

MINUTES

DEPARTMENT OF WATER SUPPLY COUNTY OF HAWAI'I WATER BOARD MEETING

January 22, 2019

Department of Water Supply, Hilo Operations Conference Room, 889 Leilani Street, Hilo, HI

MEMBERS PRESENT: Mr. William Boswell, Jr., Chairperson
Mr. Eric Scicchitano, Vice-Chairperson
Mr. David De Luz, Jr.
Mr. Nestorio Domingo
Mr. Kenneth Sugai
Mr. Leningrad Elarionoff
Mr. Keith K. Okamoto, Manager-Chief Engineer, Department of Water Supply
(ex-officio member)

ABSENT: Mr. Bryant Balog, Water Board Member
Mr. Craig Takamine, Water Board Member
Ms. Kanoe Wilson, Water Board Member
Director, Department of Public Works (ex-officio member)
Director, Planning Department (ex-officio member)

OTHERS PRESENT: Mr. Craig Masuda, Deputy Corporation Counsel
Mr. Jay Blake and two other representatives of Orchid Isle Motors

DEPARTMENT OF
WATER SUPPLY STAFF: Mr. Kawika Uyehara, Deputy
Ms. Nyssa Kushi, Information and Education Specialist
Mr. Kurt Inaba, Engineering Division Head
Mr. Richard Sumada, Waterworks Controller
Mr. Eric Takamoto, Operations Division
Mr. Clyde Young, Operations Division
Mr. Warren Ching, Energy Management Analyst
Mr. Calvin Uemura (10:40 a.m.)
Mr. Brandon Cantor (10:40 a.m.)
Operations Staff for Meter Demonstrations: Ms. Judith Hayducsko;
Messrs. Earl Yoshioka, Owen Daimaru, Jim Okada, and Dean Nakamine

- 1) CALL TO ORDER – Chairperson Boswell called the meeting to order at 10:00 a.m.
- 2) STATEMENTS FROM THE PUBLIC - none

3) APPROVAL OF MINUTES:

MOTION: Mr. Elarionoff moved for approval of the Minutes of the December 18, 2018, Water Board Meeting; seconded by Mr. Domingo.

Mr. Elarionoff noted that a correction needed to be made to Page 11, third paragraph from the bottom, 4th line up--the beginning of the sentence should be "The" instead of "They." The sentence should read "The key to it is who bears the brunt of that responsibility."

ACTION: Motion to approve minutes, as corrected, carried unanimously by voice vote.

4) APPROVAL OF ADDENDUM AND/OR SUPPLEMENTAL AGENDA:

ACTION: Mr. Elarionoff moved for approval to add the Supplemental Report for Items 6A, 7A and B, and 8A; seconded by Mr. Sugai and carried by roll call vote (Ayes: 6 - Messrs. De Luz, Domingo, Elarionoff, Sugai, Scicchitano, and Chairperson Boswell; Nays: 0; Absent: 3- Messrs. Balog and Takamine and Ms. Wilson).

5) POWER COST CHARGE:

Departmental power costs from all power sources decreased since the last Power Cost Charge rate was determined. The Department proposes to decrease the Power Cost Charge from \$1.94 to \$1.89 per thousand gallons as a result of this decline. Power cost charges over the past sixteen months were as follows:

<u>Effective</u>	<u>PCC</u>
August 1, 2018	\$1.94
April 1, 2018	\$1.88
December 1, 2017	\$1.62
August 1, 2017	\$1.73

A Public Hearing was held prior to this Board meeting to accept public testimony on this change.

The Manager-Chief Engineer recommended that the Board approve the decrease of the Power Cost Charge from \$1.94 to \$1.89, effective February 1, 2019.

MOTION: Mr. De Luz moved for approval of the recommendation; seconded by Mr. Domingo.

In response to Mr. De Luz's question if there is a separate account for the power cost charge to go into to keep it segregated as it changes up or down, Mr. Sumada replied there is a separate revenue account.

ACTION: Motion carried unanimously by voice vote.

6) HĀMĀKUA:

A. JOB NO. 2018-1097, HONOKA‘A BOOSTERS A & B REPAIR:

This project consists of furnishing all labor, materials, tools and equipment necessary to remove two (2) existing booster pump, motor, and column assemblies; install DWS furnished vertical hollow shaft motors, and two (2) sets of Contractor furnished vertical turbine pumps, discharge heads, sole plates and all appurtenant materials; chlorinate the suction cans and pumping assembly; and complete an efficiency test; in accordance with the specifications.

Bids for this project were opened on January 17, 2019, at 1:30 p.m., and the following are the bid results:

Bidder	Bid Amount
Beylik Drilling & Pump Service, Inc.	\$558,000.00
Derrick’s Well Drilling & Pump Services, LLC	\$173,939.30

Project Costs:

1) Low Bidder (Derrick’s Well Drilling & Pump Services, LLC)	\$ 173,939.30
2) Contingencies (~10.0%)	\$ 17,360.70
Total Cost:	<u>\$ 191,300.00</u>

Funding for this project will be from DWS’ CIP Budget under Deepwell Pump Replacement. The contractor will have 210 calendar days to complete this project. The Engineering estimate for this project was \$168,000.00.

Well History:

Honoka‘a Booster A:

Original Installation: February 1983

Last Repaired: May 2009

Honoka‘a Booster B:

Original Installation: March 1998

The Manager-Chief Engineer recommended that the Board award the contract for JOB NO. 2018-1097, HONOKA‘A BOOSTERS A & B REPAIR, to the lowest responsible bidder, Derrick’s Well Drilling & Pump Services, LLC, for their bid amount of \$173,939.30, plus \$17,360.70 for contingencies, for a total contract amount of \$191,300.00. It is further recommended that either the Chairperson or the Vice-Chairperson be authorized to sign the contract, subject to review as to form and legality by Corporation Counsel.

MOTION: Mr. De Luz moved for approval of the recommendation; seconded by Mr. Sugai.

Mr. Scicchitano asked if staff could comment on the difference in the bid amounts.

Mr. Young replied that most of the costs were in the pump and discharge head. He was not sure why one of the bidders had the high numbers, but it may be that they are very busy and may not have had any intention of being awarded the bid. Derrick’s Well Drilling’s numbers were close to what were estimated.

Mr. De Luz asked when the Department estimates the project costs, if contingency is included.

Mr. Young replied that contingency is excluded from the estimate.

Chairperson Boswell asked about the 210 calendar days and if the equipment has to be manufactured per specifications.

The Manager-Chief Engineer noted that the Department has the motors, but the contractors will be supplying the pump and discharge head. The discharge head is sometimes a long lead item because it typically has to be manufactured to fit into the Department's system.

Chairperson Boswell asked if the Department takes the responsibility for those measurements for the fit or if it falls on the contractor.

Mr. Young replied that the Department gives some initial measurements, but the contractor goes out and verifies them.

ACTION: Motion carried unanimously by voice vote.

7) NORTH KOHALA:

A. JOB NO. 2018-1102, HĀWĪ #2 WELL REPAIR:

This project consists of furnishing all labor, materials, tools and equipment necessary to install a Contractor supplied submersible pump and motor, existing column assembly, power cable, sounding tubes, and all appurtenant materials; electrical work; chlorinate the well and pumping assembly; and complete an efficiency test; in accordance with the specifications.

Bids for this project were opened on January 16, 2019, at 2:00 p.m., and the following are the bid results:

Bidder	Bid Amount
Beylik Drilling & Pump Service, Inc.	\$168,000.00
Derrick's Well Drilling & Pump Services, LLC	Non-Responsive

Project Costs:

1) Low Bidder (Beylik Drilling & Pump Service, Inc.)	\$ 168,000.00
2) Contingencies (10.0%)	\$ 16,800.00
Total Cost:	<u>\$ 184,800.00</u>

Funding for this project will be from DWS' CIP Budget under Deepwell Pump Replacement. The contractor will have 150 calendar days to complete this project. The Engineering estimate for this project was \$251,000.00.

Well History:

Hāwī #2 Deepwell:

Original Installation: March 1997

Repaired: January 1998

Repaired: August 2005

Repaired: December 2007
Repaired: March 2012
Last Repaired: March 2018

The Manager-Chief Engineer recommended that the Board award the contract for JOB NO. 2018-1102, HĀWĪ #2 DEEPWELL REPAIR, to the lowest responsible bidder, Beylik Drilling & Pump Service, Inc., for their bid amount of \$168,000.00, plus \$16,800.00 for contingencies, for a total contract amount of \$184,800.00. It is further recommended that either the Chairperson or the Vice-Chairperson be authorized to sign the contract, subject to review as to form and legality by Corporation Counsel.

MOTION: Mr. Elarionoff moved for approval of the recommendation; seconded by Mr. Sugai.

Mr. Scicchitano asked about the history of the repairs and their costs over time.

Mr. Young explained that this has been one of the more problematic wells, outside of the North Kona wells. This well will be a good place to use the recommendations that came from the study on the North Kona wells. Even though the horsepower (hp) is significantly smaller (200 hp), there are some problems with this well. Some initial things were done, such as a well alignment check; however, power monitoring and variable frequency drives will be done as well. It may be water hammer and power quality issues contributing to the failures. On this last well repair, the Department used a spare pump and motor that was sitting on the shelf just under five years. Historically, when they sit that long, it is a gamble how reliable they are. Unfortunately, this one did not give much run time.

Chairperson Boswell asked if they are not able to be stored vertically or any bench testing or rotation done on them.

Mr. Young replied they are stored horizontally in their crate.

The Manager-Chief Engineer added that the Department has been moving forward in its asset management and evaluation program to have an inventory of what is in stock, how long it has been in stock, and to be more proactive in putting it where it should have gone before too long a period of time has passed. Creating a storage facility that can allow them to be stored vertically, or in a more ideal way, may take a significant CIP investment.

Chairperson Boswell asked if it was looked into to get a rough estimate on what it would cost.

The Manager-Chief Engineer replied that staff did start looking into it.

Chairperson Boswell stated that it would also include maintaining that building, if there were such a facility, therefore falling under Operations. He asked where it would likely be located.

Mr. Young replied it would be in Pana‘ewa.

Mr. Scicchitano asked, if appropriate, the Department could include in the Agenda, the scope and the costs on the history of the repairs and what was spent over time on each site. It would be helpful.

Mr. De Luz asked if it could also include the measures that are being taken with each well to help the Board understand the proactiveness in addressing the issues, and the Minutes can reflect those best practices that are being implemented. He realized it will take some time before the benefit will start showing, meaning more efficiency and probably reduced costs in maintenance and repairs.

In a way, the Kona wells were an extremely harsh learning experience but making the Department move forward to where it needed to have been. There is a benefit to how it will be managed moving forward.

The Manager-Chief Engineer agreed.

ACTION: Motion carried unanimously by voice vote.

B. MATERIAL BID NO. 2018-18, FURNISHING AND DELIVERING SPARE PUMP AND MOTOR SET FOR HĀWĪ #1 DEEPWELL FOR THE DEPARTMENT OF WATER SUPPLY:

Bids for this project were opened on January 16, 2019, at 1:30 p.m., and the following are the bid results:

SECTION	DESCRIPTION	Beylik Drilling & Pump Service, Inc.	Derrick's Well Drilling & Pump Services, LLC
1	HĀWĪ #1 DEEPWELL	\$112,200.00	\$130,000.00

The estimated cost for the pump and motor set was as \$110,000.00. Delivery time shall be within 120 calendar days from Notice to Proceed.

The Manager-Chief Engineer recommended that the Board award the contract for MATERIAL BID NO. 2018-18, FURNISHING AND DELIVERING SPARE PUMP AND MOTOR SET FOR HĀWĪ #1 DEEPWELL FOR THE DEPARTMENT OF WATER SUPPLY, to the lowest responsible bidder, Beylik Drilling & Pump Service, Inc., for their bid amount of \$112,200.00 for Section 1. It is further recommended that either the Chairperson or the Vice-Chairperson be authorized to sign the contract, subject to review as to form and legality of the contract by Corporation Counsel.

MOTION: Mr. Elarionoff moved for approval of the recommendation; seconded by Mr. Sugai.

The Manager-Chief Engineer explained the strategy behind this bid. In Kohala, there are two sources for the Hāwī System (Hāwī #1 and #2). The intent is to commence with the Well #2 repair and then order the spare pump and motor for Well #1. This pump and motor set is definitely not going to sit in storage long. Once Well #2 is operating and staff is comfortable with it, it can commence with the Well #1 repair.

Mr. Young noted that the specifications are being worked on for Well #1 repair and will probably be put out for bids in March or April.

Chairperson Boswell asked if Well #1 has a similar history to Well #2 and how close they are to each other.

The Manager-Chief Engineer and Mr. Young indicated that Well #1 is more reliable. They are about three quarters of a mile apart. They have similar characteristics as far as total dynamic head and flow. Geographically, Well #1 is closer to Akoni Pule Highway. Well #2 is by the transfer station, mauka.

In response to Chairperson Boswell's question on depth and horsepower on both wells, Mr. Young replied they are 800 feet deep and 200 horsepower.

Chairperson Boswell noted that during the Permitted Interaction Group, it was investigated a little on what point does a motor lose its efficiency, even though still running. He asked if these motors had already peaked and at what point they would have peaked in their efficiency.

Mr. Young replied that peak efficiency is better when it is newer. It is just like a car--as it wears, it starts to lose efficiency. One of the improvements looked into for Hāwī #1 was being able to monitor it. SCADA (supervisory control and data acquisition) improvements will be done there so the efficiency can be watched.

Chairperson Boswell asked if the items that the Permitted Interaction Group came out with in 2018 will be implemented going forward with well repairs.

The Manager-Chief Engineer replied that the ones appropriate for different applications will be implemented. The Department is trying to be strategic and smart about how it will do things. On this one, instructions to staff were that, even if a bit of efficiency had to be cut back for the sake of redundancy, then go ahead with it. From lessons learned, that is the more prudent approach.

Mr. De Luz stated that one of the things for the public to understand is that the unfortunate scenario when talking about pumping, is that you think it is as simple as just putting a pump in the ground and pumping the water. However, because of the diversity of where these pumps are placed, the elements, etc., there is an extensive list of things that the Department goes through for each site that is unique to that site. It is almost to some degree like you are doing a geophysical report. Each one is very specific. It is prudent to at least have the public appreciate and understand that it is not a one-pump catch-all deal. Even if you were to carry an extra pump, as the Chairperson mentioned, they cannot be bench tested before installation, so it does not guarantee you will not have issues.

Chairperson Boswell stated that was part of the reason for entertaining a storage facility, such as the larger metropolitan areas on the mainland have, where they store their own pumps and bench test them.

Mr. De Luz asked if that would be an operational change for this Department.

Chairperson Boswell replied it would be.

Mr. De Luz commented that a utility has to have a resiliency factor; and although people do not understand what that means, it is huge. As the Department helps educate the Board going through this process, when people read the minutes, they will have a better appreciation of the bottom line. There are main factors in how this determination was reached. You have redundancy, resiliency, and sustainability. They all kind of tie in and then you have the practicality of how much storage is sufficient and having redundancy on some of the pumps. If you had a blank check, it would not matter.

The Manager-Chief Engineer agreed that it is a constant balancing and juggling act.

Mr. De Luz noted the pressures of growth in the area as well. Sometimes that is out of the Department's control.

Mr. Young stated that Hāwī #1 started off at 400 gpm, but the capacity was increased to 700 gpm to account for the increase in demand over the years.

ACTION: Motion carried unanimously by voice vote.

8) NORTH KONA:

A. JOB NO. 2018-1098, PALANI DEEPWELL A REPAIR:

This project consists of furnishing all labor, materials, tools and equipment necessary to install a submersible pump, submersible motor, column assembly, sounding tubes, well level transducer, and all appurtenant materials; electrical work; chlorinate the well and pumping assembly; and complete an efficiency test; in accordance with the specifications.

Bids for this project were opened on January 17, 2019, at 2:00 p.m., and the following are the bid results:

Bidder	Bid Amount
Beylik Drilling & Pump Service, Inc.	\$459,000.00
Derrick's Well Drilling & Pump Services, LLC	\$394,650.25*

*Corrected bid amount.

Project Costs:

1) Low Bidder (Derrick's Well Drilling & Pump Services, LLC)	\$ 394,650.25
2) Contingencies (~10.0%)	\$ 39,349.75
Total Cost:	<u>\$ 434,000.00</u>

Funding for this project will be from DWS' CIP Budget under Deepwell Pump Replacement. The contractor will have 180 calendar days to complete this project. The Engineering estimate for this project was \$518,400.00.

Well History:

Palani Deepwell:

Original Installation: September 2013

Repaired: October 2017

The Manager-Chief Engineer recommended that the Board award the contract for JOB NO. 2018-1098, PALANI DEEPWELL A REPAIR, to the lowest responsible bidder, Derrick's Well Drilling & Pump Services, LLC, for their bid amount of \$394,650.25, plus \$39,349.75 for contingencies, for a total contract amount of \$434,000.00. It is further recommended that either the Chairperson or the Vice-Chairperson be authorized to sign the contract, subject to review as to form and legality by Corporation Counsel.

MOTION: Mr. De Luz moved for approval of the recommendation; seconded by Mr. Domingo.

Mr. Domingo noticed that this well was repaired in October 2017 and it failed shortly thereafter. He asked why it took up until this point to put out the bid.

Mr. Young stated that for this well, the third-party review was done. The Department is going over their report and is still in discussions with Derrick's Well Drilling. Basically, Brown and Caldwell's report said the cause of failure was inconclusive. The Department is trying to treat it as warranty issue, but it was not getting resolved and so the Department put out this bid to have the well repaired.

The Manager-Chief Engineer clarified that this well was last repaired in October 2017 but that is not when it actually failed. It failed prematurely in June of 2018 so it lasted less than a year. This one was concerning because it had the monitors installed during the last repair. The temperature sensors were reading okay up to the moment of failure, so it is baffling. Moving forward, as Mr. Young mentioned, the Department continued to work with Brown and Caldwell. Staff did not want to rush this one, knowing Honokōhau and Hualālai wells were in motion. To avoid having something else happen once it is repaired, the capacity was dropped to 400 horsepower/700 gpm. With that lower capacity, the hope is to get better longevity.

Chairperson Boswell recalled a series of events on this well that lead to where it is currently and has been discussed all the way through. It was not an easy answer, and there still is no answer; however, the de-rating is one promising aspect to it.

The Manager-Chief Engineer agreed that this strategy will be tried, and he believed it will also include some additional cleaning of the casing that had not been done previously. This one has perforated casings and is the one where the motor originally fell into the hole. It is still in the hole, so there is some damaged casing. Part of the scope for every repair is to send a video camera down and check the integrity of the casing to see if it got any worse over time. The video showed it might be prudent to do some extra cleaning work; therefore, some chemical cleaning will be implemented. Although that might be concerning, it is an NSF-60 approved product that is used in other drinking water wells across the country. This was an additional recommendation from Brown and Caldwell.

Chairperson Boswell asked if the cleaning is by saturation and pressure washing or is it some type of device that drops down in the hole and mechanically abrades it.

The Manager-Chief Engineer replied that it is almost like an acid wash to clean the perforated casing and then surged and bailed out. The burden is on the contractor to do all of the appropriate steps and dispose of it properly.

Mr. Young added that anything mechanical to clean it has to be avoided because of the damage to the casing.

Chairperson Boswell asked if there were some shredded areas where it got hit as the pump and motor fell in.

The Manager-Chief Engineer stated that the video log indicated some tears in the perforated casing. You would want to avoid sending anything mechanical down to clean it.

Chairperson Boswell noted it could peel something open. He asked if this well was a developer-designed collaboration.

The Manager-Chief Engineer replied it was partnered and agreed to on the scope for subsequent repairs.

In response to Mr. Domingo's question if this project will consist of new equipment once completed, the Manager-Chief Engineer replied it will.

Mr. Scicchitano asked if there has been any matrix developed with Brown and Caldwell that covers scope and type of repairs. Sometimes that is helpful when you are looking at this broad spectrum and program. As Mr. De Luz mentioned earlier, with regards to preventative measures, he wondered if anything had been developed with Brown and Caldwell, or internally, where the Department could lay

out all of the wells and the different types of findings so we can come to a *root* cause that might help with future repairs.

The Manager-Chief Engineer stated that the Department is trying to procure a firm to help with asset management and has been going back and forth on a couple of proposals. The goal for this asset management program is to have almost like a guide book, whether it be a matrix or a list of guidelines or parameters that should be noted for each well. You could think of it as a doctor's office and how every patient is different, where you would have the patient's history and characteristics--in this case, how a well was repaired in the past--what worked, what did not work, and keeping track of it all to avoid the same thing happening again.

ACTION: Motion carried unanimously by voice vote.

9) MISCELLANEOUS:

A. DEDICATIONS:

The Department received the following document for action by the Water Board. The water system has been constructed in accordance with the Department's standards and is in acceptable condition for dedication.

1. LICENSE EASEMENT NO. 826
Grantor: State of Hawai'i, Department of Hawaiian Home Lands (DHHL)
Tax Map Key: (3) 2-1-012: 029

The Manager-Chief Engineer recommended that the Water Board accept this document subject to the approval of the Corporation Counsel and that either the Chairperson or the Vice-Chairperson be authorized to sign the document.

MOTION: Mr. Elarionoff moved for approval of the recommendation; seconded by Mr. Sugai.

Mr. Inaba explained that this document is a license easement from DHHL but it also includes granting an easement to the County separate from Department of Water Supply/Water Board. He showed on the map, the turn going to the Hilo Landfill where the access road cuts through that portion of DHHL's property.

ACTION: Motion carried unanimously by voice vote.

B. VEHICLE BID NO. 2017-14, FURNISHING AND DELIVERING VEHICLES TO THE DEPARTMENT OF WATER SUPPLY:

The contractor, Inter Pacific Motors, Inc., dba Orchid Isle Auto Center, has requested a contract extension for Parts A, B, and D for the subject contract due to issues with the chassis production, vehicle uplifting, and the transporting of the vehicles from the continental mainland to Hawai'i. These vehicles were ordered in a timely manner from the issuance of the Notice to Proceed. The extension days requested are:

Part A – from September 13, 2018, to November 16, 2018, for a total of 64 calendar days

Part B – from August 14, 2018, to December 14, 2018, for a total of 122 calendar days

Part D – from August 14, 2018, to September 26, 2018, for a total of 33 calendar days

Staff has reviewed this request and finds it justified since the contractor made every effort to have these vehicles delivered on time but were unable to, due to circumstances beyond their control.

The Manager-Chief Engineer recommended that the Water Board award a contract time extension for VEHICLE BID NO. 2017-14, FURNISHING AND DELIVERING VEHICLES TO THE DEPARTMENT OF WATER SUPPLY, to Inter Pacific Motors, Inc., dba Orchid Isle Auto Center, for Parts A, B, and D at the calendar days listed above. If approved, the contract completion date will be revised from September 13, 2018, to November 16, 2018, for Part A, from August 14, 2018, to December 14, 2018, for Part B, and from August 14, 2018, to September 26, 2018, for Part D.

MOTION: Mr. Elarionoff moved for approval of the recommendation; seconded by Mr. Sugai.

Mr. Elarionoff asked what vehicle upfitting meant.

The Manager-Chief Engineer asked Mr. Blake, representative from Orchid Isle, to elaborate.

Mr. Blake stated that it is where a specialty cab is ordered and goes to the body manufacturer to be built and installed.

The Manager-Chief Engineer noted that these vehicles are not just the standard F-150's. They have unique features for service trucks, either a service body, or lift gates. The Department has seen this in other contracts and has recently made modifications to the contract language. A lot of times, the contractor is held hostage by the suppliers and vendors on the mainland. The Department asks the contractor to show that they submitted the order on time and have been following up with the suppliers, and it is submitted as part of the extension request.

Chairperson Boswell stated that their letter was very descriptive and made him feel comfortable with the extension request. He added that Mr. De Luz would be recused from voting on this agenda item.

The Manager-Chief Engineer added that the Department does have all of these vehicles on hand, but this request was needed because they came in after the contract due date.

Mr. Scicchitano had a similar supporting comment. HPM has a very large fleet and it is very typical of the process to see things like this, so it is understandable to him.

ACTION: Motion was carried by five ayes (Messrs. Domingo, Elarionoff, Scicchitano, Sugai, and Chairperson Boswell); one recusal (Mr. De Luz); and three absent (Ms. Wilson and Messrs. Balog and Takamine).

Mr. Blake thanked the Board and stated that the Board may have noticed over the past years that delivery of vehicles is taking longer. They appreciate leaving the time up to them to figure out rather than having a drop-dead time such as 180 days because there are so many variables involved. They thought they were going to be fine with the number they added the last time, so the latest bid that was approved was 320 days; therefore, delivery should be well within that time.

Chairperson Boswell appreciated the information.

(Mr. Blake and representatives of Orchid Isle left the meeting at 10:45 a.m.)

C. INTER-GOVERNMENTAL AGREEMENT BETWEEN THE STATE OF HAWAI‘I – UNIVERSITY OF HAWAI‘I, ECONOMIC RESEARCH ORGANIZATION AND THE COUNTY OF HAWAI‘I – DEPARTMENT OF WATER SUPPLY REGARDING WATERSHED RESEARCH STUDY:

The Water Board of the County of Hawai‘i and the University of Hawai‘i, Economic Research Organization (UHERO), entered into the Agreement that authorized the County of Hawai‘i, Department of Water Supply (DWS), to fund up to \$49,951.00 towards a study to identify priority watershed areas on Hawai‘i island for protection that includes areas that were defined by DWS. UHERO, has submitted a draft of preliminary results of the study and DWS has requested to further align the research methodologies and results with DWS priorities and objectives. In order to accomplish this task, UHERO is requesting a no cost time extension on the study of six (6) months or until August 31, 2019. If approved, the completion date will be extended from February 1, 2019, to August 31, 2019.

The Manager-Chief Engineer recommended that the Board approve the no cost time extension request for the INTER-GOVERNMENTAL AGREEMENT BETWEEN THE STATE OF HAWAI‘I – UNIVERSITY OF HAWAI‘I, ECONOMIC RESEARCH ORGANIZATION, AND THE COUNTY OF HAWAI‘I – DEPARTMENT OF WATER SUPPLY REGARDING WATERSHED RESEARCH STUDY.

MOTION: Mr. Elarionoff moved for approval of the recommendation; seconded by Mr. Sugai.

The Manager-Chief Engineer stated that this is a good public/private partnership where the Department is getting its dollars’ worth for a 50-cent investment. There is a grant opportunity through the Hawai‘i Community Foundation (HCF) to do watershed protection work. This Department partnered with the University of Hawai‘i Economic Research Organization and HCF is paying half of the effort. This Department pays the other half. Although the benefit can be used statewide, it is benefiting this Department by showing where to invest in watershed protection. This no-cost change is the continuation of that work. After they submitted a product to the Department and staff had time to review it, the Department wanted to tweak it a little bit to get better information on what would be a good project--whether it be fencing, reforestation, rehabilitation of forest, etc.

Mr. De Luz asked if UHERO is collaborating with the Department of Land and Natural Resources (DLNR) as well, based on their initiative on watershed management.

The Manager-Chief Engineer replied they have. UHERO has been involved with some studies on various islands, already doing similar work, even with the Nature Conservancy.

Mr. Inaba added that the Department looked at Kona, the Kohala Mountain area, and Ka‘ū and asked them to align their studies to those priority areas.

Mr. De Luz recalled about five years ago, the USDA Pacific Basin Institute of Forestry had done a study with Cornell University that addressed watershed, but on the mauka side. His understanding was they picked the 7,200-foot elevation because they felt it was generationally a statistically safe bet for climate change because of the avian virus. If he recalled correctly, the study indicated they wanted to reforest that whole mauka section of Mauna Kea Reserve, essentially being able to recharge makai. He suggested asking UHERO about it, and the person who was a part of it was the Deputy Chair, Mr. Bob Masuda. He was working toward seeing if he could get the Federal government to collaborate because it was a major initiative for them.

The Manager-Chief Engineer replied that the Department would definitely continue to talk with Stakeholders in the area. DLNR's Forestry Division have their watershed priority areas, and they did not necessarily jive with DWS. UHERO was asked to focus its study on what will benefit the customers of this Department in the long run. Moving forward when it comes time to put in the dollars for actual projects, the Department will see if there are other opportunities to partner with other agencies and maybe leverage funds. It is not at that point yet though.

Chairperson Boswell stated that the Department is looking for improvements that would feed its well aquifers specifically.

Mr. Inaba noted that the Department has been in meetings with DLNR Forestry and they did include Mr. Bob Masuda.

Mr. De Luz stated that one of the challenges more south is Ka'ū and that mauka water. Because of the complexity of the change in ownership since the plantation's demise and the access, he wondered if they are addressing those issues in this study. That might be something as a second part to this. If there is an area you are attempting to preserve, knowing Hāmākua and Ka'ū have extreme issues because of the plantation era and land not having legal access, as part of the study, it would be good to ensure that you also have the necessary access and/or MOU's.

The Manager-Chief Engineer stated that if the Department wanted to invest monies into watershed protection, it is thinking similar to what Maui has done where they put out an RFP that details the funds available and it is up to the proposer to come in with what they would do with the funds; but the Department would award the projects based on what is found from this UHERO study. In a sense, it would be up to that third party to work out the logistics, whether it be fencing, getting proper approvals from whoever owns the land, and things like that. This Department does not have the resources or the know-how to do that type of work but there are entities that do it all the time. They just need funding.

ACTION: Motion carried unanimously by voice vote.

D. MONTHLY PROGRESS REPORT:

Mr. Inaba stated that the Department held a community meeting on the Wai'aha Water System Improvements project. A handful of community members came out and it went well. They were very positive about the Department being there. The following Monday, a community meeting was held for the Ka'ie'ie Mauka Facility Improvements project in Pāpa'ikou mauka. It is a very small community, and a few people came out for the meeting. What was interesting was that a lot of people found out about the meeting by reading it in the paper. That was good to know. The Waikoloa Reservoir No. 1 Repair project community meeting is coming up this Thursday, January 24, at the Waimea Community Center, at 5:30 p.m.

Chairperson Boswell thanked the Department for holding the meetings. He had attended the Wai'aha meeting and liked the way it was set up. The blue prints were out, and the contractor was there to answer questions.

Mr. Inaba stated that the meeting was more for the impacts the project will have on the community because the scope of work is already designed.

The Manager-Chief Engineer noted that in the future, on large projects that might have more impact to the communities, it may want to hold community meetings prior to finalizing the design because the

community may come up with some good concerns that should be addressed prior to design. One project that this may be done on is the Pāpa‘ikou Waterline Replacement because it will impact almost all of the Pāpa‘ikou community. The Department may reach out to them even before bidding it out in case there is something that may not have been thought of.

Mr. Inaba stated that there was a community meeting out there before the design, but it was several years ago. It was felt appropriate to go back and update the community.

Mr. De Luz stated that the Department is doing a much better job at reaching out. The challenge with anything is how they are reported on. Looking at the West Hawai‘i Today article, the title was “DWS Talks Traffic/Water Stoppage.” And then in the context of the article, it says “water disruptions.” He suggested, with the help of the public relations section, is have a fact sheet on what the benefits of the project are and then go into things like traffic congestion, but that is just the way it is in Kona. The concept would be to use either the Department of Public Works or the Department of Transportation if the area has any current traffic studies available that might help DWS mitigate with the contractor on minimizing disruptions and if it might make sense to start the project in late spring so the work falls over the summer months. Kona is a tough place, and along this stretch in particular; but Isemoto Contracting has a lot of experience in that area.

Mr. Inaba stated they did a project a bit north of this area previously.

Mr. De Luz hoped the majority of the public will understand the benefit to them, but the newspapers can be difficult in fairly representing what the conversation is really about, especially in a title where they emphasized “inevitable.”

Chairperson Boswell thought that one of the misconceptions at the meeting was people think the traffic control plan is from one end of the job all the way to the other. It has to be identified that this will happen in segments and every segment is going to be different or crossings are going to be different than a straight road with no houses. He commended the contractor for working in that area before. They live there too, and their families are the ones travelling through it so they are going to make every effort to keep it as smooth as possible and everybody just needs to be safe and be smart.

Mr. De Luz commended the Department for its outreach. The value is that the attempt to reach out was made. How people receive it is a different thing.

E. **REVIEW OF MONTHLY FINANCIAL STATEMENTS:**

Mr. De Luz asked about the EUTF (Employer-Union Health Benefits Trust Fund) and the increased liability--if it was just a balance sheet liability or if it was actually a cash contribution or is deferred.

Mr. Sumada replied that it is a balance sheet adjustment and there is no cash involved. They are offsetting the balance sheet adjustment with an adjustment to fund balance.

Mr. De Luz asked when the State would expect payment on that shortfall.

Mr. Sumada replied they are spreading it out over thirty years. For the EUTF, it is around two million dollars per year. This started about ten years ago and it will go on for thirty more years.

Mr. De Luz asked if the auditors do a cash stress test in the event that there is a call on that liability.

Mr. Sumada replied that they do a stress test on the investment interest rate. Both the ERS (Employees' Retirement System) and the EUTF are doing it. He believed the interest rate they are using is about 7%. They test it to see what impact it would have if interest rates go up or down a half percent or so. There are footnotes on it in the financial statements.

Mr. De Luz recalled them reporting being about \$13.7 million short. That is the widest gap right now. He thought it was 2025 when their outflow will exceed contributions and then it is going to take another 18 years to catch up. His concern was that as long as they do not make a call on the money, this is looking like having a cash reserve in the eventuality.

Mr. Sumada stated they do not anticipate being short as long as the different employers make their payments.

Mr. De Luz mentioned that the only reason he brought this up was because the HGEA and UPW unions are going to be pushing hard based on what SHOPO and FIFA got. This next round of bargaining could see double digit increases over the period of the contract. This number would become mute after those negotiations are completed. This unfunded liability becomes a concern at the Department's capacity. The system takes a lot of money to maintain and expand, and this is not even expansion. It is just maintaining. It is a big chunk of change--about half of the Department's revenue.

Mr. Sumada replied that was correct.

Chairperson Boswell asked if there were any other comments.

Mr. Sumada mentioned that the Fiscal Year 2018 Audited Financial Statements for the Department were handed out today and will be on the Agenda for next month. The auditors will be present to answer questions and make their report to the Board. The other thing the Board should have received is the three-page memo which is the Department's 2020 Operating and CIP Budget. This will also be on the Agenda next month where the Board will be asked to set up a public hearing for March, to be in Kona, and will continue to be on the Agenda until the Board approves it twice.

F. MANAGER-CHIEF ENGINEER'S REPORT:

The Manager-Chief Engineer provided an update on the following:

1. North Kona Wells - the Deputy gave the Board an update on the wells. As of today, eleven of the fourteen wells are online. The three offline are Hualālai, Palani, and Wai'aha. Hualālai Well is the one that is actively being worked on now. The contractor has the pump, motor, and seal section in their possession and are working on fabricating the shroud that will go around the motor. The timeframe for installation is by the week of February 4, 2019.

For Palani Well, the contract was awarded today. The contractor has 180 days to complete the project, putting it at the end of August this year.

For Wai'aha Well, there is no change from last month. The Department has no further comments because of its potential for litigation.

Chairperson Boswell congratulated the Department on its list getting smaller.

Mr. Domingo asked about Wai'aha Well and if it is progressing towards retrieving the dropped equipment.

The Deputy replied that the equipment is still in the hole, but the Department received a letter from the contractor's counsel, which puts a hold on it.

Mr. Masuda clarified that it is a litigation hold.

The Deputy mentioned the second Wai'aha Well that is being worked on. The consultant is onboard doing survey for the possibility of putting a second well on that same site.

2. Employee of the Quarter (4th quarter of 2018) - Mr. Young stated that Mr. Brandon Cantor is being awarded employee of the quarter 4th quarter. Mr. Cantor works in the Kona office. He started off as a Meter Reader in May 2018. He has impressed everyone around him in this short time with the Department. Being a Meter Reader, he is on the frontline. The Department would not receive its income without Meter Readers. He recently became a Waterworks Helper but is doing double duty, helping the Meter Readers. He thanked him for his hard work. Mr. Uemura, his former supervisor, echoed the same, noting in his first year, he kept the readings afloat in the Kona district and deserves this award. The Manager-Chief Engineer agreed that meter readers are on the front line and in Kona, the challenge continues with staff shortages. Even though he was promoted to the field side, he is still helping out with the meter reading, and it is much appreciated.

Mr. Elarionoff recalled at last month's meeting, Mr. De Luz had mentioned some things about the cost of water; and today, the statement was made on how good it is to have a public/private partnership. He mentioned Pu'uwa'awa'a Ranch, an 11-house subdivision in Kona, which is doing something fantastic that perhaps the Department might want to look into. They have electrical panels that collect the sunlight, put it into batteries, and during the course of the day, it takes care of the electrical usage for the houses. The other thing is they have a 2,500-foot well where they suck the water up and they send it to electrolysis. They take the oxygen from the water, separate from the hydrogen, and use the hydrogen as fuel. The whole unit is self-contained. To him, there is a problem with the windmills Waikoloa. He does not think the system is efficient. When he looks at the Pu'uwa'awa'a Ranch system, it is so efficient. They run the golf carts and the cars from their system. The other thing is that the military at Pohakuloa is looking into digging a well in Pohakuloa. He is a cultural consultant with them. With the agency's cooperation, the top of Pohakuloa is a really good place to gather information on what is going on because from there to distribute water, it is all downhill. The problem is to get it up there. It is on the internet--look for "Blue Planet."

The Manager-Chief Engineer asked if they allow people to visit.

Mr. Elarionoff stated he could set it up, as well as have the Manager-Chief Engineer meet with the Commander in Pohakuloa because of his interest in doing the same thing.

The Manager-Chief Engineer mentioned that he had met him and has also been in contact with Mr. Don Thomas who was part of that well drilling effort.

Mr. Domingo asked if this system is fully operational.

Mr. Elarionoff replied it is. It is totally off grid. They say that on this island, there is potential to supply enough hydrogen fuel for the whole State of Hawai'i plus ship it out if we make full use of what is collected. But that is a water requirement. In Waimea, when the windmills do not have wind, the Department uses HELCO power. With this, when the sun is not out, it is stored in the batteries.

Mr. De Luz mentioned they were working with Livermore Labs on a larger photovoltaic field but with a flywheel. Essentially, it is inertia driven, something like a spinning reserve. It is the same philosophy as pump storage to some degree. It is worth going to see.

Mr. Elarionoff stated that he would work with the Manager-Chief Engineer about setting it up.

G. **CHAIRPERSON'S REPORT:**

1. Chairperson Boswell reached out to the Board Members to get their comments on any initiatives they feel should be worked on to contribute back to the group. An example would be the questions that have come about regarding the accuracy of water meters. It is good the Board will be seeing a bench test demonstration today. He noted that he received his first notice today of a contested case potentially coming through (correspondence addressed to the Board) and can see how it starts; and it is in the art of the communication. Some people understand things differently, and he did not want to avoid the right of people to come in and contest a case; but as far as the procedures that got them to that point, if there is anything that can be done along the way to avoid it getting that far, it may help if the Board can contribute back to the Department and make its job easier. The Board hears from people on a case-by-case basis, and he thinks it should be more factual and, in that case, would be filtered through the Department's existing structure already. If meters do not fail 99.9% of the time, then they should not be taking contested cases. He has two years of contested cases in his head and he has been trying to figure out if there is anything the Board can do to help.

He would also like to get an update update on any pending or current litigation that the Department is involved in. There had been some conversations about Lālāmilo Windfarm and about a water source in Hilo that have not been talked about since then.

Discussion followed regarding how to get the Board's feedback and in what format.

Chairperson Boswell asked if it could be filtered through the Secretary.

Mr. Masuda replied yes but cautioned against serial communications as they violate Sunshine Law. This would be a one-way thing. It goes to the Secretary, and the Secretary forwards it to the Chairperson. If the Chairperson responds, it will be on the record during a meeting and not in back-and-forth communication in between meetings. In response to Chairperson Boswell's question if he could share the comments, Mr. Masuda replied no. The comments can only be shared in open session.

The Manager-Chief Engineer asked if it should be placed on the Agenda under the Chairperson's Report.

Mr. Masuda replied that if the *intent* is about changing the way contested case hearings are done, that is all by the Department's Rules and Regulations. As a new Chairperson, it is always up to that person whether they want to commission an Ad Hoc committee to look into the Rules.

Chairperson Boswell did not want to go too far with it; but as a business person, he feels there is a large enough amount of monies expended, disproportionate to the activity.

Mr. Masuda stated that was true, but it is a part of the due process. He always tells his boards that they are a board of law and equity and they have every right to make a mistake as long as it

is not a constitutional violation or it is not based upon somebody's class such as race, religion, etc.

The Manager-Chief Engineer stated that anytime the Chairperson wanted to agendaize something to discuss or learn more about the Department processes, he could communicate it with the Secretary.

Chairperson Boswell thought that sounded good. He did not want to make it all about the contested cases, but more about moving forward where everyone has an opportunity to ask the Board to do something.

Mr. De Luz asked if the Secretary could provide the material in an anonymous format prior to a meeting for the Board to digest, which could then be discussed during the Chairperson's Report.

Mr. Masuda stated it did not have to be anonymous, as long as the Board Members do not talk to each other about it.

Mr. Elarionoff commented that he had a hard time with the anonymous part of it. If the Board does not have the guts to say it, then do not say it.

Mr. Masuda stated it did not have to be anonymous, but just make sure it is not emailed to one person and copied to another.

Mr. Scicchitano asked if they could create a segment in the Agenda on a regular basis for recommendations from the Board.

Mr. Masuda stated that usually, that would come through a communication to the Chairperson and he would then ask the Secretary to agendaize a certain topic. For an open *session* in the Agenda, that is up to the Board; however, he cautioned not to get off topic.

Mr. Scicchitano thought that was a good point. If the Board can focus it in and have criteria and something is to be presented, it needs to be objective, productive, and of value to the Board and the people.

Mr. Masuda stated that was true. It has to be of value to the people.

Mr. De Luz asked Mr. Masuda if it might be efficient for the Board to consider keeping an area for executive session on the Agenda, if the need arises.

Mr. Masuda replied no. Executive Session is placed on an Agenda as part of an Agenda item. It is specific to something that came up before. When there is a regular chance to go into executive session, more often than not, it starts being corruptive from its purpose.

Mr. De Luz stated he understood. This Board is unique because it has fiduciary responsibilities, which is not typical of all of the boards. It has a higher level of responsibility in that regard.

Announcements were taken at this time, prior to recess before the Demonstrations, Item H on the Agenda.

1. **Next Regular Meeting:**

The next meeting of the Water Board will be February 26, 2019, 10:00 a.m., at the Department of Water Supply, Operations Center, 889 Leilani Street, Hilo, Hawai‘i.

2. **Following Meeting:**

The following meeting of the Water Board will be March 19, 2019, 10:00 a.m., in the West Hawai‘i Civic Center, Community Meeting Hale (Building G); 74-5044 Ane Keohokalole Highway, Kailua-Kona, Hawai‘i.

Chairperson Boswell then called for a Motion to Recess and Reconvene at the Meter Room.

ACTION: Mr. Scicchitano so moved; seconded by Mr. Sugai and carried unanimously by voice vote.

RECESS: 11:40 a.m.

H. **DEMONSTRATION OF DWS’ WATER METER TESTING PROCEDURES AND SIMULATION OF WATER LEAKS:**

Chairperson Boswell reconvened the meeting at 11:45 a.m. for the purpose of observing the leak test.

Ms. Judy Hayducsko, Civil Engineer at the Operations Division explained that they would be demonstrating what happens to a leak. It can either go into the ground or potentially surface. When asked, the Board indicated they wanted to see the leak that occurs on the surface first. Ms. Hayducsko explained that the curb stop was being turned on, which is how customer meters are turned on and off. She pointed out that the water meter showed water was flowing. Staff designed a leak at 8.3 gallons a minute. This leak is designed on top of asphalt, so it is an impervious surface with rock that is not allowing water to penetrate. In response to Chairperson Boswell’s question of what the pounds per square inch (psi) was, after checking, Ms. Hayducsko clarified it was at 110 psi. (Note that it took just under one minute for the water to come up through a mound that was placed on top of the impervious surface.)

Chairperson Boswell asked if this had been leaking over a period of time, could it have fine migration in the backfill material in the ditches that allows the water to travel in the direction of the ditch before it would well up.

Ms. Hayducsko replied that was correct. In five minutes, 41.5 gallons of water was released and visible at that point.

For the second test, it was a little over five minutes at 42 gallons. It was leaking out of the side of the bank and flowing downward and, therefore, would not be seen.

Mr. De Luz asked about the ability to hear or detect the leak.

Ms. Hayducsko replied that the Department has leak listening devices. Some of them are placed in permanent locations and some are portable and moved around as staff investigates what is happening in the system.

Mr. De Luz asked if leaking is more pronounced in distribution versus from the meter to the service side.

Ms. Hayducsko replied it depends on the age of the pipe. If someone has an old PVC pipe they installed 40 years ago, it is probably going to be on that side of the meter. If it is a new system that they just installed and the plumber said it is tight, it might be on the Department's side. The Department can tell by replacing the meter and seeing if there are any dial movements. She noted that the leak being done here is probably not going to surface, even if it was left to run for 24 hours.

The Deputy noted there are some areas on the island with more pervious subsurface conditions where you could have a leak and never see it at the surface unless you start digging around.

Mr. Domingo stated that the issue he wrestles with a lot of times is the calibration of the meters and how accurate they are.

Ms. Hayducsko stated that the Board would be going to the meter room to observe where the Department does test validations for the customer's meter.

The Board proceeded to the meter room.

At 11:55 a.m., the Board observed a demonstration of how the Department tests water meters to ensure proper functioning and accurate billing.

Mr. Owen Daimaru, Lead Water Meter Mechanic, showed the Board the Department's meter test bench, used for 5/8-inch meters. He explained there are two calibrated tanks. One is a 10-gallon tank, for low and medium rate tests, and the other is a 100-gallon tank, used for high flow tests. The State of Hawai'i used to come to certify the tanks; but unfortunately, their budget was cut so the DWS went out and got its own Stainless Steel buckets to calibrate its tanks. The buckets were sent to the Department of Health on Oahu, who certified them. The Department can now check its own tanks. It is a 5-gallon calibrated tank, so for the 10-gallon tank, they fill it up twice, dump it in, and check the level. On the 100-gallon tank, it is done twenty times. There is an indicator on the side which shows when it is at 10 gallons. When the department tests 5/8-inch meters, two tests are done on the 10-gallon tank. One is a low flow test, which is 1/4 gallons per minute. To do the 10-gallon test, it takes approximately 40 minutes. The medium-flow test is at two gallons per minute; and on the high-flow test, it is run at 15 gallons per minute and goes to 100 gallons. To determine accuracy, the meters are checked against the known tank volume. If the tank received 10 gallons and the meter only read 9.5 gallons, then you know the meter is only 95% accurate at that test flow rate. Whenever a test is done, the water is turned on, air is flushed out from the line, and a reading is taken from the register. The Department bills in 1,000's of gallons, but these registers also go down to individual gallons, tenths of gallons, and hundredths of gallons. He then started the demonstration test. He noted that one of the first things you learn when coming to DWS is that when you open or close a valve, you do it gradually, otherwise you have water hammer, or a lot of pressure going back and forth in the pipe which can damage your plumbing or seals. The pressure was at 97 psi, at which time, he flushed out the air. He said that often times, the customer who wants the meter tested will request to witness the bench test. Whenever that happens, staff does the medium test first, then the high-flow test, which takes seven to eight minutes. Generally, they do not want to stay for the low-flow test because it takes 40 minutes. Most times they are happy with the first two tests. He noted the check on the test he was doing was 944.9 and 14.0.

(Mr. De Luz left the meeting at 12:03 p.m.)

While the test was running, Mr. Daimaru showed what the inside of the water meter looks like. He explained that the water comes into the meter body, enters a measuring chamber, and pushes the disc inside. This action is called “nutation.” It spins a part inside which is attached to a magnet. There is a magnet inside the register on the other end which gives the readout. There are some customers that say their meter is broken. If it were to break, what would happen is it would stop registering. It has been seen more often than not where it breaks and the part inside gets lodged in, causing the disc to stop moving. Water is still able to go through the meter, but it just stops recording. They have never had a broken meter that spins faster.

Mr. Scicchitano asked if there is an average life expectancy on a meter like this.

Mr. Daimaru replied it is ten years, depending on the size of the meter. They are designed to take a certain amount of water through them. If the meter were on a large farm where irrigation is going on all the time, they would probably have some free water because the meters are only designed to take so much water pressure and volume. Beyond that, it will still work; but there is a lot of water that is not being recorded.

Chairperson Boswell noted it would no longer be a revenue meter in that case.

Mr. Sugai asked about the three tests and what the purpose is for them, or if it meant they are inaccurate at a low rate.

Mr. Daimaru replied that the lower the flow rate, the less accurate they are. They find, at the medium and the high rates, the meters are much more accurate.

Mr. Sugai asked if it were at a very high volume, if it would be inaccurate as well.

Mr. Daimaru replied that if it goes beyond its capability, it would be.

Mr. Sugai asked what the maximum flow a 5/8-inch meter would have if a 1½- or 2-inch line were placed on it.

Mr. Daimaru replied it would be around twenty gallons per minute.

Chairperson Boswell asked if there is a way to tell when it has hit its maximum flow rate--if there is any trigger that says that it did.

Mr. Daimaru replied that on the manual there is none. The only real way to tell is to sit there watching it clock.

Mr. Sugai asked about the electronic meters.

Mr. Daimaru showed the different types of meters, such as the older digital one. These registers have different capabilities. They will show the total consumption and can go back and forth between the flow rate consumption. He pointed out where it would show the flow rate and direction of flow if water or air were flowing through it.

Mr. Sugai asked if the accuracy on the really low or the really high tests is the same on the electronic registers versus the manual.

Mr. Daimaru replied that when they are purchased brand new, they have to conform to the American Water Works Association standards. Generally on the lower flow, they should be between 98½% to 101½% acceptable range for brand new meters. After they have been out for a little while and have to be taken back to the shop for repair, on the low flow end, they go down to about 95% on the low and 98.5% on the medium and high, and still be acceptable.

Ms. Hayducsko added that the electronics are in the register. It is the same nutating disc underneath that was shown today. This different register on the AMR's is so the readers can drive by and grab the results. These are not electronic flows.

Mr. Sugai asked if they have memory inside and if they reset.

Mr. Uemura stated that some of the newer versions have a memory chip inside where you can actually get 30 days data. The trouble with it is there is so much data, it requires a special data pull just on the individual meter. The drive-by units only take a basic reading. Anything beyond that is a special trip. The last time one was done, it took 15 to 20 minutes. For practicality, you cannot stop at every meter to do that.

Mr. Sugai asked if any tampering can happen with the chips or with the electronics.

Mr. Uemura replied that there is a tampering flow tamper, but most of it is solid state and sealed so you would see that.

Mr. Daimaru stated he had seen people attempt to make their meter stop recording by sticking magnets in the meter box, knowing there are metal parts inside. He has only seen one successful attempt at it, but it was a special industrial type of magnet. It was discovered after change-out and was kept by the Department to avoid it being used again.

Mr. Domingo asked when the meter is checked, if it is tested in the actual conditions it would have been in the field where it was running during the period of the leak.

Mr. Daimaru replied it is not. There is just the standard bench test.

Mr. Domingo asked about the AMR's and monitoring remotely.

Ms. Hayducsko stated the Department started with them in 2005. They were placed on very busy roads to avoid having the meter readers walking there.

Mr. Uemura added they are installed in areas, for example, in the Kona area, on Alii Drive, Nāpo'opo'o Road, Palani Road, and on the highway where there are no shoulders.

Mr. Daimaru mentioned that there are areas such as Ka'ū where they are installed in the pasture (remote areas). He showed the antenna that protrudes from the meter box.

Mr. Sugai asked how the signal is picked up--if the meter readers have to drive by slowly.

Mr. Uemura replied it is by line of sight. The frequency is such that there is no licensing needed as it does not interfere with anyone else's transmission. Because of this, something as simple as a chain link fence may interfere. Staff have learned over the years how to get around that problem.

Mr. Sugai asked what kind of failure rate is seen on regular mechanical, manual 5/8-inch meters.

Ms. Hayducsko stated that some of the older ones pulled out work great and some of them do not. The failure rate on some have been higher than what would have been expected so the Department is working on a plan on how to adjust for that failure rate, which is a little higher than acceptable.

Mr. Uemura noted that on a regular route with about 400 accounts, on a manual meter, you may see three to four every cycle that need repair and they are at various ages and condition.

Mr. Sugai stated it probably depends on flow, pressure, and that kind of thing.

Mr. Uemura stated that some areas may be more susceptible than others. Some of the more high-volume areas have a bit more breakage. It is hard to compare, example, a subdivision in Hilo with no irrigation to down in Pualani where more breakage is seen because they use a lot more water. That might be contributing to it.

Mr. Daimaru mentioned that they test more of the 5/8-inch meters than any others because more of them are in the system. However, there is another test bench where 1-inch, 1½-inch, and 2-inch meters can be tested. The tests will be similar to what was shown today. There are also some vertically-mounted turbine meters that are able to be tested. It is possible to test them in the field with a portable meter tester, which is basically a big meter that is calibrated and has a special register on it. On most of the larger meters in the field, there is usually a place on the meter called a test port where a hose can be placed and run into the tester. A bypass hose will be hooked up so the customer will not be without water during the test.

Ms. Hayducsko thanked the meter room staff for their presentation.

10) ANNOUNCEMENTS:

Announced earlier, prior to the demonstrations.

11) ADJOURNMENT:

ACTION: Chairperson Boswell adjourned the meeting at 12:25 p.m.

Recording Secretary

(Minutes approved at 2/26/19 Water Board Meeting)