WELL CONSTRUCTION PERMIT

for

Kahului-UNOCAL Monitor Wells
Well Nos. 5327-01M to 28M
Kahului, Maui

TO: UNOCAL Refining & Marketing
P.O. Box 659
Honolulu, Hawaii 96809

In accordance with the Department of Land and Natural Resources Administrative Rules, Section 13-168, entitled "Water Use, Wells, and Stream Diversion Works", your application to construct 28 monitor wells (Well Nos. 5327-01M to 28M) within Tax Map Key: 3-7-11:21 is approved, subject to the following conditions:

1. The Division of Water Resource Management (DWRM), Geology-Hydrology Section, shall be notified at 548-7543, before any work by this permit commences.

2. The wells shall be used for monitoring and recovery of contaminants only.

3. The following shall be submitted to DWRM, P.O. Box 373, Honolulu, Hawaii 96809 within 30 days after completion of the wells:
   b. As-built sectional drawings of the wells.
   c. Plot plan and map showing the exact locations of the wells.
   d. Complete pumping test record, including time, pumping rate, drawdown, chloride content, and water quality data.
   e. Periodic reports of monitoring and testing results.
4. The applicant shall comply with all applicable laws, rules, and ordinances.

5. This permit may be revoked if work is not started within six months of the date of issuance or if work is suspended or abandoned for six months. The work shall be completed within two years of the date of issuance.

6. Upon completion of monitoring operations, the applicant shall obtain a well construction permit to seal the wells with cement grout in a manner approved by the Commission.

SEP - 4 1990

WILLIAM W. PATY

Date of Issuance

Enc. (Well Completion Report form)
cc: USGS
   Department of Health
   Drinking Water Branch
   Ground Water Protection Program
   Maui Department of Water Supply
   Dames & Moore
APPLICATION FOR

X WELL CONSTRUCTION PERMIT
X PUMP INSTALLATION PERMIT

INSTRUCTIONS: Please print or type and send completed application with attachments to the Division of Water and Land Development, P.O. Box 373, Honolulu, Hawaii 96809. Application must be accompanied by a non-refundable filing fee of $25.00 payable to the Department of Land and Natural Resources. (Filing fee waived for government agencies.) If necessary, phone 348-7143. Hydrology/Geology Section for assistance.

1. WELL LOCATION
   INCLUDES 2 RECOVERY PITS
   Island MAUI  
   Tax Map Key MAUl 3-7-11-21  
   Address HOBSON AVENUE, KAHULUI, MAUl, HAWAII 96732  
   (Attach a USGS map (scale 1"=2000') and property tax map showing well location referenced to established property boundaries.)

2. WELL OWNER LANDOWNER
   Firm Name UNOCAL REFINING & MARKETING
   Contact Person MR. KEN HIGA
   Address P. O. BOX 659  
   HONOLULU, HAWAII 96809  
   Phone (808) 522-7603
   
   Firm Name A & B Properties Inc.
   Contact Person
   Address P. O. Box 3440
   Honolulu, HI 96801
   Phone (808) 525-6611

3. PROPOSED CONTRACTOR FOR: [x] Well Drilling  [x] Pump Installation
   Name DAMES & MOORE
   Address 1144 10TH AVENUE, SUITE 200  
   HONOLULU, HAWAII 96816
   Contractor's License No. [ ]/ [ ]
   Phone (808) 735-3585
   THESE ARE HAND DUG TEST PITS.

4. PROPOSED WORK
   [x] Drill New Well  [x] Deepen
   [ ] Alter  [ ] Seal
   [x] Install New Pump  [x] Replace Pump
   [ ] Redrill  [ ] Abandon
   [ ] Modify Pump
   (Briefly describe the proposed work and fill in the diagram on the back of this form.)

5. PROPOSED USE
   [ ] Municipal (including hotels, stores, etc.)  [ ] Military
   [ ] Domestic (individual, noncommercial water systems)  [ ] Industrial
   [ ] Irrigation (specify)  [ ] Other (specify) MONITOR/RECOVERY

6. PROPOSED AMOUNT OF WITHDRAWAL
   1440 gallons per day 1 GAL/MIN.

7. PROPOSED PUMP INFORMATION
   AIR DRIVEN DOUBLE DIAPHRAGM
   Pump Type: [ ] Vertical Turbine  [ ] Submersible  [ ] Centrifugal
   Motor: [ ] Diesel  [x] Gas  [x] Electric: [ ] Rated Horsepower
   Rated Pump Capacity 5 gallons per minute (gpm)

Well Owner (print) UNOCAL  Landowner (print) 
Signature [ ] Date  

Field Checked By Latitude__  Hydrologic Unit__
Date__  State Well No. 5327-011,02M

For Official Use Only:
Briefly describe the proposed work: 2 RECOVERY PITS

RECOVERY PIT CONSTRUCTED BY EXCAVATING ENOUGH SOIL TO ALLOW FOR APPROXIMATELY 2 FEET OF STANDING WATER. PUMP USED TO CREATE A CONSTANT GROUNDWATER DRAW DOWN WHICH ALLOWS ACCUMULATION OF FLOATING GASOLINE/DIESEL IN THE PIT WHERE THE FUEL CAN BE RECOVERED.

PROPOSED SECTION OF WELL

Elevation at top of casing
6 ft., msl.

Ground Elev. = 6' ft., msl*

Cement Grout 1.5 ft.

Solid Casing:
Material 55 GAL DRUM
Length 1 ft.
Diameter 24 in.
Wall thickness 1/32 in.

Hole Di. = 2.5' in.

Casing: /X/Perforated / /Screen
Material DRUM W/SLOTS
Length 2.5 ft.
Diameter 24 in.
Wall thickness 1/32 in.
Openings 45 sq. in./L.F.

Total Depth = 4.5' ft.

Rock Packing 3 ft.

Open Hole:
Length 0'
Diameter 28 in.

*Approximate elevation at time of filing application. Final elevation (msl) by a surveyor licensed by the State must be submitted at start of construction.
MAP OF AREA

SCALE 1:24,000

CONTOUR INTERVAL 40 FEET
DOTTED LINES REPRESENT 20-FOOT CONTOURS
DATUM IS MEAN SEA LEVEL

Reference:
U.S.G.S. Topographic Map
State of Hawaii
COMMISSION ON WATER RESOURCE MANAGEMENT
Department of Land and Natural Resources
Division of Water Resource Management

APPLICATION FOR

WELL CONSTRUCTION PERMIT
PUMP INSTALLATION PERMIT

INSTRUCTIONS: Please print or type and send completed application with attachments to the Division of Water and Land Development, P.O. Box 373, Honolulu, Hawaii 96829. Application must be accompanied by a non-refundable filing fee of $25.00 payable to the Department of Land and Natural Resources. (Filing fee waived for government agencies.) If necessary, phone 548-4445, Hydrology/Giology Section for assistance.

1. WELL LOCATION INCLUDES 26 MONITORING WELLS
   Island MAUI
   Tax Map Key MAUI 3-7-11-21
   Address HOBRON AVENUE, KAHULUI, MAUI, HAWAII 96732
   (Attach a USGS map (scale 1"=2000') and property tax map showing well location referenced to established property boundaries.)

2. WELL OWNER
   Firm Name UNOCAL REFINING & MARKETING
   Contact Person MR. KEN HIGA
   Address P. O. BOX 659
   HONOLULU, HAWAII 96809
   Phone (808) 522-7603

3. PROPOSED CONTRACTOR FOR: ✔ Well Drilling ☐ Pump Installation
   Name DAMES & MOORE
   Address 1144 10TH AVENUE, SUITE 200
   Contractor's License No. N/A
   Phone (808) 735-3585
   THESE ARE HAND DUG PITS.

4. PROPOSED WORK
   ✔ Drill New Well ☐ Deepen ☐ Redrill
   ☐ Alter ☐ Seal ☐ Abandon
   ☐ Install New Pump ☐ Replace Pump ☐ Modify Pump
   (Briefly describe the proposed work and fill in the diagram on the back of this form.)

5. PROPOSED USE
   ✔ Municipal (including hotels, stores, etc.) ☐ Military
   ☐ Domestic (individual, noncommercial water systems) ☐ Industrial
   ☐ Irrigation (specify) ☐ Other (specify) MONITOR

6. PROPOSED AMOUNT OF WITHDRAWAL 0 gallons per day

7. PROPOSED PUMP INFORMATION
   Pump Type: ☐ Vertical Turbine ☐ Submersible ☐ Centrifugal
   Motor: ☐ Diesel ☐ Gas ☐ Electric: □ Rated Horsepower
   Rated Pump Capacity gallons per minute (gpm)
   ____________________________

Well Owner (print) UNOCAL
Signature ________________________
Date 8/01/99
Landowner (print) ________________________
Signature ________________________
Date ________________________

For Official Use Only:
Field Checked By ________________________
Date ________________________
Latitude ________________________
Hydrologic Unit 5327-03M+28M
Longitude ________________________
State Well No. ________________________
Briefly describe the proposed work: **INCLUDES 26 WELLS.**

**CONSTRUCT 26 MONITORING WELLS TO CHARACTERIZE THE EXTENT**

**OF FLOATING GASOLINE/DIESEL AT THE SITE AND TO SKIM ANY POTENTIAL FUEL.**

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**PROPOSED SECTION OF WELL**

- **Elevation at top of casing**
  - **GROUND TO -2.5 ft., msl.**

- **Cement Grout**
  - 0.5 to 1 ft.

- **Hole Dia.**
  - 8 in.

- **Total Depth**
  - 5 to 6 ft.

- **Rock Packing**
  - 5.5 ft.

- **Ground Elev. = 6 ft., msl**

**Solid Casing:**
- **Material**: PVC
- **Length**: 0.5 to 3 ft.
- **Diameter**: 4" in.
- **Wall thickness**: SCHEDULE 40 in.

**Casing: */Perforated */Screen**
- **Material**: PVC
- **Length**: 5 ft.
- **Diameter**: 4" in.
- **Wall thickness**: SCHEDULE 40 in.
- **Openings**: 5 sq. in./L.F.

**Open Hole:**
- **Length**: NONE
- **Diameter**:

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*Approximate elevation at time of filing application. Final elevation (msl) by a surveyor licensed by the State must be submitted at start of construction.*
MAP OF AREA

SCALE 1:24,000

CONTOUR INTERVAL 40 FEET
DOTTED LINES REPRESENT 20 FOOT CONTOURS
DATUM IS MEAN SEA LEVEL

Reference:
U.S.G.S. Topographic Map

FIGURE 1
<table>
<thead>
<tr>
<th>DATE</th>
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**TOTAL OF INVOICES**

**LESS % DISCOUNT**

**TOTAL DEDUCTIONS**

**AMOUNT OF CHECK** $50.00

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**UNOCAL**

August 21, 1990  No.

Pay to the order of Dept. of Land & Natural Resources $50.00******

********Fifty and no/100**************Dollars

Continental Bank of Oakbrook Terrace
Oakbrook Terrace, IL 60181
or if desired
Continental Bank
Chicago, IL 60693

Field Disbursement Account

Fred A. Devereux
Manager Division Services