ALAN M. ARAKAWA
Mayor

GEORGE Y. TENGAN
Director

ERIC H. YAMASHIGE, P.E., L.S.
Deputy Director

DEPARTMENT OF WATER SUPPLY
COUNTY OF MAUI
200 SOUTH HIGH STREET
WAILUKU, MAUI, HAWAII 96793-2155
www.mauiwater.org

August 9, 2005

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

Dear Ms. Salmonson,

Re: Finding of No Significant Impact(FONSI)
Development of Waikapu Tank Site Exploratory Well
State Well No. 5131-01
Waikapu, Maui, Hawaii
TMK: (2) 3-5-04: 099 & 022

The Department of Water Supply has reviewed the comments received during the 30 day comment period which began on June 8, 2005. The agency has determined that this project will not have significant environmental effects and has issued a FONSI. Please publish this notice in the next available OEQC Environmental Notice.

We have enclosed a completed OEQC Publication Form and four copies of the final EA. Please call George Tengan, Director at 808-270-7816 if you have any questions.

Sincerely,

George Y. Tengan
Director

lw

enclosures: OEQC Publication Form
Final EA (4 copies)

2005-09-08 MA FONSI WAIKAPU TANK SITE WELL DEVELOPMENT

SEP - 8 2005

FILE COPY

Chapter 343, Hawaii Revised Statues (HRS)

Final Environmental Assessment

Finding of No Significant Impact Anticipated (FONSI)

for the

Development of the Waikapu Tank Site Exploratory Well

(State Well No. 5131-01)

Waikapu, Maui, Hawaii

TMK: (2) 3-5-04: 099 & 22

Proposing Agency:
Department of Water Supply
County of Maui
200 South High Street
Wailuku, Hawaii 96793

Prepared by:
C. Takumi Engineering, Inc.
18 Central Avenue
Wailuku, Hawaii 96793

July 19, 2005

Environmental Assessment
Finding of No Significant Impact Anticipated (FONSI)
for the
Development of the Waikapu Tank Site Exploratory Well
(State Well No. 5131-01)

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Environmental Assessment
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for the
Development of the Waikapu Tank Site Exploratory Well
(State Well No. 5131-01)

I. INTRODUCTION

A. IDENTIFICATION OF THE PROPOSING/APPROVING AUTHORITY AND CONSULTANT

Proposing Agency/Accepting Authority:

County of Maui
Department of Water Supply
200 South High Street
Wailuku, Hawaii 96793

Consultant:

C. Takumi Engineering, Inc.
18 Central Avenue
Wailuku, Hawaii 96793

B. PROJECT DESCRIPTION

The Iao Aquifer System (60102) is the primary source of domestic water supply for the Department of Water Supply's (DWS) Wailuku District Water System. The sustainable yield of the aquifer is 20 million gallons per day (mgd). There are five locations from which ground water is pumped - Kepaniwai Well, Mokuhau Well, Waihee Well Field, Waiehu Heights Well Field and Wailuku Shaft 33. Other sources contributing to the system are the Iao Tunnel and Waikapu Ditch at the Iao Water Treatment Facility. There are three wells at the Mokuhau Well Field and salinity has been increasing. The DWS has stopped pumping one well because of high salinity due localized up coning. The DWS proposes to develop new deep well sources to more evenly distribute pumpage throughout the aquifer thereby reducing pumping from the Mokuhau Well field and benefitting salinity levels. The Maui County Department of Water Supply (DWS) is proposing to develop the Waikapu Tank Site Exploratory Well (#5131-01) located in Waikapu, Wailuku, Maui, Hawaii (TMK (2) 3-5-04: 099 and portion of 3-5-04: 022) approximately 2.5 miles south of the Mokuhau Wells. An environmental assessment was completed in September 1996 for the *Drilling and Testing of the Waikapu Tank Site Exploratory Well*. The well was test pumped at 1,423 gpm and a water quality sample taken during the continuous pump test. Based upon the drilling and testing results, the Department of Water Supply proposes to install a 1,400 gpm pump to provide potable water to their Wailuku District Water System.

Besides the Waikapu Tank Site Exploratory Well, the Waikapu 300,000 gallon concrete water tank is located on the site. Additional lands will be needed to accommodate the additional improvements consisting of electrical/disinfection facilities, security measures and electrical power. Approximately 6,000 square feet will be needed from TMK: 3-5-04: 022 along the east side of the existing tank site as shown in the Boundary Site Layout plan.

The work will consist of installation of a deep well vertical pump and motor capable of pumping 1,400 gpm, piping, electrical, SCADA, disinfection facilities, and related work needed to connect the well to the tank. The electrical and disinfection equipment will be located within a new CMU building. Power from Maui Electric Company, the local utility, will have to be brought to the site via Waiko Road as part of the project.

C. BACKGROUND INFORMATION

The Wailuku District Water System, aka Central Maui Water System, is owned and operated by the Maui Department of Water Supply. The water system service area includes Wailuku, Waihee, Waikapu, Wailuku Heights, Kahului, Puunene, Kihei, Wailea, Maalaea, Makena, Paia-Kuau and Spreckelsville. Water Demand is expected to increase to 30 mgd by the year 2010 according the Maui County Water Use and Development Plan, February 1992. As previously mentioned, this project will more evenly distribute the pumping throughout the Iao Aquifer by pumping from the southern end of the aquifer and reduce centralized pumping occurring at the Mokuhau Well Field. Pumping from the Iao Aquifer is nearing the 20 MGD sustainable yield and pumping is carefully monitored.

New ground water sources are being developed in the adjacent Waihee Aquifer (60103) to accommodate the growing demand. Hamakuapoko Wells 1 & 2 from the East Maui are also being developed to service the Paia Community. Surface water development at Waiale Reservoir is being planned by A&B Properties, Inc. for future development.

The Waikapu Tank Site Exploratory Well was drilled, cased and tested in 1999. The "*Results of Drilling & Testing, Waikapu Mauka Well (5131-01)**", prepared by Water Resource Associates as submitted to the Commission on Water Resource Management is attached. A 1,000 gpm to 1,400 gpm pump was recommended. This project proposes a 1,400 gpm pump to be installed. Two other wells, Waikapu Well No. 1 (State Well No. 5130-01) and No. 2 (State Well No. 5130-02) are located approximately 2,500 feet east (downstream) of this well. The wells are not in service and the Waikapu Well No. 2 is being used as a observation well.

D. PROJECT LOCATION

The proposed project is located west of Waikapu Town along the northern side of Waiko Road in Wailuku, Maui, Hawaii designated as TMK: (2) 3-5-04: 099 as shown in attached figure. Additional land next to the site will have to be acquired from adjacent parcel, TMK: (2) 3-5-04: 022. The TMK 3-5-04 is attached for reference. Approximately 5,320 square feet, only enough area for the improvements associated with the development of the well, will be obtained from the adjacent 22.7 acre lot.

E. LAND OWNERSHIP

The well site is located on a parcel designated as TMK: (2) 3-5-04: 099 and owned by the County of Maui. A 300,000 gallon reservoir and other water supply improvements are already situated on the site. As mentioned previously, approximately 5,320 square feet of additional land will have to be acquired from adjacent parcel designated as TMK: (2) 3-5-04: 022. Only additional lands needed for the project will be obtained and the parcel will have to be subdivided. The adjacent land was previously used for sugar cane and pineapple cultivation.

F. LAND CLASSIFICATION

State Land Use:	Agricultural
County Community Plan:	Agricultural
County Zoning:	Agricultural

G. OTHER REQUIRED PERMITS AND APPROVALS

The required permits that are needed to proceed with the proposed project is a Pump Installation Permit from the Commission on Water Resource Management and County of Maui Grading Permit and Building Permit. The source will have to be approved by the State Department of Health, Drinking Water Branch prior to placing the well into service. Subdivision approval will be needed for the acquisition of the additional lands, since only a portion of the adjacent parcel is needed for the development of the site. Power will be obtained from Maui Electric Company, the local utility. An NPDES permit may be required by the contractor for disposal of hydrotest/chlorinated water; however, the water is usually dechlorinated before being released and the contractor shall make provisions so hydrotest/chlorinated waters will not enter state waters.

H. CONSTRUCTION COST AND IMPLEMENTATION

Construction for the proposed project is anticipated to begin in 2006 and will be solely funded by the County of Maui. The estimated construction cost of the project is $930,000.00.

I. AGENCIES CONTACTED FOR PRE-CONSULTATION:

- Planning Department, County of Maui
- Commission on Water Resource Management, Department of Land and Natural Resources, State of Hawaii.
- Safe Drinking Water Branch, Environmental Health Division, Department of Health, State of Hawaii.

II. DESCRIPTION OF THE EXISTING ENVIRONMENTAL SETTING

A. PHYSICAL ENVIRONMENT

1. Existing Land Uses

   The location of the proposed well is within a developed area being used for water supply purposes containing a 300,000 gallon reservoir, parking and drainage improvements. The Waikapu Tank Site Exploratory Well was constructed and tested in 1999. A fence surrounds the site; however, the site will have to be expanded to accommodate the additional proposed improvements.

2. Surrounding Land Uses

   Presently the lands surrounding the project site is in fallow. The surrounding lands were previously used for sugar cane and later for pineapple cultivation.

3. Climate

   The prevailing wind in the region are the northeasterly trade winds, which is typical of the windward areas of the Hawaiian Islands. Temperatures range from 48 to 96 degrees Fahrenheit. The average annual rainfall at the well site ranges from 20 to 40 inches a year.

4. Topography

   The developed parcel is situated on the eastern slopes of the West Maui Mountains. The elevation at the well site ranges from about elevation 790 to 760 feet Mean Sea Level (MSL) sloping from west to east over a horizontal distance of 225 feet. This amounts to an average slope of about 14 percent. Since a 300,000 gallon concrete reservoir is located on the site, the immediate well site area is relatively flat with an estimated grade of less than 4%. The proposed area does not show any significant topographical constraints.

5. Soils

   The soil type present at the well site and the surrounding areas is Iao Clay, (IcC), 7 - 15 percent slope, moderate shrink swell potential, runoff if medium and erosion hazard is moderate.

6. Flood Hazard

   The site is located in an area of minimal flood hazard as determined by the Flood Insurance Map for the area.

7. Groundwater Conditions

   The Waikapu Tank Site Exploratory Well was completed in 1999. The static water level of the aquifer was reported as 18.35 feet MSL. The continuous pump test resulted in a draw down of 5.4 feet at a constant pump rate of 1,424 gpm. The aquifer condition during the pump test is presented in the "*Results of Drilling & Testing, Waikapu Mauka Well (5131-01)**," prepared by Water Resource Associates as submitted to the Commission on Water Resource Management is included as Attachment A. Chloride content measured during the pump test ranged from 28 to 31 mg/l and the water

temperature measured at 70° to 71° Fahrenheit. A 1,000 gpm to 1,400 gpm pump was recommended. This project proposes a 1,400 gpm pump to be installed.

The sustainable yield of the Iao Aquifer is 20 MGD and the Department of Water Supply has a total pumping capacity in aquifer exceeding the sustainable yield. However, this well will be used to decrease pumping at Mokuhau and more evenly balance pumping from the aquifer.

The geological conditions encountered during construction of the well and experience with the previous Waikapu Well No. 1 (State Well No. 5130-01) and No. 2 (State Well No. 5130-02) shows that dense alluvial, poorly permeable material was encountered. The geological conditions should not affect any surface water streams, and the potential for contamination is unlikely.

A water sample taken on December 15, 1999 during the continuous pump test and analyzed by a State Department of Health approved laboratory is included as Attachment B.

8. Flora and Fauna

The proposed well site is covered with various weeds, grass, shrubs, and trees primarily castor bean, sugar cane, and horse cane.

Animal life found in the Waikapu area are mongoose, rodents, chickens, dogs and cats. Avifauna that is typically found in the region are mynas, francolins, sparrows, cardinals, doves and finches. There are no known endangered or threatened wildlife within the project site.

9. Air Quality

There are no industries affecting air quality nearby. There are few residences nearby. Surrounding fields are in fallow and the well site does not contribute dust.

10. Noise Characteristics

The noise level in the project area is relatively low. Natural conditions, occasional commuter aircraft, and local traffic are the only attributes.

11. Archaeological Resources

A letter from the State Historic Preservation Division dated April 18, 1996 indicated that the area has been impacted by previous grading and excavation during the construction of the water tank and earlier agricultural pursuits. Due to the extent of prior disturbances, it is unlikely that there are subsurface deposits or features. The State Historic Preservation Division confirmed the response of "no effect" in June 27, 1996 letter attached in the Final Environmental Assessment for the Waikapu Tank Site Exploratory Well (State Well No. 6131-01), September 1996 prepared by Fukunaga & Associates, Inc.

B. SOCIO-ECONOMIC ENVIRONMENT

1. Population and Economy

Though water use in the Wailuku System is increasing, water from the Iao Aquifer is limited by its sustainable yield. Pumping already within the Iao Aquifer is near its sustainable yield. The well project is will allow pumping the aquifer evenly and reduce concentrated pumping at the Mokuhau Well Field. The Mokuhau Well Field consist of three wells with large pumps relatively close together and one well is experiencing localized up coning of salt water. As such, this well will not stimulate population nor have long term effects upon the economy.

2. Cultural Assessment

The site was originally used for sugar cane growing and was disturbed by cultivation. A 300,000 gallon concrete tank was constructed which included extensive ground-altering activities to prepare the site for the tank. The Waikapu Tank Site Exploratory Well was drilled and tested on the same site with the well report written in 2000. Any cultural resources within the site have been obliterated considering all of the prior activities that have occurred.

C. PUBLIC SERVICES AND INFRASTRUCTURE

1. Recreational Facilities

The Wailuku area offers recreational facilities for Maui residents including parks, community centers and golf courses. However, the project will not affect any existing recreational facilities.

2. Police and Fire Protection

The Wailuku Station is the headquarters for the Maui County Police Department. The project is located on an existing 300,000 gallon tank site. The DWS is responsible for maintaining the site.

The Department of Fire Control Wailuku Station offers fire prevention, suppression and protection for the Waikapu area. No additional fire service is anticipated due to this project.

3. Health Care

The Maui Memorial Hospital in Wailuku offers 24-hour emergency service for the area. The project is a well development project which does not impact health care facilities.

4. Schools

The public schools that serve the Waikapu area are Wailuku Elementary School, Iao Intermediate School and Baldwin High School. St. Anthony School is also located in Wailuku. The project will not alter or increase student population.

5. Solid Waste

The Wailuku district is served by a County refuse system. All solid waste is then transported to the Cental Maui Landfill. In the long term, the project does not generate

solid waste; however, there will be short term solid waste generation during construction. Proper disposal of clearing and grubbing material as well as construction debris will be the contractor's responsibility.

6. Roadways

Waiko Road is the primary access to the project site. A 300,000 gallon concrete reservoir is located at the site and no road improvements are proposed. There will be a short term increase in traffic as workers and equipment arrive and leave the site. Once construction is completed there will be occasional maintenance traffic.

7. Water

The project is within the DWS Central Maui Water System and consist of DWS improvements. An existing 300,000 gallon concrete reservoir and the Waikapu Tank Site Exploratory Well are located at the site. The proposed project will be used to reduce pumping at the DWS Mokuhau Well field and is not intended to withdraw additional waters from the Iao Aquifer. Water withdrawal from the Iao Aquifer is near the sustainable yield and additional pumping may affect the aquifer. The DWS is carefully monitoring their pumping within the Iao Aquifer to assure that the sustainable yield is not exceeded.

8. Wastewater

Presently, the County sewer system does not service the immediate area and waste water disposal for the approximately 10 existing residences within 1,000 feet is by cess pool/ septic system. Wailuku Heights mauka of the site and Waiolani Subdivision east of the site have County wastewater services. The County is presently planning to expand their wastewater system to include residences along Waiko Road. New developments within 1,000 feet of the existing well require aerobic units with a shallow soil absorption system. The proposed project will not have wastewater generating facilities.

9. Drainage

There is an existing paved drainage swale which carries storm discharge away from the site. Drainage due to the new improvements will be directed to the drainage swale. The area to be developed will be minimized to keep additional surface runoff small. The top of the well casing shall be terminated above the ground surface and sealed to protect against surface water, pollutants and other contaminants from entering the well.

III. POTENTIAL IMPACTS AND MITIGATION MEASURES

A. IMPACTS TO THE PHYSICAL ENVIRONMENT

1. Air Quality and Noise Characteristics

The short-term construction-related activities may create dust, which will cause an impact on the air quality. Dust control and wind blown emissions will be kept to a minimum through regular watering and sprinkling. In the long-term the Waikapu Tank Site Well is not expected to have an impact on the air quality once vegetation is reestablished.

In order to minimize the short term impact of noise conditions, construction activities shall be limited to daylight working hours. Equipment shall be required comply with Title 11, Chapter 42, "Vehicular Noise Control," and Chapter 48 "Community Noise Control" of the Hawaii Administrative Rules. Long term noise from equipment will be from the pump and motor. A submersible pump and motor will be used to minimize noise from the pump. Electrical and disinfection equipment will be housed within a CMU building to minimize noise from electrical and hypo-chlorination equipment.

2. Archaeological Resources

The site has been previously disturbed and it is unlikely that these are archaeological sites. However, if any artifacts are found during the construction work will be stopped. The State Historic Preservation Division will then be contacted for further appropriate measures.

B. SOCIO-ECONOMIC ENVIRONMENT AND PUBLIC SERVICES

1. Local Economy

The short-term well construction activities will increase construction and construction-related employment. Long term impacts will be small since the site already has DWS facilities which requires maintenance. Additional maintenance will be needed for the pumps, electrical and chlorination equipment. It will be necessary to provide pre-mixed hypochlorite solution for disinfection. However, the additional improvements will not significantly increase overall maintenance since there will be a reduction in maintenance and use of water disinfectant at the DWS Mokuhau Well Field.

2. Solid Waste

The clearing and grubbing of the proposed activity will require the proper disposal, thus a plan will be arranged with the Maui County Department of Public Works and Environmental Management, Solid Waste Division to remove construction debris and vegetation.

3. Traffic

There will be a short term increase in traffic as workers and equipment arrive and leave the site. As stated previously, Waiko Road leads to the site and no new roadways will be constructed. Long term traffic will see a slight increase due to maintenance vehicles

visiting the site.

IV. RELATIONSHIPS TO GOVERNMENTAL PLANS, POLICIES, AND CONTROLS

A. STATE LAND USE DISTRICTS

Chapter 205, Hawaii Revised Statutes, relating to the Land Use Commission (LUC), establishes the 4 major land use districts in which all lands in the State are placed. These districts are designated Urban, Rural, Agricultural, and Conservation. The proposed water utility project, Waikapu Tank Site Exploratory Well Development is permitted within the Agricultural district.

B. MAUI COUNTY GENERAL PLAN AND WAILUKU-KAHULUI COMMUNITY PLAN

The location of the well site is within the Wailuku-Kahului Community Plan region and is designated as Agriculture. The project is a permitted use within an agricultural designated area.

The well will be used to reduce pumping at other sites within the Iao Aquifer and is not intended to increase development or produce changes in zoning and land use.

V. OTHER REQUIRED PERMITS AND APPROVALS

The required permits that are needed to proceed with the proposed project are a Well Pump Installation Permit from the State Commission on Water Resource Management and County of Maui Grading Permit, Building Permit and other construction permits and State Department of Health New Potable Water Source Approval. The contractor shall be responsible to obtain an NPDES Permit for Testing if it is anticipated that hydrotest water will reach State waters.

Approximately 5,320 square feet will have to be acquired from TMK: (2) 3-5-04: 022 and consolidated with the existing tank site lot. The procedure will have obtain Maui County subdivision approval.

VI. ALTERNATIVES TO THE PROPOSED ACTION

A. No Action:

There is general agreement by the State Commission on Water Resource Management, U.S. Geological Survey and other hydrogeologists that wells should be spaced to stabilize the aquifer and to improve the quality of water pumped from the Iao Aquifer. The Waikapu Tank Site Exploratory Well Development project is in response to this advice. A no action alternative may show continued increase in salinity at the Mokuhau Well Field where three wells are spaced relatively close together increasing the possibility of localized up coning and increasing salinity in the potable water supply.

B. Other alternatives:

No other alternatives were considered since the Waikapu Tank Site Well has been drilled, cased and tested.

VII. Construction Cost

The construction cost of this Project will be funded by the County of Maui. The estimated cost of construction is detailed below.

Description	Quantity	Unit	Cost
Clearing & Grubbing	0.25	Ac.	$5,000.00
Earthwork	Lump Sum		$30,000.00
6" Untreated Aggregate Base Course & 2" AC Paving	140	Sq. Yd.	$10,000.00
Best Management Practice & Grassing	5,000	Sq. Ft.	$10,000.00
Fencing	225	Lin. Ft.	$10,000.00
Security Fencing	Lump Sum		$75,000.00
1,400 gpm Deep Well Pump	1	Ea.	$280,000.00
Pump Piping	Lump Sum		$50,000.00
Flow Meter w/ manhole	1	Ea.	$20,000.00
Connection to Existing 300,000 gal. tank	Lump Sum		$15,000.00
Electrical/Chlorination Building	Lump Sum		$100,000.00
Chlorination Equipment	Lump Sum		$20,000.00
Electrical Work	Lump Sum		$150,000.00
TOTAL ESTIMATE PROJECT COST			$775,000.00
Contingencies (20%)			$155,000.00
Total			$930,000.00

VIII. FINDINGS AND CONCLUSIONS

(1) **Involve a loss or destruction of any natural or cultural resource;**

No natural or cultural resource have been recorded at the project site. The site has already being disturbed by agricultural pursuits and the construction of the existing 300,000 gallon concrete reservoir and related site improvements. In addition, a well has been constructed on the project site.

(2) **Curtail the range of beneficial uses of the environment;**

The Project involves improvements to an existing developed site and conforms to the land uses allowed in the Wailuku-Kahului Community Plan and State Land Use Plan Designations. The development of the Waikapu Tank Site Exploratory Well will relieve pumping at the Mokuhau Well Field where salinity is increasing mostly likely due to centralized pumping.

(3) **Conflict with the State's long-term goals or guidelines as expressed in Chapter 343, HRS;**

The proposed improvements do not conflict with the Environmental Policies established in Chapter 344, HRS, and the National Environmental Policy Act.

(4) **Substantially affect the economic or social welfare of the community or state;**

The Project will not substantially affect the economic or social welfare of the community or state. The project, in itself, is not contributing to new population growth or economic benefit to any specific organization.

(5) **Substantially affect public health;**

Once the Project is completed, impacts from air, noise, and water quality impacts will be insignificant or not detectable. Overall, the improvements will be positive as compared to the "no-action" alternative since it will provide additional recreational facilities for the area.

(6) **Involve substantial secondary effects, such as population changes or infrastructure demands;**

The proposed project will not in itself generate new population growth. Upon completion of the project, infrastructure demands will be limited to maintenance of the site improvements.

(7) **Involves a substantial degradation of environmental quality;**

The proposed project will reduce concentrated pumping within the Iao Aquifer and the DWS Mokuhau Wells. Water withdrawal from the Iao Aquifer is near the sustainable yield; this project is not intended to increase withdrawal from the aquifer but to more evenly distribute the wells throughout the aquifer.

The site has been previously disturbed due to the construction of the existing 300,000 gallon reservoir and Waikapu Tank Site Well.

(8) **Cumulatively have a considerable effect on the environment or involve a commitment to larger actions;**

The proposed project involves development of a well for potable water purposes. Pumping from the Iao Aquifer is nearing its sustainable yield; and no increase in pumping of the Iao Aquifer is anticipated. This well will be used to relieve pumping at the DWS Mokuhau Well Field which has three (3) large deep well pumps. This well will reduce pumping from the Mokuhau Well field and spread the wells more evenly so aquifer with drawl can be more even throughout the aquifer thereby reducing localized up-coning that may occur.

(9) **Substantially affect a rare, threatened, or endangered species or its habitat;**

No endangered plant or animal species was observed at the project site.

(10) **Detrimentally affect air or water quality or ambient noise levels;**

Air and water quality will comply with the State Department of Health noise and clean water regulations. The well will be used to provide potable water for the Central Maui Water System and must conform the to State's Safe Drinking Water regulations.

(11) **Affect an environmentally sensitive area, such as a flood plain, tsunami zone, erosion prone area, geologically hazardous land, estuary, freshwater area, or coastal waters;**

According the Flood Insurance maps available, the area is within an area of little of no flood hazard. The site is a substantial distance from the ocean and at a higher elevation where tsunami, coastal waters and fresh water areas will not be affected. The site contains an existing 300,000 gallon concrete reservoir which has not experienced any geologically hazardous land.

(12) **Substantially affect any scenic vistas or view planes identified in county or state plans or studies;**

The existing site contains a 300,000 gallon concrete reservoir. None of the proposed improvements will be higher than the existing reservoir.

(13) **Require substantial energy consumption.**

The proposed project will require energy once the Project is completed to operate the pump and related equipment. However, there will be a negligible change in overall power consumption since the Waikapu Tank Site Well pump will be reducing an equivalent amount of pumping at the Mokuhau Well Field.

IX. REFERENCES

1. County of Maui, Maui Planning Department. Community Plan: Wailuku-Kahului Community Plan.

2. County of Maui, Maui Planning Department. The General Plan of the County of Maui. 1990 Update.

3. County of Maui, Office of Economic Development. Maui County Data Book 1995. February 1996.

4. U.S. Department of Agriculture, Soil Conservation Service in cooperation with the University of Hawaii Agricultural Experiment Station. Soil Survey of Islands of Kauai, Oahu, Maui, Molokai, and Lanai, State of Hawaii, 1972.

5. University of Hawaii, Department of Geography, Atlas of Hawaii, Second Edition, University of Hawaii Press, 1983.

6. County of Maui, Department of Water Supply. Drilling and Testing Waikapu Tank Site Exploratory Well (State Well No. 6131-01), September 1996.

7. Results of Drilling and Testing Waikapu Mauka Well (5131-01)*, Water Resource Associates, November 2000.

   *(Initially, there were two proposed sites for a well in the vicinity of Waikapu. Water Resources Associates had these two sites named as the Waikapu Mauka Well. For The sake of consistency, Waikapu Tank Site Well will be utilized hereforth for this Project).

FIGURES

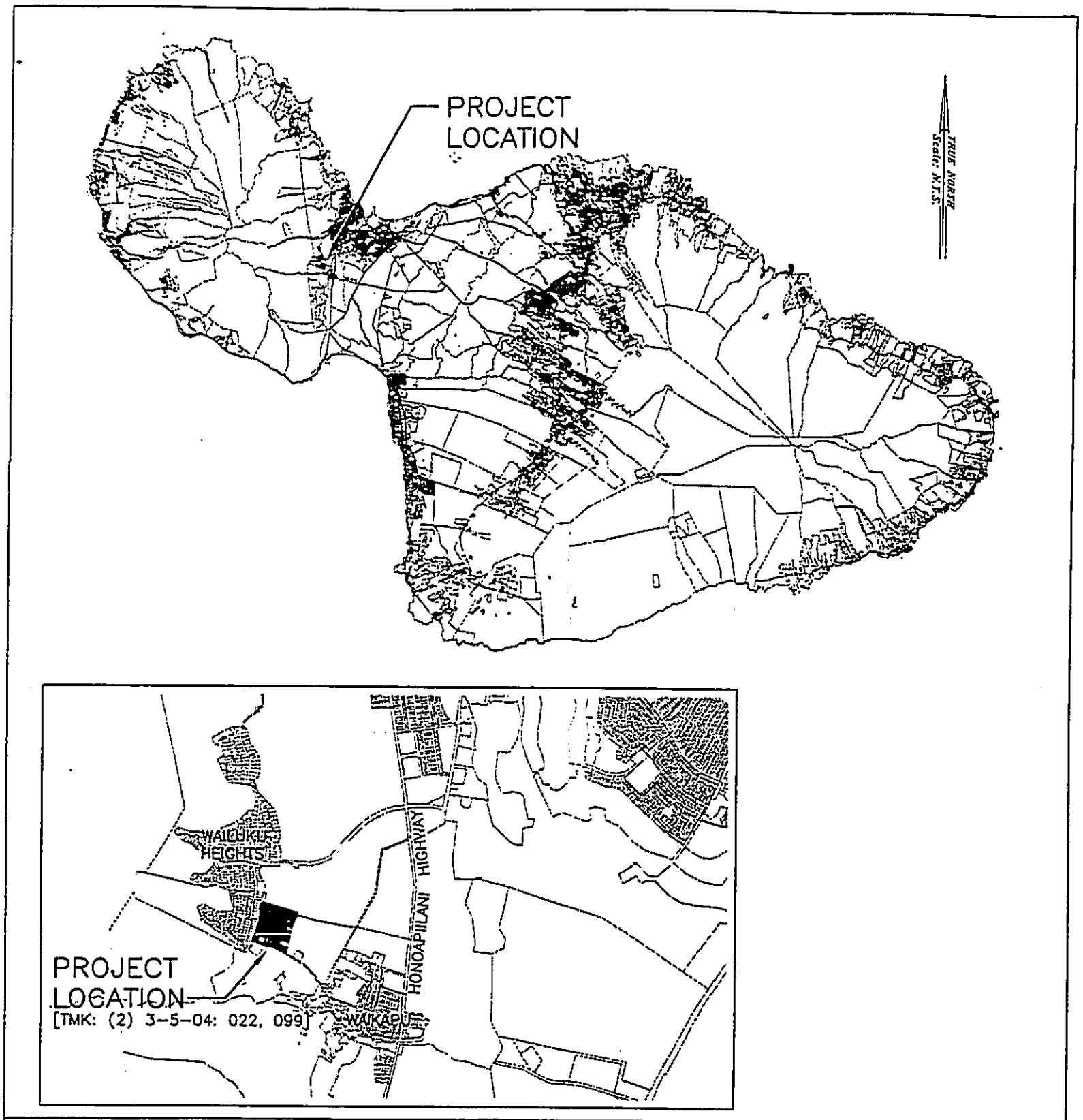


FIGURE 1 – LOCATION MAP
WAIKAPU TANK SITE WELL DEVELOPMENT
WAIKAPU, WAILUKU, MAUI, HAWAII

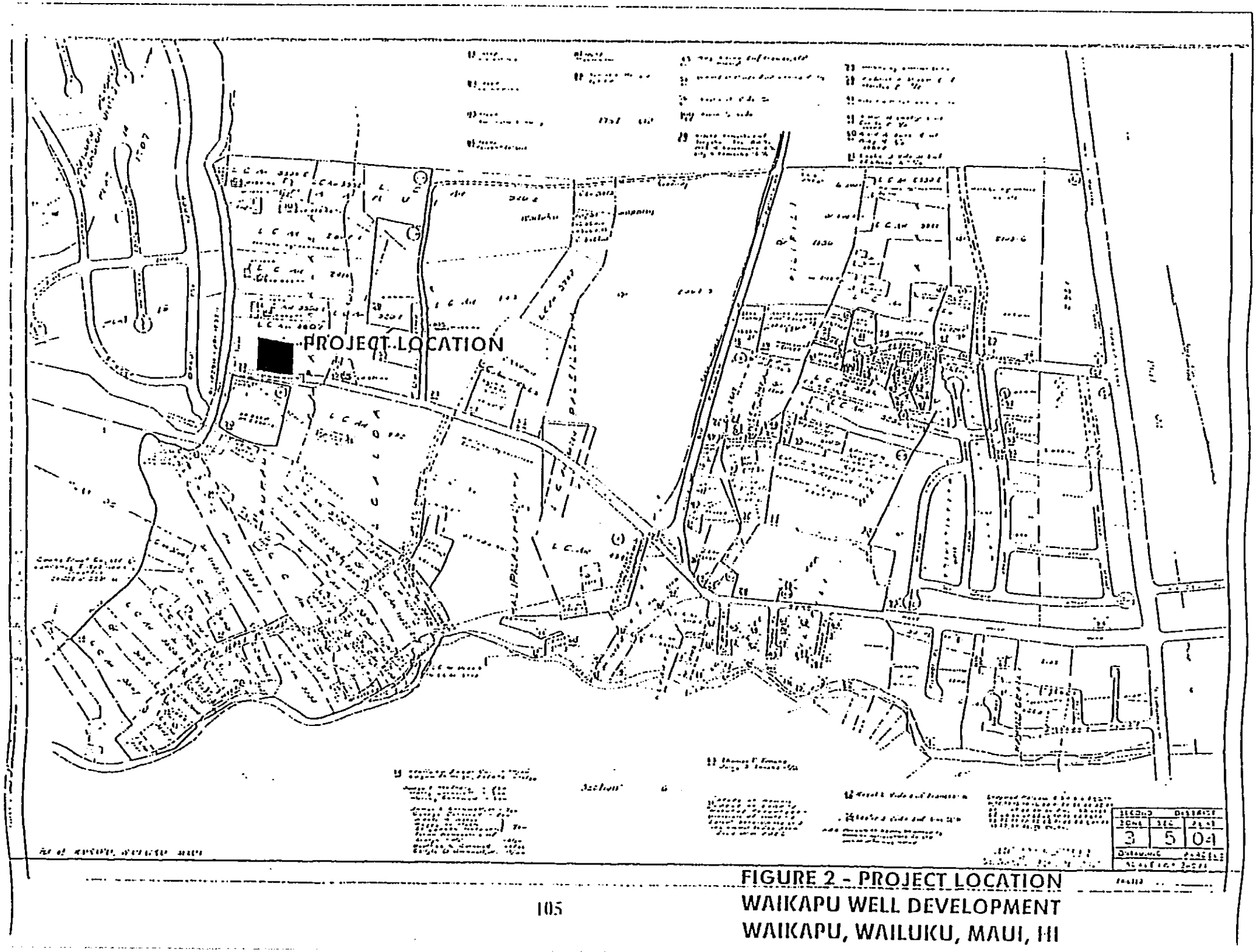


FIGURE 2 - PROJECT LOCATION
WAIKAPU WELL DEVELOPMENT
WAIKAPU, WAILUKU, MAUI, HI

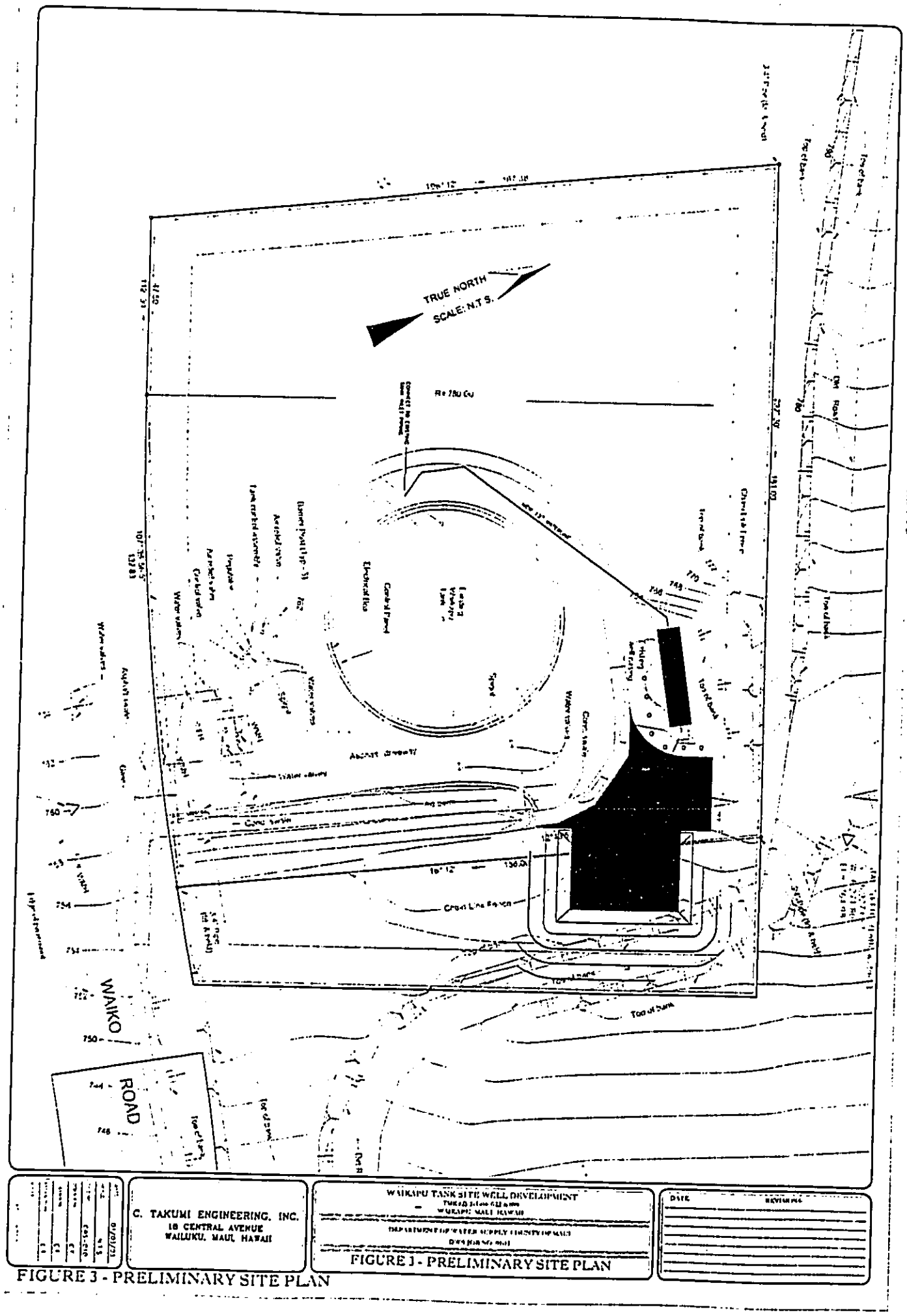


FIGURE 3 - PRELIMINARY SITE PLAN

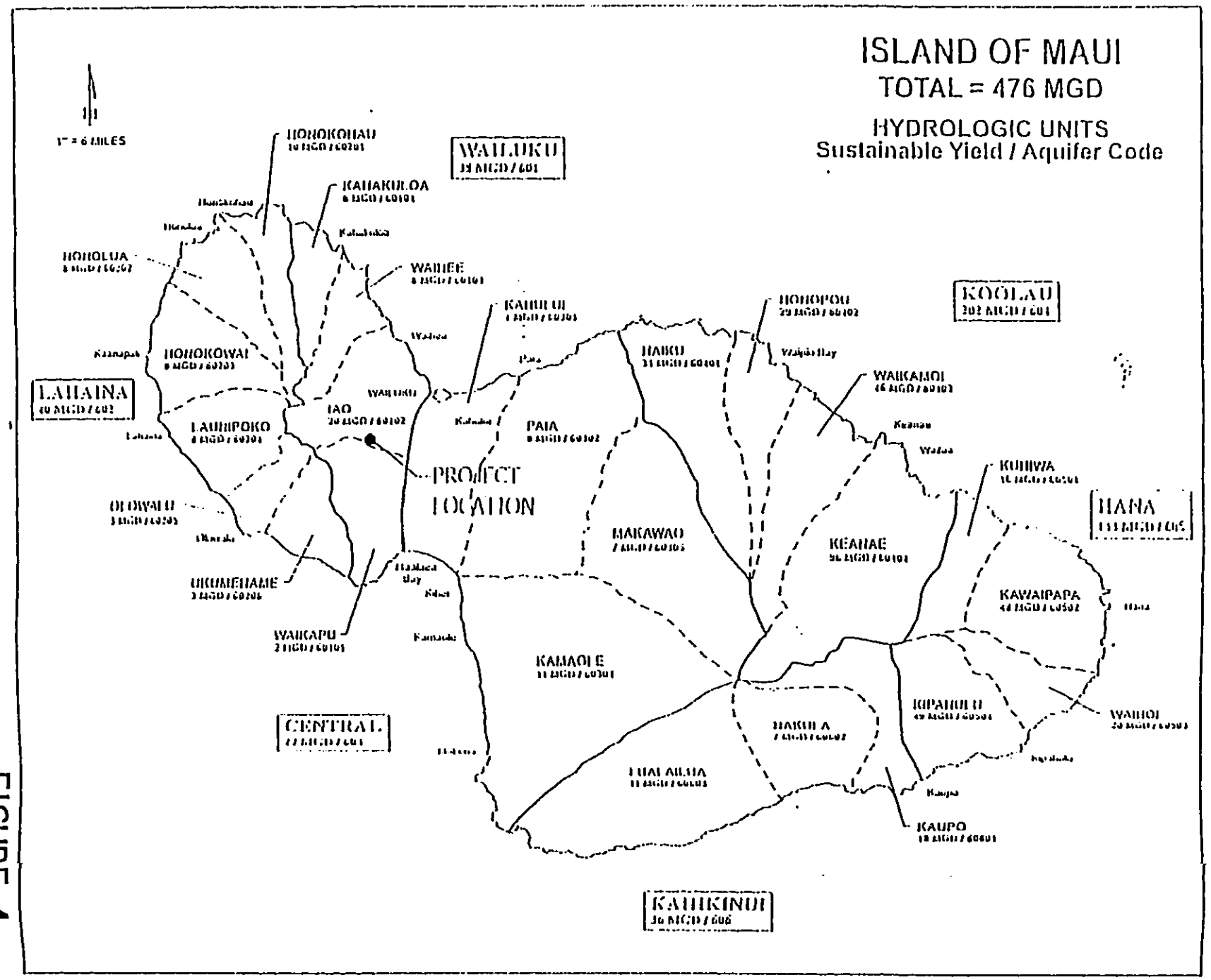


FIGURE 4

10/20/1995

Map Projection: Universal Transverse Mercator

PRECONSULTATION CORRESPONDENCE

Planning Department, County of Maui

Commission on Water Resource Management, State Department of Land and Natural Resources

Safe Drinking Water Branch, Environmental Health Division, State Department of Health

*(Waikapu Mauka Well changed to Waikapu Tank Site Well-see explanation in "References".)

COUNTY OF MAUI
DEPARTMENT OF PLANNING

November 27, 2002

Mr. Carl Takumi, P.E.
C. Takumi Engineering, Inc.
18 Central Avenue
Wailuku, Hawaii 96793

Dear Mr. Takumi:

RE: Early Consultation for Draft Environmental Assessment for the Proposed Waikapu Mauka Well Development at Maui TMK: (2)3-5-004:099 Waikapu, Maui, Hawaii

The Maui Planning Department has reviewed the summary for the proposed project and has the following comments to offer:

1. Under existing State Land Use and County Zoning the proposed project is an allowable use within the Agriculture District.

Should you have any questions, please contact Ms. Maria N. Isotov, Staff Planner, of this office at 270-7735.

Very truly yours,

JOHN E. MIN
Planning Director

JEM:MNI:jay
c: Clayton Yoshida, AICP, Deputy Planning Director
Maria N. Isotov, Staff Planner
Project File
General File K:\WP_DOCS\PLANNING\LETTERS\ltr2002 ltr20025578WaikapuMaukaWell.wpd

LINDA A. NOCE

PETER T. YOUNG

MEREDITH J. CHING
CLAYTON W. DELA CRUZ
CHIYOME L. FUKINO, M.D.
BRIAN C. NISHIDA
HERBERT M. RICHARDS, JR.

DEAN A. NAKANO

N.J. CAYETANO
GOVERNOR OF HAWAII

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

February 26, 2003

Mr. Carl K. Takumi, P.E.
C. Takumi Engineering, Inc.
18 Central Avenue
Wailuku, HI 96793

Dear Mr. Takumi:

Information and Location Request
Waikapu Mauka Well (Well No. 5131-01)

We received your request for information and a location map for wells near the subject Waikapu Mauka Well, dated January 27, 2003.

Enclosed is a location map of the Iao and Waikapu areas from the Commission's working maps of wells, identifying grid numbers and highlighting vertical wells that may be relevant to your search. Other sources indicated on the map are tunnels, in another aquifer, or are too distant to seem relevant. Also enclosed are sheets from the ground water index and ground water summary printout showing the highlighted wells.

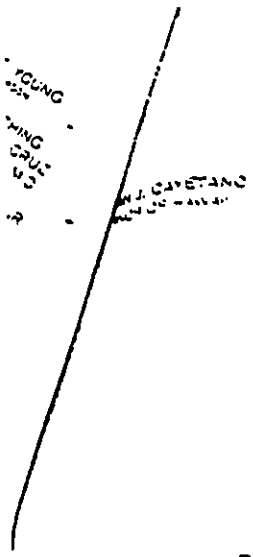
If you have any questions, please call Charley Ice of the Commission staff at 587-0251 or toll-free at 984-2400, extension 70251.

Sincerely,

DEAN A. NAKANO
Acting Deputy Director

CI:ss

Enclosures



STATE OF HAWAII
DEPARTMENT OF HEALTH
PO BOX 3378
HONOLULU, HAWAII 96801-3378

BRUCE S. ANDERSON, Ph.D., M.P.H.
DIRECTOR OF HEALTH

In reply, please refer to:
EMD/SDWB

November 7, 2002

Mr. Carl Takumi
C. Takumi Engineering, Inc.
18 Central Avenue
Wailuku, Hawaii 96793

Dear Mr. Carl Takumi:

SUBJECT: ENVIRONMENTAL ASSESSMENT, FINDING OF NO SIGNIFICANT IMPACT ANTICIPATED (FONSI) FOR THE DEVELOPMENT OF THE WAIKAPU EXPLORATORY WELL
STATE WELL NO. 6-5131-01
WAIKAPU, MAUI, HAWAII

We would like to acknowledge receipt of the Environmental Assessment, Finding of No Significant Impact Anticipated (FONSI) for the Development of the Waikapu Exploratory Well (received on October 21, 2002). The Safe Drinking Water Branch completed its preliminary review of the subject report and offers the following comments as part of the pre-consultation process:

1. This well qualifies as a source which will serve as a source of potable water to a public water system (defined as serving 25 or more people at least 60 days per year or has 15 or more service connections and must receive Director of Health approval prior to its use to comply with Hawaii Administrative Rules (HAR), Title 11, Chapter 20, Rules Relating to Potable Water Systems, §11-20-29.

   We would also like to point out that the laboratory data that is included in the report is not complete for the purposes of obtaining the aforementioned approval.

2. The state well number was reported as both 6131-01 and 6131-01 throughout the report. This must be corrected to 5131 only.

3. It is not clear what it meant by "Central Maui Water System," since the Iao Aquifer mentioned in Section B is part of the Wailuku System, not the Central System.

4. It may be less confusing if the "Board of Water Supply" and the "Department of Water Supply" is defined in the report (are they one and the same?)

5. Clarify if the permanent pump has not yet been installed. According to the Department of Land and Natural Resources, Commission on Water Resource Management's Pump Installation Permit Approval, the date of approval was September 26, 2000, and the expiration date was September 26, 2002.

If you should have any questions, please contact Sharon Nekoba of the Safe Drinking Water Branch at (808) 586-4258.

Sincerely,

for WILLIAM WONG, P.E., CHIEF
Safe Drinking Water Branch
Environmental Management Division

SN:la

COMMENT LETTERS AND RESPONSES TO DRAFT EA

WAIKAPU TANK SITE WELL (5131-01)*

*(Waikapu Mauka Well changed to Waikapu Tank Site Well-see explanation in "References".)

AGENCIES CONTACTED FOR COMMENT ON THE DRAFT ENVIRONMENTAL ASSESSMENT.

State Agencies

Department of Land & Natural Resources
(5 copies)
P.O. Box 621
Honolulu, HI 96809

Environmental Planning Office (3 copies)
Department of Health
P.O. Box 3378
Honolulu, HI 96801

Office of Planning
235 South Beretania Street, 6th Floor
Honolulu, HI 96813

Office of Hawaiian Affairs
711 Kapilani Blvd., Suite 1250
Honolulu, HI 96813

State Historic Preservation Division
Kakuhihewa Building, Rm 555
601 Kamokila Boulevard
Kapolei, HI 96707

County Agencies

Department of Parks & Recreation
200 South High Street
Wailuku, HI 96793

Department of Public Works &
Environmental Management
200 South High Street
Wailuku, HI 96793

Department of Planning
County of Maui
250 South High Street
Wailuku, HI 96793

Others

Wailuku Public Library
251 High Street
Wailuku, HI 96793

Herbert and Christine Ushiroda
1742 Kaahumanu Avenue
Wailuku, HI 96793

Waikapu Community Association
c/o Yvette Kahauolopua, President
P.O. Box 1380
Wailuku, HI 96793

Wailuku Main Street Association
2035 Main Street
Wailuku, HI 96793

Herb Ushiroda, LUTCF, Agent
Auto-Life-Health-Home and Business
1742 Kaahumanu Avenue, Wailuku, Maui, HI 96793
(808)242-5747 Fax (808)242-7611 Toll Free(888)390-1611 Mainland & InterIsle

June 20, 2005

Mr.Carl Takumi, President
C.Takumi Engineering, Inc.
18 Central Avenue
Wailuku, HI 96793

Re: Draft Environmental Assessment
Waikapu Tank Site Exploratory Well Development
Waikapu, Maui, Hawaii
TMK: (2) 3-5-04: 099 & 022

Dear Mr. Takumi:

Thank you for sending me the above information dated June 6, 2005. I reviewed the documents. I would like the County Water Dept. to select a northern site for the pumping station. Water Department engineer, Larry Winter said that northern site could work but would involve a larger parcel. How much larger?

This northern site would replace the one you mention in your report. Should there be any questions, please feel free to call me at (808) 870-2256.

Respectfully,

Herbert Ushiroda
Owner of TMK:(2) 3-5-04

cc: Kieth Kirschbraun, Esq.
1865 Main St., Suite 108
Wailuku, HI 96793

Dept. of Water Supply
200 South High St.
Wailuku, HI 96793
Attn: Wendy Taomoto

C. Takumi Engineering, Inc.
Civil Engineering Consultants
18 Central Avenue
Wailuku, Hawaii 96793
Phone: (808) 249-0411 Fax: (808) 249-0311

July 27, 2005

Herbert and Christine Ushiroda
1742 Kaahumanu Avenue
Wailuku, HI 96793

Dear Sir and Madame:

On behalf of the Maui County Department of Water Supply, we thank you for participating in the environmental assessment process for the Waikapu Tank Site Well Development Project in Waikapu, Wailuku, Maui, Hawaii, TMK: (2) 3-5-04: 099 and portion of 022. Your review posed questions into the size and location of the mechanical building as well as the amount of long term noise that can be anticipated for the site.

With regards to the noise generated from well development, we feel as though we have taken the proper measures to keep the long term noise to a minimum by acquiring a submersible pump and motor for the Waikapu Tank Site Well. The pump and motor, along with the mechanical equipment inside of the building, will generate less noise than your standard household refrigerator, during operation. We feel that this amount of noise will be quite tolerable for the adjacent property owners. During pump start-up, there will be an audible amount of noise generated from the release of air from the well. This process takes only a few moments to complete, does not occur at great frequency, and should not be noticeable to positions offsite due to prevailing wind conditions.

With regards to mechanical building, we have received comments from Mr. Ushiroda about the positioning of the building and have submitted a revised site plan to the Department of Water Supply for review with Mr. Ushiroda. Dependant upon the final selection of equipment for the electrical and hypochlorination rooms within the building, we anticipate the building's size to be approximately 30' x 20' x 15' (30 feet in length, 20 feet in width, and 15 feet in height). We also have proposed grade changes occurring within the site to set the building further into the slope for building accessibility purposes which will, in turn, provide for less exposure of the building to adjacent property owners.

Again, we thank you for participating in the environmental assessment review process. If you have any further questions, please feel free to call us at (808) 249-0411.

Very truly yours,

C. Takumi Engineering, Inc.

Jacob R. Freeman, C.E.

Cc: Larry Winter, Dept. of Water Supply

WRIGHT & KIRSCHBRAUN
A Limited Liability Law Company
1885 Main Street, Suite 108
Wailuku, HI 96793
Telephone: (808)244-6644
Facsimile: (808)244-1013
E-Mail: WrightKirsch@aol.com

July 8, 2005

TELECOPIED TO: 249-0311
NUMBER OF PAGES: -2-

Carl K. Takumi
C. TAKUMI ENGINEERING, INC.
18 Central Avenue
Wailuku, HI 96793

RE: DRAFT ENVIRONMENTAL ASSESSMENT
WAIKAPU TANK SITE EXPLORATORY WELL DEVELOPMENT
WAIKAPU, MAUI, HAWAII
TMK: (2)3-5-04:099 & 022

Dear Mr. Takumi:

The undersigned and this firm represent Herbert Ushiroda. This letter is a follow up to Mr. Ushiroda's June 20, 2005 correspondence to you regarding the above-referenced Draft Environmental Assessment ("Draft EA"), and is intended to provide additional comments regarding the Draft EA.

We initially note that the Draft EA indicates that "[l]ong term noise from equipment will be from the pump and motor. A submersible pump and motor will be used to minimize noise from the pump. Electrical and disinfection equipment will be housed within a CMU building to minimize noise from electrical and hypo-chlorination equipment." Draft EA, page 8. Although the Draft EA references minimizing noise, it does not indicate how much noise is still anticipated. What can be expected in this regard? This, of course, would be of concern to adjacent property owners.

As noted above, the draft EA indicates that electrical and disinfection equipment will be housed within a CMU building. The draft EA apparently concludes that the project will not affect scenic vistas or view planes by indicating that none of the proposed improvements will be higher than the existing reservoir. Draft EA, page 14. However, it appears from the

preliminary site plan in Figure 3, that the chlorination building would be located some distance away from the reservoir. Also, except for what one can possibly surmise from that drawing, it does not appear that the draft EA indicates how large the building is actually anticipated to be.

If you have any questions regarding the above, please do not hesitate to contact us.

Very truly yours,

WRIGHT & KIRSCHBRAUN
A Limited Liability Law Company

KEITH D. KIRSCHBRAUN

KDK/cmh

cc: Herbert Ushiroda

C. Takumi Engineering, Inc.
Civil Engineering Consultants
18 Central Avenue
Wailuku, Hawaii 96793
Phone: (808) 249-0411 Fax: (808) 249-0311

July 27, 2005

Wright & Kirschbraun
A Limited Liability Law Company
1885 Main Street, Suite 108
Wailuku, HI 96793

Dear Sir:

On behalf of the Maui County Department of Water Supply, we thank you for participating in the environmental assessment process for the Waikapu Tank Site Well Development Project in Waikapu, Wailuku, Maui, Hawaii, TMK: (2) 3-5-04: 099 and portion of 022. Your review posed questions into the size and location of the mechanical building as well as the amount of long term noise that can be anticipated for the site.

With regards to the noise generated from well development, we feel as though we have taken the proper measures to keep the long term noise to a minimum by acquiring a submersible pump and motor for the Waikapu Tank Site Well. The pump and motor, along with the mechanical equipment inside of the building, will generate less noise than your standard household refrigerator, during operation. We feel that this amount of noise will be quite tolerable for the adjacent property owners. During pump start-up, there will be an audible amount of noise generated from the release of air from the well. This process takes only a few moments to complete, does not occur at great frequency, and should not be noticeable to positions offsite due to prevailing wind conditions.

With regards to mechanical building, we have received comments from Mr. Ushiroda about the positioning of the building and have submitted a revised site plan to the Department of Water Supply for review with Mr. Ushiroda. Dependant upon the final selection of equipment for the electrical and hypochlorination rooms within the building, we anticipate the building's size to be approximately 30' x 20' x 15' (30 feet in length, 20 feet in width, and 15 feet in height). We also have proposed grade changes occurring within the site to set the building further into the slope for building accessibility purposes which will, in turn, provide for less exposure of the building to adjacent property owners.

Again, we thank you for participating in the environmental assessment review process. If you have any further questions, please feel free to call us at (808) 249-0411.

Very truly yours,

C. Takumi Engineering, Inc.

Jacob R. Freeman, C.E.

Cc: Larry Winter, Dept. of Water Supply

ALAN M. ARAKAWA
Mayor

MILTON M. ARAKAWA, A.I.C.P
Director

MICHAEL M. MIYAMOTO
Deputy Director

COUNTY OF MAUI
DEPARTMENT OF PUBLIC WORKS
AND ENVIRONMENTAL MANAGEMENT
DEVELOPMENT SERVICES ADMINISTRATION
250 SOUTH HIGH STREET
WAILUKU, MAUI, HAWAII 96793

RALPH M. NAGAMINE, L.S., P.E.
Development Services Administration

TRACY TAKAMINE, P.E.
Wastewater Reclamation Division

CARY YAMASHITA, P.E.
Engineering Division

BRIAN HASHIRO, P.E.
Highways Division

Solid Waste Division

June 30, 2005

Mr. Carl Takumi, P.E.
C. TAKUMI ENGINEERING, INC.
18 Central Avenue
Wailuku, Hawaii 96793

Subject: DRAFT ENVIRONMENTAL ASSESSMENT
DEPARTMENT OF WATER SUPPLY WAIKAPU TANK SITE
EXPLORATORY WELL
TMK (2) 3-5-004:099 & 022

Dear Mr. Takumi:

We reviewed the subject application and have no comments to offer at this time.

Please call Michael Miyamoto at 270-7845 if you have any questions regarding this letter.

Sincerely,

for Milton M. Arakawa, A.I.C.P.
Director of Public Works
and Environmental Management

da S:\LUCA\CZM\Dept_of_Wtr_Waikapu_Site_draft_ea_3500 4099_da.wpd

C. Takumi Engineering, Inc.
Civil Engineering Consultants
18 Central Avenue
Wailuku, Hawaii 96793
Phone: (808) 249-0411 Fax: (808) 249-0311

July 27, 2005

County of Maui
Milton M. Arakawa, A.I.C.P.
Department of Public Works and Environmental Management
Development Services Administration
250 S. High St.
Wailuku, HI 96793

Dear Sir:

On behalf of the Maui County Department of Water Supply, we thank you for participating in the environmental assessment process for the Waikapu Tank Site Well Development Project in Waikapu, Wailuku, Maui, Hawaii, TMK: (2) 3-5-04: 099 and por. of 022. Your review with no comments will has been noted and will be entered into the final environmental assessment.

Again, we thank you for participating in the environmental assessment review process. If you have any questions, please feel free to call us at (808) 249-0411.

Very truly yours,

C. Takumi Engineering, Inc.

Carl K. Takumi, P.E.

Cc: Larry Winter, Dept. of Water Supply

LINDA LINGLE
GOVERNOR OF HAWAII

CHIYOME L. FUKINO, M.D.
DIRECTOR OF HEALTH

STATE OF HAWAII
DEPARTMENT OF HEALTH
P.O. Box 3378
HONOLULU, HAWAII 96801-3378

In reply, please refer to:
EPO-05-060

July 5, 2005

Mr. Carl K. Takumi, P. E.
C. Takumi Engineering, Inc.
18 Central Avenue
Wailuku, Hawaii 96793

Dear Mr. Takumi:

SUBJECT: Draft Environmental Assessment
Waikapu Tank Site Exploratory Well Development
Waikapu, Maui, Hawaii
TMK: (2) 3-5-04: 099 and 002

Thank you for allowing us to review and comment on the subject document. We have no comment at this time. Please refer to our website for the Standard Comments (http://www.state.hi.us/health/environmental/env-planning/landuse/landuse.html). If there are any questions about these standard comments please contact Jiacai Liu with the Environmental Planning Office at 586-4346.

Sincerely,

June F. Harrigan-Lum

JUNE F. HARRIGAN-LUM, MANAGER
Environmental Planning Office

c: EPO
SDWB

C. Takumi Engineering, Inc.
Civil Engineering Consultants
18 Central Avenue
Wailuku, Hawaii 96793
Phone: (808) 249-0411 Fax: (808) 249-0311

July 27, 2005

State of Hawaii
ATTN: June F. Harrigan-Lum
Department of Health
P.O. Box 3378
Honolulu, HI 96801-3378

Dear June F. Harrigan-Lum:

On behalf of the Maui County Department of Water Supply, we thank you for participating in the environmental assessment process for the Waikapu Tank Site Well Development Project in Waikapu, Wailuku, Maui, Hawaii, TMK: (2) 3-5-04: 099 and por. of 022. Your review with no comments will has been noted and will be entered into the final environmental assessment.

Again, we thank you for participating in the environmental assessment review process. If you have any questions, please feel free to call us at (808) 249-0411.

Very truly yours,

C. Takumi Engineering, Inc.

Carl K. Takumi, P.E.

Cc: Larry Winter, Dept. of Water Supply

WAIKAPU
COMMUNITY
ASSOCIATION

P O Box 1380
Wailuku, HI 96793

July 8, 2005

C. Takumi Engineering Inc.
18 Central Avenue
Wailuku, HI 96793

Subject: Draft Environmental Assessment
Waikapu Tank Site Exploratory Well Development

Dear Sir,

The Waikapu Community Association continually has concerns with increased traffic patterns particularly in our older neighborhoods, West Waiko being of particular interest. However in review of the subject 1draft assessment, we concluded that the impact of traffic generated from maintenance type vehicles would be neglible. We have no further comment and thank you for including the Association on your review list of this report.

Sincerely,

Yvette B. Kahauolopua
President

C. Takumi Engineering, Inc.
Civil Engineering Consultants
18 Central Avenue
Wailuku, Hawaii 96793
Phone: (808) 249-0411 Fax: (808) 249-0311

July 27, 2005

Waikapu Community Association
c/o Yvette Kahauolopua, President
P.O. Box 1380
Wailuku, HI 96793

Dear Yvette Kahauolopua:

On behalf of the Maui County Department of Water Supply, we thank you for participating in the environmental assessment process for the Waikapu Tank Site Well Development Project in Waikapu, Wailuku, Maui, Hawaii, TMK: (2) 3-5-04: 099 and por. of 022. Your review with no comments has been noted and will be entered into the final environmental assessment.

Again, we thank you for participating in the environmental assessment review process. If you have any questions, please feel free to call us at (808) 249-0411.

Very truly yours,

C. Takumi Engineering, Inc.

Carl K. Takumi, P.E.

Cc: Larry Winter, Dept. of Water Supply

LINDA LINGLE
GOVERNOR OF HAWAII

GENEVIEVE K. Y. SALMONSON
DIRECTOR OF OEQC

STATE OF HAWAI'I
OFFICE OF ENVIRONMENTAL QUALITY CONTROL
DEPARTMENT OF HEALTH
LEIOPAPA A KAMEHAMEHA
235 SOUTH BERETANIA STREET SUITE 702
HONOLULU, HAWAI'I 96813
TELEPHONE (808) 586-4185

In reply, please refer to:
File:

June 30, 2005

Mr. George Tengan
County of Maui, Department of Water Supply
200 South High Street
Wailuku, Hawai'i 96793

Mr. Carl K. Takumi
C. Takumi Engineering, Inc.
18 Central Avenue
Wailuku, Hawai'i 96793

Dear Messrs. Tengan and Takumi:

The Office of Environmental Quality Control has received the draft environmental assessment for the Waikapu Tank Site Well Development, Tax Map Key (2) 3-5-04:099 and 022, in the judicial district of Wailuku and offers the following comments for your consideration and response. We understand that the environmental assessment for the exploratory well was completed in 1996 and that the well now proposed for development at 1,400 gallons per minute for distribution in the Wailuku District Water System.

CUMULATIVE IMPACTS: The environmental assessment discusses direct impacts but very little on secondary and cumulative impacts. Page 14, item 8, contains a cursory discussion of cumulative impacts of this project in relation to the Iao aquifer. Please elaborate on cumulative effects of the project especially as the Iao aquifer is nearing its sustainable yield. Please refer to our groundwater guidance found on our website at http://www.state.hi.us./health/oeqc/guidance/index.html.

Thank you for the opportunity to comment. If there are any questions, please call Mr. Leslie Segundo, Environmental Health Specialist, at (808) 586-4185.

Sincerely,

Genevieve Salmonson

GENEVIEVE SALMONSON
Director

Appendix #1

FORMAT SUGGESTIONS AND SAMPLE TABLES AND CHARTS TO DISPLAY SUSTAINABLE YIELD DATA.

Sustainable Yield

Sustainable yield policies for basal aquifers involve trade-offs between groundwater extraction rates and aquifer water levels. The selected extraction rate implies acceptance of the affiliated equilibrium head (h_e), the water level at which the aquifer stabilizes under pumping at sustainable yield levels.

Equilibrium head is usually less than pre-development water levels or initial head (h_i). For comparative purposes, it is helpful to attach values of h_e and h_i to sustainable yield figures. Groundwater extraction can then be discussed in terms of its relationships with sustainable yields and water levels.

Data Subtotals and Grouping

To assure the clarity of information presented in the EA, tables for the following categories of data should be grouped by user operator and landowner.

Categories for Data Tables in the EA

- Current water use totals
- Current installed capacity
- Pending installed capacity
- Authorized water use

To assist in spatial analysis, subtotals should also be grouped for aquifer sub areas and/or water quality regimes (such as zones of varying recharge of extraction intensity or chloride concentration).

A sample table for the display of this data is presented in the next page.

Aquifer or Hydrologic Unit Status Data
Sustainable Yield = 40 mgd
Initial head = 20 feet
Equilibrium head = 18 feet
Authorized Water Use (for water management areas only) = 36 mgd

Table 1: Overall Aquifer or Hydrologic Unit Status Data in million gallons per day

Land Owner	Authorized Water Use (Permitted by CWRM)	Existing (E)		Planned Pending (P)		Potential Future (E + P)	
		Pump Capacity*	Average Use **	Pump Capacity	Proposed Use	Pump Capacity	Proposed Use
A	4	5	4	+5	+4	10	8
B	7	10	7	+3	+2	13	9
C	25	25	15	-10	-5	15	10
Total	36	40	26	-2	+1	38	27

C. Takumi Engineering, Inc.
Civil Engineering Consultants
18 Central Avenue
Wailuku, Hawaii 96793
Phone: (808) 249-0411 Fax: (808) 249-0311

July 27, 2005

Genevieve Salmonson
State of Hawaii Department of Health
Office of Environmental Quality Control
Leiopapa A Kamehameha
235 South Beretania Street, Suite 702
Honolulu, HI 96813

Dear Director Genevieve Salmonson:

On behalf of the Maui County Department of Water Supply, we thank you for participating in the environmental assessment process for the Waikapu Tank Site Well Development Project in Waikapu, Wailuku, Maui. Hawaii, TMK: (2) 3-5-04: 099 and portion of 022. Your review posed questions into the secondary and cumulative impacts that will be incurred due to the development at this site.

With regards to secondary and cumulative impacts at the Waikapu Tank Site Well, a spreadsheet has been attached with pertinent information following the guidelines found on the OEQC website for groundwater guidance. There is no extra pumping from the aquifer proposed after the development of the Waikapu Tank Site Well. The average use from the existing wells is equivalent to the proposed rate of pumping.

Again, we thank you for participating in the environmental assessment review process. If you have any further questions, please feel free to call us at (808) 249-0411.

Very truly yours,

C. Takumi Engineering, Inc.

Jacob R. Freeman, C.E.

Cc: Larry Winter, Dept. of Water Supply

ALAN M. ARAKAWA
Mayor

MICHAEL W. FOLEY
Director

WAYNE A. BOTELHO
Deputy Director

COUNTY OF MAUI
DEPARTMENT OF PLANNING

July 18, 2005

Mr. Carl K. Takumi, P.E.
C. Takumi Engineering, Inc.
18 Central Avenue
Wailuku, Hawaii 96793

Dear Mr. Takumi:

RE: Draft Environmental Assessment for the Propsed Waikapu Tank Site Exploratory Well Development located at TMK: 3-5-004: 099 and 022, Waikapu, Island of Maui, Hawaii (LTR 2005/1624)

The Maui Planning Department (Department) has reviewed the Draft Environmental Assessment (DEA) prepared in accordance with Chapter 343, HRS, and Title 11, Chapter 200, HAR, and offers the following comments:

1. Section I, Introduction

   a. The Department confirms the land use designations as stated in Section 1.F. Land Classification.

   b. The Department notes the following typographical error (bolded) in paragraph 3, Section 1.C. Background Information:

      "The Waikapu Tank Site Exploratory Well was drilled, cased and tested in 1,999..."

   c. Does the scope of the Draft EA include the additional improvements necessary for well development?

   d. Discuss the status of obtaining the additional land necessary to construct the additional related improvements.

2. Section II, Description of the Existing Environmental Setting

   a. The Department notes the following typographical error (bolded) in Section II.B.2 Cultural Assessment:

"...The Waikapu Tank Site Exploratory Well was drilled and tested on the same site with the well report written 2,000..."

3. Section III, Potential Impacts and Mitigation Measures

   a. Discuss mitigative measures that will be implemented to ensure construction related materials/substances do not contaminate the underlying aquifer during construction of related additional improvements.

4. Section IV, Relationships to Governmental Plans, Policies, and Controls

   a. Section IV.B. Maui County General Plan and Wailuku-Kahului Community Plan. Identify and discuss the objectives and policies relevant to the proposed action.

   b. Include an analysis of the proposed project relevant to Title 19, Maui County Code (MCC), Zoning.

5. Preconsultation Correspondence

   a. Include the enclosures sited in the letter dated February 26, 2003, by the Commission on Water Resources Management.

   b. Include the applicant responses to the preconsultation letters.

Although the 30-day public comment period has elapsed, the Department requests the foregoing comments be addressed.

Thank you for the opportunity to comment. Should you require additional clarification, please contact Ms. Kivette A. Caigoy, Environmental Planner, of my office at 270-7735.

Sincerely,

MICHAEL W. FOLEY
Planning Director

MWF:KAC:lar
c: Wayne Boteilho, Deputy Planning Director
Clayton Yoshida, Planning Program Administrator
Kivette A. Caigoy, Environmental Planner
DLNR, Engineering Division
DWS
OEQC
DLNR, CWRM
General File
K:\WP_DOCS\PLANNING\EA\DEAComments\2005\1524_WaikapuTankSiteExpWellDvpmt.wpd

C. Takumi Engineering, Inc.
Civil Engineering Consultants
18 Central Avenue
Wailuku, Hawaii 96793
Phone: (808) 249-0411 Fax: (808) 249-0311

August 4, 2005

County of Maui Department of Planning
ATTN: Planning Director, Michael W. Foley
250 S. High Street
Wailuku, HI 96793

Dear Director Michael W. Foley:

On behalf of the Maui County Department of Water Supply, we thank you for participating in the environmental assessment process for the Waikapu Tank Site Well Development Project in Waikapu, Wailuku, Maui, Hawaii, TMK: (2) 3-5-04: 099 and portion of 022. Your review posed questions about typographical errors, the scope of the Draft EA, the proposed landtake, potential impacts, relationships to Governmental Plans and Policies, and preconsultation correspondence. We are responding to your comments as follows:

1.a.. "The Department confirms the land use designations as stated in Section 1.F. Land Classification[,]" We thank you for your confirmation.

1.b.. "The Department notes the following typographical error (bolded) in paragraph 3, Section I.C. Background Information: 'The Waikapu Tank Site Exploratory Well was drilled, cased and tested in **1,999**..." The correction to "1999" has been made.

1.c.. "Does the scope of the Draft EA include the additional improvements necessary for well development?" We have concluded as follows: The scope of the Draft EA does include and discuss the necessary improvements needed for well development. It is stated in Section I.B.2. that, "[t]he work will consist of installation a deep well vertical pump and motor capable of pumping 1,400 gpm, piping, electrical, SCADA, disinfection facilities, and related work needed to connect the well to the tank. The electrical and disinfection equipment will be located within a new CMU building. Power from Maui Electric Company, the local utility, will have to be brought to the site via Waiko Road as part of the project."

1.d., "Discuss the status of obtaining the additional land necessary to construct the additional related improvements." Please note that the status of obtaining the additional land necessary to construct the related improvements is being negotiated with the adjacent landowner. The negotiations are still in progress.

2.a., "The Department notes the following typographical error (bolded) in Section II.B.2 Cultural Assesment: '...The Waikapu Tank Site Exploratory Well was drilled and tested on the same site with the well report written **2,000**..." The correction to "2000" has been made.

3.a., "Discuss mitigative measures that will be implemented to ensure construction related materials/substances do not contaminate the underlying aquifer during construction of related additional improvements." We have concluded that the mitigative measures that will be implemented to ensure construction related materials/substances do not contaminate the underlying aquifer during construction of the related improvements are such that no storage of potentially hazardous material will be allowed on site and such material will be disposed of in a manner compliant with jurisdictional regulations. The contractor will have equipment in working order, free from leaks, and will not be allowed to refuel on site. The project specifications note that this particular site is environmentally sensitive and, therefore, all necessary precautions

should be taken to alleviate contamination. The exploratory well's annulus space has already been grouted and the steel casing extends at least two feet above the ground surface so as to avoid direct contamination from the surface at the point source. The well will remain covered until such time that the pump, motor, and pipe are ready for submersion into the well, at which time, connection to the surface appurtenances would be immediate. The well will be completely covered by the discharge piping, making an impervious seal on the inside of the casing.

4.a., "Section IV.B. Maui County General Plan and Wailuku-Kahului Community Plan. Identify and discuss the objectives and policies relevant to the proposed action." We have concluded that "[t]he purpose of the General Plan is to recognize and state the major problems and opportunities concerning the needs and development of the County and the social, economic and environmental effects of such development and set forth the desired sequence, patterns and characteristics of future development." The proposed action is keeping with the General Plan's objective "[t]o supply an adequate supply of potable and irrigation water to meet the needs of Maui County's Residents." The Waikapu Tank Site Well Development will aid in assisting the existing wells in the Iao Aquifer by supplying better quality potable water in that other concentrated wells will not have to pump as much water, thus reducing the salinity of the water in the drinking water system. The Waikapu Tank Site Well Development is not intended to pump more water from the Iao Aquifer than is already being pumped from the limited resource.

The Wailuku-Kahului Community Plan Land Use Map identifies the subject property as "Agricultural." The proposed project is consistent with the "Agricultural" designation. Also, we have concluded that this project would be consistent with the Community Plan objective to "[c]oordinate water system improvement plans with growth rates to ensure adequate supply and a program to replace deteriorating portions of the distribution system. Future growth should be phased to be in concert with the service capacity of the water system."

4.b., "Include an analysis of the proposed project relevant to Title 19, Maui County Code (MCC), Zoning." We have concluded that Title 19 (Zoning) of the Maui County Code, 19.02.020, is intended "[t]o encourage the most appropriate use of the land," for the promotion of "the health, safety and general welfare of the respective districts." The Waikapu Tank Site Well is intended to more appropriately utilize the existing water resource found in the Iao Aquifer and, under 19.02.030, the improvements to the Waikapu Tank Site are a permitted property use, therefore, no further analysis is necessary.

5.a., "Include the enclosures sited in the letter dated February 26, 2003, by the Commission on Water Resources Management." Let it be known that the knowledge of well locations has recently been made a more strict policy by the above Commission to evade any attempts in hindering the County of Maui's water supply.

5.b., "Include the applicant responses to the preconsultation letters." Some enclosures were omitted from the EA for security reasons (See 5.a.). No applicant responses were made since preconsultation comment responses were included n the Draft EA. Preconsultation Parties were sent a copy of the Draft EA for further review and comment.

Again, we thank you for participating in the environmental assessment review process. If you have any further questions, please feel free to call us at (808) 249-0411.

Very truly yours,

C. Takumi Engineering, Inc.

Jacob R. Freeman, C.E.

Cc: Larry Winter, Dept. of Water Supply

ATTACHMENT A

RESULTS OF DRILLING & TESTING

WAIKAPU TANK SITE WELL (5131-01)*

*(Waikapu Mauka Well changed to Waikapu Tank Site Well-see explanation in "References".)

RESULTS OF DRILLING & TESTING

Waikapu Mauka Well (5131-01)
TMK: 3-5-4:8, Waikapu, Maui

Prepared for

FUKUNAGA & ASSOCIATES, INC.
1388 Kapiolani Boulevard, 2nd floor
Honolulu, Hawaii 96814

and

MAUI COUNTY DEPARTMENT OF WATER SUPPLY
200 S. High Street
Wailuku, Maui 96793

Prepared by

WATER RESOURCE ASSOCIATES
1188 Bishop Street, Suite 1708
Honolulu, Hawaii 96813

Honolulu, Hawaii
November 2000

-

FIGURES

RESULTS OF DRILLING AND TESTING
Waikapu Mauka Well (5131-01), Maui

PURPOSE AND DESCRIPTION OF WELL

The Waikapu Mauka Well was drilled by the Maui Department of Water Supply (DWS) in an effort to spread out its groundwater withdrawals from the Iao Basal Aquifer. The 18-inch diameter cased well is located approximately 0.8 mile mauka of Waikapu Village alongside Waiko Road (see Figure 1). Situated at an elevation of 763.7 ft., the well is located approximately 2 miles south of the County's central well field at Mokuhau.

With a ground elevation of 763.7 ft., the well was completed by Water Resources International in December 1999 to a total depth of 870 ft. (-106 ft., msl) with 18-inch I.D. solid casing (ASTM A-53, Grade B) extending 765 ft. below ground (-1.3 ft., msl) and 18-inch I.D. Ful-Flo shutter screen casing extending to 870 ft. depth (see Figure 2).

GEOLOGY

The Waikapu Mauka Well is located on old, consolidated alluvium (slope wash) near its contact with basalts of the Wailuku volcanic series. The selection of this site was based primarily on ensuring that the basal aquifer would occur in Wailuku basalts, rather than in the poorly permeable alluvial slope wash as did Waikapu Wells No. 1 and 2 (5130-01, 02) that were drilled in 1961 and 1974, respectively. Well 5130-02, located approximately 2,600 ft. downslope and identified as "Waikapu Observation Well" in Figure 3, was drilled to a depth of 1,020 ft. (-502 ft., msl) and penetrated only alluvium, as evidenced by the presence of water-worn pebbles in the drill cuttings and by a low well yield of 7 gallons per minute per foot of drawdown. Based upon Figure 3, before drilling the Waikapu Mauka Well the Wailuku basalt subsurface was projected to occur no deeper than about 630 ft. (+50 ft., msl).

However, based upon the Driller's Log (see Appendix D), it is estimated that the subsurface of Wailuku basalts was encountered at a depth of 300 ft. (+374 ft., msl), rather than 630 ft. Although the driller reported "red, black, and gray cinders" throughout the depth interval of 0 to 300 ft., it is probable that the rocks encountered consisted of slope wash containing coarse alluvium and eroded boulders from the basaltic slopes above.

HYDROLOGY

The Waikapu Mauka Well lies in the southern part of the Iao Basal Aquifer, which extends 3 miles north from Waikapu Valley to Waihee Valley. The entire Iao Aquifer System includes interior recharge areas and comprises 17.8 square miles. The system has an average rainfall of 97 inches per year and an estimated sustainable yield of 20 mgd (Water Resources Protection Plan, 1990). The basal aquifer developed by the Department of Water Supply is in dike-free basalts and, in plan view, has a rectangular dimension of only 1 to 1½ miles wide (east-west) direction and 3 miles in length (north-south direction).

STEP-DRAWDOWN TEST

On December 10, 1999, a step-drawdown test was performed at pumping rates ranging from 640 gpm to 1,410 gpm, with corresponding initial drawdowns ranging from approximately 1.8 ft. to 4.7 ft. (see Figure 4 and Appendix A). The resulting Pumping Rate vs. Drawdown Curve shown in Figure 5 indicates initial drawdowns that can be expected at any rate of pumping.

Hydraulic Conductivity. The hydraulic conductivity of the basalt aquifer tapped by the Waikapu Mauka Well has been calculated to be 1,080 feet/day, based upon the December 10th data (see Figure 6 and accompanying calculation sheet).

CONSTANT-RATE TEST

During the constant-rate pumping test, drawdown was measured by means of an airline pressure system and an In Situ data logger using a pressure transducer. The complete pumping test record is shown graphically in Figure 7, which includes pumping rate, drawdown, water temperature, chlorides and electrical conductivity. This data is also tabulated in Appendix B. A semi-log plot of drawdown and recovery of the airline data is shown in Figure 8 and a linear plot of the In Situ logger data is shown in Figure 9.

Stable Conditions. As can be seen in Figure 10, during the 4-day test pumping at an average rate of 1,424 gpm (2.0 mgd), the drawdown in the Waikapu Mauka Well ranged from an initial 4.3 ft. to a stabilizing 5.4 ft. The chloride content of the well was stable between 28-31 mg/L, the electrical conductivity was stable between 253-281 microSiemens/cm, and the water temperature held steady at 70 to 71 degrees Fahrenheit.

Drawdown. Drawdown in the well when pumped at a constant rate of 1,424 gpm (2.0 mgd) appears to have encountered a hydrologic boundary after approximately 200 minutes of pumping (see Figure 10, expanded scale of Figure 8). Then, after approximately 1,500 minute (1.04 days), drawdown appears to have reached equilibrium at 5.4 ft. for the remaining 3 days of the test. The one-tenth of foot deviations in the observed drawdown probably is within the normal margin of error of measurements made with an airline system. Based upon a pumping rate of 1,424 gpm, the specific well capacity is 264 gpm per foot of drawdown, indicating a well with excellent yield.

Transmissivity. The transmissivity of the aquifer, as derived from the time-drawdown curve in Figure 10, is calculated to be 717,980 ft^2/day (rounded). Using the value of hydraulic conductivity, K, value of 1,080 ft/day derived from the step-drawdown data and the equation $T = Kb$ where $b = 41 \times 18.35$ ft., the transmissivity of the aquifer is calculated to be 812,540 ft^2/day. This value compares reasonably well with the 717,980 ft^2/day value derived from the semi-log plot in Figure 10.

Observation Well. Approximately 3 days prior to the constant-rate test, a data logger/pressure transducer unit was also installed by the Department of Water

Supply in the Waikapu Observation Well (5130-02) located approximately 2,600 feet makai of the Waikapu Mauka Well (see Figure 1). The logger recorded water levels approximately three days prior to the pumping test to approximately four days after. The water-level data is presented graphically in Figure 11. Any effect on the water level in the Waikapu Observation Well caused by pumping the Waikapu Mauka Well is not discernible in Figure 11, probably because the observation well does not penetrate the basaltic aquifer.

Chloride Content and Electrical Conductivity. As shown in Appendix B, water samples were collected throughout the 4-day test and tested in Water Resource Associates' lab for chloride content, using the Mohr method of silver nitrate titration. Chlorides during the pumping test began with an initial 29 mg/L and held steady at 28-29 mg/L during the first 2.5 days, then held steady at 30 mg/L during the remainder of the test, except for the last sample which tested at 31 mg/L. Over a long-term period of operation, the chlorides may increase to a range of several tens of mg/L, based upon comparable well development in other areas of the state.

Water Temperature. The water temperature which measured 70-71 degrees Fahrenheit, during the test is normal, for the relative low-elevation rainfall recharge area in the Waikapu area.

Sustainable Well Capacity. Based upon the test results, indications are that the Waikapu Mauka Well can sustain a yield of 1,400 gpm. The well's depth of –106 ft., msl, is optimum for development of the Iao Aquifer in the Waikapu area.

RECOVERY TEST

At the end of the 4-day test, the water level in the well recovered instantaneously to within less than a foot of the static water level at the beginning of the test (see Figure 8), which condition is characteristic of a highly permeable basalt aquifer.

WATER QUALITY

Maui Department of Water Supply sampled the well during the constant-rate test for water quality analyses required by the Department of Health for new drinking water sources.

CONCLUSION

The Waikapu Mauka Well 5131-01, located in the southern part of the Iao Basal Aquifer, was successfully drilled to an optimum depth of –106 ft., msl, and pump tested as a new potable water well source capable of producing basal water at a rate of 1,400 gpm (2.0 mgd). The well has a low chloride content of 30 mg/L and a basal head of 18.3 feet.

PERMANENT PUMP RECOMMENDATION

The pumping test results indicate the Waikapu Mauka Well is capable of yielding 1,424 gpm with a stable drawdown of 5.4 feet. A permanent pump having a pumping capacity in the range of 1,000 to 1,400 gpm is recommended.

Figures

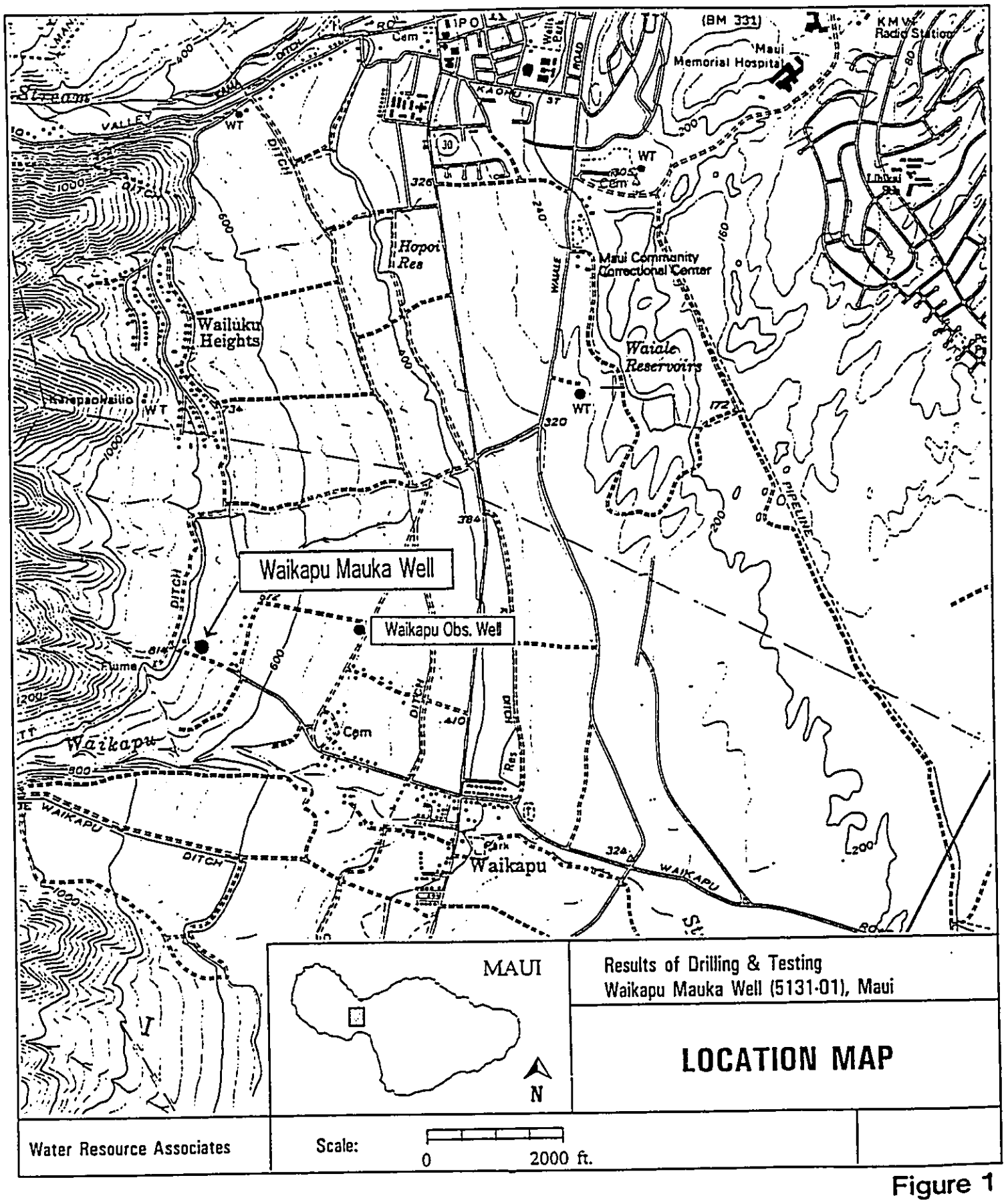
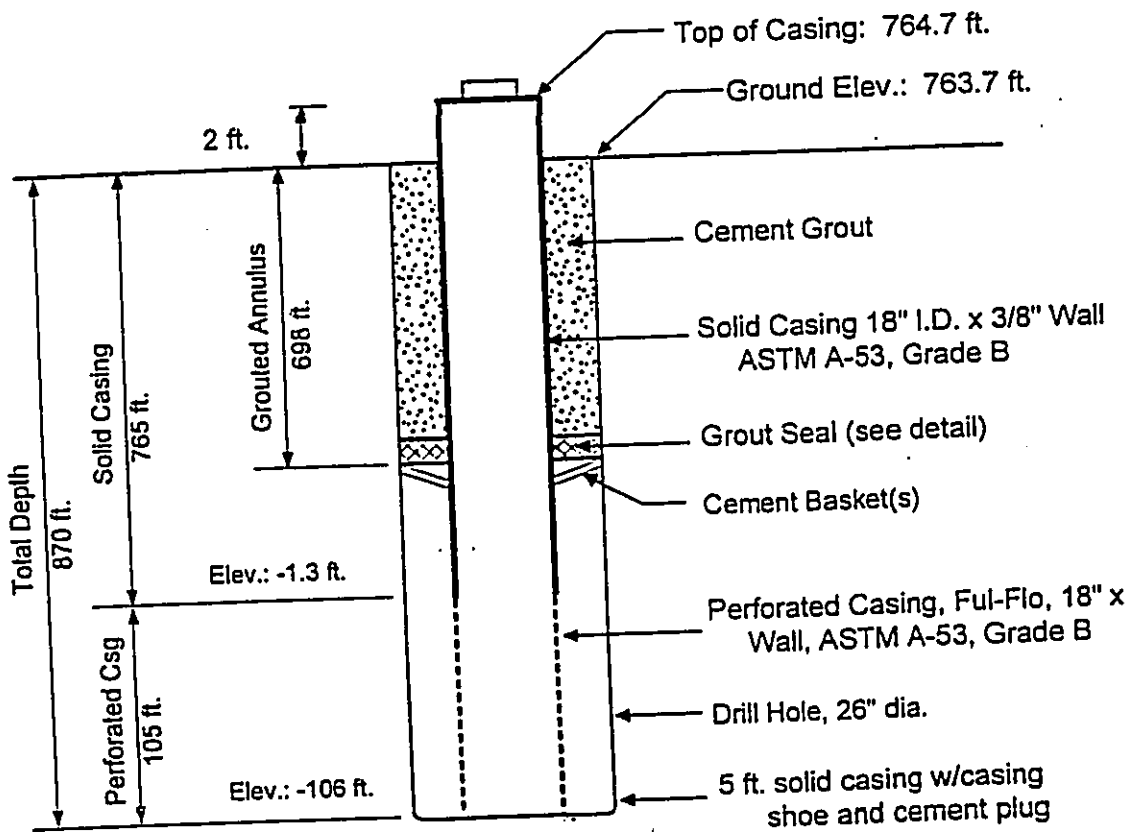

Waikapu Mauka Well
Waikapu Obs. Well
Hopoi Res
Waiale Reservoirs
Maui Community Correctional Center
Maui Memorial Hospital
Wailuku Heights
Waikapu
MAUI
N
Results of Drilling & Testing
Waikapu Mauka Well (5131-01), Maui
LOCATION MAP
Water Resource Associates
Scale:
0
2000 ft.

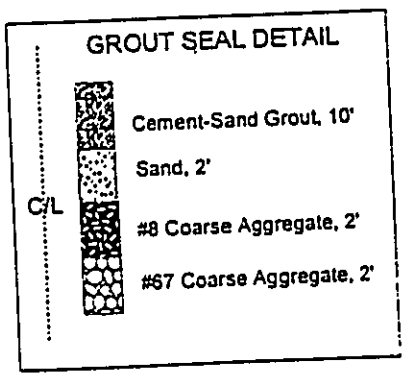
Figure 1

WAIKAPU MAUKA WELL (5131-01)
TMK: 3-5-4:99
Waikapu, Maui

As Built Section



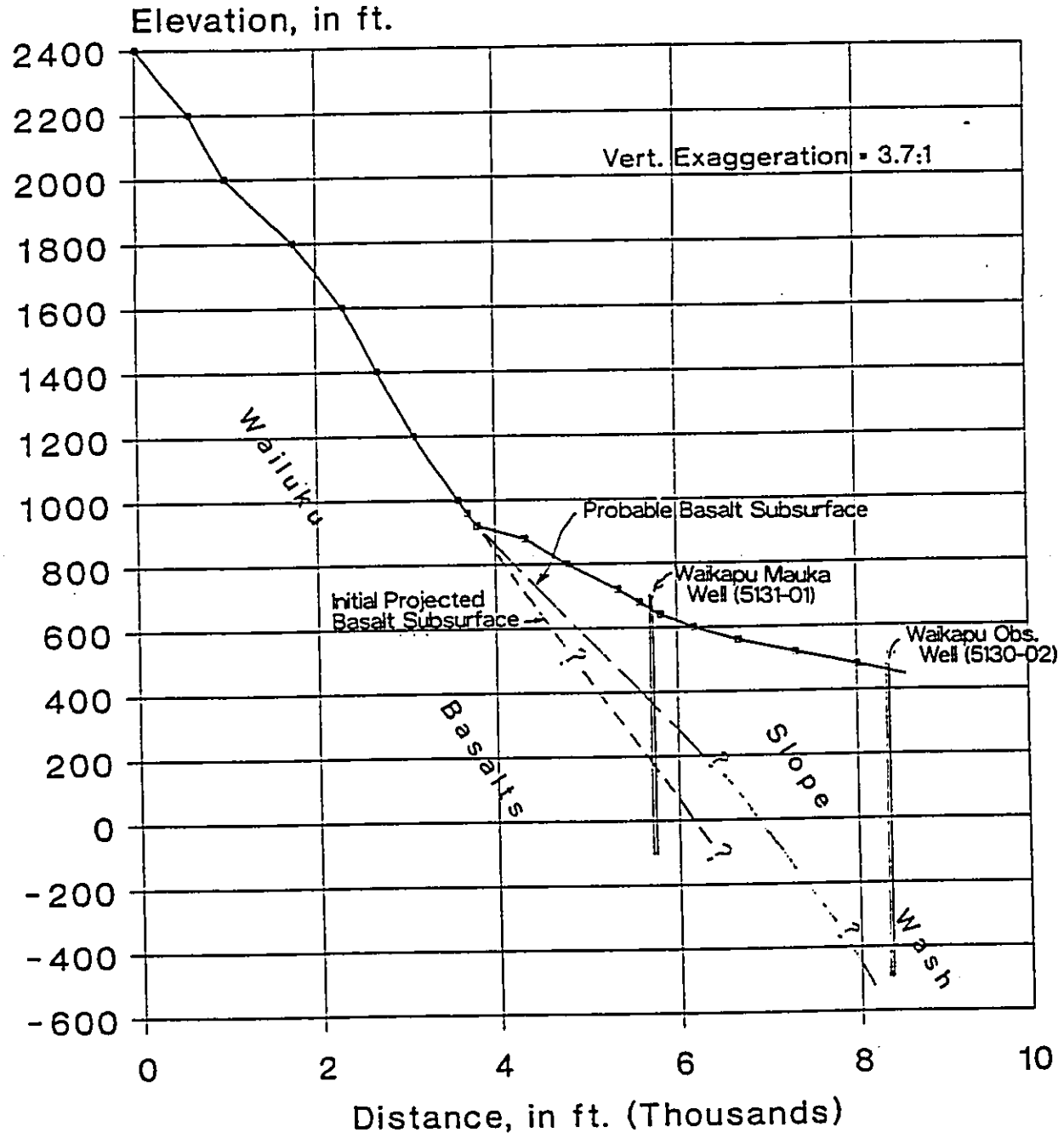
Not to Scale



Water Resource Associates
035Waikapu

Figure 2

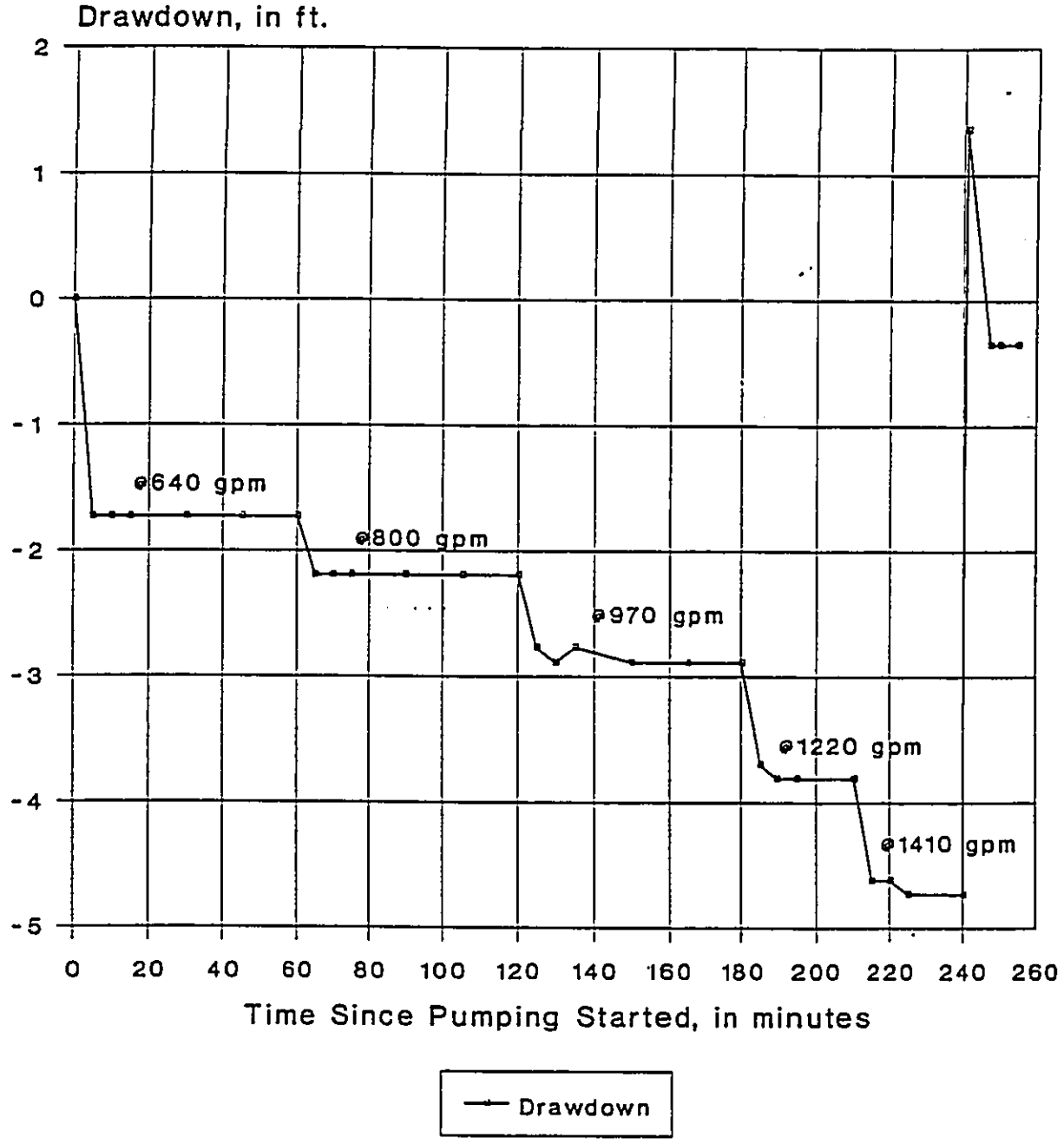
INTERPRETIVE GEOLOGIC SECTION
At Waikapu Mauka Well Site, West Maui



Water Resource Associates
35ProfF1

Figure 3

STEP-DRAWDOWN TEST RECORD
Waikapu Mauka Well (5131-01), Maui
Date of Test: December 10, 1999



Water Resource Associates
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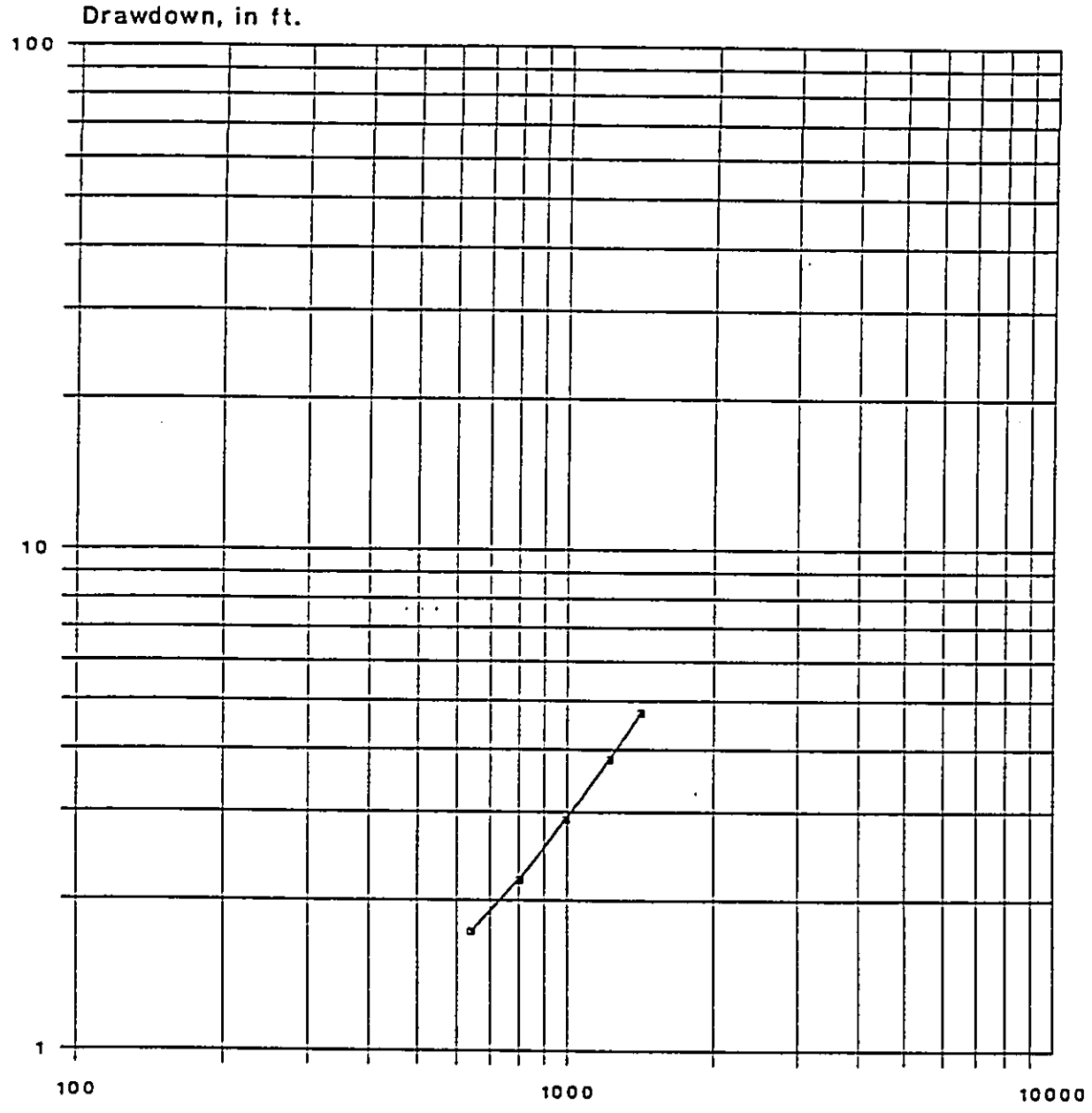
Figure 4

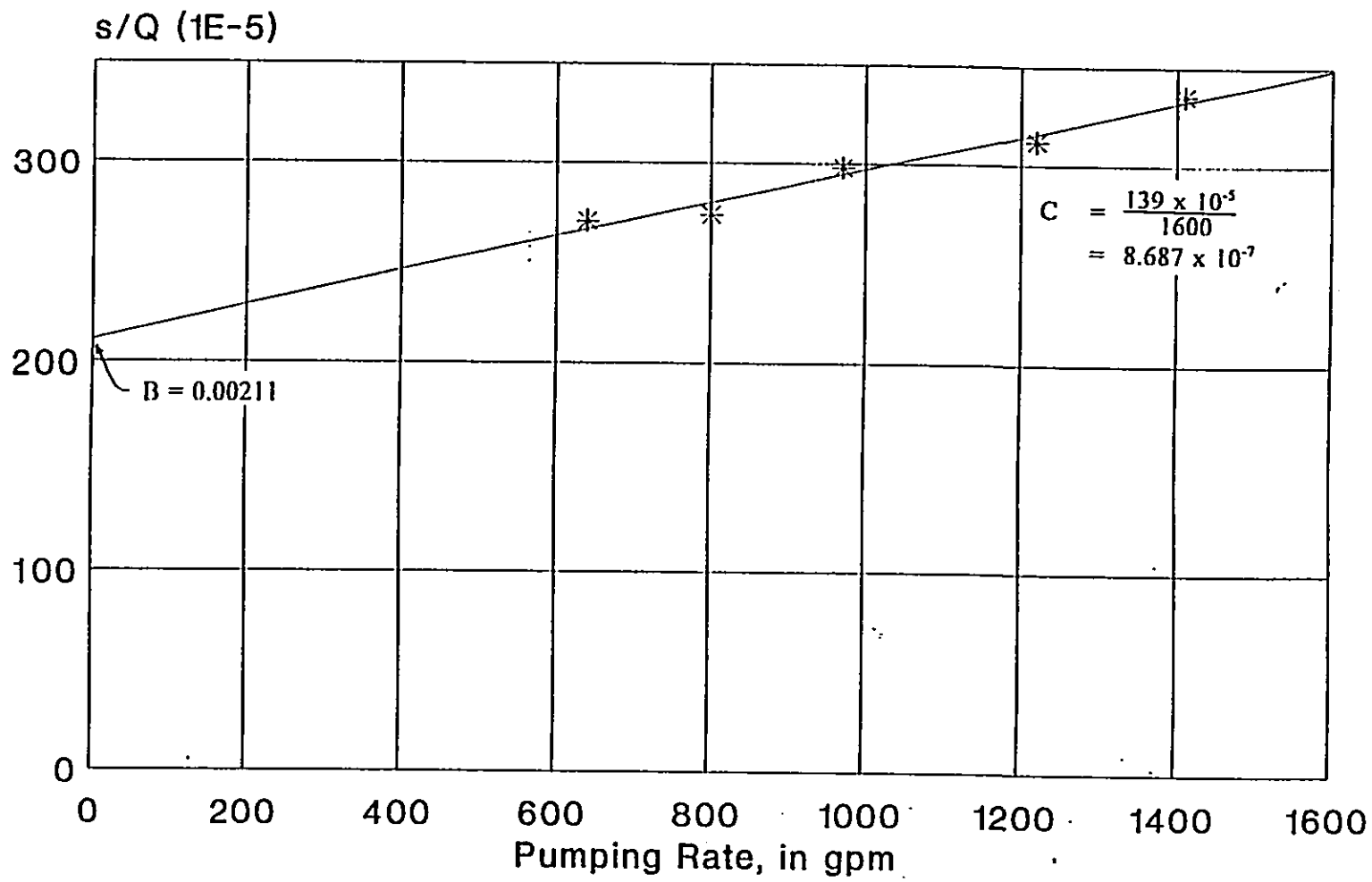
PUMPING RATE vs DRAWDOWN CURVE
Waikapu Mauka Well (5131-01), Maui
Step Test: December 10, 1999, TD=870 ft



Water Resource Associates
035prdd

Figure 5

s/Q Curve
Waikapu Mauka Well (5131-01)
Date: December 10, 1999



Water Resource Associates
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Figure 6

CONSTANT-RATE PUMPING TEST RECORD
Waikapu Mauka Well (5131-01), Maui
Date of Test: Dec. 13 - 17, 1999

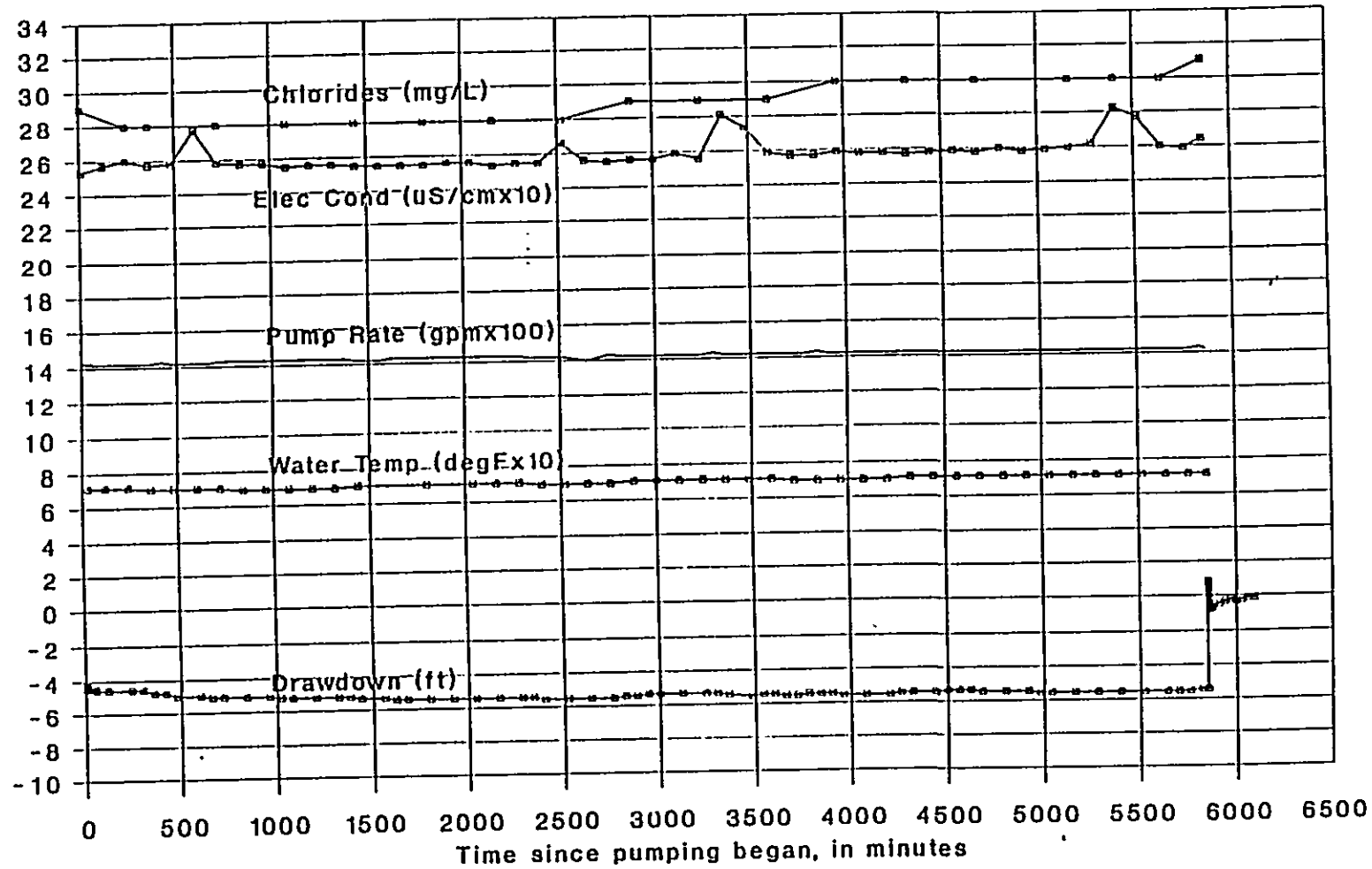

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Figure 7

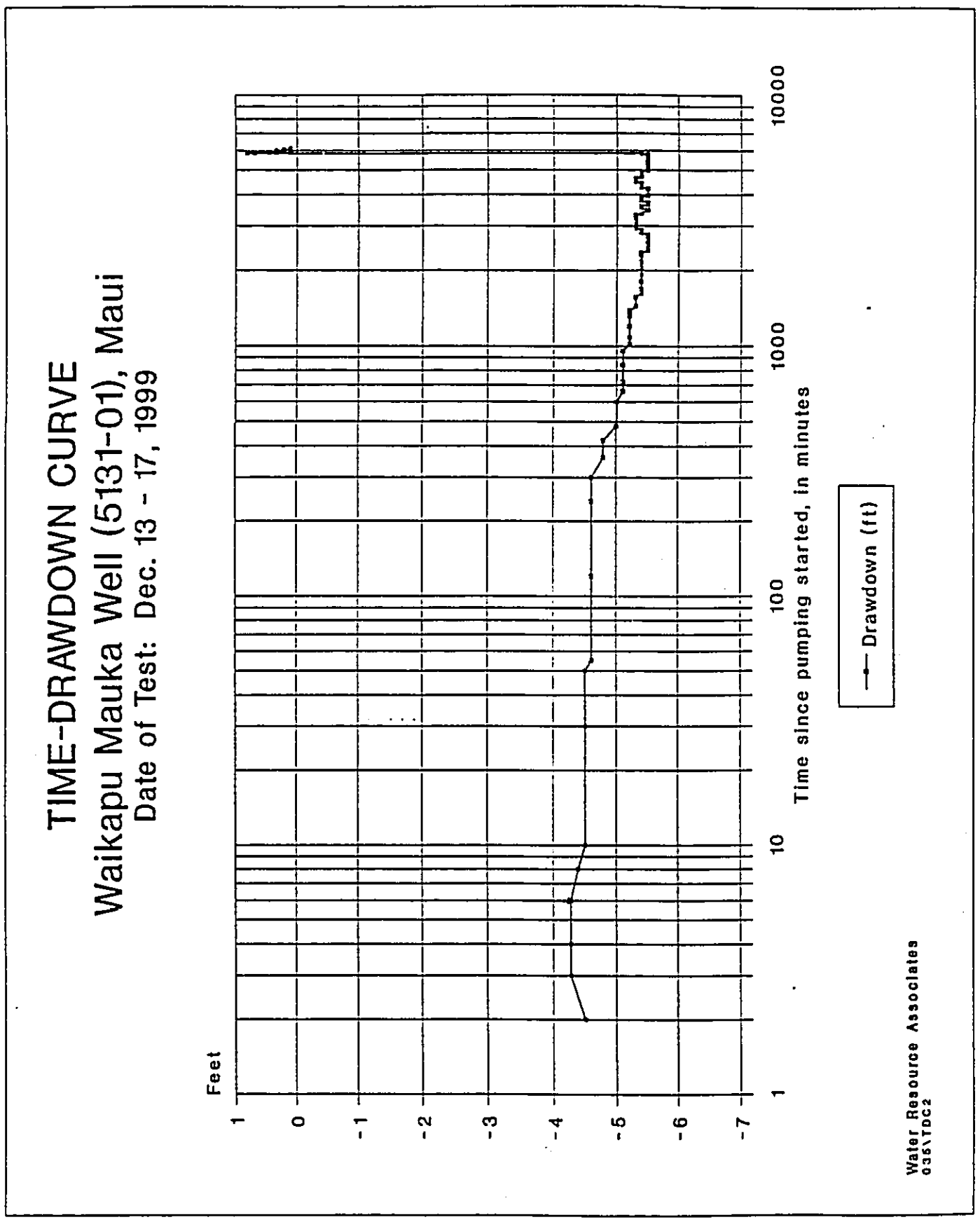

TIME-DRAWDOWN CURVE
Waikapu Mauka Well (5131-01), Maui
Date of Test: Dec. 13 - 17, 1999
Feet
1
0
-1
-2
-3
-4
-5
-6
-7
1
10
100
1000
10000
Time since pumping started, in minutes
Drawdown (ft)
Water Resource Associates
035\TDC2

Figure 8

WATER LEVELS IN WAIKAPU MAUKA WELL (5131-01)
During 4-Day Pumping Test at 1424 gpm (Ave.), Dec. 13-17, 1999

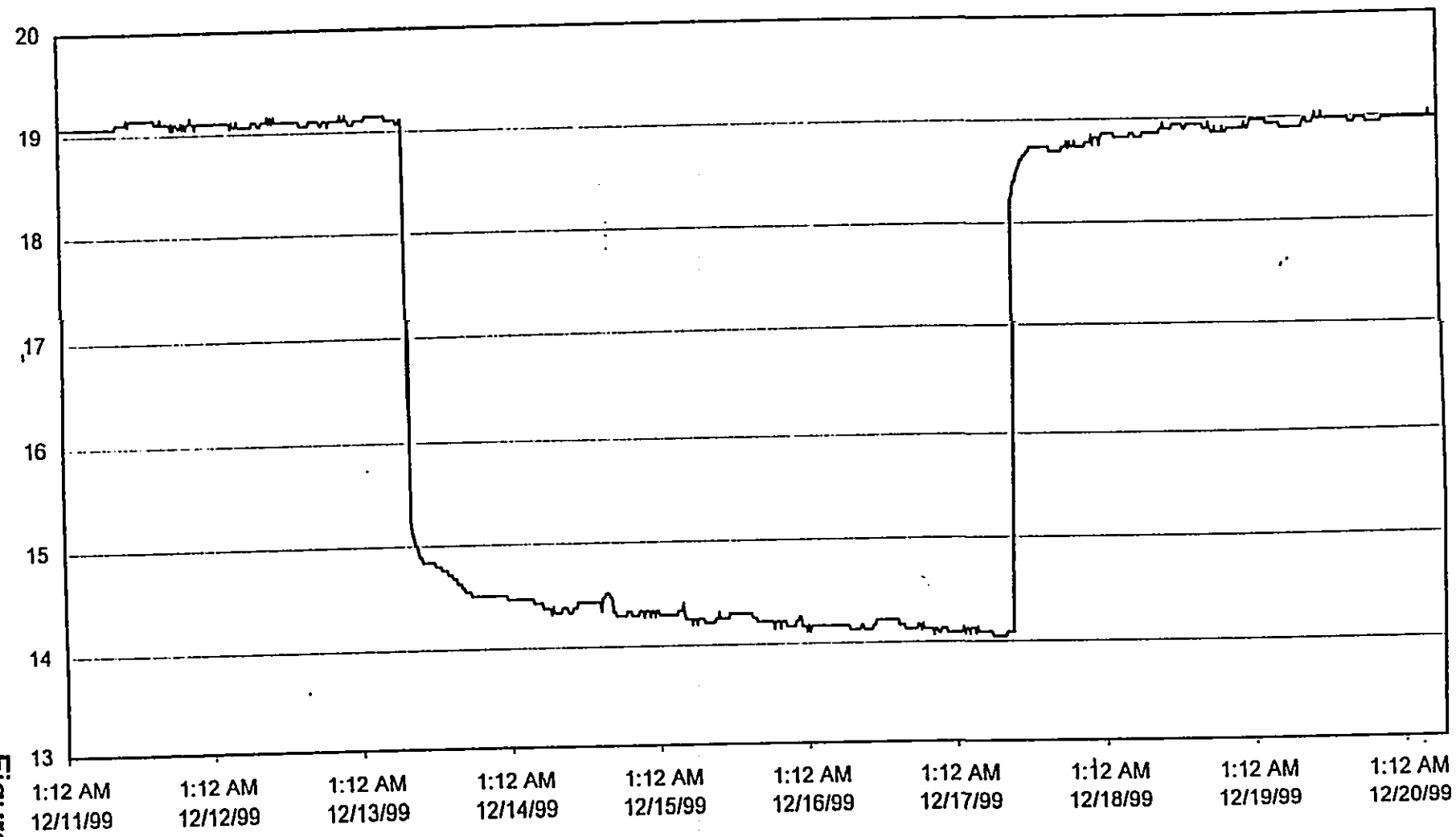
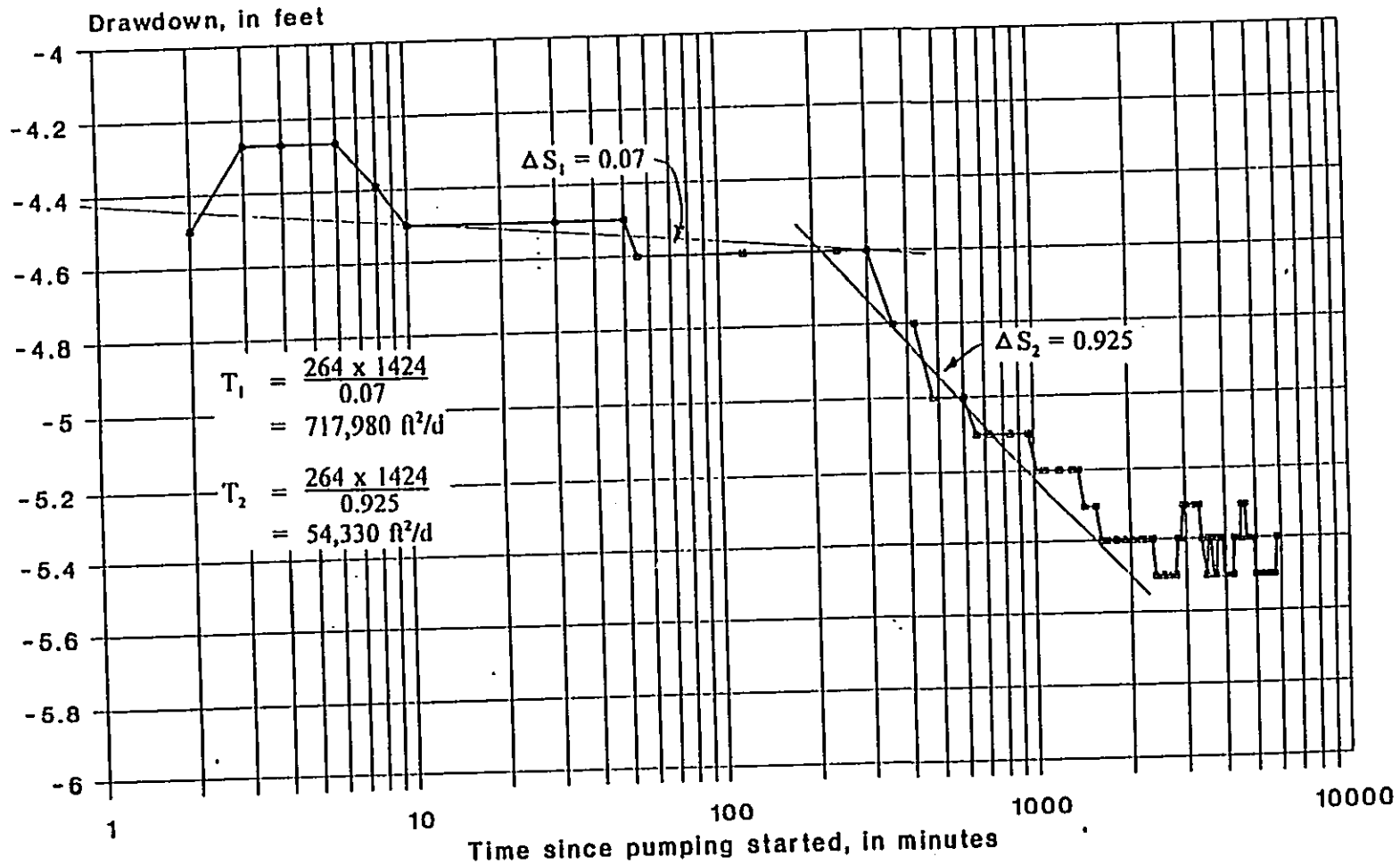


Figure 9

TIME-DRAWDOWN CURVE & "T" CALCULATIONS
Waikapu Mauka Well (5131-01), Maui
Date of Test: Dec. 13-17, 1999



Water Resource Associates
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Figure 10

WATER LEVELS IN WAIKAPU OBS. WELL (5130-02)
During 4-Day Pumping Test, Dec. 13-17, 1999, on
Waikapu Mauka Well (5131-01) located 2600 ft. Mauka

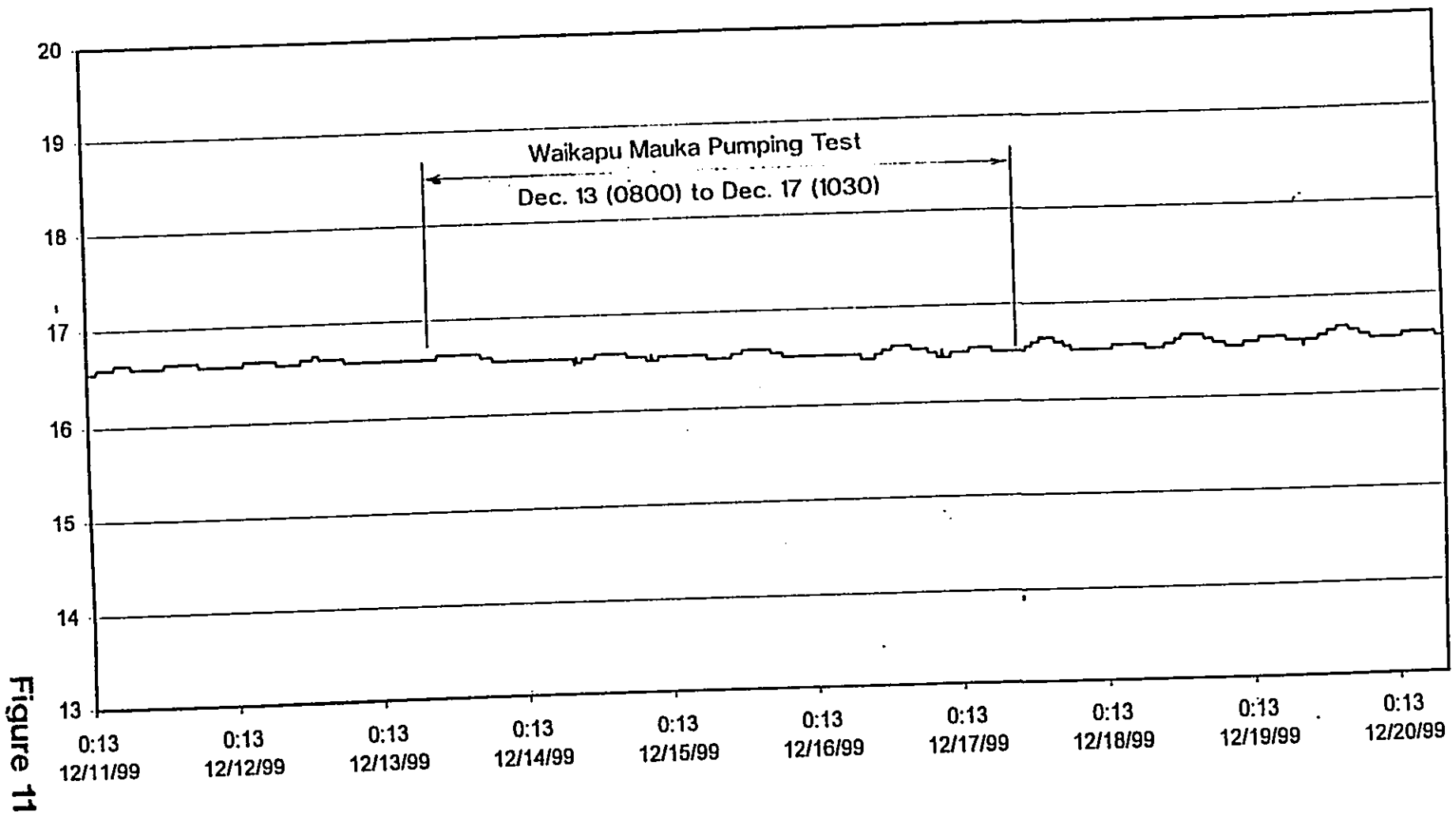


Figure 11

035\USDGSOB\Chart 2

Appendix

STEP-DRAWDOWN TEST RECORD

December 10, 1999

Well Name: Waikapu Mauka
Project: Maui DWS, Job #96-8
DEPTH (Below Ground Surface):
Solid Csg: 766 ft. Perforated Csg: 871 ft.
Total Depth:
Depth to Water: 746.35*
*Remarks: Below top of casing
TEST PUMP:
Type: Line shaft Intake Elev: -81.91ft. msl
DISCHARGE MEASUREMENT: ☒ Flowmeter ☐ Other_____
PRESENT AT TEST:

State Well No.: 5131-01
Island: Maui
ELEVATIONS (Mean Sea Level):
Ground Surface: 763.7 ft.
Top of Casing: 764.7 ft. Rotary Table: ___ft.
Bot. of Solid Csg: ____ Bot. of Perf. Csg: ___
Bot. of Well: ___ Static Water Level: 18.35'
DRAWDOWN MEASUREMENT:
☐ Manometer ☐ Pressure Gage ☐ Elect. Probe

Begin Meter: 2,066,800 gals
End Meter: 2,287,300 gals

Elapsed Time (min.)	Date & Time	Pumping Rate (gpm)	DTW Reading (feet)	Observed Drawdown (feet)	Sample No.	Chlorides (mg/L)	Temp. (°F)	Cond. (µS/cm 25°C)
	12/10/99							
	8:50 am	0	37.9					
	9:00		37.95					
	9:30		38.00					
0	10:00	START PUMP						
5	10:05	642	37.25	1.73				
10	10:10	642	37.25	1.73				
15	10:15	644	37.25	1.73				
30	10:30	637	37.25	1.73				
45	10:45	635	37.25	1.73				
60	11:00	638	37.25	1.73				
		Adjust rate						
65	11:05	801	37.05	2.19				
70	11:10	805	37.05	2.19				
75	11:15	804	37.05	2.19				
90	11:30	811	37.05	2.19				
105	11:45	803	37.05	2.19				
120	12:00 N	801	37.05	2.19			72	
		Adjust rate						
125	12:05 pm	972	36.8	2.77				
130	12:10	972	36.75	2.89				

Appendix A

Step-Drawdown Test Record (Cont'd)
Well Name: Waikapu Mauka State Well No. 5131-01

Elapsed Time (min.)	Date & Time	Pumping Rate (gpm)	DTW Reading (feet)	Observed Drawdown (feet)	Sample No.	Chlorides (mg/L)	Temp. (°F)	Cond. (µS/cm 25°C)
	12/10/99							
135	12:15 pm	971	36.8	2.77			71.8	
150	12:30	973	36.75	2.89				
165	12:45	970	36.75	2.89				
180	1:00	971	36.75	2.89				
		Adjust Rate						
185	1:05	1223	36.4	3.70			71	
190	1:10	1220	36.35	3.81				
195	1:15	1216	36.35	3.81				
210	1:30	1222	36.35	3.81				
		Adjust Rate						
215	1:35	1407	36.0	4.62				
220	1:40	1406	36.0	4.62				
225	1:45	1408	35.95	4.73			71.5	
240	2:00	1410	35.95	4.73				
		STOP PUMP	- RECOVERY					
241			38.59	(PUMP BACK SPINNING)				
247.5			37.85	0.35				
250			37.85	0.35				
255			37.85	0.35				

CONSTANT RATE TEST RECORD

December 13-17, 1999

Well Name: Waikapu Mauka
Project: Maui DWS Job #96-8
DEPTH (Below Ground Surface):
Solid Csg: 766 ft. Perforated Csg: 871 ft.
Total Depth: 870 ft.
Depth to Water: 746.35 *
*Remarks: Below ground w/Solinst probe
TEST PUMP:
Type: Line Shaft Intake Elev: -81.91 ft. msl
DISCHARGE MEASUREMENT: Flowmeter
PRESENT AT TEST: Dan Lum, Merv Hipolito, Tracy Underwood

State Well No.: 5131-01
Island: Maui
ELEVATIONS (Mean Sea Level):
Ground Surface: 763.70 ft.
Top of Casing: 764.7 ft. Rotary Table: ____ ft.
Bot. of Solid Csg: -1.3 ft. Bot. of Perf. Csg: -1.06'**
Bot. of Well: -106 ft. Static Water Level: 18.35 ft.
DRAWDOWN MEASUREMENT: Pressure gage
**Bottom 5 ft. w/solid csg.
Begin Meter Rdg: 2,278,300 gal
End Meter rdg: 10,608,000 gal
Ave Q = 1424 gpm

Elapsed Time (min.)	Date & Time	Pumping Rate (gpm)	DTW Reading (feet)	Observed Drawdown (feet)	Sample No.	Chlorides (mg/L)	Temp. (°F)	Cond. (µS/cm 25°C)
	12/13/99							
	8:25 am	0	37.95					
	8:40		38.00					
	8:50		38.00	0				
	9:00	Start Pump						
1	9:01							
2	9:02		36.05	4.50				
3	9:03		36.15	4.27				
4	9:04	1430	36.15					
5	9:05	1430			1	29		253
6	9:06	1429	36.15	4.27				
7	9:07	1430						
8	9:08	1430	36.10	4.39				
9	9:09	1429						
10	9:10	1429	36.05	4.50				
15	9:15	1436	36.05	4.50				
20	9:20	1428	36.05	4.50				
25	9:25	1430	36.05	4.50				
30	9:30	1424	36.05	4.50			71.5	
35	9:35	1426	36.05	4.50				
40	9:40	1425	36.05	4.50				
45	9:45	1428	36.05	4.50				

Pumping Test Record, Constant Rate (Cont'd)
Well Name: Waikapu Mauka State Well No. 5131-01

Elapsed Time (min.)	Date & Time	Pumping Rate (gpm)	DTW Reading (feet)	Observed Drawdown (feet)	Sample No.	Chlorides (mg/L)	Temp. (°F)	Cond. (µS/cm 25°C)
	12/13/99							
50	9:50 am	1430	36.05	4.50				
55	9:55	1425	36.0	4.62				
60	10:00	1425	36.0	4.62				
120	11:00	1423	36.0	4.62	2		72	257
180	12:00	1423	36.0	4.62				
240	1:00 pm	1420	36.0	4.62	3	28	72	260
300	2:00	1418	36.0	4.62				
360	3:00	1415	35.9	4.85	4	28	71	257
420	4:00	1428	35.9	4.85				
480	5:00	1420	35.85	4.97	5		71	258
540	6:00	1426	35.85					
600	7:00	1421	35.85	4.97	6		71	277
660	8:00	1420	35.8	5.08				
720	9:00	1426	35.8	5.08	7	28	71	258
780	10:00	1424	35.8	5.08				
840	11:00	1427	35.8	5.08	8		70	257
900	12:00 M	1423	35.8	5.08				
	12/14/99							
960	1:00 am	1428	35.8	5.08	9		70	257
1020	2:00	1426	35.75	5.20				
1080	3:00	1428	35.75	5.20	10	28	70	255
1140	4:00	1427	35.75	5.20				
1200	5:00	1427	35.75	5.20	11		70	256
1260	6:00	1429	35.75	5.20				
1320	7:00	1427	35.75	5.20	12		70	256
1380	8:00	1426	35.75	5.20				
1440	9:00	1422	35.7	5.31	13	28	71	255
1500	10:00	1424	35.7	5.31				
1560	11:00	1425	35.7	5.31	14			255
1620	12:00 N	1428	35.65	5.43				

Pumping Test Record, Constant Rate (Cont'd)
Well Name: Waikapu Mauka State Well No. 5131-01

Elapsed Time (min.)	Date & Time	Pumping Rate (gpm)	DTW Reading (feet)	Observed Drawdown (feet)	Sample No.	Chlorides (mg/L)	Temp. (°F)	Cond. (µS/cm 25°C)
	12/14/99							
1680	1:00 pm	1429	35.65	5.43	15			255
1740	2:00	1427	35.65	5.43				
1800	3:00	1427	35.65	5.43	16	28	71	255
1860	4:00	1426	35.65	5.43				
1920	5:00	1427	35.65	5.43	17			256
1980	6:00	1424	35.65	5.43				
2040	7:00	1427	35.65	5.43	18		71	256
2100	8:00	1425	35.65	5.43				
2160	9:00	1428	35.65	5.43	19	28	71	254
2220	10:00	1424	35.65	5.43				
2280	11:00	1430	35.65	5.43	20		71	255
2340	12:00 M	1422	35.65	5.43				
	12/15/99							
2400	1:00 am	1425	35.60	5.54	21		70	255
2460	2:00	1424	35.60	5.54				
2520	3:00	1423	35.60	5.54	22	28	70	266
2580	4:00	1420	35.60	5.54				
2640	5:00	1397	35.60	5.54	23		70	256
2700	6:00	1425	35.60	5.54				
2760	7:00	1426	35.60	5.54	24		70	255
2820	8:00	1425	35.65	5.43				
2880	9:00	1423	35.65	5.43	25	29	71	256
2940	10:00	1422	35.7	5.31				
3000	11:00	1420	35.7	5.31	26		71	256
3060	12:00 N	1420	35.7	5.31				
3120	1:00 pm	1421	35.7	5.31	27		71	259
3180	2:00	1428	35.7	5.31				
3240	3:00	1425	35.7	5.31	28	29	71	256
3300	4:00	1426	35.7	5.31				
3360	5:00	1424	35.65	5.43	29		71	281

Pumping Test Record, Constant Rate (Cont'd)
Well Name: Waikapu Mauka State Well No. 5131-01

Elapsed Time (min.)	Date & Time	Pumping Rate (gpm)	DTW Reading (feet)	Observed Drawdown (feet)	Sample No.	Chlorides (mg/L)	Temp. (°F)	Cond. (µS/cm 25°C)
	12/15/99							
3420	3:00 pm	1425	35.7	5.31				
3480	7:00	1423	35.60	5.54	30		71	274
3540	8:00	1423	35.65	5.43				
3600	9:00	1423	35.65	5.43	31	29	71	259
3660	10:00	1425	35.60	5.54				
3720	11:00	1423	35.60	5.54	32		70	257
3780	12:00 M	1421	35.65	5.43				
	12/16/99							
3840	1:00 am	1426	35.65	5.43	33		70	257
3900	2:00	1424	35.65	5.43				
3960	3:00	1425	35.60	5.54	34	30	70	259
4020	4:00	1430	35.60	5.54				
4080	5:00	1425	35.60	5.54	35		70	258
4140	6:00	1418	35.60	5.54				
4200	7:00	1424	35.60	5.54	36		70	258
4260	8:00	1425	35.65	5.43				
4320	9:00	1424	35.65	5.43	37	30	71	257
4380	10:00	1424	35.65	5.43				
4440	11:00	1422	35.65	5.43	38		71	258
4500	12:00 N	1422	35.7	5.31				
4560	1:00 pm	1423	35.7	5.31	39		71	259
4620	2:00	1422	35.7	5.31				
4680	3:00	1423	35.65	5.43	40	30	71	258
4740	4:00	1423	35.65	5.43			. .	
4800	5:00	1424	35.65	5.43	41		71	260
4860	6:00	1425	35.65	5.43				
4920	7:00	1424	35.65	5.43	42		71	258
4980	8:00	1425	35.60	5.54				
5040	9:00	1423	35.60	5.54	43		71	259
5100	10:00	1423	35.60	5.54				

Pumping Test Record, Constant Rate (Cont'd)
Well Name: Waikapu Mauka State Well No. 5131-01

Elapsed Time (min.)	Date & Time	Pumping Rate (gpm)	DTW Reading (feet)	Observed Drawdown (feet)	Sample No.	Chlorides (mg/L)	Temp. (°F)	Cond. (µmhos 25°C)
	12/16/99							
5160	11:00 pm	1425	35.60	5.54	44	30	71	260
5220	12:00 M	1423	35.60	5.54				
	12/17/99							
5280	1:00 am	1425	35.60	5.54	45		71	262
5340	2:00	1422	35.60	5.54				
5400	3:00	1423	35.60	5.54	46	30	71	283
5460	4:00	1425	35.60	5.54				
5520	5:00	1425	35.60	5.54	47		71	277
5580	6:00	1411	35.60	5.54				
5640	7:00	1420	35.60	5.54	48	30	71	260
5700	8:00	1423	35.60	5.54				
5760	9:00	1425	35.60+	5.54	49		71	259
5820	10:00	1427	35.65	5.43				
5850	10:30	1420	35.65	5.43	50	31	71	264
STOP PUMP								
5851	10:31		38.35	-0.81				
5852	10:32		38.35	-0.81				
5853	10:33		38.3	-0.69				
5855	10:35		38.15	-0.35				
5856	10:36		37.95	0.12				
5857	10:37		37.8	0.46				
5858	10:38		37.65	0.81				
5859	10:39		37.65	0.81				
5860	10:40		37.80	0.46				
5865	10:45		37.7	0.69				
5870	10:50		37.7	0.69				
5875	10:55		37.7	0.69				
5880	11:00		37.75	0.58				
5910	11:30		37.80	0.46				
5940	12:00 N		37.85	0.35				

Pumping Test Record, Constant Rate (Cont'd)
Well Name: Waikapu Mauka State Well No. 5131-01

Elapsed Time (min.)	Date & Time	Pumping Rate (gpm)	DTW Reading (feet)	Observed Drawdown (feet)	Sample No.	Chlorides (mg/L)	Temp. (°F)	Cond. (µS/cm 25°C)
	12/17/99							
5970	12:30 pm		37.90	0.23				
6000	1:00		37.85	0.35				
6030	1:30		37.90	0.23				
6060	2:00		37.95	0.12				
6090	2:30		37.95	0.12				
	12/20/99							
10050	7:30 am		38.00	0				

WELL ALIGNMENT DATA PRINTED 1/15/00

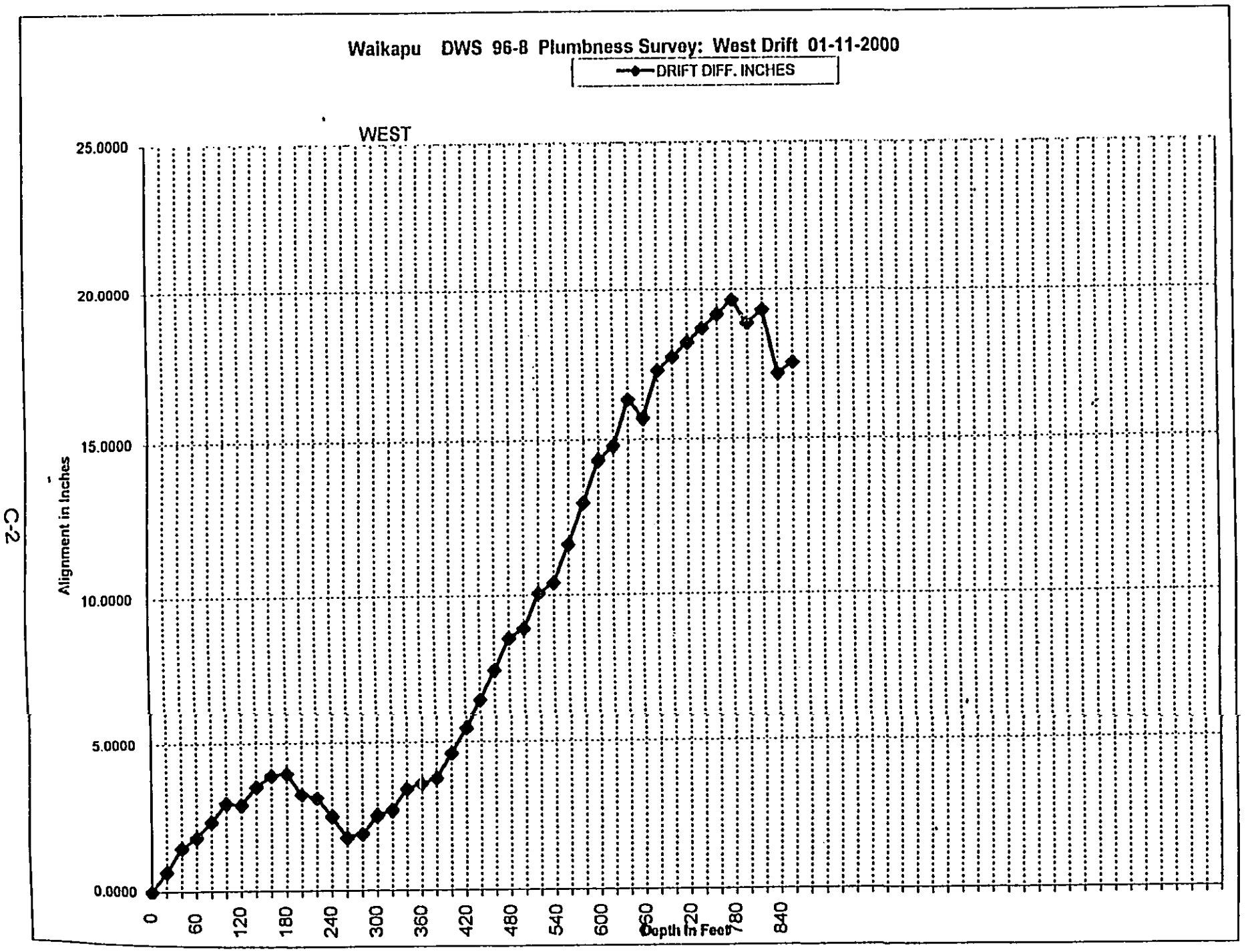
Waikapu DWS 96-8 . WRI J-442
WELL ALIGNMENT DATA
Drift = Deflection*(hight+depth)/height

CASING TO PULLEY = 41.85 feet
CASING 18.00 inches ID
CAGE USED 17.50 inches OD
FINAL TEST

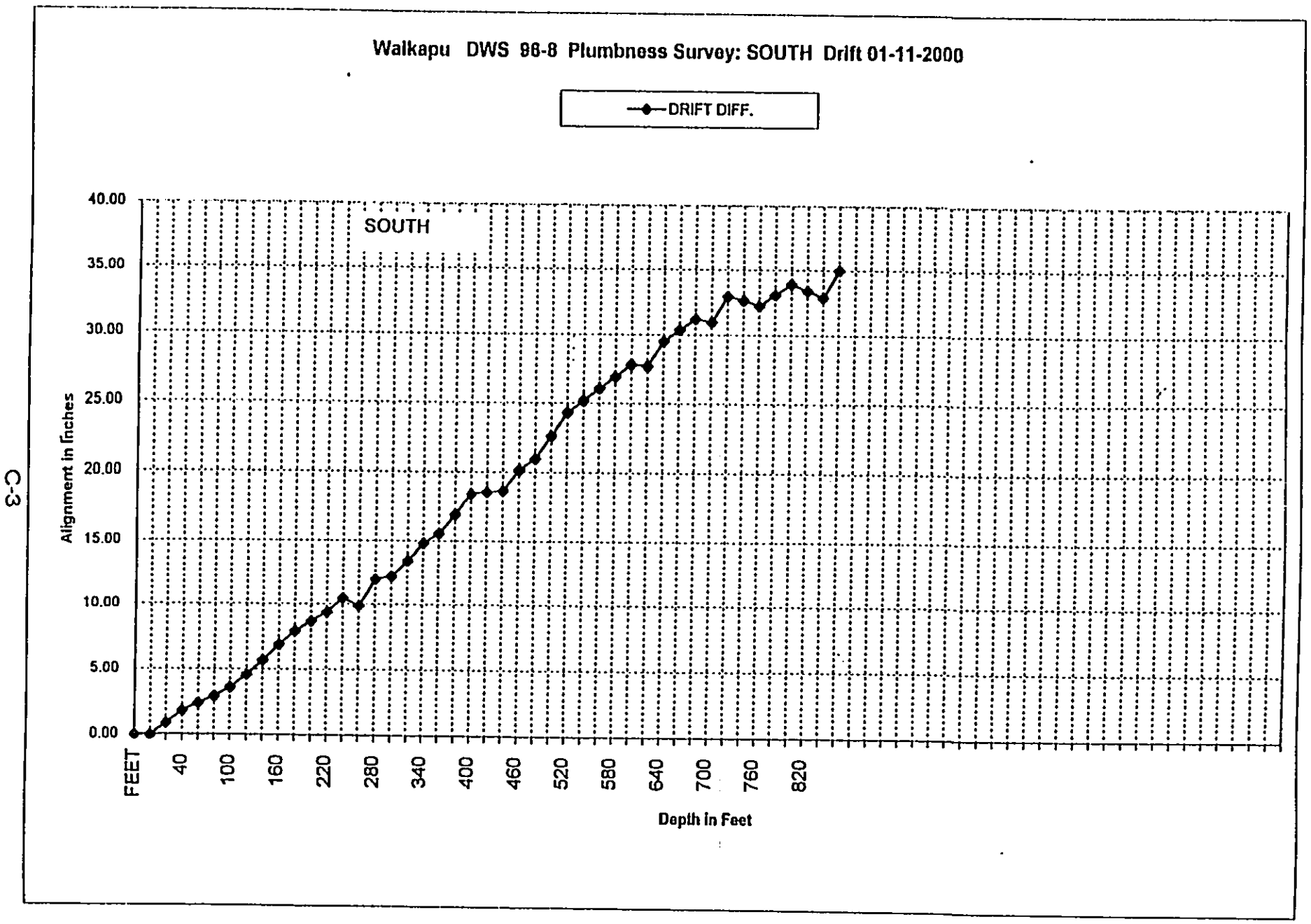
11-Jan-00

DEPTH FEET	X= SOUTH Field Reading	Change Direction Inches	DRIFT DIFF. INCHES	Y= WEST Field Reading	Change Direction Inches	DRIFT DIFF. INCHES
0	9.13	-	-	9.00	-	-
20	9.75	0.63	0.92	9.44	0.44	0.65
40	10.06	0.94	1.83	9.75	0.75	1.47
60	10.13	1.00	2.43	9.75	0.75	1.83
80	10.13	1.01	2.93	9.81	0.81	2.37
100	10.19	1.07	3.61	9.88	0.88	2.97
120	10.31	1.19	4.58	9.75	0.75	2.90
140	10.44	1.31	5.70	9.81	0.81	3.53
160	10.56	1.44	6.92	9.81	0.81	3.92
180	10.63	1.50	7.95	9.75	0.75	3.98
200	10.63	1.50	8.67	9.56	0.56	3.25
220	10.63	1.50	9.39	9.50	0.50	3.13
240	10.69	1.56	10.52	9.38	0.38	2.53
260	10.50	1.38	9.92	9.25	0.25	1.80
280	10.69	1.56	12.02	9.25	0.25	1.92
300	10.63	1.50	12.25	9.31	0.31	2.55
320	10.69	1.56	13.51	9.31	0.31	2.70
340	10.75	1.63	14.83	9.38	0.38	3.42
360	10.75	1.63	15.60	9.38	0.38	3.60
380	10.81	1.69	17.01	9.38	0.38	3.78
400	10.88	1.75	18.48	9.44	0.44	4.62
420	10.81	1.69	18.62	9.50	0.50	5.52
440	10.75	1.63	18.71	9.56	0.56	6.48
460	10.81	1.69	20.21	9.63	0.63	7.49
480	10.81	1.69	21.01	9.69	0.69	8.57
500	10.88	1.75	22.66	9.69	0.69	8.90
520	10.94	1.81	24.33	9.75	0.75	10.07
540	10.94	1.81	25.20	9.75	0.75	10.43
560	10.94	1.81	26.07	9.81	0.81	11.68
580	10.94	1.81	26.93	9.88	0.88	13.00
600	10.94	1.81	27.80	9.94	0.94	14.38
620	10.88	1.75	27.68	9.94	0.94	14.83
640	10.94	1.81	29.53	10.00	1.00	16.29
660	10.94	1.81	30.40	9.94	0.94	15.72
680	10.94	1.81	31.26	10.00	1.00	17.25
700	10.88	1.75	31.02	10.00	1.00	17.73
720	10.94	1.81	33.00	10.00	1.00	18.20
740	10.88	1.75	32.69	10.00	1.00	18.68
760	10.81	1.69	32.28	10.00	1.00	19.16
780	10.81	1.69	33.14	10.00	1.00	19.64
800	10.81	1.69	33.95	9.94	0.94	18.86
820	10.75	1.63	33.46	9.94	0.94	19.31
840	10.69	1.56	32.92	9.81	0.81	17.12
860	10.75	1.63	35.02	9.81	0.81	17.51

Appendix C


Waikapu DWS 96-8 Plumbness Survey: West Drift 01-11-2000
DRIFT DIFF. INCHES
WEST
25.0000
20.0000
15.0000
10.0000
5.0000
0.0000
Alignment in Inches
0
60
120
180
240
300
360
420
480
540
600
660
720
780
840
Depth in Feet

C-2

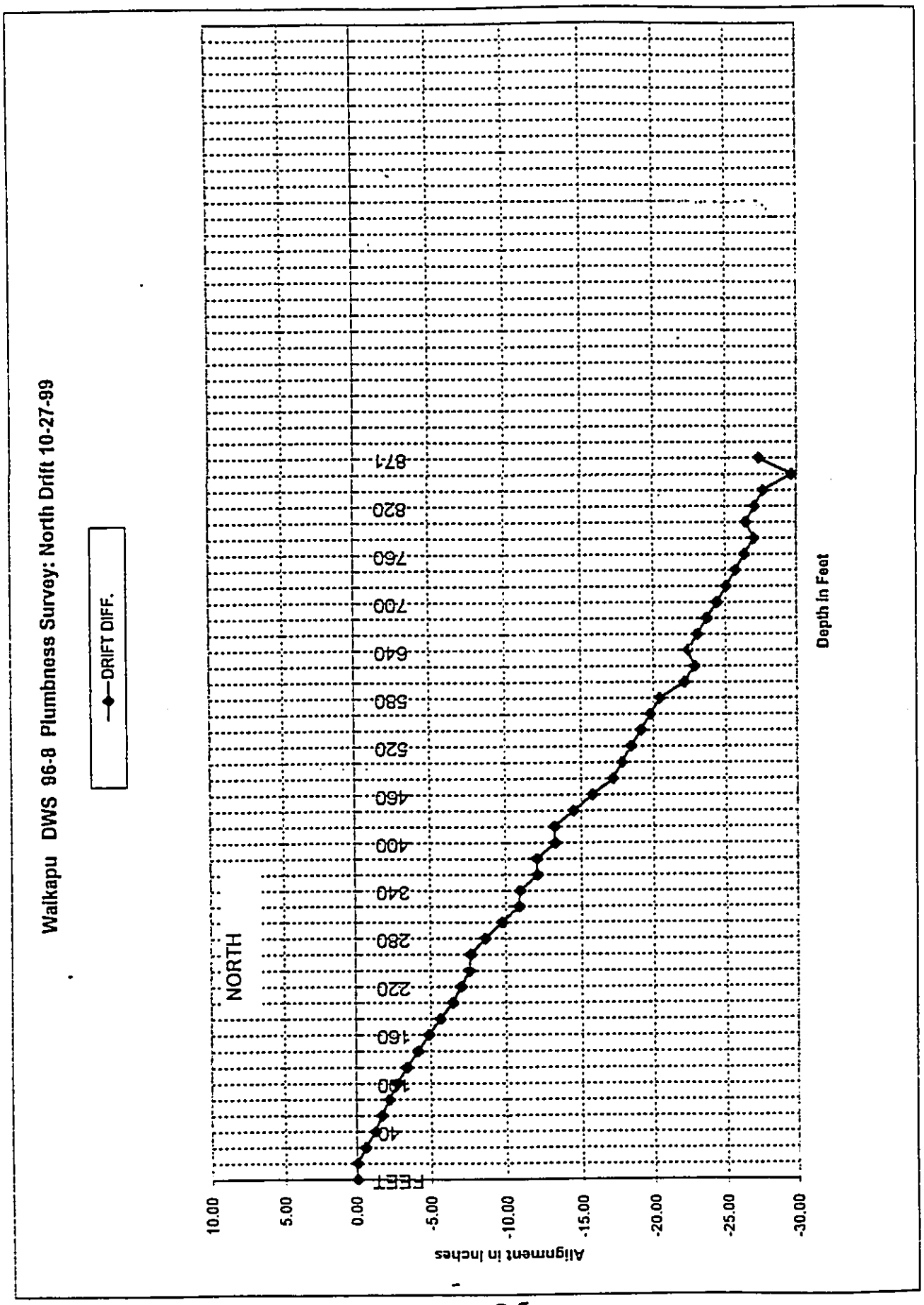

Waikapu DWS 98-8 Plumbness Survey: SOUTH Drift 01-11-2000
DRIFT DIFF.
SOUTH
Alignment in Inches
40.00
35.00
30.00
25.00
20.00
15.00
10.00
5.00
0.00
FEET
40
100
160
220
280
340
400
460
520
580
640
700
760
820
Depth in Feet

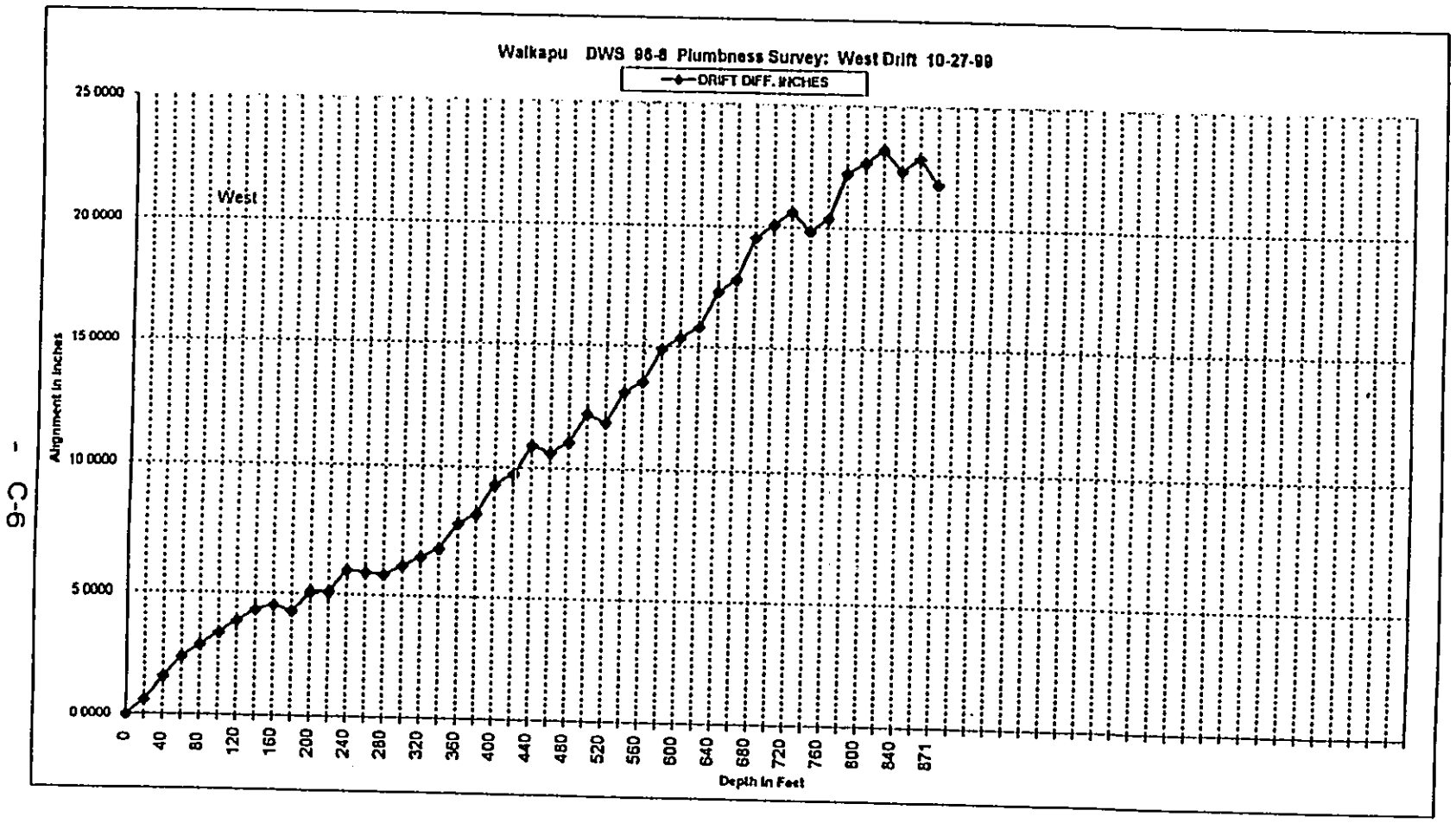
Waikapu DWS 96-8 , WRI J-442
WELL ALIGNMENT DATA
Drift = Deflection*(hight+depth)/height

CASING TO PULLEY = 41.70 feet
CASING 18.00 inches ID
CAGE USED. 17.50 inches OD

27-Oct-99

DEPTH FEET	NORTH Field Reading	NORTH Change Direction Inches	NORTH DRIFT DIFF. INCHES	WEST Field Reading	WEST Change Direction Inches	WEST DRIFT DIFF. INCHES
0	9.00	-	-	9.00	-	-
20	8.63	(0.38)	(0.55)	9.44	0.44	0.65
40	8.38	(0.63)	(1.22)	9.81	0.81	1.59
60	8.31	(0.69)	(1.68)	10.00	1.00	2.44
80	8.25	(0.75)	(2.19)	10.00	1.00	2.92
100	8.19	(0.81)	(2.75)	10.00	1.00	3.40
120	8.13	(0.87)	(3.37)	10.00	1.00	3.88
140	8.06	(0.94)	(4.10)	10.00	1.00	4.36
160	8.00	(1.00)	(4.84)	9.94	0.94	4.55
180	7.94	(1.06)	(5.64)	9.81	0.81	4.31
200	7.88	(1.12)	(6.49)	9.88	0.88	5.10
220	7.88	(1.12)	(7.03)	9.81	0.81	5.08
240	7.88	(1.12)	(7.57)	9.88	0.88	5.94
260	7.94	(1.06)	(7.67)	9.81	0.81	5.86
280	7.88	(1.12)	(8.64)	9.75	0.75	5.79
300	7.81	(1.19)	(9.75)	9.75	0.75	6.15
320	7.75	(1.25)	(10.84)	9.75	0.75	6.51
340	7.81	(1.19)	(10.89)	9.75	0.75	6.87
360	7.75	(1.25)	(12.04)	9.81	0.81	7.80
380	7.81	(1.19)	(12.03)	9.81	0.81	8.19
400	7.75	(1.25)	(13.24)	9.88	0.88	9.32
420	7.81	(1.19)	(13.18)	9.88	0.88	9.74
440	7.75	(1.25)	(14.44)	9.94	0.94	10.86
460	7.69	(1.31)	(15.76)	9.88	0.88	10.59
480	7.63	(1.37)	(17.14)	9.88	0.88	11.01
500	7.63	(1.37)	(17.80)	9.94	0.94	12.21
520	7.63	(1.37)	(18.45)	9.88	0.88	11.85
540	7.63	(1.37)	(19.11)	9.94	0.94	13.11
560	7.63	(1.37)	(19.77)	9.94	0.94	13.56
580	7.63	(1.37)	(20.43)	10.00	1.00	14.91
600	7.56	(1.44)	(22.16)	10.00	1.00	15.39
620	7.56	(1.44)	(22.85)	10.00	1.00	15.87
640	7.63	(1.37)	(22.40)	10.06	1.06	17.33
660	7.63	(1.37)	(23.05)	10.06	1.06	17.84
680	7.63	(1.37)	(23.71)	10.13	1.13	19.56
700	7.63	(1.37)	(24.37)	10.13	1.13	20.10
720	7.63	(1.37)	(25.02)	10.13	1.13	20.64
740	7.63	(1.37)	(25.68)	10.06	1.06	19.87
760	7.63	(1.37)	(26.34)	10.06	1.06	20.38
780	7.63	(1.37)	(27.00)	10.13	1.13	22.27
800	7.69	(1.31)	(26.44)	10.13	1.13	22.71
820	7.69	(1.31)	(27.07)	10.13	1.13	23.25
840	7.69	(1.31)	(27.70)	10.06	1.06	22.41
860	7.63	(1.37)	(29.62)	10.06	1.06	22.92
871	7.75	(1.25)	(27.36)	10.00	1.00	21.89


Walkapu DWS 96-8 Plumbness Survey: North Drift 10-27-99
DRIFT DIFF.
NORTH
FEET
40
100
160
220
280
340
400
460
520
580
640
700
760
820
871
Alignment in Inches
10.00
5.00
0.00
-5.00
-10.00
-15.00
-20.00
-25.00
-30.00
Depth in Feet


Waikapu DWS 98-8 Plumbness Survey: West Drift 10-27-99
DRIFT DIFF. INCHES
West
25.0000
20.0000
15.0000
10.0000
5.0000
0.0000
Alignment in Inches
0
40
80
120
160
200
240
280
320
360
400
440
480
520
560
600
640
680
720
760
800
840
871
Depth in Feet

DRILLER'S LOG

Well Name: Waikapu Mauka (5131-01) Job No.: 5-442
Driller: Booth, Water Resource International

SUBSURFACE FORMATION

Drillers Log:

Depth (ft.)			Rock Description and Remarks
0	to	150	Red & Black Cinder
150	to	153	Mostly Gray Rock
153	to	160	Cinder R&B
160	to	177	Med Hard Gray Rock
177	to	181	Soft R&B Cinder
181	to	184	Med Gray Rock, some Cinder
184	to	216	Red & Black Cinder Soft, Some Gray
216	to	220	Med mostly Gray, Some Cinder
220	to	240	Soft Cinder, Some Gray
240	to	245	Med. Hard mostly Gray
245	to	256	Med. mostly Gray
256	to	259	Soft Cinder R&B
259	to	265	Med., Some Cinder
265	to	280	Soft Cinder R&B
280	to	283	Med., mostly Gray
283	to	294	Soft Cinder R&B
294	to	300	Med. mostly Gray
300	to	315	Med. Hard
315	to	336	Med.
336	to	362	Soft
362	to	369	Med. Hard
369	to	392	Med.
392	to	406	Med. Hard
406	to	419	Med.
419	to	424	Soft
424	to	426	Med. Hard
426	to	453	Med.
453	to	456	Soft
456	to	509	Med.
509	to	524	Soft
524	to	526	Med.
526	to	548	Med. Hard
548	to	550	Med.

Appendix D

DRILLER'S REPORT
Waikapu Mauka Well
Job: 5-442

Depth (ft.)			Rock Description and Remarks
550	to	555	Soft
555	to	560	Med. Hard
560	to	568	Med.
568	to	572	Med. Hard
572	to	576	Med.
576	to	581	Soft
581	to	599	Med. Hard
599	to	605	Hard
605	to	607	Med. Hard
607	to	614	Hard
614	to	615	Med. Hard
615	to	645	Hard
645	to	705	Med.
705	to	710	Med. Hard
710	to	730	Med.
730	to	751	Soft
751	to	793	Med. Hard
793	to	805	Hard
805	to	818	Med.
818	to	824	Hard
824	to	828	Med.
828	to	830	Soft

ATTACHMENT B

WATER QUALITY SAMPLE RESULTS

WAIKAPU TANK SITE WELL (5131-01)*

*(Waikapu Mauka Well changed to Waikapu Tank Site Well-see explanation in "References".)

Waikapu Mauka Well
State Well No. 5131-01
Water Sample Analysis Results

Contaminant	MCL	Units	Sample	Units
Physical				
Turbidity	1	NTU	0.06	NTU
pH			7.4	
Temperature			5[illegible] C	
Alkalinity			79	
Calcium			11.2	
Cyanide			ND	
Specific Conductance			255	
Endothall			ND	
Inorganic Chemicals				
Arsenic	0.05	MG/L	ND	
Barium	2	MG/L	0.003	MG/L
Cadmium	0.005	MG/L	ND	
Chromium	0.1	MG/L	0.0024	MG/L
Mercury	0.002	MG/L	ND	
Nitrate	10	MG/L	1.2	MG/L
Nitrite	1	MG/L	ND	
Total Nitrate/Nitrite	10	MG/L		
Selenium	0.05	MG/L	ND	
Fluoride	1.3	MG/L	0.12	MG/L
Organic Chemicals				
Chlorinated hydrocarbons				
Endrin	0.0002		ND	
Organic Contaminants				
1 Benzene	0.005	MG/L	ND	
2 Carbon Tetrachloride	0.005	MG/L	ND	
3 o-Dichlorobenzene	0.6	MG/L	ND	
4 para-Dichlorobenzene	0.075	MG/L	ND	
5 1,2,-Dichloroethane	0.005	MG/L	ND	
6 1,1-Dichloroethylene	0.007	MG/L	ND	
7 cis-1,2-Dichloroethylene	0.07	MG/L	ND	
8 trans-1,2-Dichloroethylene	0.1	MG/L	ND	
9 1,2-Dichloropropane (DCP)	0.005	MG/L	ND	
10 Ethylbenzene	0.7	MG/L	ND	
11 Monochlorobenzene	0.1	MG/L	ND	
12 Styrene	0.1	MG/L	ND	
13 Tetrachloroethylene	0.005	MG/L	ND	
14 Toluene	1	MG/L	ND	
15 1,1,1-Trichloroethane	0.2	MG/L	ND	
16 Trichloroethylene	0.005	MG/L	ND	
17 1,2,3-Trichloropropane (TCP)	0.0008	MG/L	ND	
18 Vinyl chloride	0.002	MG/L	ND	
19 Xylenes (total)	10	MG/L	ND	

Waikapu Mauka Well
State Well No. 5131-01
Water Sample Analysis Results

	Contaminant	MCL	Units	Sample	Units
1	Alachlor	0.002	MG/L	ND	
5	Atrazine	0.003	MG/L	ND	
6	Carbofuran	0.04	MG/L	ND	
7	Chlordane	0.002	MG/L	ND	
8	Dibromochloropropane (DBCP)	0.00004	MG/L	ND	
9	2,4-D	0.07	MG/L	ND	
10	Ethylene dibromide (EDB)	0.00004	MG/L	ND	
11	Heptachlor	0.0004	MG/L	ND	
12	Heptachlor epoxide	0.0002	MG/L	ND	
13	Lindane	0.0002	MG/L	ND	
14	Methoxychlor	0.04	MG/L	ND	
15	Polychlorinated biphenyls (PCB)	0.0005	MG/L	ND	
16	Pentachlorophenol	0.001	MG/L	ND	
17	Toxaphene	0.003	MG/L	ND	
18	2,4,5-TP (Silvex)	0.05	MG/L	ND	
	Microbiological				
	Coliform			TNTC	
	Fecal Coliform			NEGATIVE	

COUNTY OF MAUI
BOARD OF WATER SUPPLY
WATER QUALITY LABORATORY
614 PALAPALA DRIVE
KAHULUI,MAUI,HAWAII 96732

REPORT DATE: DECEMBER 29, 1999

SITE: WAIKAPU WELL

MATRIX: WATER

DATE/TIME SAMPLED: 12/15/99 @ 0800

SAMPLER: L. POOLE

DATE/TIME RECEIVED: 12/15/99 @ 1310

TEMP.CONTROL: 5 ° C

EPA METHOD:
TOTAL COLIFORM: 9222B
FECAL COLIFORM: 9221C
HPC: 9215B

SAMPLE ID	TOTAL COLIFORM BACTERIA [# / 100 ML]	FECAL COLIFORM VERIFICATION	HPC [CFU/100 ML]
WAIKAPU WELL [S-1717]	TOO NUMEROUS TO COUNT	NEGATIVE	3600 est.

ANALYST: L.AMANO

APPPROVED BY: C.CERIZO
W.M. IV

COUNTY OF MAUI
DEPARTMENT OF WATER SUPPLY
WATER QUALITY LAB
614 PALAPALA DRIVE
KAHULUI, MAUI, HAWAII 96732

REPORT DATE: NOVEMBER 4, 2002

CLIENT: TAKUMI ENGINEERING
18 CENTRAL AVENUE
WAILUKU, MAUI, HAWAII 96793
PHONE #: 249-0411

MATRIX: WATER

SAMPLER: LOUISE POOLE

SAMPLE DATE: DECEMBER 15, 1999

EPA METHOD:

pH:	4500-H+
TEMPERATURE:	2550B
TURBIDITY:	2130B

SITE	TEST	RESULT
WAIKAPU MAUKA	pH	7.4
	Turbidity	0.06

APPROVED BY: C.CERIZO
W.M. IV

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Laboratory Report

for

Maui, County of, Department of Water Supply
614 Palapala Dr

Kahului , HI 96732

Attention: Cari Cerizo
Fax: (808) 270-5133

ACCREDITED IN ACCORDANCE WITH nelac 01114CA

HDS Hillary Strayer
Project Manager

Report#: 61275
PHASEV

iboratory certifies that the test results meet all NELAC requirements unless
ted in the Comments section or the Case Narrative. Following the cover page
e Comments,QC Report,QC Summary,Data Report,Hits Report, totaling 18 page[s].

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Report
Comments
#61275

Group Comments

(549) Paraquat recovered low in the LFM. Recovery was QC limits in LFB and MBLK. Another client's sample was fortified.
(525.2) Except for hexachlorocyclopentadiene from the LFM, recoveries from the LFM and LFB are within method QC limits. Another client's sample was fortified.

(QC Ref#: 108040)
Test: Paraquat (ML/EPA 549.2)
QC Type: MS
matrix

(QC Ref#: 108138)
Test: Acenaphthylene (ML/EPA 525.2)
QC Type: MS
within method QC limits of 70-130%
Test: Fluorene (ML/EPA 525.2)
QC Type: MS
within method QC limits of 70-130%
Test: Hexachlorocyclopentadiene (ML/EPA 525.2)
QC Type: LCS1
within method QC limits of 70-130%
QC Type: MS
defer to LFB, possible matrix interaction.
within method QC limits of 70-130%

(QC Ref#: 108248)
Test: Lead, Total, ICAP/MS (EPA/ML 200.8)
QC Type: LCS1
LCS1 recovery is outside the internal limit, however the recovery meets the EPA 200.8 85-115%. No impact is suspected

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Laboratory
Hits Report
#61275

Maui, County of, Department of
Water Supply
Cari Cerizo
614 Palapala Dr
Kahului , HI 96732

Samples Received

16-dec-1999 11:43:00

alyzed	Sample#	Sample ID	Result	UNITS	MRL
	1912200055	WAIKAPU WELL (1912160266)			
/05/00		Barium, Total, ICAP/MS	3.0	ug/l	2.000
/05/00		Chromium, Total, ICAP/MS	2.4	ug/l	2.000
/05/00		Copper, Total, ICAP/MS	7.9	ug/l	2.000
/10/00		Isophorone	0.9	ug/l	.500

SUMMARY OF POSITIVE DATA ONLY.

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Laboratory
Data Report
#61275

Maui, County of, Department of
Water Supply
Cari Cerizo
614 Palapala Dr
Kahului , HI 96732

Samples Received

12/16/99

pared	Analyzed	QC Ref#	Method	Analyte	Result	Units	MRL	Dilution
IKAPU WELL (1912160266) (1912200055) Sampled on 12/15/99 00:00								
				525 Semivolatiles by GC/MS				
27/99	01/10/00 00:00	108138	(ML/EPA 525.2)	2,4-Dinitrotoluene	ND	ug/l	0.10	1
27/99	01/10/00 00:00	108138	(ML/EPA 525.2)	alpha-Chlordane	ND	ug/l	0.050	1
27/99	01/10/00 00:00	108138	(ML/EPA 525.2)	Acenaphthylene	ND	ug/l	0.10	1
27/99	01/10/00 00:00	108138	(ML/EPA 525.2)	Alachlor	ND	ug/l	0.050	1
27/99	01/10/00 00:00	108138	(ML/EPA 525.2)	Aldrin	ND	ug/l	0.050	1
27/99	01/10/00 00:00	108138	(ML/EPA 525.2)	Anthracene	ND	ug/l	0.020	1
27/99	01/10/00 00:00	108138	(ML/EPA 525.2)	Atrazine	ND	ug/l	0.050	1
27/99	01/10/00 00:00	108138	(ML/EPA 525.2)	Benz(a)Anthracene	ND	ug/l	0.050	1
27/99	01/10/00 00:00	108138	(ML/EPA 525.2)	Benzo(a)pyrene	ND	ug/l	0.020	1
27/99	01/10/00 00:00	108138	(ML/EPA 525.2)	Benzo(b)Fluoranthene	ND	ug/l	0.020	1
27/99	01/10/00 00:00	108138	(ML/EPA 525.2)	Benzo(g,h,i)Perylene	ND	ug/l	0.050	1
27/99	01/10/00 00:00	108138	(ML/EPA 525.2)	Benzo(k)Fluoranthene	ND	ug/l	0.020	1
27/99	01/10/00 00:00	108138	(ML/EPA 525.2)	Bi(2-Ethylhexyl)phthalate	ND	ug/l	0.60	1
27/99	01/10/00 00:00	108138	(ML/EPA 525.2)	Butylbenzylphthalate	ND	ug/l	0.50	1
27/99	01/10/00 00:00	108138	(ML/EPA 525.2)	Bromacil	ND	ug/l	0.20	1
27/99	01/10/00 00:00	108138	(ML/EPA 525.2)	Butachlor	ND	ug/l	0.050	1
27/99	01/10/00 00:00	108138	(ML/EPA 525.2)	Caffeine	ND	ug/l	0.020	1
27/99	01/10/00 00:00	108138	(ML/EPA 525.2)	Chrysene	ND	ug/l	0.020	1
27/99	01/10/00 00:00	108138	(ML/EPA 525.2)	Dibenz(a,h)Anthracene	ND	ug/l	0.050	1
27/99	01/10/00 00:00	108138	(ML/EPA 525.2)	Di-(2-Ethylhexyl)adipate	ND	ug/l	0.60	1
27/99	01/10/00 00:00	108138	(ML/EPA 525.2)	Diethylphthalate	ND	ug/l	0.50	1
27/99	01/10/00 00:00	108138	(ML/EPA 525.2)	Dieldrin	ND	ug/l	0.20	1
27/99	01/10/00 00:00	108138	(ML/EPA 525.2)	Dimethylphthalate	ND	ug/l	0.50	1
27/99	01/10/00 00:00	108138	(ML/EPA 525.2)	Dimethoate	ND	ug/l	10	1
27/99	01/10/00 00:00	108138	(ML/EPA 525.2)	Di-n-Butylphthalate	ND	ug/l	0.50	1
27/99	01/10/00 00:00	108138	(ML/EPA 525.2)	Endrin	ND	ug/l	0.10	1
27/99	01/10/00 00:00	108138	(ML/EPA 525.2)	Fluorene	ND	ug/l	0.050	1
27/99	01/10/00 00:00	108138	(ML/EPA 525.2)	gamma-Chlordane	ND	ug/l	0.050	1
27/99	01/10/00 00:00	108138	(ML/EPA 525.2)	Hexachlorobenzene	ND	ug/l	0.050	1

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Laboratory
Data Report
#61275

Maui, County of, Department of
Water Supply
(continued)

ared	Analyzed	QC Ref#	Method	Analyte	Result	Units	MRL	Dilution
IKAPU WELL (1912160266) (1912200055) (continued)					Sampled on 12/15/99 0			
27/99	01/10/00 00:00	108138	(ML/EPA 525.2)	Hexachlorocyclopentadiene	ND	ug/l	0.050	1
27/99	01/10/00 00:00	108138	(ML/EPA 525.2)	Heptachlor	ND	ug/l	0.040	1
27/99	01/10/00 00:00	108138	(ML/EPA 525.2)	Heptachlor Epoxide	ND	ug/l	0.020	1
27/99	01/10/00 00:00	108138	(ML/EPA 525.2)	Indeno(1,2,3,c,d)Pyrene	ND	ug/l	0.050	1
27/99	01/10/00 00:00	108138	(ML/EPA 525.2)	Isophorone	0.9	ug/l	0.50	1
27/99	01/10/00 00:00	108138	(ML/EPA 525.2)	Lindane	ND	ug/l	0.020	1
27/99	01/10/00 00:00	108138	(ML/EPA 525.2)	Methoxychlor	ND	ug/l	0.050	1
27/99	01/10/00 00:00	108138	(ML/EPA 525.2)	Metribuzin	ND	ug/l	0.050	1
27/99	01/10/00 00:00	108138	(ML/EPA 525.2)	Molinate	ND	ug/l	0.20	1
27/99	01/10/00 00:00	108138	(ML/EPA 525.2)	Metolachlor	ND	ug/l	0.050	1
27/99	01/10/00 00:00	108138	(ML/EPA 525.2)	trans-Nonachlor	ND	ug/l	0.050	1
27/99	01/10/00 00:00	108138	(ML/EPA 525.2)	Pentachlorophenol	ND	ug/l	1.0	1
27/99	01/10/00 00:00	108138	(ML/EPA 525.2)	Phenanthrene	ND	ug/l	0.020	1
27/99	01/10/00 00:00	108138	(ML/EPA 525.2)	Prometryn	ND	ug/l	0.50	1
27/99	01/10/00 00:00	108138	(ML/EPA 525.2)	Propachlor	ND	ug/l	0.050	1
27/99	01/10/00 00:00	108138	(ML/EPA 525.2)	Pyrene	ND	ug/l	0.050	1
27/99	01/10/00 00:00	108138	(ML/EPA 525.2)	Simazine	ND	ug/l	0.050	1
27/99	01/10/00 00:00	108138	(ML/EPA 525.2)	Thiobencarb	ND	ug/l	0.20	1
27/99	01/10/00 00:00	108138	(ML/EPA 525.2)	Trifluralin	ND	ug/l	0.20	1
			(Surrogate)	Perylene-d12	93	% Rec		
Diquat and Paraquat								
23/99	12/23/99 00:00	108040	(ML/EPA 549.2)	Diquat	ND	ug/l	0.40	1
23/99	12/23/99 00:00	108040	(ML/EPA 549.2)	Paraquat	ND	ug/l	2.0	1
EDB and DBCP by GC-ECD								
22/99	12/24/99 00:00	107831	(ML/EPA 504.1)	Dibromochloropropane (DBCP)	ND	ug/l	0.010	1
22/99	12/24/99 00:00	107831	(ML/EPA 504.1)	Ethylene Dibromide (EDB)	ND	ug/l	0.010	1
			(Surrogate)	1,2-dibromopropane	108	% Rec		
ICPMS Metals								
05/00	01/05/00 00:00	108248	(EPA/ML 200.8)	Arsenic, Total, ICAP/MS	ND	ug/l	1.0	1
05/00	01/05/00 00:00	108248	(EPA/ML 200.8)	Barium, Total, ICAP/MS	3.0	ug/l	2.0	1

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Laboratory
Data Report
#61275

Maui, County of, Department of
Water Supply
(continued)

pared	Analyzed	QC Ref#	Method	Analyte	Result	Units	MRL	Dilution
IKAPU WELL (1912160266) (1912200055) (continued)						**Sampled on 12/15/99 0**		
05/00	01/05/00 00:00	108248	(EPA/ML 200.8)	Beryllium, Total, ICAP/MS	ND	ug/l	1.0	1
05/00	01/05/00 00:00	108248	(EPA/ML 200.8)	Cadmium, Total, ICAP/MS	ND	ug/l	0.50	1
05/00	01/05/00 00:00	108248	(EPA/ML 200.8)	Chromium, Total, ICAP/MS	2.4	ug/l	2.0	1
05/00	01/05/00 00:00	108248	(EPA/ML 200.8)	Copper, Total, ICAP/MS	7.9	ug/l	2.0	1
05/00	01/05/00 00:00	108248	(EPA/ML 200.8)	Nickel, Total, ICAP/MS	ND	ug/l	5.0	1
05/00	01/05/00 00:00	108248	(EPA/ML 200.8)	Lead, Total, ICAP/MS	ND	ug/l	0.50	1
05/00	01/05/00 00:00	108248	(EPA/ML 200.8)	Antimony, Total, ICAP/MS	ND	ug/l	1.0	1
05/00	01/05/00 00:00	108248	(EPA/ML 200.8)	Selenium, Total, ICAP/MS	ND	ug/l	5.0	1
05/00	01/05/00 00:00	108248	(EPA/ML 200.8)	Thallium, Total, ICAP/MS	ND	ug/l	1.0	1
Volatile Organic Compounds								
	01/20/00 00:00	109687	(ML/EPA 502.2)	1,1,1,2-Tetrachloroethane	ND	ug/l	0.50	1
	01/20/00 00:00	109687	(ML/EPA 502.2)	1,1,1-Trichloroethane	ND	ug/l	0.50	1
	01/20/00 00:00	109687	(ML/EPA 502.2)	1,1,2,2-Tetrachloroethane	ND	ug/l	0.50	1
	01/20/00 00:00	109687	(ML/EPA 502.2)	1,1,2-Trichloroethane	ND	ug/l	0.50	1
	01/20/00 00:00	109687	(ML/EPA 502.2)	1,1-Dichloroethane	ND	ug/l	0.50	1
	01/20/00 00:00	109687	(ML/EPA 502.2)	1,1-Dichloroethene	ND	ug/l	0.50	1
	01/20/00 00:00	109687	(ML/EPA 502.2)	1,1-Dichloropropene	ND	ug/l	0.50	1
	01/20/00 00:00	109687	(ML/EPA 502.2)	1,2,3-Trichloropropane	ND	ug/l	0.50	1
	01/20/00 00:00	109687	(ML/EPA 502.2)	1,2,3-Trichlorobenzene	ND	ug/l	0.50	1
	01/20/00 00:00	109687	(ML/EPA 502.2)	1,2,4-Trichlorobenzene	ND	ug/l	0.50	1
	01/20/00 00:00	109687	(ML/EPA 502.2)	1,2,4-Trimethylbenzene	ND	ug/l	0.50	1
	01/20/00 00:00	109687	(ML/EPA 502.2)	1,2-Dichloroethane	ND	ug/l	0.50	1
	01/20/00 00:00	109687	(ML/EPA 502.2)	1,2-Dichlorobenzene	ND	ug/l	0.50	1
	01/20/00 00:00	109687	(ML/EPA 502.2)	1,2-Dichloropropane	ND	ug/l	0.50	1
	01/20/00 00:00	109687	(ML/EPA 502.2)	1,3,5-Trimethylbenzene	ND	ug/l	0.50	1
	01/20/00 00:00	109687	(ML/EPA 502.2)	1,3-Dichlorobenzene	ND	ug/l	0.50	1
	01/20/00 00:00	109687	(ML/EPA 502.2)	1,3-Dichloropropane	ND	ug/l	0.50	1
	01/20/00 00:00	109687	(ML/EPA 502.2)	1,4-Dichlorobenzene	ND	ug/l	0.50	1
	01/20/00 00:00	109687	(ML/EPA 502.2)	2,2-Dichloropropane	ND	ug/l	0.50	1
	01/20/00 00:00	109687	(ML/EPA 502.2)	2-Chlorotoluene	ND	ug/l	0.50	1
	01/20/00 00:00	109687	(ML/EPA 502.2)	4-Chlorotoluene	ND	ug/l	0.50	1
	01/20/00 00:00	109687	(ML/EPA 502.2)	Bromodichloromethane	ND	ug/l	0.50	1

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Laboratory
Data Report
#61275

Maui, County of, Department of
Water Supply
(continued)

ared	Analyzed	QC Ref#	Method	Analyte	Result	Units	MRL	Dilution
IKAPU WELL (1912160266) (1912200055) (continued)						Sampled on	12/15/99 0	
	01/20/00 00:00	109687	(ML/EPA 502.2)	Benzene	ND	ug/l	0.50	1
	01/20/00 00:00	109687	(ML/EPA 502.2)	Bromobenzene	ND	ug/l	0.50	1
	01/20/00 00:00	109687	(ML/EPA 502.2)	Bromochloromethane	ND	ug/l	0.50	1
	01/20/00 00:00	109687	(ML/EPA 502.2)	Bromomethane	ND	ug/l	0.50	1
	01/20/00 00:00	109687	(ML/EPA 502.2)	cis-1,2-Dichloroethene	ND	ug/l	0.50	1
	01/20/00 00:00	109687	(ML/EPA 502.2)	Chlorobenzene	ND	ug/l	0.50	1
	01/20/00 00:00	109687	(ML/EPA 502.2)	Carbon tetrachloride	ND	ug/l	0.50	1
	01/20/00 00:00	109687	(ML/EPA 502.2)	cis-1,3-Dichloropropene	ND	ug/l	0.50	1
	01/20/00 00:00	109687	(ML/EPA 502.2)	Bromoform	ND	ug/l	0.50	1
	01/20/00 00:00	109687	(ML/EPA 502.2)	Chloroform	ND	ug/l	0.50	1
	01/20/00 00:00	109687	(ML/EPA 502.2)	Chloroethane	ND	ug/l	0.50	1
	01/20/00 00:00	109687	(ML/EPA 502.2)	Chloromethane	ND	ug/l	0.50	1
	01/20/00 00:00	109687	(ML/EPA 502.2)	Dibromochloromethane	ND	ug/l	0.50	1
	01/20/00 00:00	109687	(ML/EPA 502.2)	1,2-Dibromo-3-chloropropane	ND	ug/l	1.0	1
	01/20/00 00:00	109687	(ML/EPA 502.2)	Dibromomethane	ND	ug/l	0.50	1
	01/20/00 00:00	109687	(ML/EPA 502.2)	Dichlorodifluoromethane	ND	ug/l	0.50	1
	01/20/00 00:00	109687	(ML/EPA 502.2)	1,2-Dibromoethane	ND	ug/l	0.50	1
	01/20/00 00:00	109687	(ML/EPA 502.2)	Ethylbenzene	ND	ug/l	0.50	1
	01/20/00 00:00	109687	(ML/EPA 502.2)	Hexachlorobutadiene	ND	ug/l	0.50	1
	01/20/00 00:00	109687	(ML/EPA 502.2)	Isopropylbenzene	ND	ug/l	0.50	1
	01/20/00 00:00	109687	(ML/EPA 502.2)	Methylene chloride	ND	ug/l	0.50	1
	01/20/00 00:00	109687	(ML/EPA 502.2)	m-p-Xylenes	ND	ug/l	0.50	1
	01/20/00 00:00	109687	(ML/EPA 502.2)	Methyl tert-butyl ether	ND	ug/l	5.0	1
	01/20/00 00:00	109687	(ML/EPA 502.2)	Naphthalene	ND	ug/l	0.50	1
	01/20/00 00:00	109687	(ML/EPA 502.2)	n-Butylbenzene	ND	ug/l	0.50	1
	01/20/00 00:00	109687	(ML/EPA 502.2)	n-Propylbenzene	ND	ug/l	0.50	1
	01/20/00 00:00	109687	(ML/EPA 502.2)	o-Xylene	ND	ug/l	0.50	1
	01/20/00 00:00	109687	(ML/EPA 502.2)	Tetrachloroethylene (PCE)	ND	ug/l	0.50	1
	01/20/00 00:00	109687	(ML/EPA 502.2)	p-Isopropyltoluene	ND	ug/l	0.50	1
	01/20/00 00:00	109687	(ML/EPA 502.2)	sec-Butylbenzene	ND	ug/l	0.50	1
	01/20/00 00:00	109687	(ML/EPA 502.2)	Styrene	ND	ug/l	0.50	1
	01/20/00 00:00	109687	(ML/EPA 502.2)	trans-1,2-Dichloroethene	ND	ug/l	0.50	1
	01/20/00 00:00	109687	(ML/EPA 502.2)	tert-Butylbenzene	ND	ug/l	0.50	1

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pared	Analyzed	QC Ref#	Method	Analyte	Result	Units	MRL	Dilution
IKAPU WELL (1912160266) (1912200055) (continued)					Sampled on 12/15/99 0			
	01/20/00 00:00	109687	(ML/EPA 502.2)	Trichloroethylene (TCE)	ND	ug/l	0.50	1
	01/20/00 00:00	109687	(ML/EPA 502.2)	Trichlorotrifluoroethane(Freon	ND	ug/l	0.50	1
	01/20/00 00:00	109687	(ML/EPA 502.2)	trans-1,3-Dichloropropene	ND	ug/l	0.50	1
	01/20/00 00:00	109687	(ML/EPA 502.2)	Toluene	ND	ug/l	0.50	1
	01/20/00 00:00	109687	(ML/EPA 502.2)	Trichlorofluoromethane	ND	ug/l	0.50	1
	01/20/00 00:00	109687	(ML/EPA 502.2)	Vinyl chloride	ND	ug/l	0.30	1
			(Surrogate)	Bromofluorobenzene-ELCD	112	% Rec		
			(Surrogate)	Bromofluorobenzene-PID	94	% Rec		
			(Surrogate)	Chlorofluorobenzene-ELCD	91	% Rec		
			(Surrogate)	Chlorofluorobenzene-PID	96	% Rec		

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Ref #107831 - EDB and DBCP by GC-ECD Analysis Date: 12/24/1999

1912200055 WAIKAPU WELL (1912160266)

Ref #108040 - Diquat and Paraquat Analysis Date: 12/23/1999

1912200055 WAIKAPU WELL (1912160266)

Ref #108138 - 525 Semivolatiles by GC/MS Analysis Date: 01/10/2000

1912200055 WAIKAPU WELL (1912160266)

Ref #108248 - ICPMS Metals Analysis Date: 01/05/2000

1912200055 WAIKAPU WELL (1912160266)

Ref #109687 - Volatile Organic Compounds Analysis Date: 01/20/2000

1912200055 WAIKAPU WELL (1912160266)

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QC Ref #107831 EDB and DBCP by GC-ECD

QC	Analyte	Spiked	Recovered	Units	Yield (%)	Limits (%)	RPD (%)
DUP	Spiked sample	Lab # 19	12140182	NONE		(0-0)	
MS	Spiked sample	Lab # 19	12140177	NONE		(0-0)	
DUP	Dibromochloropropane (DBCP)	ND	ND	UGL		(0-20)	
LCS1	Dibromochloropropane (DBCP)	0.02	0.021	UGL	105.0	(60-140)	
LCS2	Dibromochloropropane (DBCP)	0.20	0.20	UGL	100.0	(60-140)	
MBLK	Dibromochloropropane (DBCP)	ND	<0.01	UGL			
MS	Dibromochloropropane (DBCP)	0.20	0.20	UGL	100.0	(60-140)	
DUP	Ethylene Dibromide (EDB)	ND	ND	UGL		(0-20)	
LCS1	Ethylene Dibromide (EDB)	0.02	0.015	UGL	75.0	(60-140)	
LCS2	Ethylene Dibromide (EDB)	0.20	0.22	UGL	110.0	(60-140)	
MBLK	Ethylene Dibromide (EDB)	ND	<0.01	UGL			
MS	Ethylene Dibromide (EDB)	0.20	0.19	UGL	95.0	(60-140)	
DUP	1,2-dibromopropane (surr)	100	116	%R	116.0	(60-140)	
LCS1	1,2-dibromopropane (surr)	100	104	%R	104.0	(60-140)	
LCS2	1,2-dibromopropane (surr)	100	96	%R	96.0	(60-140)	8.0
MBLK	1,2-dibromopropane (surr)	100	107	%R	107.0		
MS	1,2-dibromopropane (surr)	100	102	%R	102.0	(60-140)	

QC Ref #108040 Diquat and Paraquat

QC	Analyte	Spiked	Recovered	Units	Yield (%)	Limits (%)	RPD (%)
MS	Spiked sample	Lab # 19	12140029	NONE		(0-0)	
LCS1	Diquat	10.0	8.5	UGL	85.0	(73-127)	
MBLK	Diquat	ND	<0.40	UGL			
MS	Diquat	10.0	7.3	UGL	73.0	(70-130)	
LCS1	Paraquat	10.0	8.7	UGL	87.0	(70-130)	
MBLK	Paraquat	ND	<2.00	UGL			
MS	Paraquat	10.0	6.0	UGL	60.0	(70-130)	

Spikes which exceed Limits and Method Blanks with positive results are highlighted by Underlining. Criteria for MS and DUP are advisory only, batch control is based on LCS. Criteria for duplicates are advisory only, unless otherwise specified in the method.

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QC Ref #108138

525 Semivolatiles by GC/MS

QC	Analyte	Spiked	Recovered	Units	Yield (%)	Limits (%)	RPD (%)
LCS1	alpha-Chlordane	2	1.38	UGL	94.0	(70-130)	
MBLK	alpha-Chlordane	ND	<0.05	UGL			
MS	alpha-Chlordane	2	1.67	UGL	83.5	(70-130)	
MBLK	Diazinon	ND	<0.10	UGL			
MS	Spiked sample	Lab # 99	1912170079	NONE		(0-0)	
LCS1	Acenaphthylene	2	1.83	UGL	91.5	(84-114)	
MBLK	Acenaphthylene	ND	<0.10	UGL			
MS	Acenaphthylene	2	1.55	UGL	77.5	(83-111)	
LCS1	Alachlor	2	1.90	UGL	95.0	(70-130)	
MBLK	Alachlor	ND	<0.05	UGL			
MS	Alachlor	2	1.84	UGL	92.0	(70-130)	
LCS1	Aldrin	2	1.69	UGL	84.5	(78-130)	
MBLK	Aldrin	ND	<0.05	UGL			
MS	Aldrin	2	1.68	UGL	84.0	(82-126)	
LCS1	Anthracene	2	1.90	UGL	95.0	(81-122)	
MBLK	Anthracene	ND	<0.02	UGL			
MS	Anthracene	2	1.74	UGL	87.0	(74-121)	
LCS1	Atrazine	2	1.80	UGL	90.0	(70-130)	
MBLK	Atrazine	ND	<0.05	UGL			
MS	Atrazine	2	1.66	UGL	83.0	(72-128)	
LCS1	Benz(a)Anthracene	2	2.02	UGL	101.0	(72-118)	
MBLK	Benz(a)Anthracene	ND	<0.05	UGL			
MS	Benz(a)Anthracene	2	1.97	UGL	98.5	(76-116)	
LCS1	Benzo(a)pyrene	2	1.91	UGL	95.5	(74-124)	
MBLK	Benzo(a)pyrene	ND	<0.02	UGL			
MS	Benzo(a)pyrene	2	1.85	UGL	92.5	(75-120)	
LCS1	Benzo(b)Fluoranthene	2	1.80	UGL	90.0	(77-124)	
MBLK	Benzo(b)Fluoranthene	ND	<0.02	UGL			
MS	Benzo(b)Fluoranthene	2	1.83	UGL	91.5	(79-123)	
LCS1	Benzo(g,h,i)Perylene	2	1.74	UGL	87.0	(70-130)	

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MBLK	Benzo(g,h,i)Perylene	ND	<0.05	UGL		
MS	Benzo(g,h,i)Perylene	2	1.83	UGL	91.5	(70-130)
LCS1	Benzo(k)Fluoranthene	2	1.78	UGL	89.0	(76-121)
MBLK	Benzo(k)Fluoranthene	ND	<0.02	UGL		
MS	Benzo(k)Fluoranthene	2	1.71	UGL	85.5	(73-117)
LCS1	Di(2-Ethylhexyl)phthalate	2	1.94	UGL	97.0	(73-130)
MBLK	Di(2-Ethylhexyl)phthalate	ND	<0.60	UGL		
LCS1	Butylbenzylphthalate	2	2.02	UGL	101.0	(73-130)
MBLK	Butylbenzylphthalate	ND	<0.50	UGL		
MS	Butylbenzylphthalate	2	2.03	UGL	101.5	(73-130)
MBLK	Bromacil	ND	<0.20	UGL		
MBLK	Butachlor	ND	<0.05	UGL		
LCS1	Caffeine	2	1.71	UGL	85.5	(70-130)
MBLK	Caffeine	ND	<0.05	UGL		
MS	Caffeine	2	1.67	UGL	83.5	(70-130)
LCS1	Chrysene	2	1.75	UGL	87.5	(73-130)
MBLK	Chrysene	ND	<0.02	UGL		
MS	Chrysene	2	1.73	UGL	86.5	(81-127)
LCS1	Dibenz(a,h)Anthracene	2	2.14	UGL	107.0	(73-130)
MBLK	Dibenz(a,h)Anthracene	ND	<0.05	UGL		
MS	Dibenz(a,h)Anthracene	2	2.35	UGL	117.5	(70-130)
LCS1	Di-(2-Ethylhexyl)adipate	2	1.88	UGL	94.0	(73-130)
MBLK	Di-(2-Ethylhexyl)adipate	ND	<0.60	UGL		
MS	Di-(2-Ethylhexyl)adipate	2	1.81	UGL	90.5	(70-130)
LCS1	Diethylphthalate	2	2.23	UGL	111.5	(81-122)
MBLK	Diethylphthalate	ND	<0.50	UGL		
MS	Diethylphthalate	2	2.36	UGL	118.0	(81-124)
MBLK	Dieldrin	ND	<0.20	UGL		
LCS1	Dimethylphthalate	2	2.11	UGL	105.5	(80-111)
MBLK	Dimethylphthalate	ND	<0.50	UGL		
MS	Dimethylphthalate	2	2.09	UGL	104.5	(78-116)
MBLK	Dimethoate	ND	<10.00	UGL		
LCS1	Di-n-Butylphthalate	2	2.00	UGL	100.0	(73-130)
MBLK	Di-n-Butylphthalate	ND	<0.50	UGL		
MS	Di-n-Butylphthalate	2	2.06	UGL	103.0	(73-130)

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LCS1	Endrin	2	1.98	UGL	99.0	(70-130)
MBLK	Endrin	ND	<0.10	UGL		
MS	Endrin	2	1.73	UGL	86.5	(70-130)
LCS1	Fluorene	2	1.94	UGL	97.0	(85-121)
MBLK	Fluorene	ND	<0.05	UGL		
MS	Fluorene	2	1.65	UGL	82.5	(85-120)
LCS1	gamma-Chlordane	2	1.91	UGL	95.5	(70-130)
MBLK	gamma-Chlordane	ND	<0.05	UGL		
MS	gamma-Chlordane	2	1.80	UGL	90.0	(70-130)
LCS1	Hexachlorobenzene	2	1.80	UGL	90.0	(70-123)
MBLK	Hexachlorobenzene	ND	<0.05	UGL		
MS	Hexachlorobenzene	2	1.54	UGL	77.0	(70-130)
LCS1	Hexachlorocyclopentadiene	2	1.47	UGL	73.5	(73-126)
MBLK	Hexachlorocyclopentadiene	ND	<0.05	UGL		
MS	Hexachlorocyclopentadiene	2	0.5	UGL	25.0	(70-130)
LCS1	Heptachlor	2	1.72	UGL	86.0	(70-130)
MBLK	Heptachlor	ND	<0.04	UGL		
MS	Heptachlor	2	1.46	UGL	73.0	(71-129)
LCS1	Heptachlor Epoxide	2	1.87	UGL	93.5	(70-130)
MBLK	Heptachlor Epoxide	ND	<0.02	UGL		
MS	Heptachlor Epoxide	2	1.77	UGL	88.5	(70-130)
LCS1	Indeno(1,2,3,c,d)Pyrene	2	1.58	UGL	79.0	(70-130)
MBLK	Indeno(1,2,3,c,d)Pyrene	ND	<0.05	UGL		
MS	Indeno(1,2,3,c,d)Pyrene	2	1.77	UGL	88.5	(70-130)
MBLK	Isophorone	ND	<0.50	UGL		
LCS1	Lindane	2	1.81	UGL	90.5	(70-130)
MBLK	Lindane	ND	<0.02	UGL		
MS	Lindane	2	1.74	UGL	87.0	(70-130)
LCS1	Methoxychlor	2	1.51	UGL	75.5	(70-130)
MBLK	Methoxychlor	ND	<0.05	UGL		
MS	Methoxychlor	2	1.61	UGL	80.5	(70-130)
MBLK	Metribuzin	ND	<0.05	UGL		
LCS1	Molinate	2	2.10	UGL	105.0	(71-124)
MBLK	Molinate	ND	<0.20	UGL		
MS	Molinate	2	2.01	UGL	100.5	(73-127)

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QC	Analyte	Spiked	Recovered	Units	Yield (%)	Limits (%)	RPD (%)
MBLK	Metolachlor	ND	<0.05	UGL			
LCS1	trans-Nonachlor	2	1.79	UGL	89.5	(70-130)	
MBLK	trans-Nonachlor	ND	<0.05	UGL			
MS	trans-Nonachlor	2	1.70	UGL	85.0	(70-130)	
LCS1	Pentachlorophenol	8	5.96	UGL	87.0	(70-130)	
MBLK	Pentachlorophenol	ND	<1.00	UGL			
MS	Pentachlorophenol	8	7.67	UGL	95.9	(70-130)	
LCS1	Phenanthrene	2	1.80	UGL	90.0	(79-124)	
MBLK	Phenanthrene	ND	<0.02	UGL			
MS	Phenanthrene	2	1.70	UGL	85.0	(80-124)	
MBLK	Prometryn	ND	<0.53	UGL			
MBLK	Propachlor	ND	<0.05	UGL			
LCS1	Pyrene	2	1.90	UGL	95.0	(82-130)	
MBLK	Pyrene	ND	<0.05	UGL			
MS	Pyrene	2	1.92	UGL	96.0	(70-130)	
LCS1	Simazine	2	2.25	UGL	112.5	(70-130)	
MBLK	Simazine	ND	<0.05	UGL			
MS	Simazine	2	1.98	UGL	99.0	(71-125)	
LCS1	Perylene-d12	100	84	%R	84.0	(70-130)	
MBLK	Perylene-d12	100	81	%R	81.0		
MS	Perylene-d12	100	89	%R	89.0	(70-130)	
LCS1	Thiobencarb	2	2.02	UGL	101.0	(79-126)	
MBLK	Thiobencarb	ND	<0.20	UGL			
MS	Thiobencarb	2	2.04	UGL	102.0	(80-127)	
MBLK	Trifluralin	ND	<0.10	UGL			

QC Ref #108248 ICPMS Metals

QC	Analyte	Spiked	Recovered	Units	Yield (%)	Limits (%)	RPD (%)
LCS1	Arsenic, Total, ICAP/MS	20	20.6	UGL	103.0	(85-115)	
MBLK	Arsenic, Total, ICAP/MS	ND	<1.00	UGL			
LCS1	Barium, Total, ICAP/MS	100	102	UGL	102.0	(85-115)	
MBLK	Barium, Total, ICAP/MS	ND	<2.00	UGL			
LCS1	Beryllium, Total, ICAP/MS	5	5.26	UGL	105.2	(89-108)	

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MBLK	Beryllium, Total, ICAP/MS	ND	<1.00	UGL		
LCS1	Cadmium, Total, ICAP/MS	20	20.6	UGL	103.0	(91-111)
MBLK	Cadmium, Total, ICAP/MS	ND	<0.50	UGL		
LCS1	Chromium, Total, ICAP/MS	100	102	UGL	102.0	(85-115)
MBLK	Chromium, Total, ICAP/MS	ND	<1.00	UGL		
LCS1	Copper, Total, ICAP/MS	100	102	UGL	102.0	(85-115)
MBLK	Copper, Total, ICAP/MS	ND	<2.00	UGL		
LCS1	Nickel, Total, ICAP/MS	50	50.4	UGL	100.8	(89-107)
MBLK	Nickel, Total, ICAP/MS	ND	<5.00	UGL		
LCS1	Lead, Total, ICAP/MS	20	21.7	UGL	108.5	(87-108)
MBLK	Lead, Total, ICAP/MS	ND	<0.50	UGL		
LCS1	Antimony, Total, ICAP/MS	50	52.0	UGL	104.0	(85-115)
MBLK	Antimony, Total, ICAP/MS	ND	<1.00	UGL		
LCS1	Selenium, Total, ICAP/MS	20	20.6	UGL	103.0	(85-115)
MBLK	Selenium, Total, ICAP/MS	ND	<5.00	UGL		
LCS1	Thallium, Total, ICAP/MS	20	21.4	UGL	107.0	(86-111)
MBLK	Thallium, Total, ICAP/MS	ND	<1.00	UGL		

QC Ref #109687 Volatile Organic Compounds

QC	Analyte	Spiked	Recovered	Units	Yield (%)	Limits (%)	RPD (%)
LCS1	1,1,1,2-Tetrachloroethane	4.0	4.5	UGL	112.5	(80-120)	
MBLK	1,1,1,2-Tetrachloroethane	ND	<0.50	UGL			
LCS1	1,1,1-Trichloroethane	4.0	4.3	UGL	107.5	(80-120)	
MBLK	1,1,1-Trichloroethane	ND	<0.50	UGL			
LCS1	1,1,2,2-Tetrachloroethane	4.0	4.1	UGL	102.5	(80-120)	
MBLK	1,1,2,2-Tetrachloroethane	ND	<0.50	UGL			
LCS1	1,1,2-Trichloroethane	4.0	4.3	UGL	107.5	(80-120)	
MBLK	1,1,2-Trichloroethane	ND	<0.50	UGL			
LCS1	1,1-Dichloroethane	4.0	4.4	UGL	110.0	(80-120)	
MBLK	1,1-Dichloroethane	ND	<0.50	UGL			
LCS1	1,1-Dichloroethene	4.0	4.2	UGL	105.0	(80-120)	
MBLK	1,1-Dichloroethene	ND	<0.50	UGL			
LCS1	1,1-Dichloropropene	4.0	4.3	UGL	107.5	(80-120)	

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MBLK	1,1-Dichloropropene	ND	<0.50	UGL		
LCS1	1,2,3-Trichloropropane	4.0	4.3	UGL	107.5	(80-120)
MBLK	1,2,3-Trichloropropane	ND	<0.50	UGL		
LCS1	1,2,3-Trichlorobenzene	4.0	4.3	UGL	107.5	(80-120)
MBLK	1,2,3-Trichlorobenzene	ND	<0.50	UGL		
LCS1	1,2,4-Trichlorobenzene	4.0	4.3	UGL	107.5	(80-120)
MBLK	1,2,4-Trichlorobenzene	ND	<0.50	UGL		
LCS1	1,2,4-Trimethylbenzene	4.0	3.9	UGL	97.5	(80-120)
MBLK	1,2,4-Trimethylbenzene	ND	<0.50	UGL		
LCS1	1,2-Dichloroethane	4.0	4.3	UGL	107.5	(80-120)
MBLK	1,2-Dichloroethane	ND	<0.50	UGL		
LCS1	1,2-Dichlorobenzene	4.0	4.4	UGL	110.0	(80-120)
MBLK	1,2-Dichlorobenzene	ND	<0.50	UGL		
LCS1	1,2-Dichloropropane	4.0	4.4	UGL	110.0	(80-120)
MBLK	1,2-Dichloropropane	ND	<0.50	UGL		
LCS1	1,3,5-Trimethylbenzene	4.0	3.9	UGL	97.5	(80-120)
MBLK	1,3,5-Trimethylbenzene	ND	<0.50	UGL		
LCS1	1,3-Dichlorobenzene	4.0	4.4	UGL	110.0	(80-120)
MBLK	1,3-Dichlorobenzene	ND	<0.50	UGL		
LCS1	1,3-Dichloropropane	4.0	4.2	UGL	105.0	(80-120)
MBLK	1,3-Dichloropropane	ND	<0.50	UGL		
LCS1	1,4-Dichlorobenzene	4.0	4.2	UGL	105.0	(80-120)
MBLK	1,4-Dichlorobenzene	ND	<0.50	UGL		
LCS1	2,2-Dichloropropane	8.0	8.0	UGL	100.0	(80-120)
MBLK	2,2-Dichloropropane	ND	<0.50	UGL		
LCS1	2-Chlorotoluene	4.0	4.4	UGL	110.0	(80-120)
MBLK	2-Chlorotoluene	ND	<0.50	UGL		
LCS1	4-Chlorotoluene	4.0	4.2	UGL	105.0	(80-120)
MBLK	4-Chlorotoluene	ND	<0.50	UGL		
LCS1	Bromodichloromethane	4.0	4.3	UGL	107.5	(80-120)
MBLK	Bromodichloromethane	ND	<0.50	UGL		
LCS1	Benzene	4.0	4.0	UGL	100.0	(80-120)
MBLK	Benzene	ND	<0.50	UGL		
LCS1	Bromobenzene	4.0	4.1	UGL	102.5	(80-120)
MBLK	Bromobenzene	ND	<0.50	UGL		

Spikes which exceed Limits and Method Blanks with positive results are highlighted by Underlining.
Criteria for MS and DUP are advisory only, batch control is based on LCS. Criteria for duplicates are advisory only, unless otherwise specified in the method.

MONTGOMERY WATSON LABORATORIES
a Division of Montgomery Watson Americas, Inc.
555 East Walnut Street
Pasadena, California 91101
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Laboratory
QC Report
#61275

Maui, County of, Department of
Water Supply
(continued)

LCS1	Bromochloromethane	4.0	4.1	UGL	102.5	(80-120)
MBLK	Bromochloromethane	ND	<0.50	UGL		
LCS1	Bromomethane	2.0	2.1	UGL	105.0	(80-120)
MBLK	Bromomethane	ND	<0.50	UGL		
LCS1	cis-1,2-Dichloroethene	4.0	3.7	UGL	92.5	(80-120)
MBLK	cis-1,2-Dichloroethene	ND	<0.50	UGL		
LCS1	Chlorobenzene	4.0	4.4	UGL	110.0	(80-120)
MBLK	Chlorobenzene	ND	<0.50	UGL		
LCS1	Carbon tetrachloride	4.0	4.3	UGL	107.5	(80-120)
MBLK	Carbon tetrachloride	ND	<0.50	UGL		
LCS1	cis-1,3-Dichloropropene	4.0	4.2	UGL	105.0	(80-120)
MBLK	cis-1,3-Dichloropropene	ND	<0.50	UGL		
LCS1	Bromoform	4.0	4.0	UGL	100.0	(80-120)
MBLK	Bromoform	ND	<0.50	UGL		
LCS1	Chloroform	4.0	4.4	UGL	110.0	(80-120)
MBLK	Chloroform	ND	<0.50	UGL		
LCS1	Chloroethane	2.0	1.6	UGL	80.0	(80-120)
MBLK	Chloroethane	ND	<0.50	UGL		
LCS1	Chloromethane	2.0	2.0	UGL	100.0	(80-120)
MBLK	Chloromethane	ND	<0.50	UGL		
LCS1	Dibromochloromethane	4.0	4.3	UGL	107.5	(80-120)
MBLK	Dibromochloromethane	ND	<0.50	UGL		
LCS1	1,2-Dibromo-3-chloropropane	4.0	4.1	UGL	102.5	(80-120)
MBLK	1,2-Dibromo-3-chloropropane	ND	<1.00	UGL		
LCS1	Dibromomethane	4.0	4.2	UGL	105.0	(80-120)
MBLK	Dibromomethane	ND	<0.50	UGL		
LCS1	Dichlorodifluoromethane	2.0	2.2	UGL	110.0	(80-120)
MBLK	Dichlorodifluoromethane	ND	<0.50	UGL		
LCS1	1,2-Dibromoethane	4.0	4.2	UGL	105.0	(80-120)
MBLK	1,2-Dibromoethane	ND	<0.50	UGL		
LCS1	Ethylbenzene	4.0	4.0	UGL	100.0	(80-120)
MBLK	Ethylbenzene	ND	<0.50	UGL		
LCS1	Hexachlorobutadiene	4.0	4.2	UGL	105.0	(80-120)
MBLK	Hexachlorobutadiene	ND	<0.50	UGL		
LCS1	Isopropylbenzene	4.0	4.0	UGL	100.0	(80-120)

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Laboratory
QC Report
#61275

Maui, County of, Department of
Water Supply
(continued)

MBLK	Isopropylbenzene	ND	<0.50	UGL		
LCS1	Methylene chloride	4.0	4.4	UGL	110.0	(80-120)
MBLK	Methylene chloride	ND	<0.50	UGL		
LCS1	m-p-Xylenes	8.0	8.2	UGL	102.5	(80-120)
MBLK	m-p-Xylenes	ND	<0.50	UGL		
LCS1	Methyl tert-butyl ether	40	37	UGL	92.5	(80-120)
MBLK	Methyl tert-butyl ether	ND	<3.00	UGL		
LCS1	Naphthalene	4.0	3.7	UGL	92.5	(80-120)
MBLK	Naphthalene	ND	<0.50	UGL		
LCS1	n-Butylbenzene	4.0	3.8	UGL	95.0	(80-120)
MBLK	n-Butylbenzene	ND	<0.50	UGL		
LCS1	n-Propylbenzene	4.0	3.9	UGL	97.5	(80-120)
MBLK	n-Propylbenzene	ND	<0.50	UGL		
LCS1	o-Xylene	4.0	3.8	UGL	95.0	(80-120)
MBLK	o-Xylene	ND	<0.50	UGL		
LCS1	Tetrachloroethylene (PCE)	4.0	4.3	UGL	107.5	(80-120)
MBLK	Tetrachloroethylene (PCE)	ND	<0.50	UGL		
LCS1	p-Isopropyltoluene	4.0	3.9	UGL	97.5	(80-120)
MBLK	p-Isopropyltoluene	ND	<0.50	UGL		
LCS1	sec-Butylbenzene	4.0	3.9	UGL	97.5	(80-120)
MBLK	sec-Butylbenzene	ND	<0.50	UGL		
LCS1	Styrene	4.0	3.9	UGL	97.5	(80-120)
MBLK	Styrene	ND	<0.50	UGL		
LCS1	Chlorofluorobenzene (surr) PID	100	99	%R	99.0	(80-120)
MBLK	Chlorofluorobenzene (surr) PID	100	96	%R	96.0	
LCS1	Bromofluorobenzene (surr) PID	100	100	%R	100.0	(80-120)
MBLK	Bromofluorobenzene (surr) PID	100	95	%R	95.0	
LCS1	Chlorofluorobenzene (surr) ELC	100	105	%R	105.0	(80-120)
MBLK	Chlorofluorobenzene (surr) ELC	100	91	%R	91.0	
LCS1	Bromofluorobenzene (surr) ELCD	100	106	%R	106.0	(80-120)
MBLK	Bromofluorobenzene (surr) ELCD	100	100	%R	100.0	
LCS1	trans-1,2-Dichloroethene	4.0	4.4	UGL	110.0	(80-120)
MBLK	trans-1,2-Dichloroethene	ND	<0.50	UGL		
LCS1	tert-Butylbenzene	4.0	4.0	UGL	100.0	(80-120)
MBLK	tert-Butylbenzene	ND	<0.50	UGL		

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Laboratory
QC Report
#61275

Maui, County of, Department of
Water Supply
(continued)

LCS1	Trichloroethylene (TCE)	4.0	4.4	UGL	110.0	(80-120)
MBLK	Trichloroethylene (TCE)	ND	<0.50	UGL		
MBLK	Trichlorotrifluoroethane(Freon	ND	<0.50	UGL		
LCS1	Trichlorotrifluoroethane(Freon	2.0	2.0	UGL	100.0	(80-120)
LCS1	trans-1,3-Dichloropropene	4.0	4.1	UGL	102.5	(80-120)
MBLK	trans-1,3-Dichloropropene	ND	<0.50	UGL		
LCS1	Toluene	4.0	4.0	UGL	100.0	(80-120)
MBLK	Toluene	ND	<0.50	UGL		
LCS1	Trichlorofluoromethane	2.0	1.9	UGL	95.0	(80-120)
MBLK	Trichlorofluoromethane	ND	<0.50	UGL		
LCS1	Vinyl chloride	2.0	2.0	UGL	100.0	(80-120)
MBLK	Vinyl chloride	ND	<0.30	UGL		

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555 East Walnut Street
Pasadena, California 91101
Tel: 626 568 6400 Fax: 626 568 6224
1 800 566 LABS (1 800 566 5227)

Laboratory Report

for

Maui, County of, Department of Water Supply
614 Palapala Dr
Kahului , HI 96732

Attention: Cari Cerizo
Fax: (808) 270-6133

ACCREDITED IN ACCORDANCE WITH nelac 01114CA

HDS Hillary Strayer
Project Manager

Report#: 61276
PHASEV

Laboratory certifies that the test results meet all NELAC requirements unless
ted in the Comments section or the Case Narrative. Following the cover page
e Comments,Data Report,Hits Report, totaling 3 page[s].

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1 800 566 LABS (1 800 566 5227)

Laboratory
Data Report
#61276

Maui, County of, Department of
Water Supply
Cari Cerizo
614 Palapala Dr
Kahului , HI 96732

Samples Received

12/16/99

›ared	Analyzed	QC Ref#	Method	Analyte	Result	Units	MRL	Dilution
IKAPU WELL (1912160266) (1912200056)				Sampled on 12/15/99 00:00				
18/99	01/06/00 00:00		(EPA 1613	) 2,3,7,8 - TCDD	ND	pg/l	1.2	1

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Laboratory
Hits Report
#61276

Maui, County of, Department of
Water Supply
Cari Cerizo
614 Palapala Dr
Kahului , HI 96732

Samples Received

16-dec-1999 11:45:00

alyzed	Sample#	Sample ID	Result	UNITS	MRL
	1912200056	WAIKAPU WELL (1912160266)			

SUMMARY OF POSITIVE DATA ONLY.

MONTGOMERY WATSON LABORATORIES
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Report
Comments
#61276

Group Comments

(TCDD) Analyzed by Quanterra.

ANALYTICAL REPORT

PROJECT NO. 61276

Lot #: G9L210238

Martha Frost
Montgomery Laboratories

QUANTERRA INCORPORATED

Nanny Estrada
Project Manager

January 12, 2000

1/14

Quanterra Incorporated
880 Riverside Parkway
West Sacramento, California 95605

916 373-5600 Telephone
916 372-1059 Fax

January 12, 2000

QUANTERRA INCORPORATED PROJECT NUMBER: G9L210238
PO/CONTRACT: 99-1603

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

Dear Ms. Frost,

This report contains the analytical results for the aqueous sample received under chain of custody by Quanterra Incorporated on December 21, 1999. This sample is associated with your project number 61278.

Your samples were received at nine degrees Celsius.

All applicable quality control procedures met method-specified acceptance criteria.

If you have any questions, please feel free to call me at (916) 374-4348.

Sincerely,

Nanny Estrada

Nanny Estrada
Project Manager

ANALYTICAL REPORT

PROJECT NO. 61276

Lot #: G9L210238

Martha Frost

Montgomery Laboratories

QUANTERRA INCORPORATED

Nanny Estrada
Project Manager

January 12, 2000

Quanterra

SAMPLE SUMMARY

G9L210238

SAMPLES	CLIENT SAMPLE ID	DATE	TIME
2 001	19122000S6	12/15/99	

S(S):

nalytical results of the samples listed above are presented on the following pages.

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

ts noted as "ND" were not detected at or above the stated limit.

report must not be reproduced, except in full, without the written approval of the laboratory.

ts for the following parameters are never reported on a dry weight basis: color, corrosivity, density, flashpoint, ignitability, layers, odor, filter test, pH, porosity pressure, reactivity, redox potential, specific gravity, spot tests, solids, solubility, temperature, viscosity, and weight.

Quanterra

MONTGOMERY LABORATORIES

Client Sample ID: 1912200056

Trace Level Organic Compounds

Lot-Sample #...: G9L210238-001 Work Order #...: D6P62101 Matrix.....: WATER
Date Sampled...: 12/15/99 Date Received..: 12/21/99
Prep Date.....: 12/28/99 Analysis Date..: 01/06/00
Prep Batch #...: 9357506
Dilution Factor: 1

PARAMETER	RESULT	DETECTION LIMIT	UNITS	METHOD
2,3,7,8-TCDD	ND	1.2	pg/L	EPA-S 1613B-Tetra

INTERNAL STANDARDS	PERCENT RECOVERY	RECOVERY LIMITS
13C-2,3,7,8-TCDD	109	(25 - 141)

Quanterra

QC DATA ASSOCIATION SUMMARY

G9L210238

Sample Preparation and Analysis Control Numbers

SAMPLE#	MATRIX	ANALYTICAL METHOD	LEACH BATCH #	PREP BATCH #	MS RUN#
001	WATER	EPA-S 1613B-Tetra		9357306	

Quanterra

METHOD BLANK REPORT

Trace Level Organic Compounds

.ient Lot #...: G9L210238
i Lot-Sample #: G9L230000-506

Work Order #...: D6V3C101
Prep Date.....: 12/28/99
Prep Batch #...: 9357806

Matrix.....: WATER

ıalysis Date..: 01/06/00
.lution Factor: 1

PARAMETER	RESULT	DETECTION LIMIT	UNITS	METHOD
2,3,7,8-TCDD	ND	1.0	pg/L	EPA-8 1613B-Tetra

INTERNAL STANDARDS	PERCENT RECOVERY	RECOVERY LIMITS
13C-2,3,7,8-TCDD	108	(25 - 141)

NOTE(S):
Calculations are performed before rounding to avoid round-off errors in calculated results.

Quanterra

LABORATORY CONTROL SAMPLE DATA REPORT

Trace Level Organic Compounds

ient Lot #...: G9L210238 Work Order #...: D6V3C102 Matrix.....: WATER
; Lot-Sample#: G9L230000-506
ep Date.....: 12/28/99 Analysis Date..: 01/06/00
ep Batch #...: 9357506
lution Factor: 1

RAMETER	SPIKE AMOUNT	MEASURED AMOUNT	UNITS	PERCENT RECOVERY	METHOD
3,7,8-TCDD	200	205	pg/L	103	EPA-S 1613B-T

TERNAL STANDARD	PERCENT RECOVERY	RECOVERY LIMITS
C-2,3,7,8-TCDD	108	(25 - 141)

TE(S):

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

: print denotes control parameter

555 East Walnut Street
Pasadena, CA 91101
Ph (626) 568-6400 Fax (626) 568-6324

Ship To Nannie Estrada
Quanterra Environmental Services

1180 Riverside Parkway
West Sacramento, CA 95605-1501

Bill Recipient: FEDEX ACCT: 2060-8019-1

(916) 374-4348 Fax (916) 372-1059

Reporting: One report for this MWL Project Number [illegible]
Do Not Combine Report with any other samples submitted under different MWL project numbers!
Report & Invoice must have the MWL Project Number and Sub PO#: 99-1603
Report all quality control data according to Method. Include dates analyzed, date extracted (if extracted) and Method reference on the report. Fax results to 626-568-6324 Faxed results must have complete data &QC. Hardcopy report is due in hand on due date. Please advise us immediately if Due Date will be missed.

HARDCOPY REPORT, FORMS, & INVOICE MUST BE SENT TO ATTENTION
Martha Frost, Sub-contracting Administrator
Montgomery Watson Laboratories 555 East Walnut Street Pasadena, CA 91101
Phone (626) 568-6437 Fax (626) 568-6324

For Specific Questions about samples: Hillary Strayer (626) 568-6412

MWL Project # 61276 Report Due: 1/6/2000

Qty	Test Code	Use MWL Lab # for ID	Client Sample ID for reference only	Analysis Requested	Sample Date	Matrix	Container
1	TCDD-DW	1912200056	WAUJAOY WEKK (1912160266)	Dioxin in drinking water 1613b	12/15/99	dw	2 1L amber glass / no preservative

RECEIVED IN GOOD CONDITION
UNDER COC
DEC 21 1999
INI

Relinquished by: Sample Control Date 12/20/99 Time

Received by: Date 12-21-99 Time 1500 An Acknowledgement of Receipt is requested to attn: Martha Frost

Group Validation Comments

(TCDD) Analyzed by Quanterra.

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555 East Walnut Street
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Laboratory Report

Maui, County of, Department of Water Supply
614 Palapala Dr

Kahului, HI 96732
ATTN: Cari Cerizo

Sample # 19122000056 Sample ID WAIKAPU WELL (19121602661) Project PHASEV
Sample Type Water Sampled 15-dec-1999 Received 16-dec-1999 Reported 14-jan-2000

Parameter	Units	Result	Conc.	Dilution	Det.Limit	Prepared	By	Analyzed	By
1,3,7,8 - TCDD (EPA 1613)	Picograms/L	ND		1.20		28-dec-1999	sub	06-jan-2000	sub

Report #: 61276

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Laboratory Report

for

Maui, County of, Department of Water Supply
614 Palapala Dr

Kahului , HI 96732

Attention: Cari Cerizo
Fax: (808) 270-6133

ACCREDITED IN ACCORDANCE WITH nelac 01114CA

HDS Hillary Strayer
Project Manager

Report#: 61163
PHASEV

aboratory certifies that the test results meet all NELAC requirements unless
oted in the Comments section or the Case Narrative. Following the cover page
re Comments,QC Report,QC Summary,Data Report,Hits Report, totaling 16 page[s].

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Report
Comments
#61163

(QC Ref#: 108322)
Test: Aldrin (ML/EPA 508)
QC Type: MS
MS recoveries failed low, LCS recoveries were within QC acceptance limits.
Test: p,p' DDD (ML/EPA 508)
QC Type: MS
MS recoveries failed low, LCS recoveries were within QC acceptance limits.
Test: p,p' DDE (ML/EPA 508)
QC Type: MS
MS recoveries failed low, LCS recoveries were within QC acceptance limits.
Test: p,p' DDT (ML/EPA 508)
QC Type: MS
MS recoveries failed low, LCS recoveries were within QC acceptance limits.
Test: Heptachlor (ML/EPA 508)
QC Type: MS
MS recoveries failed low, LCS recoveries were within QC acceptance limits.
Test: Methoxychlor (ML/EPA 508)
QC Type: MS
MS recoveries failed low, LCS recoveries were within QC acceptance limits.
Test: Tetrachlorometaxylene (surr) (ML/EPA 508)
QC Type: MS
MS recoveries failed low, LCS recoveries were within QC acceptance limits.
Test: Dibutyl chlorendate (surr) (ML/EPA 508)
QC Type: MS
MS recoveries failed low, LCS recoveries were within QC acceptance limits.

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Laboratory
Hits Report
#61163

Maui, County of, Department of
Water Supply
Cari Cerizo
614 Palapala Dr
Kahului , HI 96732

Samples Received

16-dec-1999 17:12:42

alyzed	Sample#	Sample ID	Result	UNITS	MRL
	1912160266	WAIKAPU WELL			
/22/99		Alkalinity in CaCO3 units	79	mg/l	1.000
/22/99		Calcium, Total, ICAP	11.2	mg/l	1.000
/28/99		Fluoride	0.12	mg/l	.050
/17/99		Nitrate as Nitrogen by IC	1.20	mg/l	.100
/20/99		Specific Conductance	255	umho/c	4.000

SUMMARY OF POSITIVE DATA ONLY.

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Laboratory
Data Report
#61163

Maui, County of, Department of
Water Supply
Cari Cerizo
614 Palapala Dr
Kahului , HI 96732

Samples Received

12/16/99

pared	Analyzed	QC Ref#	Method	Analyte	Result	Units	MRL	Dilution
IKAPU WELL (1912160266) Sampled on 12/15/99 00:00								
	12/22/99 00:00	107539	(SM2320B/E310.1)	Alkalinity in CaCO3 units	79	mg/l	1.0	1
22/99	12/22/99 00:00	107668	(ML/EPA 200.7)	Calcium, Total, ICAP	11.2	mg/l	1.0	1
	12/22/99 00:00	107555	(SM4500CN-?)	Cyanide	ND	mg/l	0.025	1
	12/20/99 00:00	107321	(ML/S2510B)	Specific Conductance	255	umho/cm	4.0	1
17/99	12/29/99 00:00	108355	(ML/EPA 548.1)	Endothall	ND	ug/l	20	4
	12/23/99 00:00	107873	(SM4500F-C)	Fluoride	0.12	mg/l	0.050	1
	12/27/99 00:00	107760	(ML/EPA 547)	Glyphosate	ND	ug/l	6.0	1
23/99	12/24/99 00:00	107582	(EPA/ML 245.1)	Mercury	ND	ug/l	0.20	1
	12/17/99 00:00	107289	(ML/EPA 300.0)	Nitrite, Nitrogen by IC	ND	mg/l	0.10	1
	12/17/99 00:00	107290	(ML/EPA 300.0)	Nitrate as Nitrogen by IC	1.20	mg/l	0.10	1
Aldicarbs								
	01/06/00 00:00	108280	(ML/EPA 531.1)	3-Hydroxycarbofuran	ND	ug/l	2.0	1
	01/06/00 00:00	108280	(ML/EPA 531.1)	Aldicarb (Temik)	ND	ug/l	0.50	1
	01/06/00 00:00	108280	(ML/EPA 531.1)	Aldicarb sulfone	ND	ug/l	0.70	1
	01/06/00 00:00	108280	(ML/EPA 531.1)	Aldicarb sulfoxide	ND	ug/l	0.50	1
	01/06/00 00:00	108280	(ML/EPA 531.1)	Baygon	ND	ug/l	2.0	1
	01/06/00 00:00	108280	(ML/EPA 531.1)	Carbofuran (Furadan)	ND	ug/l	0.90	1
	01/06/00 00:00	108280	(ML/EPA 531.1)	Carbaryl	ND	ug/l	2.0	1
	01/06/00 00:00	108280	(ML/EPA 531.1)	Methiocarb	ND	ug/l	2.0	1
	01/06/00 00:00	108280	(ML/EPA 531.1)	Methomyl	ND	ug/l	1.0	1
	01/06/00 00:00	108280	(ML/EPA 531.1)	Oxamyl (Vydate)	ND	ug/l	2.0	1
			(Surrogate)	BDMC	99	% Rec		
Herbicides by 515.1								
21/99	12/29/99 00:00	108140	(ML/EPA 515.1)	2,4,5-T	ND	ug/l	0.20	1
21/99	12/29/99 00:00	108140	(ML/EPA 515.1)	2,4,5-TP (Silvex)	ND	ug/l	0.20	1
21/99	12/29/99 00:00	108140	(ML/EPA 515.1)	2,4-D	ND	ug/l	0.10	1
21/99	12/29/99 00:00	108140	(ML/EPA 515.1)	2,4-DB	ND	ug/l	2.0	1
21/99	12/29/99 00:00	108140	(ML/EPA 515.1)	Dichlorprop	ND	ug/l	0.50	1
21/99	12/29/99 00:00	108140	(ML/EPA 515.1)	Acifluorfen (qualitative)	ND	ug/l	0.20	1

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Maui, County of, Department of
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ared	Analyzed	QC Ref#	Method	Analyte	Result	Units	MRL	Dilution
IKAPU WELL (1912160266) (continued) Sampled on 12/15/99 00:00								
21/99	12/29/99 00:00	108140	(ML/EPA 515.1)	Bentazon	ND	ug/l	0.50	1
21/99	12/29/99 00:00	108140	(ML/EPA 515.1)	Dalapon (qualitative)	ND	ug/l	1.0	1
21/99	12/29/99 00:00	108140	(ML/EPA 515.1)	3,5-Dichlorobenzoic acid	ND	ug/l	0.50	1
21/99	12/29/99 00:00	108140	(ML/EPA 515.1)	Tot DCPA Mono&Diacid Degradate	ND	ug/l	0.10	1
21/99	12/29/99 00:00	108140	(ML/EPA 515.1)	Dicamba	ND	ug/l	0.080	1
21/99	12/29/99 00:00	108140	(ML/EPA 515.1)	Dinoseb	ND	ug/l	0.20	1
21/99	12/29/99 00:00	108140	(ML/EPA 515.1)	Pentachlorophenol	ND	ug/l	0.040	1
21/99	12/29/99 00:00	108140	(ML/EPA 515.1)	Picloram	ND	ug/l	0.10	1
21/99	12/29/99 00:00	108140	(ML/EPA 515.1)	4-Nitrophenol (qualitative)	ND	ug/l	5.0	1
			(Surrogate)	2,4-Dichlorophenylacetic acid	92	% Rec		
SDWA Pesticides								
21/99	01/04/00 00:00	108122	(ML/EPA 508)	PCB 1016 Aroclor	ND	ug/l	0.070	1
21/99	01/04/00 00:00	108122	(ML/EPA 508)	PCB 1221 Aroclor	ND	ug/l	0.10	1
21/99	01/04/00 00:00	108122	(ML/EPA 508)	PCB 1232 Aroclor	ND	ug/l	0.10	1
21/99	01/04/00 00:00	108122	(ML/EPA 508)	PCB 1242 Aroclor	ND	ug/l	0.10	1
21/99	01/04/00 00:00	108122	(ML/EPA 508)	PCB 1248 Aroclor	ND	ug/l	0.10	1
21/99	01/04/00 00:00	108122	(ML/EPA 508)	PCB 1254 Aroclor	ND	ug/l	0.10	1
21/99	01/04/00 00:00	108122	(ML/EPA 508)	PCB 1260 Aroclor	ND	ug/l	0.10	1
21/99	01/04/00 00:00	108122	(ML/EPA 508)	Alpha-BHC	ND	ug/l	0.010	1
21/99	01/04/00 00:00	108122	(ML/EPA 508)	Alachlor (Alanex)	ND	ug/l	0.050	1
21/99	01/04/00 00:00	108122	(ML/EPA 508)	Aldrin	ND	ug/l	0.010	1
21/99	01/04/00 00:00	108122	(ML/EPA 508)	Beta-BHC	ND	ug/l	0.010	1
21/99	01/04/00 00:00	108122	(ML/EPA 508)	Chlordane	ND	ug/l	0.10	1
21/99	01/04/00 00:00	108122	(ML/EPA 508)	Chlorthalonil (Draconil,Bravo)	ND	ug/l	0.010	1
21/99	01/04/00 00:00	108122	(ML/EPA 508)	Delta-BHC	ND	ug/l	0.010	1
21/99	01/04/00 00:00	108122	(ML/EPA 508)	p,p' DDD	ND	ug/l	0.010	1
21/99	01/04/00 00:00	108122	(ML/EPA 508)	p,p' DDE	ND	ug/l	0.010	1
21/99	01/04/00 00:00	108122	(ML/EPA 508)	p,p' DDT	ND	ug/l	0.010	1
21/99	01/04/00 00:00	108122	(ML/EPA 508)	Dieldrin	ND	ug/l	0.010	1
21/99	01/04/00 00:00	108122	(ML/EPA 508)	Endrin Aldehyde	ND	ug/l	0.010	1
21/99	01/04/00 00:00	108122	(ML/EPA 508)	Endrin	ND	ug/l	0.010	1
21/99	01/04/00 00:00	108122	(ML/EPA 508)	Endosulfan I (alpha)	ND	ug/l	0.010	1

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Maui, County of, Department of
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(continued)

ared	Analyzed	QC Ref#	Method	Analyte	Result	Units	MRL	Dilution
IKAPU WELL (1912160266)				(continued)	Sampled on 12/15/99 00:00			
:1/99	01/04/00 00:00	108322	(ML/EPA 508	) Endosulfan II (beta)	ND	ug/l	0.010	1
:1/99	01/04/00 00:00	108322	(ML/EPA 508	) Endosulfan sulfate	ND	ug/l	0.010	1
:1/99	01/04/00 00:00	108322	(ML/EPA 508	) Heptachlor	ND	ug/l	0.010	1
:1/99	01/04/00 00:00	108322	(ML/EPA 508	) Heptachlor Epoxide	ND	ug/l	0.010	1
:1/99	01/04/00 00:00	108322	(ML/EPA 508	) Lindane (gamma-BHC)	ND	ug/l	0.010	1
:1/99	01/04/00 00:00	108322	(ML/EPA 508	) Methoxychlor	ND	ug/l	0.050	1
:1/99	01/04/00 00:00	108322	(ML/EPA 508	) Toxaphene	ND	ug/l	0.50	1
			(Surrogate	) Dibutyl Chlorendate	92	% Rec		
			(Surrogate	) Tetrachlorometaxylene	104	% Rec		

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Ref #107289 - Nitrite, Nitrogen by IC
1912160266 WAIKAPU WELL
Analysis Date: 12/17/1999

Ref #107290 - Nitrate as Nitrogen by IC
1912160266 WAIKAPU WELL
Analysis Date: 12/17/1999

Ref #107321 - Specific Conductance
1912160266 WAIKAPU WELL
Analysis Date: 12/20/1999

Ref #107539 - Alkalinity in CaCO3 units
1912160266 WAIKAPU WELL
Analysis Date: 12/22/1999

Ref #107555 - Cyanide
1912160266 WAIKAPU WELL
Analysis Date: 12/24/1999

Ref #107582 - Mercury
1912160266 WAIKAPU WELL
Analysis Date: 12/22/1999

Ref #107668 - Calcium, Total, ICAP
1912160266 WAIKAPU WELL
Analysis Date: 12/27/1999

Ref #107760 - Glyphosate
1912160266 WAIKAPU WELL

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Ref #107873 - Fluoride — Analysis Date: 12/28/1999

1912160266 WAIKAPU WELL

Ref #108140 - Herbicides by 515.1 — Analysis Date: 12/29/1999

1912160266 WAIKAPU WELL

Ref #108280 - Aldicarbs — Analysis Date: 01/06/2000

1912160266 WAIKAPU WELL

Ref #108322 - SDWA Pesticides — Analysis Date: 01/04/2000

1912160266 WAIKAPU WELL

Ref #108355 - Endothall — Analysis Date: 12/29/1999

1912160266 WAIKAPU WELL

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QC Ref #107289 Nitrite, Nitrogen by IC

QC	Analyte	Spiked	Recovered	Units	Yield (%)	Limits (%)	RPD (%)
	Spiked sample	Lab # 99	12160266	MGL		(0-0)	
MS	Nitrite, Nitrogen by IC	1.0	0.980	MGL	98.0	(90-110)	
LCS1	Nitrite, Nitrogen by IC	1.0	0.990	MGL	99.0	(90-110)	1.0
LCS2	Nitrite, Nitrogen by IC	ND	<0.10	MGL			
MBLK	Nitrite, Nitrogen by IC	1.0	1.00	MGL	100.0	(32-124)	
MS	Nitrite, Nitrogen by IC	1.0	1.00	MGL	100.0	(32-124)	0.00
MSD							

QC Ref #107290 Nitrate as Nitrogen by IC

QC	Analyte	Spiked	Recovered	Units	Yield (%)	Limits (%)	RPD (%)
	Spiked sample	Lab # 99	12170076	MGL		(0-0)	
MS	Nitrate as Nitrogen by IC	2.5	2.62	MGL	104.8	(94-106)	
LCS1	Nitrate as Nitrogen by IC	2.5	2.62	MGL	104.8	(94-106)	0.00
LCS2	Nitrate as Nitrogen by IC	ND	<0.10	MGL			
MBLK	Nitrate as Nitrogen by IC	2.5	2.64	MGL	105.6	(85-113)	
MS	Nitrate as Nitrogen by IC	2.5	2.64	MGL	105.6	(85-113)	0.00
MSD							

QC Ref #107321 Specific Conductance

QC	Analyte	Spiked	Recovered	Units	Yield (%)	Limits (%)	RPD (%)
	Spiked sample	Lab # 19	12170069	UMHO		(0-0)	
DUP							

QC Ref #107539 Alkalinity in CaCO3 units

QC	Analyte	Spiked	Recovered	Units	Yield (%)	Limits (%)	RPD (%)
	Spiked sample	Lab # 99	12140177	MGL		(0-0)	
MS	Alkalinity in CaCO3 units	96.2	97.7	MGL	101.6	(96-107)	
LCS1	Alkalinity in CaCO3 units	96.2	97.7	MGL	101.6	(96-107)	0.00
LCS2	Alkalinity in CaCO3 units	ND	<1.00	MGL			
MBLK							

Spikes which exceed Limits and Method Blanks with positive results are highlighted by Underlining.
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MS	Alkalinity in CaCO3 units	96.2	92.2	MGL	95.8	(80-120)	
MSD	Alkalinity in CaCO3 units	96.2	93.3	MGL	97.0	(80-120)	1.2

QC Ref #107555 Cyanide

QC	Analyte	Spiked	Recovered	Units	Yield (%)	Limits (%)	RPD (%)
MS	Spiked sample	Lab # 19	12160220	MGL		(0-0)	
LCS1	Cyanide	0.10	0.097	MGL	97.0	(80-120)	
MBLK	Cyanide	ND	<0.01	MGL			
MS	Cyanide	0.096	0.082	MGL	85.4	(80-120)	
MSD	Cyanide	0.096	0.083	MGL	86.5	(80-120)	1.2

QC Ref #107582 Mercury

QC	Analyte	Spiked	Recovered	Units	Yield (%)	Limits (%)	RPD (%)
MS	Spiked sample	Lab # 99	12170089	UGL		(0-0)	
LCS1	Mercury	1.50	1.56	UGL	104.0	(85-115)	
LCS2	Mercury	1.50	1.51	UGL	100.7	(85-115)	3.3
MBLK	Mercury	ND	<0.20	UGL			
MS	Mercury	1.50	1.47	UGL	98.0	(83-119)	
MSD	Mercury	1.50	1.48	UGL	98.7	(83-119)	0.68

QC Ref #107668 Calcium, Total, ICAP

QC	Analyte	Spiked	Recovered	Units	Yield (%)	Limits (%)	RPD (%)
MS	Spiked sample	Lab # 99	12140071	MGL		(0-0)	
LCS1	Calcium, Total, ICAP	50	50.4	MGL	100.8	(85-115)	
LCS2	Calcium, Total, ICAP	50	51.2	MGL	102.4	(85-115)	1.6
MBLK	Calcium, Total, ICAP	ND	<1.00	MGL			
MS	Calcium, Total, ICAP	50	50.5	MGL	101.0	(70-130)	
MSD	Calcium, Total, ICAP	50	51.1	MGL	102.2	(70-130)	1.2

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QC Ref #107760 Glyphosate

QC	Analyte	Spiked	Recovered	Units	Yield (%)	Limits (%)	RPD (%)
MS	Spiked sample	Lab # 19	12160160	UGL		(0-0)	
LCS1	Glyphosate	10	9.8	UGL	98.0	(70-130)	
LCS2	Glyphosate	10	8.7	UGL	87.0	(70-130)	12
MBLK	Glyphosate	ND	<6.00	UGL			
MS	Glyphosate	10	8.9	UGL	89.0	(75-130)	

QC Ref #107873 Fluoride

QC	Analyte	Spiked	Recovered	Units	Yield (%)	Limits (%)	RPD (%)
MS	Spiked sample	Lab # 19	12160214	MGL		(0-0)	
LCS1	Fluoride	1.00	0.941	MGL	94.1	(94-104)	
LCS2	Fluoride	1.00	0.965	MGL	96.5	(94-104)	2.5
MBLK	Fluoride	ND	<0.05	MGL			
MS	Fluoride	1.00	0.991	MGL	99.1	(86-120)	
MSD	Fluoride	1.00	0.991	MGL	99.1	(86-120)	0.00

QC Ref #108140 Herbicides by 515.1

QC	Analyte	Spiked	Recovered	Units	Yield (%)	Limits (%)	RPD (%)
LCS1	2,4,5-T	0.80	0.67	UGL	83.8	(78-123)	
LCS2	2,4,5-T	0.80	0.73	UGL	91.2	(78-123)	8.6
MBLK	2,4,5-T	ND	<0.20	UGL			
MS	2,4,5-T	0.80	0.69	UGL	86.2	(65-135)	
LCS1	2,4,5-TP (Silvex)	0.80	0.69	UGL	86.2	(84-122)	
LCS2	2,4,5-TP (Silvex)	0.80	0.68	UGL	85.0	(84-122)	1.5
MBLK	2,4,5-TP (Silvex)	ND	<0.20	UGL			
MS	2,4,5-TP (Silvex)	0.80	0.72	UGL	90.0	(55-135)	
LCS1	2,4-D	0.40	0.39	UGL	97.5	(74-124)	

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LCS2	2,4-D	0.40	0.36	UGL	90.0	(74-124)	8.0
MBLK	2,4-D	ND	<0.10	UGL			
MS	2,4-D	0.40	0.39	UGL	97.5	(65-135)	
LCS1	2,4-DB	8.00	8.58	UGL	107.2	(70-130)	
LCS2	2,4-DB	8.00	7.27	UGL	90.9	(70-130)	17
MBLK	2,4-DB	ND	<2.00	UGL			
MS	2,4-DB	8.00	7.42	UGL	92.8	(65-135)	
LCS1	Dichlorprop	2.00	1.85	UGL	92.5	(70-130)	
LCS2	Dichlorprop	2.00	1.71	UGL	85.5	(70-130)	7.9
MBLK	Dichlorprop	ND	<0.50	UGL			
MS	Dichlorprop	2.00	1.80	UGL	90.0	(65-135)	
MS	Spiked sample	Lab # 19	12150044	NONE		(0-0)	
LCS1	Acifluorfen (qualitative)	0.80	0.61	UGL	76.2	(70-130)	
LCS2	Acifluorfen (qualitative)	0.80	0.63	UGL	78.8	(70-130)	3.2
MBLK	Acifluorfen (qualitative)	ND	<0.20	UGL			
MS	Acifluorfen (qualitative)	0.80	0.66	UGL	82.5	(65-135)	
LCS1	Bentazon	2.00	1.55	UGL	77.5	(70-130)	
LCS2	Bentazon	2.00	1.56	UGL	78.0	(70-130)	0.64
MBLK	Bentazon	ND	<0.50	UGL			
MS	Bentazon	2.00	1.82	UGL	91.0	(65-135)	
LCS1	Dalapon (qualitative)	4.00	3.57	UGL	89.2	(70-130)	
LCS2	Dalapon (qualitative)	4.00	3.22	UGL	80.5	(70-130)	10
MBLK	Dalapon (qualitative)	ND	<1.00	UGL			
MS	Dalapon (qualitative)	4.00	3.51	UGL	87.8	(65-135)	
LCS1	3,5-Dichlorobenzoic acid	2.00	1.84	UGL	92.0	(73-128)	
LCS2	3,5-Dichlorobenzoic acid	2.00	1.68	UGL	84.0	(73-128)	9.1
MBLK	3,5-Dichlorobenzoic acid	ND	<0.50	UGL			
MS	3,5-Dichlorobenzoic acid	2.00	1.81	UGL	90.5	(31-124)	
LCS1	Tot DCPA Mono&Diacid Degradate	0.80	0.69	UGL	86.2	(70-130)	
LCS2	Tot DCPA Mono&Diacid Degradate	0.80	0.67	UGL	83.8	(70-130)	2.9
MBLK	Tot DCPA Mono&Diacid Degradate	ND	<0.10	UGL			
MS	Tot DCPA Mono&Diacid Degradate	0.80	0.69	UGL	86.2	(65-135)	
LCS1	Dicamba	0.20	0.17	UGL	85.0	(70-130)	
LCS2	Dicamba	0.20	0.16	UGL	80.0	(70-130)	6.1
MBLK	Dicamba	ND	<0.08	UGL			

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MS	Dicamba	0.20	0.17	UGL	85.0	(65-135)	
LCS1	Dinoseb	0.80	0.75	UGL	93.8	(32-98)	
LCS2	Dinoseb	0.80	0.69	UGL	86.2	(32-98)	8.3
MBLK	Dinoseb	ND	<0.20	UGL			
MS	Dinoseb	0.80	0.73	UGL	91.2	(20-109)	
LCS1	Pentachlorophenol	0.16	0.14	UGL	87.5	(70-130)	
LCS2	Pentachlorophenol	0.16	0.13	UGL	81.2	(70-130)	7.4
MBLK	Pentachlorophenol	ND	<0.04	UGL			
MS	Pentachlorophenol	0.16	0.13	UGL	81.2	(65-135)	
LCS1	Picloram	0.40	0.34	UGL	85.0	(70-130)	
LCS2	Picloram	0.40	0.31	UGL	77.5	(70-130)	9.2
MBLK	Picloram	ND	<0.10	UGL			
MS	Picloram	0.40	0.32	UGL	80.0	(65-135)	
LCS1	4-Nitrophenol (qualitative)	4.00	3.39	UGL	84.8	(70-130)	
LCS2	4-Nitrophenol (qualitative)	4.00	3.01	UGL	75.2	(70-130)	12
MBLK	4-Nitrophenol (qualitative)	ND	<5.00	UGL			
MS	4-Nitrophenol (qualitative)	4.00	3.48	UGL	87.0	(65-135)	
LCS1	2,4-Dichlorophenylacetic acid	100	88	%R	88.0	(75-121)	
LCS2	2,4-Dichlorophenylacetic acid	100	86	%R	86.0	(75-121)	2.3
MBLK	2,4-Dichlorophenylacetic acid	100	81	%R	81.0		
MS	2,4-Dichlorophenylacetic acid	100	89	%R	89.0	(78-113)	

QC Ref #108280 Aldicarbs

QC	Analyte	Spiked	Recovered	Units	Yield (%)	Limits (%)	RPD (%)
LCS1	3-Hydroxycarbofuran	10.0	9.8	UGL	98.0	(84-128)	
MBLK	3-Hydroxycarbofuran	ND	<2.00	UGL			
MS	3-Hydroxycarbofuran	10.0	11.1	UGL	111.0	(87-112)	
MS	Spiked sample	Lab # 19	12100054	NONE		(0-0)	
LCS1	Aldicarb (Temik)	10.0	9.7	UGL	97.0	(81-111)	
MBLK	Aldicarb (Temik)	ND	<0.50	UGL			
MS	Aldicarb (Temik)	10.0	10.2	UGL	102.0	(90-118)	
LCS1	Aldicarb sulfone	10.0	10.1	UGL	101.0	(80-120)	
MBLK	Aldicarb sulfone	ND	<0.70	UGL			

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MS	Aldicarb sulfone	10.0	11.0	UGL	110.0	(81-116)
LCS1	Aldicarb sulfoxide	10.0	9.8	UGL	98.0	(80-120)
MBLK	Aldicarb sulfoxide	ND	<0.50	UGL		
MS	Aldicarb sulfoxide	10.0	10.3	UGL	103.0	(81-117)
LCS1	Baygon	10.0	9.7	UGL	97.0	(83-113)
MBLK	Baygon	ND	<2.00	UGL		
MS	Baygon	10.0	9.5	UGL	95.0	(85-110)
LCS1	Carbofuran (Furadan)	10.0	9.7	UGL	97.0	(80-120)
MBLK	Carbofuran (Furadan)	ND	<0.90	UGL		
MS	Carbofuran (Furadan)	10.0	9.5	UGL	95.0	(80-113)
LCS1	Carbaryl	10.0	9.8	UGL	98.0	(84-114)
MBLK	Carbaryl	ND	<2.00	UGL		
MS	Carbaryl	10.0	9.8	UGL	98.0	(83-117)
LCS1	Methiocarb	10.0	9.3	UGL	93.0	(80-120)
MBLK	Methiocarb	ND	<2.00	UGL		
MS	Methiocarb	10.0	9.1	UGL	91.0	(74-115)
LCS1	Methomyl	10.0	10.2	UGL	102.0	(80-120)
MBLK	Methomyl	ND	<1.00	UGL		
MS	Methomyl	10.0	10.1	UGL	101.0	(74-120)
LCS1	Oxamyl (Vydate)	10.0	9.8	UGL	98.0	(80-120)
MBLK	Oxamyl (Vydate)	ND	<2.00	UGL		
MS	Oxamyl (Vydate)	10.0	9.6	UGL	96.0	(83-111)
LCS1	SDMC	100	95	%R	95.0	(70-130)
MBLK	SDMC	100	104	%R	104.0	
MS	SDMC	100	98	%R	98.0	(70-130)

QC Ref #108322 SDWA Pesticides

QC	Analyte	Spiked	Recovered	Units	Yield (%)	Limits (%)	RPD (%)
MBLK	PCB 1016 Aroclor	ND	<0.07	UGL			
MBLK	PCB 1221 Aroclor	ND	<0.10	UGL			
LCS2	PCB 1232 Aroclor	0.500	0.522	UGL	104.4	(70-130)	
MBLK	PCB 1232 Aroclor	ND	<0.10	UGL			
MS	PCB 1232 Aroclor	0.500	0.538	UGL	107.6	(70-130)	

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MBLK	PCB 1242 Aroclor	ND	<0.10	UGL			
MBLK	PCB 1248 Aroclor	ND	<0.10	UGL			
MBLK	PCB 1254 Aroclor	ND	<0.10	UGL			
MBLK	PCB 1260 Aroclor	ND	<0.10	UGL			
LCS1	Alpha-BHC	0.050	0.053	UGL	106.0	(62-122)	
MBLK	Alpha-BHC	ND	<0.01	UGL			
MS	Alpha-BHC	0.050	0.045	UGL	90.0	(71-126)	
MS	Spiked sample	Lab # 19	12160005	NONE		(0-0)	
MBLK	Alachlor (Alanex)	ND	<0.05	UGL			
LCS1	Alachlor (Alanex)	0.100	0.105	UGL	105.0	(70-130)	
LCS2	Alachlor (Alanex)	0.100	ND	UGL		(70-130)	0.00
MS	Alachlor (Alanex)	0.100	0.086	UGL	86.0	(65-135)	
LCS1	Aldrin	0.050	0.052	UGL	104.0	(56-116)	
MBLK	Aldrin	ND	<0.01	UGL			
MS	Aldrin	0.050	0.021	UGL	42.0	(62-117)	
LCS1	Beta-BHC	0.050	0.053	UGL	106.0	(65-125)	
MBLK	Beta-BHC	ND	<0.01	UGL			
MS	Beta-BHC	0.050	0.048	UGL	96.0	(60-130)	
MBLK	Chlordane	ND	<0.10	UGL			
LCS1	Chlorthalonil (Draconil,Bravo)	0.100	0.100	UGL	100.0	(61-121)	
MBLK	Chlorthalonil (Draconil,Bravo)	ND	<0.01	UGL			
MS	Chlorthalonil (Draconil,Bravo)	0.100	0.084	UGL	84.0	(56-126)	
LCS1	Delta-BHC	0.050	0.054	UGL	108.0	(72-131)	
MBLK	Delta-BHC	ND	<0.01	UGL			
MS	Delta-BHC	0.050	0.046	UGL	92.0	(67-137)	
LCS1	p,p' DDD	0.100	0.102	UGL	102.0	(77-137)	
MBLK	p,p' DDD	ND	<0.01	UGL			
MS	p,p' DDD	0.100	0.048	UGL	48.0	(72-142)	
LCS1	p,p' DDE	0.100	0.104	UGL	104.0	(69-129)	
MBLK	p,p' DDE	ND	<0.01	UGL			
MS	p,p' DDE	0.100	0.038	UGL	38.0	(73-131)	
LCS1	p,p' DDT	0.100	0.103	UGL	103.0	(82-142)	
MBLK	p,p' DDT	ND	<0.01	UGL			
MS	p,p' DDT	0.100	0.039	UGL	39.0	(77-147)	
LCS1	Dieldrin	0.100	0.101	UGL	101.0	(57-117)	

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MBLK	Dieldrin	ND	<0.01	UGL			
MS	Dieldrin	0.100	0.062	UGL	62.0	(52-122)	
LCS1	Endrin Aldehyde	0.100	0.061	UGL	61.0	(58-118)	
MBLK	Endrin Aldehyde	ND	<0.01	UGL			
MS	Endrin Aldehyde	0.100	0.059	UGL	59.0	(53-123)	
LCS1	Endrin	0.100	0.105	UGL	105.0	(58-118)	
MBLK	Endrin	ND	<0.01	UGL			
MS	Endrin	0.100	0.065	UGL	65.0	(53-123)	
LCS1	Endosulfan I (alpha)	0.050	0.051	UGL	102.0	(57-117)	
MBLK	Endosulfan I (alpha)	ND	<0.01	UGL			
MS	Endosulfan I (alpha)	0.050	0.032	UGL	64.0	(57-127)	
LCS1	Endosulfan II (beta)	0.100	0.101	UGL	101.0	(62-122)	
MBLK	Endosulfan II (beta)	ND	<0.01	UGL			
MS	Endosulfan II (beta)	0.100	0.074	UGL	74.0	(57-127)	
LCS1	Endosulfan sulfate	0.100	0.101	UGL	101.0	(72-132)	
MBLK	Endosulfan sulfate	ND	<0.01	UGL			
MS	Endosulfan sulfate	0.100	0.076	UGL	76.0	(72-137)	
LCS1	Gamma-BHC (Lindane)	0.050	0.053	UGL	106.0	(59-119)	
LCS2	Gamma-BHC (Lindane)	0.050	ND	UGL		(59-119)	0.00
MBLK	Gamma-BHC (Lindane)	ND	<0.01	UGL			
MS	Gamma-BHC (Lindane)	0.050	0.046	UGL	92.0	(54-124)	
LCS1	Heptachlor	0.050	0.052	UGL	104.0	(68-128)	
MBLK	Heptachlor	ND	<0.01	UGL			
MS	Heptachlor	0.050	0.029	UGL	<u>58.0</u>	(68-129)	
LCS1	Heptachlor Epoxide	0.050	0.054	UGL	108.0	(57-117)	
MBLK	Heptachlor Epoxide	ND	<0.01	UGL			
MS	Heptachlor Epoxide	0.050	0.035	UGL	70.0	(52-122)	
LCS1	Methoxychlor	0.500	0.539	UGL	107.8	(75-135)	
MBLK	Methoxychlor	ND	<0.05	UGL			
MS	Methoxychlor	0.500	0.261	UGL	<u>52.2</u>	(70-132)	
LCS1	Tetrachlorometaxylene (surr)	100	97	%R	97.0	(70-130)	
LCS2	Tetrachlorometaxylene (surr)	100	92	%R	92.0	(70-130)	5.3
MBLK	Tetrachlorometaxylene (surr)	100	92	%R	92.0		
MS	Tetrachlorometaxylene (surr)	100	66	%R	<u>66.0</u>	(70-130)	
LCS1	Dibutyl chlorendate (surr)	100	96	%R	96.0	(70-130)	

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LCS2	Dibutyl chlorendate (surr)	100	92	%R	92.0	(70-130)	4.3
MBLK	Dibutyl chlorendate (surr)	100	84	%R	84.0		
MS	Dibutyl chlorendate (surr)	100	36	%R	36.0	(70-130)	
MBLK	Toxaphene	ND	<0.50	UGL			

QC Ref #108355 Endothall

QC	Analyte	Spiked	Recovered	Units	Yield (%)	Limits (%)	RPD (%)
MS	Spiked sample	Lab # 19	12150150	UGL		(0-0)	
LCS1	Endothall	25	22.8	UGL	91.2	(30-120)	
MBLK	Endothall	ND	<5.30	UGL			
MS	Endothall	25	23.7	UGL	94.8	(30-120)	

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Laboratory Report

Maui, County of, Department of Water Supply
614 Palapala Dr

Kahului, HI 96732
ATTN: Cari Cerizo

Sample # 1912160266 Sample ID WAIKAPU WELL Project PHASEV
Sample Type Water Sampled 15-dec-1999 Received 16-dec-1999 Reported 09-jan-2000

Parameter		Units	Result	Conc.	Dilution	Det.Limit	Prepared	By	Analyzed	By
Alkalinity	(SM2320B/E310.1)	mg/l	79			1.00			22-dec-1999	toj
Calcium, Total, ICAP	(ML/EPA 200.7)	mg/l	11.2			1.00	22-dec-1999	dtn	22-dec-1999	dtn
Cyanide	(ML/SM 4500CN)	mg/l	ND			0.0250			22-dec-1999	bre
Specific Conductance	(ML/S2510B)	umho/cm	255			4.00			20-dec-1999	sar
Endothall	(ML/EPA 548.1)	ug/l	ND		4	20.0	17-dec-1999	ylp	25-dec-1999	crv
Fluoride	(S4500FC/E340.2)	mg/l	0.12			0.0500			28-dec-1999	bre
Glyphosate	(ML/EPA 547)	ug/l	ND			6.00			27-dec-1999	crv
Mercury	(EPA/ML 245.1)	ug/l	ND			0.200	21-dec-1999	gsr	24-dec-1999	gsr
Nitrite, Nitrogen by IC	(ML/EPA 300.0)	mg/l	ND			0.100			17-dec-1999	sal
Nitrate-N by IC	(ML/EPA 300.0)	mg/l	1.20			0.100			17-dec-1999	sal

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614 Palapala Dr

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Sample # 1912160266 Sample ID WAIKAPU WELL Project PHASEV
Sample Type Water Sampled 15-dec-1999 Received 16-dec-1999 Reported 09-jan-2000

Single Determination Analytes
Quality Control

Worklist	Batch	Control	Parameter	Units	Actual	Found	Yield	Associated Sample
		LCS1	Alkalinity	mg/l	96.2	97.7	102	
		LCS2	Alkalinity	mg/l	96.2	97.7	102	
		MBLK	Alkalinity	mg/l	ND	ND		
		MS	Spiked sample	None	Lab # 99	12140177		
		MS	Alkalinity	mg/l	96.2	92.2	96	
		MSD	Alkalinity	mg/l	96.2	93.3	97	
		LCS1	Calcium, Total, ICAP	mg/l	50	50.4	101	
		LCS2	Calcium, Total, ICAP	mg/l	50	51.2	102	
		MBLK	Calcium, Total, ICAP	mg/l	ND	ND		
		MS	Spiked sample	None	Lab # 99	12140071		
		MS	Calcium, Total, ICAP	mg/l	50	50.5	101	
		MSD	Calcium, Total, ICAP	mg/l	50	51.1	102	
		LCS1	Cyanide	mg/l	0.10	0.097	97	
		MBLK	Cyanide	mg/l	ND	ND		
		MS	Spiked sample	None	Lab # 19	12160220		
		MS	Cyanide	mg/l	0.096	0.082	85	
		MSD	Cyanide	mg/l	0.096	0.083	86	
		DUP	Spiked sample	None	Lab # 19	12170069		
		LCS1	Endothall	ug/l	25	22.8	91	
		MBLK	Endothall	ug/l	ND	ND		
		MS	Spiked sample	None	Lab # 19	12160160		
		MS	Endothall	ug/l	25	23.7	95	
		LCS1	Fluoride	mg/l	1.00	0.941	94	
		LCS2	Fluoride	mg/l	1.00	0.965	96	
		MBLK	Fluoride	mg/l	ND	ND		
		MS	Spiked sample	None	Lab # 19	12160234		
		MS	Fluoride	mg/l	1.00	0.991	99	
		MSD	Fluoride	mg/l	1.00	0.991	99	
		LCS1	Glyphosate	ug/l	10	9.8	98	
		LCS2	Glyphosate	ug/l	10	8.7	87	

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Sample # 1912160266 Sample ID WAIKAPU WELL Project PHASEV

Sample Type Water Sampled 15-dec-1999 Received 16-dec-1999 Reported 09-jan-2000

Haui, County Of. Department Of Water Supply
614 Palapala Dr

Kahului, HI 96732
ATTN: Cari Cerizo

Single Determination Analytes
Quality Control

Worklist	Batch	Control	Parameter	Units	Actual	Found	Yield	Associated Sample
		MBLK	Glyphosate	ug/l	ND	ND		
		MS	Spiked sample	None	Lab # 19	12160160		
		MS	Glyphosate	ug/l	10	8.9	89	
		LCS1	Mercury	ug/l	1.50	1.56	104	
		LCS2	Mercury	ug/l	1.50	1.51	101	
		MBLK	Mercury	ug/l	ND	ND		
		MS	Spiked sample	None	Lab # 99	12170089		
		MS	Mercury	ug/l	1.50	1.47	98	
		MSD	Mercury	ug/l	1.50	1.48	99	
		LCS1	Nitrite, Nitrogen by IC	mg/l	1.0	0.980	98	
		LCS2	Nitrite, Nitrogen by IC	mg/l	1.0	0.990	99	
		MBLK	Nitrite, Nitrogen by IC	mg/l	ND	ND		
		MS	Spiked sample	None	Lab # 99	12160266		
		MS	Nitrite, Nitrogen by IC	mg/l	1.0	1.00	100	
		MSD	Nitrite, Nitrogen by IC	mg/l	1.0	1.00	100	
		LCS1	Nitrate-N by IC	mg/l	2.5	2.62	105	
		LCS2	Nitrate-N by IC	mg/l	2.5	2.62	105	
		MBLK	Nitrate-N by IC	mg/l	ND	ND		
		MS	Spiked sample	None	Lab # 99	12170076		
		MS	Nitrate-N by IC	mg/l	2.5	2.64	106	
		MSD	Nitrate-N by IC	mg/l	2.5	2.64	106	

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Laboratory Report

Maui, County of, Department of Water Supply
614 Palapala Dr

Kahului, HI 96732
ATTN: Cari Cerizo

Sample # 1912150266 Sample ID WAIKAPU WELL Project PHASEV
Sample Type Water Sampled 15-dec-1999 Received 16-dec-1999 Reported 09-jan-2000

Aldicarbs (ML/EPA 531.1)

Parameter	Units	Result	Conc.	Dilution	Det.Limit	Prepared	By	Analyzed	By
3-Hydroxycarbofuran	ug/l	ND			2.00			06-jan-2000	ycm
Aldicarb (Temik)	ug/l	ND			0.500			06-jan-2000	ycm
Aldicarb sulfone	ug/l	ND			0.700			06-jan-2000	ycm
Aldicarb sulfoxide	ug/l	ND			0.500			06-jan-2000	ycm
Baygon	ug/l	ND			2.00			06-jan-2000	ycm
Carbofuran (Furadan)	ug/l	ND			0.900			06-jan-2000	ycm
Carbaryl	ug/l	ND			1.00			06-jan-2000	ycm
Methiocarb	ug/l	ND			2.00			06-jan-2000	ycm
Methomyl	ug/l	ND			1.00			06-jan-2000	ycm
Oxamyl (Vydate)	ug/l	ND			2.00			06-jan-2000	ycm

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Pasadena, California 91101
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Maui, County of, Department of Water Supply
s14 Palapala Dr

Kahului, HI 96732
ATTN: Carl Cerizo

Sample # 1912160266 Sample ID WAIKAPU WELL Project PHASEV
Sample Type Water Sampled 15-dec-1999 Received 16-dec-1999 Reported 03-jan-2000

Aldicarbs (ML/EPA 531.1)
Surrogate Summary

Parameter	Percent Recovery	Acceptable Range
BCMC	99	70 - 130

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Tel: 626 568 6400 Fax: 626 568 6324
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Laboratory Report

Maui, County of, Department of Water Supply
611 Palapala Dr

Kahului, HI 96732
ATTN: Cari Cerizo

Sample # 1912160266 Sample ID WAIKAPU WELL Project PHASE V
Sample Type Water Sampled 15-dec-1999 Received 16-dec-1999 Reported 09-jan-2000

Aldicarbs (ML/EPA 531.1)
Quality Control

Worklist	Batch	Control	Parameter	Units	Actual	Found	Yield	Associated Sample
		LCS1	3-Hydroxycarbofuran	ug/l	10.0	9.8	98	
		LCS1	Aldicarb (Temik)	ug/l	10.0	9.7	97	
		LCS1	Aldicarb sulfone	ug/l	10.0	10.1	101	
		LCS1	Aldicarb sulfoxide	ug/l	10.0	9.8	98	
		LCS1	Baygon	ug/l	10.0	9.7	97	
		LCS1	Carbofuran (Furadan)	ug/l	10.0	9.7	97	
		LCS1	Carbaryl	ug/l	10.0	9.8	98	
		LCS1	Methiocarb	ug/l	10.0	9.3	93	
		LCS1	Methomyl	ug/l	10.0	10.2	102	
		LCS1	Oxamyl (Vydate)	ug/l	10.0	9.8	98	
		LCS1	BDMC	% recovery	100	95	95	
		MBLK	3-Hydroxycarbofuran	ug/l	ND	ND		
		MBLK	Aldicarb (Temik)	ug/l	ND	ND		
		MBLK	Aldicarb sulfone	ug/l	ND	ND		
		MBLK	Aldicarb sulfoxide	ug/l	ND	ND		
		MBLK	Baygon	ug/l	ND	ND		
		MBLK	Carbofuran (Furadan)	ug/l	ND	ND		
		MBLK	Carbaryl	ug/l	ND	ND		
		MBLK	Methiocarb	ug/l	ND	ND		
		MBLK	Methomyl	ug/l	ND	ND		
		MBLK	Oxamyl (Vydate)	ug/l	ND	ND		
		MBLK	BDMC	% recovery	100	104	104	
		MS	3-Hydroxycarbofuran	ug/l	10.0	11.1	111	
		MS	Spiked Sample	None	Lab # 19	12100054		
		MS	Aldicarb (Temik)	ug/l	10.0	10.2	102	
		MS	Aldicarb sulfone	ug/l	10.0	11.0	110	
		MS	Aldicarb sulfoxide	ug/l	10.0	10.3	103	
		MS	Baygon	ug/l	10.0	9.5	95	
		MS	Carbofuran (Furadan)	ug/l	10.0	9.5	95	

Sample # 1312160266 Sample ID WAIKAPU WELL Project PHASEV

Sample Type Water Sampled 15-dec-1999 Received 16-dec-1999 Reported 09-jan-2000

Kahului, HI 96732
ATTN: Cari Cerizo

Aldicarbs (ML/EPA 531.1)

Quality Control

Worklist	Batch	Control	Parameter	Units	Actual	Found	Yield	Associated Sample
		MS	Carbaryl	ug/l	10.0	9.8	98	
		MS	Methiocarb	ug/l	10.0	9.1	91	
		MS	Methomyl	ug/l	10.0	10.1	101	
		MS	Oxamyl (Vydate)	ug/l	10.0	9.6	96	
		MS	DDHC	% recovery	100	98	98	

Report #: 61163

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Laboratory Report

Maui, County of, Department of Water Supply
614 Palapala Dr

Kahului, HI 96732
ATTN: Cari Cerizo

Sample # 1912160266 Sample ID WAIKAPU WELL Project PHASEV
Sample Type Water Sampled 15-dec-1999 Received 16-dec-1999 Reported 02-jan-2000

Herbicides by 515.1 (ML/EPA 515.1)

Parameter	Units	Result	Conc.	Dilution	Det.Limit	Prepared	By	Analyzed	By
2,4,5-T	ug/l	ND			0.200	21-dec-1999	phk	29-dec-1999	vpt
2,4,5-TP (Silvex)	ug/l	ND			0.200	21-dec-1999	phk	29-dec-1999	vpt
2,4-D	ug/l	ND			0.100	21-dec-1999	phk	29-dec-1999	vpt
2,4-DB	ug/l	ND			2.00	21-dec-1999	phk	29-dec-1999	vpt
Dichlorprop	ug/l	ND			0.500	21-dec-1999	phk	29-dec-1999	vpt
Acifluorfen (qualitative)	ug/l	ND			0.200	21-dec-1999	phk	29-dec-1999	vpt
Bentazon	ug/l	ND			0.500	21-dec-1999	phk	29-dec-1999	vpt
Dalapon (qualitative)	ug/l	ND			1.00	21-dec-1999	phk	29-dec-1999	vpt
3,5-Dichlorobenzoic acid	ug/l	ND			0.500	21-dec-1999	phk	29-dec-1999	vpt
DCPA	ug/l	ND			0.100	21-dec-1999	phk	29-dec-1999	vpt
Dicamba	ug/l	ND			0.0600	21-dec-1999	phk	29-dec-1999	vpt
Dinoseb	ug/l	ND			0.200	21-dec-1999	phk	29-dec-1999	vpt
Pentachlorophenol	ug/l	ND			0.0400	21-dec-1999	phk	29-dec-1999	vpt
Picloram	ug/l	ND			0.100	21-dec-1999	phk	29-dec-1999	vpt
4-Nitrophenol (qualitative)	ug/l	ND			5.00	21-dec-1999	phk	29-dec-1999	vpt
Data Entry	--	01-05-00			0.0000000	21-dec-1999	phk	29-dec-1999	vpt

Report #: 51153

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Kahului, HI 96732
ATTN: Cari Cerizo

Sample # 1912160266 Sample ID WAIKAPU WELL Project PHASE V
Sample Type Water Sampled 15-dec-1999 Received 16-dec-1999 Reported 03-jan-2000

Herbicides by 515.1 (ML/EPA 515.1)
Surrogate Summary

Parameter	Percent Recovery	Acceptable Range
2,4-Dichlorophenylacetic acid	92	70 - 130

Report #: 61161

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Laboratory Report

Maui, County of, Department of Water Supply
614 Palapala Dr

Kahului, HI 96732
ATTN: Cari Cerizo

Sample # 1912160266 Sample ID WAIKAPU WELL Project PHASEV
Sample Type Water Sampled 15-dec-1999 Received 16-dec-1999 Reported 05-jan-2000

Herbicides by 515.1 (ML/EPA 515.1)
Quality Control

Worklist	Batch	Control	Parameter	Units	Actual	Found	Yield	Associated Sample
		LCS1	2,4,5-T	ug/l	0.80	0.67	84	
		LCS1	2,4,5-TP (Silvex)	ug/l	0.80	0.69	86	
		LCS1	2,4-D	ug/l	0.40	0.39	98	
		LCS1	2,4-DB	ug/l	8.00	8.58	107	
		LCS1	Dichlorprop	ug/l	2.00	1.85	92	
		LCS1	Acifluorfen (qualitative)	ug/l	0.80	0.61	76	
		LCS1	Bentazon	ug/l	2.00	1.55	78	
		LCS1	Dalapon (qualitative)	ug/l	4.00	3.57	89	
		LCS1	3,5-Dichlorobenzoic acid	ug/l	2.00	1.84	92	
		LCS1	DCPA	ug/l	0.80	0.69	86	
		LCS1	Dicamba	ug/l	0.20	0.17	85	
		LCS1	Dinoseb	ug/l	0.80	0.75	94	
		LCS1	Pentachlorophenol	ug/l	0.16	0.14	88	
		LCS1	Picloram	ug/l	0.40	0.34	85	
		LCS1	4-Nitrophenol (qualitative)	ug/l	1.00	1.39	85	
		LCS1	2,4-Dichlorophenylacetic acid	% recovery	100	88	88	
		LCS2	2,4,5-T	ug/l	0.80	0.73	91	
		LCS2	2,4,5-TP (Silvex)	ug/l	0.80	0.68	85	
		LCS2	2,4-D	ug/l	0.40	0.36	90	
		LCS2	2,4-DB	ug/l	8.00	7.27	91	
		LCS2	Dichlorprop	ug/l	2.00	1.71	86	
		LCS2	Acifluorfen (qualitative)	ug/l	0.80	0.63	79	
		LCS2	Bentazon	ug/l	2.00	1.56	78	
		LCS2	Dalapon (qualitative)	ug/l	4.00	3.22	80	
		LCS2	3,5-Dichlorobenzoic acid	ug/l	2.00	1.68	84	
		LCS2	DCPA	ug/l	0.80	0.67	84	
		LCS2	Dicamba	ug/l	0.20	0.16	80	
		LCS2	Dinoseb	ug/l	0.80	0.69	86	
		LCS2	Pentachlorophenol	ug/l	0.16	0.13	81	

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Laboratory Report

Maui, County of, Department of Water Supply
614 Palapala Dr

Kahului, HI 96732
ATTN: Cari Cerizo

Sample # 1912160366 Sample ID WAIKAPU WELL Project PHASEV
Sample Type Water Sampled 15-dec-1999 Received 16-dec-1999 Reported 09-jan-2000

Herbicides by 515.1 (ML/EPA 515.1)
Quality Control

Worklist	Batch	Control	Parameter	Units	Actual	Found	Yield	Associated Sample
		LCS2	Picloram	ug/l	0.40	0.31	78	
		LCS2	4-Nitrophenol (qualitative)	ug/l	4.00	3.01	75	
		LCS2	2,4-Dichlorophenylacetic acid	% recovery	100	86	86	
		MBLK	2,4,5-T	ug/l	ND	ND		
		MBLK	2,4,5-TP (Silvex)	ug/l	ND	ND		
		MBLK	2,4-D	ug/l	ND	ND		
		MBLK	2,4-DB	ug/l	ND	ND		
		MBLK	Dichlorprop	ug/l	ND	ND		
		MBLK	Acifluorfen (qualitative)	ug/l	ND	ND		
		MBLK	Bentazon	ug/l	ND	ND		
		MBLK	Dalapon (qualitative)	ug/l	ND	ND		
		MBLK	3,5-Dichlorobenzoic acid	ug/l	ND	ND		
		MBLK	DCPA	ug/l	ND	ND		
		MBLK	Dicamba	ug/l	ND	ND		
		MBLK	Dinoseb	ug/l	ND	ND		
		MBLK	Pentachlorophenol	ug/l	ND	ND		
		MBLK	Picloram	ug/l	ND	ND		
		MBLK	4-Nitrophenol (qualitative)	ug/l	ND	ND		
		MBLK	2,4-Dichlorophenylacetic acid	% recovery	100	81	81	
		MS	2,4,5-T	ug/l	0.80	0.69	86	
		MS	2,4,5-TP (Silvex)	ug/l	0.80	0.72	90	
		MS	2,4-D	ug/l	0.40	0.39	98	
		MS	2,4-DB	ug/l	8.00	7.42	93	
		MS	Dichlorprop	ug/l	2.00	1.80	90	
		MS	Spiked sample	None	Lab # 19	12150011		
		MS	Acifluorfen (qualitative)	ug/l	0.80	0.66	82	
		MS	Bentazon	ug/l	2.00	1.82	91	
		MS	Dalapon (qualitative)	ug/l	4.00	3.51	88	
		MS	3,5-Dichlorobenzoic acid	ug/l	2.00	1.81	90	

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Laboratory Report

Maui, County of, Department of Water Supply
614 Palapala Dr

Kahului, HI 96732
ATTN: Carl Cerizo

Sample # 1912160266 Sample ID WAIKAPU WELL Project PHASEV
Sample Type Water Sampled 15-dec-1999 Received 16-dec-1999 Reported 09-jan-2000

Herbicides by 515.1 (ML/EPA 515.1)
Quality Control

Worklist	Batch	Control	Parameter	Units	Actual	Found	Yield	Associated Sample
		MS	DCPA	ug/l	0.80	0.69	86	
		MS	Dicamba	ug/l	0.20	0.17	85	
		MS	Dinoseb	ug/l	0.80	0.73	91	
		MS	Pentachlorophenol	ug/l	0.16	0.13	81	
		MS	Picloram	ug/l	0.16	0.12	80	
		MS	4-Nitrophenol (qualitative)	ug/l	4.00	3.46	87	
		MS	2,4-Dichlorophenylacetic acid	% recovery	100	89	89	

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Maui, County of, Department of Water Supply
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Kahului, HI 96732
ATTN: Cari Cerizo

Sample # 1912160266 Sample ID WAIKAPU WELL Project PHASEV
Sample Type Water Sampled 15-dec-1999 Received 16-dec-1999 Reported 09-jan-2000

SDWA Pesticides (ML/EPA 508)

Parameter	Units	Result	Conc.	Dilution	Det.Limit	Prepared	By	Analyzed	By
PCB 1016 Aroclor	ug/l	ND			0.0700	21-dec-1999	kkc	04-jan-2000	dst
PCB 1221 Aroclor	ug/l	ND			0.100	21-dec-1999	kkc	04-jan-2000	dst
PCB 1232 Aroclor	ug/l	ND			0.100	21-dec-1999	kkc	04-jan-2000	dst
PCB 1242 Aroclor	ug/l	ND			0.100	21-dec-1999	kkc	04-jan-2000	dst
PCB 1248 Aroclor	ug/l	ND			0.100	21-dec-1999	kkc	04-jan-2000	dst
PCB 1254 Aroclor	ug/l	ND			0.100	21-dec-1999	kkc	04-jan-2000	dst
PCB 1260 Aroclor	ug/l	ND			0.100	21-dec-1999	kkc	04-jan-2000	dst
Alpha-BHC	ug/l	ND			0.0100	21-dec-1999	kkc	04-jan-2000	dst
Alachlor (Alanex)	ug/l	ND			0.0500	21-dec-1999	kkc	04-jan-2000	dst
Aldrin	ug/l	ND			0.0100	21-dec-1999	kkc	04-jan-2000	dst
Beta-BHC	ug/l	ND			0.0100	21-dec-1999	kkc	04-jan-2000	dst
Chlordane	ug/l	ND			0.100	21-dec-1999	kkc	04-jan-2000	dst
Chlorthalonil (Draconil,Bravo)	ug/l	ND			0.0100	21-dec-1999	kkc	04-jan-2000	dst
Delta-BHC	ug/l	ND			0.0100	21-dec-1999	kkc	04-jan-2000	dst
p,p' DDD	ug/l	ND			0.0100	21-dec-1999	kkc	04-jan-2000	dst
p,p' DDE	ug/l	ND			0.0100	21-dec-1999	kkc	04-jan-2000	dst
p,p' DDT	ug/l	ND			0.0100	21-dec-1999	kkc	04-jan-2000	dst
Dieldrin	ug/l	ND			0.0100	21-dec-1999	kkc	04-jan-2000	dst
Endrin Aldehyde	ug/l	ND			0.0100	21-dec-1999	kkc	04-jan-2000	dst
Endrin	ug/l	ND			0.0100	21-dec-1999	kkc	04-jan-2000	dst
Endosulfan I (alpha)	ug/l	ND			0.0100	21-dec-1999	kkc	04-jan-2000	dst
Endosulfan II (beta)	ug/l	ND			0.0100	21-dec-1999	kkc	04-jan-2000	dst
Endosulfan sulfate	ug/l	ND			0.0100	21-dec-1999	kkc	04-jan-2000	dst
Heptachlor	ug/l	ND			0.0100	21-dec-1999	kkc	04-jan-2000	dst
Heptachlor Epoxide	ug/l	ND			0.0100	21-dec-1999	kkc	04-jan-2000	dst
Lindane (gamma-BHC)	ug/l	ND			0.0500	21-dec-1999	kkc	04-jan-2000	dst
Methoxychlor	ug/l	ND			0.500	21-dec-1999	kkc	04-jan-2000	dst
Toxaphene	ug/l	ND			0.0000000	21-dec-1999	kkc	04-jan-2000	dst
Data Entry		01/07/00							

Report #: 61163

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Kahului, HI 96732
ATTN: Cari Cerico

Sample # 1912160366 Sample ID WAIKAPU WELL Project PHASE V
Sample Type Water Sampled 15-dec-1999 Received 16-dec-1999 Reported 09-jan-2000

SDWA Pesticides (ML/EPA 508)
Surrogate Summary

Parameter	Percent Recovery	Acceptable Range
Dibutyl Chlorendate	92	70 - 130
Tetrachlorometaxylene	104	70 - 130

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614 Palapala Dr

Kahului, HI 96732
ATTN: Cari Cerizo

Sample # 1912160266 Sample ID WAIKAPU WELL Project PHASEV
Sample Type Water Sampled 15-dec-1999 Received 16-dec-1999 Reported 09-jan-2000

SDWA Pesticides (ML/EPA 508)
Quality Control

Worklist	Batch	Control	Parameter	Units	Actual	Found	Yield	Associated Sample
		LCS1	PCB 1016 Aroclor	ug/l	0.350	NA		
		LCS1	PCB 1221 Aroclor	ug/l	0.500	NA		
		LCS1	PCB 1232 Aroclor	ug/l	0.500	NA		
		LCS1	PCB 1242 Aroclor	ug/l	0.500	NA		
		LCS1	PCB 1248 Aroclor	ug/l	0.500	NA		
		LCS1	PCB 1254 Aroclor	ug/l	0.500	NA		
		LCS1	PCB 1260 Aroclor	ug/l	0.500	NA		
		LCS1	Alpha-BHC	ug/l	0.050	0.053	106	
		LCS1	Alachlor (Alanex)	ug/l	0.100	0.105	105	
		LCS1	Aldrin	ug/l	0.050	0.052	104	
		LCS1	Beta-BHC	ug/l	0.050	0.053	106	
		LCS1	Chlorthalonil (Draconil,Bravo)	ug/l	0.100	0.100	100	
		LCS1	Delta-BHC	ug/l	0.050	0.054	108	
		LCS1	p,p' DDD	ug/l	0.100	0.102	102	
		LCS1	p,p' DDE	ug/l	0.100	0.101	101	
		LCS1	p,p' DDT	ug/l	0.100	0.101	101	
		LCS1	Dieldrin	ug/l	0.100	0.101	101	
		LCS1	Endrin Aldehyde	ug/l	0.100	0.061	61	
		LCS1	Endrin	ug/l	0.100	0.105	105	
		LCS1	Endosulfan I (alpha)	ug/l	0.050	0.051	102	
		LCS1	Endosulfan II (beta)	ug/l	0.100	0.101	101	
		LCS1	Endosulfan sulfate	ug/l	0.100	0.101	101	
		LCS1	Gamma-BHC (Lindane)	ug/l	0.050	0.053	106	
		LCS1	Heptachlor	ug/l	0.050	0.052	104	
		LCS1	Heptachlor Epoxide	ug/l	0.050	0.054	108	
		LCS1	Methoxychlor	ug/l	0.500	0.539	108	
		LCS1	Tetrachloro-m-xylene (surr)	% recovery	100	97	97	
		LCS1	Dibutyl chlorendate (surr)	% recovery	100	96	96	
		LCS2	PCB 1016 Aroclor	ug/l	0.350	NA		

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614 Palapala Dr

Kahului, HI 96732
ATTN: Cari Cerizo

Sample # 1912160266 Sample ID WAIKAPU WELL Project PHASEV
Sample Type Water Sampled 15-dec-1999 Received 16-dec-1999 Reported 03-jan-2000

SDWA Pesticides (ML/EPA 508)
Quality Control

Worklist	Batch	Control	Parameter	Units	Actual	Found	Yield	Associated Sample
		LCS2	PCB 1221 Aroclor	ug/l	0.500	NA		
		LCS2	PCB 1232 Aroclor	ug/l	0.500	0.522	104	
		LCS2	PCB 1242 Aroclor	ug/l	0.500	NA		
		LCS2	PCB 1248 Aroclor	ug/l	0.500	NA		
		LCS2	PCB 1254 Aroclor	ug/l	0.500	NA		
		LCS2	PCB 1260 Aroclor	ug/l	0.500	NA		
		LCS2	Alpha-BHC	ug/l	0.050	NA		
		LCS2	Alachlor (Alanex)	ug/l	0.100	ND		
		LCS2	Aldrin	ug/l	0.050	NA		
		LCS2	Beta-BHC	ug/l	0.050	NA		1
		LCS2	Chlorthalonil (Draconil,Bravo)	ug/l	0.100	NA		
		LCS2	Delta-BHC	ug/l	0.050	NA		
		LCS2	p,p' DDD	ug/l	0.100	NA		
		LCS2	p,p' DDE	ug/l	0.100	NA		
		LCS2	p,p' DDT	ug/l	0.100	NA		
		LCS2	Dieldrin	ug/l	0.100	NA		
		LCS2	Endrin Aldehyde	ug/l	0.100	NA		
		LCS2	Endrin	ug/l	0.100	NA		
		LCS2	Endosulfan I (alpha)	ug/l	0.050	NA		
		LCS2	Endosulfan II (beta)	ug/l	0.100	NA		
		LCS2	Endosulfan sulfate	ug/l	0.100	NA		
		LCS2	Gamma-BHC (Lindane)	ug/l	0.050	ND		
		LCS2	Heptachlor	ug/l	0.050	NA		
		LCS2	Heptachlor Epoxide	ug/l	0.050	NA		
		LCS2	Methoxychlor	ug/l	0.500	NA		
		LCS2	Tetrachlorometaxylene (surr)	% recovery	100	92	92	
		LCS2	Dibutyl chlorendate (surr)	% recovery	100	92	92	
		MBLK	PCB 1016 Aroclor	ug/l	ND	ND		
		MBLK	PCB 1221 Aroclor	ug/l	ND	ND		

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555 East Walnut Street
Pasadena, California 91101
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Laboratory Report

Maui, County of, Department of Water Supply
614 Palapala Dr

Kahului, HI 96732
ATTN: Cari Cerizo

Sample # 191216@2oo Sample ID WAIKAPU WELL Project PHASE V
Sample Type Water Sampled 15-dec-1999 Received 16-dec-1999 Reported 09-jan-2000

SDWA Pesticides (ML/EPA 508)
Quality Control

Worklist	Batch	Control	Parameter	Units	Actual	Found	Yield	Associated Sample
		MBLK	PCB 1232 Aroclor	ug/l	ND	ND		
		MBLK	PCB 1242 Aroclor	ug/l	ND	ND		
		MBLK	PCB 1248 Aroclor	ug/l	ND	ND		
		MBLK	PCB 1254 Aroclor	ug/l	ND	ND		
		MBLK	PCB 1260 Aroclor	ug/l	ND	ND		
		MBLK	Alpha-BHC	ug/l	ND	ND		
		MBLK	Alachlor (Alanex)	ug/l	ND	ND		
		MBLK	Aldrin	ug/l	ND	ND		
		MBLK	Beta-BHC	ug/l	ND	ND		
		MBLK	Chlordane	ug/l	ND	ND		
		MBLK	Chlorthalonil (Draconil,Bravo)	ug/l	ND	ND		
		MBLK	Delta-BHC	ug/l	ND	ND		
		MBLK	P,P' DDD	ug/l	ND	ND		
		MBLK	P,P' DDE	ug/l	ND	ND		
		MBLK	P,P' DDT	ug/l	ND	ND		
		MBLK	Dieldrin	ug/l	ND	ND		
		MBLK	Endrin Aldehyde	ug/l	ND	ND		
		MBLK	Endrin	ug/l	ND	ND		
		MBLK	Endosulfan I (alpha)	ug/l	ND	ND		
		MBLK	Endosulfan II (beta)	ug/l	ND	ND		
		MBLK	Endosulfan sulfate	ug/l	ND	ND		
		MBLK	Gamma-BHC (Lindane)	ug/l	ND	ND		
		MBLK	Heptachlor	ug/l	ND	ND		
		MBLK	Heptachlor Epoxide	ug/l	ND	ND		
		MBLK	Methoxychlor	ug/l	ND	ND		
		MBLK	Tetrachloro-m-xylene (surr)	% recovery	100	92	92	
		MBLK	Dibutyl chlorendate (surr)	% recovery	100	84	84	
		MBLK	Toxaphene	ug/l	ND	ND		
		MS	PCB 1016 Aroclor	ug/l	0.350	NA		

Report #: 61163

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1 800 566 LABS (1 800 566 5227)

Laboratory Report

Maui, County of, Department of Water Supply
614 Palapala Dr

Kahului, HI 96732
ATTN: Carl Carizo

Sample # 1912160266 Sample ID WAIKAPU WELL Project PHASE V
Sample Type Water Sampled 15-dec-1999 Received 16-dec-1999 Reported 09-jan-2000

SDWA Pesticides (ML/EPA 508)
Quality Control

Worklist	Batch	Control	Parameter	Units	Actual	Found	Yield	Associated Sample
		MS	PCB 1221 Aroclor	ug/l	0.500	NA		
		MS	PCB 1232 Aroclor	ug/l	0.500	0.538	108	
		MS	PCB 1242 Aroclor	ug/l	0.500	NA		
		MS	PCB 1248 Aroclor	ug/l	0.500	NA		
		MS	PCB 1254 Aroclor	ug/l	0.500	NA		
		MS	PCB 1260 Aroclor	ug/l	0.500	NA		
		MS	Alpha-BHC	ug/l	0.050	0.045	90	
		MS	Spiked sample	None	Lab # 19	12160005		1
		MS	Alachlor (Alanex)	ug/l	0.100	0.086	86	
		MS	Aldrin	ug/l	0.050	0.021	42	
		MS	Beta-BHC	ug/l	0.050	0.048	96	
		MS	Chlorthalonil (Draconil,Bravo)	ug/l	0.100	0.084	84	
		MS	Delta-BHC	ug/l	0.050	0.046	92	
		MS	p,p' DDD	ug/l	0.100	0.048	48	
		MS	p,p' DDE	ug/l	0.100	0.038	38	
		MS	p,p' DDT	ug/l	0.100	0.039	39	
		MS	Dieldrin	ug/l	0.100	0.062	62	
		MS	Endrin Aldehyde	ug/l	0.100	0.059	59	
		MS	Endrin	ug/l	0.100	0.065	65	
		MS	Endosulfan I (alpha)	ug/l	0.050	0.032	64	
		MS	Endosulfan II (beta)	ug/l	0.100	0.074	74	
		MS	Endosulfan sulfate	ug/l	0.100	0.076	76	
		MS	Gamma-BHC (Lindane)	ug/l	0.050	0.046	92	
		MS	Heptachlor	ug/l	0.050	0.029	58	
		MS	Heptachlor Epoxide	ug/l	0.050	0.035	70	
		MS	Methoxychlor	ug/l	0.500	0.261	52	
		MS	Tetrachloro-m-xylene (surr)	% recovery	100	66	66	
		MS	Dibutyl chlorendate (surr)	% recovery	100	36	36	