Facsimile Header

To: ROY HARDY - CWRM
From: Tom Nance
Subject: South Korea Water Work Group

Fax No.: 6
Date: Jan. 31, 2000
No. of Pages: 9 (including header)

1. Copy of the signed Memorandum of Understanding (pp. 2-5)
2. Unsigned copy of Policies and Procedures (pp. 6-9)

680 Ala Moana Boulevard, Suite 406 - Honolulu, Hawaii 96813-5411 - Phone: (808) 538-1141 - Fax: (808) 538-7757

[D] Ryan - Found this. Should put copies in relevant Big Island well folders
MEMORANDUM OF UNDERSTANDING BETWEEN MAUNA
KEA PROPERTIES, INC., MAUNA LANI RESORT, INC.,
HANSAY HAWAII, INC. AND WAIKOLOA LAND COMPANY
ON COOPERATIVE REGIONAL WATER DEVELOPMENT

Mission Statement

To work jointly and cooperatively in developing and implementing a regional water plan which best serves the collective water needs of the parties and others within the region in a manner acceptable to relevant governmental authorities.

Objectives

The parties to this Memorandum of Understanding (collectively referred to as "South Kohala Water Study Group" or "Group") acknowledge and agree that it is in their long-term best interests to achieve the Mission set forth above in the following manner:

- Reach agreement on a regional plan for the development of sources and distribution systems for potable, non-potable water and effluent reuse;

- Form and establish, as equity participants, a private, regional water company or companies for the development, production, distribution and sale of potable, non-potable and effluent reuse resources serving the parties and others within the region;

- Reach bilateral and multilateral agreements achieving the staged implementation of the regional water plan;

- Publicly support and consider the commitment to the conditional, partial funding of the County of Hawaii Department of Water Supply's (DWS) development of its planned North Kohala Pipeline;

- Develop a Water Commitment Policy, which is incorporated herein by reference, containing guidelines and requirements for each Group Member securing a sufficient supply of water for actual use in accordance with a realistic timetable;
Coordinate the activities of the Water Study Group with all relevant State of Hawaii authorities, including but not limited to its Water Commission, in a manner which promotes and preserves the Group's ability to deal with regional water issues on a collective basis;

Communicate, where appropriate, with other interested parties within the region;

Enter into subsequent joint agreements intended to implement the objectives adopted herein.

**Governance**

The activities of the Group shall be governed and coordinated through an Executive Committee comprised of a designated representative of each signatory to this Memorandum of Understanding.

The Group Executive Committee shall:

- Approve all policies, agreements and expenditures made on behalf of the Group; provided, that if the representative of any Group member specifically disapproves of any such expenditure, that Group member shall be excused from its pro rata share of such expenditure;

- Approve the inclusion of additional members to and approve, except member in question, for the exclusion of existing members from the Water Study Group;

- Approve public statements and testimony regarding Water Study Group activities;

- Develop and approve an annual operating budget, project budgets and the individual party's obligations to fund the operations and the development of these planned projects;

- Be kept informed of all agreements entered into between Water Study Group members affecting the Group's Mission and Objectives;

- Coordinate all contact regarding the activities of the Water Study Group with governmental agencies;
Direct and approve the activities of all consultants retained by the Water Study Group relating to its stated Mission and Objectives.

All decisions of the Group shall be by the majority of the members of the Executive Committee except for "key decisions" which require unanimous approval. Key decisions include approval of the annual operating budget and individual members obligation to fund operations or make contributions to the development of planned projects, expenditures which are outside of the approved budget in excess of $5,000 in any single case or $25,000 in the aggregate and the addition of any new member to the Executive Committee.

Dispute Resolution

It is acknowledged that from time to time, disputes and disagreements may arise between the parties to this Memorandum of Understanding regarding regional water issues and that it is in their long-term collective best interests that such disputes be resolved without resort to governmental or judicial involvement.

The parties agree that they shall use their individual and collective best efforts to resolve any and all outstanding issues covered by this Memorandum. The parties further agree that in the event negotiations fail to result in acceptable agreement or resolution, they may voluntarily submit outstanding issue(s) to binding or nonbinding arbitration pursuant to terms agreed to by the parties.

North Kohala Pipeline

The parties agree to support the concept of a North Kohala pipeline transporting potable water to South Kohala being pursued by the Department of Water Supply, County of Hawaii.

In the event that the parties are reasonably satisfied that the North Kohala pipeline will be built, but no later than the start of construction, individual signatories to this agreement shall commit, on a fair and equitable basis, to the partial funding of said pipeline under acceptable terms and conditions to be negotiated.
Termination/Withdrawal

A majority of the members of the Group may terminate the Group and joint obligations contained in this Memorandum of Understanding. Individual Group members may withdraw from the South Kohala Water Study Group upon written notice to other members; provided, that members shall remain liable for their or its pro-rata share of costs of operations per the approved budget or amendments thereto, incurred during their membership or prior to withdrawal, as the case may be.

This Memorandum of Understanding is entered into this ___ day of February, 1992.

MAUNA KEA PROPERTIES, INC. NANSAY HAWAII, INC.

By Its ________________ By Its ________________

MAUNA LANI RESORT, INC. WAIKOLOA LAND COMPANY

By Its ________________ By Its ________________
DRAFT
Water Commitment Policies and Procedures
of the
South Kohala Water Users' Group
Revised: [February 4, 1993]
March 9, 1993

The South Kohala Water Users Group ("Group") recognizes the need to develop a coherent set of policies and procedures for the development of groundwater to ensure maximum beneficial use of this limited resource, avoid conflicts among users, and facilitate the timely development of water tied to actual use. The parties to this document agree to abide by the policies and procedures it contains and encourage the State Commission on Water Resource Management ("Commission") to evaluate all drilling and pump installation permits received from other water users in the basin by the same criteria.

POLICIES

1. The group recognizes that all parties need assurance of the availability of water for their developments. The group further recognizes that such assurances can occur only if it is agreed to by all parties.

   All drilling, well modification, and pump installation permits will be formulated to conform to the intent of the then current version of the Group's approved South Kohala Water [Master] Resource Plan.

2. All drilling, well modification, and pump installation permits will be submitted to the Group for its approval prior to submittal to the Commission. The Group's approval shall be based on the applicant's conformance with these policies, and the procedures listed below. The Group's approval shall not be unreasonably withheld if such conformance is demonstrated.

3. To minimize excessive use of groundwater, all effluent from sewage treatment plants shall be reused for irrigation unless it can be conclusively demonstrated to be physically and/or economically impractical for the developer of the irrigation supply or the ultimate user of the water.
4. All new landscaping, including golf course turfgrass, will be designed and implemented to minimize irrigation use. Efforts toward this end shall include choosing appropriate plant materials, use of proper soil types and thickness, and avoiding excessive turfgrass areas. Any new 18-hole golf course shall not use more than 0.75 MGD on year-round average nor more than 1.00 MGD over any seven-day period.

5. All new hotel, residential, commercial, and industrial development shall be designed to minimize water use and shall include appropriate water saving devices.

6. Drilling permits should be supported if consistent with the Water Resource Plan as they provide much needed information about this region’s aquifer.

7. [Drilling and] Pump installation permits shall not be sought more than two years in advance of actual need [to avoid creating false shortages of supply and inappropriate positioning for the resource, potentially denying others their fair and equitable use].

8. Members of the Group agree to devise water use standards for consumption of potable and irrigation water use in order to implement these policies.

9. It is recognized that agreements between two or more parties may be necessary to facilitate respective water development. [Such agreements shall be consistent with these policies and procedures.]

PROCEDURES

1. All applications for drilling, well modification, and pump installation permits, including extensions of these permits, will be submitted for review and approval by the Group to ensure conformance with the intent of the Group’s policies and [master] water resource plan prior to submittal to the Commission.

2. To initiate the Group’s review, application will be submitted with the following supporting information:

   a. Quantity [and timing] of potable and/or non-potable supply requirements, including the basis for these projections (unit counts, acreage, etc.).
b. Measures taken to avoid excessive potable and/or non-potable water use.
c. Exact location of the water uses, including land use plans, TMKs, etc.
d. Approved State land use designation; County General Plan designation; County zoning; use permit for district use; and the prospective land use approvals, including subdivision, needed to achieve the desired land use.
e. The project's site specific water master plan for potable and non-potable water shall be submitted.
f. Exact location, dimensions, and pump capacity of the well (or wells) to be developed to meet these supply requirements.

[g. A development schedule indicating the date of actual water use.]

3. The Group's review and response to the application shall be completed within 45 days. The response shall judge the application's conformance with these policies, and with the South Kohala Water [Master] Resource Plan, [the appropriateness of the timing of the application,] and the [unless there are compelling reasons otherwise, the timing of an application shall be deemed inappropriate unless all land use approvals through and including County zoning have been received and the actual use of water, based on a firm schedule, is to begin within two years.]

Listed below are specific criteria of the Group's review of applications.

a. If conformance with these policies and procedures is demonstrated [and the timing of the application is appropriate,] the Group's approval shall not be unreasonably withheld.
b. If the application fails to meet the standards for acceptability set out herein, no submittal of the application to the Commission shall be made until revisions satisfactory to the Group are made.

c. The Group's approval for a pump installation permit shall be given only after tentative subdivision approval for the project to be served has been given.

d. If a proven water source is a condition of County zoning or use permit approvals, the Group's approval of a well construction permit shall be given only if evidence of the actual water use within two years is provided.]
These Water Commitment Policies and Procedures are entered into this day of ____________, 1993.

Mauna Kea Properties, Inc.

By: __________________________
   Its

Nansay Hawaii, Inc.

By: __________________________
   Its

Mauna Lani Resort, Inc.

By: __________________________
   Its

Waikoloa Land Company

By: __________________________
   Its
If you do not receive all pages, please telephone immediately.

Copy of Boulos' report.
Date of report: March 24, 1980  
Name: I.H. Runnels

**WELL**

- Owner: Olomana Corp.
- Name: Ouli B.
- Island: Hawaii
- General location: Kahaluu

**DRILLER'S REPORT**

- Type of rig: Cable tool
- Drilling completed: 2/80
- Driller: S. Leslie
- Elevation, top of drilling platform: 314.90 ft.
- Height of drilling platform above ground surface: 0 ft.
- Hole size: 18 in. dia. to 338 ft. below drilling platform.
- CASING installed: 14 in. I.D. x 312 ft.
- Depth of bottom of annulus: 30 ft.
- Drainage: 30 ft. to 295 ft.
- Initial water level: 312 ft.
- Initial chloride: ppm, total depth of well: 312 ft.
- Sampling point (R.P.): which elevation is 727 ft.

**HYDROLOGY**

<table>
<thead>
<tr>
<th>Date</th>
<th>Start water level</th>
<th>End water level</th>
<th>Depth of well</th>
<th>Elapsed time (hours)</th>
<th>Rate (gpm)</th>
<th>Draw. down (ft.)</th>
<th>Cl. (ppm)</th>
<th>Temp. (°F)</th>
<th>( R_{p} )</th>
</tr>
</thead>
<tbody>
<tr>
<td>Feb. 12, 1980</td>
<td>11:30 AM to</td>
<td>4:00 PM</td>
<td>320</td>
<td>10</td>
<td>727</td>
<td>to</td>
<td>to</td>
<td>to</td>
<td>to</td>
</tr>
<tr>
<td></td>
<td>4:00 PM</td>
<td></td>
<td>320</td>
<td>10</td>
<td>727</td>
<td>to</td>
<td>to</td>
<td>to</td>
<td>to</td>
</tr>
<tr>
<td></td>
<td>to</td>
<td></td>
<td>to</td>
<td>to</td>
<td>to</td>
<td>to</td>
<td>to</td>
<td>to</td>
<td>to</td>
</tr>
<tr>
<td></td>
<td>to</td>
<td></td>
<td>to</td>
<td>to</td>
<td>to</td>
<td>to</td>
<td>to</td>
<td>to</td>
<td>to</td>
</tr>
<tr>
<td></td>
<td>to</td>
<td></td>
<td>to</td>
<td>to</td>
<td>to</td>
<td>to</td>
<td>to</td>
<td>to</td>
<td>to</td>
</tr>
</tbody>
</table>

**SUBSURFACE, FORMATION**

### Rock Description & Remarks

<table>
<thead>
<tr>
<th>Depth, ft.</th>
<th>Rock Description &amp; Remarks</th>
<th>Water Level, ft.</th>
<th>Depth, ft.</th>
<th>Rock Description &amp; Remarks</th>
<th>Water Level, ft.</th>
</tr>
</thead>
<tbody>
<tr>
<td>0. to 3</td>
<td>Soil</td>
<td>148</td>
<td>172</td>
<td>Red rock</td>
<td>148</td>
</tr>
<tr>
<td>3. to 19</td>
<td>Med. hard rock</td>
<td>172</td>
<td>182</td>
<td>Hard rock</td>
<td>172</td>
</tr>
<tr>
<td>19. to 38</td>
<td>Hard rock</td>
<td>182</td>
<td>255</td>
<td>Med. hard rock</td>
<td>182</td>
</tr>
<tr>
<td>25. to 50</td>
<td>Hard rock</td>
<td>255</td>
<td>262</td>
<td>Red cinder</td>
<td>255</td>
</tr>
<tr>
<td>50. to 81</td>
<td>Hard rock</td>
<td>262</td>
<td>288</td>
<td>Hard rock</td>
<td>262</td>
</tr>
<tr>
<td>81. to 108</td>
<td>Brown rock</td>
<td>288</td>
<td>297</td>
<td>Red rock</td>
<td>288</td>
</tr>
<tr>
<td>108. to 114</td>
<td>Red rock</td>
<td>297</td>
<td>306</td>
<td>Hard rock</td>
<td>297</td>
</tr>
<tr>
<td>114. to 117</td>
<td>Hard rock</td>
<td>306</td>
<td>317</td>
<td>Med. hard rock</td>
<td>306</td>
</tr>
<tr>
<td>117. to 128</td>
<td>Med. hard rock</td>
<td>317</td>
<td>321</td>
<td>Cinders, black sand</td>
<td>317</td>
</tr>
<tr>
<td>128. to 138</td>
<td>Hard rock</td>
<td>321</td>
<td>345</td>
<td>Med. hard rock</td>
<td>321</td>
</tr>
<tr>
<td>138. to 148</td>
<td>Hard rock</td>
<td>345</td>
<td>347</td>
<td>Hard rock</td>
<td>345</td>
</tr>
</tbody>
</table>

**N. REMARKS**

Latitude: 20°00'40"N  
Longitude: 155°48'54"W  
Well No: 6048-03
OULI WELL 'B'

MAWARRA LAND CO.

TEST RESULTS OF 2/12/90

Flow Rate @ 343' (-27.5°F)
G.P. Elev.  314.90'
Airline @ 846.95'
Hours Metered: 5%
Chlorides: 72.7, mg/l (6 samples)
Water Level: 43.5' (msl)
March 28, 1980

Mr. Bill Nielke
Mauna Kea Land Corp.
P.O. Box 218
Kamuela, Hawaii  96743

Dear Bill:

Enclosed is my final report on the drilling program, as well as my final bill. In the event that you need more information or explanation, please feel free to call on me. Each well has been capped awaiting further use. The performance of each well was disappointing, but adequate.

Since I am frequently in your area, I will make a point of stopping by in the near future.

Sincerely,

                        Stephen P. Bowles
As originally intended, these wells were to serve a new golf course to be constructed by the Olohana Corporation mauka of the Maunalani Highway. Estimated daily demand was approximately 800,000 gallons. In order to minimize the interference between the existing (M.K.B.H.) wells and Ouli "A" and "B", the new sites were selected as far apart as practicable. Plans called for pumping each well to a reservoir and thence to use. It was intended that each well be equipped with a 500 gpm (gallons per minute) pump to be operated on 12 hour schedules.

Drilling of Ouli "A" commenced on December 27, 1978 and Ouli "B" was completed February 20, 1980. Difficulties in maintaining straight holes complicated by exceptionally hard rock caused the construction to take eight months longer than intended. Attached are the Driller's logs showing the as built dimensions.

In both wells, very dense lavas were encountered between sea level and elevation -40' causing relatively poor yields. Ouli "A" was tested at elevations -20', -30', and -40'. Ouli "B" was tested at elevation -33'. The relatively high salinity (727 mg/l chlorides) in Ouli "B" precluded deepening to improve its yield. Based on the high drawdowns, as summarized in Figures 1 and 2, it will be impossible to pump the wells as originally planned. Under no circumstances can either well be pumped in excess of 300 gpm. In order to obtain the desired 800,000 gallons per day, each well would have to be pumped a minimum of 22 hours to meet the demand.

In the event that plans are rejuvenated to build the golf course, the following recommendations should be considered:

1) Pumping rates in Ouli "A" and "B" should not exceed 300 gpm.

2) Pump bowls should extend no deeper than elevation -20' (the bottom of the well screens).
3) An intake tail piece should be used to extend the pump intake to elevation -27' in both walls.

4) Based on the above, only vertical turbine or line shaft type pumps can be used.

5) In order to ensure an adequate supply for the golf course, the State wall mauka of Ouli "E" should be leased or otherwise made available to integrate with the irrigation system.
**Driller's Report**

**Date of report:** March 24, 1980  
**Person filing report:** L.H. Runnels  
**Owner:** Olohami Corp.  
**Name:** Ouli B  
**Island:** Hawaii  
**General Location:** Kahua  
**Drilling Company:** Roscoe Moss Company  
**Type of Rig:**  
**Cable tool drilling completed:** 2/80  
**Driller:** S. Leslie  

**Elevation:**  
- Top of drilling platform: 314.90 ft.  
- Bench mark and method used to determine  
- Height of drilling platform above ground surface: 0 ft.  
- Elevation:  

**Hole Size:**  
- 18 inch dia. to 338 ft. below drilling platform.  
- 12 inch dia. to 347 ft. below drilling platform.  

**Casing Installed:**  
- 14 in. I.D. x 312 ft. well solid section to 317 ft. below drilling platform.  
- 14 in. I.D. x 312 ft. well perforated section 317 ft. below drilling platform.  

**Annulus:**  
- Grouted: 0 ft. to 30 ft. below drilling platform.  
- Gravel packed: 30 ft. to 295 ft. below drilling platform.  

**Hydrology**  
**Initial Water Level:** 312 ft. below drilling platform.  
**Date of measurement:** Feb. 8, 1980  
**Initial Chloride:** ppm, total depth of well  
**Pumping Test:**  
- **Date:** Feb. 24, 1980  
- **Sampling Date:**  
- **Reference Point (R.P.) used:**  
- **Start water level:**  
- **End water level:**  
- **Depth of well:** 347 ft. below R. P.  
- **Elapsed Time (hours):**  
- **Rate (gpm):**  
- **Temp. (°F):**  
- **Cl. (ppm):**  
- **Depth (ft.):**  
- **Elapsed Time (hours):**  
- **Rate (gpm):**  
- **Temp. (°F):**  
- **Cl. (ppm):**  
- **Depth (ft.):**  

**Subsurface Formation**  
**Depth:**  
- **0 to 3 ft.** Soil  
- **3 to 19 ft.** Hard rock  
- **19 to 59 ft.** Hard rock  
- **59 to 78 ft.** Hard rock  
- **78 to 81 ft.** Hard rock  
- **81 to 102 ft.** Brown rock  
- **102 to 108 ft.** Hard rock  
- **108 to 114 ft.** Red rock  
- **114 to 117 ft.** Hard rock  
- **117 to 138 ft.** Hard rock  
- **138 to 140 ft.** Hard rock  

**Remarks:**  
**Lat.:** 20° 00' 40"  
**Long.:** 155° 48' 54"  
**Well No.:** 6048-03
OIULI WELL 'B'
MAUNAKA LAND CO.
TEST RESULTS OF 2/12/93
PUMP HEAD = 343' (-27.57')
GR. ELEV. = 314.90'
AIRLIFE @ 840.95'
HANG FLOW: 54'
CHLORIDE: 727 mg/L (6 samples)
WATER LEVEL: +53.5' (m.s.l.)