

MINUTES

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

August 22, 2017

West Hawai'i Civic Center, Building G, 74-5044 Ane Keohokalole Highway, Kailua-Kona, HI
Site Visit: Palani Ranch Deepwell

MEMBERS PRESENT: Mr. Craig Takamine, Chairperson
Ms. Kanoe Wilson
Mr. Bryant Balog
Mr. Nestorio Domingo
Mr. Leningrad Elarionoff
Mr. Eric Scicchitano
Mr. Keith K. Okamoto, Manager-Chief Engineer, Department of Water Supply (ex-officio member)

ABSENT: Mr. Russell Arikawa, Vice-Chairperson
Ms. Brenda Iokepa-Moses
Mr. William Boswell, Jr.
Director, Planning Department (ex-officio member)
Director, Department of Public Works (ex-officio member)

OTHERS PRESENT: Ms. Jessica Yeh, Deputy Corporation Counsel
Mr. Mark Norman
Mr. Randall Rentzel, Rentzel Energy Equipment Company
Mr. Max Dible, West Hawai'i Today
Mr. Jeff Zimpfer, National Park Service
Ms. Cynthia Moreira, Derrick's Well Drilling and Pump Services

Department of Water Supply Staff

Mr. Kawika Uyehara, Deputy
Mr. Kurt Inaba, Engineering Division Head
Mr. Richard Sumada, Waterworks Controller
Mr. Daryl Ikeda, Operations Division
Mr. Clyde Young, Operations Division
Mr. Eric Takamoto, Operations Division
Mr. Warren Ching, Operations Division

- 1) CALL TO ORDER – 10:00 a.m.
- 2) STATEMENTS FROM THE PUBLIC – Taken up later in the meeting
- 3) APPROVAL OF MINUTES – ACTION: Mr. Elarionoff moved for approval of the Minutes of the July 25, 2017, Public Hearing on the Power Cost Charge and the July 25, 2017, Regular Water Board Meeting seconded by Ms. Wilson and carried unanimously by voice vote.

4) APPROVAL OF ADDENDUM AND/OR SUPPLEMENTAL AGENDA

ACTION: Chairperson Takamine moved to convene Executive Session after the Manager-Chief Engineer’s report pursuant to Hawai‘i Revised Statutes, Section 92-5(a) (4) to consult with the Board’s attorney on questions and issues pertaining to the Board’s powers, duties, privileges, immunities, and liabilities. If approved, convene Executive Session per HRS 92-4 and need at least five votes. Motion seconded by Mr. Scicchitano and carried unanimously by voice vote.

ACTION: Chairperson Takamine moved to amend the Agenda per Hawai‘i Revised Statutes, Section 92-7(a) to add the Executive Session and to also move the testimony portion to later in the Agenda; seconded by Ms. Wilson and carried unanimously by voice vote.

5) NORTH KONA:

A. **JOB NO. 2013-989 (REBID), KAHALU‘U SHAFT INCLINED LIFT REPLACEMENT:**

This project consists of the work to remove the existing inclined lift system and controls, and the installation of a new traction drive inclined lift system and wireless controls, all related materials, equipment, and accessories; in accordance with the plans and specifications.

Bids for this project were opened on August 10, 2017, at 1:30 p.m., and the following are the bid results:

Bidder	Bid Amount
Jas. W. Glover, Ltd.	\$1,465,000.00
ThyssenKrupp Elevator Corporation	Non-Responsive

Project Costs:

1) Low Bidder (Jas. W. Glover, Ltd.)	\$ 1,465,000.00
2) Contingencies (10.0%)	<u>\$ 146,500.00</u>
Total Cost:	<u>\$ 1,611,500.00</u>

Funding for this project will be from DWS’s CIP Budget. The contractor will have 420 calendar days to complete this project. The Engineering estimate for this project was \$1,260,000.00.

The Manager-Chief Engineer recommended that the Board award the contract for JOB NO. 2013-989 (REBID), KAHALU‘U SHAFT INCLINED LIFT REPLACEMENT, to the lowest responsible bidder, Jas. W. Glover, Ltd., for their bid amount of \$1,465,000.00, plus \$146,500.00 for contingencies, for a total contract amount of \$1,611,500.00. 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: Ms. Wilson moved for approval of the recommendation; seconded by Mr. Balog.

The Manager-Chief Engineer noted this is overdue for replacement. In answer to a question of the reason why the second bidder was non-responsive, he noted they did not submit their bid bond. He added that the decision to recommend award to Jas. W. Glover, Ltd. (Glover), was based on the bid amount being in the vicinity of the engineer’s estimate.

Mr. Domingo stated he had an issue with there being only one responsible bidder; the other being non-responsive. He did not think you could say it is a low bidder when it is the only bid you have.

Chairperson Takamine noted this is a rebid, and when asked if these were the same bidders as the first bid, Mr. Takamoto replied they were. Chairperson Takamine continued that given the fact that the hil-a-vator is not in working condition and there were only two bidders last time, he was uncertain of how many more bids you could get by bidding it out again.

The Manager-Chief Engineer stated that there are not many options available as far as contractors that can do this work. There are options under the Hawai'i Revised Statutes if this is not awarded at this meeting, however nothing that could replace the sealed competitive bid process or improve upon it, in his opinion. The Department could go into direct negotiations or rebid once again; however, the challenge with that now is that everyone knows what the current bid is and it may affect subsequent bids. The Department's recommendation is to award to Glover.

ACTION: Motion was carried unanimously by voice vote.

B. RIGHT-OF-ENTRY FOR COUNTY OF HAWAI'I DEPARTMENT OF ENVIRONMENTAL MANAGEMENT:

The Hawai'i County Department of Environmental Management ("DEM") would like to survey the Department's Hina Lani Tank site to initiate design plans for the site. The Water Board approved transfer of its unused 1.0-MG reservoir to DEM for their wastewater division at its March 28, 2006, Board meeting. The site has not yet been legally transferred to DEM, so they are seeking a right-of-entry to survey the property in contemplation of the property transfer.

The Manager-Chief Engineer recommended that the Water Board approve this Right-of-Entry affecting Tax Map Key (3) 7-3-009:027 for DEM and authorize the Chairperson or Vice-Chairperson to execute the document subject to the review and approval as to form and legality of the Corporation Counsel.

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

The Manager-Chief Engineer noted that this is to allow the DEM to go onto the property and do their survey for subsequent work needed in anticipation of their Kealakehe Treatment Plant Upgrade project for use with R-1 infrastructure. After this step, the DWS will need to convey the property to the County.

ACTION: Motion was carried unanimously by voice vote.

6) MISCELLANEOUS:

A. DEDICATIONS:

We received the following documents for action by the Water Board. The water systems have been constructed in accordance with the Department's standards and are in acceptable condition for dedication.

1. GRANT OF EASEMENT AND BILL OF SALE

Waiākea Fairways Subdivision

Grantor: Hilo Two, LLC

Affects Tax Map Key: (3) 2-4-002:073 (portion)

Waiākea, South Hilo, Island of Hawai'i, Hawai'i

Facilities Charge: \$265,190.00 Date Paid: 6/2/2017

Final Inspection Date: 4/13/2017

Water System Cost: \$362,664.00

2. GRANT OF EASEMENT AND BILL OF SALE

Ali'i Heights, Unit 2, Phase VI
Grantor: David J. and Katherine T. Wierrenga
Affects Tax Map Key: (3) 7-7-028 (portion)
Pāhoehoe 3rd, North Kona, Island of Hawai'i, Hawai'i
Facilities Charge: \$5,500.00 Date Paid: TBA
Final Inspection Date: 8/2/2017
Water System Cost: \$18,412.36

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

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

Mr. Inaba added the date for the Facilities Charge on Item No. 2 which was paid August 21, 2017.

Mr. Elarionoff stated that when he joined the Board, he noticed the second line in these items indicate Department's standards are in "acceptable" condition. He wished it said something like "exceptional," instead of "acceptable." It sounds like it is barely making that threshold, and that is okay; but in looking at what is happening in Kona, he wondered if that would have anything to do with it because the standard may not be high enough or if it is just a matter of semantics.

The Manager-Chief Engineer replied it may be just a matter of semantics. Basically "acceptable condition" means that it is compliant with the Water System Standards; and if the system is constructed to those standards, there is a level of consistently, adequately, and appropriately ensuring that the system will work as it should.

Mr. Elarionoff stated that the pump from Waimea that came to Kona was supposed to be okay and was supposed to be acceptable, but it was not. He wondered if that could have had anything to do with the standard that the Department had set forth. In looking at these words, he wondered if it were possible.

The Manager-Chief Engineer replied that he could explain more about the Waimea pump and motor situation when that item comes up later in the agenda, and how that might differ from this typical dedication.

ACTION: Motion was carried unanimously by voice vote.

B. MONTHLY PROGRESS REPORT:

Mr. Balog asked about the Waikoloa Reservoir No. 1 Earthquake Repairs project and how the tree removal plan is going.

Mr. Inaba stated that the Department has just received comments from the Department of Hawaiian Home Lands (DHHL) and that is being worked on as of yesterday. He received comments back from the consultant, and they are working on the update. A couple more pieces of information need to be submitted, but it is moving along. Their Land Division had comments and they have given their assistance in pushing it through. The Right-of-Entry was received and the subsequent easement will be followed up on.

Mr. Balog asked if it is expected to be put out to bid within the next few months.

Mr. Inaba replied that it was. As soon as the Department of Land and Natural Resources (DLNR) receives DHHL approval, they can go to their board for approval. The Department has been keeping up communications with both agencies so they are aware of the status.

Ms. Wilson asked about the status of the funding with FEMA.

Mr. Inaba replied that they are being kept in the loop, and it is anticipated that FEMA will be funding a portion of this project.

Mr. Scicchitano asked if there is a ranking of the projects based on need and urgency or how that happens within the Department.

The Manager-Chief Engineer replied that the Department has a ranking system via its Water Master Plan, which basically identifies the projects on the CIP list that comes for the Board's approval on an annual basis. At that point, they are set that into motion. Once it is on the 5-year CIP list, it is of significant priority to get completed.

C. REVIEW OF MONTHLY FINANCIAL STATEMENTS:

Mr. Elarionoff asked about Page 1, where it indicates an Accrued Worker's Compensation Increase of \$221,000 or 61% from prior year. He asked if it had any relation to Page PUD3, "Administration Account No. 5015" showing no injuries or damages.

Mr. Sumada explained that it is sort of related, but the reserve that is described on the first page is a number which he obtains from the County of Hawai'i, Worker's Compensation Division. That number is how much they estimate the Department will owe for medical expenses for injured employees, payments to injured employees, and for legal costs for injured employees in the future as of each fiscal year end.

Mr. Elarionoff asked if it was a guess, then, of what the future is going to be; but on the other hand, Page PUD3 shows no injuries.

Mr. Sumada stated that the account Mr. Elarionoff mentioned shows how much was actually spent for the month of July on payments for employee injuries, to doctors and to employees. It is a historical account of what happened in July. The number on the first page, the reserve, is a projection of how much is anticipated to be spent in the future.

Mr. Elarionoff asked if this projection was based on an increase in personnel or an increase in injuries.

Mr. Sumada replied it might be both, but he thought it was more an increase in the number of injured employees. It is estimated based on having 28 injured employees at year end, versus 23 in the previous year; and that is what he received from the County.

Mr. Elarionoff wondered if they have been halfway accurate because this 61% is a big chunk and he was sure the Department has safety programs to prevent things like this from happening. He asked if they are saying the Department's preventative program is not good enough, therefore resulting in these projections. It sounds like they are saying it is inevitable, even though the Department has a safety program; but that if the safety programs were increased, the projected injuries would decrease.

The Manager-Chief Engineer replied the Department would check with the County's Human Resources Department on their method of calculating and report it back to the Board.

D. MANAGER-CHIEF ENGINEER'S REPORT:

1) North Kona Water Restriction

The Manager-Chief Engineer first provided a recap: In January 2017, the Department had four out of seven mauka wells down. The total amount of wells in the North Kona System is thirteen. The Department issued a Water Restriction at that time. Subsequently, some wells came back online, went offline, and then Keahuolū (QLT) Well went offline at the end of June, but was back online early July. That was five wells, but it went back to four. On August 13, Honokōhau Well went down. The Department has been on several iterations of contingency planning at this point. In anticipation of a possibility that Honokōhau Well might go down, the Department postponed the Waimea Well repair because the pump and motor for that well was close enough that it could be used at Honokōhau. On August 13, when Honokōhau Well went down, the pump and motor from Waimea were mobilized at the Honokōhau Well site. The pump and motor were extracted and the process of setting the new pump and motor in the hole began. There was a Centrilift technician (the manufacturer's technician) on site to evaluate, inspect, and participate in the well repair. During the course of that preparation, the technician's inspection revealed that the motor was defective. From his understanding, if it were to be sent down the hole, there was a high likelihood that would fail immediately or shortly after. It was decided it was not worth going through all of that with that expectation. Based on this, the Department did a review of the specifications for the Waimea pump and motor. They were quite thorough, but some concerns were brought to light and could possibly lead to future legal matters. If the Board wants detailed discussions on that, it may want to consult with Corporation Counsel in the closed session. If the Board wished, he could forward what those specifications look like. In relation to Mr. Elarionoff's earlier question if the water system was acceptable, for this particular project, all components of the specifications were met. That pump and motor should have been good to go, but that was not the case. Something was missing. If it met the requirements of the contract, it would have been acceptable and it would have had an actual level of performance as guided by the specifications for level of pump efficiency, testing requirements, inspection requirements, etc. It is a subjective level of excellence; but to him, it is over and beyond the bare minimum acceptable standards. He shared with the Board that there have been questions and concerns from the community as well as internally on what the Department has been doing and what is planned to be done in order to avoid putting itself and the community in this situation again.

Mr. Domingo stated that the motor which came from Waimea had not been used before. It came from the manufacturer to the Big Island. Suddenly when it is time to use it, it is found defective. It is very frustrating.

The Manager-Chief Engineer agreed that it is very frustrating. He explained that when the pump and motor comes from the manufacturer, it is crated. The requirements are that it is vacuum sealed to protect it from corrosion and the elements during storage. When the Department received the pump and motor and did its visual, it looked painted up and like it was supposed to work but there still are sealed components. For example, if you look at a cell phone, on the outside, it looks like it is supposed to work, visually; and that is basically all you can do. With this particular repair, what the Centrilift technician did was once it was lifted into a vertical position, he drained the oil, checked the oil, and the plan was to refill the oil. Subsequently, some concerns came up during the process that led to further checks of specific components and specific dimensions of where the shaft was sitting, which led to further concerns. All of those things were not visible when it was lying down in the crate. A lot things require the motor to be in the vertical position to do inspection. The Department's plan, moving forward, is to require the contractors, suppliers, or distributors to do a thorough checklist of items with the equipment in the proper position before the Department accepts shipment of the item.

Mr. Domingo stated that was what he was going to suggest.

The Manager-Chief Engineer stated that maybe a third-party licensed engineer or someone would have to certify that all of those checks were done before the Department takes acceptance. In the past, the Department was able to rely on the pump manufacturer's certification that the pump and motor were good to go; but in this particular case, it did not turn out that way.

In response to Mr. Elarionoff's question of how long the pump and motor were in storage, Mr. Takamoto replied it was about one month.

Mr. Balog asked if the Department saw issues with the performance of Honokōhau Well, therefore putting contingency plans in place in anticipation of the well going down.

The Manager-Chief Engineer replied there were no performance issues; but based on the Department's luck so far, until Palani and Hualālai wells were back online, he wanted to have a contingency plan in place in just in case the largest well running went offline, which was Honokōhau. It showed no signs until it failed.

In response to Mr. Balog's question of whether it was basically a hunch, the Manager-Chief Engineer replied it was basically a hunch. The Department is in its fourth or fifth level of contingency planning at this point and is not taking any chances and is being as ultra-conservative as possible.

Mr. Balog asked if there are any other wells throughout the island showing signs of failing.

The Manager-Chief Engineer replied there are 70 wells around the island and three Mechanical Engineers that not only have to focus primarily on Kona but have other situations concurrently going on.

Ms. Wilson noted only three Mechanical Engineers for 70 wells.

The Manager-Chief Engineer stated their plate is pretty full. For the most part, most of the Department's systems have redundancy. In Kona, the people of the community are doing great in cutting back their water use. The fact that five out of thirteen wells are down and the tanks are still maintaining stable levels shows how robust the system is. Not all the Department's systems are this robust. There are some single-source systems which are other high-priority systems that are being factored into the pump and motor replacement programs, but most of the 23 water systems have water redundancy already built in so if one source goes out of service, people will still have the same amount of water without having to go on conservation. That does not mean the Mechanical Engineers are just forgetting about those other wells, boosters, PRV stations, inlet control stations, and telemetry. That is all on their plate.

Chairperson Takamine stated that the thing to point out is that even with all of the things happening in West Hawai'i to date, to his knowledge, there has been no loss of water service. It goes to show that the Department is actively working to ensure that does not happen. As bad as things seem, try to look on the bright side and look for solutions looking forward. It is the Board's part to work with the Department in looking for solutions.

Mr. Balog commended the Department in making an effort to move water from other areas. He recalled Honoka'a where the Department was hauling water day and night to make sure everyone was supplied. No matter what, the Department always does an excellent job in making sure everyone has water.

Mr. Elarionoff asked the Manager-Chief Engineer to elaborate on an email he sent about the pump's impellers and the bowls.

The Manager-Chief Engineer stated that perhaps one of the Mechanical Engineers could help explain why, in the last Honokōhau well failure, four of the nine bowls showed significant wear and the remaining five not so much. He asked Mr. Young if he had a theory.

Mr. Elarionoff recalled it mentioned something about abrasion or material that was in there and asked on what location in the shaft did the impellers wear out.

Mr. Young replied that the top impellers were where it had holes on the bowl.

Mr. Elarionoff asked if all five were on the top.

Mr. Young replied there were four and they were on the top.

The Manager-Chief Engineer asked Mr. Young if it was correct that basically the shaft dropped a little and the impellers were rubbing against the bowls.

Mr. Young replied that if he were to guess what happened, the top impellers also face the highest pressures. There is potentially more downforce than the ones on the bottom, plus there are tolerances; however, his conjecture would be because of the high pressure.

The Manager-Chief Engineer asked what holds those impellers place on the shaft itself.

Mr. Young replied it is almost like it is press-fit on.

The Manager-Chief Engineer stated that in other words, they could get forced down differently or one impeller could have [had that happen].

Mr. Young replied the impellers would probably stay locked. It is just that in that case, the thrust bearing, the Department suspects, failed so the impellers are going to drop. When the thrust bearing fails, basically, it is on the bottom and the whole shaft drops and the top impellers are under the highest pressure.

Chairperson Takamine asked if impellers are like a compression fitting.

Mr. Young replied that was correct. It sits on the shaft.

Mr. Elarionoff asked if there was a way to avoid that from ever happening again.

Mr. Young replied one of the things that needs to be done is to find out exactly what happened. The Department is trying to determine if it was the thrust bearing that caused it or the pump. It is being shipped back to factory to rebuild it as soon as possible, so hopefully, the Department will have that information within another week and a half. The pump part could be seen, but you cannot tear down the motor in the field; however, indications were the thrust bearing. When it fails, the impellers drop and then they ride the bottom and tear up the bowls.

Mr. Elarionoff asked what it means when Mr. Young says "drop," if it a quarter inch, or a half an inch.

Mr. Young replied it was 5/16's so a little over one-quarter inch; however, the lateral indicated 1/8 of an inch. Anything beyond that is going to start rubbing.

Mr. Elarionoff asked if all of the expenses happening in the Kona area jeopardizes any other work, financially, that is supposed to be done on the island.

The Manager-Chief Engineer replied that all the funds for these well repairs are coming from the Department's CIP reserves. The CIP includes a budget for repairs each year. At this point, he did not see anything [being jeopardized] as the Department puts a significant amount in the budget; however, it is just that right now, it is all being spent in Kona instead of throughout the island. That will need to be looked at. All CIP projects currently in design or construction have had their funds secured and are okay. The Department may need to look at available funding for things that it was looking at still having to commit funds to at this time.

Mr. Elarionoff commented that people are very upset about this situation; but by the same token, if you consider what is happening in North Korea, he thought that we, as an island, have to show that we have to work together and this has made us work together as a whole island and he thinks it is a good thing.

The Manager-Chief agreed with that and is confident it will make the Department better. Tough situations make people better. The Board agreed.

Mr. Domingo commented that he lives in the area under water restriction. Reading everything on what has been going on, you can see it is creating a bit of stress because the residents are being asked to cut down on their water consumption. Everyone loves their plants and the beautiful flowers, but if not allowed to water them, they will just have to watch them wilt, and it is not very good. He mentioned what he had spoken of last month, which was someone's suggestion of importing water from East Hawai'i. The Manager-Chief Engineer had said it was not feasible, and he understood—that it would probably cost a lot of money to do it. The next best thing he could think of is putting some redundancy into the Department's wells, such as a secondary well right next to the primary well. If the primary well components break down, you have a secondary system back on line and that way disruption could be minimized. He mentioned in the aerospace industry, every component on the airplane has back-ups. If a hydraulic system "A" breaks down, they have a system "B" that comes online. He realized it would cost a lot of money, but he thought that placing some redundancy in the system would make things come out better in the end.

The Manager-Chief Engineer agreed and appreciated Mr. Domingo's comments. For future wells, the plan is, instead of having one 1,400 gpm well with a 700 or 800 horsepower motor, it will drill two wells and have them at 700 gpm with 400 horsepower motors. The anticipation is that one will have a longer life with the lower capacity motor and adequately sized casings to allow for proper cooling for added longevity. And just like Mr. Domingo mentioned, if one goes down, there is still the second well as backup.

STATEMENTS FROM THE PUBLIC

(The Chairperson took up Statements from the Public at this time.)

1. Ms. Cynthia Morreira

C. Morreira: First of all, thank you. I apologize for my tardiness; the weather was really bad driving over. But I am here representing Derrick's Well Drilling. I am Cynthia, and I am asking for relief. We were the contractors that supplied the spare unit that was used for the Honokōhau repair and I am

here to ask if I could be present on the next month's agenda and asking for relief of liquidated damages. Our manufacturer took a year and approximately two months to deliver this unit to us. And I went over all our emails this morning and went back and looked at the correspondence between the two of us and found that the order was placed in...I placed in the order myself and it was a little bit behind...about a week behind from the Notice to Proceed...I'm not gonna cover that up; but the correspondence between the two of us, I found, and there were nine tests that were sent in to the engineer in charge of this project before the tests were actually accepted. Nine...that's a lot. There was also correspondence between the two of us in December, February, March, April, May...all the way from last year to this year, checking on the updates and what is happening with the testing and which I can provide hard copies if I'm allowed to speak on next month's agenda. But that is my reason for being here is for relief of liquidated damages and also if you could kindly honor a time extension. It was out of our control. We did the best that we could to keep up with this manufacturer, and being a year and two months behind schedule is not a normal thing for our company. That is a long time; and unfortunately, when the unit came in, it was deemed defective, which we had no knowledge of. We had no...we didn't know until it actually was opened and ready for installation. I'm sure you folks went all over it already from the protector to the pump to the motor, but especially the motor. We were assured by the manufacturer that the motor was drained properly and refilled with oil; but apparently, that was not the case.

6) MISCELLANEOUS:

E. CHAIRPERSON'S REPORT:

Chairperson Takamine stated that the way he sees it, here in West Hawai'i, ever since he first joined the Board, it was right at the point where the National Park Service petitioned the aquifer. The Department spent so much time and financial resources to make its claim that the petition was not something that was needed, and that took years to go its course. Immediately after that, the Department had four wells go down, not at the same time, and then two other wells went down recently. The way he sees it is the Department has spent so much time and effort to just make sure, not only that they are taking care of the repairs, but making sure that its customers and the community still have water service that is not affected. What he believes the Board is responsible for at this time is looking for solutions. When things go bad, it is easy to point fingers, but what about looking for solutions. He was thinking about calling for a full assessment of all the wells and pumping equipment in West Hawai'i but concurrently would like to convene a task force made up of himself and a designee from the Board, three or four members of the private sector, possibly those individuals that operate private wells and water systems here on the coast, and possibly consulting with someone who is knowledgeable in deepwells and pumps, and getting three or four members of the Department of Water Supply, having a moderator and having a strategic planning session for one or two days. If that is possible, he may have to consult with Corporation Counsel, but if that can be done in the next couple of weeks or schedule it within the next month, he thinks it will go a long way to show the public that the Board is actively looking for solutions and actively working with the Department and not against the Department to find these solutions. Maybe for higher-level things, we can look at hiring consultants but if we could look within and look to tap people in our community that could be good resources, he thinks that is a good start. Sometimes maybe being in the private sector, you may have ideas that people in government have not thought about. He is trying to think outside of the box, look for solutions, not only for what will help now, but in years to come. Like the Manager-Chief Engineer said, in the face of adversity, you can either get stronger or wilt. He thinks we are at the point where we have to get stronger. If not, he should not even be sitting on this Board because if we are not trying to be proactive, then maybe someone else should sit in his seat. He wants to take charge and really try to push this forward and hoped the rest of the Board supports these actions. He asked if the Board wished to make a Motion to enter Executive Session at this time.

ACTION TO ENTER EXECUTIVE SESSION: Mr. Scicchitano moved to enter into Executive Session, closed to the public, pursuant to Hawai‘i Revised Statutes, Sections, 92-4 and 92-5(a)(4) for the purpose of consulting with the Water Board’s attorney on questions and issues pertaining to the Water Board’s powers, duties, privileges, immunities and liabilities; seconded by Ms. Wilson and carried unanimously by voice vote.

(Executive Session began at 11:00 a.m. and ended at 11:21 a.m.)

7) **ANNOUNCEMENTS:**

1. **Next Meeting:**

The next meeting of the Water Board will be held on September 26, 2017, at the Department of Water Supply, Operations Center Conference Room; 889 Leilani Street, Hilo, Hawai‘i

2. **Following Meeting:**

October 24, 2017, at the Department of Water Supply, Operations Center Conference Room; 889 Leilani Street, Hilo, Hawai‘i

3. **Site visit at 11:30 a.m. today:**

Site visit to Palani Ranch Deepwell to view and discuss the repair of a deepwell for informational and educational purposes. This portion of the meeting is limited to Board members pursuant to Hawai‘i Revised Statutes § 92-3.1, as the site visit is necessary for the Board to gain an understanding of the magnitude and scope of repairs being performed on its deep well sites. As an active construction site, its location is unsafe for the public to attend. This limited meeting was unanimously approved by the Board at its July 25, 2017, Board meeting. Minutes of this site visit will be made available along with the general meeting minutes.

RECESS: The Board took a recess at 11:25 a.m. to proceed to the site.

RECONVENE: The Board reconvened the meeting at 11:52 a.m. at the Palani Ranch Deepwell.

SITE VISIT

Mr. Ching explained the scope of this project. The pipe stacked on the side is about four years old and most of it will be reused, except for ones that were below the water level, showing corrosion. New pipe is on its way to replace those. This is a straightforward repair. A new pump and motor are on their way, and most of the other materials on site will be reused, including electrical cable, which has been tested and passed. The age of the cable should be well within its service life.

In response to Mr. Elarionoff’s question of whether that cable was the one that had broken last time, Mr. Ching stated it was not. This cable at the site, on the spool, is the electrical cable that sends power to the motor.

He described the well head, which is a concrete head with the opening covered to keep any surface water or materials from getting in and for safety measures. From the well head, pipe is sent down the hole with the pump and motor connected at the end of it, to below the water level.

Mr. Elarionoff asked if it is on the outside of the pipe.

Mr. Ching replied yes. There are grooves where it is basically twisted on the pipe at that point. Water goes through pump into the pipes and up to the surface. The Discharge Head for the well is where the water discharges out of the ground and then flows into the pipeline which is called the discharge pipe. Going through basics of the sequence of operations of the water, first it is purged out. The initial water that comes out of the well can contain some sediment. That is purged so it does not get into the tank (purge takes 5-8 minutes). That is controlled with the valve as shown by Mr. Young. Water flows into the sump and we get as much of the solids out as we can. It is still clean water, but we get the initial water out. After five to eight minutes, it starts going into the main pipe which leads through to the tank. There are several devices it goes through, one being the check valve so as not to undo what was just done, and then the electromagnetic flow meter.

Mr. Domingo asked if the motor and the pump components are sent to the bottom of the well or if they just rest there or are suspended with some type of hangers.

Mr. Ching replied it is supported in the well. It is not sitting at the bottom. He explained what the component was that Mr. Balog pointed to, which is a well transducer that tells what the water level of the well is without sending a logger down. You can see what the water level is from inside the control building and it is always tracking. You can see if a well is trending down and what the level is when it is running or when it is off. It is important to know, especially for the aquifer study. They also can send sounders down, which sense the water and sends out a beep.

In response to Mr. Balog's question if it ever sucks up rocks, Mr. Ching replied it is usually more dirt although small rocks can get through. However, there is a perforated casing where water comes into the cylinder. It protects from rocks getting sucked into the perforated casing. Usually at the bottom of the well, there are some sediments and some rocks, but we like to stay away from the bottom. He mentioned that the wells are cleaned upon every repair, which is called "brush and bail." To brush, a weight is sent down with a wire sticking off. It is pushed down until it can run smoothly along the casing surface. There is a solid casing and then a perforated casing below that where the water comes in. They are brushed to make sure all perforations are open and lets adequate flow into the casing. To bail means taking out what was brushed from the casing.

Mr. Domingo asked how deep the well is.

Mr. Ching replied it is about 1,600 feet to the water level; but to the bottom, it is 1,700 to 1,750 feet.

Ms. Wilson asked if the bottom of the well is enclosed or is it an open chasm, and she asked where the aquifer lens would be.

Mr. Ching replied that the casing goes down to a certain point. Sometimes, there is an open hole in which there is basically no casing--it is just the end of where the well contractor had drilled down.

Mr. Balog asked what is more common.

Mr. Ching replied there is usually some open hole at the bottom, usually 20 feet, plus or minus.

In response to Mr. Domingo's question of whether the casing rests on the well floor, Mr. Ching replied it goes almost to the bottom. The casing is connected to a metal plate covering the well.

Mr. Domingo asked about the diameter of the casing.

Mr. Ching stated it is a 20-inch outside diameter casing. When looking at interchangeability, that is the challenge, whether the equipment for this well can fit one of the other wells.

Ms. Wilson asked about a pipe at the site, which looked to have cracks on the inside.

The Manager-Chief Engineer explained it is a steel pipe with a cement liner, which is for additional corrosion protection for the inside of the pipe. The cement coating does crack.

In response to Ms. Wilson's question of what the pipe would be connected to, Mr. Young replied it is connected to the discharge head.

Mr. Domingo asked what the "head" would be.

Mr. Ching replied this one is 1,640. Mr. Young added it is almost 710 pounds per square inch.

Mr. Ching stated that is the amount of pressure the pump has to produce in order to get water to the surface. You have to account for some loss due to friction of flow, but that is negligible compared to the elevation difference at this site.

Mr. Domingo mentioned the need for a secondary well to give it some redundancy.

The Manager-Chief Engineer stated that the hard part with drilling an additional well on an existing site is the proximity to the existing well. If you want to run two at the same time, you have to have them a certain distance apart.

Mr. Domingo mentioned if one breaks down, the other could be running. It may cost a lot of money but would be good for the Department.

Ms. Wilson asked if this well is one of the seven deepwells the Department has on the Kona side.

Mr. Ching replied it is one of the mauka high-level wells.

Mr. Elarionoff asked about the other well where four of the nine impellers gave out and asked why did the rest of the impellers not work.

Mr. Young replied the others were damaged too.

Mr. Ching added they were reusable. There was wear, but it was not where new impellers were needed. They could be polished and put back in service. However, in order to repair that existing pump, it would require having the manufacturer recast the impellers and bowls.

Mr. Elarionoff asked why four out of nine went out and the other five did not continue to pump water.

Mr. Ching explained that when the four on the top dropped down and hit the bowls, when that happens, you get more resistance which makes the motor work harder, which means it could overexert itself, which it did. It was reading high current.

The Manager-Chief Engineer added that when that happens, the topside equipment and controls will not allow you to turn the motor on. The safeties are in place so you do not burn the motor and the topside equipment. He asked if there was a Variable Frequency Drive (VFD) at this site.

Mr. Ching replied it is a Soft Starter.

In answer to Ms. Wilson's question of what that means, Mr. Ching explained that it means if you start a motor on 100% load, it puts a lot stress on the motor so there is an initial in-rush of current. Full load current when operating would be 100 amps, but the in-rush could be up to 500 amps. You do not want to stress your motor too much. That is the reason why we do not want to start up the motor and cycle it on and off too much. What a Soft Starter does is it limits the voltage so it does not allow as much in-rush current but it allows enough to get the motor started. One hundred percent is what is called "across the line starting," and that puts a heavy strain on the motor because there is so much mass that has to turn, to break that and get it started draws a lot of power.

The Manager-Chief Engineer stated it is like a car battery, which is rated for a certain amount of cranking.

Mr. Domingo noted the water level shown on the tank and asked if there are other wells supplying it or was it being distributed.

Mr. Ching stated that personnel have been switching things around to make that happen.

The Deputy asked what the schedule is for this project.

Mr. Ching replied the pump just came in earlier today.

The Deputy mentioned that Derrick's Well Drilling is in charge of this project and asked if the motor is still due in September.

Mr. Ching replied it is due in September.

Chairperson Takamine asked if the project can be started without the motor.

Mr. Ching replied not for this one because the motor is the bottom piece. If it were a line shaft, that could potentially be done because the motor is at the surface.

Mr. Ikeda suggested taking some pictures of the rigging to show at the next Water Board meeting.

(The site visit concluded at 12:17 p.m.)

8) ADJOURNMENT

ACTION: Mr. Elarionoff moved to adjourn the meeting; seconded by Mr. Balog and carried unanimously by voice vote. Meeting adjourned at 12:17 p.m.

Recording Secretary