July 3, 1997

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

Dear Mr. Gill:

Re: NEGATIVE DECLARATION FOR THE DRILLING AND TESTING OF
WAIKAPU MAUKA EXPLORATORY WELL (STATE WELL NO. 6131-01)
TMK 3-5-04:18, WAIKAPU, MAUI, HAWAII

The County of Maui, Department of Water Supply, has reviewed the comments received during the 30-day public comment period which began on May 8, 1997. The agency has determined that this project will not have significant environmental effect and has issued a negative declaration. Please publish this notice in the July 23, 1997 OEQC Bulletin.

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

Please contact our Engineering Division at (808) 243-7835 should you have any questions.

Sincerely,

David R. Craddick
Director

Enclosures

“By Water All Things Find Life”
Final

Environmental Assessment

for the

Drilling and Testing
Waikapu Mauka Exploratory Well
(State Well No. 6131-01)

TMK 3-5-04: 18
Waikapu, Maui, Hawaii

Proposing Agency:

County of Maui
Department of Water Supply
P. O. Box 1109
Wailuku, Maui, Hawaii 96793
Telephone (808) 243-7835

Prepared by:

Fukunaga & Associates, Inc.
1388 Kapiolani Blvd. Second Floor
Honolulu, Hawaii 96814
Telephone: (808) 944-1821

July 1997
Chapter 343, Hawaii Revised Statutes (HRS)

Final

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Department of Water Supply
P. O. Box 1109
Wailuku, Maui, Hawaii 96793
Telephone (808) 243-7835

Responsible Official: [Signature]
Date: July 3, 1997

Prepared by:

Fukunaga & Associates, Inc.
1388 Kapiolani Blvd. Second Floor
Honolulu, Hawaii 96814
Telephone: (808) 944-1821

July 1997
# TABLE OF CONTENTS

## I. PROJECT DESCRIPTION

A. Purpose .................................................. 1
B. Background Information ................................. 1
   1. Iao Aquifer ............................................. 1
   2. Central Maui Water System ........................... 5
C. Proposed Project ......................................... 5

## II. DESCRIPTION OF THE ENVIRONMENT ..................... 7

A. Project Location ......................................... 7
B. Land Ownership .......................................... 7
C. Land Classification and Zoning .......................... 7
D. Physical Features ......................................... 7
   1. Topography ............................................. 7
   2. Soils .................................................. 10
   3. Hydrogeology ......................................... 10
   4. Climate ............................................... 10
   5. Flood and Tsunami Hazards ............................ 10
E. Flora and Fauna ......................................... 12
F. Water Quality ........................................... 12
   1. Chlorides .............................................. 12
   2. Pesticides ............................................ 12
G. Archaeological Features/Historical Features ........... 12
H. Surface Waters .......................................... 13

## III. PROBABLE IMPACTS AND MITIGATIVE MEASURES .......... 13

A. Short Term Impacts ....................................... 13
B. Long Term Impacts ....................................... 13
   1. The Iao Aquifer ....................................... 13
   2. Public Funds, Energy, and Construction Materials .... 13

## IV. ALTERNATIVES TO THE PROPOSED PROJECT ............... 14

A. No Project Alternative .................................... 14
B. Alternate Site ........................................... 14
C. Alternate Water Source ................................... 14

## V. AGENCIES AND PERSONS CONSULTED ....................... 14
## TABLE OF CONTENTS (CONT'D)

<table>
<thead>
<tr>
<th>Section</th>
<th>Page</th>
</tr>
</thead>
<tbody>
<tr>
<td>VI. DETERMINATION</td>
<td>14</td>
</tr>
<tr>
<td>VII. FINDINGS AND REASONS SUPPORTING THE DETERMINATION</td>
<td>16</td>
</tr>
<tr>
<td>REFERENCES</td>
<td>17</td>
</tr>
</tbody>
</table>

### LIST OF FIGURES AND TABLE

#### Figure

<table>
<thead>
<tr>
<th>Figure</th>
<th>Description</th>
<th>Page</th>
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</thead>
<tbody>
<tr>
<td>1</td>
<td>Island Map</td>
<td>2</td>
</tr>
<tr>
<td>2</td>
<td>Location Map</td>
<td>3</td>
</tr>
<tr>
<td>3</td>
<td>Existing Wells</td>
<td>4</td>
</tr>
<tr>
<td>4</td>
<td>Wailuku and Lahaina Aquifer Sectors</td>
<td>6</td>
</tr>
<tr>
<td>5</td>
<td>Land Ownership Map</td>
<td>8</td>
</tr>
<tr>
<td>6</td>
<td>State Land Use District Map</td>
<td>9</td>
</tr>
<tr>
<td>7</td>
<td>Flood Insurance Rate Map</td>
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</tr>
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</table>

#### Table

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<thead>
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<th>Page</th>
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<tbody>
<tr>
<td>1</td>
<td>List of Agencies and Organizations Consulted</td>
<td>15</td>
</tr>
</tbody>
</table>
I. PROJECT DESCRIPTION

A. Purpose

The existing County of Maui owned Mokuau, Waihee, and Waiehu Heights Wells, situated close together within the Iao Basal Aquifer have shown an increase in salinity due to localized upconing of salt water caused by pumping of the wells at high withdrawal rates. To stabilize the aquifer and to improve the quality of water pumped from the aquifer, new deep well sources are desired so that pumpage can be evenly distributed and pumping of the existing wells can be permanently reduced. Accordingly, the County of Maui, Department of Water Supply (DWS) proposes to drill and test an exploratory well called Waikapu Mauka Exploratory Well to determine the feasibility of developing a new ground water source within the Iao Aquifer. This exploratory well project, originally known as the Waikapu Tank Site Exploratory well project, moved to a new location approximately 1,100 feet south of the original site. The project’s impacts at the original site (Waikapu Tank site) were addressed in a Final Environmental Assessment published in the OEQC Bulletin on November 7, 1996. This EA addresses the impacts of the project at the new site (see Figures 1 and 2).

B. Background Information

1. Iao Aquifer

The well site is located within the Iao Basal Aquifer, which is the primary water source for the Central Maui Water System. The aquifer is situated between the Waihee Valley on the north and Waikapu Valley on the south. The following is an inventory of wells currently withdrawing water from the aquifer (see Figure 3):

<table>
<thead>
<tr>
<th>Well Name</th>
<th>MGD</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mokuau Wells</td>
<td>4.6</td>
</tr>
<tr>
<td>Waiehu Heights Wells</td>
<td>1.6</td>
</tr>
<tr>
<td>Waihee Wells</td>
<td>8.1</td>
</tr>
<tr>
<td>Shaft 33 (Wailuku Shaft)</td>
<td>5.5</td>
</tr>
</tbody>
</table>

Total 19.8
Total installed pump capacity within the aquifer amounts to 31 mgd. However, pumping of the aquifer is limited since the aquifer’s sustainable yield is 20 mgd according to the Maui County Water Use and Development Plan, dated February 1992.

Adjacent to the Iao Aquifer, the Waihee Aquifer has a sustainable yield of 8 million gallons per day (see Figure 4). Ground water development within the aquifer has been limited to a few private wells, where withdrawal from these wells amounts to a few thousand gallons per day.

2. Central Maui Water System

The Central Maui Water System is owned and operated by the County of Maui. The water system service area includes Wailuku, Waihe, Wailuku, Wailuku Heights, Kahului, Puunene, Kihel, Maalaea, Makena, Paia-Kuau, and Spreckelsville. Current water demand for the Central Maui Water System averages at 20 mgd. During the summer months demand has exceeded 20 mgd. Water demand is expected to increase to 30 mgd by the year 2010 according to the Maui County Water Use and Development Plan. Accordingly, the DWS has completed negotiations to temporarily withdraw water from the Iao ditch and new water sources are being developed in the Waihee Aquifer.

The continued high levels of chlorides observed in Mokuhau Well No. 2 have prompted the DWS to use Shaft 33 to relieve pumpage at the Mokuhau well. Shaft 33 is owned by C. Brewer Co. and use of the shaft is only temporary until new water sources are developed or acquired by the DWS.

C. Proposed Project

The proposed exploratory drilling and testing project will determine if the well site would be a feasible ground water source. Based on preliminary investigations, the basic scope of work includes the following:

1. Drilling a 24-inch diameter hole to a depth of approximately 820 feet below ground elevation of 760 feet (maximum depth of 950 feet, depending on field conditions).

2. Install approximately 820 feet of 18-inch I.D. steel casing (bottom 80 feet perforated). Grouting the annular space surrounding casing from ground surface to a depth of approximately 700 feet.

3. Pump test the aquifer. Two tests will be performed on the aquifer, a step-drawdown test and a long-term constant-rate test. The step-drawdown test consists of pumping the well at progressively increasing fractions of the
maximum discharge capacity proposed for the well. The long-term constant-rate test consists of pumping the well at the proposed discharge rate for the well for at least 96 hours. The purpose of the tests is to obtain hydrologic information needed to determine the well’s performance and efficiency with regard to yield and drawdown; the well’s trend with regard to drawdown, recovery, and salinity; and the nearby hydraulic properties of the aquifer.

4. Water Quality Analysis. Samples from the well will be taken for water quality analysis.

II. DESCRIPTION OF THE ENVIRONMENT

A. Project Location

The proposed exploratory well site is located at the upper (mauka) edge of an active pineapple field near Waikapu Town, south of Waiko Road. The site is accessible through a pineapple field dirt road off of Waiko Road. The site lies about 2,700 feet mauka of Waikapu Well No. 1 and 3,300 feet mauka of Waikapu Well No. 2 (see Figure 3). Waikapu Wells No. 1 and No. 2 were drilled by the State and are used as observation wells. The site was previously used for sugarcane cultivation and then later converted into pineapple fields.

B. Land Ownership

The proposed well site is located within a 64.4 acre parcel designated as TMK 3-5-04: 18 (por.), which is owned by Wailuku Agribusiness Co. Inc., a subsidiary of C. Brewer Company, and used for pineapple cultivation. The proposed site will be approximately 100 feet by 200 feet in area, along the upper edge of the pineapple field (see Figure 5).

C. Land Classification and Zoning

The parcel is within the Agricultural District as designated by the State Land Use Commission, and is situated in an area designated as agriculture lands by the County of Maui Land Use and Code Administration (see Figure 6).

D. Physical Features

1. Topography

The entire parcel is situated on the eastern slopes of the West Maui Mountains, and slopes down toward the east from an elevation of approximately 800 feet Mean Sea Level (MSL) to an elevation of approximately 540 feet MSL. The southern portion of the property is bordered by Waikapu Stream and the northern portion of the property is bordered by Waiko Road. Waikapu Stream is approximately 1000 feet south of the well site.
STATE LAND USE DISTRICT MAP

Figure 6
2. Soils

The soil types present at the proposed well site and the surrounding areas are:

IbC - Iao cobbly clay has a 7-15 percent slope, moderate shrink-swell, runoff is medium and erosion hazard is moderate.

IcB - Iao clay has a 3-7 percent slope, moderate shrink-swell, runoff is medium and erosion hazard is slight to moderate.

IcC - Iao Clay has a 7-15 percent slope, moderate shrink-swell, runoff is medium and erosion hazard is moderate.

rRR - Rough Broken Land has a 40-70 percent slope, runoff is rapid, geologic erosion is active.

WvB - Wailuku Silty Clay has a 3-7 percent slopes, runoff is slow and erosion hazard is slight.

3. Hydrogeology

The Iao basal aquifer is composed of highly permeable Wailuku basalts which dip beneath a thick wedge of caprock formations consisting of alluvial slopewash deposits eroded from the mass of West Maui. In Waikapu Well No. 1, Wailuku basalts were not encountered to its total depth of 1,020 feet or (-) 502 feet below sea level. The relative low permeability of the weathered formations encountered by Waikapu Well No. 2, between sea level and (-) 150 feet, msl, is evidenced by test results showing a yield of 100 gpm with a drawdown of 40 feet, or a specific well capacity of only 2.5 gpm per foot of drawdown. Similarly, Waikapu Well No. 1 test results yielded a specific well capacity of 2.0 gpm per foot of drawdown. Experience has shown weathering can greatly reduce the permeability of basalts aquifers and their yield to wells. A well drilled at the site is expected to penetrate permeable unweathered basalts.

4. Climate

Rainfall at the well site ranges from 20 to 40 inches per year. The temperature ranges from 48 to 96 degrees Fahrenheit. The prevailing wind throughout the year are the northeastly tradewinds.

5. Flood and Tsunami Hazards

The Federal Emergency Management Agency’s June 1, 1981 Flood Insurance Rate Map (FIRM) for Maui County designates the proposed well site within Zone C, areas of minimal flooding (see Figure 7).
The drilling of the exploratory well will include fully grouting the annular space between the hole and the well casing to prevent surface water contamination into the well.

Tsunami Inundation areas are located in low-lying areas along the shoreline. The proposed well site is approximately four miles inland and not susceptible to tsunami inundation.

E. Flora and Fauna

The primary vegetation in the vicinity of the proposed well sites is pineapple. Non-cultivated vegetation distinctive to the area according to the Atlas of Hawaii, Second Edition, dated 1983 are Lantana, koa haole, klu, panini, ilima, and Natal reftop grass.

Mammals common to the island of Maui include the axis deer, dog, goat, pig, cat, mouse, and rat. Birds associated with the prevalent vegetation are the Cardinal, Barred Dove, Spotted Dove, Mockingbird, Myna Bird, Golden Plover, Pueo, Ricebird, House Sparrow, and White eye.

Since the land has been previously altered by the cultivation of pineapple, it is believed that the project will not impact any migratory birds, endangered or threatened species, or wetlands.

F. Water Quality

1. Chlorides

The Iao Aquifer has yielded high quality water over the years; however, in recent years, the pumping of the Iao Aquifer at concentrated points (Mokuaua, Waihee and Waiehu Heights Well Fields) has increased the chloride levels in certain wells. At the Mokuaua No. 2 Well, chloride levels have reached 400 mg/l. The proposed new well is expected to yield water with acceptable chloride levels since the well will be located away from the Mokuaua and Waihee Well Fields. Development of this new well will allow pumpage to be permanently reduced at the Mokuaua Wells.

2. Pesticides

Since there are no indications of pesticide contamination in nearby wells from the surrounding agricultural operations, it is unlikely that pesticides will be found in the proposed new well.

G. Archaeological Features/Historical Features

Since the area has been previously disturbed by the cultivation of pineapple, it is believed that the exploratory well will have no effect on historic sites.
H. Surface Waters

Waikapu Stream is located approximately 1000 feet south of the well site. The withdrawal of water from the well should have no effect on Waikapu Stream because Waikapu Stream channel lies at an elevation of approximately 700 feet MSL in the vicinity of the well, whereas the well will encounter and develop basal groundwater at an elevation of approximately 15 feet MSL. Waikapu Stream is separated from the underlying basalt aquifer by impermeable consolidated alluvium estimated to be several hundred feet, or more in thickness.

III. PROBABLE IMPACTS AND MITIGATIVE MEASURES

A. Short Term Impacts

Major short term impacts which can be anticipated as a result of this project are all associated with the construction activity required to drill and test the proposed well. Increased traffic, construction noise, dust and vehicular and equipment emissions can be expected. These impacts will be minimized through conscientious efforts by the contractor and strict enforcement of specified environmental protection provisions by the construction manager under the direction of the DWS. The construction-related impacts will be temporary, and will be confined to the immediate vicinity of the project site. Drill cuttings and other materials extracted from the drilling of the well will be disposed of in accordance with applicable Federal, State, and County requirements. Water pumped from the well during the well testing will be disposed of in the same manner. There are nearby irrigation ditches which may provide a means of disposal for the well water.

B. Long Term Impacts

Depending upon the results of the exploratory well testing, the DWS may decide to proceed with the development of the well into a municipal water supply source.

1. The Iao Aquifer

The long-term effect of the proposed project on the Iao Aquifer will be determined from the exploratory well test results. Preliminary indications are that the proposed well, if developed, will improve the long-term outlook of the fresh water aquifer. Presently, the aquifer is heavily pumped at concentrated points, which causes the saltwater to "upcone" into the fresh water zone. The proposed new source, once on-line, will allow the pumping of the aquifer to be more evenly distributed.

2. Public Funds, Energy and Construction Materials

The exploratory well project will involve the irretrievable commitment of public funds, electrical energy, and well construction materials.
IV. ALTERNATIVES TO THE PROPOSED PROJECT

A. No Project Alternative

One alternative to the proposed project would be the "no project" option. If this option is used, the resulting outcome could be possible intrusion of salt water into the Iao Aquifer.

B. Alternate Site

As previously mentioned, the Waikapu Tank site was initially selected for the exploratory well project, however, the Department of Water Supply has negotiated an agreement with C. Brewer for the use of the Waikapu Mauka well site. The Waikapu Mauka site is a more desirable site since it is more hydrogeologically suitable and farther south from the Mokuaua Wells than the Waikapu Tank site. The Waikapu Mauka site is also farther away from residential homes, decreasing construction disturbances caused by the well project.

C. Alternate Water Source

One viable alternate source of water is the use of reclaimed water. Reclaimed water systems are being developed by Maui County to irrigate golf courses and landscaping in West and South Maui. Although the development of such systems will decrease potable water use, the decrease is not enough to overcome the increase anticipated for future potable water demand. In addition, development of reclaimed water systems is more costly than development of groundwater sources.

V. AGENCIES AND PERSONS CONSULTED

Table 1 lists the twenty agencies and persons consulted in the review of the Draft Environmental Assessment (DEA). A total of ten agencies provided written comments on the DEA. The written comments and responses are presented in Appendix A.

VI. DETERMINATION

After completing an environmental assessment of the potential environmental impacts of the proposed project, it is believed that an Environmental Impact Statement is not required. Accordingly, this document constitutes a Negative Declaration.
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<thead>
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<th>AGENCY OR ORGANIZATION CONSULTED</th>
<th>DATE</th>
<th>RESPONSE</th>
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<tr>
<td><strong>Federal Government</strong></td>
<td></td>
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<tr>
<td>1. U.S. Army Corps of Engineers, Pacific Division, Honolulu District Engineer</td>
<td>5/30/97</td>
<td>7/2/97</td>
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<td>3. U.S. Department of the Interior, Fish and Wildlife Service</td>
<td>None</td>
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<td><strong>State Government</strong></td>
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<td>5. Department of Agriculture</td>
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<td>6. Department of Business, Economic Development, and Tourism</td>
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<td>8. Department of Hawaiian Home Lands</td>
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<td>9. Department of Land and Natural Resources</td>
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<td>10. Department of Land and Natural Resources, State Historic Preservation Division</td>
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<td>14. University of Hawaii, Water Resources Research Center</td>
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<td>20. C. Brewer Company</td>
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VII. FINDINGS AND REASONS SUPPORTING THE DETERMINATION

Findings and reasons supporting the Negative Declaration determination are as follows, using the criteria, policies, guidelines and provision of Title 11, Chapter 200, Environmental Impact Statement Rules and Chapter 343, HRS. The proposed project will not:

A. Involve an irrevocable commitment to loss or destruction of any natural or cultural resource;

B. Curtail the range of beneficial uses of the environment;

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

D. Substantially affect the economic or social welfare of the community or State;

E. Substantially affect public health;

F. Involve a substantial secondary impact, such as population changes or effects on public facilities;

G. Involve substantial degradation of environmental quality;

H. Cumulatively have considerable effect upon the environment or involve a commitment for larger actions;

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

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

K. Detrimentally affect an environmentally sensitive area, such as a flood plain tsunami zone, erosion-prone area, geologically hazardous land, estuary, fresh water, or coastal water. [Eff. Dec. 06, 1985](Auth: HRS Sec. 343-6)(Imp. HRS Sec. 343, 343-6).
REFERENCES


5. State Land Use District, Island of Maui, Map M-5


APPENDIX A
Comments from and Replies to Agencies and Organizations
Consulted During the Draft Environmental Assessment Process
Planning and Operations Division

Mr. Valerie Suzuki
Fukunaga and Associates
1380 Kapiolani Boulevard, 2nd Floor
Honolulu, Hawaii 96814

Dear Mr. Suzuki:

Thank you for the opportunity to review and comment on the Draft Environmental Assessment (DEA) for the Drilling and Testing of a Well Exploratory Well, Maui (DHK 5-54: 18). The following comments are provided pursuant to U.S. Army Corps of Engineers authorities to disseminate flood hazard information under the Flood Control Act of 1948 and to issue Department of the Army (DA) permits under the Clean Water Act; the Rivers and Harbors Act of 1899; and the Marine Protection, Research and Sanctuaries Act.

a. Based on the information provided, a DA permit will not be required for the project at this time ($700,000). 

b. The flood hazard information provided on page 10 of the DEA is correct.

Sincerely,

Paul Mizue, P.E.
Acting Chief, Planning and Operations Division

July 2, 1997

Mr. Paul Mizue, P.E.
Acting Chief, Planning and Operations Division
Department of the Army
Pacific Ocean Division, Corps of Engineers
Fort Shafter, Hawaii 96855-5440

Re: DRAFTEING AND TESTING OF THE KAIKUWAI EXPLORATORY WELL DRAFT ENVIRONMENTAL ASSESSMENT (DEA)

We are in receipt of your agency's comments dated May 26, 1997 on the DEA. We appreciate the information provided by your agency that a Department of the Army (DA) Permit will not be required for the project and that the flood hazard information provided by the DEA is correct.

Thank you for taking the time to review the environmental documents.

Sincerely,

David R. Craddick
Director
EK:as

*By Water All Things Find Life*
Dear Ms. Suzuki:

Subject: Draft Environmental Assessment (DEA) - Drilling and Testing Waikapa Mauka
Exploratory Well, Waikapa, Maui, Hawaii

We have reviewed the above document and have no comments to offer at this time.

Thank you for the opportunity to review this document.

Sincerely,

KENNETH M. KANESHIRO
State Conservationist

July 2, 1997

Mr. Kenneth M. Kaneshiro, State Conservationist
U.S. DEPARTMENT OF AGRICULTURAL
Natural Resources Conservation Service
P.O. Box 59204
Honolulu, Hawaii 96850-0001

Re: DRILLING AND TESTING OF THE WAIKAPA MAUKA EXPLORATORY WELL
DRAFT ENVIRONMENTAL ASSESSMENT (DEA)

We are in receipt of your department’s comments dated May 23, 1997 on the DEA offering no comments.

Thank you for taking the time to review the environmental documents.

Sincerely,

David R. Craddock
Director
EK:as
May 19, 1997

Ms. Valerie Suzuki
Puhana & Associates, Inc.
1338 Kapiolani Boulevard, 2nd Floor
Honolulu, Hawaii 96814

Dear Ms. Suzuki:

Subject: Draft Environmental Assessment for the Drilling and Testing of the Maui Exploratory Well

We have reviewed the subject draft environmental assessment as transmitted with your letter dated May 12, 1997, and have the following comments to offer:

1) We confirm that the proposed well site, identified as TTH-3-5-04; por. 10, is within the State Land Use Agricultural District.

2) On page 3, section C, we suggest that the paragraph read as follows:

"The parcel is within the Agricultural District as designated by the State Land Use Commission, and is located in an area designated as agriculture lands by the County of Maui Land Use and Code Administration (see Figure 6)."

We have no further comments to offer at this time.

Thank you for the opportunity to provide comments on the draft environmental assessment.

If you have any questions in regards to this matter, please feel free to contact me at 580-2832.

Sincerely,

ESTHER UDA
Executive Officer

July 2, 1997

Ms. Esther Ueda, Executive Officer
Department of Business, Economic Development and Tourism
Land Use Commission
P. O. Box 2359
Honolulu, Hawaii 96804-2359

Dear Ms. Ueda:

Re: DRILLING AND TESTING OF THE WAIKAFU MAUHA EXPLORATORY WELL

DRAFT ENVIRONMENTAL ASSESSMENT (DEA)

We are in receipt of your agency's comments dated May 12, 1997 on the DEA confirming that the site is located within the State Land Use Agricultural District. Also, as recommended in item 2 of your letter, we will revise Section C on page 8 of the DEA.

Thank you for taking the time to review the environmental documents.

Sincerely,

David R. Craddick
Director

"By Water All Things Find Life"
June 25, 1997

Ms. Valerie Suzuki
Fukunaga & Associates, Inc.
1388 Kapipipiu Boulevard, 5th Floor
Honolulu, Hawaii 96814

Dear Ms. Suzuki:

Subject: Drilling and Testing Waikapu Neuka Exploratory WELL DRAFT ENVIRONMENTAL ASSESSMENT

The Department of Hawaiian Home Lands (DHHL) supports the goal of protecting and stabilizing the Iao Basin Aquifer, the primary source of municipal water on Maui, which is used near is sustainable yield of 30 million gallons per day (MGD).

DHHL homestead areas at Paukukalani (143 residences) and at Wailea-Ku (49 residences) rely on this aquifer and the Central Maui Water System for its domestic water. Further, DHHL is planning for 250 more houses in the Wailea/Kaheia area.

The current proposal is to drill and test an exploratory well on lands owned by Waluku Agribusiness Co., Inc., at the edge of a pineapple field at Waikapu, Maui (YMK 2-6:04:18). This proposed well site is less than three miles south of the Makakahi Wells where salinity has increased (Page 10) and the Maui Reynolds Well Fi (5266-06) where DRCB was detected in 1993. Samples of the water from the two nearby state observation wells (Waikapu Well No. 1 and No. 2) should be evaluated to determine the potential for obtaining good quality water from the proposed new well.

Thank you for the opportunity to review the draft. If you have any questions regarding our comments, please call Joe Chu of our Planning Office at 586-3836.

Aloha,

Kali Watson, Chairman
Hawaiian Home Lands Commission

July 2, 1997

Mr. Kali Watson, Chairman
Hawaiian Home Lands Commission
DEPARTMENT OF HAWAIIAN HOME LANDS
STATE OF HAWAII
P.O. Box 1978
Honolulu, Hawaii 96805

Dear Mr. Watson:

Re: DRILLING AND TESTING OF THE WAIKAPU NEUKA EXPLORATORY WELL DRAFT ENVIRONMENTAL ASSESSMENT (DEA)

We are in receipt of your department’s comments dated June 25, 1997 on the DEA. We note that your department supports the subject project’s goal of protecting and stabilizing the Iao Basin Aquifer and that several of your department’s homesteads rely on the Iao Basin Aquifer for its domestic use.

Thank you for the time to review the environmental documents.

Sincerely,

David B. Graddick
Director

"By Water All Things Find Life"
Ms. Valerie Suzuki
Page 2

We recommend the applicant take mitigative measures to prevent contamination such as drill cuttings, cutting extraction media, sediments, pollutants, petroleum products, and debris from possibly entering the aquatic environment. We also suggest that site work be scheduled for periods of minimal rainfall and that disturbed vegetation be replanted or covered as quickly as possible to control erosion.

Thank you for the opportunity to review and provide comments on the subject Draft Environmental Assessment. Should you have any questions, please contact Paul Miyashiro of our Honolulu Land Division Office at (808) 587-0630.

HAWAII/Earth's best!

Aloha,

[Signature]

Michael D. Wilson

C: Maui Land Board Member
Maui District Land Office

Ref. L-97-012
File No. P-85-97-016

Ms. Valerie Suzuki

Fukuhara & Associates, Inc.
1388 Kapalama Boulevard, 3rd Floor
Honolulu, Hawaii 96814

Dear Ms. Suzuki:

SUBJECT: Request for Comments - Draft Environmental Assessment for the Drilling and Testing of Wahkeana Mauka Exploratory Well, Wailuku, Maui, Tax Map No. H-1-6-4-001-000, Rev. 0, Page 18.

We have reviewed the Draft Environmental Assessment for the subject project, and would like to offer the following comments:

Land Division - Engineering Branch

We confirm that the proposed project site is located in Zone C (mineralized). This is an area of mineral bearing.

Division of Aquatic Resources

There is concern about the drilling of any additional wells within the Iao Aquifer system. The Iao Aquifer is currently pulling over the established maximum sustainable yield of 20 million gallons per day. Our understanding is that no more than 50% of the maximum sustainable yield would be withdrawn. Since the current yield is already over 100%, we are wondering why the applicant is continuing to stress the Aquifer system when there appears to be an immediate need to explore other alternative water sources.

Since all drilling and construction activities will occur about 1,000 feet away from Wailuku Stream, this project is not expected to have significant adverse impact on aquatic resource values in this area. However, the Division is concerned because Wahkeana Stream is located near the project site and is known to harbor a number of native freshwater fauna, specifically those that are of moderate to high significant biological value. Construction activities could have short-term impacts on aquatic resources such as temporary turbidity, benthic displacement and disturbance.
July 2, 1997

Mr. Michael D. Wilson, Director
State Department of Land & Natural Resources
P. O. Box 621
Honolulu, Hawaii 96809

Dear Mr. Wilson:

Re: DRILLING AND TESTING OF THE WAIKAPU MAUNA EXPLORATORY WELL
DRAFT ENVIRONMENTAL ASSESSMENT (DEA)

We are in receipt of your agency's comments dated June 12, 1997 on the DEA. We note that the Land Division - Engineering Branch confirmed that the proposed project is located in Zone C, an area of minimal flooding. In regard to the comments made by the Division of Aquatic Resources, we would like to offer the following responses:

1. Impacts of Drilling Additional Wells in the Iao Aquifer

The purpose of the subject project is to spread out the pumping of the Iao aquifer to improve the long-term outlook of the aquifer and to improve the quality of water (lower salinity) being pumped from the aquifer. New wells are being developed within the Waiehu Aquifer.

2. Construction Activities Possibly Impacting Aquatic Resources in Waikapu Stream

The DEA will be revised to include that all drill cuttings, cutting extraction medium, sediment, pollutants, petroleum products, and debris resulting from the drilling of the well be disposed of offsite in accordance with applicable Federal, State, and County requirements.

Thank you for taking the time to review the environmental documents.

Sincerely,

David R. Croddick
Director

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"By Water All Things Find Life"
Ms. Valerie Suzuki  
June 5, 1997

Ms. Valerie Suzuki  
Fukunaga & Associates, Inc.  
1388 Kapiolani Boulevard, 2nd Floor  
Honolulu, Hawaii 96814

Dear Ms. Suzuki:

Subject: DRAFT ENVIRONMENTAL ASSESSMENT (DEA)
Project: Drilling and Testing Waiakapu Mauka
Exploratory Well
Location: Waiakapu, Maui, Hawaii
TMDL (1-3-94): 36

Thank you for allowing us to review and comment on the subject project. We have the following comments to offer:

Safe Drinking Water Branch

1. Federal and state regulations define a public water system as a system which serves 25 or more individuals at least 60 days per year which has at least 15 service connections. All public water system owners and operators are required to comply with Hawaii Administrative Rules (HAR), Title 11, Chapter 12, “Rules Relating to Public Water Systems.”

2. HAR, Section 11-20-30 requires that new or substantially modified distribution systems for public water systems be approved by the Director of Health. However, if the water system is under the jurisdiction of the County of Maui, the Maui County Department of Water Supply will be responsible for the review and approval of the plans.

3. The DEA indicates that the Waiakapu Mauka exploratory well may be developed for potable use. HAR, Chapter 12, Section 11-20-29 requires that all new sources of potable water serving a public water system be approved by the Director of Health prior to its use. Such approval is based primarily upon the submission of a satisfactory engineering report which addresses the requirements set in Section 11-20-29.

Sincerely,

BRUCE S. ANDERSON, Ph.D.  
Deputy Director for Environmental Health

c: SDWS
July 2, 1997

Mr. Bruce Anderson, Ph.D.
Deputy Director for Environmental Health
DEPARTMENT OF HEALTH
STATE OF HAWAII
P. O. Box 3378
Honolulu, Hawaii 96801

Dear Mr. Anderson:

Re: DRILLING AND TESTING OF THE WAIKAPU MAUKA EXPLORATORY WELL
DRAFT ENVIRONMENTAL ASSESSMENT (DEA)

We are in receipt of your agency's comments dated June 5, 1997 on
the DEA. It is our intention to comply with the Hawaii
Administrative Rules, Title 11, Chapter 20, Rules Relating to
Potable Water Systems. As stated in your letter, we will submit an
engineering report satisfying all the requirements of Section 11-20-29
for approval prior to use of the well.

Thank you for taking the time to review our environmental
documents.

Sincerely,

David R. Craddick
Director

"By Water All Things Find Life"
Mr. Craddock, Director
Department of Water Supply
County of Maui
200 South High Street
Wailuku, Hawaii 96793

Dear Mr. Craddock:

Subject: Draft Environmental Assessment for the Wai'apu Mauka Exploratory Well, Maui

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

1. Please include diagrams that show prevailing groundwater flow paths, any points or regions of known contamination, and contours of water levels and chloride concentrations.

2. Please include a description of the aquifer's status including the following:
   - Current water use totals for all users
   - Current installed capacity for all pumps
   - Pending installed capacity and future water use totals

3. The primary cultivated vegetation in the vicinity of the project is pineapple. Please provide a record of contamination problems in the aquifer due to pesticide use. If contamination exists, the sources and duration of the contamination should be listed. Water quality data from nearby wells should be presented as well as any anticipated need for treatment or filtering systems.

4. Wai'apu Stream is located approximately 1000 feet south of the site. Please provide a discussion of the potential effects the well development may have on Wai'apu Stream. If potential impacts exist, a monitoring program for the surface waters should be included.

5. The EA should include pump test data on water level, extraction rates, and water quality parameters. Similar data from nearby wells should also be included. The precise criteria used to determine if the well should be converted to production should be described.

6. Please include a description of impacts associated with the well's permanent production facilities including pumps, distribution pipelines, control devices, storage facilities, access roads and accessory structures.

7. Please provide a list of alternatives to new groundwater development and discussion of their related costs and benefits. The list should include but not be limited to wastewater reuse, rainfall catchment, conservation, and nonpotable water supplies.

If you have any questions please call Jovan Thirumurugan at 808-435-6969.

Sincerely,

[Signature]

Gail Dell
Director

Cc: Fukunaga and Associates, Inc.
Mr. Gary Gill, Director
DEQ - STATE OF HAWAII
July 2, 1997

Page 2

4. Makapu Stream

The withdrawal of groundwater from the well should have no effect on Makapu Stream because Makapu Stream channel lies at an elevation of approximately 700 feet in the vicinity of the well; whereas, the well will encounter and develop basal groundwater at an elevation of approximately 15 feet. Makapu Stream is separated from the underlying basal aquifer by impermeable consolidated alluvium estimated to be several hundred feet or more in thickness.

No impacts to the stream from construction activities are anticipated since all drill cuttings, cutting extraction medium, sediment, pollutants, petroleum products, and debris resulting from the drilling of the well will be disposed of offsite in accordance with applicable Federal, State, and County requirements.

5. Pump Test Data

The exploratory drilling and testing proposed for this project will provide information on the hydrogeologic characteristics of the well and determine the feasibility of developing the well into a new potable water source. A well drilled at the proposed site is expected to penetrate the permeable unweathered basalts and have a higher yield than the Makapu Well No. 1 and Wai'alehu Well No. 2 observation wells. Test results from Makapu Well No. 1 showed a yield of 100 gpm with a drawdown of 40 feet, or a specific capacity of 2.5 gpm per foot of drawdown. Similarly, the Makapu Well No. 2 showed a specific well capacity of 2.0 gpm per foot of drawdown. Because both wells penetrate through the less permeable weathered basalt, their yields are low.

6. Impacts Associated with the Well Permanent Production Facilities

Should the exploratory well be developed into a production well, impacts associated with that development will be discussed in a future environmental assessment.

7. Alternative to Groundwater Development

a. Reclaimed Water. The County of Maui has an ongoing program to develop reclaimed water systems to serve West and South Maui. The advantage of using treated effluent for irrigation is that it would provide an alternative method for sewage disposal while increasing the use of Maui's limited potable water supply. The disadvantage is that the cost of constructing the system is more than the cost of developing new potable water sources.

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b. Conservation. Maui County amended the Uniform Plumbing Code to require that only low-flow water fixtures and devices meet the performance requirements established by the American National Standards Institute. The Department of Water Supply anticipates that installation of low-flow water devices will conserve water.

The above information will be incorporated in the Final EA. Thank you for taking the time to review the environmental documents.

Sincerely,

DEPARTMENT OF WATER SUPPLY  
COUNTY OF MAUI

[Signature]

David R. Craddick  
Director

ER:ae
Letter to Ms. Suzuki
Page two

Please contact Lynn Lee, Acting Officer of the Land and
Natural Resources Division, or Luis A. Manrique, should you
have any questions on this matter.

Sincerely yours,

Martha Rose
Deputy Administrator, Programs

Subject: Draft Environmental Assessment (DEA) for the
Drilling and Testing of Makapu'u Mauna Exploratory
Well, Island of Maui.

Dear Ms. Suzuki:

Thank you for the opportunity to review the Draft
Environmental Assessment (DEA) for the Drilling and Testing
of Makapu'u Mauna Exploratory Well, Island of Maui. The
County of Maui proposes to drill an exploratory well to
determine the feasibility of developing a new ground water
source within the Iao aquifer.

The Office of Hawaiian Affairs (OHA) has no objections
at this time to the proposed well project. Because of its
distant location, the well apparently bears no adverse
impacts on nearby existing wells nor upon the Iao aquifer
System. But OHA is concerned that due to high well density
and withdrawal rates, pumping, regardless of the location
within the Iao aquifer, will eventually lead to either a
loss in water quality or a decline in the volume rate of
pumping.

June 09, 1997

Ms. Valerie Suzuki
Fukunaga & Associates, Inc.
1188 Kapiolani Blvd., 2nd Floor
Honolulu, HI 96814

cc Trustee Clayton Lee, Board Chair
Trustee Abraham Aliana, Board Vice-Chair
Trustee Rowena Akana, Land & Sovereignty Chair
Trustee Hauoli Aipolana
Trustee Willie Bessek
Trustee Frenchy Devoto
Trustee Moses Kalea
Trustee Colette Machado
Trustee Hannah Springer
Secretary Higashino, Acting Administrator
CHC, Island of Maui
July 2, 1997

Mr. Martha Ross, Deputy Administrator
Office of Hawaiian Affairs
711 Kapili Place, Suite 500
Honolulu, Hawaii 96813-3249

Dear Mr. Ross:

Re: DRILLING AND TESTING OF THE WAIKAPU MAUKA EXPLORATORY WELL
DRAFT ENVIRONMENTAL ASSESSMENT (DEA)

We are in receipt of your department’s comments dated June 9, 1997
on the DEA. We note that you have no objections to the proposed
project. In regards to your concern over the eventual loss in
water quality of the Iao Aquifer due to the aquifer’s high
withdrawal rates, we are currently developing new sources of
potable water in the Waimea Aquifer.

The purpose of this project is to spread out the pumping of the Iao
Aquifer to improve the long term outlook of the aquifer and to
improve the quality of water.

Thank you for taking the time to review our environmental
documents.

Sincerely,

David R. Craddick
Director

“By Water All Things Find Life”
Ms. Valerie Suzuki  
June 16, 1997  
Page 2

4. Page 13, Impacts, Iao Aquifer. Again, the document just mentions in passing that the well will be tested. There is no description of the tests to be run, its duration, the range of possible results, the desired results, effects on other wells, what would constitute a significant impact, etc. Since this project is to mitigate some of the impacts of over-pumping the Mokuaua Wells, it seems important to provide considerably more analysis than what is provided here regarding the impacts on the Iao Aquifer.

5. Page 13, Alternatives. The No Project Alternative assumes that pumping could remain at its current level - a situation that the state finds unacceptable. For this reason, other alternatives that meet the project goals should be explored.

Again, thank you for the opportunity to comment. If you have any questions, please contact William Spence, Staff Planner, at 243-7735.

Very truly yours,

[Signature]

DAVID W. BLANE  
Director of Planning

DWB/wrs  
c/o: Clayton Yoshida, AICP, Planning Program Administrator  
David Caddick, Director, Department of Water Supply  
General File  
P: CORESPON/WAI WELL.WPD
July 2, 1997

Mr. David Blake, Director
Planning Department
County of Maui
250 S. High Street
Wailuku, Hawaii 96793

Dear Mr. Blake:

Re: DRILLING AND TESTING OF THE WAIKAPU NUIA EXPLORATORY WELL
DRAFT ENVIRONMENTAL ASSESSMENT (DEA)

We are in receipt of your department's comments dated June 16, 1997 on the DEA. We have reviewed the comments and would like to offer the following responses:

1. Page 1. Project Description, Last Paragraph
   The Project Description portion of the DEA will be revised to include the statement "During the summer months the demand has exceeded 20 million gallons per day".

2. Page 4. Proposed Project
   The tests proposed for the exploratory well will follow the guidelines specified in the Hawaii Well Construction and Pump Installation Standards prepared by the State Department of Land and Natural Resources, Commission on Water Resources Management (January 1997). The standards require that when a new well is drilled, a short step-drawdown test and a long-term constant-rate test be conducted to obtain hydrologic information needed to determine the well's performance and with regard to drawdown, recovery, and salinity; and the rate the well will be tested at and the duration of the test will be determined in the field.

"By Water All Things Flow Life"

Mr. David Blake, Director of Planning
July 2, 1997
Page 2

   The DEA lists the different types of mammals that can be found on Maui and one of them, according to the Atlas of Hawaii, Second Edition, dated 1983, is the bat.

   The DEA will be revised to include the information provided in item 2.

5. Page 13. Alternatives
   We agree that the 'no project' option is an unacceptable alternative since the current situation would lead to intrusion of salt water into the Iao Aquifer, which is the main source of potable water to the Central Maui Water System.

Thank you for taking the time to review the environmental documents.

Sincerely,

DEPARTMENT OF WATER SUPPLY
COUNTY OF MAUI

[Signature]
David R. Craddock
Director

[Handwritten note: ER:as]
May 23, 1997

Ms. Valerie Suzuki
Fukunaga & Associates, Inc.
1388 Kapiolani Boulevard, 2nd Floor
Honolulu, HI 96814

Subject: Drilling and Testing Waiaku Mauka Exploratory Well
Draft Environmental Assessment

Dear Ms. Suzuki:

We have reviewed the Draft Environmental Assessment for the Waiaku Mauka Exploratory Well and find that we have no comments.

Should you have any questions, please feel free to contact Patrick Matsui, Chief of Planning and Development, at extension 7387.

Sincerely,

HENRY OLIVA
Director

July 2, 1997

Mr. Henry Oliva, Director
DEPARTMENT OF PARKS AND RECREATION
COUNTY OF MAUI
1580 C Kaahumanu Avenue
Wailuku, Hawaii 96793

Dear Mr. Oliva:

Re: DRILLING AND TESTING OF THE WAIKU MAUKA EXPLORATORY WELL DRAFT ENVIRONMENTAL ASSESSMENT (DEA)

We are in receipt of your department’s comments dated May 23, 1997 on the DEA. We note that you have no comments on the proposed project.

Thank you for taking the time to review the environmental documents.

Sincerely,

David R. Craddock
Director

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