PART I: USE OF WATER

The frequency and duration of irrigation depends on rainfall. The sugar cane is irrigated and fertilized by drip irrigation. The pumps operate more or less 24 hours/day for 21, 22 months of the sugar cane's life cycle. In the last month, water is withheld so that the sugar cane will dry out, so that the field can be burnt. After harvesting the scorched sugar cane, within two weeks, the keiki sugar cane is planted, and the cycle starts again.

GWMZ Applicant: Oahu Sugar Co. Ltd.

Water Use Decl. File Ref.: Oahu Sugar Co. Ltd.

State Well # 1900-13 Name: Caprock Wells, Ewa Plantation Pump # 30

1. Tax Map Key where the water is used: TMK: 9-1-10:11
   Does the applicant own this land? NO.

2. What is the water used for? Irrigation of 131.73 acres of sugar cane.

3. Is the quantity of water use being measured? NO, but there is a water specialties meter installed that is not functioning. The meter was frozen on the reading: 42655100.

4. If this person takes from a multi-user pipe or ditch system? NO

PART II: WATER SOURCE

1. Where does the water come from/what kind of source is this? Excavated well in bottom of borrow pit.

2. Show the source location on maps, determine latitude and longitude, and document the nature of source development by measurements, sketches, and photographs.
   How is the water taken? manually controlled, electric vertical shaft 40 hp Worthington pump, serial # EAJ519495.
   What is the capacity for taking (gpm)? 1110 gpm
   How often is it taken (used)? almost continuously.

3. Tax Map Key at the source: TMK: 9-1-10:13
   Determine applicant's relation to source. Does the applicant:
   1) Operate and maintain the source? YES
   2) Own the land at the source? NO
   3) Use the water from this source? YES
   4) Own the land where the water is being used? NO, the Federal Government owns the land.

4. Does any one else also use water from this source? NO

REMARKS: In December, 1992, The Commission on Water Resource Management approved Oahu Sugar Co.'s water use permit to withdraw an average annual gallons/day of 1,320,000.

Verified By: Susan Swanson Date of Inspection: 11/20/92
Stephen A. Jones, Esq.
Ning, Lilly & Jones
707 Richards Street, Suite 700
Honolulu, Hawaii 96813

Dear Steve:

Re: State of Hawaii/Hawaii Meat Settlement

Thank you for the September 19, 1996 draft of the lease. I have reviewed the lease and find that it comports with our agreed changes. This is also to confirm that the term "packing facilities" as contained in the definition of "rendering plant and associated purposes" was not intended to refer to Hawaii Meat engaging as an independent meat processing plant or packing facilities operator. Rather, reference to "packing facilities," if endeavored, would only occur as part of a joint venture with another independent slaughterhouse/meat processing plant operator.

With respect to Hawaii Meat’s continued use of 5,200,000 gallons per month as noted on paragraph 1, page 2, Rae Loui, Deputy Director with the Commission on Water Resource Management ("Water Commission"), has confirmed that the water "source" of Well No. 1900-13 is located on Navy property. On June 5, 1996, the Navy’s water use permit for Well No. 1900-13 was revoked with concurrence by Oahu Sugar Company. Thus, based on the Water Commission’s investigation, Hawaii Meat does not have an interest in Well No. 1900-13. According to the Water Commission, for the well to be used, a new water use permit must first be obtained from the Water Commission. Therefore, reference to Hawaii Meat’s continued use of this source of water should be deleted.
Finally, the subdivision application was signed by Campbell Estate and filed on September 24 or 25, 1996. The Department will be tracking the subdivision process. We will inform you when we receive final subdivision approval.

Should you have any questions, do not hesitate to call me.

Very truly yours,

Dawn N. S. Chang
Deputy Attorney General

dnc: kk
c: Jack Rosenzweig
   Dean Uchida
   Rae Loui
1650.16
TO:  Dawn N.S. Chang, Deputy Attorney General  
FROM:  Rae M. Loui, Deputy Director  
RE:  State Lease with Hawaii Meat Company, Ltd.

The water source referred to in the lease is Well No. 1900-13. This is an unusual situation in that the "source" is actually an elongated pit that is on both the Navy's and Hawaii Meat Company's properties (straddles the property boundary). However, the pump is on Navy property. The water use permit was for the Navy for agricultural use. With OSCo's concurrence, this permit was revoked on June 5, 1996.

Therefore, Hawaii Meat Company, Ltd. does not have an interest in Well No. 1900-13. Further, for the well to be used, a water use permit must be first obtained from the Commission on Water Resource Management.
MEMORANDUM

TO: Rae Loui, Deputy Director
FROM: Dawn N.S. Chang, Deputy Attorney General
RE: State Lease with Hawaii Meat Company, Ltd.

This is to request your assistance in reviewing the proposed lease with Hawaii Meat as it specifically relates to Hawaii Meats provision related to "continued use (for rendering plant and associated purposes) of its existing water well located on the premises and waters drawn thereby at the level of 5,200,000 gallons per month." (See page 2 of the draft lease.)

On December 9, 1991, the State filed a condemnation action against Campbell Estate to acquire approximately 124 acres of land situated at Honouliuli, Ewa, Honolulu, Hawaii. At that time Hawaii Meat was leasing 124 acres from Campbell Estate for a slaughterhouse, feedlot, and rendering plant activities. In settlement of the condemnation action, the State agreed to issue a new lease to Hawaii Meat for approximately 3 acres (of the original 124 acres) for rendering plant purposes only. We are in the process of finalizing the lease between the State and Hawaii Meat.

Therefore, we would request your assistance in reviewing the lease provision only as it relates to the water use provision in order to determine whether the State can agree in the lease to their provision. I have also enclosed a letter from Mr. Gordon Lum, Plant Manager of Hawaii Meat, outlining the average water use between 1979 through 1989.

Your attention to the above is greatly appreciated. Should you have any questions, or need additional information please do not hesitate to call me as we are trying to finalize this lease within the next month.

dnc
Encl.
1650.13(20)
LAND COURT SYSTEM

REGULAR SYSTEM

Return by Mail ( ) Pickup ( ) To:

______________________________

Tax Map Key No.

STATE OF HAWAII

DEPARTMENT OF LAND AND NATURAL RESOURCES

GENERAL LEASE NO. _________

between

STATE OF HAWAII

and

HAWAII MEAT COMPANY, LIMITED, a Hawaii corporation

covering

LOT _____
situate at

Honouliuli, Ewa, Honolulu, Hawaii
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STATE OF HAWAII
DEPARTMENT OF LAND AND NATURAL RESOURCES

GENERAL LEASE NO. S-____

THIS LEASE, made this _____ day of ____________, 19____, by and between the STATE OF HAWAII, hereinafter referred to as the "Lessor," by its Board of Land and Natural Resources, called the "Board," and HAWAII MEAT COMPANY, LIMITED, a Hawaii corporation, whose address is ____________________________, hereinafter referred to as the "Lessee";

WITNESSETH:

The Lessor for and in consideration of the rent to be paid and of the terms, covenants and conditions herein contained, all on the part of the Lessee to be kept, observed and performed, does lease unto the Lessee, and the Lessee does lease from the Lessor the premises identified as ____________________________, more particularly described in Exhibit "A" and as shown on the map marked Exhibit "B," attached hereto and made parts hereof.

TO HAVE AND TO HOLD the leased premises unto the Lessee for the term of _____ (__) years, commencing on the ____ day of ____________, 1996, up to and including the 30th day of September,2015 2013, unless sooner terminated as hereinafter provided, the Lessor reserving and the Lessee yielding and paying to the Lessor at the Office of the Department of Land and Natural Resources, Honolulu, Oahu, State of Hawaii, an annual rental as provided hereinbelow, payable in advance, without notice or demand, in semi-annual instalments on July 1st and January 1st of each and every year during the term as follows:

A. For the first three (3) months, rent is waived. For the first five (5) years, the sum of ____________________________ DOLLARS ($______________) per annum.
B. For the sixth (6th) year to tenth (10th) year, the sum of DOLLARS ($___________) per annum. Said rent shall be an amount equal to 110% of the annual rent during the first five-year period.

C. For the eleventh (11th) year to the end of said term, the sum of DOLLARS ($___________) per annum. Said rent shall be an amount equal to 110% of the annual rent during the preceding five-year period.

D. The interest rate on any and all unpaid or delinquent rentals shall be at one percent (1%) per month, plus a service charge of FIFTY AND NO/100 DOLLARS ($50.00) per month for each month of delinquency.

RESERVING UNTO THE LESSOR THE FOLLOWING:

1. Minerals and waters. (a) All minerals as hereinafter defined, in, on or under the premises and the right, on its own behalf or through persons authorized by it, to prospect for, mine and remove the minerals and to occupy and use so much of the surface of the ground as may be required for all purposes reasonably extending to the mining and removal of the minerals by any means whatsoever, including strip mining. "Minerals," as used herein, shall mean any or all oil, gas, coal, phosphate, sodium, sulphur, iron, titanium, gold, silver, bauxite, bauxitic clay, diaspore, boehmite, laterite, gibbsite, alumina, all ores of aluminum and, without limitation thereon, all other mineral substances and ore deposits, whether solid, gaseous or liquid, including all geothermal resources, in, on, or under the land, fast or submerged; provided, that "minerals" shall not include sand, gravel, rock or other material suitable for use and used in general construction in furtherance of the Lessee's permitted activities on the premises and not for sale to others. (b) All surface and ground waters appurtenant to the premises and the right on its own behalf or through persons authorized by it, to capture, divert or impound the same and to occupy and use so much of the premises required in the exercise of this right reserved; provided, however, that as a condition precedent to the exercise by the Lessor of the rights reserved in this paragraph, just compensation shall be paid to the Lessee for any of Lessee's improvements taken; AND PROVIDED FURTHER, that Lessee shall, at no cost beyond the rental herein provided, be entitled to the continued use (for rendering plant and associated purposes) of its existing water well located on the premises and waters drawn thereby at the level of 5,200,00 gallons per month.
on an annual basis usage established on an annual-average basis during the period from 1979 through 1989.

2. Prehistoric and historic remains. All prehistoric and historic remains found on the premises.

3. Ownership of improvements. Lessee shall own the improvements on the premises during the term of this lease, and thereafter such improvements shall at Lessor's option (i) belong to Lessor, or (ii) be removed by Lessee as set forth more fully below. Lessee shall own all equipment, machinery, apparatus, trade fixtures and the like and may remove such equipment, machinery, apparatus, trade fixtures and the like at the end of the lease.

THE LESSEE COVENANTS AND AGREES WITH THE LESSOR AS FOLLOWS:

1. Payment of rent. The Lessee shall pay the rent to the Lessor at the times, in the manner and form provided in this lease and at the place specified above, or at any other place the Lessor may from time to time designate, in legal tender of the United States of America.

2. Taxes, assessments, etc. The Lessee shall pay or cause to be paid, when due, the amount of all taxes, rates and assessments of every description as to which the premises or any part, or any improvements, or the Lessor or Lessee, are now or may be assessed or become liable by authority of law during the term of this lease; provided, however, that with respect to any assessment made under any betterment or improvement law which may be payable in installments, Lessee shall be required to pay only those installments, together with interest, which becomes due and payable during the term.

3. Utility services. The Lessee shall pay when due all charges, duties and rates of every description, including water, sewer, gas, refuse collection or any other charges, as to which the premises or any part, or any improvements, or the Lessor or Lessee may become liable for during the term, whether assessed to or payable by the Lessor or Lessee.

4. Covenant against discrimination. The use and enjoyment of the premises shall not be in support of any policy which discriminates against anyone based upon race, creed, sex, color, national origin, religion, marital status, familial status, ancestry, physical handicap, disability, age or HIV (human immunodeficiency virus) infection.
Mr. Bert Hatton  
Oahu Sugar Co., Ltd.  
700 Bishop St., 21st Floor  
Honolulu, HI 96813

Dear Mr. Hatton:

Notice of Action  
Revocation of Water Use Permits  
Ewa Caprock Groundwater Management Area, Oahu

This letter serves as your official notice of the action by the Commission on Water Resource Management (Commission) on June 5, 1996 to revoke the following water use permits per your letter, dated April 19, 1996, agreeing to the permit revocations:

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<td>187</td>
<td>1901-01</td>
<td>1.194 mgd</td>
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If you have any questions, please contact Lenore Nakama at 587-0218.

Sincerely,

[Signature]

RAE M. LOUI  
Deputy Director

LN:ss
Oahu Sugar Company, Ltd.
VOLUNTARY REVOCATION OF PERMITTED WATER USE
EP 20 (Well No. 1900-01) for 1.550 mgd, TMK 9-1-10:6
EP 24 (Well No. 1901-01) for 1.194 mgd, TMK 9-1-10:6
EP 30 (Well No. 1900-13) for 1.320 mgd, TMK 9-1-10:11
Ewa Caprock Ground Water Management Area, Oahu

BACKGROUND:

On December 16, 1992, the Commission on Water Resource Management (Commission) approved the issuance of water use permits to Oahu Sugar Company, Ltd. (OSCo) for the captioned wells and water quantities.

In a letter dated March 28, 1996 (Exhibit 1), the Commission staff informed OSCo that the permits would be submitted to the Commission with a recommendation for revocation because the Commission was not notified of the transfer within ninety (90) days, pursuant to § 174C-59 HRS. Additionally, OSCo has not reported water use for EP 20 and 30 since October 1994; pumpage at EP 24 reportedly ceased in November 1993. Field investigations by the staff has confirmed that the wells are currently unused.

In a letter dated April 19, 1996 (Exhibit 2), OSCo responded that "...the simplest course to take at this time is for OSCo to voluntarily relinquish the permits for the above-mentioned wells."

This submittal fulfills the hearing requirement in section 13-171-24, Hawaii Administrative Rules, for revocation of water use permits.
RECOMMENDATION:

Staff recommends that the Commission:

1. Revoke the water use permits for Well No. 1900-01 (WUP No. 185), Well No. 1901-01 (WUP No. 187) and Well No. 1900-13 (WUP No. 186).

2. Require the owner(s) or former operator(s) of Well No. 1900-01, Well No. 1901-01, and Well No. 1900-13 to properly secure the wells, in accordance with the requirements of Chapter 13-168, Water Use, Wells, and Stream Diversion Works, Hawaii Administrative Rules, to prevent contamination of the ground water aquifer.

Respectfully submitted,

[Signature]

RAE M. LOUI
Deputy Director

Exhibit(s) 1 (CWRM letter to OSCo)
2 (Letter from Amfac)

APPROVED FOR SUBMITTAL:

[Signature]

MICHAEL D. WILSON, Chairperson
Mr. Bert Hatton
Oahu Sugar Co., Ltd.
700 Bishop St., 21st Floor
Honolulu, HI 96813

Dear Mr. Hatton:

Our records show that applications for water use permits for EP 20 (Well No. 1900-01), EP 24 (Well No. 1901-01), and EP 30 (1900-13) were approved by the Commission on Water Resource Management on December 16, 1992 for Oahu Sugar Co., Ltd. (OSCo) agricultural uses.

No request to transfer these water use permits has been made, although we understand the leases to OSCo expired in 1994 and the permits should have been transferred at that time. HRS 174C-59 states:

"A permit may be transferred, in whole or in part, from the permittee to another, if:
(1) The conditions of use of the permit, including, but not limited to, place, quantity, and purpose of the use, remain the same; and
(2) The commission is informed of the transfer within ninety days.
Failure to inform the department of the transfer invalidates the transfer and constitutes a ground for revocation of the permit...."

Because we were not notified of the transfer within ninety days, we will recommend that the Commission revoke these permits. We will send you a copy of the agenda and the staff submittal at least six (6) days prior to the Commission meeting.

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

Sincerely,

RAE M. LOUI
Deputy Director

EXHIBIT 1
April 19, 1996

Ms. Rae Loui
Commission on Water Resource Management
Kalanikou Building
1151 Punchbowl Street - Room 227
Honolulu, HI 96813

RE: Water Use Permits: EP 20 (1900 - 01)
EP 24 (1900 - 01)
EP 30 (1900 - 13)

Dear Ms. Loui:

This is in response to your letter of March 28, 1996 regarding permits on the above-mentioned caprock wells. We have some concerns about your application of HRS 174C-59 in automatically revoking the permits upon change in real property interests. However, OSCo does not have needs for these water allocations currently or in the foreseeable future. Additionally, we have discussed these caprock wells with the Hawaii Prince and the U.S. Navy and have clarified that they are not seeking transfers of the permits from OSCo. I understand you received correspondence from these organizations in this regard.

Given the above, and in the interest of efficiency, it would appear that the simplest course to take at this time is for OSCo to voluntarily relinquish the permits for the above-mentioned wells. This should avoid the necessity of Commission action.

Therefore, OSCo voluntarily relinquishes its permits on:

- EP 20 (1900 - 01) - 1.555 mgd
- EP 24 (1900 - 01) - 1.193 mgd
- EP 30 (1900 - 13) - 1.32 mgd

Sincerely,

[Signature]

Bert L. Hatton
Vice President

BLH:rmg

EXHIBIT 2
April 19, 1996

Ms. Rae Loui
Commission on Water Resource Management
Kalanikou Building
1151 Punchbowl Street - Room 227
Honolulu, HI 96813

RE: Water Use Permits: EP 20 (1900-01)
    EP 24 (1900-01)
    EP 30 (1900-13)

Dear Ms. Loui:

This is in response to your letter of March 28, 1996 regarding permits on the above-mentioned caprock wells. We have some concerns about your application of HRS 174C-59 in automatically revoking the permits upon change in real property interests. However, OSCo does not have needs for these water allocations currently or in the foreseeable future. Additionally, we have discussed these caprock wells with the Hawaii Prince and the U.S. Navy and have clarified that they are not seeking transfers of the permits from OSCo. I understand you received correspondence from these organizations in this regard.

Given the above, and in the interest of efficiency, it would appear that the simplest course to take at this time is for OSCo to voluntarily relinquish the permits for the above-mentioned wells. This should avoid the necessity of Commission action.

Therefore, OSCo voluntarily relinquishes its permits on:

    EP 20 (1900-01) - 1.555 mgd
    EP 24 (1900-01) - 1.193 mgd
    EP 30 (1900-13) - 1.32 mgd

Sincerely,

Bert L. Hatton
Vice President

BLH:rmg

raeloui.4/22/96
Ms. Rae Loui  
Deputy Director  
State of Hawaii  
Commission on Water Resource Management  
P.O. Box 621  
Honolulu, HI 96809  

Dear Ms. Loui:  

This is to follow up your recent conversation with Mr. Bert Hatton of Amfac/JMB Hawaii and Ms. Cheryl Connett of this office regarding EP-30, which historically served Oahu Sugar Company, Limited (OSCO) Field 90 located on Navy land identified as TMK 9-1-10-11. Advice was requested regarding the status of the water use permit for EP-30, specifically whether OSCO would be transferring the permit to the Navy.  

Although the EP-30 pump and filters are located on Navy land, the water source (a wide trench excavated at the bottom of a former borrow pit) is located on land owned by Hawaii Meat Company identified as TMK 9-1-10-13. Accordingly, it would be inappropriate for the Navy to accept a transfer of the permit.  

It is our understanding that Ms. Ke-Ching Ning, Esq. of Ning Lilly & Jones is handling matters related to the aforementioned Hawaii Meat Company property. Perhaps she can assist you with respect to any plans her clients may have for the well. Ms. Ning can be reached at 528-1100.  

Any questions should be referred to Ms. Cheryl Connett at 474-5929 or by facsimile transmission at 474-4890 or Mr. Paul Sullivan at 471-8460 or by facsimile transmission at 471-0611.  

Sincerely,  

[Signature]  

J. A. Kline  
Director, Real Estate Division  

Copy to:  
Mr. Bert Hatton  
Amfac/JMB Hawaii  
700 Bishop Street, 21st Floor  
Honolulu, HI 96813  

Ms. Ke-Ching Ning, Esq.  
Ning, Lilly & Jones  
707 Richards Street, Suite 700  
Honolulu, HI 96813
Mr. Bert Hatton  
Oahu Sugar Co., Ltd.  
700 Bishop St., 21st Floor  
Honolulu, HI 96813  

Dear Mr. Hatton:  

Our records show that applications for water use permits for EP 20 (Well No. 1900-01), EP 24 (Well No. 1901-01), and EP 30 (1900-13) were approved by the Commission on Water Resource Management on December 16, 1992 for Oahu Sugar Co., Ltd. (OSCo) agricultural uses.  

No request to transfer these water use permits has been made, although we understand the leases to OSCo expired in 1994 and the permits should have been transferred at that time. HRS 174C-59 states:

"A permit may be transferred, in whole or in part, from the permittee to another, if:
(1) The conditions of use of the permit, including, but not limited to, place, quantity, and purpose of the use, remain the same; and
(2) The commission is informed of the transfer within ninety days. Failure to inform the department of the transfer invalidates the transfer and constitutes a ground for revocation of the permit...."

Because we were not notified of the transfer within ninety days, we will recommend that the Commission revoke these permits. We will send you a copy of the agenda and the staff submittal at least six (6) days prior to the Commission meeting.

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

Sincerely,

[Signature]

RAE M. LOUI  
Deputy Director
June 9, 1993

Mr. Keith W. Ahue  
Chairperson  
Commission on Water Resource Management  
P. O. Box 621  
Honolulu, HI 96809

Dear Mr. Ahue:

Subject: Progress Report on Metering Oahu Sugar Company's (OSCo) Ewa Caprock Aquifer Wells

Pursuant to the conditions of the water use permits for OSCo's Ewa Caprock wells (well numbers 1900-01, 1900-13, 1901-01, 1902-01, 2000-01, 2001-01) approved by the Commission on December 16, 1992, Oahu Sugar Company is required to meter its pumps that draw water from the wells. The following outlines the progress to date on metering these pumps:

<table>
<thead>
<tr>
<th>Well No.</th>
<th>Pump No.</th>
<th>Status</th>
</tr>
</thead>
<tbody>
<tr>
<td>1900-01</td>
<td>EP20</td>
<td>Meters have arrived at OSCo; installation scheduled for summer of 1993.</td>
</tr>
<tr>
<td>1900-13</td>
<td>EP30</td>
<td></td>
</tr>
<tr>
<td>1901-01</td>
<td>EP24</td>
<td></td>
</tr>
<tr>
<td>1902-01</td>
<td>EP28</td>
<td></td>
</tr>
<tr>
<td>1902-01</td>
<td>EP29</td>
<td></td>
</tr>
<tr>
<td>2000-01</td>
<td>EP21</td>
<td></td>
</tr>
<tr>
<td>1902-01</td>
<td>EP27A,27B</td>
<td>Approval to purchase meter pending</td>
</tr>
<tr>
<td>2001-01</td>
<td>EP23</td>
<td>Approval to purchase meter pending</td>
</tr>
</tbody>
</table>

We anticipate completion of metering by December 31, 1993. Should you need any more information or have questions, please call me.

Very truly yours,

W. D. Balfour, Jr.  
Vice President and Manager

WDB/HM:yk
June 9, 1993

Mr. Keith W. Ahue  
Chairperson  
Commission on Water Resource Management  
P. O. Box 621  
Honolulu, HI  96809

Dear Mr. Ahue:

Subject: Oahu Sugar Company (OSCo) Schedule of Anticipated Withdrawal of Fields from Cultivation

Pursuant to the conditions of the water use permits for OSCo's Ewa Caprock wells (well numbers 1900-01, 1900-13, 1901-01, 1902-01, 2000-01, 2001-01) approved by the Commission on December 16, 1992, Oahu Sugar Company is required to submit to the Commission a schedule identifying when fields specified in the permits will be taken out of cultivation permanently.

As of this date there is no definite time for withdrawal of these fields. Lease considerations are still not complete and until that process is completed, no dates can be determined.

Should you desire further information, please call me.

Very truly yours,

W. D. Balfour, Jr.  
Vice President and Manager

WDB/HM:yk
June 9, 1993

Mr. Keith W. Ahue
Chairperson
Commission on Water Resource Management
P. O. Box 621
Honolulu, HI 96809

Dear Mr. Ahue:

Subject: Oahu Sugar Company (OSCo) Ewa Caprock Aquifer Water Shortage Plan

Pursuant to the conditions of the water use permits for OSCo's Ewa Caprock wells (well numbers 1900-01, 1900-13, 1901-01, 1902-01, 2000-01, 2001-01) approved by the Commission on December 16, 1992, the following outlines OSCo's plans to reduce pumpage from the Ewa Caprock aquifer should the Commission declare a water shortage pursuant to subchapter 4 of chapter 13-171, Hawaii Administrative Rules.

BACKGROUND

The Ewa Caprock aquifer is a shallow body of brackish water, residing in the coral/limestone formations underlying the Ewa Plain. It is generally agreed that utility of the Ewa Caprock aquifer was created and is sustained by the Ewa Plantation Company and its successor, Oahu Sugar Company, via recharge from its irrigation operations. Without sugarcane cultivation, the usable water yield of the aquifer for irrigation purposes would be close to zero. The salinity of the water is not suitable for potable use, but may be used on crops that have a relatively high salt tolerance.

In the past, OSCo's sugarcane was the only major land use on the Ewa Plain and the only major user of Ewa Caprock water; however, recently there has been significant urbanization of the Ewa Plain, with the subsequent use of the Ewa Caprock aquifer for landscape irrigation purposes. There is a potential for an Ewa Caprock aquifer water shortage in the future because of the displacement of sugarcane land overlying the caprock (which reduces recharge) and the drawing of water from the aquifer by the developments that replaced the sugarcane.
It is OSCo's view that as the utility of the source was created and is sustained by OSCo, as OSCo has been until recently the sole long time existing user of the water, and as other current uses of the water are for aesthetics (landscape) while OSCo's use is for productive sugarcane cultivation, use of water from the caprock aquifer in a water shortage should primarily be reserved for OSCo's operations, and secondarily for recently arrived developers that have not contributed to creation and sustenance of the source.

**SUGARCANE WATER REQUIREMENTS**

OSCo's weekly irrigation usage is determined by computer, by multiplying the evaporation from a Weather Bureau Class "A" type evaporation pan located in the caprock area by a factor that varies with age and season, to estimate the amount of water used by the sugarcane plant during the previous week. This amount is deducted from the amount of water believed to be stored in the root zone of the sugarcane plant. The difference between field capacity and the current soil moisture stored in the root zone is the amount of net irrigation required for the ensuing week. The gross irrigation amount is determined by adjusting the net amount to reflect the irrigation system's delivery efficiency. This method is referred to as "OSCo's Water Balance" Computer Irrigation Scheduling.

The sugarcane plant goes through five stages or periods during which water stress affects ultimate sugar yield to different degrees. Providing optimum quantities of water to the sugarcane plant is especially critical at planting (0 to 3 months of age) and during the period just prior to harvest (ripening--18 to 24 months of age). The next critical period is during the sugarcane plant's "boom" stage (8 to 14 months of age) when the plant is growing the fastest. The least critical stages are the transition stages between planting and the boom stage and between the boom stage and harvest.

**WATER SHORTAGE REDUCED USE**

While OSCo does not believe it is right to penalize OSCo by restricting its use during a water shortage for the benefit of newly arrived developments and golf courses, during a water shortage declared by the Water Commission pursuant to chapter 13-171, subchapter 4, OSCo will do its part to reduce its usage from the Ewa Caprock aquifer. Upon notification of a duly declared water shortage, and upon specific instruction by the Commission,
OSCo shall restrict its irrigation of its caprock irrigated fields to the following schedule:

<table>
<thead>
<tr>
<th>Stage</th>
<th>Approx. Age</th>
<th>Application Rate</th>
</tr>
</thead>
<tbody>
<tr>
<td>Newly Planted</td>
<td>0-3 months</td>
<td>100% of required irrigation</td>
</tr>
<tr>
<td>Transition</td>
<td>4-7 months</td>
<td>90% of scheduled irrigation</td>
</tr>
<tr>
<td>Boom</td>
<td>8-14 months</td>
<td>95% of scheduled irrigation</td>
</tr>
<tr>
<td>Transition</td>
<td>15-17 months</td>
<td>90% of scheduled irrigation</td>
</tr>
<tr>
<td>Ripening</td>
<td>18-24 months</td>
<td>100% of required irrigation</td>
</tr>
</tbody>
</table>

During the water shortage period, if required by the Commission, OSCo will provide the Commission with copies of its water balance printouts, so that the Commission may verify OSCo's compliance with the curtailed irrigation schedule.

CONSEQUENCES

The consequence of implementing OSCo's caprock shortage plan for any prolonged period of time would be a significant loss of sugar produced from its caprock fields, a resulting loss of revenue, and an increase in its cost of production; the combination of which could make it unprofitable to farm the caprock area and further threaten OSCo's profitability. Sugar yield could be reduced on the order of ten to twenty percent of normal, depending on duration and seasonal timing of the water shortage period.

EWA MARINA

A discussion of potential Ewa Caprock aquifer water shortages would not be complete without comment on the Ewa Marina project. OSCo has concerns that excavation of the Ewa Marina by HASEKO (Hawaii), Inc., could cause a short to intermediate term Ewa Caprock aquifer water shortage by breaching the hydrologic barrier that restrains caprock water flow into the ocean. It is understood that the Water Commission will be involved in the regulation and monitoring of the project's construction. OSCo urges the Commission to be mindful of the potential for significant localized and immediate degradation of the caprock aquifer in the immediate vicinity of the project following breaching of the shoreline by the excavation; and urges that the Commission be prepared to exercise control over the construction to protect existing adjacent wells.
Mr. Keith W. Ahue  
June 9, 1993  
Page 4

Thank you for the consideration of our plans, views and comments. Should you have any questions or need further information, please call me.

Very truly yours,

W. D. Balfour, Jr.  
Vice President and Manager

WDB/HM:yk

c: Haseko (Hawaii), Inc.
STATE OF HAWAII
DEPARTMENT OF LAND AND NATURAL RESOURCES
COMMISSION ON WATER RESOURCE MANAGEMENT
P.O. Box 621
HONOLULU, HAWAII 96809

FIELD MEMORANDUM

DECLARANT: OAHU SUGAR     DATE: November 20, 1992
(FILE REF.):                      

PRESENT: Susan Swanson, DLNR

SOURCES: Ewa Plantation (EP) Caprock Wells:
EP 20 - State Well # 1900-01
EP 21 - State Well # 2000-01
EP 23 - State Well # 2001-01
EP 24 - State Well # 1901-01
EP 27a,b, 28, 29 - State Well # 1902-01
EP 30 - State Well # 1900-13

USE: Irrigation of sugar cane fields.

FIELD NOTES: Hugh Morita, Irrigation Engineer, met me at the Oahu Sugar Co. Ltd. offices in Waipahu on November 20, 1992 at 9:00 am for a field inspection of Oahu Sugar Co.'s caprock wells. These shallow dug wells are uncased and provide brackish water used in cultivation of sugar cane.

We went to each of six sites, photographed the wells and recorded information pertaining to the pumps, if available. Mr. Morita gave me a field map defining the area irrigated by each well. Many of these wells were developed for sugar cane production in the 1930's.

Oahu Sugar Co. leases land and uses wells from several different owners to cultivate sugar cane. Wells # 20 & 24 are located on land that was previously leased to Oahu Sugar Co. The land around wells 20 and 24 is now a golf course; but water from these wells is used solely for sugar cane production. The inspection was complete at 11:30 am.

Since my inspection, the Commission on Water Resource Management met and approved Oahu Sugar's water use permits to withdraw a total average annual gpd of 16,194,000 gallons.

Attachments for each well: Checklist, Photographs, A map showing locations of wells and irrigated fields, USGS maps, copies of the tax map and copies of the water use declaration and ground water management zone permit applications.
$EP\ 27a,b,\ 28\ &\ 29$

$State\ Well\ \#\ 1902-01$
PART I: USE OF WATER

The frequency and duration of irrigation depends on rainfall. The sugar cane is irrigated and fertilized by drip irrigation. The pumps operate more or less 24 hours/day for 21, 22 months of the sugar cane's life cycle. In the last month, water is withheld so that the sugar cane will dry out, so that the field can be burnt. After harvesting the scorched sugar cane, within two weeks, the keiki sugar cane is planted, and the cycle starts again.

GWMZ Applicant: Oahu Sugar Co. Ltd.

Water Use Decl. File Ref.: Oahu Sugar Co. Ltd.

State Well # 1902-01 Name: Caprock Wells, Ewa Plantation Pumps #27a,b, 28, 29

1. Tax Map Key where the water is used: Portion of TMK: 9-1-69:5; 9-1-12:5,6,7. This includes Designated as Oahu Sugar Fields 71, 84, 86, 88, 91

Does the applicant own this land? NO

2. What is the water used for? Irrigation of 731.43 ac of sugar cane cultivation.

3. Is the quantity of water use being measured? NO

4. If this person takes from a multi-user pipe or ditch system? NO

PART II: WATER SOURCE

1. Where does the water come from/what kind of source is this? Brackish surface water in borrow pit. Four pumps (EP 27a,b, 28, 29) draw water from this pool. The depth of water is 8' in the open hole in the corral pit.

2. Show the source location on maps, determine latitude and longitude, and document the nature of source development by measurements, sketches, and photographs.

How is the water taken? What is the capacity for taking (gpm)?

How often is it taken (used)? almost continuously.

Pump 27a: 60 HP WORTHINGTON VERTICAL SHAFT PUMP, SERIAL # VTP39731, 1838 GPM
Pump 27b: 60 HP WORTHINGTON VERTICAL SHAFT PUMP, SERIAL # VTP39730, 1838 GPM
Pump 28: 50 HP WORTHINGTON VERTICAL SHAFT PUMP, SERIAL # 95072722, 1577 GPM
Pump 29: 100 HP ALLIS CHALMER CENTRIFUGAL PUMP, SN 1-99-427-1-1, 2078 GPM

3. Tax Map Key at the source: TMK: 9-1-12:5:
Determine applicant's relation to source.

Does the applicant:
1) Operate and maintain the source? YES
2) Own the land at the source? NO, Haseko Hawaii owns the property.
3) Use the water from this source? YES
4) Own the land where the water is being used? NO

4. Does anyone else also use water from this source? NO

REMARKS: In December, 1992, The Commission on Water Resource Management approved Oahu Sugar Co.'s water use permit to withdraw an average annual gallons/day of 4,160,000.

Verified By: Susan Swanson Date of Inspection: 11/20/92
Sketch of EP 27a, b, 28, 29, Ewa Caprock pumps

- **Worthington Pump**
  - Vertical Shaft
  - 50 HP
  - SN # 95072722
  - 1577 gpm

- **Allis-Chalmers**
  - Anti-fouling pump
  - 100 HP
  - SN 1-99-427-11
  - 2078 gpm

- **Filtering System**

- **Shed**

- **Water Channel**

- **Road**

- **Gate**

- **EP 27a, b, 28, 29**
  - Photo # 2

- **Worthington Pump**
  - Vertical Shaft
  - 60 HP
  - SN VTP 3973D
  - 1838 gpm

- **Worthington Pump**
  - Vertical Shaft
  - 60 HP
  - SN VTP 39731
  - 1838 gpm

- **Photo # 1**
TAX MAP REDUCED TO SAME SCALE AS OAHU SUGAR CO.'S FIELD MAP, 1" = 4000', SHOWING LOCATIONS OF THE WELLS AND THE FIELDS IRRIGATED BY EACH WELL.
PHOTOS # 19, 20, 21 & 22
Views of the water channel within the "borrow pit" and the 40 hp vertical shaft Worthington pump (capacity of 1110 gpm) that provides brackish irrigation water for 131.73 acres of sugar cane. This pump has a meter but it is not in functioning condition. In December 1992, the Water Commission approved Oahu Sugar Co's request to withdraw an annual average gpd of 1,320,000 gallons.
APPLICATION FOR WATER USE PERMIT

1. WATER MANAGEMENT AREA: Pearl Harbor

2. (a) WELL/DIVERSION OWNER:
   Firm Name: Oahu Sugar Co., Ltd.
   Contact Person: W. D. Balfour, Jr.
   Address: P.O. Box "0", Waipahu
   Hawaii 96797 ph: (808) 677-3577

   (b) LANDOWNER:
   Firm Name: Haseko Hawaii, Inc.
   Contact Person: Myles Nishijima
   Address: 820 Miliiani St., Suite 610
   Honolulu, HI 96813 ph: 522-5025

3. SOURCE TYPE:
   - Spring
   - Stream
   - Basal
   - Dike-confined
   - Perched
   - Caprock

4. SOURCE NAME AND NUMBER:
   Well No. 27A, 27B, 28-29 State Well No. 1902-01

5. SOURCE LOCATION:
   Island: Oahu
   Tax Map Key: 9-1-12:5
   Address: Ewa Beach, Ewa District
   (Attach a USGS map, scale 1"=2000', and a property tax map showing source location referenced to established property boundaries.)

6. LOCATION OF PROPOSED WATER USE (if different from 4.): OSCo Fields 71, 84, 86, 88, 91

7. QUANTITY OF WATER REQUESTED: 4,160,000 gallons per day

8. QUALITY OF WATER REQUESTED:
   - Fresh
   - Brackish
   - Salt
   - Potable
   - Non-Potable

9. PROPOSED USE:
   - Municipal (including hotels, stores, etc.)
   - Military
   - Domestic (individual, noncommercial water system)
   - Industrial
   - Irrigation (specify)
   - Sugarcane
   - Other (specify)

10. DESCRIBE ANY POTENTIAL RESTRICTIONS ON USE (i.e., in-stream standards, seasonal variations):

11. PROPOSED TIME OF WATER WITHDRAWAL OR DIVERSION: 24 hours/day continuous operation

12. PROPOSED METHOD OF TAKING THE WATER:
   - Artisanal Flow
   - Submersible Pump
   - Diverted Flow
   - Vertical Turbine Pump
   - Centrifugal Pump

13. NUMBER OF RESIDENTIAL OR COMMERCIAL UNITS TO BE SERVED (specify):
   - none

14. TOTAL ACRES PROPOSED FOR IRRIGATION AND TYPE OF CROP: 731.43 Sugarcane

15. REMARKS, EXPLANATIONS:
    (If more space is needed, continue on back side)

Signature: Nelson W.G. Lee
Date: December 5, 1991

Official Use Only:
Date Received: 
Date Accepted: 
Hydrologic Unit: 
Division of Water Resource Management:
Oahu Sugar Co., Ltd. 
Landowner: Haseko (Ewa) Inc.

Date: 10/1/92
REGISTRATION OF WELL
AND
DECLARATION OF WATER USE

INSTRUCTIONS: Please type or print. If information is not available or not applicable, indicate as N/A. Fill out as completely as possible, sign, and file with the Division of Water Resource Management, P.O. Box 376, Honolulu, Hawaii 96808. Phone 548-3643 or 548-7543 for assistance.

BATTERY OF WELLS: For a battery of wells, on the surface, in a tunnel, or in a shaft, submit a registration form for each well together with a single map or plot plan showing layout of wells.

STATE WELL NO.: 1902-01
WELL NAME OR DESIGNATION: EP 27 A&B, 28, 29
SOURCE OR STATION NAME (For a battery of wells): Ewa Pumps 27, 28 and 29 (EP27,28,29)

A. WELL OPERATOR
Firm name: Oahu Sugar Company, Ltd.
Contact person: W. D. Balfour, Jr.
Address: P.O. Box "O"
Waipahu, Hawaii 96797
Zip: 96797 Phone: 677-3577

B. OWNER OF WELL SITE
Firm name: The Estate of James Campbell
Contact person: Samuel L. Keala, Jr.
Address: 828 Fort Street Mall, Suite 500
Honolulu, Hawaii 96813-4380
Zip: 96813 Phone: 536-1961

C. WELL LOCATION
Tax Map Key: 9-1-12:5
Town, Place, District: Ewa Beach, Ewa District
Attach USGS "Quad" map (scale 1:24,000), tax map, or other map showing the well location.

D. WELL DATA
Excavated well at the bottom of borrow pit
For Drilled Wells, submit "as-built" drawing, driller's log, and pump test results, and complete items below.
For Tunnels and Shafts, submit construction drawings, plot plan, or sketch map.

Ground elevation (mean sea level): about 4 ft.
Reference point (Used to measure depth to water):
Elevation: N/A ft.
Description: N/A

Depth to water (Below reference point): N/A ft.
Maximum recorded chloride: 936 ppm
Minimum recorded chloride: 266 ppm
Maximum chloride in 1987: 936 ppm

Year drilled or constructed: N/A
Well contractor: Ewa Plantation Co.
Casing diameter: N/A in.
Solid casing depth (Below ground): N/A ft.
Perforated casing depth (Below ground): N/A ft.
Total depth of well: N/A ft.
Minimum chloride in 1987: 683 ppm

E. INSTALLED PUMP DATA
4 pumps drawing from excavated well

Pump type: □ Vertical shaft □ Submersible □ Centrifugal □ Other (specify):
Power: □ Diesel, ___ HP □ Gas, ___ HP □ Electric, ___ HP □ Other (specify):
Pump capacity: 1838 gallons per minute @ 60 HP, 1838 gpm @ 60 HP, 1577 gpm @ 50 HP,
Pump installation contractor: Oahu Sugar Company and 2078 gpm @ 100 HP

For Official Use Only:
Date received: __________________ Date accepted: __________________
Field checked by: SS Date: 11/20/82 Latitude: 21/90.3 Hydrologic Unit: __________________
Comments: __________________ Zip: __________________ State Well No.: 1250-01

References: Hawaii Revised Statutes, Chapter 174C.
Hawaii Administrative Rules, Chapters 13-167 to 13-171.
F. DECLARATION OF WATER USE

NOTE: The purpose of the Declaration of Water Use is to obtain information necessary for the management of the State's water resources. The Declaration does not confer a legal right to water or its use.

Water use data are recorded: ☐ Daily ☐ Weekly ☐ Monthly ☐ Other (describe): ____________

Method of measurement: ☐ Flow Meter ☐ Orifice ☐ Other (Describe): Pump Run Time x Pump Capacity

Quantity of Use (Report metered or estimated monthly water use from the well described on the reverse side of this form, for the calendar years 1983 through 1987. For a battery of wells which are not individually metered, but which are connected to a single meter or other measuring device, report total use from the battery.):

WATER USE, IN GALLONS x 1000

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>January</td>
<td>210280</td>
<td>70560</td>
<td>151340</td>
<td>158630</td>
<td>109860</td>
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<tr>
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<td>248160</td>
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<td>166330</td>
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<td>107550</td>
<td>206310</td>
<td>186640</td>
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</tr>
<tr>
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<td>228800</td>
<td>94970</td>
<td>106300</td>
<td>64880</td>
<td>57580</td>
</tr>
</tbody>
</table>

ANNUAL: 2975360 = 2291330 x 2436630 = 1964770 = 23289300

Minimum day's use: ____________ gallons

Maximum day's use: ____________ gallons

Typical times of usage: Constant usage throughout the day

Type of Use (Check all category boxes that apply and provide additional information as indicated):

☐ Municipal (including resorts, hotels, businesses)

☐ Domestic (systems serving 25 people or less)

☐ Irrigation

☐ Non-Irrigation

☐ Industrial

☐ Military

☐ Other

Number of service connections: ____________

Additional Information

 Acres Irrigated: ____________ acres

Crop(s): ☐ Sugar ☐ Pineapple ☐ Other (specify): ____________

Non-Crop: ☐ Landscape ☐ Golf Course ☐ Other (specify): ____________

Method: ☐ Drip ☐ Furrow ☐ Sprinkler

☐ Cooling ☐ Manufacturing ☐ Mill ☐ Other (specify): ____________

I declare that the contents of the above Declaration of Water Use are, to the best of my knowledge and belief, true, correct, and complete.

Water User's Signature: ____________ Date: 5/5/89

Printed Name: ____________

Firm or Title (Well Operator, etc.): ____________
Ms. Rae M. Loui  
Deputy Director  
Commission on Water Resource Management  
Department of Land and Natural Resources  
State of Hawaii  
P. O. Box 621  
Honolulu, Hawaii 96809  

Dear Ms. Loui:

Subject: Your Letter of October 28, 1992 on Water Use Permit for Oahu Sugar Company Caprock Well No. 1900-13

Thank you for the opportunity to comment on the application. We have no objection to approval of a water use permit for the well.

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

Very truly yours,

KAZU HAYASHIDA  
Manager and Chief Engineer
November 10, 1992

Ms. Rae M. Loui  
Deputy Director  
Commission on Water Resource Management  
P. O. Box 621  
Honolulu, HI 96809

Dear Ms. Loui:

Subject: Oahu Sugar Company's (OSCo) Ewa Caprock Wells Water Use Permit Applications

We acknowledge receipt of your letter regarding the public notice of the permit applications in the Honolulu Star Bulletin issues of October 26 and November 2, 1992.

We are concerned about the implications contained in your letter—that OSCo's permit application is lumped together with all the other applications.

It has been our understanding that the Water Commission and, to a large degree, the staff and the major land developers view OSCo's use of the Ewa Caprock Aquifer as being grandfathered. We have used and maintained the aquifer for many years while the other applications have just arrived on the scene. When it becomes necessary to issue water use permits for the Ewa Caprock Aquifer, Oahu's legitimate needs should be satisfied prior to the needs of the newcomers.

If this presumption is not accurate, I would appreciate a call at 677-3577 so we may discuss the issue further. Thank you.

Very truly yours,

W. D. Balfour, Jr.  
Vice President and Manager

WDB/HM:yk
November 6, 1992

MEMORANDUM

TO: Rae M. Loui, Deputy Director
Commission on Water Resource Management

FROM: Don Hibbard, Administrator
Historic Preservation Division

SUBJECT: Water Use Permit Application, Ewa Caprock
Ground Water Management Area, Well No. 1900-13
(Oahu Sugar Company)
Honouliuli, 'Ewa, O'ahu
TMK: 9-1-10: 11

This is a permit application for an existing use of an existing facility. Therefore, we believe that any permit granted this application will have "no effect" on historic sites.

TD: amk
MEMORANDUM

TO: Rae M. Loui, Deputy Director
Commission on Water Resource Management

FROM: Henry Sakuda, Administrator
Division of Aquatic Resources

SUBJECT: Comments on Water Use Permit Application for Oahu Sugar Company Well No. 1900-13 at Puuloa, Ewa, Oahu.

The application asks for certification of a recognized existing use of ground water for the Caprock Aquifer of the Pearl Harbor Water Management Area. The Commission acknowledges that the aquifer "was created and is maintained primarily by Oahu Sugar Company through irrigation recharge of lands overlying the aquifer." Approximately 1.32 million gallons of non-potable water is being pumped per day for irrigation use.

There appears to be no potential for impact on surface waters. We therefore have no objections with reference to the potential effects on the aquatic biota.
Mr. W.D. Balfour, Jr.
President and Manager
Oahu Sugar Co., Ltd.
P.O. Box 0
Waipahu, HI 96797

Dear Mr. Balfour:

Enclosed is a copy of the public notice for your water use permit applications which will be published in the Honolulu Star Bulletin, issues of October 26 & November 2, 1992.

Please be aware that there may be objections to your applications. If objections are made, the objector is required to file such objections with the Commission and is also required to send you a copy of the objections.

You, or any other party, may respond to objections by filing a brief in support of your application with the Commission within ten (10) days of the filing of an objection. You, or the other party, must also send a copy of the response to the objector.

If you have any questions, please contact Roy Hardy at 587-0225.

Sincerely,

RAE M. LOUI
Deputy Director
FACSIMILE TRANSMITTAL PAGE

Please deliver the following pages to:

Name: Honolulu Star Bulletin

Company: Hawaii Newspaper Agency


Date: October 31, 1992 Time: 9:20 am

Message: PUBLIC NOTICE - Applications for Water Use Permit
Ground Water Management Areas, Oahu

Total number of pages (including Transmittal Page): 7

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If you do not receive all of the pages legibly, please call back: (808) 587-0225

Sending Facsimile Number: (808) 587-0219
Receiving Facsimile Number: (808) 525-7449

TRANSMISSION REPORT

THIS DOCUMENT (REDUCED SAMPLE ABOVE) WAS SENT

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Sending Facsimile Number: (808) 587-0219
Receiving Facsimile Number: (808) 525-7449
PUBLIC NOTICE

Applications for Water Use Permits
Ground Water Management Areas, OAHU

Applications for the following water use permits have been received and are hereby made public, in accordance with Department of Land and Natural Resources Administrative Rules 13-171, "Designation and Regulation of Water Management Areas".

1. **EP 20 (Well No. 1900-01)**

   **Applicant:** OAHU SUGAR CO., LTD.
   P.O. Box O
   Waipahu, HI 96797

   **Date Completed Application Received:** September 21, 1992

   **Aquifer:** Ewa Caprock, Oahu

   **Well Source:** EP 20, Well No. 1900-01, Puuloa, Ewa District, Oahu at Tax Map Key: 9-1-10:6

   **Quantity Requested:** 1,550,000 gallons per day

   **Proposed Water Use:** Existing sugarcane irrigation

   **Place of Water Use:** OSCO Fields 75 & 76 at Tax Map Key: 9-1-10:7


   **Applicant:** OAHU SUGAR CO., LTD.
   P.O. Box O
   Waipahu, HI 96797

   **Date Completed Application Received:** September 21, 1992

   **Aquifer:** Ewa Caprock, Oahu

   **Well Source:** EP 21, Well No. 2000-01, Puuloa, Ewa District, Oahu at Tax Map Key: 9-1-10:7

   **Quantity Requested:** 2,080,000 gallons per day

   **Proposed Water Use:** Existing sugarcane irrigation

   **Place of Water Use:** OSCO Fields 80 & 90 at Tax Map Key: 9-1-10:7


   **Applicant:** OAHU SUGAR CO., LTD.
   P.O. Box O
   Waipahu, HI 96797

   **Date Completed Application Received:** September 21, 1992

   **Aquifer:** Ewa Caprock, Oahu

   **Well Source:** EP 23, Well No. 2001-01, Puuloa, Ewa District, Oahu at Tax Map Key: 9-1-10:15

   **Quantity Requested:** 5,890,000 gallons per day

   **Proposed Water Use:** Existing sugarcane irrigation

   **Place of Water Use:** OSCO Fields 60 TO 64 & 66 at Tax Map Key: 9-1-10:2

   (more)

**Applicant:** OAHU SUGAR CO., LTD.
P.O Box O
Waipahu, HI 96797

**Date Completed Application Received:** September 21, 1992

**Aquifer:** Ewa Caprock, Oahu

**Well Source:** EP 24, Well No. 1901-01, Puuloa, Ewa District, Oahu at Tax Map Key: 9-1-10:6

**Quantity Requested:** 1,194,000 gallons per day

**Proposed Water Use:** Existing sugarcane irrigation

**Place of Water Use:** OSCO Field 74 at Tax Map Key: 9-1-12:5

5. **EP 30 (Well No. 1900-13)**

**Applicant:** OAHU SUGAR CO., LTD.
P.O Box O
Waipahu, HI 96797

**Date Completed Application Received:** September 21, 1992

**Aquifer:** Ewa Caprock, Oahu

**Well Source:** EP 30, Well No. 1900-13, Puuloa, Ewa District, Oahu at Tax Map Key: 9-1-10:11

**Quantity Requested:** 1,320,000 gallons per day

**Proposed Water Use:** Existing Sugar Irrigation

**Place of Water Use:** OSCO Field 90 at Tax Map Key: 9-1-10:11

6. **HONOULIULI II-5 (Well No. 2303-07)**

**Applicant:** EWA PLAIN WATER DEVELOPMENT CO.
828 Fort St. Mall, Suite 500
Honolulu, HI 96813

**Date Completed Application Received:** September 1, 1992

**Aquifer:** Ewa-Kunia System, Pearl Harbor Sector, Oahu

**Well Source:** Honouliuli II-5, Well No. 2303-07, Honouliuli, Ewa, Oahu at Tax Map Key: 9-2-1:1

**Quantity Requested:** 1,120,000 gallons per day

**Proposed Water Use:** Municipal needs in Ewa Plain

**Place of Water Use:** Ewa Plain Developments at Tax Map Key: 9-1-15, 16, & 17

(more)
**STATE OF HAWAII**

**REQUISITION & PURCHASE ORDER**

**DEPARTMENT OF LAND AND NATURAL RESOURCES**

**CWRM**

**NOTICE TO VENDORS**

Conditions of purchase are listed on the back side of this purchase order. Please read carefully. Payments may be delayed if all steps are not followed.

Hawaii Newspaper Agency  
Honolulu Star Bulletin  
P.O. Box 3350  
Honolulu, HI 96801  
Attn: Legal Ad

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Mr. Clayton H. W. Hee  
Chairman & Trustee At Large  
Office of Hawaiian Affairs  
711 Kapiolani Blvd., Suite 500  
Honolulu, Hawaii 96813-5249

Attn: Ms. Linda Delaney, Land & Natural Resources Division

Dear Mr. Hee:

Notice of an Application for a Water Use Permit  
Ewa Caprock Ground Water Management Area, Oahu

Transmitted for your review and comment is a copy of a water use permit application for Oahu Sugar Co., Ltd. for Well No. 1900-13.

If you have any objections or comments on the above application, please submit them to us in writing by November 18, 1992.

Should you have any questions, please contact the Commission on Water Resource Management at 587-0225.

Very truly yours,

[Signature]

WILLIAM W. PATY

Enc.
MEMORANDUM

TO: Honorable Hoaliku L. Drake, Director  
Department of Hawaiian Home Lands

FROM: William W. Paty, Chairperson Commission on Water Resource Management

SUBJECT: Water Use Permit Application  
Ewa Caprock Ground Water Management Area, Oahu

Transmitted for your review and comment is a copy of a water use permit application for Oahu Sugar Co., Ltd. for Well No. 1900-13.

If you have any objections or comments on the above application, please submit them to us in writing by November 18, 1992.

Should you have any questions, please contact the Commission on Water Resource Management at 587-0225.

RH:ko
Enc.
Honorable Frank F. Fasi, Mayor
City & County of Honolulu
City Hall
Honolulu, Hawaii 96813

Attn: Mr. Jeremy Harris

Dear Mayor Fasi:

Notice of an Application for a Water Use Permit
Ewa Caprock Ground Water Management Area, Oahu

In accordance with the Department of Land and Natural Resource Administrative Rule, Section 13-171-17(a), we are sending you a copy of the public notice for Oahu Sugar Co., Ltd. for Well No. 1900-13, which was published in the Star Bulletin.

In addition, Section 13-171-13(b) of our Administrative Rules states:

"Within sixty days after receipt of notice of a permit application, the county shall inform the commission if the proposed use is inconsistent with the county land use plans and policies."

We have attached a copy of the application for your review and would appreciate receiving your comments, within the next sixty (60) days, on whether this water use is consistent with county plans and policies.

Very truly yours,

[Signature]

WILLIAM W. PATY

Enc.
Honorable Gary Gill, Chair
City Council
City & County of Honolulu
City Hall
Honolulu, Hawaii 96813

Dear Mr. Gill:

Notice of an Application for a Water Use Permit
Ewa Caprock Ground Water Management Area, Oahu

In accordance with the Department of Land and Natural Resource Administrative Rule, Section 13-171-17(a), we are sending you a copy of the public notice for Oahu Sugar Co., Ltd. for Well No. 1900-13, which was published in the Star Bulletin.

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We have attached a copy of the application for your review and would appreciate receiving your comments, within the next sixty (60) days, on whether this water use is consistent with county plans and policies.

Very truly yours,

William W. Paty
Chairperson

Enc.
APPLICATION FOR WATER USE PERMIT

COMMISSION ON WATER RESOURCE MANAGEMENT
Department of Land and Natural Resources
Division of Water Resource Management

Instructions: Please print or type and send completed application with attachments to the Div. of Water Resource Management, P.O. Box 373, Honolulu, Hawaii 96809. Application must be accompanied by a non-refundable filing fee of $25.00 payable to the Dept. of Land and Natural Resources. (Filing fee waived for government agencies.) If necessary, phone 548-7643, Hydrology/Geology Section for assistance.

1. WATER MANAGEMENT AREA: Pearl Harbor

2. (a) WELL/DIVERSION OWNER:
Firm Name: Oahu Sugar Co., Ltd.
Contact Person: M. D. Balfour, Jr.
Address: P.O. Box "O", Wai'anae
Hawaii 96797 Ph: (808) 677-3577

(b) LANDOWNER:
Firm Name: United States Navy
Contact Person: Director Real Estate Division
Address: Naval Facilities Engineering Command
Pearl Harbor, HI 96860 Ph: 471-3217

3. SOURCE TYPE:
☐ Spring ☐ Stream ☐ Basal ☐ Dike-confined ☐ Perched ☐ Caprock

4. SOURCE NAME AND NUMBER: EP30 State Well No. 1900-13 (well or stream diversion name/number)

5. SOURCE LOCATION:
Island: Oahu
Tax Map Key: 9-1-10:11
Address: Puuloa, Ewa District
(Attach a USGS map, scale 1"=2000", and a property tax map showing source location referenced to established property boundaries.)

6. LOCATION OF PROPOSED WATER USE (If different from #5):
OSCo Field 090

7. QUANTITY OF WATER REQUESTED: 1,320,000 gallons per day

8. QUALITY OF WATER REQUESTED: ☐ Fresh ☐ Brackish ☐ Salt ☐ Potable ☐ Non-Potable

9. PROPOSED USE:
☐ Municipal (including hotels, stores, etc.) ☐ Military
☐ Domestic (individual, noncommercial water sys.) ☐ Industrial
☐ Irrigation (specify) ☐ Sugarcane ☐ Other (specify)

10. DESCRIBE ANY POTENTIAL RESTRICTIONS ON USE (i.e., instream standards, seasonal variations):

11. PROPOSED TIME OF WATER WITHDRAWAL OR DIVERSION: 24 hours/day continuous operation (Indicate hours of operation)

12. PROPOSED METHOD OF TAKING THE WATER:
☐ Artesian Flow ☐ Submersible Pump ☐ Diverted Flow ☐ Vertical Turbine Pump ☐ Centrifugal Pump

13. NUMBER OF RESIDENTIAL OR COMMERCIAL UNITS TO BE SERVED (specify):
none

14. TOTAL ACRES PROPOSED FOR IRRIGATION AND TYPE OF CROP: 131.73 Sugarcane

15. REMARKS, EXPLANATIONS:
Submittal of this water use permit application is pursuant to the directives of the Water Commission's Chairperson's letter.

If more space is needed, continue on back side.

Owner (print) Oahu Sugar Co., Ltd.
Signature W. D. Balfour, Jr.
Date December 5, 1991

Landowner (print) U.S. Navy
Signature Michael Miller
Date Aug 1992

For Official Use Only:
Date Received
Date Accepted

Hydrologic Unit

Diversion Works No.

State Well No.
15. REMARKS, EXPLANATIONS: of August 26, 1991 (attached). This use is a long standing existing use. Since establishment of the Pearl Harbor Groundwater Control Area and the Water Management Area, the BLNR and the Water Commission have recognized this existing use, but has not officially certified it. This is due in part to the attention paid to regulating the basal aquifers of the control area; and in part to the lack of an officially established sustainable yield for the caprock aquifer. It is OSCo's understanding that after due process, its caprock aquifer uses will be officially certified and water use permits officially issued.
Mr. W. D. Balfour, Jr.
Vice President and Manager
Oahu Sugar
P.O. Box "O"
Waipahu, HI 96797

Dear Mr. Balfour:

Thank you for your letter of August 1, 1991, expressing your concern over the water use permit applications being reviewed by the Commission on Water Resource Management for the Caprock Aquifer of the Pearl Harbor Water Management Area.

We agree with your assessment that "the utility of the Caprock Aquifer was created and is maintained primarily by Oahu Sugar Company through irrigation recharge of lands overlying the aquifer". We are presently looking at ways to encourage water users to increase recharge to the Caprock Aquifer.

In order to better assess the water use situation in the Caprock Aquifer, we would like Oahu Sugar Company to submit applications for water use permits for its existing ground-water sources in the Caprock Aquifer. After due process, as required by our administrative rules, we plan to issue water use permits for your existing Caprock Aquifer sources before acting on any of the new applications. We have enclosed the water use permit application forms for your use.

Please call Mr. Manabu Tagomori at 548-7533 if you have any questions.

Very truly yours,

WILLIAM W. PATY
Chairperson

Enc.
MEMORANDUM

TO: Interested State Agencies & Other Parties

FROM: Rae M. Loui, Deputy Director
Commission on Water Resource Management

SUBJECT: Water Use Permit Application
Ewa Caprock Ground Water Management Area, Oahu

Transmitted for your review and comment is a copy of a water use permit application for Oahu Sugar Company, Ltd. for Well No. 1900-13.

If you have any objections or comments on the above application, please submit them to us in writing by November 18, 1992.

Should you have any questions, please contact the Commission on Water Resource Management at 587-0225.

RH:ko
Enc.
APPLICATION FOR WATER USE PERMIT

COMMISSION ON WATER RESOURCE MANAGEMENT
Department of Land and Natural Resources
Division of Water Resource Management

Instructions: Please print or type and send completed application with attachments to the Div. of Water Resource Management, P.O. Box 373, Honolulu, Hawaii 96809. Application must be accompanied by a non-refundable filing fee of $25.00 payable to the Dept. of Land and Natural Resources. (Filing fee waived for government agencies.) If necessary, phone 548-7643, Hydrology/Geology Section for assistance.

1. WATER MANAGEMENT AREA: Pearl Harbor

2. (a) WELL/DIVERSION OWNER:
   Firm Name: Oahu Sugar Co., Ltd.
   Contact Person: W. D. Balfour, Jr.
   Address: P.O. Box "0", Waipahu, Hawaii 96797
   Ph.: (808) 677-3577

   (b) LANDOWNER:
   Firm Name: United States Navy
   Contact Person: Director Real Estate Division
   Address: Naval Facilities Engineering Command
   Pearl Harbor, HI 96860
   Ph.: 471-3217

3. SOURCE TYPE: ☐ Spring ☐ Stream ☐ Basal ☐ Dike-confined ☐ Perched ☑ Caprock

4. SOURCE NAME AND NUMBER: EP30 State Well No. 1900-13 (well or stream diversion name/number)

5. SOURCE LOCATION: Island: Oahu Tax Map Key: 9-1-10-11
   Address: Puuloa, Ewa District
   (Attach a USGS map, scale 1" = 2000', and a property tax map showing source location referenced to established property boundaries.)

6. LOCATION OF PROPOSED WATER USE (if different from #5):
   OCo Field 090

7. QUANTITY OF WATER REQUESTED: 1,320,000 gallons per day

8. QUALITY OF WATER REQUESTED: ☐ Fresh ☐ Brackish ☐ Salt ☐ Potable ☑ Non-Potable

9. PROPOSED USE: ☐ Municipal (including hotels, stores, etc.) ☐ Irrigation (specify) ☑ Sugarcane
   ☐ Military ☐ Industrial ☐ Other (specify)

10. DESCRIBE ANY POTENTIAL RESTRICTIONS ON USE (i.e., instream standards, seasonal variations):

11. PROPOSED TIME OF WATER WITHDRAWAL OR DIVERSION: 24 hours/day continuous operation
    (indicate hours of operation)

12. PROPOSED METHOD OF TAKING THE WATER:
    ☐ Aartesian Flow ☐ Submersible Pump ☐ Diverted Flow ☑ Vertical Turbine Pump ☐ Centrifugal Pump

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    none

14. TOTAL ACRES PROPOSED FOR IRRIGATION AND TYPE OF CROP: 131.73 Sugarcane
    (acres) (crop)

15. REMARKS, EXPLANATIONS:
    Submittal of this water use permit application is pursuant to the directives of the Water Commission's Chairperson's letter.
    (If more space is needed, continue on back side)

Owner (print) Oahu Sugar Co., Ltd.
Signature ___________________________ Date December 5, 1991

Landowner (print) U.S. Navy
Signature ___________________________ Date 28 AUG 1992

or Official Use Only:
Date Received ___________________________ Hydrologic Unit ___________________________
Date Accepted ___________________________ Diversion Works No. ___________________________
Sate Well No. ___________________________
15. REMARKS, EXPLANATIONS: of August 26, 1991 (attached). This use is a long
standing existing use. Since establishment of the Pearl Harbor Groundwater Control
Area and the Water Management Area, the BLNR and the Water Commission have recognized
this existing use, but has not officially certified it. This is due in part to the attentiveness
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OSCo's understanding that after due process, its caprock aquifer uses will be
officially certified and water use permits officially issued.
ATTACHMENT FOR ITEM S
- Tax Map for 1-3-1-10:
  Showing Water Source Location

TAX MAP
ZONE 1 SEC. FLAT
CONTAINED TAKINGS SCALE 1/000
Thank you for your letter of August 1, 1991, expressing your concern over the water use permit applications being reviewed by the Commission on Water Resource Management for the Caprock Aquifer of the Pearl Harbor Water Management Area.

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Please call Mr. Manabu Tagomori at 548-7533 if you have any questions.
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FACSIMILE TRANSMITTAL PAGE

Please deliver the following pages to:

Name: Honolulu Star Bulletin

Company: Hawaii Newspaper Agency


Date: October 21, 1992 Time: 9:20 am

Message: PUBLIC NOTICE - Applications for Water Use Permit

Ground Water Management Areas, Oahu

Total number of pages (including Transmittal Page): 7

If you do not receive all of the pages legibly, please call back: (808) 587-0225

Sending Facsimile Number: (808) 587-0219
Receiving Facsimile Number: (808) 525-7449
PUBLIC NOTICE

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Ground Water Management Areas, OAHU

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P.O. Box O
Waipahu, HI 96797

**Date Completed Application Received:** September 21, 1992

**Aquifer:** Ewa Caprock, Oahu
**Well Source:** EP 20, Well No. 1900-01, Puuloa, Ewa District, Oahu at Tax Map Key: 9-1-10:6

**Quantity Requested:** 1,550,000 gallons per day

**Proposed Water Use:** Existing sugarcane irrigation

**Place of Water Use:** OSCO Fields 75 & 76 at Tax Map Key: 9-1-10:7

2. EP 21 (Well No. 2000-01)

**Applicant:** OAHU SUGAR CO., LTD.
P.O. Box O
Waipahu, HI 96797

**Date Completed Application Received:** September 21, 1992

**Aquifer:** Ewa Caprock, Oahu
**Well Source:** EP 21, Well No. 2000-01, Puuloa, Ewa District, Oahu at Tax Map Key: 9-1-10:7

**Quantity Requested:** 2,080,000 gallons per day

**Proposed Water Use:** Existing sugarcane irrigation

**Place of Water Use:** OSCO Fields 80 & 90 at Tax Map Key: 9-1-10:7

3. EP 23 (Well No. 2001-01)

**Applicant:** OAHU SUGAR CO., LTD.
P.O. Box O
Waipahu, HI 96797

**Date Completed Application Received:** September 21, 1992

**Aquifer:** Ewa Caprock, Oahu
**Well Source:** EP 23, Well No. 2001-01, Puuloa, Ewa District, Oahu at Tax Map Key: 9-1-10:15

**Quantity Requested:** 5,890,000 gallons per day

**Proposed Water Use:** Existing sugarcane irrigation

**Place of Water Use:** OSCO Fields 60 TO 64 & 66 at Tax Map Key: 9-1-10:2

(more)

**Applicant:** OAHU SUGAR CO., LTD.
P.O. Box O
Waipahu, HI 96797

**Date Completed Application Received:** September 21, 1992

**Aquifer:** Ewa Caprock, Oahu

**Well Source:** EP 24, Well No. 1901-01, Puuloa, Ewa District, Oahu at
Tax Map Key: 9-1-10:6

**Quantity Requested:** 1,194,000 gallons per day

**Proposed Water Use:** Existing sugarcane irrigation

**Place of Water Use:** OSCO Field 74 at Tax Map Key: 9-1-12:5

5. **EP 30 (Well No. 1900-13)**

**Applicant:** OAHU SUGAR CO., LTD.
P.O. Box O
Waipahu, HI 96797

**Date Completed Application Received:** September 21, 1992

**Aquifer:** Ewa Caprock, Oahu

**Well Source:** EP 30, Well No. 1900-13, Puuloa, Ewa District, Oahu at
Tax Map Key: 9-1-10:11

**Quantity Requested:** 1,320,000 gallons per day

**Proposed Water Use:** Existing Sugar Irrigation

**Place of Water Use:** OSCO Field 90 at Tax Map Key: 9-1-10:11

6. **HONOLIULI II-5 (Well No. 2303-07)**

**Applicant:** EWA PLAIN WATER DEVELOPMENT CO.
828 Fort St. Mall, Suite 500
Honolulu, HI 96813

**Date Completed Application Received:** September 1, 1992

**Aquifer:** Ewa-Kuina System, Pearl Harbor Sector, Oahu

**Well Source:** Honouliuli II-5, Well No. 2303-07, Honouliuli, Ewa, Oahu at
Tax Map Key: 9-2-1:1

**Quantity Requested:** 1,120,000 gallons per day

**Proposed Water Use:** Municipal needs in Ewa Plain

**Place of Water Use:** Ewa Plain Developments at Tax Map Key: 9-1-15, 16, & 17
7. HONOLULU II-6 (Well No. 2303-08)

Applicant: EWA PLAIN WATER DEVELOPMENT CO.
828 Fort St. Mall, Suite 500
Honolulu, HI 96813
Date Completed Application Received: September 8, 1992
Aquifer: Ewa-Kunia System, Pearl Harbor Sector, Oahu
Well Source: Honouliuli II-6, Well No. 2303-08, Honouliuli, Ewa, Oahu at
Tax Map Key: 9-2-1:1
Quantity Requested: 1,120,000 gallons per day
Proposed Water Use: Municipal use for Ewa Plain area
Place of Water Use: Ewa Plain area at Tax Map Key: 9-1-15:15, 16, & 17

8. HONOLULU II-3 (Well No. 2303-09)

Applicant: EWA PLAIN WATER DEVELOPMENT CO.
828 Fort St. Mall Suite 500
Honolulu, HI 96813
Date Completed Application Received: September 8, 1992
Aquifer: Ewa-Kunia System, Pearl Harbor Sector, Oahu
Well Source: Honouliuli II-3, Well No. 2303-09, Honouliuli, Ewa, Oahu at
Tax Map Key: 9-2-1:1
Quantity Requested: 1,120,000 gallons per day
Proposed Water Use: Municipal needs for Ewa Plain area
Place of Water Use: Ewa Plain at Tax Map Key: 9-1-15:15, 16, & 17

9. KAPOLEI CITY IRRIGATION (Well No. 1905-08)

Applicant: CAMPBELL ESTATE
828 Fort St. Mall, Suite 500
Honolulu, HI 96813
Date Completed Application Received: September 8, 1991
Aquifer: Kapolei-BPNA System, Ewa Caprock Sector, Oahu
Well Source: Kapolei City Irrigation, Well No. 1905-08, Kapolei City, Oahu at
Tax Map Key: 9-1-16:1
Quantity Requested: 1,000,000 gallons per day
Proposed Water Use: Irrigation needs for Kapolei City
Place of Water Use: Kapolei City at Tax Map Key: 9-1-15:15, 16 & 17

(more)
10. **KAPOLEI IRRIGATION D (Well No. 2003-04)**

**Applicant:** State Housing Finance & Development Corp.  
500 Ala Moana Blvd.  
Honolulu, HI 96813  
**Date Completed Application Received:** December 12, 1991  
**Aquifer:** Kapolei-BPNA System, Ewa Caprock Sector, Oahu  
**Well Source:** Kapolei Irrigation D, Well No. 2003-04, Kapolei Golf Course, Oahu at  
**Tax Map Key:** 9-1-16:25  
**Quantity Requested:** 500,000 gallons per day  
**Proposed Water Use:** Irrigation of landscape of Kapolei Village & Golf Course  
**Place of Water Use:** Kapolei Village & Golf Course at Tax Map Key: 9-1-16:25

11. **KAPOLEI IRRIGATION E (Well No. 2003-05)**

**Applicant:** State Housing Finance & Development Corp.  
500 Ala Moana Blvd.  
Honolulu, HI 96813  
**Date Completed Application Received:** December 1, 1991  
**Aquifer:** Kapolei-BPNA System, Ewa Caprock Sector, Oahu  
**Well Source:** Kapolei Irrigation E, Well No. 2003-05, Kapolei Golf Course, Oahu at  
**Tax Map Key:** 9-1-16:25  
**Quantity Requested:** 200,000 gallons per day  
**Proposed Water Use:** Irrigation of golf course  
**Place of Water Use:** Kapolei Golf Course at Tax Map Key: 9-1-16:25

12. **AMENDED APPLICATION FOR ROBINSON 1 & 2 (Well Nos. 2602-01 & 2702-03)**

**Applicant:** ROBINSON ESTATE  
100 N. Beretania St.  
Honolulu, HI 96817  
**Date Completed Application Received:** September 1, 1992  
**Aquifer:** Waipahu System, Pearl Harbor Sector, Oahu  
**Well Source:** Robinson 1 & 2, Well Nos. 2602-01 & 2702-03, Hoaeae, Oahu, at  
**Tax Map Key:** 9-4-4:4  
**Quantity Requested:** 3,000,000 gallons per day  
**Proposed Water Use:** Irrigation of 597 acres of diversified ag  
**Place of Water Use:** Hoaeae, Oahu, Hawaii at Tax Map Key: 9-4-4:Various & 9-4-3:Various (more)
Written objections or comments on the application for water use may be filed by any person who has property interest in any land within the hydrologic unit of the source of water supply, any person who will be directly and immediately affected by the proposed water use, or any other interested person. Written objections shall: (1) state property or other interest in the matter; (2) set forth questions of procedure, fact, law, or policy, to which objections are taken; and (3) state all grounds for objections to the proposed permits. Send written objections by NOVEMBER 18, 1992 to 1) to the Commission on Water Resource Management, P.O. Box 621, Honolulu, Hawaii 96809, and 2) a copy of the objection letter to the applicant at the above address.

COMMISSION ON WATER RESOURCE MANAGEMENT

WILLIAM W. PATY, Chairperson

Dated: OCT 21 1992

**PUBLIC NOTICE**

Applications for Water Use Permits
Ground Water Management Areas, Oahu

Publish in issues of October 26 & November 2, 1992
(see attached notice)

Price List No. FL 92-66

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The State of Hawaii is an EQUAl EMPLOYMENT OPPORTUNITY and AFFIRMATIVE ACTION employer. We encourage the participation of women and minorities in all phases of employment.
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**Oahu Sugar Company Ltd.** 09/17/92

Detach before Depositing

---

**Amfac /JMB HAWAII, INC.**
P.O. BOX 3230 HONOLULU, HAWAII 96813 PHONE (808) 945-8111

VENDOR

PAY TO THE ORDER OF

DEPARTMENT OF LAND & NATURAL RESOURCES
P.O. BOX 621 HONOLULU, HAWAII 96809

$125.00 DOLLARS AND 00 CENTS

AUTHORIZED SIGNATURE

M. Kamara

---

**Amfac**

SUGAR & AGRIBUSINESS, INC.
OAHU SUGAR COMPANY, LTD
P.O. BOX "0" WAIPAHU, HI 96797
Civil Engineering Department
Ph: 671-4861/69 FAX: 671-4284

TRANSMITTAL SHEET

TO: ATTN: RAE M. LOUI
Commission on Water Resource Management

SUBJECT: Oahu Sugar Company Application for Water Use Permit

( ) For your review and comment
( ) For your information
( ) For signature
( ) Status please
( ) Per our conversation

( ) For your approval
( ) For your files
XX For your files
( ) Please handle
( ) Please return to me
( ) RUSH

KS: Well No. 1902-01 application is not included with this mailing as waiting signature from Landowner Haseko (Ewa).
1. **WATER MANAGEMENT AREA:** Pearl Harbor

2. (a) **WELL/DIVERSION OWNER:**
   - Firm Name: Oahu Sugar Co., Ltd.
   - Contact Person: W. D. Balfour, Jr.
   - Address: P.O. Box "O", Waipahu, Hawaii 96797

   (b) **LANDOWNER:**
   - Firm Name: United States Navy
   - Contact Person: Director Real Estate Division
   - Address: Naval Facilities Engineering Command
   - Pearl Harbor, HI 96860

3. **SOURCE TYPE:**
   - [ ] Spring
   - [x] Stream
   - [ ] Dike-confined
   - [ ] Perched
   - [x] Caprock

4. **SOURCE NAME AND NUMBER:** EP30 State Well No. 1900-13

5. **SOURCE LOCATION:**
   - Island: Oahu
   - Address: Puuola, Ewa District
   - Tax Map Key: 9-1-10:11

   (Attach a USGS map, scale 1"=2000', and a property tax map showing source location referenced to established property boundaries.)

6. **LOCATION OF PROPOSED WATER USE (if different from #5):** OSCo Field 090

   (Indicate location of water use on same map showing source location.)

7. **QUANTITY OF WATER REQUESTED:** 1,320,000 gallons per day

8. **QUALITY OF WATER REQUESTED:**
   - [ ] Fresh
   - [ ] Brackish
   - [ ] Salt
   - [ ] Potable
   - [ ] Non-Potable

9. **PROPOSED USE:**
   - [ ] Municipal (including hotels, stores, etc.)
   - [ ] Domestic (individual, noncommercial water sys.)
   - [ ] Military
   - [ ] Industrial
   - [ ] Irrigation (specify) Sugarcane
   - [ ] Other (specify)

10. **DESCRIBE ANY POTENTIAL RESTRICTIONS ON USE (i.e., instream standards, seasonal variations):**

11. **PROPOSED TIME OF WATER WITHDRAWAL OR DIVERSION:** 24 hours/day continuous operation

12. **PROPOSED METHOD OF TAKING THE WATER:**
   - [x] Artesian Flow
   - [ ] Submersible Pump
   - [x] Diverted Flow
   - [ ] Vertical Turbine Pump
   - [ ] Centrifugal Pump

13. **NUMBER OF RESIDENTIAL OR COMMERCIAL UNITS TO BE SERVED (specify):** none

14. **TOTAL ACRES PROPOSED FOR IRRIGATION AND TYPE OF CROP:** 131.73 Sugarcane

15. **REMARKS, EXPLANATIONS:**

   (If more space is needed, continue on back side)
15. REMARKS, EXPLANATIONS: of August 26, 1991 (attached). This use is a long-standing existing use. Since establishment of the Pearl Harbor Groundwater Control Area and the Water Management Area, the BLNR and the Water Commission have recognized this existing use, but has not officially certified it. This is due in part to the attention paid to regulating the basal aquifers of the control area and in part to the lack of an officially established sustainable yield for the caprock aquifer. It is OSCo's understanding that after due process, its caprock aquifer uses will be officially certified and water use permits officially issued.
Mr. W. D. Balfour, Jr.
Vice President and Manager
Oahu Sugar
P.O. Box "O"
Waipahu, HI 96797

Dear Mr. Balfour:

Thank you for your letter of August 1, 1991, expressing your concern over the water use permit applications being reviewed by the Commission on Water Resource Management for the Caprock Aquifer of the Pearl Harbor Water Management Area.

We agree with your assessment that "the utility of the Caprock Aquifer was created and is maintained primarily by Oahu Sugar Company through irrigation recharge of lands overlying the aquifer". We are presently looking at ways to encourage water users to increase recharge to the Caprock Aquifer.

In order to better assess the water use situation in the Caprock Aquifer, we would like Oahu Sugar Company to submit applications for water use permits for its existing ground-water sources in the Caprock Aquifer. After due process, as required by our administrative rules, we plan to issue water use permits for your existing Caprock Aquifer sources before acting on any of the new applications. We have enclosed the water use permit application forms for your use.

Please call Mr. Manabu Tagomori at 548-7533 if you have any questions.

Very truly yours,

WILLIAM W. PATY
Chairperson

Enc.
Ms. Linnel Nishioka  
Commission on Water Resource Management  
P. O. Box 621  
Honolulu, HI 96809

Dear Ms. Nishioka:

Subject: WELL INVESTIGATIONS CONDUCTED BY THE NAVY

The Navy has conducted extensive investigations of 50 wells identified as belonging to the Navy under the latest State of Hawaii, Department of Land and Natural Resources (DLNR) Well database. Of 50 wells investigated, 24 wells are designated as “unused” or “lost” in the DLNR database. All 24 wells were determined to be not locatable. The 24 wells are designated as the following in the DLNR well database:

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For wells 2100-01 and 2259-03, they are already designated as “lost” in the DLNR well database. Therefore, request annotations for the 22 wells be made in the DLNR well database as “los” (lost) under the Major Use column.

An Architect-Engineering firm, Hawaii Pacific Engineers, Inc. (HPE) was contracted by the Navy to conduct the fieldwork and record research to determine the disposition of the 50 wells. The work that was done for the 24 wells is documented in enclosure (1). Also discussed in the enclosure is the presumed well classification based on the location indicated on the USGS maps. The well classification pertains to the type of groundwater that the wells are located upon.
Should you have any questions regarding the information provided under this letter, please contact Mr. Elton Saito at 471-1171 extension 202.

Sincerely,

[Signature]

R. M. WAKUMOTO
Director
Regional Environmental Department
By direction of
Commander, Navy Region Hawaii


Copy to: Commander, Pacific Division, Naval Facilities Engineering Command (ENV 1811)(w/o encl)
Well Status Report for COMNAVREG Hawaii

Prepared For:
Pacific Division
Naval Facilities Engineering Command
Pearl Harbor Hawaii

Prepared by:
Hawaii Pacific Engineers

Contract No. N62742-97-D-0004
Delivery Order No. 0013
November 28, 2000
HPE 9931
November 28, 2000

Department of the Navy
PACNAVFACENGCOM, Building 258
Pearl Harbor, Hawaii 96860

Attention: George Chan

Subject: N62742-97-D-0004 Delivery Order 0013, Well Status Report for COMNAVREG Hawaii
HPE 9931

The purpose of this project was to investigate 50 Navy owned wells and to determine the type and use of each well and provide recommendations on the disposition of each well. Forty-two wells were production wells under the jurisdiction of the Department of Land and Natural Resources (DLNR) and eight wells were underground injection wells under the jurisdiction of the Department of Health (DOH). The following information focuses on the production wells that we were not able to locate.

The following attachments are included with this letter.

Attachment 1 Selected Information from the DLNR Well Database
Attachment 2a DLNR Map 0-9 (USGS Map annotated by DLNR to show well locations)
Attachment 2b DLNR Map 0-10 (USGS Map annotated by DLNR to show well locations)
Attachment 3 Photographs of Makalapa, Naval Magazine West Loch, and Waipio Peninsula
Attachment 4 Records Obtained from the Board of Water Supply, U.S. Geological Survey, and the Department of Land and Natural Resources.

After significant field investigation efforts, we were unable to locate 24 production wells. One well was located at Makalapa, 17 wells were located at Naval Magazine (NAVMAG) West Loch, and six wells were located at Waipio Peninsula. These 24 wells are listed below. The locations of the wells are shown on Attachments 2a and 2b, which are United States Geological Survey (USGS) maps annotated by DLNR to show well locations.

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The following paragraphs describe the field investigations conducted, the classifications of the wells we were unable to locate, and a summary of our findings.

FIELD INVESTIGATIONS

Extensive research and field investigations were conducted to determine the location and disposition of each well. More than 300 hours were expended for research and field investigations. The following chronological list only includes the major field investigations conducted. On several other occasions, attempts were made to locate one or two wells after new information was obtained. Photographs of the Makalapa, NAVMAG West Loch and Waipio Peninsula areas associated with the wells shown in Attachment 3.
During the week of August 23, 1999, research was conducted at DLNR to locate any documentation regarding the wells. U.S. Geological Survey maps indicating the locations of the wells were obtained. DLNR had limited documentation on the wells. Information for well 1900-13 was found. DLNR provided a copy of their entire well database. Personnel at DLNR recommended researching the Board of Water Supply (BWS) records for more documentation. BWS had documentation on each well. Approximately three hours were utilized reviewing BWS records. Copies of DLNR and BWS records were made for Hawaii Pacific Engineers' (HPE) files. Attachment 4 contains the documentation obtained. Approximately 4 hours of research was conducted at Pacific Division (PACDIV) plan files. Limited information was obtained.

On September 14, 1999, a preliminary survey was conducted to identify the approximate location of each well. One person visually assessed conditions at the areas to determine the personnel needed for the detailed field investigations. USGS maps, 1:24000 scale, indicating the approximate location of each well, were used as a reference. Well 2156-04, at Makalapa, appeared to be located where Building 401 now stands. The terrain at NAVMAG West Loch and Waipio Peninsula had heavy ground cover and trees. The terrain at Waipio Peninsula was slightly hillier than NAVMAG West Loch.

On December 1, 1999, one person from HPE attempted to locate well 2156-04 at Makalapa. The well was not located after one hour of searching.

On December 6, 1999, two personnel from HPE attempted to locate wells 1959-01, 2000-02, and 2059-02 at NAVMAG West Loch. The USGS map indicated that the wells were located near the perimeter of an overgrown area near the intersection of North Road and West Loch Drive. The height of the overgrowth ranged from ankle to waist level. A depressed area was located in the overgrown area. No wells were found after two hours of searching.

On December 9, 1999, two personnel from HPE and one person from the Navy attempted to locate wells 1959-01, 2000-02, and 2059-02 at NAVMAG West Loch. No wells were located after two hours of searching.

On June 25, 2000, two personnel from HPE attempted to locate wells 2059-05, 2059-06, 2059-09, and 2059-11. Broken tree branches were used to probe the ground cover to help locate the wells. No wells were located after three hours of searching.

On June 30, 2000, two personnel from HPE and one person from the Navy located well 2001-01 NAVMAG West Loch. DLNR records indicate that the pump is permitted.

On August 8, 2000 two personnel from HPE and one person from the Navy attempted to locate all of the wells at NAVMAG West Loch. A global positioning system (GPS) was used to help locate the wells. The longitude and latitude coordinates were taken from the DLNR well database. After well coordinates were located, the team would spread out and attempt to locate the well. After five hours of searching, two potential wells were located and marked for further investigation. The first potential well was a 6-inch diameter drilled hole. The second was a 2'-8" square concrete box. The field team then attempted to locate wells at Waipio Peninsula. The same process used at NAVMAG West Loch was utilized at Waipio Peninsula. No wells were located after two hours of searching.

On October 10, 2000, three personnel from HPE conducted follow up work at NAVMAG West Loch to determine if the 6-inch diameter drilled hole found on August 8 was well 2059-11. The top two feet of the hole was found open while the remainder was filled with dirt and rocks. The area around the hole was cleared to prevent more dirt and rocks from falling into the hole. The team removed approximately 2-1/2 feet of dirt and rocks from the hole. A 6-inch PVC pipe was placed in the hole to mark the borehole. It could not be confirmed that the hole was well 2059-11.
On October 24, 2000, research was conducted at USGS. USGS had documentation on all of the wells. Most of the records were the same as those obtained from BWS. Copies were made of any pertinent documentation that was not included in the BWS records. Attachment 4 contains the documentation obtained.

On October 26, 2000, two personnel from HPE conducted follow up work at NAVMAG West Loch to determine if the 2'-8" square concrete box found on August 8 was well 2059-07. After the metal cover was removed, dirt was shoveled out of the box. A concrete floor was struck approximately four feet down. The box appeared to be a storm drainage structure. It could not be confirmed that the concrete box was well 2059-07.

WELL CLASSIFICATIONS

Attachment 1 contains selected information from the DLNR database. Under the column titled “Geology”, TKB identifies basal wells and QLS identifies caprock wells. DLNR does not classify some of the wells as being either basal or caprock. Basal wells are wells that have penetrated into the freshwater aquifer. USGS defines freshwater as water with a chloride concentration less than 250 ppm. Brackish water is defined as water having a chloride concentration between 250 ppm and 19,500 ppm. The following paragraphs identify each of the lost wells as either basal, caprock, or unclassified.

Basal Wells

Well 2100-01 is located on the northern part of NAVMAG West Loch, near the coastline. DLNR classifies the well as a basal well. Records indicate that the well is 362 feet deep and has a 2-inch diameter casing. Available records do not indicate the chloride concentration. The records indicate a previous attempt to locate this well was made and was unsuccessful. A handwritten annotation on one of the documents obtained from BWS indicates “the well is pau – buried and lost”. The date of the note is not known.

Well 2200-03 is located on the northern part of Waipio Peninsula. DLNR classifies the well as a basal well. Records indicate that the well is 362 feet deep and has a 2-inch diameter casing. The DLNR database indicates that the minimum chloride concentration was 1700 ppm. Records indicate that the well was recased from 12-inches to 2-inches in February 1960.

Caprock Wells

Wells 1900-03, 1900-04, 1900-05, 1900-06, and 1900-10 are located at NAVMAG West Loch, on the north-west side of North Road. DLNR classifies these wells as caprock wells. Records indicate that the wells range in depth from 32 feet to 37 feet. The records also indicate that each well has a 6-inch diameter casing. The DLNR database indicates that the initial chloride concentration ranged from 905 ppm to 1100 ppm. The records indicate that a previous attempt to locate these wells was made and was unsuccessful. Field notes obtained from USGS indicate that a cursory search for these wells was made on June 24, 1982. The records also indicate that during the June 1982 search personnel at NAVMAG West Loch indicated that the wells had not been used since before World War II and the area was backfilled with rocks, coral, and other material. Limited information was obtained from BWS.

Well 1900-13 is located at NAVMAG West Loch, on the north-west side of North Road. DLNR classifies the well as a caprock well. USGS records indicate that the well was an elongated pit with a depth of 8 feet. The DLNR database indicates that the initial chloride concentration was 653 ppm. Records indicate that on June 5, 1996, the permit for the well was revoked. The well was used by Hawaii Meat Company but was located on Navy property. Hawaii Meat Company no longer needed the use of the well.

Wells 1959-01, 2000-02, 2059-02, 2059-05, 2059-06, 2059-09, and 2059-11 are located at NAVMAG West Loch, on the north-west side of North Road. DLNR classifies these wells as caprock wells. Records indicate
that the wells range in depth from 25 feet to 60 feet. Records also indicate that each well has a 6-inch diameter casing. The DLNR database indicates that the initial chloride concentration ranged from 1030 ppm to 1160 ppm. The records indicate that a previous attempt to locate these wells was made and was unsuccessful. Field notes obtained from USGS indicate that a cursory search for these wells was made on June 24, 1982. The records also indicate that during the June 1982 search personnel at NAVMAG West Loch indicated that the wells had not been used since before World War II and the area was backfilled with rocks, coral, and other material.

Wells 2059-03, 2059-07, and 2059-10 are located at NAVMAG West Loch, south-east of the intersection of North Road and West Loch Drive. DLNR classifies these wells as caprock wells. Records indicate that the wells range in depth from 25 feet to 60 feet. Records also indicate that each well has a 6-inch diameter casing. The DLNR database indicates that the initial chloride concentration ranged from 950 ppm to 1220 ppm. The records indicate that a previous attempt to locate these wells was made and was unsuccessful. Field notes obtained from USGS indicate that a cursory search for these wells was made on June 24, 1982. Records also indicate that during the June 1982 search personnel at NAVMAG West Loch indicated that the wells had not been used since before World War II and the area was backfilled with rocks, coral, and other material.

Unclassified Wells

Well 2156-04 is located at Makalapa, near Building 401. The building may have been constructed over the well. DLNR does not classify the well as either basal or caprock. Records indicate that the well is 186 feet deep and has a 6-inch diameter casing. Available records do not indicate the chloride concentration. Records obtained from BWS indicate that the well did not develop artesian water. The records do not definitely indicate whether the well was found. A handwritten annotation on one of the documents obtained from BWS indicates the well as “pau”. The note was dated on October 11, 1957.

Wells 2200-01 and 2200-02 are located on the northern part of Waipio Peninsula. DLNR does not classify these wells as either basal or caprock. Available records do not indicate the depths or casing sizes. The DLNR database indicates that the initial chloride concentration for both wells was 2000 ppm. A letter dated April 21, 1980 from the Navy to BWS indicates that a field team, which included a person from BWS, could not locate these wells.

Well 2259-01 is located on the northern part of Waipio Peninsula. DLNR does not classify the well as either basal or caprock. Available records do not indicate the depth or casing size. The DLNR database indicates that the minimum chloride concentration was 896 ppm. DLNR, BWS, and USGS have limited information on this well.

Wells 2259-02 is located on the northern part of Waipio Peninsula. DLNR does not classify this well as either basal or caprock. Available records do not indicate the depth of well. Records indicate that the well has a 12-inch diameter casing. The DLNR database indicates that the minimum chloride concentration was 892 ppm. The records indicate that a previous attempt to locate these wells may have been unsuccessful. A handwritten annotation on records obtained from BWS indicates the well was “buried in canefield”. The date of the note is not known.

Wells 2259-03 is located on the northern part of Waipio Peninsula. DLNR does not classify this well as either basal or caprock. Records indicate that the well is 510 feet deep and has a 12-inch diameter casing. The DLNR database indicates that the minimum chloride concentration was 748 ppm. Records indicate that a previous attempt to locate this well may have been unsuccessful. A handwritten annotation on records obtained from BWS indicates the well was “buried and lost when the Navy filled Hanaloa fish pond with dredged material”. The date of the note is not known.
SUMMARY

A significant amount of effort was exerted researching and attempting to locate these wells. One well was located at NAVMAG West Loch and no wells were found at Makalapa or Waipio Peninsula.

Personnel at DLNR indicated that lost basal wells are a concern. We were unable to locate two wells that are classified as basal wells: 2100-01 and 2200-03. Basal well 2100-01 appears to be lost and buried. Basal well 2200-03 also appears to be lost. Although well 2200-03 is classified as a basal well, the DLNR database indicates the minimum chloride concentration was 1700 ppm, which is brackish water.

Because basal wells are a major concern to DLNR, they may impose additional requirements before accepting wells 2100-01 or 2200-03 as lost.

Personnel at DLNR indicated that lost caprock wells are not a major concern. All of the unclassified wells except for 2156-04 produced brackish water. Available records do not indicate the chloride concentration for well 2156-04. However, records indicate that well 2156-04 did not develop artesian water, therefore we believe that it is unlikely the well penetrated a freshwater aquifer.

Because caprock wells are not a major concern to DLNR, we expect DLNR to declare these wells as lost and “close the books” on these caprock wells. In addition, because none of the unclassified wells appear to have penetrated a freshwater aquifer, we expect DLNR to also declare these wells as lost and close the books.

Please feel free to contact us if there are any questions or if additional information is needed.

Sincerely,

HAWAII PACIFIC ENGINEERS, INC,

Eric Okamura
Civil Engineer, P.E
LIST OF ATTACHMENTS

1. SELECTED INFORMATION FROM THE DLNR WELL DATABASE

2. U.S. GEOLOGICAL SURVEY MAPS WITH WELL LOCATIONS

3. PHOTOGRAPHS OF MAKALAPA, NAVMAG WEST LOCH, AND WAIPIO PENINSULA

### SELECTED INFORMATION FROM DLNR WELL DATABASE

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Hawaii Pacific Engineers

November 28, 2000
### Selected Information from DLNR Well Database

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Hawaii Pacific Engineers

November 28, 2000
Photograph shows the approximate location of well 2156-04 at Makalapa. Building 401 is located near or over the well.

Photograph shows the approximate location of well 2156-04 at Makalapa. Building 401 is located near or over the well.

Well Status Report for COMNAVREG Hawaii

November 28, 2000
Photograph shows the approximate location of well 2059-02 at Naval Magazine West Loch.

Photograph shows the approximate location of well 2059-02 at Naval Magazine West Loch.
Photograph shows the approximate location of wells 2200-01, 2200-02, and 2200-03 at Waipio Peninsula.

Photograph shows the approximate location of wells 2200-01, 2200-02, and 2200-03 at Waipio Peninsula.
RECORDS OBTAINED FROM THE BOARD OF WATER SUPPLY, U.S. GEOLOGICAL SURVEY, AND THE DEPARTMENT OF LAND AND NATURAL RESOURCES.

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<td>2200-01 &amp; 2200-02</td>
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<td>2259-03</td>
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June 24, 1982

MISCELLANEOUS FIELD NOTES

On May 19, 1982, a cursory search was made for this and other wells in the area. The property is fenced with chain-link cyclone fencing and not accessible without permission. The area is extensively covered with kiawe trees and hoole koa and underbrush.

Upon investigation, it was found that this well is on property managed by the Naval Magazine. This information was given by Glenn Yoshinaga of Navy Environmental Branch at 471-3948. He gave me the name of Alex Lum who is the Staff Civil Engineer for Ewa Naval Magazine at 668-3251. He has been there since 1965 and says they have not been used since before the war. The area was used as an open storage for drums, construction materials, etc. during the war. The pits were backfilled with rocks, coral, and any other available material so as not to constitute a hazard. The well(s) is considered destroyed as of the mid-1970s (1955 entered as date).

Mardi Dickinson
On May 19, 1982, a cursory search was made for this and other wells in the area. The property is fenced with chain-link cyclone fencing and not accessible without permission. The area is extensively covered with kiawe trees and haole koa and underbrush.

Upon investigation, it was found that this well is on property managed by the Naval Magazine. This information was given by Glenn Yoshinaga of Navy Environmental Branch, 471-3948. He gave me the name of Alex Lum, who is the Staff Civil Engineer for Lualualei Naval Magazine at 668-3251. He has been there since 1953, and says they have not been used since before the war. The area was used as an open storage (for drums, construction materials, etc.) during war. The pits were backfilled with rocks, soil and any other available material, so as not to constitute a hazard. The well(s) is considered destroyed, as of the mid-1950s (1955 entered as date).

Mark Nukuna
On May 19, 1982, a cursory search was made for this and other wells in the area. The property is fenced with chain-link cyclone fencing and not accessible without permission. The area is extensively covered with kiawe trees and hale koa and underbrush.

Upon investigation, it was found that this well is on property managed by the Naval Magazine. This information was given by Glenn Yoshinaga of Navy Environmental Branch, 471-3748. He gave me the name of Alex Lum who is the Staff Civil Engineer for Honolulu Naval Magazine at 668-3251. He has been there since 1953, and says they have not been used since before the war. The area was used as an open storage (for drums, construction materials, etc.) during war. The pits were backfilled with rocks, soil, and any other available material, so as not to constitute a hazard. The well(s) is considered destroyed, as of the mid-1950s (1955 entered as date).

Maiki Hishida
WELL NO. 272-14

Date Drilled 1941
Driller Hobart Engineering Co.

Exist. Ground Elev.

Well Gasing 64".

Water Level Elev.

End of Gasing Elev.

Min. Dia. 8".

Bottom of Well Elev.
U. S. Dept. of Agriculture,  
Farm Security Administration,  
Federal Bldg.,  
City.  

Mr. Minoru Shinsato,  
Punalu'u,  
Oahu.  

Gentlemen:

Following you will find report on the 6" well which I have just completed on the property of Minoru Shinsato at Punalu'u, Oahu.

- Size of hole: 8"  
- Depth of hole: 28' below bottom of pit.  
- Casing: 6" standard wrought steel pipe 20.2' long, perforated below normal water level. Cement grout between casing and hole and top encased in concrete.  
- Normal water level: 9.5' below bottom of pit.  
- Salt content:  

Drilled Feb. 6, 1941  

Very truly yours,

[Signature]

Copy to U.S.C.O.  

1050 12µ by Jan 6, 1941
On May 19, 1982, a cursory search was made for this and other wells in the area. The property is fenced with chain-link cyclone fencing and not accessible without permission. The area is extensively covered with kiawe trees and hoale koa and underbrush.

Upon investigation, it was found that this well is on property managed by the Naval Magazine. This information was given by Glenn Yoshihaga of Navy, Environmental Branch, 471-3948. He gave me the name of Alex Lum who is the Staff Civil Engineer for Lualualei Naval Magazine at 668-3251. He has been there since 1953, and says they have not been used since before the war. The area was used as an open storage for drums, construction materials, etc. during war. The pits were backfilled with rocks, coral and any other available material, so as not to constitute a hazard. The well(s) is considered destroyed as of the mid-1950s (1955 entered as date).
WELL NO. 272-15

Date Drilled 1941
Driller Hobart Engineering Co.

Exisit Ground
Elev.

Well Casing
6"

Water Level
Elev.

End of Casing
Elev.

Min. Dic.
8'

Bottom of Well
Elev.
Honolulu, T. H.

Feb. 10, 1941

U. S. Dept. of Agriculture,
Farm Security Administration,
Federal Bldg.,
City.

Henry Kaneshiro,
Wuuloa,
Oahu.

Gentlemen:

Following you will find report on the 6" well which I have just completed on the property of Henry Kaneshiro at Wuuloa, Oahu.

Size of hole - 6"

Depth of hole - 30' below bottom of pit.

Casing - 6" standard wrought steel pipe 22.2' long, perforated below normal water level. Cement grout between casing and hole from water level up; clamped at top and same enrobed in block of concrete.

Normal water level - 12.0' below bottom of pit.

Salt content - 0.050 g. p. c.

Drilled Feb. 8, 1941

Very truly yours,

[Signature]

N. Whitton

Copy to U.S.G.S.
On May 19, 1982, a cursory search was made for this and other wells in the area. The property is fenced with chain-link cyclone fencing and not accessible without permission. The area is extensively covered with kiawe trees and invade koa and underbrush.

Upon investigation, it was found that this well is on property managed by the Naval Magazine. This information was given by Glenn Yoshinaga of Navy, Environmental Branch, 471-3958. He gave me the name of Alex Lum who is the Staff Civil Engineer for Kualoa Naval Magazine at 668-3251. He has been there since 1953, and says they have not been used since before the war. The area was used as an open storage (for drums, construction materials, etc.) during war. The pits were backfilled with rocks, coral and any other available material, so as not to constitute a hazard. The well(s) is considered destroyed as of the mid-1950s (1955 entered as date).

Mali Nishina

No. | of | sheets

UNITED STATES
DEPARTMENT OF THE INTERIOR
GEOLICAL SURVEY
WATER RESOURCES DIVISION

Date June 24, 1982

MISCELLANEOUS FIELD NOTES

3-1900-10
U. S. Department of Agriculture,  
Farm Security Administration,  
Federal Building,  
City.

&

Y. Kanashiro,  
Fuuloa,  
Oahu.

Gentlemen,-

Yollowing you will find a report on the  
6" well which I have just completed on the property  
of Y. Kanashiro at Fuuloa, Oahu.

Size of Hole      -  8"

Depth of Holes     -  32' below top of ground.  
(no pit)

Casing            -  25.5' of standard wrought steel pipe, slotted below normal water level. Space between casing and hole filled with cement grout from water level up. Top held with clamp but not encased in concrete at request of Kanashiro.

Normal water level 16.5' below top of casing.  
Salt content      -  98.6%  
Drilled June 16, 1941

(See attached sheet for sketch of well)

Very truly yours,

Signature

Copy to U.S.O.S.
PROJECT TITLE: EWA CAPROCK GROUNDWATER QUALITY SURVEY

WELL DESCRIPTION:
Well Name: Ewa Beach EP 30
Well I.D. No.: 3-1900-13
Well Location: Lat. 21° 19' 59" N
Long. 158° 00' 22" W
Well Owner: Oahu Sugar
Contact Person: Hugh Morita
Type: Irrigation
Flow: 0.5 mgd
Remarks: Dug well, open pit

WELL CONSTRUCTION:
Casing Stick Up (A) none ft.
Ground Elevation (B) 5 ft.
Diameter of Boring (C) varies in.
Total Depth of Boring (D) 8 ft.
Grouted Interval (E) none ft.
Filter-Pack Interval (F) none ft.
Hard Dpth to WtrTbl/Approx Elev/Elev Per DLNR Indx (G) __________/__________/1.5 ft.

<table>
<thead>
<tr>
<th></th>
<th>DIAMETER (IN)</th>
<th>LENGTH (FT)</th>
<th>TOP/BOT. ELEV. (FT)</th>
<th>MATERIAL</th>
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</thead>
<tbody>
<tr>
<td>Solid Casing (H)</td>
<td>none</td>
<td>none</td>
<td>none</td>
<td>none</td>
</tr>
<tr>
<td>Perforated Casing (I)</td>
<td>none</td>
<td>none</td>
<td>none</td>
<td>none</td>
</tr>
<tr>
<td>Open Hole (J)</td>
<td>varies</td>
<td>8</td>
<td>5/-3</td>
<td>corraline</td>
</tr>
</tbody>
</table>

JOURNAL OF SAMPLE COLLECTIONS:
Date            | November 18, 1992 | February 11, 1993 | February 23, 1993 | June 16, 1993 |
Time            | 8:45 a.m.         | 10:12 a.m.        | 11:05 a.m.        | 9:50 a.m.    |
Person          | JT, KW, NU        | JR, CH            | JT, JR, CH, NU    | NU, KW, JR  |
Weather         | Fair              | Fair              | Fair               | Fair        |
Remarks         | Geese in pit      | Geese in pit      | Geese in pit      | Sampled from pit |
                | sampled at well   | sampled from pit  | sampled from pit  |             |

<table>
<thead>
<tr>
<th>Date of Sample Collection</th>
<th>11/18/92</th>
<th>02/11/93</th>
<th>02/23/93</th>
<th>06/16/93</th>
</tr>
</thead>
<tbody>
<tr>
<td>Methylen Chloride (ppb)</td>
<td>&lt;0.2</td>
<td>&lt;0.2</td>
<td>&lt;0.2</td>
<td>&lt;0.2</td>
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<tr>
<td>1,1-Dichloroethane (ppb)</td>
<td>&lt;0.3</td>
<td>&lt;0.3</td>
<td>&lt;0.3</td>
<td>&lt;0.3</td>
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<tr>
<td>2,2-Dichloropropane (ppb)</td>
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<td>&lt;0.3</td>
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<td>&lt;0.3</td>
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<tr>
<td>Chloroform (ppb)</td>
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<td>&lt;0.2</td>
<td>&lt;0.2</td>
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<tr>
<td>1,1-Dichloropropene (ppb)</td>
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<td>&lt;0.3</td>
<td>&lt;0.3</td>
<td>&lt;0.3</td>
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<tr>
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<tr>
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<tr>
<td>trans-1,3-Dichloropropene (ppb)</td>
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<tr>
<td>cis-1,3-Dichloropropene (ppb)</td>
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<tr>
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<tr>
<td>1,3-Dichloropropane (ppb)</td>
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<td>&lt;0.3</td>
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<tr>
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<tr>
<td>1,1,1,2-Tetrachloroethane (ppb)</td>
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<td>1,1,3-Trichlorobenzene (ppb)</td>
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<td>Arsenic (ppm)</td>
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<tr>
<td>Selenium (ppm)</td>
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<td>&lt;0.05</td>
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<tr>
<td>Mercury (ppm)</td>
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<td>&lt;0.0005</td>
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<tr>
<td>Cadmium (ppm)</td>
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<tr>
<td>Lead (ppm)</td>
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<tr>
<td>Chromium (ppm)</td>
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<td>Barium (ppm)</td>
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<td>0.112</td>
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<td>Silver (ppm)</td>
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<td>&lt;0.01</td>
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<td>Nitrate (as N) (ppm)</td>
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<td>8.0*</td>
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<tr>
<td>Nitrite (as N) (ppm)</td>
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<td>0.03</td>
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<tr>
<td>Fluoride (ppm)</td>
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<td>0.26</td>
<td>0.31</td>
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<tr>
<td>Sodium (ppm)</td>
<td>471</td>
<td>475</td>
<td>521</td>
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<tr>
<td>Copper (ppm)</td>
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<td>&lt;0.05</td>
<td>&lt;0.05</td>
<td>&lt;0.05</td>
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<tr>
<td>Nickel (ppm)</td>
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<td>&lt;0.01</td>
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<td>Antimony (ppm)</td>
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<tr>
<td>Beryllium (ppm)</td>
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<td>&lt;0.001</td>
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<td>Thallium (ppm)</td>
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<td>&lt;0.02</td>
<td>&lt;0.02</td>
<td>&lt;0.02</td>
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<tr>
<td>Iron (ppm)</td>
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<td>&lt;0.5</td>
<td>&lt;0.5</td>
<td>&lt;0.5</td>
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<tr>
<td>Ethylene Dibromide (ppb)</td>
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<td>&lt;0.02</td>
<td>&lt;0.02</td>
<td>&lt;0.02</td>
</tr>
<tr>
<td>1,2-Dibromo-3-Chloropropane (ppb)</td>
<td>&lt;0.02</td>
<td>0.02</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

(a) - Fecal Positive
(b) - Fecal Negative
(c) - Sample Holding Time Exceeded
(d) - Lost in Extraction

TNTC - Too Numerous To Count
NF - None Found
* - Field Test (Hach NI-12)
<table>
<thead>
<tr>
<th>Date of Sample Collection</th>
<th>11/18/92</th>
<th>02/11/93</th>
<th>02/23/93</th>
<th>06/16/93</th>
</tr>
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<tbody>
<tr>
<td><strong>ANALYTICAL PARAMETERS</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total Dissolved Solids (mg/l)</td>
<td>2388</td>
<td>2354</td>
<td>2750</td>
<td></td>
</tr>
<tr>
<td>Total Suspended Solids (mg/l)</td>
<td>3</td>
<td>7</td>
<td>4</td>
<td></td>
</tr>
<tr>
<td>Chlorides (mg/l)</td>
<td>1200</td>
<td>1360</td>
<td>1745</td>
<td></td>
</tr>
<tr>
<td>Specific Conductance (mmho/cm)</td>
<td>4380</td>
<td>4460</td>
<td>4030</td>
<td></td>
</tr>
<tr>
<td>Hardness (mg equiv. Ca CO3/l)</td>
<td>1202</td>
<td>1202</td>
<td>1171</td>
<td></td>
</tr>
<tr>
<td>Alkalinity (as Ca CO3) (mg/l)</td>
<td>226</td>
<td>290</td>
<td>299</td>
<td></td>
</tr>
<tr>
<td>pH (std. unit)</td>
<td>7.45</td>
<td>7.01</td>
<td>7.1</td>
<td>6.9</td>
</tr>
<tr>
<td>Temperature (°C/°F)</td>
<td>75.9</td>
<td>75.2</td>
<td>76.2</td>
<td>25.3</td>
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<tr>
<td>Turbidity (NTU)</td>
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<tr>
<td>Dissolved Oxygen (mg/l)</td>
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<td>0.05</td>
<td>0.04</td>
<td>0.10</td>
</tr>
<tr>
<td>Total Residual Chlorine (mg/l)</td>
<td>&lt;0.05</td>
<td>&lt;0.05</td>
<td>0.06</td>
<td>0.06</td>
</tr>
<tr>
<td>Ammonia (N) (mg/l)</td>
<td>&lt;0.1</td>
<td>0.4</td>
<td>0.34</td>
<td>0.34</td>
</tr>
<tr>
<td>Total Kjeldahl Nitrogen (mg/l)</td>
<td>0.043</td>
<td>0.043</td>
<td>0.043</td>
<td>0.043</td>
</tr>
<tr>
<td>Orthophosphate (mg/l)</td>
<td>0.036</td>
<td>0.036</td>
<td>0.036</td>
<td>0.036</td>
</tr>
<tr>
<td>Total Organic Carbon (mg/l)</td>
<td>1.1</td>
<td>1.1</td>
<td>1.1</td>
<td>1.1</td>
</tr>
<tr>
<td>Biochemical Oxygen Demand-5 Day (mg/l)</td>
<td>&lt;2.0</td>
<td>&lt;2.0</td>
<td>&lt;1.0</td>
<td>&lt;1.0</td>
</tr>
<tr>
<td>Chemical Oxygen Demand (mg/l)</td>
<td>13.1</td>
<td>13.1</td>
<td>13.1</td>
<td>13.1</td>
</tr>
<tr>
<td>Total Coliform (COL/100ml)</td>
<td>TNTC (a)</td>
<td>TNTC (a)</td>
<td>TNTC (a)</td>
<td>TNTC (a)</td>
</tr>
<tr>
<td>Vinyl Chloride (ppb)</td>
<td>&lt;0.3</td>
<td>&lt;0.3</td>
<td>&lt;0.3</td>
<td>&lt;0.3</td>
</tr>
<tr>
<td>1,1-Dichloroethylene (ppb)</td>
<td>&lt;0.3</td>
<td>&lt;0.3</td>
<td>&lt;0.3</td>
<td>&lt;0.3</td>
</tr>
<tr>
<td>1,1,1-Trichloroethane (ppb)</td>
<td>&lt;0.3</td>
<td>&lt;0.3</td>
<td>&lt;0.3</td>
<td>&lt;0.3</td>
</tr>
<tr>
<td>Carbon Tetrachloride (ppb)</td>
<td>&lt;0.2</td>
<td>&lt;0.2</td>
<td>&lt;0.2</td>
<td>&lt;0.2</td>
</tr>
<tr>
<td>Benzene (ppb)</td>
<td>&lt;0.3</td>
<td>&lt;0.3</td>
<td>&lt;0.3</td>
<td>&lt;0.3</td>
</tr>
<tr>
<td>1,2-Dichloroethane (ppb)</td>
<td>&lt;0.3</td>
<td>&lt;0.3</td>
<td>&lt;0.3</td>
<td>&lt;0.3</td>
</tr>
<tr>
<td>Trichloroethylene (ppb)</td>
<td>&lt;0.2</td>
<td>&lt;0.2</td>
<td>&lt;0.2</td>
<td>&lt;0.2</td>
</tr>
<tr>
<td>p-Dichlorobenzene (ppb)</td>
<td>&lt;0.3</td>
<td>&lt;0.3</td>
<td>&lt;0.3</td>
<td>&lt;0.3</td>
</tr>
<tr>
<td>1,2,3-Trichloropropane (ppb)</td>
<td>&lt;0.2</td>
<td>&lt;0.2</td>
<td>&lt;0.2</td>
<td>&lt;0.2</td>
</tr>
<tr>
<td>trans-1,2-Dichloroethene (ppb)</td>
<td>&lt;0.3</td>
<td>&lt;0.3</td>
<td>&lt;0.3</td>
<td>&lt;0.3</td>
</tr>
<tr>
<td>cis-1,2-Dichloroethene (ppb)</td>
<td>&lt;0.3</td>
<td>&lt;0.3</td>
<td>&lt;0.3</td>
<td>&lt;0.3</td>
</tr>
<tr>
<td>1,2-Dichloropropane (ppb)</td>
<td>&lt;0.3</td>
<td>&lt;0.3</td>
<td>&lt;0.3</td>
<td>&lt;0.3</td>
</tr>
<tr>
<td>Toluene (ppb)</td>
<td>&lt;0.3</td>
<td>&lt;0.3</td>
<td>&lt;0.3</td>
<td>&lt;0.3</td>
</tr>
<tr>
<td>Ethylbenzene (ppb)</td>
<td>&lt;0.3</td>
<td>&lt;0.3</td>
<td>&lt;0.3</td>
<td>&lt;0.3</td>
</tr>
<tr>
<td>Monochlorobenzene (ppb)</td>
<td>&lt;0.3</td>
<td>&lt;0.3</td>
<td>&lt;0.3</td>
<td>&lt;0.3</td>
</tr>
<tr>
<td>o-Dichlorobenzene (ppb)</td>
<td>&lt;0.3</td>
<td>&lt;0.3</td>
<td>&lt;0.3</td>
<td>&lt;0.3</td>
</tr>
<tr>
<td>Styrene (ppb)</td>
<td>&lt;0.3</td>
<td>&lt;0.3</td>
<td>&lt;0.3</td>
<td>&lt;0.3</td>
</tr>
<tr>
<td>m-Xylene (ppb)</td>
<td>&lt;0.3</td>
<td>&lt;0.3</td>
<td>&lt;0.3</td>
<td>&lt;0.3</td>
</tr>
<tr>
<td>p-Xylene (ppb)</td>
<td>&lt;0.3</td>
<td>&lt;0.3</td>
<td>&lt;0.3</td>
<td>&lt;0.3</td>
</tr>
<tr>
<td>o-Xylene (ppb)</td>
<td>&lt;0.3</td>
<td>&lt;0.3</td>
<td>&lt;0.3</td>
<td>&lt;0.3</td>
</tr>
<tr>
<td>Tetrachloroethene (ppb)</td>
<td>&lt;0.2</td>
<td>&lt;0.2</td>
<td>&lt;0.2</td>
<td>&lt;0.2</td>
</tr>
<tr>
<td>Chloromethane (ppb)</td>
<td>&lt;0.3</td>
<td>&lt;0.3</td>
<td>&lt;0.3</td>
<td>&lt;0.3</td>
</tr>
<tr>
<td>Bromomethane (ppb)</td>
<td>&lt;0.3</td>
<td>&lt;0.3</td>
<td>&lt;0.3</td>
<td>&lt;0.3</td>
</tr>
<tr>
<td>Chloroethene (ppb)</td>
<td>&lt;0.3</td>
<td>&lt;0.3</td>
<td>&lt;0.3</td>
<td>&lt;0.3</td>
</tr>
</tbody>
</table>

(a) - Fecal Positive  
(b) - Fecal Negative  
(c) - Sample Holding Time Exceeded  
(d) - Lost in Extraction  

TNTC - Too Numerous To Count  
NF - None Found
<table>
<thead>
<tr>
<th>Date of Sample Collection</th>
<th>11/18/92</th>
<th>02/11/93</th>
<th>02/23/93</th>
<th>06/16/93</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>ANALYTICAL PARAMETERS</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Aldicarb</td>
<td>(ppb)</td>
<td>&lt;1.0</td>
<td>&lt;1.0</td>
<td>&lt;1.0</td>
</tr>
<tr>
<td>Aldicarb Sulfone</td>
<td>(ppb)</td>
<td>&lt;1.0</td>
<td>&lt;1.0</td>
<td>&lt;1.0</td>
</tr>
<tr>
<td>Aldicarb Sulfoxide</td>
<td>(ppb)</td>
<td>&lt;1.0</td>
<td>&lt;1.0</td>
<td>&lt;1.0</td>
</tr>
<tr>
<td>Oxamyl</td>
<td>(ppb)</td>
<td>&lt;1.0</td>
<td>&lt;1.0</td>
<td>&lt;1.0</td>
</tr>
<tr>
<td>Methomyl</td>
<td>(ppb)</td>
<td>&lt;1.0</td>
<td>&lt;1.0</td>
<td>&lt;1.0</td>
</tr>
<tr>
<td>3-OH Carbofuran</td>
<td>(ppb)</td>
<td>&lt;1.0</td>
<td>&lt;1.0</td>
<td>&lt;1.0</td>
</tr>
<tr>
<td>Propoxur</td>
<td>(ppb)</td>
<td>&lt;1.0</td>
<td>&lt;1.0</td>
<td>&lt;1.0</td>
</tr>
<tr>
<td>Carbaryl</td>
<td>(ppb)</td>
<td>&lt;1.0</td>
<td>&lt;1.0</td>
<td>&lt;1.0</td>
</tr>
<tr>
<td>Methiocarb</td>
<td>(ppb)</td>
<td>&lt;1.0</td>
<td>&lt;1.0</td>
<td>&lt;1.0</td>
</tr>
<tr>
<td>Dalapon</td>
<td>(ppb)</td>
<td>&lt;13.0 (c)</td>
<td>&lt;1.79 (c)</td>
<td>&lt;0.0720 (c)</td>
</tr>
<tr>
<td>2,4D</td>
<td>(ppb)</td>
<td>&lt;1.79 (c)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Pentachlorophenol</td>
<td>(ppb)</td>
<td>&lt;0.0720 (c)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>2,4,5-TP</td>
<td>(ppb)</td>
<td>&lt;0.130 (c)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Dinoseb</td>
<td>(ppb)</td>
<td>&lt;1.70 (c)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Picloram</td>
<td>(ppb)</td>
<td>&lt;1.62 (c)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Lindane</td>
<td>(ppb)</td>
<td>&lt;0.140</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Alachlor</td>
<td>(ppb)</td>
<td>&lt;1.00</td>
<td></td>
<td>&lt;2.0</td>
</tr>
<tr>
<td>Heptachlor</td>
<td>(ppb)</td>
<td>&lt;0.200</td>
<td></td>
<td>&lt;0.1</td>
</tr>
<tr>
<td>Heptachlor Epox.</td>
<td>(ppb)</td>
<td>&lt;0.120</td>
<td></td>
<td>&lt;0.1</td>
</tr>
<tr>
<td>Endrin</td>
<td>(ppb)</td>
<td>&lt;0.140</td>
<td></td>
<td>&lt;0.1</td>
</tr>
<tr>
<td>Methoxychlor</td>
<td>(ppb)</td>
<td>&lt;1.70</td>
<td></td>
<td>&lt;0.5</td>
</tr>
<tr>
<td>Chlordane</td>
<td>(ppb)</td>
<td>&lt;2.00</td>
<td></td>
<td>&lt;1.0</td>
</tr>
<tr>
<td>Toxaphene</td>
<td>(ppb)</td>
<td>&lt;2.00</td>
<td></td>
<td>&lt;1.0</td>
</tr>
<tr>
<td>Atrazine</td>
<td>(ppb)</td>
<td>1.11</td>
<td></td>
<td>1.1</td>
</tr>
<tr>
<td>Simazine</td>
<td>(ppb)</td>
<td>&lt;0.710</td>
<td></td>
<td>&lt;0.5</td>
</tr>
<tr>
<td>Bromacil</td>
<td>(ppb)</td>
<td>&lt;0.350</td>
<td></td>
<td>&lt;3.0</td>
</tr>
<tr>
<td>Hexazinone</td>
<td>(ppb)</td>
<td>&lt;1.80</td>
<td></td>
<td>&lt;1.0</td>
</tr>
<tr>
<td>Mevinphos</td>
<td>(ppb)</td>
<td>&lt;2.40</td>
<td></td>
<td>&lt;5.0</td>
</tr>
</tbody>
</table>

(a) - Fecal Positive
(b) - Fecal Negative
(c) - Sample Holding Time Exceeded
(d) - Lost in Extraction

TNTC - Too Numerous To Count
NF - None Found
Stephen A. Jones, Esq.
Ning, Lilly & Jones
707 Richards Street, Suite 700
Honolulu, Hawaii 96813

Dear Steve:

Re: State of Hawaii/Hawaii Meat Settlement

Thank you for the September 19, 1996 draft of the lease. I have reviewed the lease and find that it comports with our agreed changes. This is also to confirm that the term "packing facilities" as contained in the definition of "rendering plant and associated purposes" was not intended to refer to Hawaii Meat engaging as an independent meat processing plant or packing facilities operator. Rather, reference to "packing facilities," if endeavored, would only occur as part of a joint venture with another independent slaughterhouse/meat processing plant operator.

With respect to Hawaii Meat’s continued use of 5,200,000 gallons per month as noted on paragraph 1, page 2, Rae Loui, Deputy Director with the Commission on Water Resource Management ("Water Commission"), has confirmed that the water "source" of Well No. 1900-13 is located on Navy property. On June 5, 1996, the Navy’s water use permit for Well No. 1900-13 was revoked with concurrence by Oahu Sugar Company. Thus, based on the Water Commission’s investigation, Hawaii Meat does not have an interest in Well No. 1900-13. According to the Water Commission, for the well to be used, a new water use permit must first be obtained from the Water Commission. Therefore, reference to Hawaii Meat’s continued use of this source of water should be deleted.
Finally, the subdivision application was signed by Campbell Estate and filed on September 24 or 25, 1996. The Department will be tracking the subdivision process. We will inform you when we receive final subdivision approval.

Should you have any questions, do not hesitate to call me.

Very truly yours,

Dawn N. S. Chang
Deputy Attorney General

dnc: kk

c: Jack Rosenzweig
Dean Uchida
Rae Loui √
1650.16
TO: Dawn N.S. Chang, Deputy Attorney General
FROM: Rae M. Loui, Deputy Director
RE: State Lease with Hawaii Meat Company, Ltd.

The water source referred to in the lease is Well No. 1900-13. This is an unusual situation in that the "source" is actually an elongated pit that is on both the Navy's and Hawaii Meat Company's properties (straddles the property boundary). However, the pump is on Navy property. The water use permit was for the Navy for agricultural use. With OSCo's concurrence, this permit was revoked on June 5, 1996.

Therefore, Hawaii Meat Company, Ltd. does not have an interest in Well No. 1900-13. Further, for the well to be used, a water use permit must be first obtained from the Commission on Water Resource Management.
Dear Mr. Hatton:

Notice of Action
Revocation of Water Use Permits
Ewa Caprock Groundwater Management Area, Oahu

This letter serves as your official notice of the action by the Commission on Water Resource Management (Commission) on June 5, 1996 to revoke the following water use permits per your letter, dated April 19, 1996, agreeing to the permit revocations:

<table>
<thead>
<tr>
<th>WUP No.</th>
<th>Well No.</th>
<th>Allocation</th>
</tr>
</thead>
<tbody>
<tr>
<td>185</td>
<td>1900-01</td>
<td>1.550 mgd</td>
</tr>
<tr>
<td>186</td>
<td>1900-13</td>
<td>1.320 mgd</td>
</tr>
<tr>
<td>187</td>
<td>1901-01</td>
<td>1.194 mgd</td>
</tr>
</tbody>
</table>

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

Sincerely,

RAE M. LOUI
Deputy Director
On May 19, 1982, a cursory search was made for this and other wells in the area. The property is fenced with chain-link cyclone fencing and not accessible without permission. The area is extensively covered with kiawe trees and hoole koa and underbrush.

Upon investigation, it was found that this well is on property managed by the Naval Magazine. This information was given by Glenn Yashinaga of Navy, Environmental Branch 471-3748. He gave me the name of Alex Lum who is the Staff Civil Engineer for Lualualei Naval Magazine at 668-3251. He has been there since 1953, and says they have not been used since before the war. The area was used as an open storage (for drums, construction materials, etc.) during war. The pits were backfilled with rocks, coral and any other available material, so as not to constitute a hazard. The well(s) is considered destroyed as of the mid-1950s (1955 entered as date).
On May 19, 1982, a cursory search was made for this and other wells in the area. The property is fenced with chain-link cyclone fencing and not accessible without permission. The area is extensively covered with kiawe trees and hoopoe kea and underbrush.

Upon investigation, it was found that this well is on property managed by the Naval Magazine. This information was given by Glenn Yoshinaga of Navy Environmental Branch 471-3948. He gave me the name of Alex Lum, who is the Staff Civil Engineer for Lualualei Naval Magazine at 668-325. He has been there since 1953, and says they have not been used since before the war. The area was used as an open storage (for drums, construction materials, etc.) during war. The pits were backfilled with rocks, soil and any other available material so as not to constitute a hazard. The well(s) is considered destroyed as of the mid-1950s (1955 entered as date).
UNITED STATES
DEPARTMENT OF THE INTERIOR
 GEOLOGICAL SURVEY
WATER RESOURCES DIVISION

Date June 24, 1982 2059-02

MISCELLANEOUS FIELD NOTES

On May 19, 1982, a cursory search was made for this and other wells in the area. The property is fenced with chain-link cyclone fencing and not accessible without permission. The area is extensively covered with kiawe trees and halie kea and underbrush.

Upon investigation, it was found that this well is an property managed by the Naval Magazine. This information was given by Glenn Yoshinaga of Navy Environmental Branch, 471-3748. He gave me the name of Alex Lum who is the Staff Civil Engineer for Naval Magazine at 668-3251. He has been there since 1953, and says they have not been used since before the war. The area was used as an open storage for drum, construction materials, etc. during war. The pits were backfilled with rocks, coral and any other available material, so as not to constitute a hazard. The well(s) is considered destroyed, as of the mid-1950s (1955 entered as date).

Marti Akihara

No. 1 of 1 sheets
On May 19, 1982, a cursory search was made for this and other wells in the area. The property is fenced with chain-link, cyclone fencing and not accessible without permission. The area is extensively covered with kiawe trees and haole kea and underbrush.

Upon investigation, it was found that this well is on property managed by the Naval Magazine. This information was given by Glenn Yeshinaga of Navy Environmental Branch at 471-3748. He gave me the name of Alex Lum who is the Staff Civil Engineer for Lualualei Naval Magazine at 668-3251. He has been there since 1953, and says they have not been used since before the war. The area was used as an open storage (for drums, construction materials, etc.) during war. The pits were backfilled with rocks, coral and any other available material, so as not to constitute a hazard. The well(s) is considered destroyed as of the mid-1950's (1955 entered as date).

Makii Hilihia
WELL NO. 272-7

Date Drilled 1940
Driller Hobart Engineering Co.

Exist Ground Elev.

Well Casing 60 ft.

Water Level Elev.

End of Casing Elev.

Min. Dia. 8"

Bottom of Well Elev.
U. S. Department of Agriculture,
Farm Security Administration,
243 Federal Building,

City.

Att. Mr. F. E. Brown:

Gentlemen:

Following you will find report on

F: KUKUMURA WELL - VOLUSIA

Size of hole - 8 inch.
Depth of Hole - 25' below bottom of pit.
Casing - 6" Galv. 20.7' long, perforated below normal water level.
Cement grout between casing and hole from water up. Casing held with clamp encased in concrete at top.
Normal water level - 12.5' below top of casing.
Pumped 40 g.p.m. with .2' drawdown.
Salt content - 91.5 grains per gallon. (U.S.G.S.)
Drilled - Nov. 15 - 16, 1940

Very truly yours,

[Signature]

Copy to:

J. E. G. S.
Mr. Kumesura.
On May 19, 1982, a cursory search was made for this and other wells in the area.

The property is fenced with chain-link cyclone fencing and not accessible without permission.

The area is extensively covered with kiawe trees and hurlie kea and underbrush.

Upon investigation, it was found that this well is on property managed by the Naval Magazine. This information was given by Glenn Yoshinaga of the Navy, Environmental Branch. He gave me the name of Alex Lum who is the Staff Civil Engineer for Naval Magazine at 668-3251. He has been there since 1953, and says they have not been used since before the war. The area was used as an open storage (for drums, construction materials, etc.) during war. The pits were backfilled with rocks, soil and any other available material, so as not to constitute a hazard. The well(s) is considered destroyed as of the mid-1950s (1955 entered as date).

Marti Hoshua
WELL NO. 272-10

Exist Ground Elev.

Well Casing 6 3/4"

Water Level Elev.

End of Casing Elev.

Min. Dia. 8"

Bottom of Well Elev.

Data Drilled 1940
Driller Hobart Engineering Co.
Honolulu, T. H.

Dec. 2, 1940

U. S. Dept. of Agriculture,
Farm Security Administration,
245½ Federal Building,
City.

Att. Mr. F. L. Brown:

Gentlemen:

Following you will find report on

B. NYUHA WELL - PUALOA

Size of hole - 8 inches

Depth of hole - 25' below bottom of pit.

Casing - 6" Galv. steel pipe 20.8' long.
      Perforated below normal water level.
      Cement grout between casing and hole
      from normal water level up. Casing
      held with clamp encased in concrete
      at top.

Normal water level 12' below top of casing.

Pumped 40 G.P.M with no drawdown.

Salt content

Drilled - Nov. 26 - 27, 1940

Very truly yours,

NAT WHITON

Copy to:
U. S. G. S.
Mr. Nyuha.
On May 19, 1982, a cursory search was made for oil and gas wells in the area. The property is fenced with chain-link, cyclone fencing and not accessible without permission. The area is extensively covered with kiawe trees and haole kea and underbrush.

Upon investigation, it was found that this well is on property managed by the Naval Magazine. This information was given by Glenn Yashina of Navy, Environmental Branch, 471-3948. He gave me the name of Alex Lum who is the Staff Civil Engineer for Naval Magazine at 668-3251. He has been there since 1953, and says they have not been used since before the war. The area was used as an open storage (for drums, construction materials, etc.) during war. The pits were backfilled with rocks, coral and any other available material, so as not to constitute a hazard. The well(s) is considered destroyed as of the mid-1950's (1955 entered as date).

Mach Nishida
WELL NO. 272-11

Date Drilled: 1940
Driller: Hobart Engineering Co.

- Exist Ground Elev.
- Well Casing 6''
- Water Level Elev.
- End of Casing Elev.
- Min. Disc. 8''
- Bottom of Well Elev.
Honolulu, T. H.

Dec. 2, 1940

U. S. Dept. of Agriculture,
Farm Security Administration,
243½ Federal Building,
City,

Att. Mr. F. L. Brown

Gentlemen:

Following you will find report on

S. YAMADA WELL — PUULOA

Size of hole — 8 inches.

Depth of hole — 25' below bottom of pit.

Casing — 6" Caly. Steel pipe 21.7' long. Perforated below normal water level. Cement grout between casing and hole from water level up. Casing held with clamp encased in concrete at top.

Normal water level 11.5' below top of 6" casing.

Pumped 40 G.P.M with no drawdown.

Salt content 105 °B.P.G. Nov. 28 - 30, 1940

Drilled

Very truly yours,

[Signature]

NAT Whiton

Copy to:

U.S.G.S.

Mr. Yamada.
On May 19, 1982, a cursory search was made for this and other wells in the area. The property is fenced with chain-link cyclone fencing and not accessible without permission. The area is extensively covered with kiawe trees and hapu'u koa and underbrush.

Upon investigation, it was found that this well is on property managed by the Naval Magazine. This information was given by Glenn Yoshinaga of Naval Environmental Branch, 471-3948. He gave me the name of Alex Lum who is the Staff Civil Engineer for Naval Magazine at 668-3251. He has been there since 1953 and says they have not been used since before the war. The area was used as an open storage (for drums, construction materials, etc.) during war. The pits were backfilled with rocks, coral and any other available material, so as not to constitute a hazard. The well(s) is considered destroyed as of the mid-1950s (1955 entered as date).
WELL NO. 272-12

Date Drilled 1941
Driller Hobart Engineering Co.

- Exsit Ground Elev.
- Well Casing 6\textquoteleft\textquoteleft\textquoteleft
- Water Level Elev.
- End of Casing Elev.
- Min. Dia. 8\textquoteleft
- Bottom of Well Elev.
HOBART ENGINEERING CO.
DRILLING CONTRACTORS
WELLS • BORINGS • FOUNDATION TESTS

HONOLULU, T. H.

Jan. 29, 1941

U.S. Geological Survey,
Federal Bldg.,
City.

Gentlemen:-

Following you will find report on
a 6" shallow well which I have just completed
for Walter Zane & The Farm Security Administration
at Pa'ula, Oahu.

Size of hole - 6"
Depth of hole - 29' below bottom of pit.
Casing - 6" Standard wrought steel pipe 21.9' long. Perforated
below normal water level. Cement grout between casing
and hole from water level up. Casing held with clamp en-
cased with concrete at top.

Normal water level 11.5' below bottom of pit.
Salt content 156 g.p.g. June 16, 1941
Drilled Jan. 28, 1941

Very truly yours,

Nat Whiton
On May 19, 1982, a cursory search was made for this and other wells in the area. The property is fenced with chain-link cyclone fencing and not accessible without permission. The area is extensively covered with kiawe trees and hoole kea and underbrush.

Upon investigation, it was found that this well is on property managed by the Naval Magazine. This information was given by Glenn Yoshinaga of Navy, Environmental Branch, 471-3748. He gave me the name of Alex Lum who is the Staff Civil Engineer for Lualualei Naval Magazine at 668-3251. He has been there since 1953 and says they have not been used since before the war. The area was used as an open storage (for drums, construction materials, etc.) during war. The pits were backfilled with rocks, coral and -any other available material, so as not to constitute a hazard. The well(s) is considered destroyed as of the mid-1950's (1955 entered as date).

Mashi Ishina
WELL NO. 272-16

Date Drilled 1941
Driller Hobart Engineering Co.

Well Casing
6 ft

Water Level
Elev.

End of Casing
Elev.

Min. Dia.
8 in.

Bottom of Well
Elev.

30 ft

2.2 ft

8 ft
U. S. dept. of Agriculture,
Farm Security Administration,
Federal Bldg.,
City.

Heishin Kanshito,
Puuloa,
Cahu.

Gentlemen:-

Following you will find report on the
4½ well which I have just completed on the property
of Heishin Kanshito at Puuloa, Cahu.

Size of hole - 5"
Depth of hole - 30' below bottom of pit.
Casing - 21.8' standard wrought
steel pipe, perforated below
normal water level. Cement
grout between casing and hole
from water level up. Held with
clamps encased in concrete.

Normal water level - 12.9' below top of casing.
Salt content -

Drilled Feb. 19 - 20, 1941

Very truly yours,

Copy to U.S.G.L.
On May 19, 1982, a cursory search was made for this and other wells in the area. The property is fenced with chain-link cyclone fencing and not accessible without permission. The area is extensively covered with kiawe trees and halekoa and underbrush.

Upon investigation, it was found that this well is on property managed by the Naval Magazine. This information was given by Glenn Yoshinaga of Navy Environmental, Bianchi 471-3948. He gave me the name of Alex Lum who is the Staff Civil Engineer for Lualualei Naval Magazine at 668-3251. He has been there since 1953, and says they have not been used since before the war. The area was used as an open storage (for drums, construction materials, etc.) during war. The pits were backfilled with rocks, coral and any other available material, so as not to constitute a hazard. The well(s) is considered destroyed, as of the mid-1950’s (1955 entered as date).

Maiki K. Nakata
WELL NO. 272-21

Date Drilled: 1941
Driller: W. M. Mullin

Exist. Ground Elev.

Well Casing 6"

Water Level Elev.

End of Casing Elev.

Min. Dic.

Bottom of Well Elev.

42.54 ft

47.54 ft

80 - 110 m of Sl.

Drillier W. M. Mullin /
WELL 272-21

Location: On Meekam Road, Puna.
Owner: W. Martinsen.
Drilled: June 13, 1941 by W. N. Mullin.
Diameter: 6".
Depth: 60 ft.
Casing: 17 1/2 ft.
Chloride: 1,220 p.p.m. June 16, 1941.
Use: Irrigation and domestic supply.

LOG

<table>
<thead>
<tr>
<th>Depth Range</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>0 - 4</td>
<td>Soft brown clay with coral</td>
</tr>
<tr>
<td>4 - 12</td>
<td>Hard coral</td>
</tr>
<tr>
<td>12 - 18</td>
<td>Soft coral with sand</td>
</tr>
<tr>
<td>18 - 27</td>
<td>Soft coral with clay</td>
</tr>
<tr>
<td>27 - 32</td>
<td>Hard coral</td>
</tr>
<tr>
<td>32 - 35</td>
<td>Soft coral</td>
</tr>
<tr>
<td>35 - 54</td>
<td>Hard coral</td>
</tr>
<tr>
<td>54 - 60</td>
<td>Soft coral</td>
</tr>
</tbody>
</table>
On May 19, 1982, a cursory search was made for this and other wells in the area. The property is fenced with chain-link cyclone fencing and not accessible without permission. The area is extensively covered with kiawe trees and hoile kea and underbrush.

Upon investigation, it was found that this well is on property managed by the Naval Magazine. This information was given by Glenn Yoshinaga of Navy Environmental Branch, F71-3748. He gave me the name of Alex Lum who is the Staff Civil Engineer for Navel Magazine at 668-3251. He has been there since 1953, and says they have not been used since before the war. The area was used as an open storage (for drums, construction materials, etc.) during war. The pits were backfilled with rocks, coral and any other available material, so as not to constitute a hazard. The well(s) is considered destroyed as of the mid-1950s (1955 entered as date).
WELL NO. 272-23

Date Drilled 12/14
Driller W. M. Mullin

Exist. Ground Elev.

Well Casing 6"  

Water Level Elev.  

End of Casing Elev.  

Min. Dia.  

Bottom of Well Elev.  

60 ft.  

39 ft.  

21 ft.
WELL 272-23

Location: Pauoa.
Owner: Sakuma.
Drilled: June 23, 1941 by W. M. Mullin.
Diameter: 6".
Depth: 60 ft.
Casing: 21 ft.
Chloride: 1,030 p.p.m. July 14, 1941.
Water level: 17 ft. below ground level, July 14, 1941.
Use: Irrigation and domestic supply.

LOG

0 - 5  Dirt
5 - 9  Hard coral
9 - 21  Soft coral
21 - 30  Medium hard coral
30 - 39  Soft yellow coral
39 - 60  Hard coral

<table>
<thead>
<tr>
<th></th>
<th>Depth (ft.)</th>
<th></th>
<th>Depth (ft.)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Limestone and windblown sand formation. Windblown sand is really partly lithified beach sand. (Pls)</td>
<td>0-6.5</td>
<td>wood (Pa)</td>
<td>213.1-217.1</td>
</tr>
<tr>
<td>Hard brown clay with streaks of mudrock (Pa)</td>
<td>6.5-24.1</td>
<td>Cemented gravel (Pa)</td>
<td>217.1-221.9</td>
</tr>
<tr>
<td>Hard limestone (Pls)</td>
<td>24.1-26.8</td>
<td>Hard limestones or coral (Pls)</td>
<td>221.9-225.9</td>
</tr>
<tr>
<td>Brown clay with streaks of mudrock (Pa)</td>
<td>25.6-85.1</td>
<td>Soft fine sand and a little mud</td>
<td>225.9-227.9</td>
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<tr>
<td>Hard dark clay with streaks of mudrock (Pa)</td>
<td>85.1-92.1</td>
<td>Brown mudrock, clay, and small coral (Pa and Pls)</td>
<td>227.9-230.3</td>
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<tr>
<td>Compact gray clay (Pa)</td>
<td>92.1-133.4</td>
<td>Compact brown mudrock with occasional thin streaks of coral or limestone (Pa and Pls)</td>
<td>230.3-230.1</td>
</tr>
<tr>
<td>Concretion cemented gravel (Pa)</td>
<td>133.4-134.6</td>
<td>Sandy mudrock (Pa or Tkb)</td>
<td>230.1-344.9</td>
</tr>
<tr>
<td>Hard cemented sand (Pa)</td>
<td>134.6-139.2</td>
<td>Hard lava rock, flowing water first observed, (Tkb)</td>
<td>344.9-353.2</td>
</tr>
<tr>
<td>Hard limestone (Pls)</td>
<td>139.2-142.1</td>
<td>Sandy mudrock (Tkb)</td>
<td>353.2-365.4</td>
</tr>
<tr>
<td>Large pieces of coral, hard packed with sand, shell, and clay (Pls and Pa)</td>
<td>142.1-145.1</td>
<td>Hard lava rock (Tkb)</td>
<td>365.4-371.5</td>
</tr>
<tr>
<td>Coral, clay, and some shell (Pls and Pa)</td>
<td>145.1-152.1</td>
<td>Mudrock (Tkb)</td>
<td>371.5-377.9</td>
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<tr>
<td>Compact blue clay (Pa)</td>
<td>152.1-162.1</td>
<td>Hard lava rock (Tkb)</td>
<td>377.9-398.8</td>
</tr>
<tr>
<td>Compact mud with some shell (Pa)</td>
<td>162.1-172.1</td>
<td>Composite mudrock (Tkb)</td>
<td>398.8-399.4</td>
</tr>
<tr>
<td>Cemented material (Pa)</td>
<td>172.1-172.4</td>
<td>Hard lava rock (Tkb)</td>
<td>399.4-399.5</td>
</tr>
<tr>
<td>Mud, fine sand and grit (Pa)</td>
<td>172.5-189.1</td>
<td>Mudrock (Tkb)</td>
<td>399.5-399.8</td>
</tr>
<tr>
<td>Fine sand and mud (Pa)</td>
<td>189.1-211.8</td>
<td>Hard lava rock (Tkb)</td>
<td>399.8-399.9</td>
</tr>
<tr>
<td>Hard cemented sand (Pa)</td>
<td>211.8-213.3</td>
<td>Foid</td>
<td>400.2-404.0</td>
</tr>
<tr>
<td>Compact mud, sand, and silted</td>
<td></td>
<td>Hard lava rock (Tkb)</td>
<td>404.3-414.8</td>
</tr>
</tbody>
</table>

Backfilled to 361.60 ft.; see record below:

Wood splinters
Iron filings
Lead wool

irrit is pau - buried or lost

Log
WELL NO. 176-1

Exist Ground Elev. + 84'

Well Casing 6"

Water Level Elev.

End of Casing Elev.

Min. Dia.

Bottom of Well Elev. - 176'

REMARKS

Date Drilled 1991
Driller
Location- On Naval Reservation, 200 yards southeast of Halawa bridge and 1.2 miles southwest of Aiea. Longitude, 157°56'21"; latitude, 21°21'58".
Owner- U. S. Navy
Altitude- 8 ft.
Drilled- June, 1941 by Contractors, Pacific Naval Air Bases (Five Companies).
Diameter- 6"
Depth- 186 ft.

No leg available.

Well did not develop artesian water. Water surface dropped quickly to bottom of well when pumping at rate of 40 gallons a minute.

Well is probably pass now 10-11-57

Edw
Mr. Kazu Hayashida
Manager and Chief Engineer
Board of Water Supply
630 South Beretania St.
Honolulu, HI 96813

Dear Mr. Hayashida:

Your letter of 10 September 1979 requested that the Navy seal two abandoned wells on the Waipio Peninsula (Wells No. 233 and 234) and one at the Naval Magazine, Waikiki Branch (Well No. 251-1). A review of well records and maps identified two additional wells (Wells No. 230 and 232) on the Waipio Peninsula.

25 March 1980

On 26 September 1979, a field investigation located Well No. 251-1. Another field investigation on 25 March 1980 conducted by C. Lao and A. Morisako (BWS) and M. Kaya (PWC Pearl) located Wells No. 233 and 234. Projects to seal these wells in accordance with procedures acceptable to the Board of Water Supply are being initiated by PWC Pearl.

Wells No. 230 and 232 cannot be located and are presumed to be lost. Our Real Estate Division has been requested to pursue the concept of deed restriction requiring the future purchaser of the released Navy property to assume responsibility for sealing Wells No. 230 and 232 if found.

Very truly yours,

[Signature]

J. M. STÉVENS
CDR, CEC, USN
Special Assistant for Ecology

Copy to:
U.S. Geological Survey

Note: Wells 231-1 and 234 were found on March 25, 1980. Well 233 was not found.
222 and 223 (old 100 and 100-1). 500 yd. south of Weippe R. R. station. Altitude, about 20 ft. Not in use. Chloride (p.p.m.), Mar. 18, 1900. 0.006. Sears mark, top of concrete foundation under corner of rice mill nearest well, at groundy alti-
tude, 8.40 ft.
WELL NO. 234

REMARKS

Date Drilled -
Driller -
Receded and Sealed 1960

TMK 8-5-02:1
7/20/79 @ 1100 by A.H.

Temp. = 72°F
Cl = 2,900 ppm
Alk. = 48
H = 2,650
Sp. Cond., umhos = 5,480

366 ft.

130 ft.

131 ft.

12 ft.

11 ft.

76 ft.

12 ft.

20 ft.

11 ft.

8 ft.

12 ft.

8 ft.

12 ft.

20 ft.

H = 2,650

11 ft.

12 ft.
### Well 234

| Location: | In tunnel near Ulumoku fish pond on Waipio Peninsula, 0.7 mile south of Farrington Highway. |
| Owner: | U. S. Navy. |
| Altitude: | 11 ft. |
| Diameter: | 12 in.; recased to 2 in. in February, 1960 by Pacific Drilling Co. |
| Depth: | Originally 366 ft.; 347 ft. after recasing and backfilling with No. 2 crushed rocks. Note: all depths measured in tunnel, 15 ft. below ground surface |
| Casing: | Old 12 in., 206 ft.; new 2 in., 347 ft.; bottom 10 ft. perforated with ½ in. holes. |
| Use: | Stock supply. |
| Bench mark: | Top of vertical flange on 2" tee on the well; altitude, 12.75 ft. |

**Recasing and sealing procedure:**

1. The fittings on the well were removed and a 12 in. standpipe was installed to shut off the flow.

2. The well was sounded; the depth was found to be 366 ft. and the end of the casing 206 ft. below the top of the flange on the 12 in. casing. (Jan. 28, 1960)

3. The drill rig was set up over the well. 360 ft. of 2 in. Byers wrought iron pipe with the bottom 10 ft. perforated with ½ in. holes were placed and suspended in the well. (Feb. 16, 1960)

4. The well was backfilled with No. 2 crushed rocks from the bottom to 347 ft. and the 2 in. pipe was lowered until it rested on the rock fill. More No. 2 rocks were deposited and followed with No. 3 rocks which filled the well up to 226 ft. No 4 rocks filled from 226 to 216 ft., a point 10 ft. below the bottom of the casing.

5. 50 bags of ready-mixed cement were tremied in filling the well from 216 to 130 ft. (Feb. 23, 1960)

6. The remainder of the hole was filled with No. 4 rocks with a 1 ft. cement pad at the top.

7. The 2 in. pipe was sewed off 22½ ft. above the flange of the 12 in. casing and fitted with a 2 in. tee. One end of the tee is capped and the other is equipped with a 2 in. valve to control the flow.
WELL 230

Location: On Halipio Peninsula, at road intersection about midway between Eo and Kualoa fish ponds. Long. 157°29'58"; Lat. 21°22'40".

Owner: Gehu Sugar Co. U. S. Navy

Altitude: 17 ft.

Drilled: Not in use since the Eo fish pond was acquired by the Navy in April 1943.

Diameter: Well is old and not visible. It is surrounded with concrete. A 3" pipe line runs from well to a point about 300 ft. away. The water is being used occasionally by the Navy employees who are working nearby.

Depth: Not available.

Casing: Condition: Not available.

Use: Bench mark: Not available.
Location: On Waipio Peninsula, on south shore of Eo fish pond, 1,000 yds. southeast of Waipahu H.H. station.

Owner: U.S. Navy. (The Navy acquired Eo fish pond including well on April 1943).

Altitude: 10 ft.

Diameter: 12".

Use: Not in use at present.

Casing: Buried in cas. well

Condition: Well is old and uncapped. Well flows continuously into the pond. The pond will be filled with dredged material from Pearl Harbor in the near future. However, the Navy has decided to extend the pipe in this well above the level of the fill and cap the same. (See letter dated Aug. 26, 1943 from the Navy).

Log: Not available.

Diagram:

- Location: Waipio Peninsula, near Waipahu H.H. station.
- Eo fish pond, 1,000 yds. southeast of Waipahu H.H. station.
- Depth: 10 ft.
- Diameter: 12".
- Use: Not in use.
- Condition: Well is old and uncapped. Well flows continuously into the pond. The pond will be filled with dredged material from Pearl Harbor in the near future. However, the Navy has decided to extend the pipe in this well above the level of the fill and cap the same. (See letter dated Aug. 26, 1943 from the Navy).
- Log: Not available.

Well mark, top of blind flange at ¾-in. top, 3 ft. above ground; altitude, 4.75 ft.

Well is buried and lost when the navy filled Hanaloa fish pond with dredged material.
MEMORANDUM FOR THE RECORD

FROM: Lenore Nakama
SUBJECT: Abandonment of Well-No. 1900-13

Following up on the status of Well No. 1900-13. The current landowners are Okada Trucking Co., Ltd. and the Navy. Most of the source is located on Okada’s land. The Navy has not expressed any objection to sealing the portion on Navy property. I called Okada and spoke with Gavin Hubbard (841-0138) to inquire about their plans. He said they were interested in using the source for dust control. I explained to him that water use and pump installation permits would be required and directed him to our website to download the application forms. Because a landowner has expressed future plans to use this existing source, we will not require sealing at this time.
## PUBLIC RECORD DATA

### TMK # 1-9-1-10-13 91-891 HAHANUI ST

**Owner:** OKADA TRUCKING CO LTD  
**Tax Payer:** OKADA TRUCKING CO LTD  
**Tax Bill:** 2065 S KING ST # 105, HONOLULU, HI96826 USA  
**Tenure:** Fee Simple  
**Semi-Annual Tax:** $3,755.23

<table>
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<tr>
<th>Assessed Value</th>
<th>Exemption</th>
<th>Size</th>
<th>Buildings</th>
<th>Size</th>
<th>PITT Code</th>
<th>Land Use</th>
<th>Nbhood Code</th>
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<tbody>
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<td>Land: $759,400</td>
<td>$0</td>
<td>20.52 ac</td>
<td>0</td>
<td>$0</td>
<td>500</td>
<td>901</td>
<td>9171</td>
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<tr>
<td>Buildings: $0</td>
<td>$0</td>
<td>0 sq ft</td>
<td>0</td>
<td>$0</td>
<td></td>
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<tr>
<td>Total: $759,400</td>
<td>$0</td>
<td></td>
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<td>$0</td>
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</table>

### SALES

- **7/21/1994 DEED**
  - JACKSON CONSTRUCTION LTD  
  - $2,000,000 LCD 2165896 TCT 552233

- **10/29/1996 COMMD**
  - HAWAII MEAT COMPANY LTD, A Company or Corporation  
  - $500,000 LCD 2344517 TCT 552233

- **4/12/2000 DEED**
  - OKADA TRUCKING CO LTD, A Company or Corporation  
  - $250,000 LCD 2618671 TCT 552233

### DEPARTMENT OF LAND UTILIZATION

This data from the Department of Land Utilization is unofficial and is subject to change without notice. It is the user's responsibility to verify the accuracy of information from official documents which are available for inspection at the City department responsible for the data.

<table>
<thead>
<tr>
<th>CIVIL FINES</th>
<th>DEVELOPMENT PLAN AREA</th>
<th>DEVELOPMENT PLAN DESIGN</th>
<th>FLOOD ZONE</th>
<th>HEIGHT LIMIT</th>
<th>HISTORIC SITE REGISTER</th>
<th>LOT RESTRICTIONS</th>
<th>SMA/SHORELINE</th>
<th>SPECIAL DISTRICT</th>
<th>STATE LAND USE</th>
<th>STREET SETBACK</th>
<th>ZONING (CZC)</th>
<th>ZONING (LUO)</th>
</tr>
</thead>
<tbody>
<tr>
<td>NONE</td>
<td>EWA</td>
<td>SUPERSEDED BY ORD 97-49. EFFECTIVE 10/21/97.</td>
<td>FIRM ZONE D</td>
<td>25 FEET</td>
<td>NONE</td>
<td>NONE</td>
<td>NOT IN SMA</td>
<td>NOT IN SPECIAL DISTRICT</td>
<td>AGRICULTURAL DISTRICT</td>
<td>NONE</td>
<td>AG-1 RESTRICTED AGRICULTURAL</td>
<td>AG-1 RESTRICTED AGRICULTURAL</td>
</tr>
</tbody>
</table>

This information has been supplied by third parties and has not been independently verified by Hawaii Information Service and is therefore, not guaranteed.

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http://webresearch.hawaiiinformation.com/REsearch/Asp/Functions/Property/SearchTMK.asp?F 5/22/01
Ms. Linnel Nishioka  
Commission on Water Resource Management  
P. O. Box 621  
Honolulu, HI 96809  

Dear Ms. Nishioka:  

SUBJECT: WELL NO. 1900-13 (EP30)  

This letter is in response to your letter of January 9, 2001 regarding well 1900-13 (EP30). We appreciate the information provided by your staff, which led us to find the subject well in the West Loch area. We have conducted fieldwork to inspect the existing equipment at the well site and performed a record search to identify the extent and ownership of the well.  

As you have stated, the well is a large pit, which makes it unique and unconventional. From our research, we have found that much of the well is located in an adjacent property with a very small portion of the well located within the Navy's property. Although the inoperable pump and associated abandoned equipment are located on the Navy's property, there are no plans to use the pump now or in the future. In fact, it was confirmed that the pump shaft has been cut through to disable the pump. We have enclosed information regarding the pump, equipment, property boundaries, and site conditions.  

At this time, our plans are to remove some of the abandoned equipment and secure the pump head structure for safety reasons.  

Should you have any questions regarding the information provided under this letter, please contact Mr. Elton Saito at 471-1171 extension 202.  

Sincerely,  

R. M. WAKUMOTO  
Division Head, Compliance  
Regional Environmental Department  
By direction of  
Commander, Navy Region Hawaii  

Enclosures: 1. Location of Well 1900-13, Figure 1  
2. TMK: 9-1-10, Figure 2  
3. Enlargement of location of Well 1900-13, Figure 3  
4. Photographs of Well Site, Figure 4 (2 sheets)  
5. Pump Specifications, Figure 5  

Copy to: PACNAVFACENGCOM (Code ENV1811)
2 PUMPS 6 MGD CAPACITY EACH
AT 30 FEET TDH, 30 HP
DISCHARGE PIPE LINE 16" FROM EACH PUMP
STATIC WATER LEVEL 2.0 FT.
Figure 4

Well 1900-13
Photograph shows the vertical turbine pump that is inoperable.
Well 1900-13
Photograph shows the open pit and the concrete sump structure.
Figure 5

Motor MFG: C.E.  
Horsepower: 10  
RPM: 1800  
Phase: 3  
Cycles: 60  
Volts: 460  
Frame: 4.321/4  
Enclosure: 0, 0, 0  
A (Base): 12.0  
A(G): 32.44  

Discharge Head: H: 1206  
B: 12.0  
C: 14.4  
D: 6.0  
E: 7.0  
F: 6.0  
G (Hole Dia): 3/4"  
H: 6.0  
I: 1.0  

Column Pipe: B  
J: 11.5  
K: 0.4  

Bowl Assembly: M: 160  
No. of Stages: 1  
R Dia.: 12.0  
L: 2.1  
OL: 96.54  
S Min.: 31.78  
Sump Depth:  

*This Dia is also min. floor opening req.
Mr. R.M. Wakumoto, Director
Regional Environmental Department
Department of the Navy
Commander
Navy Region Hawaii
517 Russell Avenue, Suite 110
Pearl Harbor, HI 96860-4884

Dear Mr. Wakumoto:

Well Status Report for COMNAVREG Hawaii

We are in receipt of the subject document, outlining your efforts to locate 24 Navy-owned wells. You are requesting that we identify the status of these wells to be lost ("lost") under the Major Use field in our well database.

<table>
<thead>
<tr>
<th>Wells Declared to Be Lost</th>
</tr>
</thead>
<tbody>
<tr>
<td>1900-03 /</td>
</tr>
<tr>
<td>1900-04 /</td>
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<td>1900-05 /</td>
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<tr>
<td>1900-06 /</td>
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</tr>
<tr>
<td>2259-02 /</td>
</tr>
<tr>
<td>2259-03 /</td>
</tr>
</tbody>
</table>

My staff is aware of the location of Well No. 1900-13 (EP 30), which is a large pit slightly east of the Hawaii Prince Golf Course. This source should be properly abandoned and sealed if there are no future plans for use. We have attached the appropriate application form.

With regard to the remaining 23 wells, we note that the wells are very old (constructed in the 1940's or earlier) and that majority of the wells appear to be drilled into the caprock formation. We also note and commend you for your extensive file research and field investigations to locate these wells. Finally, we note that there have been previous documented unsuccessful efforts to locate the wells by the U.S. Geological Survey and others. Based on your efforts and findings, we will update our well database to indicate that these 23 wells are lost.
However, please be aware that, should a "lost" well be discovered in the future, the current landowner will be responsible for properly abandoning and sealing the well, as well as for any mitigative measures, should contamination from an improperly abandoned well result.

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

Sincerely

LINNEL T. NISHIOKA
Deputy Director

LN:ky
Attachment
MEMORANDUM FOR THE RECORD

FROM: Lenore Nakama
SUBJECT: Sealing of EP 30 (Well No. 1900-13)

The Navy submitted a Well Status Report for COMNAVREG Hawaii, outlining efforts to locate 24 Navy-owned wells. The report indicated Well No. 1900-13 was “lost”.

In a response letter dated January 9, 2001, the CWRM informed the Navy that we were aware of the location of 1900-13, a large pit slightly east of the Hawaii Prince Golf Course. We requested that the Navy properly abandon and seal 1900-13 if there were no future plans for use, and we attached an application form.

On February 13, 2001, Eric Okamura of Hawaii Pacific Engineers (Navy’s consultant) called. He asked if the source could remain in place and categorized as “unused”. He stated that the source is an elongated pit that also crosses into Hawaii Meat Company land. The pump is on Navy land, but there is a possibility that the ground water is emanating from Hawaii Meat Co. land.

On February 13, 2001, Roy Hardy, Glenn Bauer and myself discussed this matter. It was decided that the source met the definition for abandonment and that it should be sealed. It’s purpose has been served, and the presence of a large open pit is a possible public health hazard as well as a conduit for ground water contamination.

I called Eric (522-7428) and informed him that an application to abandon/seal should be submitted. If we did not receive an application, I am to draft a submittal recommending that the Commission order the source to be abandoned and sealed.
PROJECT TITLE  EWA CAPROCK GROUNDWATER QUALITY SURVEY

WELL DESCRIPTION:
Well Name: Ewa Beach EP 30
Well I.D. No.: 3-1900-13
Well Location: Lat. 21° 19' 59" N
Long. 158° 00' 22" W
Well Owner: Oahu Sugar
Contact Person: Hugh Morita
Type: Irrigation
Flow 0.5 mgd
Remarks: Dug well, open pit

WELL CONSTRUCTION:
Casing Stick Up (A) none ft.
Ground Elevation (B) 5 ft.
Diameter of Boring (C) varies in.
Total Depth of Boring (D) 8 ft.
Grouted Interval (E) none ft.
Filter-Pack Interval (F) none ft.

Msrd Dpth to Wtr Tbl/ Approx Elev/ Elev Per DLNR Indx (G) ____/____/ 1.5 ft.

<table>
<thead>
<tr>
<th>MATERIAL</th>
<th>DIAMETER (IN)</th>
<th>LENGTH (FT)</th>
<th>TOP/BOT.ELEV.(FT)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Solid Casing (H)</td>
<td>none</td>
<td>none</td>
<td>none</td>
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<tr>
<td>Perforated Casing (I)</td>
<td>none</td>
<td>none</td>
<td>none</td>
</tr>
<tr>
<td>Open Hole (J)</td>
<td>varies</td>
<td>8</td>
<td>5/-3</td>
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</table>

JOURNAL OF SAMPLE COLLECTIONS:

<table>
<thead>
<tr>
<th>Date</th>
<th>Time</th>
<th>Person</th>
<th>Weather</th>
<th>Remarks</th>
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</thead>
<tbody>
<tr>
<td>November 18, 1992</td>
<td>8:45 a.m.</td>
<td>JT, KW, NU</td>
<td>Fair</td>
<td>Geese in pit sampled at well head</td>
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<td>February 11, 1993</td>
<td>10:12 a.m.</td>
<td>JR, CH</td>
<td>Fair</td>
<td>Geese in pit sampled from pit</td>
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<td>February 23, 1993</td>
<td>11:05 a.m.</td>
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<td>Fair</td>
<td>Geese in pit sampled from pit</td>
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<td>June 16, 1993</td>
<td>9:50 a.m.</td>
<td>NU, KW, JR</td>
<td>Fair</td>
<td>Sampled from pit</td>
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</tbody>
</table>
### EWA BEACH EP-30

<table>
<thead>
<tr>
<th>Date of Sample Collection</th>
<th>11/18/92</th>
<th>02/11/93</th>
<th>02/23/93</th>
<th>06/16/93</th>
</tr>
</thead>
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<tr>
<td><strong>ANALYTICAL PARAMETERS</strong></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Total Dissolved Solids</td>
<td>(mg/l)</td>
<td>2388</td>
<td>2354</td>
<td>2750</td>
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<tr>
<td>Total Suspended Solids</td>
<td>(mg/l)</td>
<td>3</td>
<td>7</td>
<td>4</td>
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<tr>
<td>Chlorides</td>
<td>(mg/l)</td>
<td>1200</td>
<td>1360</td>
<td>1745</td>
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<tr>
<td>Specific Conductance</td>
<td>(mmho/cm)</td>
<td>4380</td>
<td>4460</td>
<td>4030</td>
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<tr>
<td>Hardness</td>
<td>(mg equiv. Ca CO3/l)</td>
<td>1202</td>
<td>1202</td>
<td>1171</td>
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<tr>
<td>Alkalinity (as Ca CO3)</td>
<td>(mg/l)</td>
<td>286</td>
<td>290</td>
<td>299</td>
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<tr>
<td>pH</td>
<td>(std. unit)</td>
<td>7.45</td>
<td>7.01</td>
<td>7.1</td>
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<tr>
<td>Temperature</td>
<td>(°C/°F)</td>
<td>/75.9/</td>
<td>/75.2/</td>
<td>/76.2/</td>
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<tr>
<td>Turbidity</td>
<td>(NTU)</td>
<td>2.2</td>
<td>6.1</td>
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<tr>
<td>Dissolved Oxygen</td>
<td>(mg/l)</td>
<td>0.05</td>
<td>0.05</td>
<td>0.04</td>
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<tr>
<td>Total Residual Chlorine</td>
<td>(mg/l)</td>
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<td>Ammonia (N)</td>
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<tr>
<td>Total Kjeldahl Nitrogen</td>
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<td>0.043</td>
<td>0.04</td>
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<tr>
<td>Orthophosphate</td>
<td>(mg/l)</td>
<td>0.036</td>
<td>0.02</td>
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<tr>
<td>Total Organic Carbon</td>
<td>(mg/l)</td>
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<tr>
<td>Biochemical Oxygen Demand-5 Day</td>
<td>(mg/l)</td>
<td>&lt;2.0</td>
<td>&lt;2.0</td>
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<tr>
<td>Chemical Oxygen Demand</td>
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<td>13.1</td>
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<tr>
<td>Total Coliform (COL/100ml)</td>
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<td>TNTC (a)</td>
<td>TNTC (a)</td>
<td>TNTC (a)</td>
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<tr>
<td>Vinyl Chloride</td>
<td>(ppb)</td>
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<td>&lt;0.3</td>
<td>&lt;0.3</td>
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<tr>
<td>1,1-Dichloroethylene</td>
<td>(ppb)</td>
<td>&lt;0.3</td>
<td>&lt;0.3</td>
<td>&lt;0.3</td>
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<tr>
<td>1,1,1-Trichloroethane</td>
<td>(ppb)</td>
<td>&lt;0.3</td>
<td>&lt;0.3</td>
<td>&lt;0.3</td>
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<tr>
<td>Carbon Tetrachloride</td>
<td>(ppb)</td>
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<td>&lt;0.2</td>
<td>&lt;0.2</td>
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<tr>
<td>Benzene</td>
<td>(ppb)</td>
<td>&lt;0.3</td>
<td>&lt;0.3</td>
<td>&lt;0.3</td>
</tr>
<tr>
<td>1,2-Dichloroethane</td>
<td>(ppb)</td>
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<td>&lt;0.3</td>
<td>&lt;0.3</td>
</tr>
<tr>
<td>Trichloroethylene</td>
<td>(ppb)</td>
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<td>&lt;0.2</td>
<td>&lt;0.2</td>
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<tr>
<td>p-Dichlorobenzene</td>
<td>(ppb)</td>
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<td>&lt;0.3</td>
<td>&lt;0.3</td>
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<td>1,2,3-Trichloropropene</td>
<td>(ppb)</td>
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<td>&lt;0.2</td>
<td>&lt;0.2</td>
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<td>trans-1,2-Dichloroethene</td>
<td>(ppb)</td>
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<td>&lt;0.3</td>
<td>&lt;0.3</td>
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<tr>
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<td>(ppb)</td>
<td>&lt;0.3</td>
<td>&lt;0.3</td>
<td>&lt;0.3</td>
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<tr>
<td>1,2-Dichloropropane</td>
<td>(ppb)</td>
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<td>&lt;0.3</td>
<td>&lt;0.3</td>
</tr>
<tr>
<td>Toluene</td>
<td>(ppb)</td>
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<td>&lt;0.3</td>
<td>&lt;0.3</td>
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<tr>
<td>Ethylbenzene</td>
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<td>Monochlorobenzene</td>
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<td>&lt;0.3</td>
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<tr>
<td>o-Dichlorobenzene</td>
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<td>&lt;0.3</td>
<td>&lt;0.3</td>
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<tr>
<td>Styrene</td>
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<td>&lt;0.3</td>
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<tr>
<td>m-Xylene</td>
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<td>&lt;0.3</td>
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<tr>
<td>p-Xylene</td>
<td>(ppb)</td>
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<td>&lt;0.3</td>
<td>&lt;0.3</td>
</tr>
<tr>
<td>o-Xylene</td>
<td>(ppb)</td>
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<td>&lt;0.3</td>
<td>&lt;0.3</td>
</tr>
<tr>
<td>Tetrachloroethene</td>
<td>(ppb)</td>
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<td>&lt;0.2</td>
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<tr>
<td>Chloromethane</td>
<td>(ppb)</td>
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<td>&lt;0.3</td>
<td>&lt;0.3</td>
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<tr>
<td>Bromomethane</td>
<td>(ppb)</td>
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<tr>
<td>Chloroethane</td>
<td>(ppb)</td>
<td>&lt;0.3</td>
<td>&lt;0.3</td>
<td>&lt;0.3</td>
</tr>
</tbody>
</table>

(a) - Fecal Positive  
(b) - Fecal Negative  
(c) - Sample Holding Time Exceeded  
(d) - Lost in Extraction  

TNTC - Too Numerous To Count  
NF - None Found  

**DRAFT**
### Date of Sample Collection

<table>
<thead>
<tr>
<th>Date</th>
<th>11/18/92</th>
<th>02/11/93</th>
<th>02/23/93</th>
<th>06/16/93</th>
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</table>

### Analytical Parameters

<table>
<thead>
<tr>
<th>Parameter</th>
<th>(ppb) 11/18/92</th>
<th>(ppb) 02/11/93</th>
<th>(ppb) 02/23/93</th>
<th>(ppb) 06/16/93</th>
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<tr>
<td>Methylen Chloride</td>
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<td>&lt;0.2</td>
<td>&lt;0.2</td>
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<td>&lt;0.3</td>
<td>&lt;0.3</td>
</tr>
<tr>
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<td>&lt;0.3</td>
<td>&lt;0.3</td>
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<tr>
<td>cis-1,3-Dichloropropene</td>
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<td>&lt;0.3</td>
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<td>Barium</td>
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<td>0.066</td>
<td>0.112</td>
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<td>Nitrate (as N)</td>
<td>8.6</td>
<td>7.7</td>
<td>8.0*</td>
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<tr>
<td>Nitrite (as N)</td>
<td>&lt;0.05</td>
<td>0.03</td>
<td>0.11</td>
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<td>Fluoride</td>
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<tr>
<td>Sodium</td>
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<td>475</td>
<td>521</td>
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<tr>
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<td>&lt;0.05</td>
<td>&lt;0.05</td>
<td>&lt;0.05</td>
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<td>Beryllium</td>
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<td>&lt;0.001</td>
<td>&lt;0.001</td>
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<td>Iron</td>
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<td>&lt;0.02</td>
<td>&lt;0.02</td>
<td>&lt;0.02</td>
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<tr>
<td>1,2-Dibromo-3-Chloropropane</td>
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(a) - Fecal Positive
(b) - Fecal Negative
(c) - Sample Holding Time Exceeded
(d) - Lost in Extraction

TNTC - Too Numerous To Count
NF - None Found
* - Field Test (Hach NI-12)

DRAFT
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(a) - Fecal Positive
(b) - Fecal Negative
(c) - Sample Holding Time Exceeded
(d) - Lost in Extraction

TNTC - Too Numerous To Count
NF - None Found

**DRAFT**
Caprock Wells Sampled

- Major and Secondary Roads

- Seaward (Makai) Areas of the Underground Injection Control (UIC) Line

Barbers Point
Barbers Point Harbor
Ewa Marina (Proposed)
Ewa Beach
Kahi Point
West Loch
Pearl Harbor
Middle Loch
Oahu Dug Well hl
Ewa Plantation Company
Pump 29 and 30
Ewa, Ewa District

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<th>Date</th>
<th>Water level (ft.)</th>
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<th>Observer</th>
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<td>Oct. 31, 1964</td>
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<td>K. Y. Chang</td>
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CHLORIDE TITRATION RECORD

E. P. Co. for Puy Well 4 (No.) 3-1900-13

Island Project or Job No. 19

Titrations conducted by E. P. Buhl, USGS

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<thead>
<tr>
<th>Sample No.</th>
<th>Date Taken (ml)</th>
<th>Sample (ml)</th>
<th>Burette Rdg Before</th>
<th>AgNO₃</th>
<th>AgNO₃ - .2 ml</th>
<th>Mult. Factor</th>
<th>Chlorides (ppm)</th>
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## CHLORIDE TITRATION RECORD

**E.P.C.**

for

**Dug Well 41**

(No.)

### Island Project or Job No. 19

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Ewa Plantation Co, Dug Well 41 3-1900-13

Side View of Trench at Hawaii Meat Quarry

Porous Permeable Fossiliferous Limestone

Less porous and fossiliferous than Dug Well 40

J.P.B.
LEWA PLANTATION CO. Dug well 41 (1900-13)

Pipeline

Bluff

BM - See E.P. Co.

Remainder platform

MP 500

Trench

Quarry Floor
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Data furnished by City & County, Board of Water Supply.

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