FROM: Pae
DATE: 8/26/92
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
Kay             Type Final

FOR YOUR:

R. LOUI         Approval
S. Kokubun      Signature
                 Information

New File: 5129-01M to 02M
Waitapi Sanitary 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, Chairman
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 Kaye Date: 8/18/92

Printed Name: George N. Kaye
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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   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, Chairman
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: ___________________________ 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,

[Signature]

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, HAWAII  96820

7027

PAY
TO THE ORDER OF:  Rep't. of Land & Natural Resources  $ 50.00

July 28, 1992

Fifty  DOLLARS

First Hawaiian Bank
1111 SOUTH BERETANA STREET
HONOLULU, HAWAII 96814

FOR

[Signature]

[Date]
APPLICATION FOR PERMIT

1. APPLICANT: (may be a, b, or c, but all must be filled in)
   (a) LANDOWNER
      Firm/Name: County of Maui
      Contact Person: Brian Hashiro
      Address: 305 S. High St, Hilo, HI 96720

   (b) CONTRACTOR
      Firm/Name: Dekk Drilling Co, Inc.
      Contact Person: Dan M. K. Lewis
      Address: 333 Kelley St., Hilo, HI 96720

   (c) WELL OWNER
      Firm/Name: County of Maui
      Contact Person: Brian Hashiro
      Address: 305 S. High St, Hilo, HI 96720

2. WELL LOCATION/NAME: Waikapu (See attached map) Island: Maui
   Tax Map Key: 3-8-20-89

3. (a) PROPOSED WORK: Drill New Well
   Modify Existing Well
   Redrill
   Install New Pump
   Deepen
   * Abandon/Seal
   * Be sure to complete and submit well abandonment report upon completion of work.

4. PROPOSED PUMP INFORMATION: Rated Pump Capacity: 10 gallons per minute
   Pump Type:
   Deep Well Turbine
   Submersible
   Centrifugal

5. PROPOSED USE: Municipal (including hotels, stores, etc.)
   Irrigation (irrigation) 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:
   (b) METHOD OF FLOW MEASUREMENT:

7. PENDING ACTIONS:
   ODUA
   HMA
   BIB
   EA

8. REMARKS, EXPLANATIONS:
   Groundwater monitoring well
   (See attached sheets for specifications & details)

Well No:

**Signature**

**Date**

For Official Use:
Data Recorder
Data Accepted
Field Checked

07/23/93 15:35
GOODFELLOW BROS. CO. BASEYARD 007
State of Hawaii
COMMISSIONER OF WATER RESOURCE MANAGEMENT
Department of Land and Natural Resources

Speaker of the House
Brian Hashiro  Pete Soli
Dept. Public Works
City of Hilo
200 S. high St
Waikapu 96793

Goodfellow Bros. Co., Inc.  Cut 691, Honolulu, Hawaii 96816

Application must be accompanied by a nonrefundable filing fee of $150.00 as prescribed by the Department of Land and Natural Resources. The Commission may not accept incomplete applications. For information, contact the Compliance Division, Water Resource Management, P.O. Box 921, Honolulu, Hawaii 96819.
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.

WAIKAPU SANITARY LANDFILL CLOSURE PLAN D-21 SPECIAL PROVISIONS
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, casing 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 insure that no grout enters the well casing.

WAIKAPU SANITARY LANDFILL
CLOSURE PLAN
D-23
SPECIAL PROVISIONS
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.
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 filter, setting the collector pipe and backfilling so that there will be no mixing of soil or sandfill 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.

REQUIREMENT NON-EXISTENT

1. No 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 or 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 082 - GROUNDWATER MONITORING PLATE

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, barometric seals and all other pertinent fixtures or fittings, complete in itself.

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 diaphragm pumps.
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.


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

5. Grout Sand: Sandblust sand.

6. Crushed Sand: Colorado Silica, #8 - #16 size range.

7. Casing: Class "B" conforming to Section 13 of the Standard Specifications.

8. Inspection: Casing inspection and backflow prevention.

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

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 of all work and the work shall.

2. Well Drilling to casing depth: Prior to commencing of drilling operations, the Contractor shall select a drilling mud 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 satisfy the Officer-in-Charge. Each well shall be drilled to such a diameter as to permit the installation of the polymer 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 formation rock 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 end 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, 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 space from 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 well 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 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. The inclusion of foreign matter or bridging of grout materials. The Contractor shall ensure that no grout enters the well casing.
The walls shall be completed at ground surface.

The installation of the locking well cover, concrete or other incements necessary to complete the work in accordance with the plans and specifications.

MONITORING WELLS - In addition to the boring log, an isometric diagram eliminates any confusion if the monitoring well was not built exactly as conceived in the design specifications. The account sheet 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.

LAYOUT WORKS:

The layout monitoring wells shall be measured for position and number of wells constructed in place complete.

Unique must be made for wells fully completed and every part as measured above and shall furnish all materials, labor, equipment necessary for doing all the work involved as herein or as directed by your.