MINUTES

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

June 22, 2021

Via Zoom/Host Location: Department of Water Supply, 345 Kekūanaō'a Street, Suite 20, Hilo, HI

MEMBERS PRESENT: Mr. William Boswell, Jr., Chairperson
Mr. Eric Scicchitano, Vice-Chairperson
Mr. Michael Bell
Mr. David De Luz, Jr. (10:10 a.m.)
Mr. Steven Hirakami
Ms. Judy Howard
Ms. Julie Hugo
Mr. Benjamin Ney
Mr. Kenneth Sugai
Mr. Keith K. Okamoto, Manager-Chief Engineer, Department of Water Supply (ex-officio member)

OTHERS PRESENT: Ms. Diana Mellon-Lacey, Deputy Corporation Counsel
Mr. Jon Nishimura, Fukunaga & Associates
Mr. Lance Fukumoto, Fukunaga & Associates

Department of Water Supply Staff

Mr. Kawika Uyehara, Deputy
Ms. Candace Gray, Waterworks Controller
Mr. Kurt Inaba, Engineering Division Head
Mr. William O'Neil, Water Service District Supervisor II, and Temporary Assignment to Chief of Operations
Mr. Eric Takamoto, Operations Division
Mr. Warren Ching, Energy Management Analyst

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

- Minutes of the May 25, 2021, Public Hearing on the Power Cost Charge
  ACTION: Mr. Ney moved for approval of the Public Hearing minutes; seconded by Ms. Howard and carried by roll call vote (Ayes: 8 – Mr. Bell, Mr. Hirakami, Ms. Howard, Ms. Hugo, Mr. Ney, Mr. Scicchitano, Mr. Sugai, and Chairperson Boswell; Absent: 1 - Mr. De Luz.)

- Minutes of the May 25, 2021, Water Board Meeting
  ACTION: Mr. Scicchitano moved for approval of the Minutes of the May 25, 2021, Water Board Meeting; seconded by Ms. Howard and carried by roll call vote (Ayes: 8 – Mr. Bell, Mr. Hirakami, Ms. Howard, Ms. Hugo, Mr. Ney, Mr. Scicchitano, Mr. Sugai, and Chairperson Boswell; Absent: 1 - Mr. De Luz.)

4) APPROVAL OF ADDENDUM AND/OR SUPPLEMENTAL AGENDA - None

5) SOUTH HILO:

A. **JOB NO. 2020-1135, PANA'EWA WELL A REPAIR – REQUEST FOR ADDITIONAL FUNDS:**

The contractor, Derrick's Well Drilling & Pump Services, LLC, is requesting a contract change order for the additional work for non-warranty damage to the pumping assembly. The description of the additional work and associated fees are as follows:

ITEM	DESCRIPTION	AMOUNT
1.	Mobilization & Demobilization; Removal of Damaged Materials & Equipment; and Reinstallation of New or Repaired Materials & Equipment.	$14,500.00
2.	Motor Repair	$6,500.00
3.	1-15/16" Mechanical Seal	$3,000.00
4.	Stuffing Box Bearing	$1,000.00
	TOTAL	**$25,000.00**

Staff reviewed the request for the additional funds and found it to be justified. *Note: There is approximately $5,600.00 remaining in the original project contingency. Payment of this work shall be performed by force account.*

Original Contract Amount: $100,000.00
Original Contingency Amount: $10,000.00

1st Change Order: $3,675.40 (Layne TF818 Top Column Flange)
2nd Change Order: $726.00 (Machine work for Motor Lower Bearing Shaft)

1st Additional Contingency Request: $19,401.40
Total Revised Contract Amount: $129,401.40

The Manager-Chief Engineer recommended that the Board approve an increase in contingency of $19,401.40 to Derrick's Well Drilling & Pump Services, LLC, for JOB NO. 2020-1135, PANA'EWA WELL A REPAIR. If approved, the total revised contract amount shall be $129,401.40.

MOTION: Mr. Ney moved for approval of the recommendation; seconded by Ms. Howard.

Chairperson Boswell stated that the contractor's markup was very well done.

Mr. Hirakami asked if there was a comparison of what a new motor would cost compared to a repair.

Mr. Takamoto replied that it would be about $30,000.00. The existing motor was just replaced so it is brand new.

ACTION: Motion was carried by roll call vote (Ayes: 8 – Mr. Bell, Mr. Hirakami, Ms. Howard, Ms. Hugo, Mr. Ney, Mr. Scicchitano, Mr. Sugai, and Chairperson Boswell; Absent: 1 - Mr. De Luz.)

6) SOUTH KOHALA:

A. **JOB NO. 2021-1169, WAIMEA WATER TREATMENT PLANT SLUDGE REMOVAL:**

This project generally consists of furnishing all labor, materials, tools and equipment necessary to remove and dispose of settled sludge from the Waimea Water Treatment Plant 2.7 MG (million gallon) reservoir, for a period not to exceed one year.

Bids for this project were opened on June 8, 2021, at 2:00 p.m., and the following are the bid results:

Bidder	Bid Amount
2B Environmental, Inc.	$0.49/Gallon

The Manager-Chief Engineer recommended that the Board **not** award the contract for JOB NO. 2021-1169 WAIMEA WATER TREATMENT PLANT SLUDGE REMOVAL, to the lowest responsible bidder, 2B Environmental, INC., for a unit price of $0.49 per gallon. Staff has determined that the bid price submitted is not fair and reasonable and will seek alternative procurement per Hawai‘i Administrative Rules §3-122-35 to procure sludge removal services.

MOTION: Mr. Ney moved for approval of the recommendation *not to award*; seconded by Ms. Howard.

(Mr. De Luz joined the meeting at 10:10 a.m.)

The Manager-Chief Engineer stated that the assessment was based on prior bids, which were approximately half of this current bid amount. It was not determined by staff to be fair and reasonable. The Department will seek other means of procurement for the services, which could include direct negotiations with this one bidder. The Department will seek the most prudent and economically feasible option moving forward.

Mr. Ney asked if this sludge removal is something that could be looked at being done in-house, if the Department had the equipment, and what those costs would be. He also asked where the sludge goes and if there is a disposal cost associated.

The Manager-Chief Engineer replied that sludge is a byproduct of the water treatment process. The raw water has organic materials in it, and the sludge contains that organic material, plus coagulants that are filtered out. It would require some evaluation to see if it could be disposed of internally. There are requirements if it is disposed of by a different means, either at a wastewater treatment plant or dry it and dispose of it on a landfill. In response to Mr. Ney’s question of whether it is a bio-degradable or bio-friendly substance, he replied that he would think so. There was a prior practice of pumping it up the hill to a sludge drying bed, but it turned out to be quite costly with the operation and maintenance of the pumping units, which have failed in the past and took additional funds to repair and replace. That is the reason the Department turned to this hauling contract to have a third-party dispose of it.

Mr. Ney recommended asking them for a clearer breakdown to show how they arrived at that cost. Maybe there are inflation costs for the disposal. Things are going up in price in terms of services and goods.

The Manager-Chief Engineer replied that the Department would do that evaluation.

Mr. Hirakami asked how many gallons is being talked about and if it is in liquid or in solid form.

The Manager-Chief Engineer asked if staff had the detail on how many gallons would be pumped annually.

Mr. Takamoto stated that the current and the previous contracts were approximately 1,000,000 gallons pumped annually.

Mr. Ney asked if it is it like a slurry.

The Deputy replied that was correct. It is more of a slurry.

Chairperson Boswell stated that it would be something that a vacuum or lua truck would handle.

The Deputy replied that was correct.

Chairperson Boswell asked if it would it be taken from Waimea to the Kealakehe wastewater station.

The Deputy replied that in the specifications, it is upon the bidder to dispose of it at a regulated, licensed facility.

Ms. Howard requested that, as mentioned previously, she would like to know the outcome of the alternate procurement.

The Manager-Chief Engineer replied that the Department would report back on the results of the alternate procurement.

Mr. Hirakami asked if the Motion could be restated that the recommendation is to deny award.

Chairperson Boswell replied that the Motion is to deny it.

Mr. Scicchitano stated that he knows Pacific Biodiesel in Shipman pumps water and grease, and things like that. If this is something not hazardous, maybe it could be used for other purposes and potentially be sold instead of disposed of. It may be worth investigating.

The Manager-Chief Engineer replied that it can be revisited. That was being pondered when the sludge drying beds were being utilized. There were no takers at the time because of challenges with regulations, but it is always something to revisit.

Chairperson Boswell stated that it was interesting to him, after five years of being on the Board, these questions have come up every year; and it is a continuing battle to find the best use of it. It never has panned out to make it into a valuable product, and it is difficult to handle. He looked forward to seeing the direction this will take.

ACTION: Motion to *not award* was carried unanimously by roll call vote (Ayes: 9 – Mr. Bell, Mr. De Luz, Mr. Hirakami, Ms. Howard, Ms. Hugo, Mr. Ney, Mr. Scicchitano, Mr. Sugai, and Chairperson Boswell.)

7) MISCELLANEOUS:

A. **HAWAI‘I COUNTY WATER USE AND DEVELOPMENT PLAN UPDATE - KEAUHOU AQUIFER SYSTEM - STATUS UPDATE:**

The Manager-Chief Engineer provided the Board with a presentation and status update of the Water Use and Development Plan (WUDP) for the Keauhou Aquifer System. Present were two representatives from the consulting firm of Fukunaga & Associates, Inc. (Fukunaga), Mr. Jon Nishimura and Mr. Lance Fukumoto.

The Manager-Chief Engineer began with some background on this plan. The State Water Code was passed in 1987, which created the Hawai‘i Revised Statutes, Section 174C, also known as the State Water Code. That accompanied the creation of the State Commission on Water Resource Management (CWRM), which falls under the Department of Land and Natural Resources (DLNR). There are five components to the Water Plan - the Water Resource Protection Plan, the Water Quality Plan, the State Water Projects Plan, and the Agricultural Water Use and Development Plan. Information from these four plans feed into the County Water Use and Development Plan. The Water Resource Protection Plan and the Water Quality Plan are two plans that oversee the protection of the water resource. The Water Resource Protection Plan ties into the quantity of the water resource and the Water Quality Plan ties into maintaining the quality of the resource. The four plans come under the responsibilities of various State agencies. The Water Resource Protection Plan comes under CWRM; the Water Quality Plan comes under the Department of Health (DOH); the State Water Projects Plan comes under DLNR Engineering Division, and the Agricultural Water Use and Development Plan falls under the Department of Agriculture. All of the County Water Use and Development Plans fall under the responsibility of the four respective counties.

Our Department’s Water Use and Development Plan first draft was done back in 1990. A subsequent update was done in 2010, which took a broad-brush view of our entire county and took a conservative approach, looking at what zoning was for all of the different properties on the island, if they were built out to their full potential, and what kind of water use would be anticipated. The surprising result of that 2010 Plan was that out of all of the aquifer systems, or sectors, on the island, only two stood out that needed further review. The framework for these Water Use and Development Plans for each county have a project description that needs approval by CWRM. Once the scope is identified, you may proceed with your plan. Part of that process also includes adoption by each county via a county ordinance, which was accomplished in February 2011. It then goes back to CWRM for their adoption, which was done in November of 2011. The two aquifer systems that needed further evaluation were Waimea, which is also equivalent to the west Mauna Kea aquifer sector area, identified by Number 803, and Keauhou, which is part of Number 809, Hualālai Aquifer. In 2017, the Department decided to focus on updating the Keauhou Aquifer system area, which is what this study is about. Part of the evaluation, or the real basis for the Water Use and Development Plans is to tie anticipated water needs to land use development in each county. To do that, you need to assess what your existing demands are and add on your anticipated projected demands to see whether or not that total will present a challenge or an issue when it comes to what the aquifer can sustain. Thanks to Fukunaga & Associates, a deeper dive was done on the assessment than in the 2010 study. Using GIS and parcel data, they looked at what the existing use was, all of the water commitments, developer agreements, and incorporated Hawaiian Home Reservations. They also looked at the Kona Community Development Plan (CDP) to compile all projected water use in the region that had some level of entitlement, or commitment, or some level of contractual obligation. They did an excellent job of utilizing GIS and the information available to minimize any double counting.

Three different scenarios were looked at to project water. What was used first and foremost was the sustainable yield, which was basically the top limit that you do not want to exceed. That value is 38 million gallons per day (MGD) for this aquifer system. That was used to compare against the future water demand scenarios, which included three different approaches. One was anticipated demand based on existing water use, projected future water use based on those entitlements, and anything that may look like it has the potential for actual development based on various stages of the approval process. The second approach was taking a look at the area based on county zoning and estimated water use by zoning; for example, commercial use, which would typically have a value based on square footage; agriculture, which may have a value based on acres; and single- and multi-family residential, based on housing units. The third scenario used was projecting out based on population growth estimates--what is pumped now and if the trend continues, where it will be in five, ten, fifteen, twenty years down the road.

On the Summary of Water Demand Scenarios, the Sustainable Yield is depicted by a blue line, at 38 MGD. The dashed blue line below is 90% of sustainable yield. That was included because it is one of the triggers to designate an aquifer, which means CWRM would believe there is enough concern that the aquifer itself might be at risk of being over pumped. The designation process would place additional oversight into pumping from the aquifer, and that oversight would come from them. The horizontal green line below is the anticipated demand, which is the value tacked on for all entitlements, or any projects that could potentially be developed, water commitments, etc. That green line is at approximately 28 MGD. The three pink lines below that show the anticipated demand based on using existing pumpage as the baseline and then projecting future pumpage based on population growth estimates.

Some interesting things to note are that this is now 2021, and this plan was done in 2017, based on best information at the time. Since then, new information has been received from the various other State plans, which were updated in 2019. At this point, we have some numbers from those updated State plans, including the State Water Projects Plan, and the Water Resource Protection Plan, which are two of the main ones that would provide information into this current evaluation. Even with the additional information that came out of the updated plans, the bottom line is that this graph will essentially look the same. Actually, the pumpage trend has been on a decline in recent years. That is even excluding last year's pumpage, which was affected by the pandemic. Looking at 2016 through 2019, the actual pumpage is on a slight decline. Hopefully this is a good indication that people are better at using water and our water loss management has had some positive effects because even if population has increased over time in this region, pumping has slightly declined or stayed flat. What that will do for this graph is it will look similar on the pink lines, but it will be shifted five years down the road. That is keeping it conservative. He asked if there were any questions so far.

Ms. Hugo asked if increased rainfall also contributed.

The Manager-Chief Engineer replied that, yes, rainfall does affect the region. People will irrigate less, using less water if there is a high amount of rainfall. It is difficult to identify individual rainfall events in this type of evaluation. It does not last long enough to really show on this scale.

Mr. Ney asked if the study took reclaimed water into account, such as how the resorts reclaim their water and use it for their irrigation needs. If there was a huge jump in demand, the County would have to promote more reclaimed usage of the water.

The Manager-Chief Engineer replied that this plan included all of the efforts that we are aware of. Not only resorts using reclaimed water, but others such as Kaiser and the Department of Transportation, Airports Division, at Keāhole. They were all included in this evaluation.

Mr. Ney asked if there is any physical connection between the aquifers in terms of heavy rainfall in one area replenishing an aquifer next to it.

The Manager-Chief Engineer replied that is a definite maybe. It is a question and one that a lot of people do not quite understand and is not an exact science. He went to the aquifer map of the island where the boundaries are shown. These are the boundaries that CWRM has established to identify and segregate the aquifer systems, but they are not hard geologic boundaries that water does not cross. He has to believe that water is crossing the various boundaries, but to what extent and exactly where, nobody knows for sure. It is based on best available information at the time, and more information and data helps CWRM evaluate their aquifer system, which was a major effort in their latest Water Resource Protection Plan 2019 update. Another takeaway from their update was that the newer information indicated that the Keauhou aquifer, although it is 38 MGD officially as the sustainable yield, their more current information showed the number could actually be as high as 80 MGD. He believes that in order to stay conservative, they are going to use the lower number as the number that we have to stay within. The takeaway from that is we already have conservative estimates based in our evaluation in the WUDP so there is actually another level of being conservative. More recent information indicates the sustainable yield could actually be more than double of what we are considering. That is really their call for what the official sustainable yield numbers are for each aquifer system; and our understanding is that whenever there is a range, they are going to go with the lower one.

Mr. Ney asked how they factor in water storage, where if a drought is experienced, the storage may give a little more stretch up until replenishment from rain.

The Manager-Chief Engineer replied that it is under the purview of CWRM and the Water Resource Protection Plan. Climate change is factored into their latest update. It is not an exact science but they try to be conservative, which is probably why they stick with the lower number. The sustainable yield does not equate to all rainfall in the region. It is a percentage and this aquifer system actually has a basal lens where we are trying to do most of our pumping, which is in the high-level aquifer; however, CWRM does not break it down into those two distinct types. They basically state that the Keauhou Aquifer, as a whole, has 38 MGD sustainable yield and that includes all of our wells, irrigation wells, industrial wells, like the one at Hawaiian Electric, brackish water wells, etc. All of the pumpage from the aquifer system is monitored by CWRM, and they compare that against the sustainable yield. To his understanding, they try to set the sustainable yield as a conservative number to factor in rainfall dips, ups and downs, and the latest one to include climate change as well. Again, all of these details are under CWRM's purview.

Mr. Hirakami commented that he read the report and understood the sustainable yield but mentioned reading about where 600 feet below sea level, there is an incredible other resource of water that is under high pressure. He asked if the plan was going into that sub sea-level aquifer if need be.

The Manager-Chief Engineer replied that the Department is currently exploring that; and it is one of the CIP projects, the Kona Mid-Elevation Deepwell. Not much is known about that resource yet, but it is something the Department looks forward to gathering more information on. He added that CWRM looks at the aquifer as a whole, regardless of the type of resource, whether it be basal, high-level, or the submerged deeper potential aquifer source. Regardless, they still look at the whole aquifer system as having only 38 MGD sustainable yield. It is not a perfect system, and there are a lot of details they may not be aware of. They are trying to use the latest and best information possible to come up with their numbers, and those are the parameters that we basically need to fit within.

Mr. Hirakami asked about non-potable water. There seems to be a lot of infrastructure for it being put in along the widening of the Queen Ka‘ahumanu Highway and wanted to know about the cost recovery, or who the customers would be for this because as far as he knew, most or all resorts have their own treatment systems and use non-potable for their water features and irrigation. There are 16- and 20-inch mains going in, which must be millions of dollars, and wondered who would be the customers and what the recovery would be from investing in non-potable water.

Chairperson Boswell stated that at this time, in the widening of Queen Ka‘ahumanu Highway, the Department of Transportation (DOT) did add a non-potable distribution line leaving the Kealakehe Parkway. They did not tie into the sewer treatment plant, but it starts at the Kealakehe Parkway and ends at Kohanaiki. They were the end user of that water. The DOT is also looking for other business partners upstream to try and share with. Up in Kaloko and down at the Old Airport Park is for irrigation purposes. The County has a difficult task ahead of it, completing that last segment and actually producing the water. What they have is R2 water, and R2 versus R1 is quite a bit of a difference. For Kohanaiki, R2 is not as usable as R1. They produce their own R1 from their wastewater treatment plant, but it is not of sufficient volume to overcome any of their major irrigation needs. It is currently evolving, and they are working with the Department of Environmental Management to see how to make that move forward.

The Manager-Chief Engineer thanked Chairperson Boswell for that information. It is a very complicated question. He shared the Department’s position, which is included in the Summary and Recommendations from the WUDP overall report, which is to use the highest quality water for the highest purpose--consumption and domestic use. If there are opportunities to use lower quality water for non-consumptive uses, we would like to support that. We do not have the resources to pay for that kind of infrastructure or operate and maintain those systems, but we do support it because it would relieve the burden to provide potable water for non-consumptive uses. His understanding is that the County is also struggling with how far they will go with the Kealakehe wastewater treatment plant and how much they want to invest in taking it to R1. Part of it is the cost of infrastructure and then setting up a rate structure and establishing who the customers will be. It is a very complex, very expensive issue.

Mr. De Luz made some comments more in line for strategic planning. One of the things that may need to be looked at in future rate studies is understanding the impact of conservation that will hopefully equalize or diminish pumping. Going forward in the education process may give the rate payers a better understanding of how the operating costs come into play for the delivery of water. Secondly, in regard to capacity and understanding where the development will potentially occur, it may require looking at quasi- public/private partnerships for development of resources, specifically experimental or exploratory drilling. For example, if a major developer is looking to expand, technically, the water drilling permits have to go through the State; but how would that tie in to the County for its distribution and capacity and would there need to be some type of additional fee. For example, if a development is going for 500 units over the 30-year period and within the context of that development, this potential 500 additional water units within that geographic is possible, would there be an opportunity to look at that. There is the methodology in how to increase the availability now, but it does not necessarily address the issue as far as infrastructure. This just goes to finding the ability to have water to distribute. The distribution issue becomes much more complex, similar to the sewer issue, because of pipelines, storage, etc. If you can identify a good water source, it is with the CWRM as far as where it is developed because in his understanding, there is no comprehensive State study to give a clear picture of where things are. If not for private developers, a lot of this development would not have gotten done. The question is complicated because it involves capital improvement projects. He mentioned work done by Mr. Don Thomas [University of Hawai‘i] and how to figure out a comprehensive opportunity on the Big Island for shared development and

exploration money. This is all ten to thirty years into the future, but he thought education is the start of that conversation that there is not necessarily an economic correlation between pumping more water and having rates stay stagnant, as opposed to it potentially increasing because of conservation. These are issues developers deal with and have to articulate in their operating costs. Perhaps some of a developer's methodology could be incorporated into future water rate studies.

The Manager-Chief Engineer thanked Mr. De Luz for his input and agreed, although it is a bit beyond the scope of this WUDP, this is more of a planning document to tie in land use and anticipated water needs to make sure we are not going to overstress the aquifer. Internally, we are supposed to take that information from this plan and come up with financial strategies moving forward. He agreed that there are potential partnerships, not only with private entities, but he is trying to see if there is an opportunity to have partnership with the Federal government and is continually working with other utilities in trying to get the message to our Congressional delegation that additional Federal investment is required in the nation's infrastructure. The water utilities across the nation are facing similar challenges because rates are typically geared toward operations and maintenance rather than system expansion and the rising costs of system repair and replacement.

He continued with the source infrastructure program or strategies to meet anticipated demands. In the 1970's there used to be an entity at the State called DOWALD (Division of Water and Land Development). They would actually use State monies to construct water resource infrastructure. Back then, the State actually developed sources for water. That has not happened in a long time. That program developed the Kahaluʻu Shaft; however, there have been challenges with that source. It was originally designed to be a 10-MGD source but is now kept 6 MGD, or ideally, under 4 MGD. Because the Kahaluʻu Shaft is located closer makai, the service tank is at about 600-foot elevation. A lot of the infrastructure in North Kona was designed and built, envisioning that as the primary source. All of the large infrastructure such as pipelines and storage tanks are makai. Back then, water was boosted up mauka to meet the needs in those regions. Now there is all of this big infrastructure makai side. What happened next is it was discovered that there is a better source up mauka, but all of the big infrastructure was makai. That required reinvesting and putting large infrastructure up mauka and instead of boosting up, we now have to break pressure as it comes down the hill. It is a total reversal of where the primary source in the region is going to come from. He pointed out the graphic with the blue circles which depict where the pods of development, or demand, are going to be. In the middle is a blue band to the right of the purple dashed line, which is where we are going to try and develop new high-level sources. The Department has to shift strategies and start developing infrastructure that is going to allow water from the new sources to go to where it needs to. Some of the CIP projects are closely related to that strategy--the Waiʻaha Transmission project, the Mauka-Makai Transmission Corridor, and the Palani Transmission Waterline project.

Mr. Sugai asked about the water quality aspects such as the basal aquifer, the mixing layer, and the mixing boundaries, because it seems like salinity in some of the makai wells is getting higher. There is sustainable yield, but the water quality seems not as good out of some of these wells. He asked if that was because of more mixing happening from overdraw.

The Manager-Chief Engineer replied that it is all tied into the sustainable yield. That is why the Kahaluʻu Shaft cannot be pumped at 10 MGD because the chlorides are higher than preferred. We are still meeting the Safe Drinking Water Act requirements; but from the aesthetic standpoint, it is not ideal, nor is it ideal for the health of the aquifer. If you are pumping at a rate where the chlorides keep climbing, that is not good for the aquifer. What you are doing is that freshwater lens is sitting on sea water and there is a transition zone between fresh and sea water which is saltier. It is not as salty as sea water, but it is saltier than the fresh water. If you pump too much, you are bringing that transition zone further up; and if you keep doing that, it is not good for the aquifer in the long term. Basically,

you want recharge to overcome your pumping so that your fresh water lens stays fresh, which is part of the reason why our source development strategy is not to do more well development in the basal lens. New wells are going to be in the high-level source.

Mr. Sugai asked if those sources are like perched aquifers, not in the basal lens.

The Manager-Chief Engineer replied that was correct. Something is holding that higher level water up, and that is where we are drawing from. That water does not have influence from chlorides. They need to be monitored to see how quickly they are recharged. The Department monitors the impacts of its pumpage by using static water level, drawdown, and recovery to make sure it is not overdrawn. This is part of the evaluation and is in the summary and recommendations from this WUDP. The strategies for source development, monitoring, and CIP projects are all products of this plan. Although it has been paused since 2017, based on updated information, this graphic is basically going to look the same. That green line may move a little bit and the pink line will probably shift five years into the future. The bottom line is that under all this projected water demand, even based on population growth, we are not quite there at the 90% sustainable yield. We are doing okay as far as land use and projected water demand as it relates to the sustainable yield of the aquifer system. The message from this is that we expect to see, 20-plus years down the road, that it still looks okay as far as maintaining the health of the aquifer. Part of that message includes strategies moving forward, which is basically this graphic. We are only going to develop high-level or mid-level sources south of Palani junction because they are not seen directly tied to the basal lens. It is separated from basal by some geological non-permeable layers, basically like a layer cake, where there are a couple of permeable layers with the fresh water in between and the basal lens is on top of that. The concerns that were initiated by the National Park Service was the impact to the anchialine ponds. That basal aquifer is directly tied to that, whereas the high-level aquifer is not so much. It may be indirectly from overflow or seepage or may be even less so by the confined aquifer underneath. There was an additional study done this year by the United States Geological Survey (USGS) that modeled impacts at the National Park from different pumping rates within the basal lens, and it did show that if you pump from the basal lens, there is going to be an impact to the anchialine ponds or at the park itself. This was already assumed in this study, which is why it was agreed not to develop any new sources in the basal lens and stick with well development up mauka. Even with the various updates and the newer USGS hydraulic model, basically our summary and recommendations from the 2017 Plan will stay pertinent and relevant.

He reviewed Chapter 7 - Summary and Recommendations of the WUDP. The guidelines are Public Trust Doctrine, maintaining water resources for the benefit of the people of the State should be wisely used and conserved--not wasted; the highest quality water for the highest beneficial use; and lower quality water for non-consumptive uses should be used whenever feasible; and shows specific recommendations within the aquifer system:

1. *New groundwater well sources in areas in the high level aquifer south of the Keahuolū Well*
2. *Continued studies in groundwater hydrology*, which is what we are investing.
3. *Water purveyors are encouraged to assist in the development of non-potable water resource enhancement*. We continue to do that with our letters to land use applicants to not use potable water for their irrigation needs. However, a lot of that is beyond our control on the large scale developments like the Kealakekua Wastewater Treatment Plant R1.
4. *Encouraged to participate in watershed partnerships*. We have been doing that continually; and as previously brought before the Board, we partnered with UHERO (University of Hawai‘i Economic Research Organization) and the Hawai‘i Community Foundation to get funding to assess and identify priority watersheds that, if we were to invest in, would provide a beneficial impact to the Department, the Board, and its customers. Three watersheds were identified as

priority, and the Board approved $100,000.00 in watershed protection funds for the upcoming fiscal year.

5. *State and County agencies are encouraged to develop and implement groundwater well protection initiatives and participate in SDWB (Safe Drinking Water Branch) Wellhead Protection Financial Assistance Program.* We have been participating for years in what the SDWB calls HISWAP (Hawai'i Source Water Assessment Program).
6. *HDWS will continue to work with 'Aha Moku.* Basically, this is consultation with the recognized party that is to be the liaison between the actual traditional and customary use practitioners in the region and informing us of possible impacts for our source development. That is something relatively new that we have recently started to implement with our newer well projects.

The Department has been in compliance with all six of these recommendations throughout the past, even prior to this 2017 report being finalized. He opened it up for questions from the Board.

Mr. Hirakami asked if there are any lessons to be learned from Oahu because their population is very large and their water demands are much more. He wondered how they can sustain all of that population on a smaller island with a smaller reserve. When they have a large main break and are losing millions of gallons a day, they do not seem that worried or concerned.

The Manager-Chief Engineer replied that we definitely lean on Oahu a lot of times because they are kind of the big fish in the aquarium. They have the most customers and more challenges because of their density. This Department and the other three water utilities have monthly conference calls to discuss various topics. What Oahu is able to do, because of their density, is all of their systems are interconnected. Even though they may have a break in a 42-inch water main, they have alternate sources that can bring water into the urban area. Basically, the sources are not in the highly dense areas. Water is actually being imported either from the east or the west. Even around the island, on the windward side, they can move water around. The challenge for Big Island is we do not have that density. There are 23 separate water systems and a lot of them are not interconnected and are stand-alone systems, which is why redundancy is needed in each system. Every island has its unique challenges.

Mr. Hirakami asked if it would it be a strategy to interconnect at least the Keauhou lines so they are interconnected and not separate well heads.

The Manager-Chief Engineer replied that the North and South Kona systems are currently interconnected but only with an 8-inch water main. There is only so much that can be pushed north or south. Essentially, they are separate systems. Typically, that valve is closed. It is the topography and the cost to interconnect systems that is not feasible, including taking water over Saddle Road. That has come up several times; but if people understood the capital cost for that, it is really not an option.

Mr. Ney asked, if we are moving the well sources up mauka, how is that in terms of energy consumption and cost if we are having to pull up from a deeper source rather than using booster pumps to pump up from a lower source. He asked if the Department is familiar with Waiki'i Ranch wells which are very deep. Perhaps there may be some knowledge to glean from them.

The Manager-Chief Engineer replied that it is expensive to pump water high. That is why we try to balance it with higher-efficiency motors, but there is always going to be efficiency loss. There are also losses when you boost water. Generally speaking, boosters can be more efficient and you are only boosting what you need. It may be slightly more cost effective to boost rather than to pump high and let it go back down the hill. A lot of times, we are not recouping the energy on the pressure

breakers. It is just energy expended. Waiki‘i Ranch pumps really high, but they have a lower volume.

He continued that the plan is to take the WUDP to County Council early August. One of the Councilmembers requested some information on this and we are going to coordinate with CWRM to have them do a presentation, which might set a good framework for the overall Water Plan for the State, at least describe that framework, and then we will describe our particular plan and where we are with that. Moving forward after that, the next step would be to have this WUDP adopted by County Council via Ordinance. After that happens, it goes back to CWRM for their formal adoption.

Mr. De Luz asked if the Board should include a letter of endorsement of this WUDP to the County and request that the County support in the development of further infrastructure from the perspective of general funding. Just having water availability is a very small part of it; but getting it where it needs to go is the same issue that Solid Waste has regarding its pipelines, pumps, etc. Perhaps this might be an opportunity for the Board to create a higher awareness in the County budgeting to start looking at this because there will need to be a larger funding source to assist in providing water.

The Manager-Chief Engineer stated that he would see more value in providing letters of support at the State and Federal levels rather than at the County level. The County is already kind of strapped as far as finances for CIP projects. Right now, at the Federal level, there is a high level of awareness on water infrastructure, which is more focused on lead service lines at this point. He would like to have that awareness include other infrastructure components that need reinvesting, from source all the way through distribution. Every year, we will continue to try to make our plea at the State level.

Mr. Sugai’s concern was that if the County Council money were involved, it may end up being under their purview instead of being semi-independent.

The Manager-Chief Engineer thought that was a good point.

Mr. De Luz stated that the County needs to know that they have the responsibility in floating bonds, and they have more aptitude to provide the tax base to help. He understood the Manager-Chief Engineer’s point but has a strong intuition that the County does not fully take responsibility for the expansion of a system. Our methodology or social fiber is that in our government, we believe we should help everyone and not just those we can. We have to figure out how to equitably spread this funding. The Department would not have the ability to do it and he wants the County to appreciate that their mindset has to be a higher obligation to make these types of financial considerations available. The Department should not give up any unilateral authority for that, but there should be access to public funding that specifically brings this into play. He added that he has a feeling the CDPs (community development plans) will make this possibly a requirement and then it becomes a higher level. If that conversation is not had and it is thrown back on DWS, the cost to provide water will be ten times the amount it is now.

The Manager-Chief Engineer stated that each year, the Department has the opportunity to discuss with the County Finance Department, the ability or opportunities for assistance and put DWS projects in for General Obligation Bond consideration. We just have not done that in a while because the State Revolving Fund program has been easier to manage and the rates with that program have been very attractive. Turning it back to the WUDP, he asked if there were any further questions on the Plan and/or summary and recommendations.

There were no further questions. The Board thanked him for the very informative presentation.

The Manager-Chief Engineer noted now that there is a full Water Board and there is a senior member from the Kona side, Chairperson Boswell, and a freshman, Mr. Bell, he thought it would be a good time to inform the Board of the status of the WUDP, especially since it is about ready to go to the next step, before Council. He asked if Mr. Nishimura or Mr. Fukumoto had anything else to share.

Mr. Nishimura stated that it has been a long road but it has been a good journey and a good experience for everyone in working with current and past management. This plan is similar to some other counties in their approach. Initially, there was some rejection on its conservatism, but he thinks the Big Island did the right thing in making sure that it projected the majority; and as can be seen, the majority of the island is in good shape. It is something to be aware of and is a benefit in itself. He thanked the Board and the Department for their support through this.

Mr. Fukumoto thanked the Board and the Department for their time in developing this Plan.

(The presentation ended at 11:27 a.m. and Messrs. Nishimura and Fukumoto left the meeting.)

B. **MONTHLY PROGRESS REPORT**:

Chairperson Boswell complimented the Department on highlighting active areas on the progress report. It makes it easier to note the changes.

Mr. Inaba pointed out one project, the Wai‘aha Well No. 2 Development - Phase 1. The target was to get this out to bid in July, but the timing did not quite work out. It is looking like it will be on the August meeting for award. That will be the second well on the existing Wai‘aha site.

Chairperson Boswell asked if this is for drilling and outfitting.

Mr. Inaba replied it is for drilling, casing, and testing.

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

No questions.

D. **MANAGER-CHIEF ENGINEER’S REPORT:**

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

1. North Kona Wells - the Deputy provided a status of the wells. For this month, there are ten sources online or available to use. Four of them are offline. The offline wells are: Kalaoa which was scheduled for a test start-up this week, but there was an issue with one of the electrical components. That needs to be resolved first and come back with an updated schedule. For Palani Well, the pump and motor are expected on island sometime this month and will be installed thereafter. Wai‘aha is on litigative hold. For Makalei Well, DWS’ engineering staff is scheduling meetings with the developer to get a better idea on their timeframe for that repair. He thanked staff and Operations in Kona who continue to adjust the system, as needed, to meet water needs.

2. COVID-19 Update - the Manager-Chief Engineer reported that starting June 1, the Department did away with appointment only, in-person services and there is no longer a need for an appointment to come into DWS' offices. It seems to be working very well. What probably happened during this transition period is people learned how to communicate with the Department without having to physically come to the offices. On June 1, the Department also reinitiated the water shut-off procedures as well as late fees. One more communication was added to that process to give one more advance warning before going down the path towards shut-off. The Department is also promoting the other financial resources available, such as the County's emergency rental assistance program. He also reported that due to staff's diligence, the Department continues to be COVID free.

   Mr. De Luz had a question regarding water shut-offs because one of the challenges is managing customers equitably. He asked if there could be a consideration where the suspended amount in default could be characterized and moved out of receivables into a doubtful account; and if the customer maintains their current water bills with an agreed-to payment structure, similar to what HELCO is attempting to do, the suspended amount could be shifted from Accounts Receivables into a continued liability. He wondered if it would impact the Balance Sheet. If it is a feasible business decision, there might be a social opportunity to figure something out to help those having tremendous financial strains.

   Mr. Ney asked about debt servicing on expenditures, about 10%, in regard to growing the system, having more availability, and how to look at these numbers to make logical decisions on the direction to take things. He also asked if there is a better breakdown on contributions in aid of construction (CIAC).

   Ms. Gray replied that she could provide more detail to the Board.

   Mr. Ney indicated that he would like to have a better understanding of the accounts receivable/accounts payable cash flow of the Department. Just looking at the numbers every month does not give him a good idea of how money comes in and goes out and how healthy of a financial statement this is. He would like to have a one-on-one meeting with Ms. Gray to gain a better understanding of how the numbers work every month.

   The Manager-Chief Engineer stated those are good points and thinks Ms. Gray is open to anyone contacting her directly with specific questions. Going back to Mr. De Luz's comments, he stressed that shut-offs are still a last resort. The Department's Collections Clerk strives to negotiate some sort of payment plan to keep customers online. He asked if Ms. Gray could explain where this information is tracked in the Financials Statements.

   Ms. Gray stated that for the collections process, there are aged receivables which are reported monthly that are greater than 90 days. Now that the normal process for shut-off is being resumed, the hope is that people will get back into a normal payment process and hopefully take advantage of the rental or utility assistance that is out there and that the receivables will improve in the future.

   Mr. Ney stated that he was interested in what the cash on hand position is and the interest on long-term debt, in particular, when loans mature and the kind of the amortization and time they are spanned over. It would give him a better understanding of the debt servicing and where we stand.

   Ms. Gray replied that she could provide that information.

Mr. Hirakami asked if Ms. Gray would be able to provide, each quarter, the age of the receivables; for example, if they are 30, 60, 90, or 120 days or more so we know potentially how much will go into the bad debt account like Mr. De Luz is talking about.

The Manager-Chief Engineer offered for the Board to feel free to email him with any requests on things they might want to see regarding the Financial Report, and they would be taken into consideration for upcoming reports. Basically, this should be the thermometer for the Board to have an understanding of the Department's financial situation.

3. 2021 Keiki Water Conservation Poster Contest - the Deputy announced that the Department was able to complete a 2021 Keiki Water Conservation Poster Contest. This is the third year putting it out. It was a dedicated effort by staff, primarily Mr. Jason Armstrong, who helped with the coordination with the schools and teachers and then collecting entries. This was done during COVID-19 when students were learning from home. Almost 100 entries were received from across the island from about ten public and private schools. There will be a press release this week announcing the winners and the runners up from Kindergarten through fifth grade. He shared his screen to show some of the winning entries. The theme for this year was "Do Your Part…Be Water Smart." This is the Department's continued outreach/education efforts to the youth of the island to treat our drinking water as a finite resource and not waste it but do our part to conserve. The thanked the Board for its support in continuing this in the future.

   Mr. Ney encouraged any further engagement with the community. This is a great thing the Department is doing. It sometimes seems like the community members may want to have more interface with the Department and any way to reach with public relations is a good thing.

E. **EXECUTIVE SESSION REGARDING CIVIL NO. 3CCV-20-0000132**:

The Board anticipates convening an executive meeting, closed to the public, for the purpose of consulting with the board's attorney on questions and issues pertaining to the board's powers, duties, privileges, immunities and liabilities relative to Civil No. 3CCV-20-0000132, as authorized by Hawai'i Revised Statutes ("HRS"), Sections 92-4 and 92-5(a)(4). A two-thirds vote of the members present, pursuant to HRS Section 92-4, is necessary to hold an executive meeting, provided that the affirmative vote constitutes a majority of the board.

ACTION: Mr. Ney moved to enter Executive Session; seconded by Mr. De Luz and carried unanimously by roll call vote (Ayes: 9 – Mr. Bell, Mr. De Luz, Mr. Hirakami, Ms. Howard, Ms. Hugo, Mr. Ney, Mr. Scicchitano, Mr. Sugai, and Chairperson Boswell.)

(Executive Session began at 11:47 a.m. and ended at 11:51 a.m.)

F. **CHAIRPERSON'S REPORT:**

Chairperson Boswell thanked everyone for their contributions today. It was a very robust meeting. He thanked Mr. Ney for looking out for the right interests of the Department and encouraged Board Members to discuss their questions and concerns with Ms. Gray. She is certainly a wealth of information, as are everyone on this administrative staff. It is great working with everyone. In the presentation today, the Department is staying vigilant in making sure we are on the right position with the State and other counties. It is of the utmost importance as there is so much developing on water right now. He looks forward to the next year and the discoveries that are coming up.

8) ANNOUNCEMENTS:

1. **Next Meeting:** - July 27, 2021, 10:00 a.m., via Web Conferencing

9) ADJOURNMENT

ACTION: Ms. Howard moved to adjourn the meeting; seconded by Mr. De Luz and carried unanimously by roll call vote (Ayes: 9 – Mr. Bell, Mr. De Luz, Mr. Hirakami, Ms. Howard, Ms. Hugo, Mr. Ney, Mr. Scicchitano, Mr. Sugai, and Chairperson Boswell.)

(Meeting adjourned at 11:55 a.m.)

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Recording Secretary

APPROVED BY WATER BOARD
JULY 27, 2021