

Status Report on the
Hui o Na Wai Eha and Maui Tomorrow Foundation, Inc., through Earthjustice,
Citizen Complaint Against Wailuku Agribusiness Co., Inc. and Hawaiian
Commercial & Sugar Company and Petition for Declaratory Order to Immediately
Cease Wasting Water Diverted from Waihee, North & South Waiehu, Iao, and
Waikapu Streams and Their Tributaries
for the
COMMISSION ON WATER RESOURCE MANAGEMENT
August 17, 2005

I. BACKGROUND

Hui o Na Wai Eha and Maui Tomorrow Foundation, Inc., through Earthjustice, on October 19, 2004, filed a citizen complaint against Wailuku Agribusiness Co., Inc. (WACI) and Hawaiian Commercial & Sugar Company (HC&S) and a petition for a declaratory order to immediately cease wasting water diverted from Waihee, North & South Waiehu, Iao, and Waikapu Streams and their tributaries.

This Report includes a chronology of the events that led up to the October 19, 2004 filing, summary of pertinent comments and responses to comments from interested parties, and the results of field visits and observations by Commission on Water Resource Management (Commission) staff.

II. CHRONOLOGY – see Appendix A

III. THE DITCH SYSTEMS OF NA WAI EHA

Power point and map presentation.

IV. SUMMARY OF CITIZEN COMPLAINT AND PETITION FOR
DECLARATORY ORDER

The citizen complaint states that WACI and HC&S are wasting public trust water resources because:

- A. Discrepancies between diversions from Na Wai Eha and actual water needs and uses establish waste;
- B. Consistent overflows from reservoirs confirm waste;
- C. Poorly maintained conveyance systems are causing waste; and
- D. WACI's and HC&S's failure to submit full and accurate reports of their diversions is unacceptable.

The petition for a declaratory order urges the Commission to order WACI and HC&S to:

- A. Cease and desist immediately all waste;

- B. Leave any water not established as actually needed and used for reasonable-beneficial purposes in Na Wai Eha;
- C. Provide any and all necessary information on diversions, actual needs and uses, and system losses; and
- D. Pay administrative penalties for past and any further violations.

V. DISCUSSION OF CITIZEN COMPLAINT

A. Discrepancies between diversions from Na Wai Eha and actual water needs and uses establish waste.

1. WACI Water Needs and Uses

Table 1 is a summary of WACI's reported water use for the years 2000 to 2004. Water use on the Iao/Waikapu Fields averaged 4,104 gallons per acre per day (gpa/day) for the 1,474 (later reported as 1,350 acres by HC&S) acres reported planted in sugar cane. Water use for all other uses (for WACI's water delivery agreements) averaged 2,300 gpa/day. Average water use of 4,104 gpa/day seems on the low side for growing sugar cane when compared to duties estimated for sugar cane taken from other sources (see section A.3.a. below for water use duties). Average water use of 2,300 gpa/day for all other uses seems too low when compared with duty calculations used by other agencies (see section A.3.b. below).

There are problems with WACI's reported water use data.

- a. Estimates for system losses are included in WACI's reported water use. The system losses are based at least in part on a 1988 report entitled LOSSES IN AND KULEANA USES FROM DITCH SYSTEMS, LOSSES IN RESERVOIRS, CONDITION OF FLOW MEASUREMENT STATIONS OF WAILUKU AGRIBUSINESS COMPANY, INC. by E.W. Broadbent. The Report showed that the kuleana uses and ditch losses combined were about 19% of the average inflow total of 55.0 mgd. The present practice of using 7.34% (of the total amount diverted) for system loss is based on the improvements to the ditch systems as a result of the 1988 Broadbent Report and additional work done in 1994 (see Exhibit A).

- b. Some Kuleana uses in Waihee Valley from the Spreckels Ditch are included in the WACI water use report. The amount reported for these Kuleana uses is set at 5.133 mgd, based on an earlier study done for WACI. Kuleana uses from the other ditch systems are not measured or estimated.
- c. Inadequate Gaging. There are only six recording stream gages on four of the six ditch systems. Four of the gage stations, Spreckels Ditch Waihee Valley – Station #1, Waihee Ditch Waihee Valley – Station #2, Iao Maniania Ditch Station #3, and Iao Waikapu Ditch Station #4, are jointly operated by WACI and HC&S. HC&S operates two additional gaging stations, Spreckels Ditch at Wailuku and Waihee Ditch @ Field 63 (Hopoi).

An example of inadequate gaging is the differences in the flow measurements between the two recording gages on the Spreckels Ditch. There is a recording gage (Spreckels Ditch Waihee Valley – Station # 1) on the portion of the Spreckels Ditch operated and maintained by WACI. There is another recording gage (Waihee Ditch @ Field 63 (Hopoi)) on the portion operated and maintained by HC&S. Between the two gages, there are active intakes and release points that are not gaged. The result is that there is no way to determine the true amount of water entering and leaving the ditch system.

A result of inadequate gaging can be seen on Table 1, in bold type. The difference in what WACI reported was delivered to HC&S, compared with what HC&S reported was used was greater than 11 mgd in 2002.

2. HC&S Water Needs and Uses

HC&S grows sugar cane irrigated by the ditch systems of Na Wai Eha in two distinct areas. On about 3,900 acres of HC&S land (in the green, shaded area on the map, called the Waihee/Hopoi Fields), and on about 1,350 acres leased from WACI (in the pink, shaded area on the map, called the Iao/Waikapu Fields). Table 2 shows the amount of water used per acre using the water use data provided by WACI, and the acreage data provided by HC&S. Water use on the Waihee/Hopoi Fields averaged 9,085 gpa/day. Water use

on the Iao/Waikapu Fields averaged 4,481 gpa/day. Upon initial analysis, it was noted that the water use on the Waihee/Hopoi Fields was about double the amount used on the Iao/Waikapu Fields. Generally, it is assumed that the Waihee/Hopoi Fields require more water because of differences in soil type (sandy soil does not retain water as effectively as the clay soils in the Iao/Waikapu Fields), elevation (Waihee/Hopoi Fields average about 80 feet above mean sea level, while the Iao/Waikapu Fields average about 300 feet above msl), and climate factors (temperature, relative humidity, solar radiation, wind, and average precipitation, all contribute to the Waihee/Hopoi Fields requiring more irrigation water). However, it did not seem reasonable that the Waihee/Hopoi Fields use twice as much water as the Iao/Waikapu Fields.

HC&S, because of questions raised about the difference in water used per acre between the Waihee/Hopoi and Iao/Waikapu Fields, examined its own data on water use for the Iao/Waikapu Fields. HC&S uses a database called Status of Water Balance – Drip Irrigation Fields. The database lists each field, which is broken down by block and plot, or more commonly called irrigation management units, acres of each irrigation unit, age of crop, soil moisture storage, rainfall, and evapotranspiration. Based on 2000 to 2004 data, the annual average uses for the Iao/Waikapu Fields are listed on the top right side of Table 2. The average use for the five-year period using HC&S's more comprehensive database is 7,485 gpa/day, compared to the 4,481 gpa/day using the WACI data.

3. Water Use Duties for Sugar Cane and other crops.
 - a. Sugar cane. There is no standard duty for sugar cane water use. A literature compilation of water duties for Hawaii done by the University of Hawaii, Water Resources Research Center (Draft Report, May 1994) cites numerous estimates of water use by sugar cane from multiple sources. Estimates for sugar cane, drip irrigation, range from a low of 4,200 gpa/day, to a high of 10,400 gpa/day. The County of Maui's 1990 Water Use & Development Plan lists Wailuku Sugar Co., as having a range of 8,058 to 9,670 gpa/day for sugar cane, and HC&S, central Maui, as having a duty of 9,949 gpa/day for sugar cane.

- b. Other agricultural uses. Similar to sugar cane, there is no standard duty of water use for diversified agriculture crops. Staff must rely on expertise from other agencies to assist in determining reasonable and beneficial uses. The 1992 Oahu Water Management Plan uses 7,784 gpa/day for diversified agriculture. The 2002 Maui County Department of Water Supply System Standards uses 5,000 gpa/day for agriculture. The 2004 Department of Agriculture's Agricultural Plan uses 3,461 gpa/day for diversified agriculture based on five years of record from the Lalamilo System on the Big Island.

4. General Comments and Questions.

- a. WACI is in transition. Land use is changing. Water delivery agreements have been made and further are contemplated. Some acreages are being developed while others are remaining in agriculture. Determining actual water uses is a moving target at best. It is made more difficult because of inadequate gaging and only rough estimates of system losses and kuleana uses.
- b. Have there been any studies conducted concerning reservoir losses since the 1988 Broadbent Report?
- c. Are the gage stage heights and gage rating curves checked periodically to maintain accuracy in the discharge numbers?

B. Consistent overflows from reservoirs confirm waste

- 1. The complaint states:
 - a. Reservoir Nos. 6 and 9, have been overflowing regularly with unused water.
 - b. In July, August, and September 2004, Reservoir No. 6 was overflowing.
 - c. Reservoir No. 9 is often full and overflowing.

- d. Water continued to gush into Pohakea gulch (from Reservoir 9) from February through October 2004, during some of the hottest, driest times of the year

2. WACI's Response

- a. Petitioner's contention that the overflow of Reservoir No. 9 and Reservoir No. 6 has been continuous from February through October 2004 is incorrect. There have been infrequent overflows of some reservoirs in the System.
- b. Contrary to the allegations of Petitioners, there has not been any continuous overflow from either Reservoir No. 6 or Reservoir No. 9. Wailuku and HC&S constantly monitor the levels of the reservoirs. During heavy rainfalls, the ditch system does maintain a high-level and the reservoirs remain full. During such times, terminal reservoirs may overflow, but, as stated above, the overflow is directly into the natural drainage channels and such does not constitute waste.

3. HC&S's Response

- a. Isolated incidents of overflow do not constitute systematic wasteful practices or conditions.
- b. It should be noted that this year has been a very wet year on Maui. Rainfall to date in the West Maui area this year for the first time in several years exceeded average rainfall by 202-251% for West Maui. See Exhibit "5", NOAA Report on rainfall for Maui, 2004, year to date. During heavy rainfall, sheet flow and other runoff into the ditches (which cannot be controlled) alone cause overflow of reservoirs and other endpoints of the system. Overflows at various reservoirs are not uncommon under these climatic circumstances. (See Declaration of Garret Hew) It is important to note that during these heavy rainfall periods, the stream and ALL users of the West Maui System have more water than average and that the overflows are not directly harmful to other uses at that time.

4. Staff Field Visits.

- a. Staff conducted a field visit to Reservoir Nos. 6 and 9 on July 7, 2004 with WACI staff. At that time, no water was exiting either reservoir.
- b. Staff conducted a field visit to Reservoir No. 37 on August 5, 2005, with Earthjustice staff and some of their clients. We observed the apparent wasting of water in the area below Reservoir No. 37. There is a control gate and what looks like a former gaging site on Waihee Ditch mauka of Reservoir No. 37 that we observed releasing water apparently to Reservoir No. 37. The water was observed entering Reservoir No. 37. Below Reservoir No. 37, the water was observed flowing out of an apparently broken white pvc pipe, and into a drainage channel and culvert under Kahekili Highway. A letter has been sent to WACI asking for an explanation by August 12, 2005.

WACI submitted a response on August 12, 2005. WACI explains that the observed release of water during the August 5, 2005 field visit is part of a continuing study being done in conjunction with the County of Maui, Department of Water Supply (DWS). M&E Pacific was contracted to conduct a feasibility study as described in the letter (Exhibit C). In January 2005 M&E Pacific and the DWS did jar testing on the water, which is a more intense study of the feasibility of filtering the reservoir water to meet the DWS and the Department of Health's Environmental Management Division, Clean Water Branch standards. Results of the initial study were presented to the DWS in April 2005. A review copy of the study will be provided to the Commission. WACI will be conducting the final series of jar testing on August 29 and 30, 2005 (the summer jar testing period) on Reservoir No. 37.

5. General Comments.

- a. Operational losses will occur on any water system, and especially an open ditch system. Good ditch management and open communication between the operator and the users will minimize system losses.

- b. Excessive wasting and “dumping” of water are subject to Commission action.

C. Poorly maintained conveyance systems are causing waste

1. The Complaint states: Examples of WACI’s wasteful water conveyance practices include unlined and overflowing reservoirs and ditches, the failure to flush silt traps in some ditches, and the excessive flushing of filters. Although portions of the Waihee Ditch are lined with cement, large sections of the ditch and the reservoirs are unlined, resulting in the preventable waste of water. The lack of basic maintenance for Waihee, North Waiehu, Maniania, Iao-Waikapu, and Spreckels Ditches also contributes to waste. As just one example, the failure to remove silt in the Waihee Ditch in places like Waikapu Gate causes silt to accumulate, which results in increased ditch overflows.
2. The Complaint further states: in September and October 2004, water was seen pouring out of HC&S’s filter station, which is mauka of Honoapiilani Highway on the Iao side of “Maui Block” Road. This water ran through a four-inch pipe, then under Honoapiilani Highway, and into a ditch on the makai side of the highway, before disappearing into a grove of Haole Koa. From September 12-26, 2004, water appeared to flow constantly through the filter station. Water has also been seen pouring out of the filter station intermittently on other occasions
3. WACI’s response to C.1. above.
 - a. Wailuku has a crew that regularly maintains the ditches in the System. Two ditch persons patrol daily, 7 days a week, 52 weeks a year. They control the inflows into the System and distribute water between the North and South Sectors depending on demand. The crew cleans gratings built into the ditch system to catch large debris, cleans trails leading to the ditch intakes, and clean roads that provide access to the ditch system. The ditch crew takes water flow readings and rainfall data in order to satisfy irrigation schedules.
 - b. An additional crew provides the maintenance of equipment. This crew also cleans silt from ditches, and works in the tunnels to remove rocks and silt.

They remove the limbs and trees that fall into the ditch, repair the concrete linings that have cracked and repair valves that control water from the ditches to the reservoirs. When the work required is more than the Wailuku's crew can handle, East Maui Irrigation Company, Limited is called upon to assist with the work.

- c. WACI has submitted a list of system improvements (Exhibit A) completed as a result of the 1988 Broadbent Report and an HC&S/WACI Combined Water System Expenditures for West Maui by Year (Exhibit B).
4. HC&S's response to V.C.2. above, regarding HC&S's filter station. The HC&S filter station is used to filter out leaves, dirt, trash and other debris prior to the irrigation water going through the drip irrigation system. The water is put through a system of filters that takes out the debris. It is normal operating practice for those filters to be periodically backwashed to clean them.

Even though HC&S denies that this normal operating practice of periodically backwashing the filters is wasteful, as a good steward of the natural resources, HC&S has begun measures to markedly improve the situation at the HC&S filter station to ensure that the backwash water is reused for irrigation use and will complete the work by the end of the year.

5. Staff Comments.
- a. The major water-producing ditch systems including the Waihee (16 to 35 mgd, reported range of average flows), Speckels (5 to 7 mgd), Iao-Maniania (4 mgd), and Iao-Waikapu (12 mgd) Ditches are in fairly good condition. The ditches systems producing less water include the Waiehu (2.5 mgd) and Waikapu (2.5 mgd) are not as well maintained.
 - b. The filter station referenced in section V.C.2., above, was part of the staff field visit on July 6, 2005, with HC&S staff. Staff observed that the backwash water was being piped under the highway and was used to irrigate fields makai of Honoapiilani Highway.

D. WACI's and HC&S's failure to submit full and accurate reports of their diversions is unacceptable

1. The Complaint states:

- a. While these known specific examples of waste, in themselves, demand immediate remedial action by the Commission, they are only the tip of the iceberg. The full range of WACI's and HC&S's waste remains hidden from the public and the Commission because of WACI's and HC&S's continued failure to submit complete and accurate reports of their water diversions and actual uses, as required by law.
- b. The reports submitted by WACI do nothing to answer the questions regarding waste and, in fact, raise even more questions.
- c. Numerous other inconsistencies plague WACI's reports. WACI, again, states the acres and users receiving water in the most general and uninformative terms possible, such as 'diversified farming' and 'sugarcane.' Yet, even at this broadest level, the numbers fail to add up.
- d. While WACI has submitted some, albeit inaccurate and contradictory, information, HC&S has failed to submit any information on its water diversions and uses.

2. WACI's response.

The Hawaii Administrative Rules requires reports of water use on forms provided by the Commission. Wailuku provided each of its water use reports on the System to the Commission in a format which contains more information than required under the Commission's monthly surface water report requirements. Wailuku discussed its report with the Commission in 2003 and 2004 and in 2004 was asked by the Commission for additional or clarifying information with regard to its reports. Wailuku timely responded to each of the Commission's requests with regard to additional and clarifying information. As a result of Wailuku's communications with the Commission, an agreement was reached with the Commission staff under which a new format was to be used by Wailuku for its monthly reporting

requirements. Starting October 2004, Wailuku commenced utilization of the new format for its reporting requirements.

3. HC&S's response.

For the use of water from the portions of the Waihee and Spreckels Ditch controlled by HC&S, HC&S has reported to the Commission on a yearly basis as requested by its staff. HC&S's monthly water use from 1988 to 2001 were filed with the Commission on August 19, 2002. On August 26, 2002, HC&S was requested by Commission staff to submit the monthly reports on an annual basis. In 1992, the Commission authorized its staff to modify reporting requirements to a quarterly, semi-annual or annual basis for water uses from surface water sources. The monthly water use reports for 2002 were submitted on January 16, 2003 and the monthly water use reports for 2003 were submitted on April 26, 2004. HC&S was preparing to submit monthly water use reports annually as requested for 2004 in early 2005.

4. Staff Comments

- a. The Commission, on September 16, 1992, exempted certain cases of water use from the requirements for measuring and reporting monthly water use "unless the Commission determines a specific need for these data for purposes such as resolving disputes, establishing instream flow standards, or quantifying the amount of water use for a water use permit in a water management area."
- b. In the same action, the Commission modified water uses from surface water sources to allow reporting of monthly water use on an appropriate quarterly, semi-annual, or annual basis, as determined by the Commission staff, "unless a specific need is determined for monthly reporting."
- c. Finally, the Commission approved staff's recommendation "that the requirement for monthly measurement and reporting of water use from gravity-flow, open ditch stream diversion works which are not already being measured and which are not in designated surface water management areas be deferred until the Commission adopts guidelines

regarding appropriate devices and means for measuring water use which are not unduly burdensome on water users.”

- d. HC&S and WACI have been cooperative in providing data requested by staff.

VI. GENERAL DISCUSSION OF PETITION FOR A DECLARATORY ORDER

- A. Cease and desist immediately all waste
- B. Leave any water not established as actually needed and used for reasonable-beneficial purposes in Na Wai Eha
- C. Provide any and all necessary information on diversions, actual needs and uses, and system losses
- D. Pay administrative penalties for past and any further violations

VII. QUESTIONS & DISCUSSION

Appendix A – Chronology of Events

June 25, 2004 - Hui o Na Wai Eha and Maui Tomorrow Foundation, Inc., through Earthjustice, filed a Petition to Amend the Interim Instream Flow Standards for Waihee, North & South Waiehu, Iao, and Waikapu Streams and Their Tributaries (Petition).

July 13, 2004 – Letter from the Commission on Water Resource Management (CWRM) requesting interested persons to provide comments to the Petition by August 16, 2004.

August 16, 2004 – Deadline for interested persons wishing to provide written comments regarding the Petition. Skippy Hao (Maui Division of Aquatic Resources), Sandra Kunimoto (Department of Agriculture), Wailuku Agribusiness Co., Inc. (WACI), Hawaiian Commercial & Sugar Company (HC&S), and M. Eric Benbow (aquatic biologist, Michigan State University) provided Comments.

August 25, 2004 – Letter from CWRM to Earthjustice requesting comments to the responses filed on August 16, 2005, by September 27, 2004.

September 20, 2004 – Letter from Earthjustice to CWRM requesting additional time, from September 27, 2004 to October 18, 2004, to submit comments.

September 20, 2004 – Letter from CWRM to Earthjustice granting the extension request.

October 18, 2004 – Earthjustice submitted their response.

October 19, 2004 - Hui o Na Wai Eha and Maui Tomorrow Foundation, Inc., through Earthjustice, filed a CITIZEN COMPLAINT AGAINST WAILUKU AGRIBUSINESS CO., INC. AND HAWAIIAN COMMERCIAL & SUGAR COMPANY AND PETITION FOR DECLARATORY ORDER TO IMMEDIATELY CEASE WASTING WATER DIVERTED FROM WAIHEE, NORTH & SOUTH WAIHEHU, IAO, AND WAIKAPU STREAMS AND THEIR TRIBUTARIES.

SUMMARY OF CITIZEN COMPLAINT AND PETITION FOR DECLARATORY ORDER

- E. Introduction and Background
 - 1. Reference to June 25, 2004 Petition to Amend the Interim Instream Flow Standards for Waihee, North & South Waiehu, Iao, and Waikapu Streams and Their Tributaries (Petition).
 - 2. Request for immediate relief pending final resolution of Petition.
- F. Legal Framework Prohibiting Waste
- G. WACI and HC&S are Wasting Public Trust Water Resources

1. Discrepancies between diversions from Na Wai Eha and actual water needs and uses establish waste.
 2. Consistent overflows from reservoirs confirm waste.
 3. Poorly maintained conveyance systems are causing waste.
 4. WACI's and HC&S's failure to submit full and accurate reports of their diversions is unacceptable.
- H. The Waste of Na Wai Eha Waters Harms the Hui's Interests in Instream Uses and Values
- I. The Commission Should Order the Immediate Cessation of Waste, Return of Stream Flows, Full and Accurate Reporting, and Payment of Administrative Penalties
- J. Conclusion – Urges the Commission to order WACI and HC&S to:
1. Cease and desist immediately all waste;
 2. Leave any water not established as actually needed and used for reasonable-beneficial purposes in Na Wai Eha;
 3. Provide any and all necessary information on diversions, actual needs and uses, and system losses; and
 4. Pay administrative penalties for past and any further violations.

October 26, 2004 – Letter from CWRM to HC&S and WACI requesting written responses to: 1) the Complaint/Dispute Resolution Form; 2) Earthjustice's Response to Comments on the Petition to Amend the Interim Instream Flow Standards; 3) the Citizen Complaint; and 4) the Petition for Declaratory Order to Immediately Cease Wasting Water, by November 22, 2004.

November 12, 2004 – Letter from HC&S to CWRM requesting an additional two weeks, from November 22, 2004 to December 6, 2004, to submit responses.

November 15, 2004 - Letter from WACI to CWRM requesting an additional two weeks, from November 22, 2004 to December 6, 2004, to submit responses.

November 16, 2004 – Letter from CWRM to HC&S granting the two-week extension request.

November 17, 2004 - Letter from CWRM to WACI granting the two-week extension request.

November 22, 2004 – Original deadline for HC&S and WACI to provide written responses to the complaint and petition for declaratory order.

December 2, 2004 – Letter from WACI to CWRM requesting an additional week, from December 6, 2004 to December 13, 2004, to file its response.

December 3, 2004 – Letter from CWRM to WACI granting the request.

December 6, 2004 – Extended deadline for HC&S and WACI to provide written responses.

December 6, 2004 – Letter from HC&S to CWRM with HC&S's Response to Earthjustice's Response to HC&S's Response to Petition to Amend Interim Instream Flow Standard. HC&S also filed a Memorandum in Opposition regarding the Citizen's Complaint and Declaratory Order.

SUMMARY OF HC&S'S MEMORANDUM IN OPPOSITION

- I. Background
- II. HC&S's Use of Water from the West Maui System is a Reasonable and Beneficial Use
 - A. HC&S's use of water in West Maui is an economic and efficient utilization of water.
 - B. HC&S's water use is consistent with the county and state land use zoning.
 - C. HC&S's water use is in the public interest
- III. Reasonable System Losses Do Not Constitute Waste
 - A. Isolated incidents of overflow do not constitute systematic wasteful practices or conditions.
 - B. The courts have not found similar losses to be unreasonable and wasteful.
- IV. Hui has Failed to Provide Adequate Information to Detail Its Current and Projected Water Needs and Uses.
- V. The Public Trust Doctrine has a Dual Mandate of Protection and Maximum Reasonable Beneficial Use.
- VI. HC&S has Filed Reports on its Monthly Water Use.
- VII. Injunctive Relief and Sanctions are Unwarranted in this Case.

December 13, 2004 – Extended deadline for WACI to file responses.

December 13, 2004 – Letter from WACI to CWRM with WACI's Response to Earthjustice's Comments to Wailuku's Response to Petition to Amend Interim Instream Flow Standards. WACI also filed its Memorandum in Opposition regarding the Citizen's Complaint and Declaratory Order.

SUMMARY OF WACI'S MEMORANDUM IN OPPOSITION

- I. Complaint/Allegation/Relief
- II. Principles of Law Applicable to Petitioner's Claims
- III. West Maui Surface Water System
- IV. Diversions and Use
- V. Reservoir System
- VI. Reservoirs 6 and 9, Design Capacity/Effective Capacity

- VII. Water System Maintenance
- VIII. Waste
- IX. Hui has Failed to Come to the Commission with Clean Hands and has Failed to Meet the Standards Established by the Commission
- X. Water Use Reports
- XI. Conclusion – Wailuku has demonstrated that:
 - a. Wailuku's use of the System's water is for reasonable and beneficial purposes and does not constitute waste;
 - b. The System losses incurred by Wailuku on the West Maui Systems are reasonable and fall within the range of unavoidable losses acknowledged by courts and regulators in Hawaii and other jurisdictions;
 - c. Petitioners have failed to provide any evidence to the Commission that their interests are being harmed and it would appear that certain of the Petitioners are required to provide additional information to the Commission under the Water Code;
 - d. Wailuku has filed water use reports in accordance with the requirements of the Commission and pursuant to the Commission's directives; and
 - e. Any limitation on Wailuku's water use, its conveyances and any sanctions against Wailuku are unwarranted and would not be in the public interest.

December 22, 2004 – Letter sent to interested parties requesting that they: 1) provide any additional information, or 2) provide further comments to any of the responses already submitted.

February 14, 2005 – Letter to HC&S and WACI requesting additional information by March 4, 2005.

February 24, 2005 – Letter from WACI requesting additional two weeks, until March 18, 2005, to submit information.

February 28, 2005 – Letter from CWRM granting WACI an additional two weeks to submit information.

March 4, 2005 – Original deadline for HC&S and WACI to submit information requested by the February 14, 2005 letter from the CWRM.

March 14, 2005 – Letters from WACI and HC&S requesting an additional extension of time, from March 18 to April 1, 2005, to submit the requested information.

March 17, 2005 – Letters from CWRM to HC&S and WACI granting extension to April 1, 2005.

March 18, 2005 – Extended deadline for WACI to submit info.

March 29, 2005 – Letter from WACI with information requested by the CWRM.

March 31, 2005 – Letter from HC&S with information requested by CWRM.

May 4, 2005 – Letter from CWRM to HC&S and WACI with preliminary questions about their water use practices related to the complaints regarding the wasting of water. Deadline of May 18, 2005 to respond to the questions.

May 9, 2005 – Letter from HC&S to CWRM requesting up to May 31, 2005, instead of May 18, 2005, to submit the response.

May 10, 2005 – Letter from WACI to CWRM requesting up to May 31, 2005, instead of May 18, 2005, to submit the response.

May 12, 2005 – Letters from CWRM to HC&S and WACI granting the extension.

May 31, 2005 – Information received from HC&S and WACI.

June 9, 2005 – Letters to HC&S and WACI requesting additional supporting data, by June 29, 2005, for CWRM staff to properly evaluate the conclusions concerning the reasons for the differences in water use between various fields, the reasonableness of the amounts used, the use of the one to one pan evaporation factor, and information and documentation on what measures are currently being used to ensure efficient use of water. CWRM staff also requested a field visit to the ditch systems specifically to observe and document the points along the ditch systems that contribute to the difference in the amount of water delivered to HC&S as reported by WACI, compared to HC&S's total use reported for the same periods.

June 15, 2005 – Staff distributed to the Commission a chronology and summary on the status of the waste complaint. Staff projected conducting field visits to the ditch systems in late June to July 2005, preparing and presenting a report to the Commission in August 2005, and possible action on the Citizen Complaint and Declaratory Order in September 2005.

June 29, 2005 - Information received from HC&S and WACI.

July 6-7, 2005 – Staff conducted a field visit to the ditch systems accompanied by staff from HC&S and WACI.

July 20, 2005 – Received information requested by staff from WACI staff regarding system losses, kuleana uses, and condition of flow measurement stations, compiled for WACI in 1988 by a consultant.

July 29, 2005 – Staff met with HC&S and WACI staff to discuss additional information requested as a follow up to the field visit on July 6-7, 2005.

August 5, 2005 – Staff conducted a field visit with Earthjustice staff and some of their clients.

August 8, 2005 – Additional information received from HC&S and WACI.

August 8, 2005 – Letter from CWRM to WACI concerning results of the August 5, 2005 field visit and asking that WACI explain the apparent waste of water observed coming from the vicinity of Reservoir No. 37.

August 12, 2005 – Response from WACI regarding the release of water from Reservoir No. 37.

TABLE 1 Waihee-Waikapu Streams WACI water use data.xls

TABLE 1 - Wailuku Agribusiness Company, Inc. Water Use Data (10/16/03 & 3/29/05)						
Year	Sugarcane (1) (mg/year)	(mgd)	Acres	Gallons per acre/day		
2000	2189.45	5.98	1474	4058		
2001	2377.29	6.51	1474	4419		
2002	2384.33	6.53	1474	4432		
2003	2335.12	6.40	1474	4340		
2004	1763.83	4.82	1474	3269		
2005						
Average	2210.00	6.05		4104		
(1) Used on Iao/Waikapu Fields by HC&S						
Year	Other Uses (2) (mg/year)	(mgd)	Acres	Gallons per acre/day		
2000	1375.10	3.76	2056	1827		
2001	1239.43	3.40	1891	1796		
2002	1160.45	3.18	1891	1681		
2003	1470.28	4.03	1219	3304		
2004	1289.40	3.52	1219	2890		
2005						
Average	1306.93	3.58		2300		
(2) Water Delivery Agreements						
	Reported Delivered to HC&S (3) (mg/year)	(mgd)	HC&S Reported Use (4) (mg/year)	Difference (mg/year)	Difference (mgd)	
2000	12000.30	32.79	13146.13	-1146	-3.13	
2001	13580.75	37.21	14348.62	-768	-2.10	
2002	18584.02	50.92	14456.88	4127	11.31	
2003	12391.51	33.95	9903.41	2488	6.82	
2004	14541.48	39.73	12473.91	2068	5.65	
2005						
Average	14219.61	38.96	12865.79			
(3) WACI reported delivered to HC&S						
(4) HC&S reported use for Waihee/Hopoi System, Exhibit 6, 3/31/05						
Year	Total Use (5) (mg/year)	(mgd)	Total Acres	Gallons per acre/day		
2000	15564.85	42.53	3530	12047		
2001	17197.46	47.12	3365	14002		
2002	22128.80	60.63	3365	18017		
2003	16196.91	44.38	2693	16478		
2004	17594.71	48.07	2693	17851		
2005						
Average	17736.55	48.59		15679		
(5) Total of (1) + (2) + (3)						

TABLE 1 Waihee-Waikapu Streams WACI water use data.xls

**TABLE 2 Waihee-Waikapu Streams
Water Use Data**

TABLE 2 - WACI Data Compared to HC&S Data for Iao/Waikapu and Waihee/Hopoi Fields						
	WACI Data for		Acres Served	Gallons per		Iao/Waikapu
	Iao/Waikapu Fields (1)		(2)	acre/day		Fields (3)
Year	(in million gals/yr)	(in mgd)		(gpa/day)		(gpa/day)
2000	2189.45	5.98	1350	4431		8529
2001	2377.29	6.51	1350	4825		7349
2002	2384.33	6.53	1350	4839		8225
2003	2335.12	6.40	1350	4739		5283
2004	1763.83	4.82	1350	3570		8041
average	2210.00	6.05		4481		7485
	HC&S Data for		Acres Served	Gallons per		
	Waihee/Hopoi Fields (4)		(2)	acre/day		
Year	(in million gals/yr)	(in mgd)		(gpa/day)		
2000	13106.93	35.81	3876.80	9237		
2001	14304.08	39.19	3876.80	10109		
2002	14388.46	39.42	3844.10	10255		
2003	9842.27	26.97	3844.10	7015		
2004	12453.40	34.03	3862.20	8810		
average	12819.03	35.08		9085		
	(1) WACI Data, 10/16/03 & 3/29/05					
	(2) HC&S Data, Exhibit 4, 3/31/05					
	(3) HC&S Water Balance Program Data, Letter of 6/29/05, Exhibit C					
	(4) HC&S Data, Exhibit 6, 3/31/05					

TABLE 2 Waihee-Waikapu Streams Water Use Data

Revd 7/29/05

SYSTEM IMPROVEMENTS

EXHIBIT A

**ACTION ITEMS COMPLETED BY WAILUKU AND EMI
PURSUANT TO 1988 BROADBENT REPORT**

1. Waihee

The converging section floor is scoured, exposing the steel angle at the top of the throat drop. The probable cause is a concentration of gravel caused by two large boulders in the ditch bottom just upstream. The ratios of over-indicating were 1.06 and 1.08. If there is no leakage in the ditch system between the Parshall and velocity meter locations, the combination of error causing factors noted on Table 3 can account for some of the difference.

Action Items

- 1) Remove the large rocks
- 2) Clean the rocks, roots, and limu growing in the flume and upstream open ditch
- 3) Patch the scoured floor, deeply pitted sides
- 4) Brace the flume sidewalls to avert further inward leaning
- 5) Relocate the staff gage to its correct position
- 6) Establish a recorder zero flow datum

2. Spreckels

Flow is small relative to flume size, so that the effects of limu growth are magnified. The ditch above and below the Parshall is heavily weed choked, which will cause entrance turbulence and backwater "drowning" if unchecked. The ratio of indicated to measured flow No. S1 was 0.92.

Action Items

- 1) Clean the flume and the adjacent 50± foot of ditch both ends of flume
- 2) Patch pitted bottom and sidewalls
- 3) Brace the sidewalls to arrest further inward leaning
- 4) Establish a recorder zero flow datum
- 5) Measure Kuleana uses separately

3. Iao-Waikapu

This flume is both structurally deteriorated and drowned. Velocity meter measurement No. I3-1 showed a flow rate of 4.6 MGD versus the corresponding staff gage reading of about 11.4 MGD, an over-indicating ratio of 2.48. High backwater height and an awkward location are causes to relocate this station.

Action Items

- 1) If more measuring capacity is needed, the existing Parshall structure should be removed and replaced by lining, and at least the initial 2,000 feet of ditch below the last tunnel portal cleaned. Velocity meter readings at expected maximum and minimum flows should be made and the new flume designed accordingly.

4. S. Waikapu

The flume appears to be structurally adequate, but as with Iao-Waikapu it is operating "drowned." Velocity meter reading No. P2 showed 1.7 MGD versus an indicated staff gage reading of 4.7 MGD, an over-indicating ratio of 2.76. The drowning appears to be

from accumulated sediment and limu and/or backwater in the downstream ditch caused by a spillway wall.

Action Items

- 1) Try to eliminate the excess backwater causing the drownings
- 2) If the above is not successful, a new flume should be located and designed into the upstream ditch far enough to eliminate drowning.

5. Maniania Weir

A combination of rust tuberculation and pitting of the steel weir blade and an approximately one inch too low setting of the float gage and recorder zero flow datum results in over-indicating flow by about 2 MGD, or over-indicating ratios of 1.21 and 1.89 based on comparison of velocity meter readings Nos. MI-1 and MI-2 with the corresponding float gage and recorder indications. Based on these two velocity meter readings, a revised rating table was computed with an assumed variation in the weir "C" factor.

Action Items

- 1) Reset the zero flow datums on the float gage and recorder.
- 2) Use the revised rating table.

1994 Waihee and Spreckels Ditch Repair Work Plan – Actions Completed

WAIHEE DITCH – 7/12 Wailuku Agri-Business – 5/12 HC&S

A: Ditch cleaning from Wailuku Field #8 to Hopoi chute ditch.

1. Remove mud accumulation on makai side of ditch between Hopoi chute ditch and Hopoi gaging station.
2. Blast and remove huge boulder upstream of Hopoi gaging station.
3. Remove boulders that are ready to fall into ditch on makai side of bank upstream of Hopoi gaging station by tunnel mouth.
4. Remove horsecane, rocks, and mud between Iao Stream siphon and South Maninia Intake. Level uneven ditch floor.
5. Remove rocks, boulders, and mud in open ditch section from South Maninia Intake to modified 7' Parshall Flume gaging station.
6. Remove large rocks, gravel, and roots in tunnel and open ditch section between 7' Parshall Flume gaging station and river overpass. Also remove large boulder on makai side of open ditch.
7. Clear and remove cave-in material in tunnel mouth upstream of river overpass (approximately 25 to 30 feet). Remove large rocks and mud from tunnel section.
8. Repair large leak on makai side of open ditch section upstream of tunnel. Clear and remove large accumulation of gravel, silt, ironwood tree roots, and horsecane in open ditch section.
9. Clear and remove cave-in material in tunnel, roots, rocks, and gravel and rock buildup in open ditch section downstream of South Waiehu Flume.
10. Clear and remove cave-in material and hanging roots from mouth of tunnel upstream of South Waiehu Flume.
11. Remove rocks, gravel, roots, horsecane, and hau from open ditch section upstream of North Waiehu Flume. Level uneven ditch floor.
12. Clear and remove cave-in material and roots in tunnel section and remove heavy silt accumulation and rocks in open ditch section between North Waiehu Flume and North Waiehu Intake.
13. Clear roots from tunnel sections, remove rocks, mud, boulders, horsecane and trees in open ditch section between North Waiehu Intake and Wailuku Agri-Business Field #8. There are six tunnel and six open ditch sections in this area.

B. Construct access roads to open ditch sections from Wailuku Field #8 to Hopoi chute ditch (95% complete).

- C. Repair Waihee Valley # 1 swinging bridge.
 - 1. Replace cables, eye bolts, turnbuckles, cable clamps, and redwood planks.
- D. Repair Waihee Ditch sluice and radial gate control.
 - 1. Replace leaky gate, runners, and mud seal on sluice gate.
 - 2. Replace cables, service crank mechanism, patch radial gate, and paint.
- E. Eradicate trees and brush adjacent to ditches, tunnels and access roads from Hopoi chute ditch to Wailuku Field #8.

SPRECKELS DITCH – 50% Wailuku Agri – 50% HC&S

- A. Repair Spreckels Ditch sluice and control gates in Waihee Valley.
 - 1. Replace leaky sluice gate, service crank mechanism, replace runners.
 - 2. Replace rotten steel control gates, replace runners and mud seal, service crank mechanism and paint gates.

**HC&S / WACI COMBINED WATER SYSTEM EXPENDITURES FOR
WEST MAUI BY YEAR**

1995	\$256,856
1996	\$198,898
1997	\$230,397
1998	\$233,655
1999	\$174,174
2000	\$172,232
2001	\$146,607
2002	\$136,756
2003	\$196,210
2004	\$193,039
2005	\$101,569
JAN - JUN	

GRAND TOTAL SINCE JANUARY 1995: \$2,040,393

(excludes certain in-house costs attributable to the administrative time to manage the system
and the attributable costs of the senior managers from both WACI & HC&S / EMI)

EXHIBIT B