

MINUTES
FOR THE MEETING OF THE
COMMISSION ON WATER RESOURCE MANAGEMENT

DATE: March 28, 2012
TIME: 9:00 am
PLACE: DLNR Board Room
Kalanimoku Bldg.
1151 Punchbowl Street, Room 227
Honolulu, Hawaii 96813

Acting Chairperson, Neal Fujiwara called the meeting of the Commission on Water Resource Management to order at 9:07 a.m.

The following were in attendance:

MEMBERS: Mr. Neal Fujiwara, Mr. Sumner Erdman, Ms. Loretta Fuddy, and Mr. William Balfour

ABSENT: Mr. William Aila, Jr., Dr. Lawrence Miike

STAFF: William Tam, Lenore Ohye, Neal Fujii, Roy Hardy, Jeremy Kimura, and Charley Ice

COUNSEL: Cindy Young, Esq.

OTHERS: Cynthia Jordan (Queen Liliuokalani Trust), Steve Bowles (Waimea Water Services), Kaleo Manuel (Department of Hawaiian Home Lands), Steve Anthony (U.S. Geological Survey), Dave Taylor (Maui Department of Water Supply)

A. APPROVAL OF MINUTES

February 15, 2012

MOTION: (Fuddy/Balfour)
To approve the minutes.
UNANIMOUSLY APPROVED.

B. ANNOUNCEMENTS

The April 18, 2012 Commission Meeting has been cancelled.

Follow-up regarding the Waialua revocations will be addressed at the May 16, 2012 Commission Meeting.

C. GROUND WATER REGULATION**1. Request to Enter Into a Contract for Professional Services to Update the Irrigation Water Requirement Estimation Decision Support System (IWREDSS) for the Determination of Reasonable Water Use Quantities for Selected Crops in Hawaii**

SUBMITTAL PRESENTATION by: Roy Hardy

Roy Hardy (Commission on Water Resource Management) informed the Commission that the Irrigation Water Requirement Estimation Decision Support System (IWREDSS) model was initiated in 2005 and adopted by the Commission in May 2008. Since 2008, the CWRM has used the model to estimate non-potable irrigation demands. Approximately 30 water use permits (WUP) with some degree of non-potable needs have been used in East Maui (Na Wai Eha) to estimate off-stream irrigation demands for long range planning. The model will likely be used by the CWRM staff in the upcoming Na Wai Eha determination for WUP and appurtenant rights.

In 2011 the Rainfall Atlas was updated for Hawaii. The IWREDSS model may help update the GIS-based system which looks at local climate and soil conditions. The model is a water-budget approach and focuses on localized considerations (e.g. tax map keys). Additional components could include soil and biomass.

The scope of services is listed in the submittal and includes:

- Replacing the existing rainfall data source with the 2011 Rainfall Atlas of Hawaii;
- Replacing the existing soil type data source with the latest GIS digitized maps from the USDA NRCS;
- Including daily, weekly, and monthly pan evaporation/potential evapotranspiration, total and effective rainfall for additional National Oceanographic and Atmospheric Administration (NOAA) cooperative observer stations representative of the climate regimes in each of the aquifer systems statewide;
- Including additional crop types/vegetation types from a list to be provided by the STATE; and
- Calibrating and field validating the updated IWREDSS.

The CWRM will partner with the University of Hawaii's College of Tropical Agriculture and Human Resources (CTAHR) and replace the existing 2000 rainfall data with the data from 2011, including soil updates. Additional weather station data will be added to the Rainfall Atlas along with field verification. A combination of Special and General Funds will help finance the IWREDSS update and there is no Environmental Assessment (EA) 343 review.

RECOMMENDATION:

That the Commission:

1. Authorize the Chairperson to enter into a contract agreement and to approve funding not to exceed \$50,000 to update the IWREDSS software application.
2. Authorize the Chairperson to make sure further amendments or modifications of the contract agreement (consistent with the terms set forth above).

(DISCUSSION)

Commissioner Erdman commented that at the end of January 2011, Ulupalakua Ranch did a comparison study of median rainfall between 1925 and 1984, as well as 1972 through 2011. He discovered that Ulupalakua's rainfall had decreased from 30 inches in the first 40 years to 25.5 inches in the last 40 years. Commissioner Erdman said that updating this data would be extremely appropriate and should probably be done on a 10-year basis.

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

D. PLANNING

1. **Request to Authorize the Chairperson to Enter into an Agreement with U.S. Geological Survey to Evaluate the Degree of Connection Between the High-Level and Coastal Ground Water Systems in the Kona Area, Hawaii**

SUBMITTAL PRESENTATION by: Jeremy Kimura

Jeremy Kimura (Commission on Water Resource Management) reminded the Commissioners that Roy Hardy gave a previous presentation regarding Kona's complex hydrology and stakeholder concerns. Exhibit 1 illustrates Kona's high level wells (25-300 feet) and basal wells with lower water levels (sea level-10 feet). Typically lower water levels are caused by volcanic rift zones that form barriers to impound water at a high level and stop it from equilibrating with water levels along the coast. However, on the Big Island this is not the case. Current geologic knowledge does not reveal any sort of rift zone and questions remain about how these systems interact. Stakeholders would like to know how the high level water is affecting the coastal basal water. In other words, do the wells being pumped at higher elevation have an impact on basal water quality, anchialine ponds, and cultural resources along the coast?

The U.S. Geological Survey (USGS) plans to sample water at the coast and in the high level area and analyze it to find out if the two are mixing. The study will run for 2 ½ years and help verify a connection (or disconnection) between the two systems. The implications of the study will also allow the CWRM to determine if new wells being drilled in the high level areas are having an affect on the resources along the coast.

The Commission's cost share will be \$95,000. The total cost of the study will be \$306,000, the remainder of which will be provided by the USGS and NPS in a separate agreement.

RECOMMENDATION:

That the Commission:

1. Authorize the Chairperson to enter into an agreement between the Commission and the U.S. Geological Survey to evaluate the connection between the high-level and coastal ground water systems in the Kona area on the Island of Hawaii, and to approve funding not to exceed \$95,000 to complete the study.
2. Authorize the Chairperson to amend or modify the joint funding agreement provided that such amendment or modification does not include any additional funding.

(DISCUSSION)

Commissioner Erdman asked if the NPS is involved in the study.

Steve Anthony from the USGS said the NPS will be providing funding but is not involved in the design or collection of the samples. Mr. Anthony said the NPS might assist with the collection of some samples along the coast in the national park. However, the bulk of the work will be conducted by the USGS and go through peer review.

Commissioner Erdman requested that the USGS keep staff informed.

Mr. Anthony assured the Commission that the process will involve periodic updates to interested stakeholders including methodology.

Mr. Kimura commented that the USGS will produce a published report that will be publically available. He added that there is no EA 343 requirement for this project.

Commissioner Erdman pointed out that data collection is projected to be less than a year (9 months) and wanted to make sure that this was enough time to conduct the study.

Mr. Anthony said the USGS is interested in collecting data from both the dry and wet seasons. He admitted that sometimes the wet season does not occur in the Kona region.

Commissioner Erdman commented that convectional rains occur through May, June and July and the 9 month timeline does not include June. He suggested that the USGS also collect samples during the summer months.

Mr. Anthony confirmed that the wet season is not always predictable and said samples would be collected during the summer months.

Steve Bowles noted that the geologic situation in the Kona area is unexplained and commented on the importance of evaluation. A significant amount of funding is needed, especially investment between local government and private entities. Mr. Bowles said

Kona is the prime area of growth for the Big Island and will become more urbanized. Therefore, investment is necessary to determine long term answers. Mr. Bowles said his biggest concern is in North Kona where the resources needed to support new facilities are located to the south. Urbanization in this part of Kona is increasing more rapidly than the ability to develop the water resources, which places many areas under stress. Mr. Bowles said he supports the USGS study but articulated the need for more research. He said the Kona Water Round Table is intended to educate and dispel fear. Geologic structures are critical and require large investments to produce hard facts. The high level water issue is a primary concern and the geography of Hualalai may provide some answers. Mr. Bowles cautioned against premature determinations.

Commissioner Fujiwara asked why the Big Island tends to have fewer geologic studies.

Mr. Bowles said the original mapped geology for the Big Island was primarily surface geology. Very little has been done in the way of structural geology. Large storage units exist within the island and new discoveries are made every year, including in Waimea where water levels can reach 1,700 feet above sea level. The geology of the Big Island is very different from the other islands and is the size of six Oahus.

Commissioner Fujiwara asked who else besides government can be called upon to invest in these types of studies.

Mr. Bowles said the private sector is making major investments and many of the wells on the Big Island are private (e.g. Kukio and Hualalai).

Commissioner Erdman asked if more hydrological units needed to be identified.

Mr. Bowles replied "yes, many more."

Deputy Director William Tam mentioned an Administration bill that would allocate \$500,000 for a Kona Water Projects Plan. If funding is approved, the plan will help coordinate integration between makai projects, including planned development by the Department of Hawaiian Home Lands (DHHL), the University of Hawaii (UH), and the Kona airport.

**MOTION: (Erdman/Balfour)
To approve the submittal.
UNANIMOUSLY APPROVED.**

2. Request to Authorize the Chairperson to Enter into an Agreement with U.S. Geological Survey to Update Estimated Groundwater Recharge for Central and West Maui, Hawaii

SUBMITTAL PRESENTATION by: Jeremy Kimura

Jeremy Kimura (Commission on Water Resource Management) said this project will use the latest rainfall datasets to update recharge assessments, which will allow further refinement of the sustainable yield estimates for Central and West Maui aquifers. The USGS will combine the new rainfall estimates with an updated recharge methodology. The study will be conducted over a period of 14-months

and will cost \$30,000 from the CWRM and \$30,000 from the USGS for a total cost of \$60,000. There is no requirement for a chapter 343 EA review.

RECOMMENDATION:

That the Commission:

1. Authorize the Chairperson to enter into an agreement between the Commission and the U.S. Geological Survey to update the estimated ground water recharge distribution estimates for Central and West Maui and to approve funding not to exceed \$30,000 to complete the study.
2. Authorize the Chairperson to amend or modify the joint funding agreement provided that such amendment or modification does not include any additional funding.

(DISCUSSION)

Commissioner Erdman asked who determined the boundaries of the study area.

Mr. Kimura responded that the boundaries correspond to an existing model from the last recharge study that was conducted in 2007.

Commissioner Erdman cautioned that the study area may extend too far east to be considered Central Maui.

Lenore Ohye (Commission on Water Resource Management) informed the Commission that the USGS is under separate contract with the Maui Department of Water Supply to update recharge for the northeast side of the island. Both studies will be combined into one publication.

Commissioner Fujiwara wanted to know if the study would include Lahaina.

Mr. Anthony responded that the report will include the Lahaina side as well.

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

E. UPDATES AND BRIEFINGS

1. Briefing by the Maui Department of Water Supply (DWS) on the Lanai Island Water Use and Development Plan

Lenore Ohye (Commission on Water Resource Management) informed the Commission that the Lanai Water Use and Development Plan had recently been approved by ordinance by the Maui County Council. The CWRM will hold a public hearing prior to formal Commission adoption and a notice was issued for a June 13, 2012 hearing on Lanai.

Dave Taylor, Director of the Department of Water Supply for Maui County (MDWS), chronicled the Lanai Water Use and Development Plan update and said it had been in the works for more than a decade. In 2010, the draft was given to the Maui Board of Water Supply (MBWS) for their review and recommendation. The draft was approved by the MBWS in January 2011 and was supposed to be sent to the Maui County Council within 60 days for final approval. However, the MDWS recommended that the Plan be reformatted to read as an inspirational document. Mr. Taylor stated that water systems on Lanai are completely owned by Castle & Cooke and the MDWS does not have any regulatory authority on water systems on Lanai. Mr. Taylor said he felt the “shall or shall not” language in the draft was not appropriate for a Water Use and Development Plan in which the MDWS had no regulatory authority. The draft was reformatted as an informational document and clarified confusion regarding the draft legislation.

Both copies, including the original and the MDWS Director’s recommendation, were sent to the County Council. Meetings were held and questions were raised about the role of the County, the Public Utilities Commission (PUC), the Water Commission (CWRM), and the Department of Health (DOH). The meetings centered on a water regulatory structure debate and the role of each entity in the Plan. The County Council and community members on Lanai agreed that the document should be informational for land use decisions. The County Council approved the revised draft.

The Lanai Water Advisory Committee (LWAC) expressed interest in making the Advisory Committee permanent to ensure that the Plan was properly implemented. The MDWS recommended that the LWAC be structured under the Lanai Planning Commission (LPC) and an ordinance has been drafted. If approved, the ordinance would ensure the permanence of the LWAC and their role in advising the LPC on planning decisions.

The Lanai Water Use and Development Plan recognizes the unique character of Lanai with a limited aquifer and one land holder (Castle & Cooke). Between the County Council and the people of Lanai there was broad acceptance and support of the Plan. According to Mr. Taylor, the Lanai Water Use and Development Plan meets the goals and the needs of the community.

(DISCUSSION)

Commissioner Erdman recommended that the County Council think critically about the ordinance establishing the LWAC, especially because the water systems are privately owned by Castle & Cooke.

Mr. Taylor said that the majority of discussion with the County Council centered on this particular issue, which is why the LWAC would primarily serve as an advisory body to the LPC when voting on land use matters.

Kaleo Manuel, a planner with the Department of Hawaiian Home Lands (DHHL) provided written comments from the Chairperson. Mr. Manuel said the DHHL owns 50 acres of land on Lanai that could potentially be developed. Approximately 35 acres do not have water allocations or water reservations. The DHHL will continue to meet with

Castle & Cooke as development proceeds. In December 2011, the DHHL acquired an additional 25 acres from the Board of Land and Natural Resources (BLNR) (10 acres of commercial and 15 acres of industrial land) for the purpose of generating revenue for the department. The DHHL may seek water use permits for these lands in the future. Mr. Manuel asked that the Lanai Water Use and Development Plan account for those potential water demands.

Commissioner Fujiwara asked if the DHHL had any agricultural lands.

Mr. Manuel responded that the recently acquired lands were strictly for residential use and the DHHL has no agricultural lands on Lanai. The land entitlements and deeds require that the land be reserved for residential, commercial and industrial use. Mr. Manuel was not aware if the land uses could be changed, even with the DHHL exemptions.

Commissioner Erdman asked if the DHHL had 75 acres of land on Lanai.

Mr. Manuel said “yes.” The DHHL is still in the process of obtaining the remaining 25 acres.

Commissioner Erdman asked if the 35 acres were half acre house lots.

Mr. Manuel said he thinks they might be a quarter acre.

2. Briefing by the Maui Department of Water Supply (DWS) Regarding Preliminary Results of Ongoing County of Maui DWS Infrastructure and Financial Needs Assessment

Dave Taylor, Director of the Department of Water Supply for Maui County (MDWS), presented on the preliminary results from the MDWS’s Water Infrastructure and Financial Needs Assessment. Mr. Taylor talked about the efforts to date, the meaning of source versus reliable capacity, current system optimization, and major policy issues.

Maui County has 38 ground water sources (wells), six surface water treatment plants, 145 storage tanks, almost 300 million gallons of storage capacity, 750 miles of pipeline, and services approximately 37.5 million gallons per day (mgd). The MDWS budget is \$53 million, with electricity accounting for one third, and debt service, or money borrowed to do infrastructure costs, around \$6 million per year (12%). Over the last year MDWS has assessed their infrastructure (pipes, tanks, treatment plants, etc.) over the next 20 years. The assessment resulted in a list of infrastructure that needs to be replaced along with an estimate of cost and scheduling. The flagged infrastructure (identified in yellow) need to be repaired within a certain timeframe in order to keep existing services for existing customers (e.g. upgrading for future regulatory requirements). Other items (identified in green) serve as placeholders for potential new growth/development and new customers.

According to Mr. Taylor, the MDWS will need \$30 million per year to do source development, upgrading fire flow, etc. However, the MDWS estimates needing

at least \$20 million per year to keep the status quo. In the past the MDWS has used \$10 million per year. Thus, getting ahead will require a more aggressive approach. The MDWS estimates that the budget will go up due to capital improvement costs. Water rates are currently \$60 per month for a single family household. However, rates will likely increase if the MDWS borrows money to invest in needed infrastructure improvements (approximately 8% per year).

The MDWS is tracking 50 projects and looking at planning, design, and construction to assess how those costs will factor into the budget. Historically, the MDWS does not have a good track record about spending the money they are given by the County Council and in the past has let money lapse. Mr. Taylor is hopeful that the new methodology will make sure money is no longer lapsed and that funds get allocated to projects at the appropriate times.

45 new water sources were narrowed down to 15 projects, which included information about how much water a project will generate and the long term cost per 1,000 gallons. Some of the wells are private, which would require negotiation with private entities. The MDWS has reviewed the details with the County Council in executive session. However, the details are not being shared because it is under negotiation.

The MDWS knows what its water source options are and has looked at the upcountry water meter priority list. People have been waiting decades for water meters and an assessment was done to quantify the location of the meters, including existing and new meter requests. The existing meters have been checked out to determine if they need source or infrastructure improvements. The MDWS has quantified the infrastructure improvements and has determined that they are 10 times the cost of the source. Reliable capacity and infrastructure bottlenecks create problems – not source. The MDWS is currently conducting an in-house “de-bottlenecking” study to identify the bottlenecks in each area of Maui in order to better understand what needs to be done to create reliable capacity. Infrastructure and reliable capacity is limiting the ability of MDWS to deliver water to the people who need it. Options to increase available water include additional source, back-up wells, better preventative maintenance, more storage tanks, larger water lines, and operational changes. Water service is not only a source problem, and the solutions may be different from what was previously expected. Flow can be decreased through pricing conservation and efficiency. A new draft budget includes a water conservation pricing rate structure that is meant to encourage conservation and protect the utility. Demand will increase at a slower rate with conservation. The MDWS is trying to determine when they will run out of water with and without conservation and solving bottlenecks to increase reliable capacity. By the end of the year, the MDWS hopes to know more about how much water it has, what are the bottlenecks and next steps to design and build bottlenecks and a cost structure. These efforts will be the centerpiece of future water development plans and Chapter 343 requirements for cumulative impact analysis. Overall, these efforts will help articulate what it will cost to run the utility over the next 20 years.

Unlike other counties, Maui County is unique because its County Council makes decisions about growth, water rates, sewer rates, and property taxes. Policy decisions (i.e. subsidizing rates for competing user groups) are made by the County Council. Other priority policy questions for the County Council include the Maui Island Plan, which details growth rates as part of the General Plan. Decisions made

by the County Council dictate what options should be pursued and given priority by the MDWS.

(DISCUSSION)

Commissioner Fujiwara asked for an update on the Waikamoi Flume.

Mr. Taylor said the Waikamoi Flume is Maui's highest and most economical upcountry surface water source. The flume is more than a mile long. The CWRM has asked the MDWS to repair the leaks or risk losing allocation. The project is in the final design stage and the EA is being finalized. The MDWS expects to go out to bid sometime this summer.

Deputy Director William Tam said that one of the problems with having a council approve projects is that every 2-4 years they change focus by virtue of election. He asked how the MDWS intends to stay on track with the plan.

Mr. Taylor responded that over time the council will take ownership of a project and commit to a particular approach.

F. NEXT COMMISSION MEETINGS (TENTATIVE)

1. ~~April 18, 2012~~ CANCELLED
2. May 16, 2012

Acting Chairperson, Neal Fujiwara adjourned the meeting at 10:12 a.m.

Respectfully submitted,

KATIE ERSBAK

APPROVED AS SUBMITTED:

WILLIAM M. TAM
Deputy Director