

## MINUTES

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

July 23, 2019

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

MEMBERS PRESENT: Mr. William Boswell, Jr., Chairperson  
Mr. David De Luz, Jr.  
Mr. Nestorio Domingo  
Mr. Leningrad Elarionoff  
Mr. Zendo Kern  
Mr. Kenneth Sugai  
Ms. Julie Hugo (10:25 a.m.)  
Mr. Keith K. Okamoto, Manager-Chief Engineer, Department of Water Supply  
(ex-officio member)

ABSENT: Mr. Eric Scicchitano, Vice-Chairperson  
Mr. Bryant Balog, Water Board Member  
Director, Department of Public Works (ex-officio member)  
Director, Planning Department (ex-officio member)

OTHERS PRESENT: Ms. Diana Mellon-Lacey, Deputy Corporation Counsel  
Mr. Bill Parecki  
Ms. Eileen O'Hara  
Ms. Tiffany E. Hunt  
Mr. Steve Lund  
Mr. Eric Cockcroft

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. Eric Davis, Operations Division (11:44 a.m.)

- 1) CALL TO ORDER – Chairperson Boswell called the meeting to order at 10:00 a.m.
- 2) STATEMENTS FROM THE PUBLIC (*transcribed verbatim*)
  1. Mr. Bill Parecki

Thank you for accommodating us and letting us come and speak today. Basically, I'm speaking on behalf of the residents of Kapoho/Vacationland. We're hoping that you will support us with the undertaking of supplying water back to the subdivision. We're in the process of working with FEMA

and other possible ways to finance the redoing of the lines within the subdivision, but we need the County to bring water down to the beginning of the subdivision so we can bring it in. We're just hoping that you guys can help us do that. Thank you.

2. Ms. Eileen O'Hara:

Aloha and thank you, Commissioners, for hearing us. I also brought written testimony from another board member who is unable to make it. As it's summer, a lot of people are off island, travelling, so I'm rounding everybody up; but, um...you can take that (Ms. O'Hara submitted copies of written testimony from Jan Marshall). I'm also handing this in. You may have a copy of it; you may not. But it was a map of the distribution system that brought water to Pohoiki and to Kapoho/Vacationland and Beach Lots. It went a kind of convoluted route so I thought you might benefit from seeing the map if you haven't seen it recently to know where the source was, the Lanipuna Well, and how it was distributed. And I'm sorry to say that there were several members from the Pohoiki community that wanted to be here today but I believe they have a higher cause going right now and so they may not be with us today. What I wanted to say in my testimony was the situation with recovery is very fluid and it has been changing frequently. Last month, we thought the County only planned to do a temporary road to replace our major rural route, [Highway] 132 in Lower Puna, which would have left the shoulders unpaved. Now they're striving to complete a permanent restoration by October 5, which involves paving the shoulders. You may have read that in the paper recently. Now this is critical, as any Department of Water Supply lines that are laid must be placed under pavement. Now I don't know, did anyone here attend the July 13<sup>th</sup> meeting about the Pohoiki boat ramp? If you didn't, let me inform you. It was very well attended. This was held by our Representative, Joy San Buenaventura, and it was to present some ideas of a preliminary study for a replacement boat ramp. The preliminary study chose a site south of Pohoiki, more or less known as Malama Flats--not the correct name. But it's a pristine area that has no electric. It doesn't have good road access and it doesn't have water. And it would have involved disturbing that very pristine area. Everyone at the assembly, and there were more than 100 people present, all of the commercial fishers, opposed that plan; and they would prefer to see a new boat ramp constructed at Pohoiki, either north of the existing boat ramp where "shacks" was, if you are familiar with the surfing area, or south of there, both of which seemed very doable. So it's more than likely that this is going to prevail because this is the community site for interacting with the marine resources. What that's going to mean is that we need to restore the water to Pohoiki, which was the same line that fed Vacationland, that fed Kapoho Beach Lots, and we're going to need to restore Highway 137 from what was once Four Corners, south because that's how we got the boats into Pohoiki. That's why that road was built to begin with. So that speaks to recovery right there. Vacationland, Hawai'i Community Association, has received help from Tom Travis, State Civil Defense head, in applying for FEMA funds to restore our water distribution system. Once you guys bring us water, we have to do our distribution system. That application is on hold. It has not been denied, but it's on hold because they need information about what your plans are. So we need to know what the Department is planning. And we did get an USDA loan that's on hold for \$1.8 million to restore our private roadways. There is still a concrete reservoir at Green Mountain. I don't know if it's been investigated recently. It's inaccessible currently, but once 132 is completed, it will be accessible. It should be useable, still. And we will need good-quality, reliable water sources for the development of all kinds of agriculture. These were five-acre farm lots surrounding the residential lots. We could be doing hydroponics, aquaculture, aquaponics, potted plants, orchids, aviaries, etc. We've gotten a lot of people invested in this in terms of interest and helping, including the University and the County. So this is where Kapoho would like to go, but we need water. So we ask that you continue to keep this issue on your monthly agenda so that we know what the status is with the planning for recovery of our water system. Thank you.

3. Ms. Tiffany E. Hunt

Aloha. I just want to reiterate what my neighbors from Kapoho have said to you this morning and I think last month. I'm sorry I couldn't make your meeting last month, but I did send in a letter. And I didn't prepare a statement today so I'm just going off the cuff here and saying, as you know, sitting on the Water Board, water is life. And when we bring these new roads, these new roads replacing the old roads, into this area that has been inundated, in my mind, we're gonna look at all the infrastructure that we're going to bring back as well. So you think HELCO and you also think Water. And so my neighbors have told you about their understanding of previous agreements that the Department of Water Supply had with Kapoho, and we're just hopeful that this Board sees that and honors that and really looks to the fact that this is not a wasteland. This is an area that for, I look at Leningrad, and I know that Leningrad has a deep history on this island, and so do probably all of you; and you know that Kapoho has always been the playground for the island and people have always loved it, despite the fact that in 1960, it was inundated. So we're not gonna look at this whole area as if we're not ever gonna see people living there again. When you are planning for a road, you're gonna plan for a civilization to accompany that and so, again, just think about the infrastructure that needs to come with the civilization. And I, my family, lost a home in Vacationland, but there is also Farm Lots and there's Beach Lots, and you can see that there is a whole group of people who have banded together; and it started earlier this year when we all came together to talk about the language of our bylaws for our community association, signed by our very own Mayor Harry Kim because he was one of the founders of our subdivision. And I thought the meeting was like going to be the death of our subdivision--how are we gonna divvy up our assets and say goodbye to each other? And it literally was a planning of how we're going to have a rebirth of our community. And I joined their water board because I was so enthusiastic about this group who had hope for this community that we thought we lost. So I just come to you with that same hope, now, and I just hope that you're going to advocate for us as we look at this FEMA money, at whatever money is rolling in here because we're moving on right now, trying to find other places to live and figure out how to have a quality of life; but Kapoho and Pohoiki, those are areas that are still deep in our heart; and I know they're still deep in many of your hearts and your memories of learning how to swim or learning how to surf, and lava never stopped us. That's the beauty of this island. It just makes us more resilient. So, thank you very much and aloha.

After testimony concluded, Mr. Kern announced, for the purpose of full disclosure, that he owns a lot in Kapoho Vacationland/Farm Lots.

(For the record, two written testimonies were received by email prior to the meeting, regarding water in lower Puna.)

3) APPROVAL OF MINUTES

ACTION: Mr. Elarionoff moved for approval of the Minutes of the June 25, 2019, Water Board Meeting; seconded by Mr. Sugai and carried unanimously by voice vote.

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

5) PUNA:

A. **2018 KILAUEA LOWER EAST RIFT ZONE ERUPTION:** (transcribed verbatim)

Manager-Chief Engineer: At the request of the folks at last meeting, we put together a presentation. We don't have copies because we were working on it up to this morning. Get us your emails and we'll send you the presentation. Kurt will go over and I'll interject, if needed.

K. Inaba: We'll start off with basically what you have on the map that was provided to you was a status update at a certain point in time. This next map here provides you the current situation (referring to a Power Point presentation). It is updated where you see the inundation as over towards Pohoiki harbor. The components of the system here that basically we deemed unusable at this point. We had two 100,000-gallon concrete reservoirs--one was the Kapoho reservoir and also one in Lanipuna Gardens which is mauka of or just below Leilani Estates. This is the Lanipuna Gardens, near the rift zone. The reservoir is at this end, and up on Green Mountain, right above Kapoho is the other 100,000-gallon reservoir. We lost over 14½ miles of pipes. Of that, 9½ miles were actually inundated where the lava is over the waterline. We had about 226 accounts, some of them served multiple homes in Vacationland and Kapoho so there were a lot more users than just that number. The current estimate is roughly--that is still being worked back and forth because we are communicating with the State CD and the FEMA staff here. It is about 38 or 39 million dollars. If it gets approved, the FEMA funding will cover approximately 75%, so approximately \$29 million. We did, in October 2018, opted to sign and submit application for what they call the 428 Alternate Procedures, meaning it allows the Department to utilize these funds on improvements we feel necessary for recovery in the area, otherwise you have to take the specific project, and right now because there is no project that we know of, working with the County...most of the County is also using this 428. There are a few projects the County had said they want to use specific funding for specific projects. If you do that, it allows you the opportunity to adjust your prices. The 428 - once they approve the estimate, that is it, you are capped at that funding so you have to work within that budget. Current situation--the difficult part about this that we looked at is typically for us to get funding from outside sources, we have to build a system meeting our Standards and physical conditions--this is some of the stuff we were confirming that when they grubbed the road, the temperature of the lava at the surface was in excess of 600 degrees. The lava, along that route also, in some areas is up to 30 meters thick so it is 100 feet high. We don't have a profile to see if the hydraulics actually work for our system right now. And this is just if we were able to put it back now, at this time. That would also lead to, with the heat, water quality concerns for us. One thing about the temperatures, our gaskets are rated up to 150 degrees. You can get special gaskets, but they are only rated up to 212 degrees. On the surface, even if that ends up cooling down, our system, to meet our standards, we have to trench and bury the lines, which is also a good insulator, so it will hold the heat, which is why that is a major concern, not to mention, to actually install the pipe, we have to have somebody in the trench with that kind of heat on the surface as they are installing it. I don't think there would be anybody who would be able to do that. So these are the physical constraints at this time. Who knows how long down the road, obviously it is going to change but it will take time. Our understanding is it does take years. In terms of serving the park, the County had made a lot of effort to see if we could at least get non-potable water to the park. There was a private well owner that was willing to donate excess water they had. The County was thinking of putting a temporary line to feed the restrooms, only for toilet flushing. The Department of Health would not allow any other connections, not even to sinks because it was deemed non-potable. It is not an approved source. Basically in working with the owner and trying to get information in terms of the ownership of the land and who would give authority or approval for the County to enter into an agreement with, they got a call from the owner and said that he noticed his well water had changed significantly, basically for the worse. We went ahead and collected some samples and these numbers are--just basically looks

like the recharge to that area from mauka had been cut off by that rift zone. He showed where the well location is in comparison to the rift zone. It looks like the fresh water from mauka, making its way down, was kind of cut off and so the water quality got real bad and it is at a point where it is not even recommended, as is, to put into the system because it will corrode the plumbing and fixtures. Current status is we are working with the County as a whole in their recovery efforts to hire a consultant and working with and letting them know what we lost and they are gathering all of the County's information. Where the County is intending to make recovery efforts, we are not sure until the consultant's study is complete and the County will make some decisions. We are assuming that is where the 428 effort will allow us to also participate in that effort. Part of the issue with the roads, so you can grub a road and even if it was temporary, I know it is prepped for permanent, but I don't think it is quite permanent. They did a temporary...it is still temporary. It doesn't meet all of the standards; but it is, in my understanding, not going to take that much more effort to make it a permanent road. The difficult part for us is there is no way of doing a temporary water system, now at this time, that we can turn into a permanent system. So really if there was some kind of effort in terms of temporary, that would have to change into a permanent system and I'm not sure what kind of users we would have at this time. We will need to see when the community starts to get back, at what stage, and how long that is. I know it is kind of a hard issue...they need to see what we are doing; we need to see what they are doing; but at that time, I think we can get more information on the physical conditions. Any questions on that?

L. Elarionoff: Have you ever looked up the meaning of the word "Pohoiki" and "Kapoho"? Both words have the term "poho" in there. If you look up the word "poho" in Hawaiian, it tells you something; and Pohoiki is a small poho, for what it's worth. It tells you what the Hawaiians thought of way back.

Manager-Chief Engineer: We are not offering any position at this point. We just wanted to provide information on what we have available to us that we could share with the Board and community, which is really--we have not made a commitment to go in any one direction yet. Some of the concerns, one being the extreme temperature, we wouldn't put a permanent system into an environment like that because it would not survive. We would have problems with water quality and the gaskets basically would melt. So those are some of the concerns and the other thing that we really need to see is the overall long-term recovery effort and plan because we need to be consistent with that also. If we decide to drop millions of dollars in a place that the recovery plan is not consistent with, then basically we are utilizing our funds and we may need to utilize additional funds to supplement in that long-term recovery plan on top of that. The other question I have, and I don't know if it is really answered yet, is whether or not, if we go for FEMA funding, they will allow it to be used in an area that still has risk. Do we know that?

K. Inaba: We have not gotten that answer that was posed to the FEMA personnel that were here.

(Ms. Hugo joined the meeting at 10:25 a.m.)

B. Parecki: When you say that they are putting the highway in an area that is at risk, what about that?

Manager-Chief Engineer: That is not using FEMA funding.

E. O'Hara: It isn't but they are applying for FEMA funds for all the other inundated roads and they are just short a cost estimate at this point. FEMA is accepting that application.

K. Inaba: We're not sure how they are going to get that in terms of approving that also.

Manager-Chief Engineer: Yeah, and FEMA can accept applications, as we all know. It's whether it's approved.

K. Inaba: And that was kind of brought up because back in the Kalapana eruption, we had a project in Pāhoa that actually...we said that was initially slated for FEMA funds and then they pulled that back.

E. O'Hara: That's the same eruption cycle and that's, understandably, so now that cycle is officially over, 35 years plus; but what happened in 2018 was the culminating event of a cycle that started back then.

Manager-Chief Engineer: Yeah, you can tell us all that but it's not our decision.

E. O'Hara: Yeah, I know that stuff, but yeah.

K. Inaba: We've posed that question. We're not quite sure because, again, if not FEMA funds, then what other kind of funds are we going to use?

E. O'Hara: Do you anticipate knowing any time soon?

Manager-Chief Engineer: We always ask that question. I've asked that, I don't know how many times.

B. Parecki: And one more question. I noticed you checked that one well. What about the Kapoho Well on top of Green Mountain?

Manager-Chief Engineer: That one is gone.

K. Inaba: That one was in the inundated area.

E. O'Hara: What about the Lanipuna Gardens well?

K. Inaba: There was no well. That was only a reservoir there and the Pāhoa Water System feeds that.

Manager-Chief Engineer: We were scrambling to try and reactivate the Green Lake Well even though the chlorides were high, just to get the area some water, and that is when something happened and the lava flow moved real quick down Highway 132 to Four Corners and there was barely time to pull out our generator and the fuel tank. We lost the pump that we had put in.

D. De Luz: One of the concerns is to ensure the DWS is coordinating the efforts in general with the County and to jointly communicate that to the parties so at least there is some conduit in whether that be the Mayor's Office, or I would hope they have one place they can go to make it easier for them to find out what is going on, in other words, in coordinating the..., all what we need to coordinate within the different departments like Public Works, DWS, etc. Maybe suggest if we could ask the Mayor if he could assist with that only because it dynamically changes and so depending upon what they do and what you are attempting to do; and so I think sometimes, speaking may be jumping the gun so maybe there is one conduit so the information is..., you can go to someone and get some assurance that this is as much up to date as we can give you. Second would be is there an alternative to provide safe drinking potable water, whether it is by tank or whatever, for those who are finding their way back to attempt to live there? I realize the Pohoiki one may be more challenging as a park, meaning a catchment system that we have to feed into. I do realize, but I think the third part of this, whatever system the DWS does eventually put into place would have to meet the requirements of safe drinking

water, which unfortunately adds to the efforts to get water to the public. Perhaps those are some considerations.

K. Inaba: And the County has looked at options to provide water back to Pohoiki. I'm not quite sure where they are at with it. We were working with a landowner, but that was relayed to them in terms of the water quality.

N. Domingo: I'm looking at my map and comparing with your map. It seems like you are showing a lot more lava inundation there compared to the maps that we have so it is my estimation it is probably 60% or more of area that was inundated with lava.

K. Inaba: Yeah, so this is the current situation map (he pointed it out on the slide).

N. Domingo: Those fissures out there, they run almost perpendicular to the direction of the road so yeah, that's a clear cut-off..., water supply damaged. Just my comment.

Z. Kern: What is the timeframe on the coming to conclusion with the consultant and all of the various agencies?

K. Inaba: We recently met with them and shared our information. They are going to each department and getting all their information, looking at a holistic gathering of information and then from there, assessing the situation.

Manager-Chief Engineer: We will try to find an answer. Going back to Mr. De Luz's comment, we know that the County did set up a recovery website dedicated for the recovery effort. But again, what we can do is feed the information to the team that the County has working on this effort to make sure that is updated as much as we can update it; and we will try to find out if they have a timeframe in mind as far as that study.

E. O'Hara: I believe it's the end of the calendar year.

T. Hunt: If I may...so we are just a small contingency of our neighborhood and so I guess from our point of view, we don't want to hound you but yet there are people ready and willing to do that (laughter) and so I want to be able to send them a message today that basically right now, the lava is way too hot--it will melt any system that is being proposed; we don't know if we are approved for FEMA funding to restore waterlines; that's the summation. But yet at the same time, we are going to go about our business in hopes that if anything changes in that, we are not just going to go look at some static website, like someone will reach out to us and say, hey, we have an update. We want to feel assured that there is a coordination happening, that this consultant just didn't go around to every department and come up with this really sad story, but yet it is dynamic and ever changing. I can tell you that there are smoking puu's on the east rift zone right now. I don't disagree with the fact that...I'm not ready to move in tomorrow right next to a smoking puu; however, there is a road being cut. There are friends of mine in upper Kapoho who are eager to get back to their places. They can't be here today, so there are people chomping at the bit in order to talk to you, and we just kind of need to feel assured that whoever in this room has the most up-to-date information is going to let us know when is the appropriate time to come back so we're not on the agenda every month, hounding you and we become the most annoying people in your lives. We don't want to do that. I just want to make sure that you understand that we have... as dynamic as this situation is, we have a dynamic group that convinced me that my community isn't dead; that there is life there and it's waiting to be accessed.

Manager-Chief Engineer: If you can email me or email us who it is we should be feeding updates to, we can do that.

T. Hunt: Okay. We'll determine amongst ourselves who is the point person.

O'Hara: I'm already in email contact.

T. Hunt: She seems like she's really good at it. She's a realtor. I'm about to go start school again and so we don't want to be your worse nightmare. We want to work with you and we all understand where we're coming from here. Mr. De Luz said it really well...we want to feel assured that there is a coordination happening...there is some advocacy happening. We totally get it, that the lava is way too hot for a pipe. But as we've seen, that changes. I understand what you mean about not knowing if you want to spend or match, I didn't really understand that part, whatever you get from FEMA; but at the same time, there are people who really don't want to see all that money go to Kea'au. There are people who want to see that recovery money back in Lower Puna because there is still a population there to be serviced. So we just need to make sure that you hear us. We don't want to be at your doorstep when we don't need to be so if we can just have that understanding that we won't hound you every month, but please don't say, oh, it was on the website, because we can't be in a position of always hunting and looking for the information.

B. Parecki: An open line of communication. And you're giving it to us. Thank you.

T. Hunt: Thank you so much.

E. O'Hara: And thank you for putting this on your agenda. We really appreciate it. I wish there were more of us, but there is a bit of a stretch on island right now.

T. Hunt: There are people, for instance, who are actually trying to rebuild right now and so they have appointments with inspectors. There are things happening, so we don't want them to think they're coming next month if they don't need to; but if we come in two months...we just want to know when we should be advocating for our neighborhood.

Manager-Chief Engineer: I doubt we'll have anything different to offer by next month other than if we get some feedback from the County. Maybe Eileen knows the timeframe already on the study.

E. O'Hara: We might be working with the consultant, too, just to host another town hall meeting.

Manager-Chief Engineer: I hope part of their deal is to go out and get feedback from you folks.

E. O'Hara: We would hope, but it's not really shaping up quite like we had hoped so we'll have to shape ourselves.

T. Hunt: We want to feel assured that there is coordination. We're advocating for ourselves today.

Manager-Chief Engineer: Thank you. We hear you.

T. Hunt: Thank you so much. I'm gonna bow out.

L. Elarionoff: I have a couple questions. You know, in the 50's, there was a lava flow that went down to Kona to that lodge, and the State waited years before they built the road over it. Is there any statistic from there that tells how long it takes the lava to cool off?



Manager-Chief Engineer: That we would have to research.

L. Elarionoff: That would give you some rough idea of what is happening in Puna, I think.

E. O'Hara: It would be kind of hard because the first flow was a different lava composition. It was lava that was hidden underground from the 1955 flow. It is not as thick, and is different. It's probably mostly cool already. But the other is a different composition.

K. Inaba: It depends on how deep you go. Even when they grubbed part of the road to get to the Kalapana area, even some of that flow is still pretty warm.

Steve Lund: Thank you. My name is Steve Lund and my house is under 100 feet of lava in that blob there; but I'm representing a non-profit today, called Hawaiian Sanctuary. We're right next to Pāhoā High School, and we have...there's a 100,000-gallon storage tank just about half a mile east of Pāhoā/Kalapana Road from Pāhoā High School. I know that particular...because some of the homes that it was serving were wiped out in Leilani Estates. We don't have County water right next to Pāhoā High School. My neighbor, who has a coffee stand between me and Pāhoā High School, has water from that tank. So what I'm wondering is the sacrifice that I made losing my house, somehow I can get County water to the property next to Pāhoā High School from that storage tank because of the less usage that is involved with the loss of homes in Leilani Estates.

Manager-Chief Engineer: Yeah, we can look into that. It's not gonna be free. (laughter) I'm sure it's probably doable...I had to insert "probably"; but we need to check the specifics. If you give us the parcel number, we can double check for you all the statistics.

S. Lund: Oh, that would be outstanding. I would really appreciate that.

Manager-Chief Engineer: If you could provide the address or the Tax Map Key.

K. Inaba: I'll give you my card.

S. Lund: Thank you.

T. Hunt: Thank you so much. Oh, and this is Eric Cockcroft. He's also with our team. We will update him.

Eric Cockcroft: I was all over town trying to find this place. Well...I just want water. I was a faithful customer for a long time.

Manager-Chief Engineer: Thank you. Appreciate that.

(Members of the public thanked the Board and left the meeting at 10:41 a.m.)

Manager-Chief Engineer: Thank you Kurt. Kurt has been highly involved with this, amongst other things, in working on getting the whole estimate and the numbers and figures on what was lost. Thanks Kurt.

D. De Luz: Mr. Chair, if I may. Maybe as a suggestion, Keith, is you know on some of these projects that are not necessarily booked yet, maybe on your supplemental projects side, you could have it as a footnote, only so it becomes a matter of...because then you folks will... you know, we gotta take

initiative when you make an update but it would be kind of like it doesn't get washed away. I realize that is not within context of how we manage that project list.

Manager-Chief Engineer: What we can do is we can even make it an agenda item. Once it is on the project list, we might hear from Corporation Counsel on how much discussion can actually occur just because it is on a list, versus if we have it as an agenda item, say we do it every quarter for now, and then at least we can have this active discussion and it is agendized, and the public knows that there is going to be a discussion and if they want to show up, they can, or if it's just on that project list, they won't know it's really gonna be discussed. Can we do that?

D. Mellon-Lacey: That's okay.

Manager-Chief Engineer: Maybe do a quarterly thing, so maybe an update in three months, unless we hear something major, then we will put it on the agenda sooner than that.

De Luz: Yeah, and again, just being proactive would be an initiative on our end to manage what we can manage. Thank you.

Chairperson Boswell: Any other comments on Item 5? (There was no further discussion.)

6) NORTH KONA:

A. JOB NO. 2019-1116, HŌLUALOA DEEPWELL REPAIR:

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

Bids for this project were opened on July 11, 2019, at 1:30 p.m., and the following are the bid results:

<b>Bidder</b>	<b>Bid Amount</b>
Derrick's Well Drilling & Pump Services, LLC	\$539,000.00
Beylik Drilling & Pump Service, Inc.	\$599,000.00

Project Costs:

1) Low Bidder (Derrick's Well Drilling & Pump Services, LLC)	\$539,000.00
2) Contingencies (~10.0%)	<u>53,900.00</u>
<b>Total Cost:</b>	<b><u>\$592,900.00</u></b>

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 \$499,000.00.

Well History:

Hōlualoa Deepwell:

Original Installation: March 1986  
Repaired: April 1990

Repaired: July 1994 – Final Contract Amount \$67,160.00  
Repaired: August 1997 – Final Contract Amount \$69,558.00  
Repaired: March 2000 – Final Contract Amount \$155,341.75  
Last Repaired: July 2015 – Final Contract Amount \$334,246.25

Mitigation Measures:

This project will implement the mitigation measure of conducting a borehole alignment survey; motor temperature monitoring; replacing the incoming surge protection device; and power monitoring on the line and load side of the starting equipment.

The Manager-Chief Engineer recommended that the Board award the contract for JOB NO. 2019-1116, HÖLUALOA DEEPWELL REPAIR, to the lowest responsible bidder, Derrick's Well Drilling & Pump Services, LLC, for their bid amount of \$539,000.00, plus \$53,900.00 for contingencies, for a total contract amount of \$592,900.00. 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. Kern moved for approval of the recommendation; seconded by Mr. Sugai.

The Manager-Chief Engineer mentioned that this project will include another mitigation measure called well jetting, which will take the place of the usual brush and bail procedure used to clean out the casing. This is several steps beyond that, which is like a pressure wash of the casing to remove some of the loose scale debris. Also, in the perforated casing, it will get behind the casing and stir up some of the fine particles. This will be the first use of this well jetting in addressing concerns with excess debris coming up through the pump and possibly wearing it out prematurely. It is new to this Department but has been done in other places.

Chairperson Boswell asked what the potential downside would be to it, such as the metal is thin and the pressure washer blows pieces of metal away.

Mr. Young replied that would be the worse-case scenario. In the specifications, it calls for an experienced well jetting mechanic to do the work. That is no guarantee that the casing will not be damaged; however, if that does happen, more than likely, that casing was thin in the first place. Wells have a shelf life and over time, need to be replaced. The Manager-Chief Engineer added that the process will be videotaped.

Mr. Kern asked about the repair in 2015, which seemed like similar scope of work; and back in 2000, it was pretty similar. It seemed a short amount of years in between repairs.

Mr. Young stated that the range of a typical well is four to seven years, but that is a little bit on the shorter side. This well did have some issues with overheating. He would like to think that has been corrected. The well was shut down for a period of time when the higher level wells were running.

Mr. Kern asked if that was that time period between 2000 and 2015.

Mr. Young replied it was but that the well was shut down for pretty much four years, off and on, so it is kind of misleading.

Mr. Kern asked if this type of repair is lasting about four to seven years.

Mr. Young and the Manager-Chief Engineer indicated that the Department is striving for wells running longer than that.

Mr. Kern asked if the changes in the pump to Stainless Steel will help with that.

The Manager-Chief Engineer replied that it was the check valve that will be Stainless Steel.

Mr. De Luz stated that the Department has taken additional mitigation efforts in regards to dealing with well repairs, and as new members join the Water Board, it may be good to take the time and help them better appreciate some of the things that are addressed and the fact that the Department is looking at drilling new wells to create redundancy in the event one well goes down, there is back up. It may be good for Mr. Kern and Ms. Hugo to learn how the Department is applying those new processes.

Chairperson Boswell commented that the Brown and Caldwell report would be a good refresher for anyone new joining the Board.

The Manager-Chief Engineer stated that the Department also came up with a summary that was presented to the Board.

Mr. De Luz stated that it will probably take a generation of going through the process of replacement and he believed that 10 to 15 years from now, these wells that are being upgraded will probably have longer shelf life. Even 10 to 15% is huge when you look at the overall system. There is still a lot of work to be done in that area.

The Manager-Chief Engineer stated that the Department is striving for continuous improvement and does not just rest on its laurels. There are a lot of things being worked on behind the scenes.

Chairperson Boswell was curious about how the borehole alignments will go, which are relatively new, and there really are no baselines from 20 years ago. Some of these new procedures are setting the baselines, but some of the findings on current well casings are that they have kinks in them. It would be interesting for the Board to hear the results of those tests as they continue to be done. He was sure the benefit of doing the tests are big.

Mr. Young gave a short report on the findings of borehole alignments. It is being found that some wells are more crooked than expected, and that is a problem for the pump and electrical equipment going down in the hole. You are basically sending a straight piece of pipe and pump down in where you have all these turns, which places a lot of stress on the mechanical equipment. One of the mitigation issues is go with lineshafts as much as possible because they typically get 10 to 15 years of life. From initial findings, it looks like a lot of sites will not be able to have that application because the holes are just too crooked. It gives an idea what to work with in terms of the equipment that has to be put down there.

Chairperson Boswell compared it to telephone poles in some areas that are leaning and he knows they were not put in that way. It indicates the earth is moving and he thinks the borehole alignment will be interesting to prove some of that out. It may not provide an answer on how to do it in the future, necessary, unless we use huge casings to make up for the deviations in alignment.

Mr. Elarionoff asked about the tremendous cost factor between the well repairs listed, beginning in 1994 up to present, and if it was because of the need for more repairs or just due to the price of things.

Last month, there was discussion on what it is going to cost a few years down the line as far as water charges.

The Manager-Chief Engineer stated that it could not be nailed down to one single component; he was sure there are numerous things. It is noticeable to the Department how much repair costs have gone up, and it is not on the same track as inflation. There are only two drillers bidding on projects, and whether that plays into the costs as well, he did not have an answer.

Mr. Domingo asked if it might be possible to create a model to identify potential weak points and computations of fuel dynamics and flow to see if a better system might be generated that way.

Mr. Young said that was a good question and going back to the alignment issue, the Department has been getting some good data and is looking at somehow modeling it. Brown and Caldwell is looking at if there is a way to look at the stresses using finite elements--just basically looking at the stresses on a pump down in a hole that is crooked and the potential impacts on that equipment. No one else is doing it, so we are kind of on the cutting edge in some ways. We have to look whether we can model a program ourselves, maybe using a 3D program.

Mr. Domingo agreed, these are unique units; not commercial "off-the-shelf" items.

Mr. De Luz shared what he learned by attending the American Water Works Association conference in Denver this year. He thanked the Department for sending him and Mr. Sugai. He learned that most utilities only deal with one or two aquifers or water sources. This Department must deal with the uniqueness of each geographical area on this island, not only in topography, but in the drilling of wells. One of the things emphasized at the conference was that as much as modeling can be done, and some utilities have the ability because they have a tremendous amount of soil types, Hawai'i is very different and has a complex system--23 water systems. One of the challenges will be having the public understand that complexity. The Department is in an area where there have been no plans and the consultants are actually learning as they come into this; and one of the things learned is there may be a need to create some kind of hedge in capital improvement funds. It may be a sore subject because it means we are going to have to look at our water rate schedule. One, it will ensure the availability of clean and safe water; second, there will be opportunity to understand how to maintain that system to be reliable; and third, provide an opportunity to expand the system.

Mr. Kern asked if the Department receives a schematic of how the well looks, going down, when the borehole alignment tests are done, showing the deviation of it the well.

Mr. Young replied that they give the Department a drawing, and the Manager-Chief Engineer indicated it could be shared with the Board if desired.

Mr. Kern stated that he would be curious about that and if the findings differ in the different geographical areas of the island or whether it shows indications of how a well was drilled.

Mr. Young stated that was a good question. Every well is unique and a lot of it has to do with the skill of the driller.

Mr. Kern stated that was what he was getting at as well--perhaps wells drilled some time ago were not done with the same technology as now. Maybe those findings will help make sure we are using the best pumps.

Mr. Young stated that the technology is definitely better now. There are better metrics so we can evaluate the wells in the future when we do get new wells drilled.

The Manager-Chief Engineer noted another point of education for the Board, which is prior to this borehole alignment study, basically a plumbness alignment test was done by sending a 40-foot-tall dummy down the casing, like a plumb bob, looking at deviations every so many feet in an X and Y axis and basically measuring at the surface what this plumb bob is doing down the hole. There is a better picture now. As Chairperson Boswell said, this is our baseline now. We do not know if it is due to earth movement or that was how it was when it was drilled. But moving forward, at least it is something we can evaluate now. The recommendation is to do a borehole alignment while they are in the process of drilling as part of their normal procedure, they would do some kind of process on their own to verify that their plumbness is good because they do not want to get all the way to the bottom and we reject them at that point.

Mr. Kern asked if it is a recommendation or a requirement.

Mr. Takamoto stated that the subcontractor recommended it. Instead of doing the borehole alignment after the fact, it can be done upfront while they are drilling to make sure the hole is straight. It is done concurrent with the drilling because the instrument that records the alignment is on the drill string, and adjustments can be made on the fly.

Chairperson Boswell noted that the baseline starts, in that case, when the well is drilled.

Mr. Sugai asked how the silt will be disposed of after the pressure washing is done to avoid it causing a failure in the equipment.

Mr. Young replied it will be bailed out.

Chairperson noted that this discussion was a good education. There was no further discussion.

ACTION: Motion was carried unanimously by voice vote.

**B. JOB NO. 2018-1098, PALANI DEEPWELL A REPAIR – REQUEST FOR TIME EXTENSION:**

The contractor, Derrick's Well Drilling & Pump Services, LLC, is requesting a contract time extension of 60 calendar days. The delivery of the pump and motor equipment is being delayed due to the motor manufacturer having a failure of their lamination machine, which is required for the fabrication of the motor. This delay was beyond the control of the contractor.

*Note: There are no additional costs associated with this time extension.*

1<sup>st</sup> time extension – 60 calendar days

The Manager-Chief Engineer recommended that the Board approve a contract time extension of 60 calendar days to Derrick's Well Drilling & Pump Services, LLC, for JOB NO. 2018-1098, PALANI DEEPWELL A REPAIR. If approved, the contract completion date will be revised from August 23, 2019, to October 22, 2019.

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

The Manager-Chief Engineer had Mr. Takamoto explain the lamination machine part of this project; but beyond that, the Board can see from documentation how the contractor was asked to provide all justification as to their timely order and following up regularly with the manufacturer.

Mr. Takamoto showed the Board two samples, a lamination for a stator and one for a rotor. The lamination machine that failed at the manufacturing facility presses all the laminations together and they hand wind the copper wire on the laminations. By doing laminations, you get more efficiency.

Mr. De Luz also noted, from his attendance to the national conference, how unique this industry is where just about every item is custom engineered. Still, it is difficult to understand, in this day and age, why the manufacturer cannot get it done. It seems like even in the design phase, it has to be verified before they actually build it. Everyone he heard from says it is a best guess estimate. That aside, one of the biggest challenges is the remoteness of Hawai'i and not having the ability to have pumps and motors tested here. In his experience on the Fire Commission, they do not ship until they accept delivery from the manufacturer. He understood that some large utilities have testing sites or they subscribe to testing sites that do the same thing. He hopes there is a better way to have everyone appreciate and understand that when going out for bids, the uniqueness of what is being manufactured could cause unexpected delays.

ACTION: Motion was carried unanimously by voice vote.

7) MISCELLANEOUS:

A. DEDICATIONS:

1. **Grant of Easement and Bill of Sale**  
**Grantors: Chun-Kai Huang and Yan Huang**  
Subdivision No.: 2015-1514  
Tax Map Key: (3) 2-2-043: 002  
Facilities Charge: \$16,500.00; Date Paid: 5/2/2019  
Final Inspection Date: 4/22/2019  
Water System Cost: \$13,850.00

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

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

Mr. Inaba provided a map of the area as this dedication looks similar to last month's; however, this property is just below the property that was approved then. It is a similar property but a different subdivision.

ACTION: Motion was carried unanimously by voice vote.

B. MONTHLY PROGRESS REPORT:

Mr. Inaba highlighted a few projects:

- 1) Waikoloa Reservoir No. 1 Earthquake Repairs - the project required a redesign and is on hold rather than having the contractor incur costs with the equipment on the site. The redesign plans

have been sent back to the Department of Land and Natural Resources (DLNR) and their consultant and also to FEMA for review and approval. The approval process is anticipated to take up until December. There was a rumor going around that the contractor was no longer going to do the job and perhaps it could go to the second lowest bidder; however, that is not the case. There are two components to the redesign, one being that the length of time spent getting the initial design approved. After the reservoir was first emptied the panels started lifting over time, and current conditions are different from what the plans reflected. Second, once the contractor went into the forest area to clear that section, there was a discovery of some groundwater where the perimeter road was going to go, and that needed to be taken care of. The redesign will be for the two major components--redesign of the embankment and the road as well the interior of the reservoir.

Chairperson Boswell asked if the Board will be seeing an increase in contingency, a change order, and a contract time extension.

Mr. Inaba replied there will be a significant cost change but hopes it will still end up within the contingency. Staff is working closely with the contractor, taking into account the difference in scope.

The Manager-Chief Engineer noted that this was an update or a heads up for the Board before it is placed as an agenda item for action.

Mr. Inaba stated there definitely will be a time extension request, and that will tie in with FEMA's portion of the funding.

Mr. Elarionoff asked what happens if the conditions of the reservoir change again while the redesign is taking place.

Mr. Inaba replied that over time, because of the initial release of pressure from the panels, now the motion should be slowed down enough or has stabilized.

Chairperson Boswell asked what happens when water is put back in after the panels are fixed.

Mr. Inaba replied that it is being taken into consideration once the reservoir is loaded back with water. There will be a liner put in and it has to have that play.

Mr. Domingo wondered what happens if something else comes up in the meantime.

Mr. Inaba explained that part of the advantage is that the consultant is able to work with the contractor on the constructability of the design and get the most feasible option for the existing conditions and will continue to look at it as the project moves along.

The Manager-Chief Engineer explained that this project follows the DLNR's Dam Safety program. There is an extra layer of review where they have their consultant look at the design, and it must receive their approval. In this case, FEMA also has to get involved because of the reimbursement. This earthquake happened in 2006; and the reason it took so long, initially, was because of all of the agency reviews. This next pause is short compared to that initial delay.

Mr. Domingo stated that this initial design was done, construction began, and then it just fell through the crack, now being paused for a redesign. Delays cost money.



Mr. Inaba stated that the reason to put the hold on the project was so that the contractor will not incur any additional costs to maintain equipment at the site.

The Manager-Chief Engineer stated it will require a demobilization and mobilization, but it will cost less than standby, and the Department is mindful of delays costing money.

- 2) Hala'ula Well Development, Phase 2 – the Department held the community meeting on July 16 where they were informed about the start of construction. There was a good turn-out. The contractor, Goodfellow Bros., Inc., came out with their project engineer and their project foreman and spoke to the community about their anticipated schedules and potential impacts to the community. They provided their contact information in case there were concerns.
- 3) North Kona Mid-Level Well Development - Phase 1 - Mr. Inaba handed out a map to the Board, in response to the Chairperson's question at the last meeting. The map shows the two locations that the Department is looking at. There are two options, and the Department is working with two landowners. The State well is located just south of the two locations. Because of limited information, Option 1 would be the closest; however, if an agreement cannot be reached, there is Option 2.

Chairperson Boswell asked about the direction the water will be taken, whether horizontal or down to Queen Ka'ahumanu Highway.

Mr. Inaba replied that there is not a great transmission to go horizontal, so we are looking at going down to the highway.

The Manager-Chief Engineer noted it was just makai of the site.

Chairperson Boswell asked if that was because of the waterways [the flood channels].

Mr. Inaba stated that is going to be a challenge.

Mr. Inaba stated that if the Department were able to successfully drill test this well, it would be something to look at putting a lineshaft in.

The Manager-Chief Engineer added that if this pans out to be a long-term, viable source for the region, it would be a game changer as far as maintenance. The motor would be on the top and the pump down in the hole and would save energy costs as well. It is high-quality water.

Chairperson Boswell asked if both landowners would need to do their development in order to receive water.

Mr. Inaba replied that even if they do not want to develop, the Department would want to put in storage and transmission to get down to the highway.

Chairperson Boswell stated that it would be better for them to get involved if the Department is placing easements across their property.

The Manager-Chief Engineer said that was the Department's thinking. They may be in the right place at the right time.

Chairperson Boswell added that it would be a blessing for this area.

In response to Mr. Elarionoff's question of who the landowners are, Mr. Inaba replied that the Department tries to be sensitive to the landowners it negotiates with and would prefer not to reveal that right now.

Chairperson Boswell stated that it would supplement and hopefully compensate for the Kahalu'u Shaft and increase the water quality.

The Manager-Chief Engineer stated that the long-term goal is to get off that source.

Mr. Inaba stated there will be a horizontal connection to bring some high-pressure water to the sites for some of the equipment functions such as disinfection and emergency eyewash.

- 4) Source Water Assessment - North Kona - drilling was awarded to Derrick's Well Drilling. When they went in for their permits, it was found out that when the property was created at the tank site at the bottom of Hina Lani, everything went okay with the County side and the property was always intended to be subdivided out with all of the Environmental Assessments (EA), etc., but it was not necessarily stated that it would be subdivided. Therefore, whatever was reviewed by the State agency, being that it is in the Conservation District, was never formally approved, so we currently have to go back get the Conservation District Use Permit (CDUP), at the State level, for the subdivision. The subdivision is already complete, but this needs to be done at this time.

Mr. Kern asked if the EA was done for the CDUP.

Mr. Inaba replied that it was done. The consultant is working on the CDUP with the State.

Chairperson Boswell asked if it takes this process before that tank can be turned over to the Department of Environmental Management (DEM).

Mr. Inaba replied that it does take that process before anything can be done.

The Manager-Chief Engineer stated that at the bottom of Hina Lani Road is the control tank that our Department gave to DEM but as part of our efforts in being good stewards of the resource, we committed funds to do a monitoring well to ensure the aquifer is being managed properly, which is directly mauka of the National Park. This lack of CDUP was revealed when the contractor went in for their drilling permit. This is for the Board's information as there is going to be a pause on that project as well.

Mr. Sugai asked what kinds of things would be monitored with this well.

Mr. Inaba replied that it will be a relatively deep monitoring well, and salinity and temperature profiles can be obtained and compared with other data such as atmospheric pressure, tides, and other wells mauka to see correlations in the data.

The Manager-Chief Engineer added that even makai, the ones on the boundary of the Park and Kohanaiki will provide more data.

Mr. Inaba stated that the contractor, Derrick's Well Drilling & Pump Service, will need to submit a time extension request for this.

**C. PROFESSIONAL SERVICES AGREEMENT – WATER RATE STUDY:**

Professional services for 5-year water rate study.

- Consultant: Harris & Associates
- Estimated Fee: \$562,706.00

The Department recognizes the need to conduct a water rate study for the 5-year period FY21 – FY25 to make sure water revenues are sufficient to provide for the Department’s operating expenses, debt service obligations, and capital improvements needs.

The Manager-Chief Engineer recommended that the Board approve the above project, and that either the Chairperson or Vice-Chairperson be authorized to sign the documents, subject to approval of Corporation Counsel.

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

The Manager-Chief Engineer stated that this will be more than just a water rate study. There are a lot of things that will feed into a water rate study, like a master plan and a needs assessment, which will eventually come out with the proposed water rates for down the road. Some of the earlier discussions on planning for the future will be fed into this study.

Mr. Elarionoff asked if this was by bid or just this one selection.

The Manager-Chief Engineer replied that this is a professional services procurement where an evaluation is done before selecting a consultant.

Mr. Elarionoff thought that the price was kind of high, but he did not know what it entailed.

The Manager-Chief Engineer stated that it is a water master plan, a needs assessment, and a rate study. In consulting work, the Department tries to look for industry experts who have done water rate studies for other utilities. That insulates both the Department and the Board from having this pre-determined agenda as to setting rates. It is done by a professional consultant that has experience in this area. The last time a master plan and a resulted rate study were done back in 2005 or 2006, it came out higher than this.

Mr. Kern asked if they were based out of California.

The Manager-Chief Engineer replied they have a few offices.

Mr. Sumada added that the person doing the study is from Seattle.

ACTION: Motion was carried unanimously by voice vote.

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

No questions.

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

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

1. North Kona Wells - the Deputy provided an update on the wells. Of the fourteen sources in the North Kona system, nine are online. Five are offline, which are: Makalei, Hualālai, Palani, Wai‘aha, and Holualoa wells. For Makalei Estates Well, the developer, Palamanui, completed negotiations with their consultant and expect to complete their contract for design by the end of this month. Whatever repairs are done on that well, we will make sure they implement our strategies moving forward, such as power quality monitors, temperature monitors, in their repair specifications. For Hualālai Well, the power cable will be shipped out this week and is expected to be here by the middle of next month. The power cable and Positive Seal Check Valve are being added to the project. For Palani Deepwell, a time extension will be forthcoming. For Wai‘aha Well, there is a litigative hold on the repair of the well so there is nothing to report. For Holualoa Well, the project was awarded this month. Once the notice to proceed goes out, the contractor will have 150 calendar days to complete the project, taking it into February of 2020.
  
2. Employee of the Quarter Award - Second Quarter 2019 - Mr. Young introduced Mr. Eric Davis, a very good employee, who started working for the Department in May of 2014 as an Electrician for the Waimea baseyard. He has two sets of skills: he is a licensed electrician and an electronics technician and is good in both these distinct fields. He became an Electronics Technician in August of 2016. He also has an electrician supervising license so he has a lot of value for the Department. He is currently working on the SCADA system and is a very good programmer. Other than these skills, he is a great worker. When emergencies come up or something needs to get done, he steps up to the plate. The Manager-Chief Engineer added that he was also working at the Kapoho Well when the Department was trying to outfit it during the lava flow, setting up temporary controls. It was a heartbreaker when the well was inundated with lava.

F. **CHAIRPERSON’S REPORT:**

1. Chairperson Boswell stated he did not have a report but felt today’s meeting was good. It was a good education for everybody, and very helpful. A condensed version of the Brown and Caldwell report would be good to see again.

8) **ANNOUNCEMENTS:**

1. **Next Regular Meeting:**

The next meeting of the Water Board will be August 27, 2019, 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 September 24, 2019, 10:00 a.m., in the Department of Water Supply, Operations Center Conference Room; 889 Leilani Street, Hilo, Hawai‘i.

9) **ADJOURNMENT:**

**ACTION:** Mr. Kern moved to adjourn the meeting; seconded by Ms. Hugo and carried unanimously by voice vote. The meeting adjourned at 12:22 p.m.

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Recording Secretary

(APPROVED BY WATER BOARD: 8/27/2019)