

MINUTES
FOR THE MEETING OF THE
COMMISSION ON WATER RESOURCE MANAGEMENT

DATE: January 23, 2013
TIME: 9:00 am
PLACE: DLNR Board Room
Kalanimoku Bldg.
1151 Punchbowl St., Room 132
Honolulu, Hawaii 96813

Chairperson William Aila, Jr. called the meeting of the Commission on Water Resource Management to order at 9:00 am.

The following were in attendance:

MEMBERS: Mr. William Aila, Jr., Mr. Ted Yamamura, Mr. William Balfour, Mr. Jonathan Starr, Ms. Loretta Fuddy, Mr. Neal Fujiwara

ABSENT: Mr. Sumner Erdman

STAFF: William Tam, Lenore Ohye, Roy Hardy, Jeremy Kimura, Charley Ice, Robert Chenet, Jonas Burgon, Ryan Imata, Denise Tu

COUNSEL: Linda Chow, Esq.

OTHERS: Susan Mukai (Brown & Caldwell), Nick Pisciotto (Brown & Caldwell), Gary Paracuelles (Dole Food Co.), Alan Murakami (Native Hawaiian Legal Corporation – NHLC), Camille Kalama (NHLC), Georgia Anton (NHLC), Dan Nellis (Dole Food Co.), Wayne Tanaka (Office of Hawaiian Affairs - OHA), Kaleo Manuel (Department of Hawaiian Home Lands – DHHL), Ben Schragger (University of Hawaii at Manoa)

A. APPROVAL OF MINUTES

December 19, 2012

Chair Aila asked for an amendment to the motion on Page 10 of the minutes to read “the motion to approve the application failed for a lack of majority.”

MOTION: (Starr / Balfour)

To approve the minutes with an amendment to the motion on Page 10.

UNANIMOUSLY APPROVED.

B. ANNOUNCEMENTS

Lenore Ohye (Commission on Water Resource Management) gave an update on the Joint State Water Conference which included training on the online water use reporting system.

Commissioner Starr commented on the success of the Conference and thanked the Water Commission staff.

C. PRESENTATIONS**1. Measurements of Seepage Losses and Gains, East Maui Irrigation Diversion System, Maui, Hawaii**

Dean Uyeno (Commission on Water Resource Management) gave an overview of the presentation and how it relates to the East Maui interim instream flow standards set by the Water Commission (CWRM) in May 2010. As part of the second phase of the project, East Maui Irrigation (EMI) was required to work with CWRM and U.S. Geological Survey (USGS) to undertake a system efficiency study to accurately determine EMI system losses and/or gains. This resulted in a joint funding agreement between the USGS, CWRM, and Hawaiian Commercial & Sugar Company (HC&S).

Chui Ling Cheng (USGS) presented the results of the study on seepage losses and gains in the East Maui Irrigation Diversion System in Maui. The Water Commission is tasked with protecting instream uses that include cultural practices such as taro cultivation, ecosystem maintenance, water quality and aesthetics. To determine instream flow standards CWRM looks at instream and offstream uses. USGS hydrologic data has helped set the instream flow standard in places like East Maui. In 2001 the Native Hawaiian Legal Corporation (NHLC) filed a petition to have water returned to 27 streams in North-East Maui. In September 2008, CWRM set instream flow standards for 8 streams (highlighted in green on the map). In May 2010, CWRM set instream flow standards for the remaining streams. The results of the study will help CWRM make recommendations for water use in the area.

There are two objectives to the study. 1) To look at the characteristics of the ditch (i.e.: documenting locations of tunnels and open ditch sections), and 2) identify seepage losses and gains within the EMI system. The EMI system is used to divert water from East Maui to Central Maui for sugarcane irrigation. The system starts with the Ko'olau Ditch and spans 39 drainage basins. There are approximately 388 major stream water intakes. The highest elevation ditch is the Wailoa Ditch, followed by the New Hāmākua Ditch, the Lowrie Ditch, and the Ha'iku Ditch. These are the four main ditches within the EMI system. The New Hāmākua Ditch and Ha'iku Ditch are overflow ditches. Each ditch is connected to smaller ditches and stream channels. This allows water to flow from one ditch to another.

The first goal of the study is to look at the characteristics of the ditches. The ditches were categorized by tunnels (e.g.: pipes, flumes, or culverts), lined open ditches (made of stainless steel or concrete), and unlined open ditches (earthen walls and bottom). Most of the ditches in the EMI system exhibit multiple characteristics. Using a GPS, the team marked points along the ditch where the characteristics had changed. Of the 63 miles of the EMI system, the majority are tunnels. 27 percent are open ditches. Most of the open ditches are unlined.

The second part of the study looked at seepage losses and gains. Measurement reaches were chosen based on a set of criteria that included 1) ditch characteristics 2) length (ideally 1 mile) and 3) minimal or no diversion inflows and outflows. Discharges were calculated within the measured range. The data

was summarized to give an estimation of seepage losses and gains as it pertains to the different ditch flows. In other words, how much seepage losses and gains compare to the percentage of ditch flow.

Commissioner Starr asked if the loss would be greater if there were no gains.

Ms. Cheng said the study looked at the net seepage flow within a certain reach. Both gains and losses could occur within the same measurement reach and balance each other out.

Commissioner Balfour asked what percentage of the entire system is represented in the four categories of ditch flow.

Ms. Cheng said it is difficult to come up with a percentage. These values do not contain information on the length of the reaches.

Commissioner Starr asked if the numbers for seepage loss were tabulated per mile of ditch.

Ms. Cheng said those numbers are presented within the report.

Overflow ditches were not included in the summary. Total seepage loss for the Ko'olau-Wailoa Ditch was 1.6 million gallons per day (mgd). Total seepage gains were 2.4 mgd. The percentage of ditch length measured equals 10 percent. Total seepage loss for the Lowrie Ditch was 1.5 mgd. Total seepage gains were 3.2 mgd. 48 percent of the ditch length was surveyed.

Commissioner Starr inquired about the interaction between seepage loss and gain and the impact on the surrounding environment (i.e.: local recharge of stream flow).

Ms. Cheng replied that the EMI study did not directly address that question. There would be differences depending on the type of flume (i.e.: pipe vs. wood).

2. Maui County Water Reuse Program Overview (Steve Parabolicoli, Maui County Water Recycling Program Coordinator)

Steve Parabolicoli shared updates from Maui's Water Reuse Program. Maui County's Reuse Program has been in place for 20 years and is run by the Waste Water Division and funded by the sewer users. There are three classes of recycled water. R-1 is the highest class of recycled water and can be used for food crop irrigation. R-2 is historically used for golf course and sugar cane irrigation. R-3 is un-disinfected and has severe limitations on its use. Maui's waste water is treated at county facilities in Kihei, Lahaina and other small treatment plants. Activated sludge is used to treat the waste water. The Kihei facility produces only R-1 water and Maui County is working to improve the R-1 capability at other facilities. Studies are currently being done to update the system.

Injection wells and the lack of available fresh water have been the primary catalyst behind Maui's waste water treatment system. Coral reef decline and public health concerns have prompted Maui County to continue their efforts with waste water treatment. Threats to the aquifers and increasing salinity levels are also cause for concern. The Maui Waste Water Division began investigating options for reuse more than 20 years ago. Areas that lack fresh water (south and west Maui) became prime targets for water reuse. The community was involved early on in the process to generate support. Chapter 20-30 of the Maui County Code mandates the use of recycled water at commercial properties that are within 100 feet of the distribution lines. In 1996 rules were established for on-site and off-site distribution systems. In 1997 a community-based rate structure was developed that used sewer user fees to help subsidize the program. Sewer user fees currently pay for 70 percent of the cost. Distribution systems have been built and extended over the years. A 2009 – 2011 recycled water verification study looked at how much water could be saved. Recycled water is used in landscape irrigation, golf courses, school yards, county parks, residential complexes (single family homes), shopping centers, agriculture, dust control, fire hydrants, composting, flushing toilets and urinals, wildlife habitat on Molokai, and as a source of drinking water for cattle. Rates for recycled water vary based on use. Agriculture and golf courses pay about 0.33 cents. Rates are matched if the landowner or farmer can justify the use. It costs \$2.42 per 1,000 gallons to produce recycled water and deliver it. Sewer user fees help offset the high cost to run, operate and maintain the system. In fiscal year 2012, Maui County used 1.3 billion gallons of recycled water. It is estimated that 588 million gallons of potable water were saved. This roughly translates to 33 "days of life" per year. The bulk of recycled water is used for landscape irrigation. About 11.5 million gallons of water is treated every day. The Kaanapali Resort is the main consumer of recycled water in west Maui. The availability of recycled water has helped to stimulate the economy and created over 100 jobs for local people. Upgrades and improvements to the entire system are currently underway. However, building and extending pipelines can cost millions of dollars.

Lessons learned include:

- 1) Maintain the momentum
- 2) If you build it they will come
- 3) Share the financial burden
- 4) Involve the community early on and continue to have a dialogue
- 5) Create a dedicated operation and maintenance staff
- 6) Find a champion who can make decisions about where the money gets spent

Commissioner Starr asked if the Maui Waste Water Division was the appropriate entity to "sell" recycled water.

Mr. Parabolicoli stated that on Oahu the Board of Water Supply has taken the lead on recycled water. The water departments are probably the best agencies to take the lead. However, on Maui there has been little interest from the Department of Water Supply. They have not contributed any money to the program.

Commissioner Starr asked how many million gallons of R-1 is potentially available.

Mr. Parabolicoli said most likely 4 million gallons per day. If the other facilities were upgraded to R-1, Maui would have close to 8 million gallons per day.

Commissioner Starr asked about the Central Maui Landfill and the dumping that had occurred at the treatment plants.

Mr. Parabolicoli said it had been minimized.

Commissioner Fujiwara asked about the Lahaina Facility and if the siphon along the ditch could be utilized.

Mr. Parabolicoli said it would be challenging to pump uphill.

Commissioner Starr asked about smaller facilities producing R-1 that could be used in the surrounding area.

Mr. Parabolicoli said there is a push to de-centralize waste water treatment. Pipes can be costly. Sometimes it makes more sense to build a smaller treatment plant.

Commissioner Starr asked what can be done to help increase the amount of recycled water that is being used.

Mr. Parabolicoli said cooperation between multiple agencies and users is essential. There has been resistance from Hawaiian Commercial & Sugar Company (HC&S). The funding base must also be broadened.

Commissioner Starr asked Deputy Tam to comment on how Hawaii could increase the use of recycled water.

Deputy Director Bill Tam said the next presenter can help answer that question. Deputy Tam asked how R-1 water could be made available for agriculture use.

Mr. Parabolicoli replied that pipelines are the biggest expense (\$350 - \$1000 per foot). Existing pipelines could be used to irrigate crops.

Commissioner Starr and Commissioner Balfour thanked Mr. Parabolicoli for his dedication to recycled water issues on Maui.

3. Central Oahu Non-Potable Master Plan (Dean Nakano, Brown & Caldwell)

Neal Fujii (Commission on Water Resource Management) introduced Dean Nakano.

Dean Nakano acknowledged Woodie Muirhead, the principle investigator and CWRM staff, Neal Fujii and Jeremy Kimura. The Central Oahu Non-Potable Water Master Plan was developed to investigate opportunities for non-potable water. The overall project involves five key planning objectives. Previous non-potable studies have been undertaken by various agencies. In light of continuing uncertainties, a more regional approach is being undertaken to leverage resources and the participation of multiple stakeholders. Solutions need to be developed in the best

interest of the community and the state. The current Department of Health (DOH) guidelines for recycled water now allow the direct use of R-1 water on crops. This practice is just as safe and shows no adverse effects. All stakeholders were engaged in the planning process. Stakeholder involvement will continue to be an important component of the Central Oahu Non-Potable Water Master Plan. More outreach and education is needed on the risks and safety standards for recycled water. There is general endorsement and support for recycled water. However, there are still concerns regarding water quality and potential contaminants. The stakeholder interviews and meetings identified current and potential sources of non-potable water in Central Oahu including Schofield Barracks, Wahiawa, Waiahole Ditch, Lake Wilson and storm water recapture opportunities at Wheeler Army Air Force Base. The Schofield Barracks Waste Water Reclamation Plant is designed to be a 4.2 mgd facility and is currently designated as R-2.

Mr. Nakano outlined other potential opportunities for water reuse and non-potable water supplies in Central Oahu. The potential for reuse and storm water recapture is tremendous in this area. The current estimates need to be refined for potential and future demand, as well as the costs involved. Non-potable water sources can meet the increasing demand.

Commissioner Starr said this plan is an important step in the right direction. He asked if Lake Wilson water will be upgraded to R-1.

Mr. Nakano replied that R-2 water from the Wahiawa Waste Water Treatment Plant is currently being discharged into Lake Wilson. Upgrades are being done.

Commissioner Starr asked about the impediments of adding R-1 water into the Waiahole Ditch.

Mr. Nakano explained that certain standards are associated with R-1 water.

Commissioner Starr asked if R-1 water precludes organic certification.

Mr. Parabolicoli answered that some organic farmers do not want to use R-1 water.

Commissioner Balfour asked if D.R. Horton was included in the stakeholder meetings. He emphasized that recycled water should not be added to the Waiahole Ditch. Pipelines at the end of the Waiahole Ditch could be used to support this effort.

D. PLANNING

1. Request to Authorize the Chairperson to Enter Into a Contract Agreement to Complete the Central Oahu Non-Potable Water Master Plan

SUBMITTAL PRESENTATION by: Neal Fujii

The Water Commission approved the Central Oahu Non-Potable Water Master Plan at the February 15, 2012 meeting. Mr. Fujii highlighted some of the remaining work to be done, including refining the opportunities, investigating

issues with supply and demand, conducting additional analysis about users, cost-benefit, and making recommendations for implementation. Upon completion of the refinement of opportunities, the stakeholders could find projects and partake in feasibility studies.

RECOMMENDATION:

Staff recommends that the Commission:

1. Authorize the Chairperson to enter into a contract agreement and approve funding not to exceed \$75,000 to complete the Central Oahu Non-potable Water Master Plan – Refinement of Opportunities Project (as described above).
2. Authorize the Chairperson to make such further amendments or modifications of the contract agreement (consistent with the terms set forth above) as may be necessary to accomplish the goals described here, provided that any amendment or modification does not require additional Commission funding.
3. Find and determine that the work is exempt from the requirement to prepare an EA.

(DISCUSSION)

Commissioner Starr recommended that the Commission engage in community outreach.

Mr. Fujii replied that it is something the Commission could look into.

Deputy Tam commented that it is essential to have stakeholder involvement early on in the process. The critical question is going to be about water quality and changing people's perceptions about recycled water. If there is public acceptance, then different agencies may come on board. This effort will only work with multiple partners on a regional basis. Investments need to consider the long-term future.

Commissioner Starr recommended getting Mayor Caldwell involved in the conversation.

Deputy Tam said now is the time to have the conversation.

Commissioner Starr asked if there were any other steps that could be taken.

Deputy Tam suggested that the Commission complete the refinement piece of the plan first, before jumping ahead. Future initiatives will be brought before the Commission.

**MOTION: (Fuddy / Starr)
To approve the submittal.
UNANIMOUSLY APPROVED.**

E. GROUND WATER REGULATION**1. Dole Food Company Verification of Ground Water Use Permits (2.060 mgd), Waialua Ground Water Management Area, Oahu**

GWUP 942/969 (3307-01 to 10, Pump 2) Waialua Sugar; Well TMK: 6-7-002:014 (0.360 mgd)

GWUP 943/968 (3407-04 to 06, Pump 1) Waialua Sugar; Well TMK: 6-7-002:014 (1.275 mgd)

GWUP 944 (3407-11 & 12, Pump 7) Waialua Sugar; Well TMK: 6-6-025:001 (0.425 mgd)

SUBMITTAL PRESENTATION by: Charley Ice

Item E-1 is a follow-up submittal to action that was taken at the Commission Meeting on December 19, 2012 regarding Dole Food Company. The Commission had planned to revoke Dole's permits unless Dole was able to verify its use. Dole provided verification in the midst of preparing the current submittal. Amendments have been made. On December 19, 2012 Dole testified that actual use from Pumps 1, 2 and 7 was 2.06 mgd and that the company would agree to revoke all other allocations. On January 8, 2013 Dole sent a transmittal to CWRM that provided updated water use information. Dole currently has five pending applications for water use permits. There were inconsistencies with the numbers reported by Dole (Exhibit 4).

AMENDED RECOMMENDATION:

As set forth above and based on the evidence, record, analysis, and verification of water use data in this matter, the staff recommends that the Commission **approve** Dole's three remaining Ground Water Use Permits as follows:

1. GWUP 969. Modify the Commission's December 19, 2012 action for GWUP 942 for Pump 2 (3307-01 to 10) from 0.306 mgd to 0.406 mgd to Dole for private municipal use in new GWUP 969. GWUP 969 supersedes GWUP 942.
2. GWUP 968. Modify the Commission's December 19, 2012 action for GWUP 943 for Pump 1 (3407-04 to 06, -14, & -15) (consistent with the 4,000 gpd/acre) from 1.275 mgd to 0.982 mgd to Dole for agricultural use under new GWUP 968. GWUP 968 action supersedes GWUP 943.
3. GWUP 944. Affirm the Commission's December 19, 2012 action for GWUP 944 for Pump 7 B&C (3407-11 & 12) for 0.425 mgd to Dole for agricultural irrigation.

Dole may always file an application for new use.

(DISCUSSION)

Commissioner Starr asked if the College of Tropical Agriculture and Human Resources (CTAHR) at the University of Hawaii (UH) had more refined numbers for different crops.

Mr. Ice replied “yes.”

Commissioner Starr asked if a leak test could be done on the pipes.

Mr. Ice replied that CWRM has considered limiting future allocations based on savings through prevention measures that would address pipe leakage.

Commissioner Starr asked if CWRM would be willing to address the issue of leakage.

Mr. Ice replied “absolutely.”

Commissioner Yamamura asked if CWRM wanted this to be a conditional approval.

Mr. Ice responded “no.”

Commissioner Balfour asked if Dole wanted to testify.

Gary Paracuelles (Dole Food Company) asked Mr. Ice to clarify his recommendation. He asked if leak tests would resolve the issues with usage.

Mr. Ice replied that the system is very old and the next step would be to make improvements.

Chair Aila said Dole has the right to come in to apply for a conditional permit.

Mr. Paracuelles agreed that the pipelines are old. Dole’s other permits are still pending. He thanked Mr. Ice for his hard work.

**MOTION: (Starr / Balfour)
To approve the submittal with amendments.
UNANIMOUSLY APPROVED.**

Chairperson Aila, Jr. adjourned the meeting at 11:50 am.

Respectfully submitted,

KATIE ERSBAK
Private Secretary to the Deputy

APPROVED AS SUBMITTED:

WILLIAM M. TAM
Deputy Director