/EPA 502.2) Chloroethane	ND	ug/l	0.50	1
	04/10/96	48288	(HL/EPA 502.2) Chloromechane	מא	ug/l	0.50	1 '
	04/10/96	48286	(ML/EPA 502.2) Dibromochloromechane	MD	ug/l	0.50	1
	04/10/96	48288	(ML/EPA 502.2) 1,2-Dibromo-3-chloropropene	. כא	ug/1	1.0	1
	04/10/96	48288	(ML/EPA 502.2) Dibromomechane	ND	ug/l	0.50	1
	04/10/96	48286	(ML/EPA 502.2) Dichlorodifluoromechane	жD	ug/l	0.50	1
	04/10/96	48285	(ML/EFA 502.2) 1,2-Dibronoethane	ָ מא	ug/1	0.50	1
	04/10/96	48288	(ML/EPA 502.2) Ethylbenzene	MD	ug/l	0.50	1
	04/10/96	48288	(ML/EPA 502.2) Hexachlorobutadiese	מא	ug/1	0.50	1
	04/10/96	48288	(ML/EPA 502.2) Isopropylbenzene	מא	ug/1	0.50	1
	04/10/96	48288	(ML/EPA 502.2	} Methylene thloride	מא	ug/1	0.50	1
	04/10/96	48288	(HL/EPA 502.2	} m+p-Xylenes	ЖD	ug/1	0.50	1
	04/20/96	48288	(HL/EPA 502.2) Naphuhelene	מא	ug/l	0.50	1
	04/10/96	48288	(HCL/EPA 502.2	•	ИD	ug/1	0.50	1
	04/20/96	48288	(ML/EPA 502.2) n-Propylbenzene	מא	ug/l	. 0.50	1
	04/10/96	46288	(ML/BPA 502.2	•	ΧD	ug/1	0.50	1
	04/10/96	48288.		} Tetrachloroethene	מא	ug/1	0.50	1
	04/10/96	48288	-	} p-Isopropyltoluene	ЯD	ug/l	0.50	1 .
	04/10/96	48288) sec-Butylbenzene	מא	44\J	0.50	1 .
	04/10/96	48288	(ML/EFA 502.2) Styrene	ИD	ug/l	0.50	1



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Kauai Water Department (continued)

pared	Analyzed	QC Batch#	Herbod		Analyte	Result	Units .	MDL	Dil	lue
	04/10/96	48288	(HL/EPA 502.2)	trans-1,2-Dichloroethene .	, מא	ug/1	0.50	1	
	04/10/96	48288	(ML/EPA 502.2)	tert-Butylbenzene	מא	ug/1	0.50	1	_
	04/10/96	46286	(HL/EPA 502.2)	Trichloroethene	מא	ug/1	0.50	1	
	04/10/96	48288	(HL/EPA 524.2	1	Trichlorotrifluoroethane (Freen	מא	ug/1	0.50	1	
	04/10/96	48288	(HL/EPA 502.2)	trans-1,3-Dichloropropene	מא	ug/1	0.50	1	
	04/10/96	48288	(ML/EFA 502.2)	Toluese	ND	ug/1	0.50	1	
	04/10/96	48288	(ML/EPA 502.2)	Trichlorofluoromethane	מא	ug/1	0.50	ī	
	04/10/96	48288	(ML/EPA 502.2)	Vinyl chloride .	ND	ug/l	0.30	1	
			(Surrogate)	Bromofluorobenzene-ELCD	86	* Rec	7.20	•	_
			(Surrogate)	Bromofluorobenzene-PID	96	₹ Rec			
			(Surrogate)	Chlorofluorobenzene-ELCD	92	* Rec			•
			(Surrogate	}	Chlorofluorobenzene-PID	99	* Rec			_

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Kauai Water Department

	QC Batch #48032	Mercur	Y .			
QC	Analyte	Spiked	Recovered	Averg (#)	Limits (%)	RPD (%)
rc21	Xercury	1.50	1.55	103.333	(85.00 - 115.00)	
LC51	Xercury	1.50	1.51	100.667	(85.00 - 115.00)	2.6
MBLE	Nescury	מונ				
X.S	Mercury .	1.50	1.62	108.000	(80.00 - 120.00)	
жsэ	Xercury	1.50	1.53	108.667	(80.00 - 120.00 }	0.62
	QC Batch #48094	Fluori	.đe			
QC	Amalyta	Spiked	Recovered	ATeld (#)	Limits (%)	RPD (%)
LCSL	Fluorida	0.27	0.85	37.701	(90.00 - 110.00 }	
LCS2	Fluoride .	0.87	0.89	102.259	(90.00 - 110.00 }	4.5
MBLE	Fluorid e	3400	•			
MS	Fluoride	0.909	1.00	110.611	(80.00 - 120.00)	•
CZK	Fluoride .	0.909	1.01	111.111	(80.00 - 120.00)	1.00
	QC Batch #48117	Nitrit	e, Nitro	ogen by	IC	
'dc	Amalyta	Spiked	Recovered	Avelq (#)	Fimits (*)	RPD (%)
LCS1	Mitrite, Mitrogen by IC	1.0	0.52	92.000	(90.00 - 110.00)	
LCS2	Mitrite, Mitrogen by IC	1.0	0.91	91.000	(50.00 - 110.00)	. 1-1
MILE	Mitrite, Mitrogen by IC	מע				
X5	Mitrite, Mitrogen by IC	1.0	0.95	95.000	(80.00 - 120.00)	
, x20	Mitrita, Mitrogan by IC	1.0	0.95	95.000	(80.00 - 120.00)	. 0.00
	QC Batch #48121	Nitrit	e, Nitro	ogen by	IC	•
QC	Analyce	.Spiked	Recovered	ATeld (#)	Limits (%)	RPD (%)
rcsı	Mitmite, Mitrogen by IC	1.0	0.91	91.000	(90.00 - 110.00)	
1.032	Mitrita, Mitrogen by IC	1.0	0.93	93.000	(90.00 - 110.00)	2.2
MRLT	Mitrite, Mitrogen by IC)ED				-
X.S	Mitmite, Mitmogen by IC	1.0	0.11	\$1.000	(80.00 - 120.00)	
MSD	Mitrite, Mitrogen by IC	1.0	0.81	81.000	(80.00 - 120.00)	0.00
	•					



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Kauai Water Department (continued)

	QC Batch #48129	Nitrat	e by IC	as NO3	& N ,	
QC.	Amalyte	Spiked	Recovered	Tield (%)	Limits (%)	RPD (%)
XBLX	Hitzate	ЖD				
LCS1	Mitrata-H	2.5	2.46	98.400	{ 90.00 - 110.00 }	
LCSZ	Bitrate-H	2.5	2.46	9E.40G	(30.00 - 110.00)	00.00
ЖS	Hitrate-H	2.5	2.47	98.800	(75.00 - 125.00)	
מצא	Mitrata-N	2.5	2.49	99.500	{ 75.00 - 125.00 }	0.81
•	QC Batch #48131	Nitrat	e by IC	as NO3	& N	
٥٥	Analyte	Spiked	Recovered	Tield (%)	Limits (%)	(ז) מעק
XBLE	Nitrata	פע				
LCS1	Nitrate-N	2.5	2.46	98.400	(90.00 - 110.00)	
LCS2	Nitrata-N	2.5	2.47	98.800	(90.00 - 110.00 }	0.41
жэ	Hitrata-M	2.5	2.68	107.200	(75.00 - 125.00)	•
KSD	Nitrate-H	. 2-2	2.66	106.400	(75.00 - 125.00)	0.75
	QC Batch #48177	Aldica	ırbs	•		
gc	Analyta	Spiked	Recovered	Tield (%)	Limits (%)	32D (%)
LCSI	3-Hydroxycarbofuran	20.0	18.4	92.000	(85.00 - 120.00.)	
MBLE	1-Hydroxycarbofuran	360				
KS	3-Hydroxycarbofuran	20.0	19.3	96.500	(70.00 - 130.00)	
LCS1	Aldicarb (Temik)	20.0	20.7	103.500	(83.00 - 115.00)	
MBLX	Aldicarb (Tamik)	100				
×s	Aldicarb (Tamik)	20.0	19.8	. 99.000	' [70.00 - 130.00]	
LCS1	Aldicarb sulfone	20.0	19.4	97.000	(84.00 - 128.00)	
MBLX	Aldicarb solions	200				
KS	Aldicarb sulfone	20.0	18.8	94.000	{ 60.00 - 130.00 }	
1651	Aldicarb sulforide	20.0	11.5	34.500	(85.00 - 138.00)	
MBLE	Aldicarb sulfoxida	300				
1CS .	Aldicarb sulforide "	20.0	18.8	94.000	(70.00 - 130.00 }	
101	Baygon	20.0	20.6	203.000	(85.00 - 115.00 }·	
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Kauai Water Department (continued)

•	•	XD				
HSLK	Baygon	20.0	19.0	95.000	(70.00 - 130.00)	
XS	Baygon	20.0	17.2	86.000	('85.00 - 119.00)	
rc21	· Carbaryl	מא	2			
HBLK	Carbaryl .	20.0	21.1	105.500	(70.00 - 130.00)	
KS	Carbaryl Carbofuran (Furadan)	20.0	20.4	102.000	(85.00 - 115.00)	
LCS1		מא				
XJEH	Carbofuran (Furadan)	20.0	18.7	93.500	(70.00 - 130.00 }	
HS	Carbofuran (Furadan)	20.0	16.9	84.500 .	(70.00 - 136.00)	
LCSI	Methiocarb	ND	2010	•	•	
HBLK	Mechiocarb	20.0	19.1	95.500	(70.00 - 130.00)	
KS	Methiocarb	20.0	20.1	100-500	(85.00 - 115.00 }	
LCS1	Mechomyl	מא	20.2			
HBLK	Mechomyl .	20.0	18.7	93.500	(70.00 - 130.00)	
HS.	Methomyl	20.0	17.8	B9.000	(85.00 - 115.00)	
LCS1	Oxamyl (Vydate)	20.0 ND		مرمر ه		
HBLX	Oxamyl (Vydate)	•	18.2	91.000	(70.00 - 130.00)	
MS	Oxamyl (Vydace)	20.0	18.2	•••	, , , , , , , , , , , , , , , , , , , ,	
	QC Batch #48285	Spiked	m, Tota:	Yield (%)	Limita (%)	RPD (%)
gc	. Analyte Calcium, Total, ICAP	50	47.7	95-400	(50.00 - 110.00)	•
LC51	Calcium, Total, ICAP	50	49.7	59.400	(50.00 - 110.00)	4.1
LCS2	Calcium, Total, ICAP	ND	•			
MBLE	Calcium, Total, ICAP	50	47.8	95.600	(80.00 - 120.00)	
345	Calcium, Total, ICAP	50	48.9	97.800	(80.00 - 120.00)	2.3
XSD	Calcium, Total, ICAP	30				
				•	-	
	QC Batch #48288	Volati	ile Ozga	nic Comp	ounds	
QC	Analyta	Spiked	Zecove==4d	Ateld (#)	Limits (%)	752 (A)
XOLE	1,1,1,2-Tetrachloroethane	מצנ	•			•
LC31	1,1,1-Trichloroschens	4.0	4.0	100.000	{100.00 - 120.00 }	
LCSZ	1,1,1-Trichloroethene	4.0	3.9 .	97.500	(100.00 - 120.00)	2.5
MILE	1,1,1-Trichloroethene	3 00			•	
YELE.	1,1,2,2-Tetrachloroethane)				
MELE	1,1,2-Trichlorosthene	x :				
	•					

Spikes which exceed Limits and Mathod Blanks with positive results are highlighted by <u>Boderlining.</u>

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Kauai Water Department (continued)

	.	מזא					
HBLK	1,1-pichloroethane	פא					
MBLX	1,1-Dichloroechene	מא			<u>.</u> .		
HBLK	1,1-Dichloropropens	· 4.0	3.7	92.500	(80.00 - 120.00)		
LCS1	1.2,3-Trichlorobenzene	4.0	3.9	37.500	(80.00 - 120.00)	5.3	
LCS2	1,2,3-Trichlorobenzene	ND.	217				
MBLK	1.1,3-Trichlorobenzene	מא					
HELK	1,2,3-Trichloropropane	•					
HELK	1,2,4-Trichlorobenzene	ם מא					
MBLK	1,2,4-Trimechylbenzene						_
KBLK	1,2-pichlorobenzens	. ж					,
Merk	1,2-Dichloroethane	ND					i -
₩ BLK	1,2-Dichloropropane	סוג			•		
MBLK	1,3,5-Trimethylbensene	מא					-
MBLK	1,3-Dichlorobenzens	HD.					•
MELK	1,3-pichloropropane	HD					
HBLK	1,4-Dichlorobenzene	, מא					
MBLK	2,2-Dichloropropane	שא					
HBLX	2-Chlorotolueze	ЖD					1
HBLK	4-Chlorocoluene	מא		95.000	(80.80 - 120.00)		* 1
LCS1	Benzene	4.0	3.8	97.500	(80.00 - 120.00)	2.6	-
LCS2	Benzene .	4.0	3.9	97.300	, ,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,		
MBLK	Beniene	מא				•	
KSLK	Bromobenzene	HD					-
HBLK	Bromochloromethane	םא			{ 80.00 - 120.00 }	•	
LCSI	Brosodichlorosethane	4.0	3.6	90.000	(80.00 - 120.00)	2.8	
LCS2	Brosodichlorosethane	4.0	3.5	87.500	(80.00	-	-
MBLK	Bromodichloromethane) TO			(80.00 - 120.00 }	•	
LCS1	Bromoform	4.0	3.6	90.000	(80.00 - 120.00)	13	-
LCS2	Bromoform ·	4.0	4.1	102.500	(20.00 - 22200)		_
HELK	Bromoform	, מא					
KBLK	Bromomethane)AE			. (80.00 - 120.00)		-
LCSI	Carbon tetrachloride	4.0	3.8	95.000	(80.00 - 120.00)	2.6	
LCS2	Carbon tetrachloride	. 4.0	3.9	97.500	(80.00 - 120.00)		•
MELK	Carbon tetrachloride	פונ					_
MBLX	Chlorobenzene .	知	٠.				
XELK	C-loroechane	300	_				
LCSI	· Chloroform	4.0	3.6	95.000	(80.00 - 120.00)	0.00	
rcsa	· · charoform	4.0	. 3.8	95.000	(20.00 - 120.00)		-
			•			•	

Spikes which exceed Limits and Hethod Blanks with positive results are highlighted by Underlining.

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Kauai Water Department (continued)

HELK	Chloroform	מא				
MILK	Chloromethans	מא				
LCSI	Dibromochloromethane	4.0	3.6	•• •••		
LCSZ	Dibrosochloromethene	4.0	4.0	90.000	(80.00 - 120.00)	
MBLK	Dibromochloromethane	מא	7.0	100.000	(80.00 - 120.00)	11
MBLK	Dibromomerbane .	מזא				
MILK	Dichlorodifluoromethane	סא				
HBLK	Echylbenzene	מא				
MBLK	Mexachlorobucadiene	מוא				
LCS1	Isopropylbenzene	4.0	3.7	92.500	•	
LC52	Isopropylbenzene	4.0	3.8	92.500	(80.00 - 120.00)	•
MBLK	Isopropylbenzene	ND		93.000	(80.00 - 120.00)	2.7
HBLK	Methylene chloride.	ND				
HDLK	Naphchalene	מא				
Halk	Styrene	כא				
LCS1	Tetrachloroethene	4.0	3.8	95.000		•
LC52	Tetrachlorosthens	4.0	3.9	97.500	(80.00 - 120.00)	
HBLK	Tetrachloroethene	מזג		77.300	(80.00 - 120.00)	2.6
MBLK	Toluene	מא			•	
LCS1	Trichloroethene	4.0	3.6	90.000		
rc23	Trichloroethene	4.0	3.7	92.500	(80.00 - 120.00)	
HBLK	Trichloroethene	מא		22.300	(80.00 - 120.00)	2.7
HELK	Trichlorofluoromechane	ND			•	
HBLK	Trichlorotrifluoroethane (Preon	ND				•
HELK	Vinyl chloride	מא				
MBLX	cis-1,2-Dichloroethene	ND				
MBLK	cis-1,3-Dichloropropece	מא		•		
HBLK	m+p-Xylenes	מא	•			•
HBLK	n-Butylbenzone	מא				
MILK	n-propylbenzene	כא י				
MBLK	o-Tylene	מא			•	
MBLX	p-Isopropylcoluene	מא				
LCS1	sec-Bucylbenzene ·	4.0	3. 6	90.000	(80.00 - 120.00)	
rcz s	sec-Bucylbenzene	4.0	3.7	32. 500	(50.00 - 120.00)	
HBLK . HBLK	sec-Bucylbenzene	מא			. 22.00 - 120.00)	2.7
LCS1	tert-Burylbenzene	סא				
rc21	trans-1,2-Dichloroethene	4.0	3.8	95.00 0	(\$0.00 - 120.00)	
يدعة	trans-1,2-Dichloroethene .	4.0	3.9	97.500	(80.00 - 120.00)	
	•				· AAU.UU)	2.6



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MBLK	trans-1,2	-Dichloroethene	כא					
MELX		-Dichloropropena	מא					
		•				•		
	QC Batch	1 _. #48295	Diqua	t and Pa	raquat			
QC	Analyte		Spiked	Recovered	• • • • • • • • • • • • • • • • • • • •			
LCS1	Diquet	•	10.0	3.85	Tield (%)	Limits (%)	RPD (%)	
HILK	Diquat		מא	3.85	98.500	{ 70.00 - 130.00 }		
MS	Diquet		10.0	10.8				
rcar	Paraquat		10.0	3.82	108.000	(70.00 - 130.00)		
HBLK	Paraquat		, 10	3.04	98.200	(70.00 - 130.00)		
KS	Paraquat		10.0	10.3	103.000	(70.00 - 130.00)		
	•	•	•					
	QC Batch	#48296	Endoth	nall '				
QC	Azelyte		Spiked	Recovered	W4 - 1 - 3 - 3 - 5		•	
LCSL	Endothall		25	22.5	Yield (%)	Limits (%)	RPD (%)	
HELE	Endothall		. כה		50.000	(58.00 - 137.00)		
KS	Endothall		25	21.0				
•	•				84.000	(63.00 - 126.00)		.:•
	QC Batch	#48307	Glypho					
			GIADUO	Bace				•
QC	Amalyca	•	Spiked	Recovered	Tield (%)	Limits (%)		
LCS1	Glyphosate		50	49.5	99.000	(70.00 - 130.00)	RPD (%)	
MILE	Clyphosate		3 53			1 70.00 - 230.00 }		
XS	Glyphosate		50	46.0	92.000	(70.00 - 130.00)		
	00 5		•				•	
	QC Batch	#48303	Glypho	sate				
QC	Analyta		Spikad	Recovered	rield (%)	Limits (%)		
LC31	Glyphosate		50	49.5	33.000	(70.00 - 130.00)	23D (F)	
XBLE	Glyphosate		300	-	23.1300	130.00)		
XS	Glyphosata	•	50	46.4	12.800			
••		•				(70.00 - 130.00)		•
		• • '						
	,			•		•		
	•	•	-			•		.1
					_			5
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sı	pikes which exc	eed Limits and Meth	od Blanks with	positive re	sults are his	phighted by <u>Underling</u>		
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Kauai Water Department (continued)

	'QC Batch #48328	Cyani	de .			
QC	Analyte	Spiked	Recovered	Tield (%)	Limits (%).	RPD (%)
LCSI	Cyanida	0.10	0.0968	96.200	(90.00 - 110.00)	
MBLX	Cyanid.	מע			·	
XS	Chantqe	0.10	0.0912	91.200	(80.00 - 120.00)	
KSD	Cyanida	. 0.10	0.0915	91.500	(80.00 - 120.00)	0.33
	QC Batch #48333	ICPMS	Metals			
QC	Analyta	Spiked	Recovered	Tield (%)	Limits (%)	(ג) מעג
LCS1	Antimony, Total, ICAP/MS	50	45.5	31.800	(85.00 - 115.00)	
MBLE	Antimony, Total, ICAP/MS	פוג		0.000		
LCSI	Arsenic, Total, ICAP/HS	20	19.7	98.500	(85.00 - 115.00)	
MELT	Arsenic, Total, ICAP/KS	3 40		0.000		
rcar	Barium, Total, ICAP/MS	100	100.	100.000	(85.00 - 115.00)	
)CBLX	Barium, Total, ICAP/MS	300		0.000		
rczi	· Beryllium, Total, ICAP/MS	5	4.95	33.000	(85.00 - 115.00)	
MBLE	Beryllium, Total, ICAP/KS	3400		0.000		
LCS1	Cadmium, Total, ICAP/MS	20	20:0	100.000	(85.00 - 115.00)	
Merk	· Cadmium, Total, ICAF/KI	202		0.000		
LC31	Chromium, Total, ICAP/MS	100	58.7	58.700	(85.00 - 115.00)	
XII IX	Chromium, Total, ICAP/MS	370		0.000		•
rcar	Copper, Total, ICAP/KS	100	78.4	98.400	(85.00 - 115.00)	
MBLX	Copper, Total, ICAP/MS	300		0.000		
rc21	Lead, Total, ICAP/MS	20	20.5	102.500	(\$5.00 - 115.00)	
KHLE	Lead, Total, ICAP/HS	` 30 0	٠.	0.000		
LC31	Mickel, Total, ICAP/MS	50	48.7	97.400	(85.00 - 115.00)	
XBLX	Mickel, Total, ICAP/MS	. ;æ		0.000	•	
LCSI	Selenium, Total, ICAF/KS	20	18.1	50.500	(85.00 - 115.00)	
XBLX	Selenium, Total, ICAP/MS	200		0.000		
LCSI	Theilitm, Total, ICXP/XS	20	19.7	98.500	(85.00 - 115.00)	
MOLE	Thellium, Total, ICAP/MS	203		0.000	• •	



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Kauai Water Department (continued)

(QC Batch #48362	525 Se	mivolati	iles by	GC/MS	
ac	Analyta	Spiked	Recovered	Ileld (#)	Finita (%)	(א) מעג
LCS1	Acanaphthylane	2	2.05	102.500	(70.00 - 130.00)	
KBLX	Acensphubylene	NII				
жs	Acenaphthylene	2	1.99	99.500	(70.00 - 130.00)	
LCSI	Alachlor	2	2.21	110.500	(70.00 - 130.00)	
KBLI	Alachlor	מא				
EX	Alachion	2	2.18	105.000	(70.00 - 130.00 }	
LCSL	Aldria	2	1.93	56.500	(70.00 - 130.00)	
XBLE	Aldrin	XΩ				
X.S	Aldrin	2	1.85	\$2.500	(70.00 - 130.00)	
LCSI	Anthracene	2	2.02	100.000	(70.00 - 130.00)	
KBLE	Anthracens	ND.				
XS	Anthracens	2	1.93	36.500	(70.00 - 130.00)	
LCSI	Atraxina	. 2	2.11	105.500	(70.00 - 130.00)	
XBLE	Atrasine	מא				
X.S	Atrasine	2	2.17	108.500	(70.00 - 130.00)	
LCSL	Benz (a) Anchracene	2	2.06	103.000	(70.00 - 130.00)	
MRLI	Benz (a) Anthracene	360				
XS.	Benr (a) Anthracens	2	1.92	96.000	(70.00 - 130.00)	
LCSL	Benzo(a) pyrane	2	1.97	\$8.500	(70.00 - 130.00)	
KRLK	Benzo (a) pyrene	3.00				
жз	Benzo (a) pyrane	2	1.72	86.000	(70.00 - 130.00)	
LCSI	Benzo (b) Fluoranthene	2	2.06	103.000	(70.00 - 130.00)	
XBLE	Benro (b) Fluoranthene	מא				•
X.S	Benzo (b) Fluoranthene	2	1.83	91.500	(70.00 - 130.00)	
rcsi	Benzo (g, h, i) Perylana	2 ,	1.46	73.000	(70.00 - 130.00)	
XBLX	Benzo (g,h,i) Perylene	320			••	
KI	Benzo (g, h, i) Perylana	· 2	1.38	69.000	(70.00 - 130.00)	
LCS1	Benzo (k) Fluoranthene	· 2	2.16	108.000	(70.00 - 130.00)	
XBLE	Benro (k) Fluoranthens	ж	•			
EX	Benzo (k) Fluoranthene	2	1.50	95.000	(70.00 - 130.00)	•
MILE	Bromacil	300		•		
MEX	Butachlor .	120				
LCSI	Butylbensylphthelate	2	2.41 .	120.500	(70.00 - 130.00)	



555 East Walnut Street Pasadena, California 31101 818 568 6400; Fax: 818 568 6324; 1 800 566 LABS (1 800 566 5227) Laboratory
QC Report
#26390

Kauai Water Department (continued)

MBLK	Butylbenzylphthalate	מא			
KS	Butylbenrylphthalate	2	2.19	109.500	(70.00 - 130.00)
LCS1	Caffeine	2	2.11	105,500	(70.00 - 130.00)
HELK	Caffeine -	ND		273,370	(70.00 - 110.00)
MS	Caffeine	2	2.11	105.500	(70.00 - 130.00)
LCS1	Chrysene	2	1.89	94.500	{ 70.00 - 130.00 }
MBLK	Chrysene	מא			1 70.00 - 130.00 }
MS	Chrysene	2	1.69	84.500	(70.00 - 130.00 }
LCS1	Di(2-Ethylhexyl)phthalate	2	2.25	112.500	(70.00 - 130.00)
MBLK	Di(Z-Ethylhexyl)phthalate	מא			1 10100 - 230.00 /
KS	Di(2-Ethylhexyl)phthalate	2	2.38	119.000	(70.00 - 130.00)
LCSI	Di-(2-Ethylhexyl)adipate	2	1.89	94.500	(70.00 - 130.00)
HBLK	Di-(2-Ethylhexyl)adipace	ND '			1 10101 - 250.00 /
MS.	Di-(2-Ethylhexyl)adipate	2	1.71	85.500	(70.00 - 130.00)
LCSI	Di-n-Butylphthalace	2	2.12	106.000	(70.00 - 130.00)
XIEK	Di-n-Bucylphthalate	иD	<u>0.</u> 31 <i>J</i>		, , , , , , , , , , , , , , , , , , , ,
KS.	Di-n-Bucylphchalace	2	2.07	103.500	(70.00 - 130.00)
MBLK	Diazinon	מא		•	
LCS1	Dibenz (a, h) Anthracene	2	1.72	86.000	(70.00 - 130.00)
MBLK	Diben=(a,h)Anthracene	מא			•
2.8	Dibenz (a, h) Anthracene	2	1.39	69.500	(70.00 - 130.00)
HBLK .	Dieldrin ·	ЖD			·
LCS1	Dischylphthalate .	2	2.25	112.500	(70.00 - 130.00)
KBLX	Diethylphthalate	פוא	_		·
MS	Diethylphthalate	2	2.11	105.500	(70.00 - 130.00)
MBLK	Dimethoace	מא			
LCS1	Dimechylphthalate	2	2.25	112.500	(70.00 - 130.00)
HBLK	Dimethylphthalate	ND			
H2	Dimerhylphchalare	2	2.03	101.500	(70.00 - 130.00)
LCS1	Endrin	. 2	2.40	120.000	(70.00 - 130.00)
HBLK	Endrin	ND			
MS	zndrin	2	2.12	106.000	(70.00 - 130.00)
HBLK LCS1	Pluorene	2	2.18	109.000	(70.00 - 130.00)
MS MS	Fluorene	בא			
LC51	Fluorene	. 2	2.07	103.500	(70.00 - 130.00)
HBLE	Heptachlor	2	1.87	93.500	(70.00 - 130.00)
HSLE .	Heptachlor	ХD			
ria	Reptachlor .	2	2.02	101.000	(70.00 - 130.00 }



555 East Walnut Street Pasadena, California 91101 818 568 6400; Pasa 818 568 6324; 1 800 566 LABS (1 800 566 5227) Laboratory QC Report #26390

Kauai Water Department (continued)

LCS1	Reptachlor Epoxide	2				
MBLX	Reptachlor Spoxide	XD XD	1.98	99.000	(70.00 - 130.00)	
HS.	Ecptachlor Epoxide				. \	
LCS1	Hexachlorobenzene	2	2.01	100.500	(70.00 - 130.00)	
MBLK	Hexachlorobenzene	2	1.81	90.500	(70.00 - 130.00)	
HS.	Hexachlorobenzene -	מא				•
LCS1	Hexachlorocyclopentadiene	2	1.84	92.000	(70.00 - 130.00)	_
HBLK	Hexachlorocyclopentadiene	2	1.89	94.500	(40.00 - 130.00)	_
KS	Rexachlorocyclopentadiene	מא				
LCS1		2	1.90	95.000	(40.00 - 130.00 }	
HBLK	Indeno(1,2,3,c,d)Pyrene	2	1.63	81.500	(70.00 - 130.00)	_
MS	Indeno(1,2,3,c,d)Pyrene	ND				
MBLK	Indeno(1,2,3,c,d)Pyrene	2	1.39	69.500	{ 70.00 - 130.00 }	• •
LCS1	Isophorone Lindane	ND	•			
'MBLK		2	2.04	102.000	(70.00 - 130.00)	
HS HS	Lindane · -	מא				• • •
•-	Lindane .	2	1.91	95.500	(70.00 - 130.00)	
LCS1	Methoxychlor	2	2.37	118.500	(70.00 - 130.00)	
MBLK	Methoxychlor	. ND			· ·	November 1
KS.	Methoxychlor	2	2.12	106.000	(70.00 - 230.00)	
HBLK	Metolachlor	מא			•	· —
MBLK	Mecribusin	פא				
LCS1	Molinace	2	2.20	110.000	(70.00 - 130.00)	\$-m-*
MBLK	Molinace	מא				• ••••
MS	Molinate ·	2	2.10	105.000	(70.00 - 130.00)	
LCS1	Pentachlorophenol	8	9.84	123.000	(70.00 - 130.00)	+- 1
MELK	Pencachlorophenol	מא			,	
KS	Pencachlorophenol	8	9.36	117.000	(70.00 - 130.00)	
LCS1	Phonanthrene	2	2.08	104.000	{ 70.00 - 130.00 }	*****
HELK	Phenanthrane	מא			230.00)	
24	Phenanthrene	· 2	2.08	104.000	(70.00 - 130.00)	£ 84-4
MBLX	Prometrym	ND				
MBLX	Propachlor	200			•	•
LCS1	Pyrene	2	2.29	114.500	(70.00 - 130.00)	
HBLK	Pyrene	כא			(70:00 - 130:00)	,
KS	Pyrese	2	2.32	116.000	/ 70 00 - 120 00 >	*****
LCS1	Simamine	2	2.27	113.500	(70.00 - 130.00) { 70.00 - 130.00 }	
MBLX	Simazine). NCD			(/0.00 - 130.00)	· Pades
MS	Simazine .	2	2.29	114.500	(70 00	
	•	_		*******	(70.00 - 130.00)	

. Spikes which exceed Limits and Method Blanks with positive results are highlighted by Underlining.

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525 East Wainut Street Pasadena, California 91101 818 568 6400; Fax: 818 568 6324; 1 800 566 LABS (1 800 566 5227)

Laboratory QC Report #26390

Kauai Water Department (continued)

	<u></u>						
LCS1		2	2.19	109.500	(76.00 - 130.00 }		
HBLX	Thiobencarb	מא			200100 /		
KS	Thiobencarb	2	2.10	105.000	(70.00 - 130.00)		
MBLX	Trifluralin	ND					
LCS1	alpha-Chlordane	2	2.03	101.500	(70.00 - 130.00)		
KELK	alpha-Chlordane	ND			1 / 1000 - 130100 /		•
HS	alpha-Chlordane	2	1.91	95.500	(70.00 - 130.00)		
LCSI	gamma-Chlordane ·	2	1.97	98.500	(70.00 - 130.00)		
HBLK	gamma-Chlordane	מא			1 1110 - 220.00 /		
HS	gamma-Chlordane	2	1.80	90.000	(70.00 - 130.00)		•
LCSI	trans-Nonachlor	2	1.87	93.500	(70.00 - 130.00)		
HBLK	trans-Nonachlor	ND			1 10100 - 130.00 ;		
MS	trans-Nonachlor	=	1.84	92.000	(70.00 - 130.00)		
		-			·		
	QC Batch #48379	AB180:	3 - EDB	and DBC	•		
QC	Analyte	Spikad	Recovered	Tield (%)	Limits (%)		
DUP	Dipromochlorobmobane. (DBCS)	מא	ND	12012 (4)	(0.00 - 20.00)	RPD (Y)	
LCSI	Dibromochioropropane (DECP)	0.10	0.09	50.000	(60.00 - 140.00)	•	٠.
FC33	Dibromochloropropane (DBCP)	0.10	0.09	90.000	(60.00 - 140.00)	•	
MILE	Dibromochlosopropens (DECP)	מזג		34444	(00.00 - 140.00)	0.00	
X3	Dibromochloropropane (DECP)	0.10	0.09	50.000	(60.00 - 140.00)		_
EGS	Ethylane Dibromide (EDB)	100	מזא	34,444	(0.00 - 20.00)		.=.
rcsi	Ethylene Dibromide (XDB)	0.10	0.10	100.000	(60.00 - 140.00)		
LC52	Tthylene Dibromide (XDB)	0.10	0.09	\$0.000	(60.00 - 140.00)		
MALE.	Ethylene Dibromide (EDB)	3400		241000	(40.00 - 140.50)	11	
KS	Ethylana Dibromida (EDB)	0.10	0.10	100.000	(60.00 - 140.00)	•	
	QC Batch #48449 .		• • •		•		
•	אר הפרכת אינסיים .	Eerbic	ides by	515.1			
66	Analyte	Spiked	Recovered	ATeld (#)	Linits (%)		
XBEX	2,4,5-T	303	- · · -			RFD (%)	
IC31	2.4.5-TP (511vex)	0.50	0.50	100.000	(67.00 - 120.00)		
LC32	2,4,5-TP (Silver)	0-50	XCA		(67.00 - 320.00)	•	_
MEETE	' 2,4,5-TP (Silvex)	300	•				•
×a .	2.4.5-32 (Silver) .	0-50	0.49	32.000	(42.00 - 226.00)		

Spikes which exceed Limits and Method Blanks with positive results are highlighted by Underliming.



555 East Walout Street Pasadens, California 91101 818 568 6400; Fax: 818 568 6224; 1 800 566 LABS (1 800 566 5227) Laboratory QC Report #26390

Kauai Water Department (continued)

	•	•				
rcsi	2,4-D	2.00	0.83	83.000	{ 72.00 - 127.00 }	
LCS2	2,4-D	1.00	HA		(72.00 - 127.00)	
HBLK .	2,4-D	מא				_
MS	2,4-D ·	1.00	0.77	77.000	(49.00 ~ 214.00)	
MBLK	2,4-DB	ND				_
MBLX	3.5-Dichlorobenzoic acid	מא				· -
MELK	4-Mitrophenol (qualitative)	מא				
MBLK	Acifluorien (qualitative)	ND			•	
LCS1	Bentaron ·	1.00	0.68	68.000	(75.00 - 134.00)	
LCS2	Bentaron	1.00	' na		(75.00 - 134.00)	
MBLK	Bencalon	מא				•••
MS	Bentaron	1.00	0.90	90.000	(70.00 - 170.00)	
MBLX	DCPA	ਬਲ				_
LCS1	Dalapon '(qualitative)	6.50	7.85	120.769	(40.00 - 160.00)	•
LCS2	Dalapon (qualitative)	6.50	NA		(40.00 ~ 160.00)	
MBLK	Dalapon (qualitative)	מא				
MS	Dalapon (qualitative)	6.50	7.67	118.000	(40.00 - 160.00)	
. LCS1	Dicamba	0.50	0.41	62.000	(38.00 - 232.00)	•••
LCS2	Dicamba	0.50	NA		(38.00 - 232.00)	<u>,</u>
MBLK	Dicamba	סא		•	•	
rs .	Dicamba	0.50	0.48	96.000	(38.00 - 232.00)	•
HELK	Dichlorprop	ИD				
LCS1	Dinoseb .	1.00	0.50	. 50.000	(0.00 - 85.00)	
LCS2	Dinoseb	1.00	NA	•	(0.00 - 85.00,)	
MBLK	Dinoseb	מא				•
MS	Dinoseb	1.00	0.49	49.000	(0.00 - 85.00)	_
LCS1	Pentachlorophenol '	0.50	0.29	58.000	(36.00 - 224.00)	
LC52	Pentachlorophenol	0.50	NA		(36.00 - 224.00)	_
MBLX	Pentachlorophenol	מא				
MS	Pencachlorophenol	0.50	0:40	. 60.000	. (36.00 - 224.00)	
LCS1	Picloram	0.50	0.37	74.000	(45.00 - 138.00)	•
LCS2	Picloran	0.50	NA.		(45.00 - 138.00)	~
HBLK	Picloram	. ' מו				-
2.4	Picloram	0.50	0.35	70.000	(45.00 - 138.00)	
				• •		

Spikes which exceed Limits and Method Blanks with positive results are highlighted by Underlining.



SSS East Walnut Street
Pasadeoa, California 91101
818 568 6400; Fast 818 568 6324;
1 800 566 LABS (1 800 566 5227)

Laboratory QC Report #26390

Kauai Water Department (continued)

Ç	C Batch #48584	SDWA E	esticid	les	, , t	
QC	Analyte	Spiked	Recovered	rield (%)	Limita (%)	R2D (%)
MBL K	Alachior (Alanex)	ЖD				
LCSL	Aldrin	0.050	0.015	30.000	(59.64 - 145.56)	
LCS2	Aldrin	0.050	ж		(53.64 - 145.56)	
HBLX	Aldrin	HD				
KS	Aldrin	0.050	0.032	£4,000	(75.56 - 142.71)	
MBLE	Alpha-BEC	ж				
MBLE	Chlordans	жo				
XBLX	Chlorthelonil (Droomil, Brave)	מא				
MILX	Delta-BEC .	300				
LCSL	Dieldrin	0.100.	0.105	105.000	(65.75 - 149.79)	
LCS2	Dieldrin	0.100	ХХ		(65.75 - 149.75 }	
MBLE	Dieldrin	מא		•		
KS	' Dieldrin	0.100	0.112	112.000	(77.36 - 141.57)	
KBLE	Endosulfan I (alpha)	200				
KBLK	Endosulfan II (beta)	300	•			
MBTE .	Endosulfan sulfata	מא				
LCS1	Endrin	0.100	0.123	123.000	(70.07 - 149.66)	
TC32	Indria	0.100	367		(70.07 - 149.56)	
Merk	Indrin	300				
XS	Kadrin	0.100	0.127	127.000	(86.46 - 138.80)	
XDLE	Indrin Aldebyde	פאנ				
ICS1	Garra-BHC (Lindana)	0.050	0.057	114.000	(81.57 - 148.43) .	
LCSZ	Germa-BEC (Lindana)	0.050	ND.		(81.57 - 148.43)	
MBLE	Gamma-BEC (Lindane)	700			•	
KS	Gamma-RHC (Lindane)	0.050 .	0.058	116.000	(88.58 - 141.42)	
rcsi	Reptachlor	0.050	0.021	42.000	(60.95 - 145.71 }	
rcss	Reptachlor	0.050	363.		(60.35 - 145.71)	
MILE	Reptachlor	300				
M4	Meptachlor	0.050	0.036	72.000	(78.23 - 146.04)	
Mark .	Meptachlor Epoxide	3433	•			
MBLX.	Methoxychlor	323				
MILE	PCM 1016 Arocior	20 0				
XBLI	PCB 1331 Aroclor	<u>ie:</u>				

Spikes which exceed limits and Method Blanks with positive results are highlighted by Underlining.



SSE East Walnut Street Pasadena, California 91101 818 558 6400; Fax: 818 568 6124; 1 800 568 LABS (1 800 566 5227) Laboratory QC Report #26390

Kauai Water Department (continued)

HELK	PC3 1232 Aroclor	מא	
MBLK	PCS 1242 Aroclor	אס	
MBLK	PCB 1248 Aroclor	HD .	
HBLX	PCB 1254 Aroclor .	מא	
MBLK	PCB 1260 Aroclor	סא	
MBLK.	Toxaphene	ND .	
KBLK	p.p' 000	иD	
HBLX	.b'b, bos	אם י	
LCS1	p,p, pp.	0.100 0.109 109.000 (37.03 - 169.44)	
LCS2	p,p' ססד	0.100 NA (17.03 - 169.44)	
Kelk	הים, מטי.	מא	
KS	p,p' por	0.100 0.117 117.000 (57.41 - 158.86)	

Spikes which exceed Limits and Method Blanks with positive results are highlighted by Underlining.

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WATER QUALITY ANALYSES

USGS Northwest Kilohana Well



ESS East Wainut Street
Peradena, California 51101
\$18 553 6400; Far: \$18 553 6324;
1 800 556 LABS (1 800 556 5227)

Laboratory Report

for

Kauai Water Department P.O. Box 1706

Lihue , HI 96766

Attention: Wayne Hinazumi Fax: (808) 245-5813

HDS Hillary Strayer

Report#: 25316



555 East Walnut Street Passidena, California 51101 818 558 6400: Fax: 818 558 6524; 1 800 556 LABS (1 800 556 5227) Report Comments #25316

Group Comments

Result for TCDD analysis submitted by Quanterra Environmenta l Services. (508) Sample analyzed following a continuing calibration std which failed high for endosulfan sulfate, methoxychlor and dibutyl chlorendate Surrogate. Reference QIR-GC-96-037.

Pace

1

Report Summary of positive results, PR25316

:		Result	MDL	UNITS
Analyzed	960131010 NORTHWEST KILOHAN	A		
72/27/96 72/15/96 71/31/96 72/07/96 71/31/96	Data Entry Chromium, Total, ICAP/MS Data Entry Di-n-Butylphthalate Nitrate	02/28/96 14 - 9 - w 02/01/96 0.6	.500	UGL UGL MGL
)1/31/96)2/10/96)2/07/96)2/05/96	Nitrate-N by IC :- Data Entry Data Entry Calcium, Flame AA	0.1 °-02/12/96 02/28/96, 19	1.000	MGL MGL



ESS East Walout Street Passidena, California \$1101 818 558 6400; Fast 818 568 6324; 1 800 556 LABS (1 800 556 5227) Laboratory Report #25316

Kauai Water Department Wayne Hinazumi P.O. Box 1706 Lihue , HI 96766

Samples Received 31-jan-1996 12:31:29

Prepared	Analyzed	QC Batch:	# Hethod	Analyte	Resul t	Units	HOL	Oilu	ıticn
DRIEWE	ST KILO	DEANA	(960131010)	Sampled on	01/30/96	-			
	02/05/96	45639) Calcium, Flame AA	. 19	mg/t	1.0	1	•
	02/13/96	46059	(HL/SH4500-CN	F) Cyanide	סא .	mg/l	0.025	1	
02/06/96	02/12/96	46026	(HL/EPA 548.1) Endothall	ND	ug/l	5.0	1	-
	02/06/96	45770	(EPA/ML 340.2) Fluoride	סא	mg/l	0.10	1	,
	02/05/96	45742	(ML/EPA 547) Glyphosate	סא	ug/l	6.0	1	,
02/12/96	02/12/96	45984	(EPA/HL 245.1) Hercury	NO	ug/l	0.50	1	
	01/31/96	45601	(ML/EPA 300.0) Mitrite, Mitrogen by IC	ND	mg/l	0.10	1	
02/02/96	02/09/96		(EPA 1613) 2,3,7,8 - TCDD	NO	PGL	0.62	1	
			525 Semiv	volatiles by GC/M	s				.
02/05/96	02/07/96	45867	(ML/EPA 525.2) 2,4-Dinitrotoluene	פא	ug/t	0.10	1	
02/05/96	02/07/96	45867) alpha-Chlordone	סא	ug/(0.050	1	
02/05/96	02/07/96	45867	(HL/EPA 525.2) Acenaphthylene	ИО	ug/l	0.10	1	
02/05/96	02/07/96	45867	(ML/EPA 525.2) Alachlor	NO	ug/l	0.050	1	
02/05/96	02/07/96	45867	(ML/EPA 525.2) Aldrin	HD.	ug/l	0.050	1	
02/05/96	02/07/96	45867	(ML/EPA 525.2) Anthracene	מא	-g/ t Ug/ t	0.020	i	
02/05/96	02/07/96	., 45867	(HL/EPA 525.2) Atrazine	ND ·	ug/l	0.050	1	
2/05/96	02/07/96	45847	(ML/EPA 525.2) Benz(a)Anthracene	מא	ug/l	0.050	1	
2/05/96	02/07/96	45867) Benzo(a)pyrene	ND	ug/l	0.020	1	
12/05/96	02/07/96	45867	(ML/EPA 525.2) Benzo(b)Fluoranthene	NO.	ug/l	0.020	1	,
2/05/96	02/07/96	45867	(HL/EPA 525.2) Benza(g,h,i)Perylene	ND	ug/l	0.050	1	:
2/05/96	02/07/96	45867	(HL/EPA 525.Z) Benzo(k)Fluoranthene	ND	ug/l	0.020	1	٠-
2/05/96	02/07/96	45867	(HL/EPA 525.Z) Di(2-Ethylhexyl)phthalate	e XO	ug/l	0.60	1	
2/05/96	02/07/96	45867	(HL/EPA 525.2) Butylbenzylphthalate	סא	ug/l	0.50		***
2/05/96	02/07/96	45867	(HL/EPA 525.2) Bromacil	NO	ug/l	2.0 ·	1	
2/05/96	02/07/96	45867	(HL/EPA 525.2) Butachlor	KD	ug/l	0.050	1	
2/05/96	02/07/96	45867	(HL/EPA 525.2) Caffeine	מא	ug/l	0.020	. 1	- ~-
2/05/96	02/07/96	45867	(HL/EPA 525.2) Chrysene	КD	ug/l	0.020	1	
	02/07/96	45867	(ML/EPA 525.2) Diberz(a,h)Anthracene	ОК	ug/(0.050		_
	02/07/96	45867	(ML/EPA 525.2) Di-(2-Ethylhexyl)adipate	סא	ug/l	0.60	1	
		45867 -	(HL/EPA 525.2) Diethylphthalate	OK			1	
2/05/96	02/07/96	45867	(HL/EPA 525.2) Dieldrin	NO .	ug/(ug/l	0.50 0.20 .	. 1	

Laboratory Report #25316

555 East Walnut Street Pasadena, California 51101 818 558 6400: Faz: 818 568 6124; 1 800 566 LABS (1 800 586 5227)

Kauai Water Department (continued)

repared	Analyzed	QC Batch#	Hethod Analyte	Result	Units	HOL	Dilution
2/05/96	02/07/96	45867	(ML/EPA 525.2) Dimethylphthalate	מא	ug/l	0.50	1
2/05/96	02/07/96	45867	(HL/EPA 525.2) Dimethcate	ND	ug/l	10	1
2/05/96	0,2/07/96	45867	(HL/EPA 525.2) Di-n-Butylphthalate	0.6	ug/l	0.50	1
2/05/96	02/07/96	45867	(ML/EPA 525.2) Endrin	פא	ug/l	0.10	*
2/05/96	02/07/96	45867	(ML/EPA 525.2) Fluorene	סא	ug/l	0.10	1
2/05/96	02/07/96	45867	(ML/EPA 525.2) gamma-Chlordane	מא	ug/l	0.050	1
2/05/96	02/07/96	45867	(HL/EPA 525.2) Hexachlorobenzene	םא	ug/l	0.050	1
2/05/96	02/07/96	45867	(ML/EPA 525.2) Hexachlorocyclopentadiene	ND	ug/l	0.050	1
2/05/96	02/07/96	45867	(ML/EPA 525.2) Heptachlor	מא	ug/l		1
2/05/96	02/07/96	45867	(HL/EPA 525.2) Heptachlor Epoxide	ND	ug/l	0,040	1
2/05/96	02/07/96	45867	(HL/EPA 525.2) Indeno(1,2,3,c,d)Pyrene	סא	ug/t ug/t	0.020	1
2/05/96	02/07/96	45867	(ML/EPA 525.2) Isophorone	ND	ug/t ug/t	0.050	1
2/05/96 .	02/07/96	45867	(ML/EPA 525.2) Lindane	סא	=	0.50	1
2/05/96	02/07/96	45867	(ML/EPA 525.2) Hethoxychlor	ND	ug/l	0.020	1
2/05/96	02/07/96	45867	(HL/EPA 525.2) Hetribuzin	פא	ug/(0.050	1
VQ5/96	02/07/96	45867	(HL/EPA 525.2) Holinate	מא	ug/l	0.050	1
/05/96	02/07/96	45867	(ML/EPA 525.2) Metolachion	HD	ug/(0.20	1
1/05/96	02/07/96	45867	(HL/EPA 525.2) trans-Nonachlor	סא	ug/l	0.050	1
/05/96	02/07/96	45867	(HL/EPA 525.2) Pentachlorophenol	סא	ug/l	0.050	1
/05/96	02/07/96	45867	(HL/EPA 525.2) Phenanthrene	מא סא	Ug/l	1.0	1 .
/05/96	02/07/96	45867 ·	(ML/EPA 525.2) Prometryn	ND ND	ug/l	0.020	1
/05/96	02/07/96	45867	(ML/EPA 525.2) Propachlor	אס סא	ug/l	0.50	1
/05/96	02/07/96	45867	(ML/EPA 525.2) Pyrene		ug/l	0.050	1
/05/96	02/07/96	45867	(ML/EPA 525.2) Simazine	HD	ug/l	0.050	1
/05/96	02/07/96	45867	(ML/EPA 525.2) Thiobencarb	ND ND	ug/l	0.050	1
/05/96	02/07/96	45867	(ML/EPA 525.2) Trifluralin	ND	ug/t	0.20	1
			(Surrogate) Perylene-d12	HD	ug/(0.10	1
		•	· · · · · · · · · · · · · · · · · · ·	102	≍ Res		
/23/96	60 107 101		AB1803 - EDB and DBCP				
723/96	02/27/96	, 46560	(ML/EPA 504) Dibromochloropropane (DBCP)	ND	ug/l	0.010	1
△/7 6	02/27/96	46560	(ML/EPA 504) Ethylene Dibromide (EDB)	סא	ug/l	0.010	1
			Aldicarbs				
	02/01/96	45562	(HL/EPA 531.1) 3-Hydroxycarbofuran	סא	11		
	02/01/96	45562	(HL/EPA 531.1) Aldicarb (Tenik)	סא	ug/l	2.0	1
	02/01/96	45562	(ML/EPA 531.1) Aldicarb sulfone		ug/l	0.50	1
			A manage adding	מא	ug/l	0.80	1



MONTGOMERY WATSON LABORATORIES

EFEAR Walnut Street
Pasadema, California 31101

818 558 6400; Fazz 818 568 6224;
1 800 556 LABS [1 800 556 5227]

Laboratory Report #25316

Kauai Water Department (continued)

.ebareq	Analyzed	GC Batch#	Method	Analyte	Result	Units	HOL	Dilution
	02/01/96	45562) Aldicarb sulfoxide	NO	ug/l	0.50	1
	02/01/96	45562	(HL/EPA 531.1) Baygon	ND	ug/l	Z.0	1
	02/01/96	45562	(ML/EPA 531.1) Carbofuran (Furadan)	מא	J\gu	0.90	1
	02/01/96	45562	(HL/EPA 531.1) Carbaryi .	מא	ug/l	2.0	1
	02/01/96	45562	(ML/EPA 531.1) Hethiocarb	NO	ug/į	2.0	1
	02/01/96	45562	(ML/EPA 531.1) Hethomyl	ND	ug/į	1.0	1
	02/01/96	45562	(ML/EPA 531.1) Oxamyi (Vydate)	סא	ug/l	2.0	1
			(Surrogate) BOMC	100	# Rec		
			Diquat and	l Paraquat				
/04/96	02/08/96	45863) Diquat	מא	ug/l	0.40	1
/06/96	02/08/96	45863	(EPA 549) Paraquat	מא	ug/l	2.0	1
			Herbicides	by 515.1				
/08/96	02/10/96	46008	(ML/EPA 515.1		סא	ug/(0.20	1
/08/96	02/10/96	46008) 2,4,5-TP (Silvex)	מא	ug/l	0.20	1
/08/96	02/10/96	46008	C ML/EPA 515.1		HD	ug/l	0.10	1
/08/96	02/10/96	46008	(ML/EPA 515.1		ND	ug/l	2.0	· ·
/08/96	02/10/96	46008	(HL/EPA 515.1) Dichlorprop	ЖО	ug/l	0.50	i
/08/96	02/10/96	46008) Acifluorfen (qualitative)	מא	ug/l	0.20	1
/08/96	02/10/96	46008	C HL/EPA 515.1		NO	ug/l	0.50	1
/08/96	02/10/96	46008) Dalapon (qualitative)	HO	ug/l	1.0	i
/08/96	02/10/96	46008		3,5-Dichtorobenzoic acid	סא	ug/l	0.60	1
/08/96	02/10/96	46008	C HL/EPA 515.1		ИD	ug/l	0.20	ì
/08/96	02/10/96	46008	C HL/EPA 515.1		סא	ug/l	0.080	1
/08/96	02/10/96	46008	C HL/EPA 515.1) Dinoseb	ND	ug/l	0.20	1
/08/96	02/10/96	46008	C HL/EPA 515.1) Pentachlorophenol	ND	ug/t	0.040	i
/08/96	02/10/96	46008	C HL/EPA 515.1		. מא	ug/l	0.10	1
/08/96	02/10/96	46008	C HL/EPA 515.1) 4-Nitrophenol (qualitative)	סא	ug/l	5.0	1
				2,4-Dichlorophenylacetic acid	. 105	≈ Rec		•
			ICPMS Meta	ls				
	02/15/96	46622		Arsenic, Total, ICAP/HS	מא	ug/t	5.0	1 .
	02/15/96	.46622 .		Barium, Total, ICAP/HS	סא	ug/(10	i
	02/15/96	46622		Beryllium, Total, ICAP/MS	. מא	ug/t	1.0	1
	02/15/96	46622		Cadelue, Total, ICAP/HS	סא	ug/l	0.50	•

Laboratory , Report #25316

555 East Walnut Street Passdena, California 51101 818 568 6400; Fast 818 568 6524; 1 800 566 LABS (1 800 566 5227)

Kauai Water Department (continued)

cpared	Analyzed	QC Batch#	Hethod	Analyte	Result	Units A	አ ወር	Dilution
	02/15/96	46622	(EPA/HS 200.8) Chromium, Total, ICAP/HS	14	ug/l	5.0	1
	02/15/96	46622	(EPA/HL 200.8) Copper, Total, ICAP/HS	מא	ug/l	50	1
	02/15/96	46622	(EPA/ML 200.8) Hickel, Total, ICAP/HS	סא	ug/l	5.0	1
	02/15/96	46622	(EPA/HL 200.8) Lead, Total, JCAP/HS	סא	ug/l	5.0	1
	02/15/96	46622	(EPA/ML 200.8) Antimony, Total, ICAP/MS	סא	ug/l	2.0	1
	02/15/96	46622.	(EPA/HL 200.8) Selenium, Total, ICAP/HS	ND	ug/l	5.0	1
	02/15/96	46622	(EPA/HL 200.8) Thallium, Total, ICAP/HS	מא	ug/l	1.0	1
			Nitrate b	y IC as NO3 & N				
	01/31/96	45604	(EPA/HL 300.0) Nitrate-N by IC	0.1	mg/l	0.10	1
	01/31/96	45604	(HL/EPA 300) Nitrate	0.44	mg/l	0.44	. 1
	•		SDWA Pest	icides				
/02/96	02/07/96	46568	(HL/EPA 508) PCB 1016 Arnelor	ИD	ug/l	0.10	1
/02/96	02/07/96	46568	(ML/EPA 508) PCB 1221 Arcelor	NO	ug/t	0.10	1
/02/96	02/07/96	46568	(HL/EPA 508) PCB 1232 Aractor	סא	ug/l	0.10	1
/02/96	02/07/96	46568	C ML/EPA 508) PCB 1242 Araclar	מא	ug/l	0.:0	1
/02/96	02/07/96	46568	(HL/EPA 508) PCB 1248 Aroclor	סא	ug/l	0.10	1
/02/96	02/07/96	. 46568	C ML/EPA 508) PCS 1254 Araclar .	מא	ug/l	0.10	1 .
/02/96	02/07/96	46568	(HL/EPA 508) PCB 1260 Aroclor	ND	ug/l	2.10	1
/02/96	02/07/96	46568	(ML/EPA 508) Alpha-BHC	ם א - אם	ug/l	0.810	1
/02/96	02/07/96	46568	(HL/EPA 508) Alachior (Alanex)	ND	ug/t	0.050	1
/02/96	02/07/96	46568 * *	(ML/EPA 508) Aldrin	סא	ug/l	0.010	1
/02/96	02/07/96	46568	(ML/EPA 508) Beta-BHC	מא	ug/l	0.010	1
/02/96	02/07/96	46568	(ML/EPA 508) Chlordane	OK	ug/l	0.10	1
/02/96	02/07/96	46568	(ML/EPA 508) Chlorthalonil (Orconil, Bravo)	DK	ug/l	0.010	1
/02/96	02/07/96	46568 *	C ML/EPA SOB) Delta-BHC	ND	ug/l	0.010	1
/02/96	02/07/96	46568	(ML/EPA 508) p,p' DOD	ND	ug/l	0.010	1
102/96	02/07/96	46568 •	(HL/EPA 508) p,p' 0DE	ND	ug/l	0.010	1
02/96	02/07/96	46568	(HL/EPA 508) p,p' 00T	מא	ug/l	0.010	1
02/96	02/07/96	46568	(HL/EPA 508) Dieldrin	HO	ug/l	0.010	1
/02/96	02/07/96	46568	(ML/EPA 508) Endrin Aldehyde	מא	ug/l	0.010	1
/02/96	02/07/96	46568	C HL/EPA 508) Endrin	מא	ug/l	0.010	1
02/96	02/07/96	46568	(HL/EPA 508) Endosulfan I (alpha)	סא	ug/l	0,010	1
/02/96	02/07/96	46568	(HL/EPA 508) Endosulfan II (beta)	מא	ug/l	0,010	1
/02/96	02/07/96	46568	(HL/EPA 508) Endosulfan sulfate	מא	ug/l	0.010	1

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555 East Wainut Street Passdana, California 91101 818 558 6400: Fast 818 558 6324; 1 800 568 LABS (1 800 556 5227)

Laboratory Report #25316

Kauai Water Department (continued)

repared	Analyzed	QC Batch#	Method	Analyte	Result	Units	HDL	Oilut	ien -
72/02/96	02/07/96	46568	C HL/EPA 508) Heptachlor	110				
25/05/96	02/07/96	46568	(HL/EPA 508) Heptachlor Epoxide	מא	ug/l	0.010	1	
32/02/96	02/07/96	46568	(HL/EPA 508) Lindane (gamma-SHC)	ND	ug/(0.010	1	
32/02/96	02/07/96	46568	(HL/EPA 508) Hethoxychlor	םא	. ug/l	0.010	1	-
32/02/96	02/07/96	46568	C HL/EPA 508) Toxaphene	סא	ug/(0.050	1	
			(Surrogate) Dibutyl Chlorendate	סא	ug/(0.50	1	
			(Surrogate) Tetrachlorometaxylene	· 116 98	% Rec % Rec			-
			.Volatile	Organic Compounds					•
	01/31/96	43547	C HL/EPA 502.2) 1,1,1,2-Tetrachlorcethane	ND		•		
	01/31/96	45547	C HL/EPA 502.2) 1,1,1-Trichloroethane	מא	ug/t	0.50	1	
	01/31/96	45547	(HL/EPA 502.2) 1,1,2,2-Tetrachloroethane	HD HD	ug/t	0.50	1	
	01/31/96	45547	(HL/EPA 502.2) 1,1,2-Trichlorgeshane		ug/l	0.50	1	
	01/31/96	45547	(HL/EPA 502.2) 1,1-Dichloroethane	סא	ug/l	0.50	1	_
	01/31/96	45547	(HL/EPA 502.2) 1,1-Dichloraethene	סא	ug/l	0.50	1	
	01/31/96	45547	C HL/EPA 502.2) 1,1-Dichloropropene	ND	ug/l	0.50	1	
	01/31/96	45547	(HL/EPA 502.2) 1,2,3-Trichtoropropane	י סא	ug/t	0.50	1	_
	01/31/96	45547	(HL/EPA 502.2) 1,2,3-Trichlorobenzene	ON	ug/l	0.50	1.	
	01/31/96	45547	(HL/EPA 502.2) 1,2,4-Trichtorobenzene	םא	ug/(0.50	1	•
	01/31/96	45547	(HL/EPA 502.2) 1,2,4-Trimethylbenzene	םא	1/50	0.50	1 .	
	01/31/96	43347	C ML/EPA 502.2) 1,2-0ichloroethane	סא	ug/(0.50	1	,
	01/31/96	45547	(HL/EPA 502.2) 1,2-0 ichlorobenzene	ND 	ug/l	0.50	1	
	01/31/96	45547	C HL/EPA 502.2) 1,2-0ichtoropropane	פא	ug/l	0.50	1	•
	01/31/96	45547.	HL/EPA 502_2) 1,3,5-Trimethylbenzene	NO	ug/l	0.50	1	
	01/31/96	45547	HL/EPA 502.2) 1,3-0ichlorobenzene	סא	ug/l	0.50	1	
	01/31/96	45547	HL/EPA 502.2) 1,3-Dichloropropane	סא	ug/l	0.50	1	-
	01/31/96	45547	HL/EPA 502.2) 1,4-Dichlorobenzene	סא	ug/(0.50	1	
	01/31/96) 2,2-Dichloropropone	OK	na\[0.50	1	
	01/31/96	45547	HL/EPA 502.2) Z-Chlorothuene	KD	· ug/l	0.50	1	
	01/31/96	45547 () 4-Chlorotoluene	HO .	ug/l	0.50	1	
(01/31/96) Bromodichloromethane	HD	ug/l	0.50	1	
C	01/31/96) Benzene	ָ סא	ug/(0.50	1	
			HL/EPA 502.2) Brombeaven	NO.	ug/(0.50	1 .	
	11/31/96	45547 (ML/EPA 502.7) Bromochioremethane	מא	ug/l	0.50	1	
		45547 . (HL/EPA 502.2) Economichian	סא	ug/l	0.50	1 .	, .
٥	1/31/96	45547	HL/EPA 502 2) cis-1,2-Dichlorgethene	אם .	ug/t '	0.50	1	
		•		, and the restaurante there	סא	Ug/l	0.50	1	••



ESS East Walaut Street
Passidens. California 51101
818 568 6400; Fax: 818 568 6204;
1 800 568 LABS (1 800 566 5227)

Laboratory Report #25316

Kauai Water Department (continued)

repared A	malyzed	QC Batch#	Hethod	Analyte	Result	Units	HDL	Dilution
	1/31/96	45547	(HL/EPA 502.		, KD	ug/l	0.50	1
	1/31/96	45547		2) Carbon tetrachloride	פא	ug/l	0.50	i
	1/31/96	45547	(HL/EPA 502.2	2) cis-1,3-Dichloropropene	ND	ug/t	0.50	1
	1/31/96	45547	(HL/EPA 502.2		פא	ug/l	0.50	•
	1/31/96	45547		2) Chloroform	HD	ug/l	0.50	1
	1/31/96	45547		2) Chloroethane	CH	ug/l	0.50	1
	1/31/96	45547		2) Chioromethane	. סא	ug/l	0.50	1
	1/31/96	45547		2) Dibromochloromethane	NO .	ug/l	0.50	1
	1/31/96	45547	(ML/EPA 502.2	2) 1,2-0ibromo-3-chloropropane	סא	ug/l	1.0	1
	1/31/96	45547		2) Dibromomethane	סא	ug/l	0.50	1
	1/31/96	45547		2) Dichlorodifluoromethane	סא	ug/l	0.50	i
	1/31/96	45547		2) 1,2-0ibromoethane	סא	ug/l	0.50	1
	1/31/96	45547		!) Ethylbenzene	ND	ug/l	0.50	1
	1/31/96	49547		.) Hexachlorobutadiene	ИD	ug/(0.50	1
	1/31/96	45547		l) Isopropytbenzene	ИО	ug/l	0.50	1
	1/31/96	49547) Hethylene chloride	ND	ug/l	0.50	1 .
	1/31/96	_. 45547) m+p-Xylenes	מא	ug/l	0.50	•
	1/31/96	45547	(HL/EPA 502.2) Naphthalene	סא	ύg/l	0.50	1
	1/31/96	45547	(HL/EPA 502.Z) n-Butylbenzene	מא	ug/L	0.50	•
	/31/96	45547	(HL/EPA 502.2) n-Propylbenzene	מא	ug/l	0.50	1 .
	/31/96	45547	(HL/EPA 502.2) o-Xylene	ио .	ug/(. 1
	/31/96	45547	(HL/EPA 502.2) Tetrachloroethene	אס	ug/l	0.50	1
	/31/96	45547	(ML/EPA 502.2) p-isopropyltoluene	סא	ug/(0.50	1
	/31/96	45547	(HL/EPA 502.2) sec-Butylbenzene	מא	na\(·	0.50	1
01	/31/96	45547	(ML/EPA 502.2) Styrene	סא		0.50	1
01	/31/96	45547	(ML/EPA 502.2) trans-1,2-Dichloroethene	מא	ug/t	0.50	1
01	/31/96	45547	(HL/EPA 502.2) tert-Butylbenzene	. אס	ug/(0.50	1
01,	/31/96	45547) Trichloroethene	ם א	ug/l	0.50	1
01,	/31/96	45547) trans-1,3-Dichloropropene	סא	Ug/(0.50	1
01,	/31/96	45547	(HL/EPA 502.2) Toluene	מא)\pu	0.50	1
	/31/96	45547) Trichlorofluoromethane	מא	ug/l	0.50	1
. 01,	/31/96	45547	(HL/EPA 502.2) Vinyl chloride	ם א	ug/(0.50	1
			(Surrogate) Bromofluorobenzene-ELCD	87	ug/l	0.40	1
			(Surrogate) Bromofluorobenzene-PID	93	≅ Rec		
			(Surrogate) Chlorofluorobenzene-ELCO	92	≍ Rec		
			(Surrogate) Chlorofluorobenzene-PID	92 97	¥ Rec		
				at contanet well and the Line Line	71	≍ Rec		



555 East Walnut Street Pasadeos, California 51101 818 558 5400: Fax: 818 558 6324; 1 800 558 LABS (1 800 586 5227)

Laboratory Report #25316

Kauai Water Department (continued)

pared Analyzed QC Batch# Method Analyte Result Units MOL Dilucion

Page



555 East Walout Street Pasadena, California 51101 518 568 6400; Fax: 518 568 6524; 1 800 566 LABS (1 800 566 5227) Laboratory QC Report #25316

Kauai Water Department

QC	Analyte	Spiked	Recovered	Yield (%)	Limits (%) 🗥	RPD (%)	
MBL	• • • • • • • • • • • • • • • • • • • •	ОK					
HBL		ND		•			
HBL		מא					
MBL		מא					
HEL		םא					
MBL		מא					
MBL		מא		000	4 80 00 - 430 00 1		
LCS		10.0	10.2	102,000	(80.00 - 120.00)		
LCS		10.0	10.5	105,000	(80.00 - 120.00)	2.9	
MBL		ИD					
HBL		מא					
KBL		מא					
MBL		מא				•	
HBL		מא					
MBL		סא					
HBL		ND				•	
HBL		ND					
MBL	• • • • • • • • • • • • • • • • • • • •	ИD					
HBL		סא					
HBL	.,	סא					
HSL		סא					
HEL		ИD	•				
HBL		פא					
LCS		10.0	9.7	97,000	(80.00 - 120.00)	•	
rcs		10.0	9.8	98,000	(80.00 - 120.00)	1.0	
MBL		סא			•		
MBL		סא					•
HSL:		סא	•			4	:
HBL	S Bromodich Loromethane	ND			•		
HBL		но					
HBL		KD	•				
HBL		סא					
MBL	Chlorobenzene	סא					
MBU	Chloroethane	סא					
HBL	Chloroform	מא					
MBL	Chloromethane	מא					

Spikes which exceed Limits and Hethod Blanks with positive results are highlighted by Underlining.



Esst Wainut Street Pasadena, California 51101 818 558 6400; Fax: 818 568 6224; 1 800 568 LABS (1 800 556 5227) Laboratory QC Report #25316

Kauai Water Department (continued)

1BLK	Oibromachlaramethane	מא			• •		
IBLX	Oibromomethane	Ю					
IBLX.	Dichlorodifluoromethane	ОИ					
HBLX	Ethylbenzene	ИО	•		i		
18LK	Rexachtorobutadiene	ND					
_C51	Isopropylbenzene	10.0	9.6	96.000	(80.00 - 120.00)		
.022	Isopropylbenzene	10.0	9.8	98.000	(80.00 - 120.00)	2.1	
IBLX	Isopropylbenzene	םא			•		
BLK	Methylene chloride	מא					
IBLK	Naphthalene	סא					
BLK	Styrene	סא					
.CS1	Tetrachloroethene	· 10.0	9.2	92.000	(80.00 - 120.00)		
.csz	Tetrachloroethene	10.0	8.9	89.000	(80.00 - 120.00)	3.3	
BLK	Tetrachioroethene	. אס					
BLK	Toluene	, ND					
BLK	Trichloroethene	מא			•		
BLK	Trichlorofluóromethene	סא			:		
BLK	Vinyl chloride	מא	•				
BLX	cis-1,2-Dichloroethene	ם א					
BLK	cis-1,3-0ichloropropens	ם א					
BLK	m+p-Xylenes	מא					
BCK .	n-Butylbenzene	מא					
BLK	n-Propylbenzene	- סא					
BLX	a-Xylene	NO					
BLK	p-isopropyltoluene	סא					
.CS1	sec-Butylbenzene	10.0	9.5	95.000	(80.00 - 120.00)		
.CSZ	sec-Butylbenzene	10.0	9.8	98.000	(80.00 - 120.00)	3.1	
BLX	sec-Burylbenzene	OK					
BLK	tert-Busylbenzene .	סא					
CS1	· trans-1,2-0ichloroethene	10.0	10.0	100,000	(80.00 - 120.00)		
C25	trans-1,2-Dichloroethene	10.0	10.2	102.000	(80.00 - 120.00)	2.0	٠٠.
BLK	trans-1,2-Dichloroethene	ND					
BLX	trans-1,3-0ichloropropene	. מא					

Spikes which exceed Limits and Method Blanks with positive results are highlighted by Underlining.



555 East Walnut Street Pasadana, California 57101 818 558 6400; Fax; 817 568 5324; 1 800 566 LABS [1 800 586 5227] Laboratory QC Report #25316

Kauai Water Department . (continued)

	· · · · · · · · ·				<u> </u>	
	QC Batch #45562	Aldic	arbs			
qc	Analyte	Spiked	Recovered	Yield (%)	Limits (%)	
LCS1	3-Hydroxycarbofuran	20.0	20.9	104.500		RPD (%)
HBLK	3-Rydroxycarbofuran	סא		104.500	(85.00 - 120.00)	
HS	3-Hydroxycarbofuran	20.0	21.8	109.000	/ 70 80 470 00 .	
LCS1	Aldicarb (Temik)	20.0	18.5	92.500	(70.00 - 130.00)	
KELX	Aldicarb (Temik)	סא	10.3	72.300	(83.00 - 115.00)	
MS	Aldicarb (Temik)	20.0	21.0	105 000	. 70	
LCS1	Aldicarb sulfone	20.0	22.3	105.000	(70.00 - 130.00)	
HBLK	Aldicarb sulfone .	מא	44.3	111.500	(84.00 - 128.00)	
HS	Aldicarb sulfone	20.0	21.3			
LCS1		20.0		106.500	(60.00 - 130.00)	
MBLK	Aldicarb sulfoxide	20.U	.20.8	104.000	(85.00 - 138.00)	
MS	Aldicarb sulfoxide	20.0				
LCS1	Baygon	•	21.4	107.000	(70.00 - 130.00)	
HBLK	Baygon	20.0	23.0	115.000	(85.00 - 115.00)	
ЖS	Baygon	מא				
LCS1	Carbaryt	20.0	21.5	107.500	(70.00 - 130.00)	
HBLK	Carbaryt	20.0	17.6	88.000	(85.00 - 119.00)	
HS	Carbaryl	מא				
LCS1		20.0	20.9	104.500	(70.00 - 130.00)	
HBLK	Carbofuran (Furadan)	20.0	22.9	114.500	(85.00 - 115.00)	÷
HS	Carbofuran (Furadan)	סא			•	
LCS1	Carbofuran (Furadan)	20.0	21.6	108.000	(70.00 - 130.00)	•
HBLK	Hethiocarb	20.0	16.2	81.000	(70.00 - 136.00)	
HS	Hethiocarb	סא			• •	
	Hethiocarb	20.0	20.4	102.000	(70.00 - 130.00)	
LCS1	Methomyl	20.0	22.5	112.500	(85.00 - 115.00)	
HBLK	Hethomyl	מא			1,3.00	
MS	Hethomyi	20.0	20.9	104.500	(70.00 - 130.00)	
LCS1	Oxamyl (Vydate)	20.0	21.3	106.500	(85.00 - 115.00)	
HBLK	Oxamyl (Vydate)	KD	= · •=	01,000	(00.00 - 115.00)	
2H	Oxamyl (Vydate)	20.0	21.4	107.000	(70.00 - 130.00)	

Spikes which exceed Limits and Hethod Blanks with positive results are highlighted by <u>Underlining</u>.



155 Cast Walnut Street Passidena, California 51101 818 568 6400: Fast 818 568 5224; 1 800 568 LABS (1 800 566 5227) Laboratory QC Report #25316

Kauai Water Department (continued)

					•	
	QC Batch #45601	Nitri	te, Nit:	ogen by	·IC	
QC	Analyce	•				
LCS1	Mitrite, Mitrogen by IC	Spiked		Yield (≈)	• •	RPD (%)
LC22	Mitrite, Mitrogen by IC	1.0	0.91	91.000	(90.00 - 110.00)	
HBLK	Nitrite, Mitrogen by IC	1.0	0.93	93.000	(90.00 - 110.00)	2.2
HS	Nitrite, Mitrogen by IC	HO				
HSD	Nitrite, Nitrogen by IC	1.0	0.54	84.000	(80.00 - 120.00)	
	ree, with ogen by It	1.0	0.84	24.000	(80.00 - 120.00)	0.00
	QC Batch #45604	Nitra	te by .IC	EOM RE	& N	
QC	Analyte .	Spiked	Recovered	*** * * * ***		
HELK	Mitrate	HO	versaet.60	Yield (%)	Limits (%)	(%). CPR '
LCS1 '	Nitrate-N	2.5	2.52			
rc25	Nitrate-H	2.5	2.53	100.800	(90.00 - 110.00)	
HS	Nitrate-N	2.5	2.54	101.200	(90.00 - 110.00)	0.40
MSO	Nitrate-N	2.5	2.64	105.600	(75.00 - 125.00)	
		4.3	2.04	105.600	(75.00 - 125.00)	0.00
	QC Batch #45639	Calci	ım, Flam	e AA		
q¢	Analyte	Spiked	Recovered	Yield (%)	Limits (%)	
LCS1	Calcium, Flame AA	50	48.3	96.400	(90.00 - 110.00)	RPO (%)
LCSZ	Calcium, Flame AA	SO	48.3	96.600	(90.00 - 110.00)	
HELK	Calcium, Flame AA	но		701000	(70.00 - (10.00)	0.00
HS	Calcium, Flame AA	50	49.6	99.200	(80.00 - 120.00)	
HSD	Calcium, Flame AA	50	45.8	91.600	(80.00 - 120.00)	
			-200	71.000	(40.00 - 120.00)	0.8
	QC Batch #45742	Glypho	sate			
90	Analyte	Spiked	Recovered		* F-2	
LCS1	Glyphosate	50	SECOVERED SECOVERED	Yield (%)	Limits (%)	RPO (%)
XBLK	Glyphosate	מא	J-J	106.000	(70.00 - 130.00)	
2H	Glyphosace	•	54	100 000	4 77 40	
	•		J.4	108.000	(70.00 - 130.00)	

Spikes which exceed Limits and Method Blanks with positive results are highlighted by <u>Underlining</u>.



MONTGOMERY WATSON LABORATORIES

555 East Walnut Street
Passidenz, California 51101
818 568 6490; Fass 818 568 6524;
1 800 566 LABS [1 800 556 5227]

Laboratory QC Report #25316

Kauai Water Department (continued)

		QC Batch	#45770	Fluori	đe			
	QC	Analyte		Spiked	Recovered	Yield (%)	Limits (%)	RPD (%)
	LCS1	Fluoride		0.27	0.88	101.149	(90.00 - 110.00)	
	LCSZ	Fluoride		0.87	0.83	101.149	(90.00 - 110.00)	0.00
	HBLK	Fluoride		D				
	HS	Fluoride		0.909	0.995	109.461	(80.00 - 120.00)	
	MSD	Fluoride		0.909	0.982	108.031	(80.00 - 120.00)	1.3
		QC Batch	#45863	Diquat	and Par	raguat		
	ac .	Analyte	-	Spiked	Recovered	Yield (%)	Limits (%)	RPD (%)
	LCS1	Diquat		10.0	12.9	129.000	(70.00 - 130.00)	•
	HBLK	Diquat		פא				
	HS	Diquat	•	10.0	10.8	108.000	(70.00 - 130.00)	
•	LCS1	Paraquat		. 10.0	12.6	126.000	(70.00 - 130.00)	
	HBLK	Paraquat		מא				
	24	Paraquat		10.0	10.4	104.000	(70.00 - 130.00)	
		QC Batch	#45867	525 Se	mivolati	lles by	cc/ws	
			,	20			,	
	90	Analyte		Spiked	Recovered	Yield (%)	Limits (%)	RPD (%)
	LCS1	Acenaphthyl	ene	2	2.03	101.500	(70.00 - 130.00)	
	MBLK	Acenaphthyl	ene	מא				
	MS	Acenaphthyl	ene	2	1-93	96.500	(70.00 - 130.00)	
	LCSI	Alachlor		2	2.03	101.500	(70.00 - 130.00)	
	HBLK	Alachlor		ND .				
	HS	Alachlor		2	1.99	99.500	(70.00 - 130.00)	
	LCS1	Aldrin		2	1.74	87.000	(70.00 - 130.00)	•
	HBLK	Aldrin		סא				
	HS	Aldrin		2	1.74	87.000	(70.00 - 130.00)	
	LCS1	Anthracene		2	2.00	100.000	(70.00 - 130.00)	
	HBLK	Anthracene		מא				
	MS	Anthracene		2	1.93	96.500	(70.00 - 130.00)	

Spikes which exceed Limits and Method Blanks with positive results are highlighted by <u>Underlining.</u>



East Walnut Street
Passadena. California 21101
E12 563 6400; Fass E12 563 6221;
1 800 566 LABS [7 800 566 5227]

Laboratory QC Report #25316

Kauai Water Department (continued)

LCS1	Atrazine	2	4.55		470.00	
MBLX	Atrazine	AD NO	1.98	99.000	(70.00 - 130.00)	
MS	Atrazine	2	2.00	100.000	. 70.00 +76.00 >	
LCS1	Benz(a)Anthracene	. 2			(70.00 - 130.00)	
HELK	Benz(a)Anthracene	ב מא	1.92	96.000	(70.00 - 130.00)	
HS	Benz(a)Anthracene	2	1.69	0/ E00	. 70.00	
LCS1	Benzo(a)pyrene	2		84.500	(70.00 - 130.00)	
MBLK	Benzo(a)pyrene	ב מא	1.95	97.500	(70.00 - 130.00)	
MS	Benzo(a)pyrene	2	1.74	27 222	4 70 00 470 00 >	
LCS1	Benzo(b)Fluoranthene	2		87.000	(70.00 - 130.00)	·
MBLK	Benzo(b)Fluoranthene	ם מא	1.95	97.500	(70.00 - 130.00)	
MS	Benzo(b)fluoranthene	2	1.73	0.4 244	. 70 .00	
LCS1	Benzo(g,h,i)Perylene	2		86.500	(70.00 - 130.00)	
MBLK	Benzo(g,h,i)Perylene	2 ND	2.19	109.500	(70.00 - 130.00)	
MS	Benzo(g,h,1)Perylene	2	2.47	444 500	4 70 00 474 00 4	
LCS1	Senzo(k)Fluoranthene	2	2.03 2.09	101.500	(70.00 - 130.00)	
HBLK	Benzo(k)Fluoranthene	2 ND	2.09	104.500	(70.00 - 130.00)	
MS	Benzo(k) Fluoranthene	2		0/ 500	4 78 88 474 44 .	
MBLK	Bromacil	ב. מא	1.89	94.500	(70.00 - 130.00)	
MBLK	Butachlor	סא				
LCS1	Bucylbenzylphthalate	2	1.87	93.500	(70.00 - 130.00)	
HBLK	Butylbenzylphthalate	מא	1+01	73.300	(10:00 - 130:00)	•
HS	Butylbenzylphthalate	2	1.72	2000.68	(70.00 - 130.00)	
LCS1	Caffeine	2	1.78	89,000	(70.00 - 130.00)	
HELK	Caffeine	סא	1	67,000	(10.00 - 150.00)	
HS	Caffeine	2.	2.05	102.500	(70.00 - 130.00)	
LCS1	Chrysene	z	1.81	90.500	(70.00 - 130.00)	
MBLK	Спгузеле .	XD	****	701,200	(10.00 - 120.00)	
HS	Chrysene	. 2	1.62	81.000	(70.00 - 130.00)	
LCS1	Di(2-Ethylhexyl)phthalate	2	1.92	96.000	(70.00 - 130.00)	
MBLK	D((Z-Ethy(hexy()phthalate	םא		70,000	(10:00 - 120:00)	
HS	Di(Z-Ethylhexyl)phthalate	2	1.80	90.000	(70.00 - 130.00)	
LCS1	· Oi-(2-Ethythexyl)adipate	. 2	1.84	92.000	(70.00 - 130.00)	
HBLK	Di-(2-Ethylhexyl)adipate	. אם	114	,2.244		
HS	Di-(2-Ethylhexyl)adipate	2	1.71	85.500	(70.00 - 130.00)	
LCS1	01-n-Burylphthalate	Z	2.46	123.000	(70.00 - 130.00)	
HBLK	Di-n-Butylphthalate	םא				_
XS.	Di-n-Bucylphthalate	Z	2.00	100.000	(70.00 - 130.00)	•

Spikes which exceed Limits and Method Blanks with positive results are highlighted by Underlining.



Esst Walnut Street
Pasadana, California 51101
B18 558 6490: Fex: 818 558 6524;
1 800 564 LABS (1 800 556 522)

Laboratory QC Report #25316

Kauai Water Department (continued)

HELK	Diazinon	םא			
· LCS1	Dibenz(a,h)Anthracene	2	2.08	104.000	/ 70 00 - 170 00 -
HBLK	Dibenz(a,h)Anthracene	םא	2.00	104.000	(70.00 - 130.00)
HS	Dibenz(a,h)Anthracene	2	1.90	95.000	(70.00 - 130.00)
HBLK	Dieldrin	םא	1	73.000	/ 10.00 - 150.00 }
LCS1	Diethylphthalate	2	2,25	112.500	(70.00 - 130.00)
MBLK	Diethylphthalate -	מא		112,500	(70.00 - 130.00)
ZK	Diethylphthalate	2	2.25	112.500	(70.00 - 130.00)
HBLK	Dimethoate	מא		7121200	(10.00 - 130.00)
LCS1	Dimethylphthalate	2	1.99	99.500	(70.00 - 130.00)
HBLK	Dimethylphthalate	но			(10100 120.00)
HS .	Dimethylphthalate	2	1.93	96.500	(70.00 - 130.00)
LCS1	Endrin .	2	1.91	95.500	(70.00 - 130.00)
HELK	Endrin	סא		721224	(10100 120.00)
HS ·	Endrin	2	1.69	84.500	(70.00 - 130.00)
LCS1	Fluorene	2	2.05	102.500	(70.00 - 130.00)
HBLK	Fluorene	מא			1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1
HS	Fluorene	2	1.98	99.000	(70.00 - 130.00)
LCS1	Heptachlor ·	2	1.98	99.000	(70.00 - 130.00)
HBLK	Heptachlor	סא			
HS	Heptachlor	2	2.02	101.000	(70.00 - 130.00)
LCS1	Heptachlor Epoxide	2	1.85	92.500	(70.00 - 130.00)
HBLK	Reptachlor, Epoxíde	סא			,
HS	Heptachlor Epoxide	2	1.88	94.000	(70.00 - 130.00)
LCS1	Kexach Lorobenzene	2	1.78	89.000	(70.00 - 130.00)
HBLK	Hexach Lorobenzene	מא			,
MS	Kexach Lorobenzene	2	1.67	83.500	(70.00 - 130.00)
LCS1	Rexachlorocyclopentadiene	2	1.88	94.000	(40.00 - 130.00)
HBLK	Hexachlorocyclopentadiene	, פא			,
HS	Hexachlorocyclopentadiene	2	1.92	96.000	(40.00 - 130.00)
LCS1	Indeno(1,Z,3,c,d)Pyrene	2	2.04	102.000	(70.00 - 130.00)
HBLX HS	Indeno(1,2,3,c,d)Pyrene	סא			
	Indeno(1,2,3,c,d)Pyrene	2	1.87	93.500	(70.00 - 130.00)
HBLX	Isapharane	סא		•	,
LCS1 HBLK	Lindane	2	2.06	103.000	(70.00 - 130.00)
HS 2H	Lindane	סא			
ns LCS1	Lindane	2	1.99	99.500	(70.00 - 130.00)
rr31	Hethoxychlor	2	2.11	105.500	(70.00 - 130.00)

Spikes which exceed Limits and Hethod Blanks with positive results are highlighted by Underlining.



555 East Walout Street Pasadena, California 21101 818 558 6400; Fax: 818 568 6324; 1 800 566 LABS (1 800 556 5227) Laboratory QC Report #25316

Kauai Water Department (continued)

HBLK	Kethoxychlor	NO				_
HS	Kethoxychlor	2	1.02	24 222		
HBLK	Metalachlar	של	1.92	96.000	(70.00 - 130.00)	
HBLK	Metribuzin					
LCST	Molinate	סא				
HBLK	Molinate	2	2.23	111.500	(70.00 - 130.00)	
MS	Holinate	םא				
LCS1		2	2.06	103.000	(70.00 - 130.00)	
HELK	Pentachlorophenol	8	7.90	98.750	(70.00 - 130.00)	
NBCK NBCK	Pentachlorophenol	Ю				
	Pentach Lorophenol	8	8.09	101.125	(70.00 - 130.00)	
LCS1	Phenanthrene	, ²	1.99	99.500	(70.00 - 130.00)	
HBLK	Phenanthrene	סא			•	
HS	Phenanthrene	2	1.92	96.000	(70.00 - 130.00)	
HBLK	Prometryn	ОМ				
HBLK .	Propachlor	סא				
LCS1	Pyrene .	Z	1:88	94.000	(70.00 - 130.00)	
HBLK	Pyrene	סא			•	
KS	Pyrene	2	1.88	94.000	(70.00 - 130.00)	
LCS1	Simazine	Z	1.92	96.000	(70.00 - 130.00)	
HBLK	Simazine	מא	•	•		
HS	Simazine	2	1.95	97.500	(70.00 - 130.00)	
LCS1	Thiobencarb	2	2.06	103.000	(70.00 - 130.00)	
HBLK	Thiobencarb	סא			() ()	
HS	Thiobencarb	2	1.92	96.000	(70.00 - 130.00)	
MBCK	Trifluralin	סא			() () ()	
rc21	alpha-Chlordane	Z	1.89	94.500	(70.00 - 130.00)	
HELK	alpha-Chlordane	סא		7-1300	(10.20 120.00)	
NS 2H	alpha-Chiordane	2	1.78	89.000	(70.60 - 130.00)	
LCSI	gamma-Chlordane	2	1.78	89.000	(70.00 - 130.00)	
HBLX	gamma-Chiordane	םא	1	27.000	(70.00 - 130.00)	
XS	gamma-Chlordane	2	1.72	26,000	4 77 00 - 470 00 -	
LCS1	trans-Honachlor	2	1.81	90.500	(70.00 - 130.00)	
HBLK	trans-Monachlor	אם	1,01	70.300	(70.00 - 130.00)	
HS.	trans-Monachtor	, 5	1.86	93.000	(70.00 - 130.00)	

Spikes which exceed Limits and Method Blanks with positive results are highlighted by <u>Underlining.</u>



=== East Wainut Street Pasadena, California 51101 818 568 6400: Fast 818 568 6124; 1 800 566 LABS (1 800 566 5227) Laboratory QC Report #25316

Kauai Water Department (continued)

	QC Batch #45984	Mercu	тy		.>		
oc LCS1	Analyte	Spiked	Recovered	Yield (%)	Limits (%)	RPD (%)	
	*		1.37	91.333		(A)	
	•		1.37	91.333	(85.00 - 115.00)	0.00	
HS	•				•	4.00	
MSD	•		•	96.667	(85.00 - 115.00)		
		1.50	1.36	90.667	(85.00 - 115.00)	6.4	
	QC Batch #46008	Herbid	cides by	515.1			
GC ·	Analyte	Spiked	Recovered	Viald (~)	1.5-2		
		מא		Hete (A)	Limits (%)	RPD (≈)	
		0.500	0.53	106 000	4 47 00 100		
	2,4,5-TP (Silvex) _			104.000	(67.00 - 120.00)		
		מא			(67.00 - 120.00)		
		0.500	0.52	106 000	4 45 44		
	•	1.00	-		(42.00 - 226.00)		
	-	1.00	•				
	-	סא	,	•	(72.00 - 127.00)		
	•	1.00	0.91	91 000			
		סא		71.000	(49.00 - 214.00)		
,	3,5-Dichlorobenzoic acid	ND					
	4-Mitrophenol (qualitative)	סא				•	
		מא					
	Acifluorfen (qualitative)	NO					
•		1.00	0.94		/ 75 00 - 47/ 00 -		
=		1.00	NA ·		(75.00 - 134.00)		
		HD .		•	(73.00 - 134.00)		
		1.00	0.95	95 . 000	/ 70 00 - 170 oo .		
		סא		72.000	(70.00 - 170.00)		
		но		• •			
	Dalapon (qualitative)	מא					
		HO					
TOLK	Dichlorprop	פא					
	LCS2 MBLK MS MSO	CC Analyte LCS1 Hercury LCS2 Hercury MBLK Hercury MS Hercury MSD Hercury MSD HERCURY CC Analyte MBLK 2,4,5-T LCS1 2,4,5-TP (Silvex) LCS2 2,4,5-TP (Silvex) LCS2 2,4,5-TP (Silvex) MS 2,4,5-TP (Silvex) LCS1 2,4-D LCS2 2,4-D MSLK 2,4-D MSLK 2,4-D MSLK 2,4-D MSLK 2,4-D MSLK 2,4-D MSLK 2,4-D MSLK 2,4-D MSLK 2,4-D MSLK 2,4-D MSLK 2,4-D MSLK 2,4-D MSLK 2,4-D MSLK 2,4-D MSLK 2,4-D MSLK 3,5-Dichloropenzoic acid MSLK 4-Nitrophenol (qualitative) MSLK 5-Hydroxydicamba MSLK Acifluorfen (qualitative) LCS1 Bentazon LCS2 Bentazon MSLK Bentazon MSLK Bentazon MSLK Chloramben (qualitative) MSLK Chloramben (qualitative) MSLK DCPA MSLK Dicamba	OC Analyte Spiked LCS1 Hercury 1.50 LCS2 Hercury 1.50 MBLK Mercury 1.50 MSD Mercury 1.50 MSD Mercury 1.50 QC Batch #46008 Herbic Pale MBLK 2,4,5-TP (Silvex) 0.500 QC Displace MBLK 2,4-D 1.00 MBLK 2,4-D 1.00 MBLK 2,4-D 1.00 MBLK 2,4-D 1.00 MBLK 2,4-D 1.00 <td colsp<="" td=""><td> Spiked Recovered </td><td>OC Analyte LCS1 Hercury LCS2 Hercury LCS2 Hercury HBLK Hercury HS Mercury HS Mercury HSD Hercury LCS1 2,4,5-T LCS1 2,4,5-T LCS1 2,4,5-TP (Silvex) HSLK 2,4,5-TP (Silvex) LCS2 2,4,5-TP (Silvex) HSLK 2,4,5-TP (Silvex) HSLK 2,4,5-TP (Silvex) HSLK 2,4,5-TP (Silvex) HSLK 2,4,5-TP (Silvex) HSLK 2,4,5-TP (Silvex) HSLK 2,4,5-TP (Silvex) HSLK 2,4,5-TP (Silvex) HSLK 2,4,5-TP (Silvex) HSLK 2,4,5-TP (Silvex) HSLK 2,4,5-TP (Silvex) HSLK 2,4,5-TP (Silvex) HSLK 2,4,5-TP (Silvex) HSLK 2,4-D HSLK 2,4-D HSLK 2,4-D HSLK 2,4-D HSLK 2,4-D HSLK 2,4-D HSLK 3,5-Dichlorodenzoic acid HSLK 4-Hitrophenol (qualitative) HSLK Acifluorfen (qualitative) HSLK Acifluorfen (qualitative) HSLK Bentazon HSLK Bentazon HSLK Bentazon HSLK Chloramben (qualitative) HSLK Chloramben (qualitative) HSLK Dishloramen (qualitative) HSLK Dalapon (qualitative) HSLK Dalapon (qualitative) HSLK Dalapon (qualitative) HSLK Dishloramen (qualitative) HSLK Dalapon (qualitative) HSLK Dalapon (qualitative) HSLK Dishloramen (qualitative) HSL</td><td>CC Analyte Spiked Recovered Yield (%) Limits (%) LCS1 Hercury 1.50 1.37 91.333 (85.00 - 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Spikes which exceed Limits and Method Blanks with positive results are highlighted by <u>Underlining.</u>



555 East Walnut Street Pasadena, California 91101 818 568 6400: Fax: 818 568 6224; 1 800 568 LABS (1 800 586 5227) Laboratory QC Report #25316

Kauai Water Department (continued)

HBLK	Dinoseb	סא				
HBLX	Pentach Lorophenol	סא				
HBLK	Picioram	Ю				
	QC Batch #46026	Endotha	all			
ac	Analyte	Spiked	Recovered	Yield (%)	Limits (≈)	RPD (%)
LCS1	Endothall	25	29.9	119.600	(58.00 - 137.00)	
HBLX	Endothail	. סא				
HS	Endothall	25	24.0	104.000	(63.00 - 126.00)	
	QC Batch #46059	Cyanid	e			
		Spiked	Recovered	Yield (%)	Limits (%)	RPO (%)
GC .	Analyte	0.10	0.0936	93.400	(90.00 - 110.00)	
LCS1	Cyanide	ND.	0.0720	,2,000	• • • • • • • • • • • • • • • • • • • •	••
HELX	Cyanide	0.10	0.0946	94,600	(80.00 - 120.00)	•
XS MSD	Cyanide Cyanide .	0.10	0.0919	91.900	(80.00 - 120.00)	2.9
	-,	•		.•		
	QC Batch #46560	AB1803	- EDB	and DECP		•
QC	Analyte	Spiked	Recovered	Yield (%)	Limits (%)	RPO (%)
DUP	Dibromochtoropropane (DBCP)	ND	AK		(60.00 - 140.00)	
LCS1	Dibromochloropropane (DBCP)	0.10	0.11	110.000	(60.00 - 140.00)	
LCSZ	Dibromochleropropane (DBCP)	0.10	0.11	110.000	(60.00 - 140.00)	• 0.00
HBLK	Dibromochloropropane (DECP)	ND			•	
MS	Dibromochioropropane (DBCP)	0.10	AK	_	(,60.00 - 140.00)	
DUP	Ethylene Dibromide (EDB)	אם .	NA	٠,	(60.00 - 140.00)	
LCS1	Ethylene Dibromide (EDB)	0.10	0.10	100.000	(60.00 - 140.00)	
LCS2	Ethylene Dibromide (EDS)	0.10	0.10	100_000	(60.00 - 140.00)	0.00
HBLK	Ethylene Dibromide (EDB)	HO				*** * * *
	Ethylene Dibromide (EDB)	. o.to 💥			(60.00 - 140.00)	

Spikes which exceed Limits and Hethod Blanks with positive results are highlighted by Underlining.



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Kauai Water Department (continued)

	QC Batch #46568	SDWA Pesticides			W		
QC	Analyte	Spiked	Recovered	Yield (%)	Limits (%)	222 445	
HBLK	Alachlor (Alanex)	D			- (A)	RPO (%)	
LCS1	Aldrin	0.050	0.047	94.000	(56.00 - 116.00)		
rcss	Aldrin	0.050	на		(56.00 - 116.00)		
HBLK	Aldrin '	ND			()2.00 - (10.00)		
MS	Aldrin	0.050	0.051	102.000	(56.00 - 116.00)		
HBLK	Alpha-BHC	מא			(55.55 - 115.55)		
MBLK	Chlordane	NO					
HBLK	Chiorthalonii (Dreonii, Bravo)	מא					
MBLK	Delta-BHC	NO					
LCS1 ·	Dieldrin	0.100	0.111	111.000	(57.00 - 117.00)		
LC\$2	Dieldrin	0.100	NA		(57.00 - 117.00)		
HBLK	Dieldrin	יסא.	,		(21.00 - 117.00)		
HS	Dieldrin	0.100	0.111	111.000	(57.00 - 117.00)		
HBCK .	Endesulfan I (alpha)	NO		111.000	(27.00 - 117.00)	•	
WBLX	Endosulfan II (beta)	HD			•		
HBLK	Endosulfan sulfate	מא					
LCS1	Endrin .	0.100	0.115	115.000	(58.00 - 118.00)		
LCS2	Endrin	0.100	NA		(58.00 - 118.00)		
HBLK	Endrin	מא			(38.00 - 118.00)	•	
HS	Endrin	0.100	0.116	116.000	/ E0 00 - 140 00 +		
HELK	Endrin Aldehyde	מא		118.000	(58.00 - 118.00)		
LCS1	Gamma-BHC (Lindane)	0.050	0.053	106.000	(E0 00 - 110 co .		
rcs5	Gamma-BKC (Lindane)	0.050	HA	.00.000	(59.00 - 119.00)		
MBLK	Gamma-BHC (Lindane)	ND	116		(59.00 - 119.00)		
HS	Gamma-BHC (Lindane)	0.050	0.054	108.000	/ E0 00 - 110 oo -		
LCS1	Reptachlor	0.050	0.049	98.000	(59.00 - 119.00)		
LCSZ	Heptachlor	0.050	NA	78.000	(63.00 - 133.00)		
HBLK	Heptachlor	מא	nn.		(63.00 - 133.00)		
HS	Heptachlor	0.050	0.052	104.000	4 (7 00 477		
MBLX	Heptachlor Epoxide	מא		104.000	(63.00 - 133.00)		
MBLX	Hethoxychlor	סא	•				
MBLK	PCB 1016 Aroctor	מא					
HELK	PCS 1221 Aroclor	סא					

Spikes which exceed Limits and Hethod Blanks with positive results are highlighted by <u>Urderlinine</u>.



555 East (Valout Street Passidena, California 91101 818 568 6400: Fass 818 568 6324; 1 800 566 LABS (1 800 566 5227) Laboratory QC Report #25316

Kauai Water Department (continued)

HBLK	PCB 1232 Araclar	В			**		
HBLK	PCB 1242 Aractor	מא					
HBLK	PCB 1248 Araclar	NO					
HBLK	PCB 1254 Aractor	סא					
XBLX	PCB 1260 Araclar	מא					
HBLK	Toxaphene	HD					
HBLK	P,P' 000	סא					
WBLK	P,P' DOE	HD					
FC21	P,P' 00T	0.100	0.123	123.000	4 47 00 447 00 -		
LCSZ	p,p' 00T	0.100	NA	123,000	(.62.00 - 162.00)		
MBLK	P,P' DOT	סא			(62.00 - 162.00)		
HS	P,P' 00T	0.100	0.122	122.000	4 47 00 447 47 .		
			V1122	122.000	(62.00 - 162.00)		
	QC Batch #46622	ICPMS	Matals				
QC .	Analyte	Spiked	Recovered	Yield (%)	Limits (%)	700 481	
LCS1	Antimony, Total, ICAP/MS	50	49.8	99.400	(85.00 - 115.00)	RPO (≈)	
HBLK	Antimony, Total, ICAP/HS	. סא		0.000	(25:00 - 712:00)		
LCS1	Arsenic, Total, ICAP/HS	20	21.6	108.000	(85.00 - 115.00)		•
HBLK	Arsenic, Total, ICAP/HS	מא		0.000	115,00 /		
LCS1	Barium, Total, ICAP/MS	100	99.6	99.600	(85.00 - 115.00)		
HBLX	Barium, Total, ICAP/MS	סא		0.000	,		
LCS1	Beryllium, Total, ICAP/MS	5	4.87	97,400	(85.00 - 115.00)		
HBLK	Beryllium, Total, ICAP/MS	סא		0.000	, ,		
LCS1	Cadmium, Total, ICAP/MS	20	19.4	97.000	(85.00 - 115.00)		
MBLK LCS1	Cadmium, Total, ICAP/MS	OK		0.000	•		
HBLK	Chromium, Total, ICAP/HS	100	192	102.000	(85.00 - 115.00)		
LCS1	Chromium, Total, ICAP/HS	םא		0.000	•	•	
HBLX	Copper, Total, ICAP/MS	100	33.8	99.000	(85.00 - 115.00)		
LCS1	Copper, Total, ICAP/MS	סא		0.000	·		
HBLK	Lead, Total, ICAP/MS	20	19.6	98.000	(85.00 - 115.00)		
rcz1	Lead, Total, ICAP/HS	ָ מא		0.000	•		
XBLK	Nickel, Total, ICAP/MS	· 50	50.8	101.600	(85.00 - 115.00)		
LCS1	Nickel, Total, ICAP/MS	но		0.000	·		
	Selenium, Total, ICAP/HS	20	20.3	101.500	(85.00 - 115.00)		٠
LCST	Selenium, Total, ICAP/HS	י - סא		.000			
- - .	Thallium, Total, ICAP/HS	20	20.3	102.000	(85.00 - 115.00)		

Spikes which exceed Limits and Hethod Blanks with positive results are highlighted by Underlining.

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555 East Walnut Street Pasadena, California 51101 818 568 6400: Fast 818 568 6524; 1 800 566 LABS 11 800 556 5227)

Laboratory QC Report #25316

Kauai Water Department (continued)

HELK Thallium, Total, ICAP/HS KO

0.000

Spikes which exceed Limits and Method Blanks with positive results are highlighted by <u>Underlining.</u>

Page

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APPENDIX C:

COMMENTS AND RESPONSES

BENJAMIN J. CAYETANO



GENEVEVE SALMONSON

OFFICE OF ENVIRONMENTAL QUALITY CONTROL STATE OF HAWAII

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HOMOLINE, WANNE BEST S
TELEPHONE BEST SEE A 188
TACKMENT (BREET SEE A 188

May 24, 1999

Hs. Mathilda Yoshloka Housing Administrator County of Kauai Housing Agency 4193 Hardy Street Lihue, Hawali 96766

Dear Ms. Yoshioka:

Subject: Draft Environmental Assessment for the Lihue and Hanamaulu Water Development Projects, Phase III

Thank you for the opportunity to review and comment on the subject document. We have the following comments and questions.

- The proximity of the Pukaki Well site to the drainage ditch and Pukaki Reservoir, and the proximity of the Hanamaulu Well Nos. 3 and 4 sites to the irrigation ditch and Kapaia Reservoir indicate the possibility of surface water contamination and streamflow reduction. Please describe how the vells Will be designed to minimize impact on the affected ditches and reservoirs. Also describe any plans to monitor the water quality and levels of the affected ditches and reservoirs.
 - Biological tests indicate that the wells do not mest DOH requirements. Please describe what steps vill be taken to ensure the drinking water meets DOH standards.
- In some instances, a well is developed by private financing, the transfer of public lands to government or private developers, or in return for a water allocation credit to supply an urban development. The EA should include a full discussion of any institutional, financial or land use arrangements or commitments related to developing the well and delivering water to end users.

These arrangements may include the formation of public utility companies and subsequent rate-setting, the

Hs. Yoshioka Page 2

establishment of county water commitments, the co-funding of state or county water system development, an executive order or other set-aside of state lands, and purchase of land or easements by public entities.

Any or all of these arrangements and all permits or governmental approvals required to fulfill these commitments should be listed.

- Please discuss how waters from the well will be used, and an analysis of how the proposed well development may affect land and water uses on the island and in the region. The analysis should include a discussion of the following (published materials may be referenced): 4.
- Hawaii State Water Plan and its component parts County General, Development, and/or Community Plans Plans for future water development within the aquifer Any secondary or cumilative impacts caused by promoting land uses that alter the hydrology of the source and/or end-use area
 - end-use area An a well's impact on the land owners, water usors including farmers and kuleana residents in

Should you have any questions, please call Jeyan Thirugnanam at 586-4185. Thank you.

genevieve Salmonson Director lovaire Line Sincerely,

c: Fukunaga and Associates

1388 KAPOLAŁ BOLLEVATO / 2/10 FLOORI YOKOLULI, HWIVAT BASI 4 / FIL. (608) 544-1821 / FAX (608) 846-5039

July 8, 1999

Ms. Genevieve Salmonson, Director Office of Environmental Quality Control 236 South Beretania Street, Suite 702

Dear Ms. Salmonson:

Honolulu, Hawaii 96813

Subject: Draft Environmental Assessment

Lihuc and Hanamaulu Water Development Projects, Phase III and Hanamaulu Well No. 4 Water Development Project - Pukaki Well, Hanamaulu Well Nos. 3 & 4, Control Tank and Appurtenances

Thank you for your review and comments on the Draft EA. This letter is written on behalf of the Kauai County Housing Agency and the County of Kauai Department of Water in response to the comments in your letter dated May 24, 1999.

Comment: The proximity of the Pukaki Well site to the drainage dilch and Pukaki
Reservoir, and the proximity of the Hanamaulu Well Nos. 3 and 4 sites to the
irrigation ditch and Kapaia Reservoir indicate the possibility of surface water
contamination and streamflow reduction. Please describe how the wells will
be designed to minimize impact on the affected ditches and reservoirs. Also
describe any plans to monitor the water quality and levels of the affected
ditches and reservoirs.

Response:

Pukaki Well and Hanamaulu Well Nos. 3 and 4 were designed and constructed to prevent surface water contamination and streamflow reduction from runoff, unlined reservoirs, and ditches. Design of each well includes solid well casing and scaling the annular space between the casing and borehole with cement grout from the ground surface to the following depths:

WELL
Pukaki Well
Innamaulu Well No. 3
Hanamaulu Well No. 4
135 feet

The depths of solid casing and grouting in each well were based upon completely restoring the integrity of the impermeable geologic formations overlying the groundwater aquifer.

-UKUNAGA&ASSOCIATES, NC



Ms. Genevieve Salmonson July 8, 1999 page 2 Like the existing Pukaki Well and Hanamaulu Well No. 3, Hanamaulu Well No. 4 will be monitored for water quality and hydrologic effects during planned pumping tests. When utilized as new potable water sources, the wells will be monitored for water quality and drawdown as required.

Comment: Biological tests indicate that the wells do not meet DOH requirements. Please
describe what steps will be taken to ensure the drinking water meets DOH
standards.

Response: During the drilling and testing phase, water quality that does not meet the biological requirements is common because of the disturbance caused by drilling and inadequate disinfection of drilling equipment. Therefore, upon installation of the well pumps, additional microbiological water quality testing will be performed. Test results that confirm the well waters meet the drinking water standards are anticipated. However, if the results prove that the well water does not meet the maximum microbiological contaminant level, the well water quality will be monitored and waters disinfected (chlorinated) in accordance with the Hawaii Administrative Rules, Title 11, Chapter 20.

Comment: In some instances, a well is developed by private financing, the transfer of
public lands to government or private developers, or in return for a water
allocation credit to supply an urban development. The EA should include a
full discussion of any institutional, financial or land use arrangements or
commitments related to developing the well and delivering water to end users.

These arrangements may include the formation of public utility companies and subsequent rate-setting, the establishment of county water commitments, the co-funding of state or county water system development, an executive order or other est-aside of state lands, and purchase of land or easements by public partities.

Any or all of these arrangements and all permits or governmental approvals required to fulfill these commitments should be listed.

Response: As stated in the EA, the Department of Water plans to purchase the well and tank sites from Lihue Plantation Company, Ltd., the current land owner. Lihue Plantation Company, Ltd. has agreed to the sale conceptually; however, delineation of the parcels will not be finalized unit construction is completed. Access and utility easements will also be obtained. At the present time, the land owner has not made any requests for water allocation from these water sources.

Ms. Genevieve Salmonson July 8, 1999 page 3

The Lihue Water Development Project is funded by a Special Purpose Grant from the United States Department of Housing and Urban Development. There are no restrictions on the water allocation for the project.

Development Block Grant from the United States Department of Housing and Urban Development. The water produced by Hanamaulu Well No. 3 will be The Hanamaulu Water Development Project is funded by a Community allocated to the Hanamaulu Community.

- 4. Comment:
- Please discuss how waters from the well will be used, and an analysis of how the proposed well development may affect land and water uses on the island and in the region. The analysis should include a discussion of the following (published materials may be referenced):
- · Hawaii State Water Plan and its component parts
- County General, Development, and/or Community Plans Plans for future water development within the aquifer
- Any secondary or cumulative impacts caused by promoting land uses that
 - alter the hydrology of the source and/or end-use area
 An assessment of the well's impact on the land owners, water users
 including farmers and kuleana residents in the region.

Response:

water provided by this project addresses deficiencies in the current system, and the area which relies primarily on surface water resources, it is not anticipated that the project will negatively impact land owners, farmers, kuleana residents, As discussed in the EA, growth and expansion of the Lihue service area have existing well sources. Additionally, existing pumpage has been reduced by more than 20 percent because of the large demands and dropping well water levels. Consequently, the Department of Water is currently restricting water requests for developments and subdivisions in the Hanamaulu area until or other water users. The development of additional potable water sources to additional source and storage facilities are developed. The additional source related to this project are not anticipated. Due to the agricultural land use of address source inadequacies of the Lihue Water System has been given the generated potable water demands that have surpassed the capacities of the does not promote changes in land use. Cumulative or secondary impacts highest priority by the Department of Water. The Department of Water will develop the subject water sources in accordance with the Hawaii State Water Plan which includes the water resource protection plan, Kauai Water Use and Development Plan, state water project plan, and

Ms. Genevieve Salmonson July 8, 1999 page 4

water quality plan. Permits and approvals required by the regulatory agencies will be obtained.

The Department of Water anticipates drilling at least one additional water well in the area; however the project is still in the planning stages and there is no budget for the development of the future well at this time.

We hope the responses address your comments to your satisfaction.

Sincerely, FUKUNAGA & ASSOCIATES, INC.

(Mrs) Tetrins Lynn T. Katahara

County of Kauai Department of Water cc: · Kauai County Housing Agency

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KAUAI ELECTRIC Q.

In reply, refer to: File #98-05-302FP

Ms. Lynn T. Katahara Fukunaga & Associates, Inc. 1388 Kapiolani Boulevard, 2²⁴ Floor Honolulu, HI 98814

Fax: (808) 946-9339

SUBJECT: Draft Environmental Assassment for Hanamaulu and Lihue Water Davalopment Projects, Phase III

Dear Ms. Kalahara:

In response to your letter dated May 10, 1999 requesting our review and comments on the Draft Environmental Assessment (DEA), Kaual Electric (KE) has reviewed this project and site location maps and have these concerns:

- According to The State of Hawaii, Public Utilities Commission General Order No. 6, Section III, 31.4; KE must be notified of any work being performed in the close vicinity of our facilities.
- Equipment or vehicle use under or near electrical power circuits must meet a 10 foot minimum clearence, noted in The State of Hawaii, OSHA Standards, Part 3, Section 12-141-3 d 6(c); or lines must be guarded from eccidental contact. Scheduling needs to be made with Kauai Electric prior to construction if guarding is required.

As previously stated in our May 19, 1998 letter to ParEn, Inc., dba Park Engineering (attached), KE will serve the Pukaki and Hanamaulu Wells off an extension of the existing overhead electrical line on Maalo Road. In addition, the existing 7.2 KV single-phase line will need to be upgraded to three-phase 12.47 KV in order to service the wells.

Fukunaga & Associales, Inc. June 4, 1999

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Please have the consultants submit the plans to KE for our approval prior to construction. Topography maps may also be required to assist us in our review.

Kaual Electric looks forward to working with you on this project. If there are any questions regarding this project, please call Mr. Fred Pascual at (808) 822-9404 or myself at (808) 246-8273.

Sincerely,

Ollebra) A. Bastrary

Dehra L. Santiago Distribution Engineer

1388 KAPOLA I BOLLEVARD / 21.D FLOORA-CHOLLLU, I HWW 1881 4 / FH. (809) 914-1821 / FAX (809) DA61003

July 8, 1999

Ms. Debra Santiago, Distribution Engineer Kauai Electric

4463 Pabee Street Lihue, Kausi, Hawaii 96766-2032

Dear Ms. Santiago:

Subject: Draft Environmental Assessment
Libue and Hanamaulu Water Development Projects, Phase III and Hanamaulu Well No. 4 Water
Development Project - Pukaki Well, Hanamaulu Well Nos. 3 & 4, Control Tank and Appuntenances

Thank you for your review and comments on the Draft EA. This letter is written on behalf of the Kanai County Housing Agency and the County of Kauai Department of Water in response to the comments in your letter dated June 4, 1999.

According to the State of Hawaii, Public Utilities Commission General Order No. 6, Section III, 31.4; KE must be notified of any work being performed in the close vicioity of our 1. Comment:

Mr. Fred Pascual of KE staff has been informed of the projects and has been to the situs for a preliminary briefing of the projects. KE will be kept abteast of the design as it proceeds. Response:

Equipment or vehicle use under or near electrical power circuits must meet a 10 foot minimum elearance, noted in the State of Hawaii, OSHA Standards, Part 3, Section 12-141-3 d 6(c); or lines must be guarded from accidental contact. Scheduling needs to be made with Kauai Electric prior to construction if guarding is required. 2. Comment:

The Contractor will be informed of these requirements and will be responsible for scheduling with $K\mathfrak{D}$ as required. Response:

Please have the consultants submit the plans to KE for our approval prior to construction. Topography maps may also be required to assist us in our review. 3. Comment:

Plans will be submitted to KB for approval and will be provided with information as required.

We hope the responses address your comments to your satisfaction.

Sincerely, FUKUNAGA & ASSOCIATES, INC.

Upro Trather

cc: Kauai County Housing Agency
County of Kauai Department of Water

FURUNGA&ASSOCIATES, N.C.

