MINUTES

DEPARTMENT OF WATER SUPPLY
COUNTY OF HAWAIʻI
WATER BOARD SPECIAL MEETING

May 7, 2018

Hilo Operations Conference Room, 889 Leilani Street, Hilo, HI

MEMBERS PRESENT:	Mr. Craig Takamine, Chairperson Mr. William Boswell, Jr., Vice-Chairperson Mr. Bryant Balog Mr. Nestorio Domingo Mr. Leningrad Elarionoff Mr. Eric Scicchitano Mr. Kenneth Sugai Mr. Keith K. Okamoto, Manager-Chief Engineer, Department of Water Supply (ex-officio member)
ABSENT:	Ms. Kanoe Wilson, Water Board Member Director, Planning Department (ex-officio member) Director, Department of Public Works (ex-officio member)
OTHERS PRESENT:	Ms. Jessica Yeh, Deputy Corporation Counsel Mr. Jeff Zimpfer, National Park Service
	Department of Water Supply Staff
	Mr. Kawika Uyehara, Deputy Mr. Kurt Inaba, Engineering Division Head Mr. Richard Sumada, Waterworks Controller Mr. Daryl Ikeda, Chief of Operations Mr. Clyde Young, Operations Division Mr. Eric Takamoto, Operations Division Mr. Warren Ching, Energy Management Analyst Ms. Kaiulani Matsumoto (10:50 a.m.)

1) CALL TO ORDER – Chairperson Takamine called the meeting to order at 10:00 a.m. and introduced the newest member of the Water Board, Mr. Kenneth Sugai. He asked Mr. Sugai if he would like to say a few words about his background. Mr. Sugai stated he was born and raised in Kona, originally from Keauhou, but now lives in Nāpoʻopoʻo. His wife is from Kauai. He has a plant nursery background and has his own landscape company, doing irrigation and a lot of maintenance. His Father was a macadamia nut farmer. He added he is committed to making sure of the wise use of water and sustainability. Chairperson Takamine thanked him for serving and it is good to have someone on the Board in agriculture.

2) STATEMENTS FROM THE PUBLIC – none

3) APPROVAL OF MINUTES – 1) March 27, 2018, Public Hearing on the Fiscal Year 2019 Operating Budget and 5-Year Capital Improvements Budget for the Fiscal Years 2019-2023
2) March 27, 2018, Public Hearing on Power Cost Charge
3) March 27, 2018, Regular Water Board Meeting

ACTION: Mr. Balog moved for approval of the Minutes of three meetings listed; seconded by Mr. Boswell and carried unanimously by voice vote.

4) APPROVAL OF ADDENDUM AND/OR SUPPLEMENTAL AGENDA

Chairperson Takamine called for a Motion to amend the agenda to include the East Rift Zone Update as part of the Manager-Chief Engineer's report.

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

5) **DEPARTMENT OF WATER SUPPLY PROPOSED OPERATING AND 5-YEAR CAPITAL IMPROVEMENT PROJECTS (C.I.P.) BUDGETS FOR FISCAL YEAR 2019:**

The Department's Fiscal Year 2019 Operating Budget, totaling $53,864,000, and 5-Year C.I.P. Budget for Fiscal Years 2019-2023, totaling $96,200,000, have been distributed for the Board's review. The Board may change either Budget, or adopt them as presented over two readings.

The Manager-Chief Engineer recommended that the Water Board approve the Department's Fiscal Year 2019 Operating Budget and 5-year C.I.P. Budget for Fiscal Years 2019-2023 on this second of two readings.

ACTION: Mr. Boswell moved for approval of the recommendation; seconded by Mr. Sugai and carried unanimously by voice vote.

6) PUNA:

A. **JOB NO. 2016-1054, ʻŌLAʻA #6 DEEPWELL REPAIR:**

The contractor, Derrick's Well Drilling & Pump Services, LLC, has requested a contract time extension of 216 calendar days (see attached request letter from the contractor). The Department requested that the motor, originally intended for this well repair, be used at a higher priority well repair (Hualālai Deepwell Repair). This directive caused a delay in the completion of the work, as a replacement motor had to be procured.

1st time extension – 216 calendar days

Staff has reviewed the request and is recommending approval of the 216 calendar days, per the Hawaiʻi Administrative Rules §3-125-18.

The Manager-Chief Engineer recommended that the Board approve a contract time extension of 216 calendar days to Derrick's Well Drilling & Pump Services, LLC, for JOB NO. 2016-1054, ʻŌLAʻA #6 DEEPWELL REPAIR. If approved, the contract completion date will be revised from September 29, 2017, to May 3, 2018.

MOTION: Mr. Boswell moved for approval of the recommendation; seconded by Mr. Scicchitano.

The Manager-Chief Engineer stated that this is a justifiable extension because the motor designated for this well repair was diverted to a higher priority well, Hualālai Well, during the events of 2017. Subsequently, the contractor had to replace the equipment for this project.

Mr. Young added that the contractor had to have the original Hualālai Well motor rebuilt, which took 216 days.

ACTION: Motion was carried unanimously by voice vote.

B. **JOB NO. 2017-1066, KEAU'OHANA DEEPWELL B REPAIR:**

Bids for this project were opened on April 19, 2018, at 1:30 p.m., and the following are the bid results:

Bidder	Bid Amount
Derrick's Well Drilling and Pump Services, LLC	$833,713.00
Beylik Drilling & Pump Service, Inc.	$999,000.00

Project Costs:

1) Low Bidder (Derrick's Well Drilling & Pump Services, LLC)	$833,713.00
2) Contingencies (9.9%)	$ 83,287.00
Total Cost:	**$917,000.00**

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

Funding for this project will be from DWS's CIP Budget under Deepwell Pump Replacement. The contractor will have 180 calendar days to complete this project. The Engineering estimate for this project was $728,000.00.

The Manager-Chief Engineer recommended that the Board award the contract for JOB NO. 2017-1066, KEAU'OHANA DEEPWELL B REPAIR, to the lowest responsible bidder, Derrick's Well Drilling & Pump Service, LLC, for their bid amount of $833,713.00, plus $83,287.00 for contingencies, for a total contract amount of $917,000.00. 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. Boswell moved for approval of the recommendation; seconded by Mr. Balog.

The Manager-Chief Engineer reported that this is one of two wells servicing the Kalapana area. One is primary and the second is back-up.

Mr. Boswell asked what the depth of the well is.

Mr. Takamoto replied it is about 800 feet deep.

Mr. Boswell asked what caused the failure, whether it was time and wear.

Mr. Takamoto replied that was correct.

Mr. Boswell asked if the recommendations the Department is moving forward with for the Kona deepwells are being used on this well.

Mr. Takamoto replied they are.

Mr. Balog asked about the .1 percent difference in the contingency.

Mr. Takamoto replied it was to make the contract price a round number.

Mr. Balog asked how current events affect where this well is located.

The Manager-Chief Engineer replied this contract is some time away from Notice to Proceed (NTP). Typically, when award is made at a Water Board meeting, it is some time before the contact is fully executed and NTP issued, about a month and a half to two months. If things ramp up in the area with the lava flow, the Department may be able to actually push the NTP further out so the contractor is not starting the clock when they cannot mobilize to the site anyway.

Mr. Elarionoff asked for a short recess to clarify something with his agenda.

(RECESS: 10:11 a.m. to 10:15 a.m.)

Continuing with discussion on Item 6(B), Mr. Boswell asked about the seismic activity in the area and whether it may affect the plumbness of the casing in the well. He asked if there was any history on it and if it shifted over time or stayed static. He wondered if it would be checked again for plumbness and if that is a procedure that would have been done anyway.

Mr. Takamoto replied that for each new repair from now on, that will be used as a baseline for comparison in the future. In response to Mr. Boswell's question of whether that would include gyroscopic survey, he replied it does.

Mr. Domingo stated that this seems to be a fairly large contract and asked about the pump size, flow rate, and diameter of the hole.

Mr. Takamoto replied this is a 350 gpm pump, 850 feet of head, and a 12-inch casing, but the piping is smaller than that.

Mr. Domingo wondered about the comparison to the North Kona wells.

Mr. Takamoto replied it is not as deep.

The Manager-Chief Engineer stated that this is a line shaft well which means the motor is on the top. It means better accessibility to the motor but more complications in the pipe column going down because it has to have that line shaft and support bearings every so many feet.

Mr. Domingo stated that, in that case, it is very critical to have good alignment and minimize lateral motion because of the seismic activity in the area.

The Manager-Chief Engineer replied that is correct.

Chairperson Takamine asked if, in the future, the Department would be able to provide the Board with a historical perspective on the repairs.

The Manager-Chief Engineer agreed that could be provided.

ACTION: Motion was carried unanimously by voice vote.

7) NORTH KONA:

A. **JOB NO. 2017-1077 (REBID), HUALĀLAI DEEPWELL REPAIR:**

Bids for this project were opened on April 13, 2018, at 2:00 p.m., and following are the bid results:

Bidder	Bid Amount
Beylik Drilling & Pump Service, Inc.	$696,080.00
Derrick's Well Drilling & Pump Services, LLC	$700,000.00

Project Costs:

1) Low Bidder (Beylik Drilling & Pump Service, Inc.)	$696,080.00
2) Contingencies (9.9%)	69,520.00
Total Cost:	**$765,600.00**

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

Funding for this project will be from DWS's CIP Budget under Deepwell Pump Replacement. The contractor will have 150 calendar days to complete this project. The Engineering estimate for this project was $730,000.00.

The Manager-Chief Engineer recommended that the Board award the contract for JOB NO. 2017-1077 (REBID), HUALĀLAI DEEPWELL REPAIR, to the lowest responsible bidder, Beylik Drilling & Pump Service, Inc., for their bid amount of $696,080.00, plus $69,520.00 for contingencies, for a total contract amount of $765,600.00. 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. Domingo moved for approval of the recommendation; seconded by Mr. Boswell.

The Manager-Chief Engineer stated this is part of the Department's efforts to get the remaining wells in Kona up and running. As the Board is aware, Hualālai has been quite a challenge for the Department. He asked Mr. Takamoto to expand on what the Department has been implementing and what has been learned, but this one should be a smaller capacity well than what it originally was. It is all part of what was learned while going through the process last year in hopes of better reliability and redundancy.

Mr. Takamoto stated this is a 700 gpm slimline pump and motor set with the temperature monitoring.

Chairperson Takamine asked what the thought process was behind this repair and the safeguards being taken to prevent failures in the future.

The Manager-Chief Engineer stated that the Department's high-level wells were individual with various characteristics, whether it be gpm, pump capacity, motor horsepower, voltage requirements, etc. Some were 2,300, some were 4,160, some were 4,880. They are all at different depths and cannot be deviated from. What the Department can do better is standardization of the capacity of the pumps and the horsepower requirements of the motors. If all were 2,300, it would help with redundancy, even if a bit of pump efficiency has to be sacrificed. It would give better ability to deal with downed wells and have more interchangeability. The Department has had a long history with private/public partnerships with developers. Developers typically put in what is needed for their development. This Department can come and contribute for oversizing, but it did not get into details about horsepower, voltage, and pump capacity. Either the tank size or the transmission size or pump capacity were bumped up in order to leverage private dollars to help meet the needs of the community. Moving forward, agreements with developers will also incorporate the things that were learned over the past year. Now it will get down to the details such as minimum casing diameter, better standardization for pump capacity, motor horsepower requirements, voltage requirements, etc.

Mr. Elarionoff asked what originally caused the failures. The fact that a whole bunch of wells failed in approximately the same time period must suggest that there was a common factor involved.

The Manager-Chief Engineer replied that is still the million-dollar question because not all failures were the result of the same thing. There is no known exact cause of the failures; however, the Department is trying to eliminate the factors that it can control such as motor heat by controlling the amount of flow going past the motor so there is enough flow volume to cool the motor down. Things out of the Department's control may be power quality; therefore, the Department is incorporating better power quality monitors so there can be advanced notice if there is unclean power. There will be protective mechanisms to shut off the motor so it does not burn and it will also give some data on how long that unclean power was affecting it. Because of the multitude of factors that could have caused the failures, the Department is trying to make sure to track, monitor, and mitigate the problems. It is not something the Department wants to repeat.

Chairperson Takamine asked if there was anything from the current Brown and Caldwell study that could be used on some of these repairs moving forward.

Mr. Inaba stated that this is like a first complete package that was put together with Brown and Caldwell's recommendations.

Mr. Boswell stated that it will also take purchasing new equipment in order to start changing what was previously in the hole. You cannot look ahead to what is down in the hole and fix it because you would not see it coming. The monitoring was not there before to be more precise on what went wrong. In answer to Mr. Elarionoff's question about the common factor, he stated there never was one. Since the first set of reports came out from the wells and their factors, there has never been a common factor.

The Manager-Chief Engineer stated that some of that, again, was suspicion; but some of it was that the pump diameter was so close to the diameter of the casing where it could fit and it could run, but maybe was not allowing proper cooling of the motor. That is the reason why the Department is now going with smaller, skinnier units to get better cooling. The strategy moving forward is to try to

address what could be the cause of the failures as well as getting better interchangeability so there are spare pumps and motors not limited to just one location so the repair times will be shorter.

Mr. Domingo stated that was a very interesting engineering fact. The diameter is restricting the flow of the fluid around the motor, and it cannot dissipate the heat very well. That is a very good point.

He agreed with Mr. Domingo's comment that the size of the casing is very critical and that is why, moving forward with new development agreements, the Department will not allow just putting in the smallest size casing for a particular well. It will be 18- or 20-inch.

Mr. Domingo noticed the very small difference in the bid prices.

The Manager-Chief Engineer stated that there are only two contractors and as far as the Department is concerned, they are equally proficient to do the work. Unless there is a good reason otherwise, the Department has to go with the lowest responsible bidder; but agreed this one was really close.

Mr. Boswell noted that this was a rebid so it is not like it was a first-time shot at it.

ACTION: Motion was carried unanimously by voice vote.

B. **JOB NO. 2018-1082, HONOKŌHAU DEEPWELL REPAIR:**

Bids for this project were opened on April 13, 2018, at 2:30 p.m., and following are the bid results:

Bidder	Bid Amount
Beylik Drilling & Pump Service, Inc.	$119,000.00
Derrick's Well Drilling & Pump Services, LLC	$126,600.00

Project Costs:

1) Low Bidder (Beylik Drilling & Pump Service, Inc.)	$ 119,000.00
2) Contingencies (10.0%)	11,900.00
Total Cost:	**$130,900.00**

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

Funding for this project will be from DWS's CIP Budget under Deepwell Pump Replacement. The contractor will have 90 calendar days to complete this project. The Engineering estimate for this project was $150,000.00.

The Manager-Chief Engineer recommended that the Board award the contract for JOB NO. 2018-1082, HONOKŌHAU DEEPWELL REPAIR, to the lowest responsible bidder, Beylik Drilling & Pump Service, Inc., for their bid amount of $119,000.00, plus $11,900.00 for contingencies, for a total contract amount of $130,900.00. 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. Boswell moved for approval of the recommendation; seconded by Mr. Balog.

The Manager-Chief Engineer stated this is similar to the previous item which is again to bring the remaining wells in Kona operational. The main reason for the large difference in cost is because this one will be utilizing a pump and motor that will be provided as part of the Department's spare pump and motor procurement. This will primarily for the contractor to install.

Mr. Boswell asked if it was something that was stored or something that was procured.

The Manager-Chief Engineer replied it was procured and is on its way.

Mr. Takamoto added it is scheduled for delivery the end of this month.

In response to Mr. Boswell's question of who holds the warranty, the Manager-Chief Engineer stated it will be with the supplier of the procurement of the spare pump and motor.

Chairperson Takamine asked if there was any testing or third-party inspections done before that pump and motor was sent over from the mainland.

Mr. Takamoto replied that particular material bid has requirements for third-party engineer testing and fit-up of the pump and motor prior to them delivering it.

Chairperson Takamine asked if there is another third party that is going to conduct an inspection once it is received by this Department.

Mr. Takamoto replied that at that point, it is for the contractor of this contract to re-evaluate everything they commit to and make sure everything is in place before installing the equipment.

Mr. Boswell asked if the Department felt good about this cost install the equipment, and the Manager-Chief Engineer replied in the affirmative.

ACTION: Motion was carried unanimously by voice vote.

C. **NORTH KONA MID-ELEVATION SOURCE DEVELOPMENT – PHASE 1:**

The State Department of Land and Natural Resources has cased and tested a deep monitor well at the mid-elevation location (between Māmalahoa Highway and Queen Kaʻahumanu Highway) and results were favorable as to the possibility of the confined aquifer being a sustainable, high-quality potable source for the North Kona water system. It could be of great benefit to the North Kona water system should the mid-elevation confined aquifer be a viable source. The mid-elevation, high-quality water would be the primary source for the lower elevation areas for the system and the high-elevation, high-level wells could then be downsized or utilized as a back-up system. The proposed CIP project would be for Planning, Environmental Study, Well Construction Permit as outlined in the proposed Water Use and Development Plan Update, Site Selection, Exploratory Drilling including initial coring to analyze the geology, Pump Test, and Land Acquisition.

Land Acquisition will only occur if the pump test results are favorable and at which time the determination to move ahead with Phase 2 of the project will also be made.

The Manager-Chief Engineer recommended that the Board approve the proposed DWS CIP project. The rough estimate for the project including consultant fees and land acquisition is $2,000,000.00.

MOTION: Mr. Boswell moved for approval of the recommendation; seconded by Mr. Balog.

The Manager-Chief Engineer reported that this is of high interest to the Department because it could be a major finding if it is a resource that can be used to provide potable water for the region. It would be different from the basal source that was originally tapped for the region and the high-level wells that are currently being utilized. This is something that would not have to be pumped as high, and the Department is interested in getting more information on the possibility of this resource being available for use in the community. The Board is being asked for this funding because it was not in the prior Capital Improvement Projects budget. The Department would like to do coring with this project. Usually when an exploratory well is drilled, a rotary bit is used which grinds up the ground and brings it to the surface; but it really does not tell you what the geology is. For this project, the geology is important to know such as what is confining this aquifer top and bottom and in between as well. The Department still needs to find a location, get the permission of the land owner, and prepare the Environmental Assessment. For the contract, the sequence would be coring first.

Mr. Inaba stated that they can do drilling up to a certain point and then do the coring. The coring will have to go before they hit that layer.

The Manager-Chief Engineer added that in the past, the Department was just focused on where the water was. This coring method will be a lot more detailed and the hole is supposed to be quite straight (plumb). Currently, this is all preliminary so the Department needs to funding to get this information.

Mr. Boswell commented that as this process is gone through, it will be interesting in seeing how it will be looked at on an overall master plan because one hole/one source is not an answer. The possibilities of it are huge.

The Manager-Chief Engineer stated this decision was made based on the State having a successful project where they test pumped for 48 hours and it looked promising, meaning the volume, the amount of drawdown, and the recovery after they stopped pumping. The State is also conducting more observation well drilling. One will be done on this Department's site in Hina Lani. Once DWS's work begins, the information found from it will be provided to the State and other entities that would like to know.

Mr. Boswell asked if that meant the Commission on Water Resource Management (CWRM) and if it included the University of Hawai‘i.

The Manager-Chief Engineer replied it would be mainly CWRM.

Mr. Inaba added that it has to go through CWRM for permits.

Chairperson Takamine stated that from the Board's perspective, this should be looked at as a possible game changer. If this is a reliable source of water that can be tapped into, it can save on electrical costs, and the equipment should have a longer life because it would not be pumping as deep. This is something the Board should support.

Mr. Elarionoff asked about how a site will be found--if the Department would be looking for a geological feature.

The Manager-Chief Engineer replied it would be an actual physical location. The Department would have to negotiate with land owners and would want to drill somewhere that is hydrologically going to match into its system. The prudent approach is to drill the core, bring that out into an exploratory

phase, and ultimately a production well consisting of a tank, motor control center, etc. In response to Mr. Elarionoff's question of whether it would be a hit or miss, he replied it is the case sometimes; however, the information received from CWRM is being relied on, and the Department would want to stay fairly close to what is a known.

Mr. Inaba pointed out on a map where the State drilled two monitor wells. The well in Kealakehe was not successful, but this one was. You are looking at pumping 700 to 800 gpm with a 200-horsepower motor on top versus in a high-level well, a 400-horsepower motor down in the hole. It will probably have to be drilled as deep as a high-level well, but the fresh water comes up in that casing so it is like putting a straw into the fresh water and it comes up above the basal water. Even when this well was pumped, the head that was remaining and the drawdown was still higher than the basal lens so the assumption is that it is not sucking the water. It is just taking the water that is passing through and should not be causing any suction effect; therefore, the hope is not to be bringing in any chlorides.

The Manager-Chief Engineer added that by looking at the map, the band is in kind of in a north/south direction. That area and that ground elevation is where the Department wants to stay.

In response to Mr. Elarionoff's question of whether the drilling would be straight down or drilled into the side of the mountain, the Manager-Chief Engineer replied it would be straight down, or plumb.

Mr. Sugai asked if this was the first contained aquifer found.

The Manager-Chief Engineer replied that there was one on the Hilo side and that is another reason the Department wanted to get the geology in this Kona area because it is important to know how tight or what kind of formation the boundary is on the top and on the bottom. The Department is committed to not doing any more basal exploration and pumping. If this monitor well contained and water is extracted from it, the Department needs to be sure it is not drawing to where it would basically be sea water as it is below the transition zone.

Mr. Boswell commented that is what makes it interesting.

Mr. Inaba added that this is just the general area because of what is known. There could be areas farther south so the first step is to go with what is known. Right now, there is vacant land. If you look to the south, there may be less available land. It would be good to get in when there is available land. Even at the high level, there is not much room up there.

The Manager-Chief Engineer stated that the other factors are that a single land owner for that apua'a mauka/makai would make it easier because a transmission line can be brought through that singular owned land versus more than one.

Mr. Balog asked how much of the estimated cost is for the exploration part because it says $2 million as a whole for the project.

The Manager-Chief Engineer replied this is for the exploration part.

Mr. Inaba replied that, if successful, it includes the purchase of the land, easements, etc. The exploration will be about $1.5 million for drilling and coring.

Mr. Balog asked if that meant it would not include putting the actual pump in.

The Manager-Chief Engineer replied that was correct; but by that time, it is something that could be incorporated into the following year's CIP for the production well, which would include the tank, transmission line, etc.

Mr. Boswell mentioned the electricity. These sites are remote and do not currently have power to them.

Mr. Balog asked about how long it would take to go through this process.

The Manager-Chief Engineer replied about two years. Land acquisition is one of the most challenging parts. If a willing land owner partner is found, the Department typically goes in with a right-of-entry agreement because is there is no sense acquiring the property before test pumping. If it provides water, then the Department can negotiate subdivision and purchase.

Mr. Boswell commented that what you could do is increase the value of those land parcels north right now. There are some large land parcels in there that are undeveloped for sale where the monitoring well was located that he is aware of. They are long and reach up quite a way and they would have to put a road in. If someone buys those parcels, they are going to have to put in a road and that would be your transmission because you are going to have to traverse the mountain. Once the source is found, you can watch those land values increase. He added he knows somebody who is looking at the land.

The Manager-Chief Engineer reiterated that the first step is to see if this is viable.

Mr. Inaba stated that if the Department ends up purchasing a parcel and subdivides, it would not be a buildable lot. The appraisal would be based on what is called a subdivision for utility purposes. There are standards for appraisals.

Mr. Domingo asked about the task element. It looks like this may be accomplished by multiple terms.

The Manager-Chief Engineer explained that typically on something like this, the Department would hire a professional services consultant to help with the planning, environmental assessment, well construction permitting, etc. If this all succeeds in the next couple of years, the Department will include in its CIP budget for a different level of engineering such as design for the tank, including structural, soils, electrical, civil, mechanical engineering. It would be a large project at that point.

Mr. Sugai asked who owns the parcel for the exploratory well that was already drilled.

Mr. Inaba replied it was the was the State of Hawai‘i.

Mr. Sugai asked if it pans out, whether it is something the Department could acquire from the State because it is not like dealing with a private owner.

Mr. Inaba replied in this case, the well is strictly for monitoring so they made it clear it is their well and is required for their study in managing the aquifers.

Mr. Boswell did not think you could put a structure in that area as there are a lot of flood zones there.

The Manager-Chief Engineer stated that in the past, it has been found more efficient to deal with private land owners.

Mr. Domingo stated that, based on the results, this may or may not be put into service.

The Manager-Chief Engineer replied that was correct, although, the Department is hopeful that it can.

ACTION: Motion was carried unanimously by voice vote.

8) MISCELLANEOUS:

A. **WATER TREATMENT BID NO. 2018-09, FURNISHING LIQUID CHLORINE (ON AN AS-NEEDED BASIS):**

Bids were opened on April 12, 2018, at 2:00 p.m.; and following are the bid results:

		JCI Jones Chemicals, Inc.
Part	**FURNISH LIQUID CHLORINE**	
I.	Hilo and Kaʻū Districts: A. Hilo Harbor (130 cylinders per year) Cost per 150-lb. cylinder	$425.00
II.	Kohala and Kona Districts: A. Kawaihae Harbor (360 cylinders per year) Cost per 150-lb. cylinder	425.00
	Kawaihae Harbor (21 cylinders per year) Cost per 1,200-lb. cylinder	2,800.00

The Manager-Chief Engineer recommended that the Board award the contract for WATER TREATMENT BID NO. 2018-09, FURNISHING LIQUID CHLORINE (ON AN AS-NEEDED BASIS) to JCI Jones Chemicals, Inc., for Parts IA and IIA at the unit prices listed above, for the period from July 1, 2018, through June 30, 2020, and 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. Boswell moved for approval of the recommendation; seconded by Mr. Balog.

Mr. Balog asked if there were any other bidders.

Mr. Ikeda replied that JCI was the only bidder. The Department's normal supplier for chlorine did not want to continue bringing it in; and that is why the Department had to put out this separate bid. This company is from the mainland and will be shipping the product to Hilo and Kawaihae harbors. Now that the Department knows more or less how they are shipping it, it will now be making a separate contract, probably coming before the Board next month, for truckers to pick it up at the harbors and distribute for the Department.

The Manager-Chief Engineer stated that the Department utilizes chlorine throughout all of its systems for disinfection. The company that was bidding for many years was pretty much the only one bidding. They decided they were not going to be in the business of stocking chlorine any longer. Fortunately, JCI provided a bid because if the Department was not able to access the chlorine, it would have had a major impact on all of our systems.

Mr. Balog asked if it works out cheaper this way.

The Manager-Chief Engineer replied this is more expensive, but the alternative would have been to set up different types of chorine feed at each of the Department's sites, which is a totally different set up that what we have now.

ACTION: Motion was carried unanimously by voice vote.

B. **JOB NO. 2017-1061, POWER SYSTEM STUDY – AMENDMENT NO. 2:**

The consultant, Brown and Caldwell, has submitted a proposal to provide additional services required to address the assessment of the well failures as provided for in Amendment No. 1 that included electrical and power analysis for Hualālai, Honokōhau, Keauhoulu, and Keopu Deepwells. During the many discussions and analyses of the wells and supporting information, it was deemed that there are mechanical issues that should also be addressed to get a better idea of the failures. Also during the discussions, it was clear that the Department's goal is to obtain the most appropriate equipment given the occurrences in the past. The proposal, therefore, includes review and recommendations for well repair specifications for the high-level wells in Amendment No. 1 as well as a summary of recommendations (mechanical and electrical) for Wai'aha, Palani, and Kalaoa Wells. Finally, additional electrical engineering services for overdutied equipment that can no longer be replaced in kind for 11 sites that resulted from the original contract work.

Staff has reviewed the proposal and finds that the $311,052.00 is acceptable. If approved the revised contract amount will be:

Original Contract:	$ 600,000.00
Change Order No. 1:	$ 209,612.00
This Change Oder:	$ 311,052.00
Proposed Revised Contract:	$1,120,664.00

The Manager-Chief Engineer recommended that the Board approve the proposal for the amended scope of work for $311,052.00 for JOB NO. 2017-1061, POWER SYSTEM STUDY, and that either the Chairperson or the Vice-Chairperson be authorized to sign the contract change order subject to review as to form and legality by Corporation Counsel.

MOTION: Mr. Boswell moved for approval of the Motion; seconded by Mr. Sugai.

The Manager-Chief Engineer stated that this is to allow Brown and Caldwell to continue to assist the Department in its evaluation of the Kona sources and helping in updating specifications. Part of the original scope was to look at some of the electrical equipment, such as circuit breakers. The Department had some old equipment that needed replacement, and they will help the Department specify out that equipment.

Mr. Boswell stated this has caused the Department to rewrite its specifications on the breakers and electrical equipment.

Mr. Inaba added that they are providing the standard for future projects and will be providing a consultant services contract.

The Manager-Chief Engineer stated they have been very helpful and responsive.

Mr. Elarionoff reiterated that this goes back to his earlier question about a common cause. He pointed out Exhibit A, Scope of Work, Task 701, he asked who the "PIG" was.

Mr. Boswell noted that was short for the Permitted Interaction Group the Board had formed.

Mr. Elarionoff asked about where it says "Task Output" -- a one-hour presentation to Board Members and if that would be upcoming.

The Manager-Chief Engineer replied that is upcoming.

Mr. Inaba stated that the likely cause was more of causes in different situations they analyzed. Even with that, it was not something they could pinpoint and say it was the root cause. There could have been many contributing factors.

Mr. Elarionoff admitted this was way beyond his expertise but asked if staff felt this was worthwhile.

The Manager-Chief Engineer and Mr. Inaba replied yes. Mr. Inaba added that based on all of the likely causes, they have been giving the Department recommendations on how to best address those situations. It is not just taking care of one cause because there are so many different ones. They have given the best overall design to minimize the chances of failures occurring. But it is mechanical equipment; and like a vehicle, you are going to have failures so it is not like you can guarantee what is going to happen.

Mr. Elarionoff asked if that is what was reflected in the Financial Statements, Page FS4, second to the last paragraph.

Mr. Sumada replied it is. The Brown and Caldwell power system study is causing the account to be overspent.

Mr. Elarionoff stated that is why he had asked about whether it was worthwhile.

The Manager-Chief Engineer replied it is.

Chairperson Takamine stated that this was one of the things the Permitted Interaction Group found was needed was a third-party review of the overall system in North Kona and this a part of that.

ACTION: Motion was carried unanimously by voice vote.

C. **MAINTENANCE BID NO. 2018-05, REPAIR AND MAINTENANCE OF EMERGENCY BACK-UP GENERATOR SETS, DEPARTMENT OF WATER SUPPLY:**

Bids were opened on April 12, 2018, at 2:30 p.m., and following are the bid results:

Bidder	Bid Amount
Hawthorne Pacific Corp.	Non-Responsive
Power Generation Services, Inc.	$82,890.56

Project Costs:

Low Bidder (Power Generation Services, Inc.) $82,890.56

This maintenance agreement consists of furnishing all labor, materials, tools and equipment necessary to inspect, maintain, repair, and test the Department of Water Supply's twelve (12) emergency back-up generator sets for a two-year term, from July 1, 2018, to June 30, 2020.

Funding for this project will be from DWS's Operations Budget.

The Manager-Chief Engineer recommended that the Board award the contract for MAINTENANCE BID NO. 2018-05, REPAIR AND MAINTENANCE OF EMERGENCY BACK-UP GENERATOR SETS, DEPARTMENT OF WATER SUPPLY, to the lowest responsible bidder, Power Generation Services, Inc., for a total contract amount of $82,890.56. 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. Boswell moved for approval of the recommendation; seconded by Mr. Scicchitano.

Mr. Boswell asked about the locations of the generators, if they were at hospital sites.

Mr. Ching replied there are twelve total and they are at different deepwells for critical sites.

Mr. Boswell asked if this was part of a FEMA package.

The Manager-Chief Engineer replied they were. Mr. Ching has recently submitted another request for funding. Since the Kauai flooding, FEMA has opened up some funding for mitigative or recovery. Any time the opportunity is there for outside funding sources, the Department puts in the request. This is through the HIEMA agency.

Mr. Domingo stated it seemed like a smaller contract, pricewise.

Mr. Ching stated that twice a year, they go to a specific site; therefore, it would be four visits total per site over the two-year term.

Mr. Balog asked if this contract includes oil change, etc.

Mr. Ching replied it includes oil change, filter change, cleaning, start-up. They do an hourly test and take some data on it to make sure it is in good condition.

Mr. Boswell asked if an emergency situation were to arise, any additional support would be outside of the scope.

The Manager-Chief Engineer replied it is included.

ACTION: Motion was carried unanimously by voice vote.

D. **MONTHLY PROGRESS REPORT**:

Mr. Boswell asked about the Department's share in the MOU for the Queen Ka'ahumanu. There was a dollar amount released last week in the press.

The Manager-Chief Engineer stated that the Department was firm on its fair share beyond the funding provided on the original MOU. The contractor wanted some escalation charges; but through numerous discussions, the Department's commitment was worked out.

Mr. Elarionoff hoped he could be as sure that the project is finished.

Mr. Inaba stated that there is one more meter to be done and a cut and plug; but basically, the water system is live at this time.

Mr. Domingo asked about the Waiʻaha Well extraction.

The Manager-Chief Engineer stated the pump pipe column is out and they pulled out whatever they could.

Mr. Takamoto added that everything is out except the pump and motor and a few stray pieces of sounding tube and some banding. They did a second video last week, which staff is evaluating.

The Manager-Chief Engineer stated that there was an open hole below the cased hole and that is where the pump and motor are located. The hope is that there is enough water table above it so the well can still be usable. The second video will show if the casing is still good.

Mr. Boswell stated that sounded positive. He asked if there was any early indication on the casing.

Mr. Takamoto stated that the first video showed no damage to the casing.

The Manager-Chief Engineer stated that the general opinion is not to try and extract that pump and motor to avoid any damage to the casing. The well will be tested in accordance with the Department of Health and the Environmental Protection Agency, but there are other cases where there is a pump and/or motor down in the hole and have been fine. They are designed to be in drinkable water already. The main fear has been abated because it looks like the hole can be used again.

Mr. Domingo asked how much more economically feasible it would be if the well was abandoned and another well was drilled. He wondered if there was any environmental requirement against leaving the equipment out there.

The Manager-Chief Engineer stated there was nothing he was aware of but it will be evaluated. It would be costly to drill another hole, and the Department prefers to proceed with the option to reuse this hole.

Mr. Boswell asked if the Department is still proceeding with an additional site to increase the redundancy of the well site.

The Manager-Chief Engineer replied that is still going forward.

Mr. Sugai asked how big of an area would be below the casing.

The Manager-Chief Engineer replied it differs. It depends on the hydrogeologist and what they determine through the pump test. Sometimes the pump does not yield the amount that was originally thought. Some hydrogeologists have different theories. Some used to like putting a solid casing all the way down; and if that is the case, you have to drill an open hole because that is the only place where water is going to come up through the casing. Other hydrogeologists may put perforated casing below the solid casing where it allows water to come through the casing wall. In that situation, you would not need as much open hole below. He asked Mr. Takamoto how much open hole was in this Waiʻaha Well.

Mr. Takamoto replied it was about a couple hundred feet, but about nine feet was lost at the bottom of the open hole because of the pump and motor.

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

Mr. Elarionoff asked about the second page, second paragraph down related to consumption. At the end of March, consumption was at 6,907,181 thousands of gallons. He asked how that works when it mentions millions and now it shows thousands.

Mr. Sumada replied it just means to add another three zeros to the 6.9 number. Instead of 6.9 million, it should be $6.9 billion. The way we measure is in thousands of gallons.

Mr. Balog asked about long-term debt on the first page. It increased by $18 thousand due to increases in net pension liability and State Revolving Fund loans, but the two numbers shown by each of those items total about $20 thousand.

Mr. Sumada explained that there were other things going on, but these two were the biggest factors that caused the change in the account.

Mr. Balog stated it was a small amount, but he just thought he would inquire.

Mr. Sumada stated that the Department makes payments on loans which caused the balance to go down and also receives loan proceeds which makes the balance go up so over the course of the year, there is that activity that causes the balances to go up and down.

F. **MANAGER-CHIEF ENGINEER'S REPORT:**

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

1. North Kona Wells – the Manager-Chief Engineer reported that there are fourteen sources in the North Kona system. The Makalei Estates Well is ready to go but has not been put into the system yet because of some things that need to be finished up. This well will have corrosion control equipment on it and will be monitored from Waimea. In a pinch, the well could be placed on line, but still those things need to be cleared up first before running it full time. Three wells are still down: Wai'aha, Hualālai, and Honokōhau. The area is still under conservation notice.
2. Hawaiian Ocean View Well – Mr. Young gave some history on this well for the new Board Member's information. This well failed during start-up in November of last year after being repaired under emergency conditions. The pump was pulled in March 2018 and shipped back to the manufacturer, SME, in Phoenix, Arizona. On April 24, the motor was torn down with an independent consultant present. There is no official report from the manufacturer yet, but they have indicated it is under warranty. The Department still has to go through the contractor. They have not committed anything yet. In response to Mr. Sugai's question of who the contractor is, Mr. Young stated it is Beylik Well Drilling & Pump Service. In response to Mr. Boswell's question about the results of the tear down, Mr. Young replied there was a short where the cable leads come into the motor winding. There was a bad connection inside. The initial tests would not have shown that there was a bad connection. In response to Mr. Boswell's question of whether the warranty could allow for compensation for trucking water, the Manager-Chief Engineer replied that a warranty would typically only cover the motor unit and what may also occur is that the Department will not have to pay for the pull and push of the equipment again. However, it will have to go through the contractor because it is not just

a motor issue. They have to put it back down the hole. The Department will work with the contractor on those issues. In response to Mr. Boswell's question about SME's performance, Mr. Young stated that overall, they have been good although there have been some recent failures. Mr. Elarionoff commented on the term "award to the lowest responsible bidder" and that would have been Beylik Drilling and not the motor manufacturer. In response to a timeline, Mr. Young stated that the repair has been started and should be completed by the end of June if this pump and motor is reused. Mr. Boswell added that there are recurring issues with this well. It is not a perfect situation. Water temperature and electricity are both questionable. The Manager-Chief Engineer stated this will be kept on the agenda until it is resolved.

3. American Water Works Association (AWWA) "Fly-In," Washington, DC – the Deputy reported on his travel to Washington, DC. On April 18 and 19, he had the opportunity to represent the Hawai'i Section of the AWWA and the focus and intent is for AWWA members from around the nation to meet with their State's elected officials. This year they had about 160 delegates from 48 states and scheduled about 440 meetings with the overall Congress. Specific issues that AWWA raised were investment in drinking water infrastructure and source water protection. He had the opportunity to meet with the staff of Senators Hirono and Schatz and Representatives Gabbard and Hanabusa. He showed them some examples of how the State Revolving Fund (SRF) has been able to be utilized on this island specifically for drinking water projects, and they were appreciative of that. He asked their staff for support on upcoming SRF bills or source water protection bills. It was a good informational trip.
4. Employee of the Quarter – Ms. Kaiulani Matsumoto was recognized as Employee of the Quarter for the first quarter of 2018. The Deputy announced that Ms. Matsumoto is the Department's Contracts Technician; but last year, the Department did not have an Information and Education Specialist and from February 2017 to February of this year, she was temporarily assigned to that position. She was willing to accept the challenge of being the Department's Information and Education Specialist during one of the Department more challenging years. Everyone can vouch for her nomination because she is a super hard worker, is committed, willing to take on new challenges, super organized, meticulous, and has a good sense of humor and persevering attitude. She will figure out ways to get things done with the resources available, and she helped immensely last year in public relations.
5. Update on East Rift Zone of Kīlauea Volcano – the Manager-Chief Engineer reported that the Emergency Operations Center (EOC) was activated last Tuesday, May 1, after increased activity in the area. Scientists recognized there was something going on and called the Mayor's Office at 3:00 a.m. They started seeing cracks in the road. The breakout started on Thursday, May 3. As of now, the lava outbreak appears to be confined to the Leilani Estates area. It has impacted the Department of Water Supply because one of the fissures damaged the waterline going down Pohoiki Road. That waterline feeds the makai area of Pohoiki, Lanipuna Gardens, Kapoho Vacationland, and Beach Lots. Because that fissure seems to have died down, it looked feasible to run a bypass waterline. The Department will use existing hydrants and run Drisco pipe between the hydrants to re-energize the system. There is about 2,000 feet of pipe laid and the hope is to have it completed today, conditions permitting. If the SO_2 levels get too high, the Department will pull its crews out of the area. The temporary line will be 3-inch Drisco pipe in combination with 2-inch galvanized pipe because of the need to cross the street. The hydrant is on one side of the street, the Department needs to run the pipe on the other side of the street. It involved two street crossings and two driveway crossings. That is the extent of the Department's impact so far; but nobody knows how long this will last or where the lava may pop up. Mr. Domingo asked how many customers are impacted. Mr. Inaba replied about 250 customers, although a couple of them are master meters like Vacationland and Beach Lots so there are a number of homes within there. There are only three or four service accounts. The Manager-Chief Engineer stated not all of them in those subdivisions are on County water. Some are on catchment. There is a decent amount of agricultural activities/nurseries out in the

area like Green Lake Farms. They are all pretty much without water at this time. After the sixth fissure, the Department knew the lava was close to the Department's line and was getting reports from customers of low pressure. One of the first steps was to shut off the valve that feeds the lower section of the area. Mr. Ikeda had his guys top off the tanks in the area, but then came reports of no water in Pohoiki on Saturday, May 5, which confirmed the waterline was impacted. Mr. Elarionoff asked about the waterline, which is buried, and how it would have been impacted. The Manager-Chief Engineer replied that even if the lava flow was on the surface, the heat of it would still melt the gaskets in all the joints underground; but this lava came up from the bottom. The guess is that it is not salvageable. In response to Mr. Sugai's question of the size of the main, the Manager-Chief Engineer replied it is 8 inches. Two mains broke, the supply and the outgoing pipe, which caused the tank to drain. Mr. Sugai asked if there would be water restriction because of the line going down to a 2-inch. The Manager-Chief Engineer replied that it would not have the same capacity. The area is under emergency water restriction. Mr. Inaba stated that below the system, if the upper tank near Lanipuna can be refilled, the system will have some storage capacity and the residents can be asked to restrict their use and the smaller line can feed that. The Manager-Chief Engineer stated that this will impact other operations such as daily tank inspections, meter reading, and water quality sampling, but not like the impacts to the Leilani Estates. Mr. Inaba stated that Leilani Estates is not on the Department's system. The Manager-Chief Engineer stated there may be one customer; but for the most part, they are all on catchment. It is getting uncomfortably close to the Department's Pahoa water system. There are cracks on the main road going down to Kalapana. In response to Mr. Elarionoff's question of whether the Department has wells in the area; and if so, how they are doing, the Manager-Chief Engineer replied that it has water wells and so far, they are okay, although the large earthquake damaged one of the injection lines. Mr. Ikeda added it was in Kalapana. The Manager-Chief Engineer announced that there will be community meetings tonight, Wednesday, and on Friday.

G. **CHAIRPERSON'S REPORT:**

1. Chairperson Takamine thanked the Department for its efforts and the extra time being put in during these events. He hopes by next meeting, there will be a full Board. He continued to stress the importance of participation by Water Board Members in the monthly meetings and also conferences which are very educational. It was touch and go for a while getting a quorum to hold regular Water Board Meetings.
2. Chairperson Takamine asked to postpone the follow up to the Final Report of the North Kona Water Permitted Interaction Group until there is a full Board. He asked that the final report be emailed to Mr. Sugai and subsequent new member coming on board. The Manager-Chief Engineer added that Mr. David De Luz, Jr., is the nominee for District 3 and has appeared before the Council Committee on Planning. His nomination will be seen by full Council on May 9 and should be ready for the May 22, 2018, Water Board Meeting.

9) ANNOUNCEMENTS:

1. **Next Regular Meeting:**

The next meeting of the Water Board will be May 22, 2018, 10:00 a.m., at the West Hawai'i Civic Center, Community Meeting Hale (Building G); 74-5044 Ane Keohokalole Highway, Kailua-Kona, Hawai'i

2. **Following Meeting:**

The following meeting of the Water Board will be June 26, 2018, 10:00 a.m., at the Department of Water Supply, Operations Center Conference Room; 889 Leilani Street, Hilo, Hawai‘i

10) ADJOURNMENT

ACTION: Mr. Boswell moved to adjourn the meeting; seconded by Mr. Balog and carried unanimously by voice vote. Meeting adjourned at 11:54 a.m.

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Recording Secretary