COMMISSION ON RESOURCE MANAGEMENT

FROM: ___________________________ DATE: 8/26/93 FILE IN: 5129-01M, 02M

TO: ___________________________ INIT: ___________________________ PLEASE: ___________________________ REMARKS: Maui

- G. Matsumoto - See Me
- E. Sakoda - Call
- Y. Shiroma - Review & Comment
- E. Hirano - Take Action
- S. Samuels - Investigate & Report
- G. Bauer - Draft Reply
- R. Rozeboom - Acknowledge Receipt
- R. Hardy - Type Draft
- S. Kokubun - Type Final
- Xerox ___ copies

FOR YOUR: ___________________________

- R. LOUI - Approval
- S. Kokubun - Signature
- ___ Information

New File: 5129-01M to 02M
Wake up: San's Landfill
August 24, 1992

Mr. William W. Paty, Chairperson
Commission on Water Resource Management
State of Hawaii
Department of Land & Natural Resources
P. O. Box 621
Honolulu, Hawaii 96809

Dear Mr. Paty:

SUBJECT: WELL CONSTRUCTION PERMIT FOR WAIKAPU SANITARY LANDFILL MONITOR WELLS; WELL NOS. 5129-01M, 02M; WAIKAPU, MAUI

Thank you for granting us the subject permit pursuant to your letter of August 18, 1992.

In accordance with the terms of the permit, we have agreed to your terms and have affixed our Director of Public Works' signature onto the permit. We are hereby forwarding to you a copy of said signed permit for your files.

Thank you once again for your assistance on this matter. Should there be any questions, please feel free to call me at 243-7875.

Very truly yours,

BRIAN HASHIRO
Solid Waste Division Chief

BH: bh

Attachment
WELL CONSTRUCTION PERMIT

for

Waikapu Sanitary Landfill Monitor Wells
Well Nos. 5129-01M, 02M
Waikapu, Maui

TO:   County of Maui
      Department of Public Works
      Solid Waste Division
      200 South High Street
      Kahului, HI 96793

In accordance with Department of Land and Natural Resources Administrative Rules, Section 13-168, entitled "Water Use, Wells, and Stream Diversion Works", your application to construct two monitor wells (Well Nos. 5129-01M, 02M) at the Waikapu Sanitary Landfill, TMK: 3-8-02:91, is approved, subject to the following conditions:

1. The Commission on Water Resource Management Staff (Commission staff), P.O. Box 621, Honolulu, HI 96809, shall be notified, in writing, before any work by this permit commences.

2. The wells shall be used for ground water quality monitoring, sampling, and testing only.

3. The following shall be submitted to the Commission staff within 30 days after completion of the wells:
   a. Well Completion Reports.
   b. As-built sectional drawings of the wells.
   c. Plot plan and map showing the exact locations of the wells.
   d. Reports of monitoring and testing results.

4. The applicant shall comply with all applicable laws, rules, and ordinances.
6. Upon completion of monitoring operations, the applicant shall seal the wells with cement grout in a manner approved by the Commission.

WILLIAM W. PATY, Chairperson
Commission on Water Resource Management
AUG 18 1992
Date of Issuance

I have read the conditions and terms of this permit and understand them. I accept and agree to meet these conditions as a prerequisite and underlying condition of my ability to proceed.

Applicant's Signature: George N. Kaya
Date: 8/26/92

Printed Name: George N. Kaya
Firm or Title: County of Maui

Please sign and return one copy of this permit to the Commission staff and retain a copy for your record.

Enc. (Well Completion Report form)
c: USGS
Department of Health
Safe Drinking Water Branch
Solid and Hazardous Waste Branch
Ground Water Protection Program
Maui Department of Water Supply
P.R. Drilling Co., Inc.
International Chemical Systems of Hawaii, Inc.
WELL CONSTRUCTION PERMIT

for

Waikapu Sanitary Landfill Monitor Wells
Well Nos. 5129-01M, 02M
Waikapu, Maui

TO: County of Maui
Department of Public Works
Solid Waste Division
200 South High Street
Kahului, HI 96793

In accordance with Department of Land and Natural Resources Administrative Rules, Section 13-168, entitled "Water Use, Wells, and Stream Diversion Works", your application to construct two monitor wells (Well Nos. 5129-01M, 02M) at the Waikapu Sanitary Landfill, TMK: 3-8-02:91, is approved, subject to the following conditions:

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   c. Plot plan and map showing the exact locations of the wells.
   d. Reports of monitoring and testing results.

4. The applicant shall comply with all applicable laws, rules, and ordinances.
6. Upon completion of monitoring operations, the applicant shall seal the wells with cement grout in a manner approved by the Commission.

I have read the conditions and terms of this permit and understand them. I accept and agree to meet these conditions as a prerequisite and underlying condition of my ability to proceed.

Applicant's Signature: ___________________________ Date: _______________

Printed Name: ________________________________

Firm or Title: ________________________________

Please sign and return one copy of this permit to the Commission staff and retain a copy for your record.

Enc. (Well Completion Report form)
c: USGS
   Department of Health
      Safe Drinking Water Branch
      Solid and Hazardous Waste Branch
      Ground Water Protection Program
   Maui Department of Water Supply
   P.R. Drilling Co., Inc.
   International Chemical Systems of Hawaii, Inc.
Mr. Brian Hashiro  
Solid Waste Division  
Department of Public Works  
County of Maui  
200 South High Street  
Wailuku, HI 96793

Dear Mr. Hashiro:

Applications to Construct Observation Wells  
at the Waikapu Sanitary Landfill

We acknowledge receipt of your applications to construct gas monitoring and ground water monitoring wells at the Waikapu Sanitary Landfill site. We do not issue permits for gas monitoring wells, and we are returning the $50.00 filing fee to International Chemical Systems of Hawaii, Inc. because filing fees are not required from government agencies. The permit for the ground water monitor wells (Well Nos. 5129-01M, 02M) will be sent shortly.

Call the Regulation Branch at 587-0225 if you have any questions.

Sincerely,

RAE M. LOUI  
Deputy Director

ES:ko  
Enc. (application)  
c: International Chemical Systems of Hawaii (with check)  
P.R. Drilling Co., Inc.
INTERNATIONAL CHEMICAL SYSTEMS
OF HAWAII, INC.
P. O. BOX 30034  808-487-7722
HONOLULU, HAWAI'I  96820

PAY
TO THE
ORDER OF

Fifty

First Hawaiian Bank
MAKIKI BRANCH
1111 SOUTH BERETANA STREET
HONOLULU, HAWAII  96814

FOR

Rep't. of Land & Natural Resources

July 28, 1992

$ 50.00

DOLLARS

50-101/1213
APPLICATION FOR PERMIT 28.11.28 A9:35

1. APPLICANT: (may be a, b, or c, but all must be filled in)
   (a) WELL OWNER
   Firm/Name: County of Maui
   Contact Person: Brian Hashio PM 345-7615
   Address: 345 S. High St.
   (b) LANDOWNER
   Firm/Name: County of Maui
   Contact Person:
   Address:
   (c) CONTRACTOR
   Firm/Name: PR Drilling Co., Inc. PM 623-7621
   Contractor's C-07 License No. C9627
   Address: 665 Kelley Rd.

2. WELL LOCATION/NAME:
   Waikapu (See attached map) Island: Maui
   Address:
   Tax Map Key 3-B-02-91

3. (a) PROPOSED WORK:
   Drill New Well
   Modify Existing Well
   Rebuild
   Replace Pump
   Modify
   * Be sure to complete and submit all work abandonment report upon completion of work.

   (b) WELL TYPE:
   * Drill
   * Bored
   * Driven
   * Drilled
   * Radial
   Is this a part of a battery of wells? Yes
   No
   * Briefly describe and fill in the diagram on the back of this form.

4. PROPOSED PUMP INFORMATION:
   * Rated Pump Capacity: __________ gallons per minute
   * Pump Type:
     □ Rotary
     □ Submersible
     □ Centrifugal
     □ Propeller
     □ Impulse
     □ Deep Well Turbine
     □ Motor:
     □ Diesel
     □ Gas
     □ Electric, rated horsepower of __________

5. PROPOSED USE:
   □ Municipal (including hotels, stores, etc.)
   □ Domestic (individual, noncommercial water use)
   □ Irrigation (crop)
   □ Other (explain)
   * State Land Use District: □ Urban □ Agricultural □ Rural □ Conservation
   County Zoning (describe):
   (If more space is needed, continue below under remarks, explanations.)

6. (a) PROPOSED AMOUNT OF WITHDRAWAL: __________ gallons per day
   (b) METHOD OF FLOW MEASUREMENT:
     □ Flow-meter
     □ Open-pipe
     □ Orifice Plate
     □ Well

7. PENDING ACTIONS:
   □ CBIA □ BPA □ BIS □ BIA □ NONE
   □ Other (explain)

8. REMARKS, EXPLANATIONS:
   Groundwater Monitoring Well
   (See attached sheet for specifications & details)

9. Well No(s): 5129.0117
   To: OHA

Well Owner:

Signature:

Date:

For Official Use

Dee: Public Works

City of W:

Well No(s): 5129.0117

Goodfellow Bros.

Bryan Hashio PM

Solid Waste Div.

Dear Brian Hashio,

We refer you to the attached letter from the Department of Land and Natural Resources regarding the proposed extraction of groundwater from the property at Waikapu. The proposed work is to be completed within 90 days of the submission of this application. Please ensure that all necessary permits and approvals are obtained from the appropriate agencies.

Best regards,

[Signature]

[Name]
3. Gravel: Size No. 2 conforming to the requirements of Section 15 of the Standard Specifications.

4. Concrete - Class "B" conforming to Section 39 of the Standard Specifications.

C. Construction Details

1. Upon completion of the final soil cover, the well shall be excavated at the locations shown on the plans or as directed by the Officer-in-Charge. The Contractor shall exercise caution in performing the work so as not to cause any slide or slip beyond the limits of the well excavation. If deemed necessary, the Contractor shall use shoring or other acceptable methods to protect the abutting final soil cover.

2. Care shall be exercised in placing the gravel filters, setting the collector pipe and backfilling so that there will be no mixing of soil or landfill refuse with the gravel filter.

3. When the backfilling of the well has been completed the Contractor shall repair or reconstruct the abutting final soil cover and install the concrete slab as indicated on the plans.

D. Measurement and Payment

1. Combustible gas monitoring wells shall be measured for payment based on the number of wells constructed in place complete.

2. Payment shall be made for wells fully completed and ready for use, at the unit price bid as measured above and shall be full compensation for furnishing all materials, labor, equipment, tools and incidentals necessary for doing all the work involved as shown on the plans, as specified herein or as directed by the Officer-in-Charge.

SECTION SP37 – GROUNDWATER MONITORING WELL

A. General

1. This item of work shall consist of constructing the groundwater monitoring wells as shown on the plans and as specified herein. The work includes well drilling, well development, furnishing and placing of well casing, well screen, filter sand, bentonite seals, grout and all other pertinent fixtures or fittings, complete in place.

2. The work does not include well purging and groundwater sampling.

3. Unless directed otherwise by the Officer-in-Charge, the completed well shall be suitable for a pump sampling system utilizing either submersible pumps or positive displacement bladder pumps.
B. Materials

1. Well Casing: 2-inch I.D. Schedule 40 PVC (ASTM 1785), flush jointed.

2. Well Screen: 2-inch I.D. Schedule 40 PVC (ASTM 1785), flush jointed, factory slotted with 0.02-inch openings.

3. Bentonite Seal: Granular sodium bentonite clay in 1/4-inch pellets.

4. Grout: Grout shall consist of Portland cement (ASTM C150) and not more than 6 gallons of mixing water per cubic foot of cement.


6. Filter Sand: Colorado Silicon, #8 - #12 size range.

7. Concrete: Class "B" conforming to Section 39 of the Standard Specifications.


C. Submittals - Not less than six (6) sets of technical brochures or shop drawings for the well components shall be submitted to the Officer-in-Charge for review and approval.

D. Construction Details

1. Mobilization-Demobilization - Upon receiving the notice to begin work the Contractor shall convey to the job site as shown in the plans all well drilling equipment, casing, and other appurtenant materials and equipment for the satisfactory drilling, casing, development and other required work as specified elsewhere herein. Demobilization shall commence upon the completion and acceptance of the well.

2. Well Drilling to Casing Depth - Prior to commencing drilling operations, the Contractor shall select a drilling method and obtain approval for its use from the Officer-in-Charge. The method selected shall not require the use of drilling fluid. The Contractor shall drill the wells complete and satisfactory to the Officer-in-Charge. Each well shall be drilled to such a diameter as to permit the installation of the polyvinyl chloride (PVC) casing and screen having a diameter as shown on the plans and leaving an annular space between the outside of the casing and the drilled hole of not less than 1-1/2 inches.
The Contractor shall, at all times during the progress of the work, shield the well in such a manner as to prevent persons from tampering with the well and to prevent entrance of foreign matter. The Contractor shall exercise extreme care in the performance of his work in order to prevent the breakdown or caving of formations into the well.

During the progress of the work, the Contractor shall keep a log of each well and deliver to the Officer-in-Charge a sample of material taken at each change of formation. The Contractor shall also submit a daily report describing the characteristics of material encountered, the work done each day, such as depth drilled, casings set, etc., any observable details with reference to the entry of water into the well from the aquifer and other such pertinent data as may be required by the Officer-in-Charge.

3. Installation of Well - When the bore hole has been completed to the desired monitoring depth, the Contractor shall install the PVC well screen (intake) and casing to the relative depths as indicated on the drawings.

The sand filter pack shall be carefully placed in the annular space around the well intake and monitored to avoid any bridging of the sand. The top of the sand filter pack shall be poured to approximately 2 feet above the top of the screen. The annular seal, a 3-foot to 5-foot layer of bentonite pellets, shall be placed above the sand pack.

The filling of the remainder of the annular space with grout shall not be done until the well is developed.

4. Well Development - Monitoring well development is an attempt to remove the fine particulate matter from the geologic formation near the well intake in order to enhance the hydraulic connection between the well and the aquifer materials. The wells shall be developed immediately following the installation of the well intake, casing, sand filter and bentonite seal but prior to grouting. Well developing shall continue until the groundwater is as free of suspended materials as reasonably possible and is acceptable to the Officer-in-Charge.

5. Completion of the Well - When the well development has been satisfactorily completed, the remaining annular space shall be filled with grout, starting from the bottom of the space and continuing towards the ground surface. The grout shall be properly mixed and shall be emplaced in one continuous operation using a tremie pipe. The use of pump or air pressure for forcing the grout into place shall be employed if satisfactory results cannot be obtained by gravity placement. The grout shall be placed in a manner that will avoid segregation of materials, inclusion of foreign matter or bridging of grout materials. The Contractor shall ensure that no grout enters the well casing.
TYPICAL CROSS SECTION OF GROUNDWATER QUALITY MONITORING WELL

NOT TO SCALE
The wells shall be completed at ground surface with the installation of the locking well cover, concrete slab and all other incidentals necessary to complete the work in accordance with the plans and specifications.

6. **As-Built Construction Diagram** - In addition to the boring log, an as-built diagram eliminates any confusion if the monitoring well was not built exactly as conceived in the design specifications. The as-built diagram should contain information about the elevation, depth and materials used in the well construction and shall become part of the permanent file that will be maintained for each well.

E. Measurement and Payment

1. Groundwater monitoring wells shall be measured for payment based on the number of wells constructed in place complete.

2. Payment shall be made for wells fully completed and accepted at the unit price bid as measured above and shall be full compensation for furnishing all materials, labor, equipment, tools and incidentals necessary for doing all the work involved as shown on the plans, as specified herein or as directed by the Officer-in-Charge.
Upon completion of the final soil cover, the well shall be excavated at the locations shown on the plans or as directed by the Officer-in-Charge. The Contractor shall exercise caution in performing the work so as not to cause any slide or slip beyond the limits of the well excavation. If deemed necessary, the Contractor shall use shoring or other acceptable methods to protect the abutting final soil cover.

Care shall be exercised in placing the gravel filters, setting the collector pipe and backfilling so that there will be no mixing of soil or landfill refuse with the gravel filter.

When the backfilling of the well has been completed the Contractor shall repair or reconstruct the abutting final soil cover and install the concrete slab as indicated on the plans.

Payment and Payment

Compostable gas monitoring wells shall be measured for payment based on the number of wells constructed in place complete.

Payment shall be made for wells fully completed and tested surficial at the unit price bid as measured above and shall be full compensation for furnishing all materials, labor, equipment, tools, and incidentals necessary for doing all the work involved as shown on the plans as specified herein or as directed by the Officer.

SECTION 0637. - RECLAIM WATER_MILLGOMPHER_MILL

This item of work shall consist of constructing the groundwater monitoring wells as shown on the plans and as specified herein. The work includes well drilling, well development, furnishing and placing of well casing, well screen, filter sand, barrier sand secures, and all other pertinent fixtures or fittings, complete.

The work involves inclusion for Liner purging and groundwater sampling.

Unless directed otherwise by the Officer-in-Charge, the completed well shall be suitable for a pump sampling system utilizing either submersible pumps or positive displacement diaphragm pumps.
1. Well Casing: 2-inch 1-0. Schedule 40 PVC (ASTM 1785), flush jointed.

2. Well Screen: 2-inch 1-0. Schedule 40 PVC (ASTM 1785), flush jointed, factory slotted with 0.02-inch openings.

3. Bentonite Seal: Granular sodium bentonite clay in 1/4-inch pellets.

4. Grout: Grout shall consist of Portland cement (AASHTO C-150) and not more than 6 gallons of mixing water per cubic foot of cement.

5. Casing Steel: Stainless steel.

6. Filter Sand: Colorado Silica, #8 - #12 size range.

7. Screen: Class "B" conforming to Section 29 of the Standard Specifications.

SUPPLEMENTARY DETAILS

1. Mobilization-Demobilization: Upon receiving the notice to begin work, the Contractor shall convey to the job site all well drilling equipment, casing, and other equipment necessary for satisfactory drilling, casing, and other equipment as specified elsewhere herein.

Demobilization shall commence upon the completion of a satisfactory well.

2. Well Drilling to Existing Grade: Prior to commencing drilling operations, the Contractor shall select a drilling method and obtain approval for its use from the Officer-in-Charge. The method selected shall not require the use of drilling fluid.

The Contractor shall drill the wells complete and satisfactory to the Officer-in-Charge. Each well shall be drilled to such a diameter as to permit the installation of the polyvinyl chloride (PVC) casing and screen having a diameter as shown on the plans, and leaving an unobstructed space between the outside of the casing and the drilling mud of not less than 2 1/2 inches.
The contractor shall, at all times during the progress of the work, shield the well in such a manner as to prevent persons from tampering with the well and to prevent entrance of foreign matter. The contractor shall exercise extreme care in the performance of all work in order to prevent the breakdown or caving of formations close to the well.

During the progress of the work, the contractor shall keep a log of each well and deliver to the Officer-in-Charge a sample of material taken at each change of formation. The contractor shall also submit a daily report describing the characteristics of material encountered, the work done each day, such as depth drilled, casing set, etc., any observable details with reference to the entry of water into the well from the aquifer and other pertinent data as may be required by the Officer-in-Charge.

3. Installation of Well - When the bore hole has been completed to the desired monitoring depth, the contractor shall install the PVC well screen (intake) and casing to the relative depths as indicated on the drawings.

The sand filter pack shall be carefully placed in the annular space around the well intake and monitored to avoid any bridging of the sand. The top of the sand filter pack shall be poured to approximately 2 feet above the top of the screen. The annular seal, a 3-foot to 5-foot layer of bentonite pellets, shall be placed above the sand pack.

The filling of the remainder of the annular space with grout shall not be done until the well is developed.

4. Well Development - Monitoring well development is an attempt to remove the fine particulate matter from the geologic formations near the well intake in order to enhance the hydraulic connection between the well and the aquifer materials. The well shall be developed immediately following the installation of the well intake, casing, sand filter and bentonite seal. Prior to grouting, well developing shall continue until the groundwater is free of suspended materials as reasonably possible and is acceptable to the Officer-in-Charge.

5. Completion of the Well - When the well development has been satisfactorily completed, the remaining annular space shall be filled with grout, starting from the bottom of the space and continuing towards the ground surface. The grout shall be properly mixed and shall be emplaced in one continuous operation using a tremie pipe. The use of pump or air pressure for forcing the grout into place shall be employed if satisfactory results cannot be obtained by gravity placement. The grout shall be placed in a manner that will avoid segregation of materials, inclusion of foreign matter or bridging of grout materials. The contractor shall ensure that no grout enters the well casing.
The wells shall be completed at ground surface. A recordation of the location, well cover, concrete cap, and other incidentals necessary to complete the work in accordance with the plans and specifications.

**As-Built Construction Diagram** - In addition to the boring log, an as-built diagram eliminates any confusion of the monitoring well as built exactly as conceived in the design specifications. The as-built diagram should contain information about the elevation, depth and materials used in the well construction and shall become part of the permanent file that will be maintained.

**Well Records**

All water monitoring wells shall be measured for payper unit number of wells constructed in place complete.

Costs shall be made for wells fully completed and paid for bid as measured above and shall include furnishing all materials, labor, equipment necessary for doing all the work involved in the construction herein or as directed herein.