

## BOARD OF WATER SUPPLY

CITY AND COUNTY OF HONOLULU  
630 SOUTH BERETANIA STREET  
HONOLULU, HI 96843  
[www.boardofwatersupply.com](http://www.boardofwatersupply.com)



April 19, 2022

RICK BLANGIARDI, MAYOR

BRYAN P. ANDAYA, Chair  
KAPUA SPROAT, Vice Chair  
RAY C. SOON  
MAX J. SWORD  
NA'ALEHU ANTHONY

JADE T. BUTAY, Ex-Officio  
DAWN B. SZEWCZYK, P.E., Ex-Officio

ERNEST Y. W. LAU, P.E.  
Manager and Chief Engineer

ELLEN E. KITAMURA, P.E.  
Deputy Manager and Chief Engineer

### NOTICE

The Board of Water Supply, City and County of Honolulu, will hold a Regular Meeting on Monday, April 25, 2022, at 2:00 p.m. in the Boardroom, Public Service Building, 630 South Beretania Street, Honolulu, Hawaii.

The public may also attend the meeting from the lobby of the Board of Water Supply, Public Service Building, 630 S. Beretania St. Honolulu, HI 96843, via interactive conference technology.

### TESTIMONY

Testimony can be submitted as follows:

- Written testimony may be emailed to [board@hbws.org](mailto:board@hbws.org) or faxed to (808) 748-5079. Testimony is requested by Monday, April 25, 2022, at noon. Written testimonies should include the submitter's address, email address, and phone number. Written testimony will be posted to the BWS website at [boardofwatersupply.com](http://boardofwatersupply.com).
- Mail written testimony to Board of Water Supply, 630 S. Beretania St., Honolulu, HI 96843. Testimony is requested by Monday, April 25, 2022, at noon.
- On-line testimony will be accepted at [boardofwatersupply.com/testimony](http://boardofwatersupply.com/testimony). Fill out the testimony form. It is requested by Monday, April 25, 2022, at noon.
- Telephone testimony will be accepted during the meeting at (808) 748-6040. Callers will be placed in a queue and brought up to testify one at a time.
- In-person testimony will be accepted during the meeting at the Board of Water Supply, Public Service Building, 630 S. Beretania St. Honolulu, HI 96843 via interactive conference technology.

Testimony is limited to two (2) minutes and shall be presented by the registered speaker only.

### MATERIALS AVAILABLE FOR INSPECTION

Meeting materials ("board packet" under HRS Section 92-7.5) are accessible at [www.boardofwatersupply.com/boardmeetings](http://www.boardofwatersupply.com/boardmeetings).

### VIEWING THE MEETING

The meeting will be viewable via live streaming on:

- (1) the BWS website: [www.boardofwatersupply.com/live](http://www.boardofwatersupply.com/live). Video will appear on screen. You may have to click the arrow on video to start it. You may have to unmute audio as muted audio tends to be the default setting.

### SPECIAL REQUESTS AND ACCOMMODATIONS

If you require special assistance, an auxiliary aid or service, and/or an accommodation due to a disability to participate in this meeting (i.e., sign language interpreter; interpreter for language other than English, or wheelchair accessibility), please call (808) 748-5172 or email your request to [board@hbws.org](mailto:board@hbws.org) at least three business days prior to the meeting date.

The agenda for the April 25, 2022, Regular Meeting of the Board of Water Supply is as follows:

**ITEMS REQUIRING BOARD ACTION**

1. Approval of the Minutes of the Regular Meeting Held on March 28, 2022
2. Adoption of Resolution No. 939, 2022, Kazu Hayashida, To Honor His Memory and Accomplishments in Leadership Positions at the Board of Water Supply from 1974 to 2000
3. Adoption of Resolution No. 940, 2022, Authorizing the Submittal of American Rescue Plan Act 2021 (ARPA) State & Local Fiscal Recovery Fund (FRF) Funding Requests to the City & County of Honolulu for Eligible Investments In Water and Expenditures for Infrastructure, as Allowable Under ARPA, and Authorizing the Manager and Chief Engineer, Board of Water Supply to Accept FRF Funds for the Designated Project Applications Upon Approval by the City & County of Honolulu
4. Authorizing a Public Hearing to Consider the Proposed Fiscal Year 2022-2023 Operating and Capital Improvement Program Budget

**ITEMS FOR INFORMATION**

1. Update on Board of Water Supply's Response to the Potential Impacts of the Red Hill Fuel Contamination
2. Recruitment Status
3. Status Update of Groundwater Levels at All Index Stations
4. Water Main Repair Report for March 2022

**EXECUTIVE SESSION**

1. Approval of the Minutes of the Executive Session Held on March 28, 2022
2. To Consult with the Board's Attorney on Questions and Issues Pertaining to the Board's Powers, Duties, Privileges, Immunities, and Liabilities Pertaining to Matters Concerning the Red Hill Bulk Fuel Storage Facility [HRS §92-5(a)(4)]

## MINUTES

### THE REGULAR MEETING OF THE BOARD OF WATER SUPPLY

April 25, 2022

At 2:01 PM on April 25, 2022, in the Board Room of the Public Service Building at 630 South Beretania Street, Honolulu, Hawaii, Board Chair Andaya called to order the Regular Meeting.

**Present:** Bryan P. Andaya, Chair  
Kapua Sproat, Vice Chair via WebEx  
Ray C. Soon, Board Member  
Max J. Sword, Board Member via WebEx  
Na'aiehu Anthony, Board Member via WebEx  
Jade T. Butay, Board Member, Ex-Officio via WebEx  
Dawn B. Szewczyk., Board Member, Ex- Officio

**Also Present:** Ernest Lau, Manager and Chief Engineer  
Ellen Kitamura, Deputy Manager and Chief Engineer  
via WebEx  
Jason Takaki, Program Administrator,  
Capital Projects Division via Vimeo  
Jennifer Elflein, Program Administrator,  
Customer Care Division via Vimeo  
Kathleen Elliott-Pahinui, Information Officer,  
Communications Office via WebEx  
Raelynn Nakabayashi, Executive Assistant I,  
Executive Support Office via WebEx  
Jason Nikaido, Program Administrator,  
Field Operations Division via WebEx  
Joseph Cooper, Waterworks Controller,  
Finance Division via Vimeo  
Michele Thomas, Executive Assistant I,  
Human Resources Office via WebEx  
Henderson Nuuhiwa, Program Administrator,  
Information Technology Division  
via Vimeo  
Michael Matsuo, Land Administrator, Land Division  
via Vimeo  
Erwin Kawata, Program Administrator,  
Water Quality Division via WebEx  
Barry Usagawa, Program Administrator,  
Water Resources Division via WebEx  
Kevin Ihu, Program Administrator,  
Water System Operations Division  
via Vimeo  
Kathy Mitchell, Administrative Services Officer  
via Vimeo  
Deanna Thyssen, Manager Secretary via WebEx

Steven Norstrom, Information Specialist II,  
Communications Office via WebEx  
Stella Bernardo, Information Specialist II,  
Communications Office via WebEx  
Michele Harman, Community Relations Specialist I,  
Communications Office via WebEx  
Keoni Mattos, Information Specialist II,  
Communications Office via WebEx

Others Present: Jeff Lau, Deputy Corporation Counsel  
via WebEx  
Jessica Wong, Deputy Corporation Counsel  
via WebEx

## REGULAR MEETING

Chair Bryan Andaya welcomed everyone to the April 25, 2022, Regular Meeting of the Board of Water Supply (BWS). Before beginning the meeting he went over a few meeting regulations required by law. Board Members attending the Board Meeting remotely must be visible to the public to be considered present and meet quorum guidelines. He also stated that during roll call Board Members participating remotely must disclose their location and anyone that may be present at their location.

Chair Andaya stated that all Emergency Order Proclamations ended. He announced that the public would be allowed to attend Board Meetings at the BWS, Public Service Building, 630 S. Beretania Street, Honolulu, HI 96843, via interactive conference technology.

Chair Andaya requested a roll call for the Regular Meeting and asked those participating remotely to keep their cameras on during the meeting to comply and meet quorum guidelines. Chair Andaya asked each Board Member to respond verbally and state who is present in the room if participating via WebEx when their names were called. Vice Chair Kapua Sproat, aye and alone at her current location; Board Member Max Sword, aye and alone at his current location; Board Member Jade Butay, aye and alone at his current location; Board Member Dawn Szewczyk, aye and present in the Board room; and Board Member Na'alehu Anthony, aye and alone at his current location. Chair Andaya was present in the Boardroom.

At 2:04 PM Chair Andaya announced that Board Member Ray Soon joined the Board meeting in the Board room.

Chair Andaya asked all attendees calling in or video conferencing to please mute their microphones when not speaking to the audience. When intending to speak, unmute their microphone and identify themselves before speaking.

Chair Andaya introduced those present in the Boardroom, Manager Ernest Lau, and Board Secretary Joy L. Cruz-Achiu. Joining via WebEx to monitor public testimony is Steven Norstrom, Information Specialist II, Communications Office. Joining from the City and County Corporation Counsel were Deputy Jeff Lau and Deputy Jessica Wong via WebEx.

The following procedures are in effect for the meeting:

Chair Andaya shared the various ways to submit testimony: Written testimony may be submitted by email to [board@hbws.org](mailto:board@hbws.org), by fax to (808) 748-5079; mailed to Board of Water Supply, 630 S. Beretania St., Honolulu, HI 96843; or online at the [boardofwatersupply.com/testimony](https://www.boardofwatersupply.com/testimony), which were all due on Monday, April 25, 2022, at noon. However, late testimony will be accepted by email, fax, or mail. Telephone testimony is accepted by calling (808)748-6040, where you will be put in the queue and allowed to testify one at a time. In-person testimony is being accepted at the Board of Water Supply, Public Service Building located at 630 S. Beretania St. Honolulu, HI 96843. Pursuant to HRS Section 92-7.5, Board Meeting materials are available to view on our website at [www.boardofwatersupply.com/boardmeeting](https://www.boardofwatersupply.com/boardmeeting).

Chair Andaya also announced the Board Meeting is broadcasted live on the BWS website at [www.boardofwatersupply.com/live](https://www.boardofwatersupply.com/live).

Chair Andaya announced that he would be taking the agenda out of order, starting with the item for information, item number one, "Update on the Board of Water Supply's Response to the Potential Impacts of the Red Hill Fuel Contamination".

ITEM FOR INFORMATION NO. 1

"April 25, 2022

UPDATE ON  
BOARD OF  
WATER SUPPLY'S  
RESPONSE TO  
THE POTENTIAL  
IMPACTS OF  
RED HILL FUEL  
CONTAMINATION

Chair and Members  
Board of Water Supply  
City and County of Honolulu  
Honolulu, Hawaii 96843  
Chair and Members:

Subject: Update on Board of Water Supply's Response to the Potential Impacts of the Red Hill Fuel Contamination

Ernest Lau, Manager & Chief Engineer; Erwin Kawata, Program Administrator, Water Quality Division; Barry Usagawa, Program Administrator, Water Resources Division; and Kathleen Elliott-Pahinui, Information Officer, Communications Office, will give an Update on Board of Water Supply's Response to the Potential Impacts of the Red Hill Fuel Contamination

Respectfully Submitted,

/s/ ERNEST Y. W. LAU, P.E  
Manager and Chief Engineer

Attachment"

The foregoing was for information only.

DISCUSSION:

Manager Lau stated that Barry Usagawa, Program Administrator, Water Resources Division; and Kathleen Elliott-Pahinui, Informations Officer, Communications Officer, and Erwin Kawata, Program Administrator, Water Quality Division, gave the report.

Before the presentation began Manager Lau expressed his gratitude to the Board and the community for everyone's support. He shared that the Department of Justice and the United States (U.S.) Navy withdrew their appeal against the Department of Health (DOH) Emergency Order in State court and withdrew their request for an underground storage tank permit from the DOH.

Manager Ernest Lau recognized Mr. Barry Usagawa to provide an update on the water shortage plan.

During Mr. Usagawa's presentation, Vice Chair Kapua Sproat inquired if the two water sources that Mr. Usagawa was referring to and stated would be back online in June were the Kalihi Pump Station and Kalauao Wells.

Mr. Usagawa responded affirmatively.

Mr. Usagawa also shared that the Aiea and Halawa weekly pumpage with a max day Q95 demand of 4 mgd and said the water systems will struggle

to meet the max day demand due to the shutdown of 50% of pump capacity.

Board Member Ray Soon asked if the pumpage graphs presented are daily or weekly readings.

Mr. Usagawa replied that the reports are gathered weekly.

Board Member Soon asked if there has been an impact in the max day demand since asking for voluntary water conservation.

Manager Lau responded that the request for voluntary conservation was on March 10, 2022, which appeared to show a decline but this was mainly driven by rainfall.

Mr. Usagawa continued with the presentation and shared a summary of the new development projects.

**SUMMARY OF NEW DEVELOPMENT PROJECTS**

Honolulu Water System Projects		Avg Day Demand	Max Day Demand
Permits under review & construction & Approved Construction Plans	3,929	2.5 mgd	
Proposed Projects (3-5 years)	12	0.8 mgd	
Proposed Projects (Beyond 5 years)	25	2.1 mgd	
<b>Total</b>	<b>3,966</b>	<b>5.4 mgd</b>	<b>8.1 mgd</b>

Aiea Halawa Water System Projects		Avg Day Demand	Max Day Demand
Permits under review & construction & Approved Construction Plans	117	0.024 mgd	
Proposed Projects (3-5 years)	1	0.028 mgd	
Proposed Projects (Beyond 5 years)	3	0.99 mgd	
<b>Total</b>	<b>121</b>	<b>1.04 mgd</b>	<b>1.5 mgd</b>

Manager Lau stressed that the table shows a point in time estimate and actual water demand can change. The BWS will continue to update these estimates by working with the City Department of Planning and Permitting (DPP), the State, and the developers of large projects.

Board Member Soon inquired as to how the average day demands were calculated. The first line on the table shows 3,929 projects requiring an average day demand of 2.5 mgd and the third line shows 25 projects requiring 2.1 mgd.

Manager Lau explained that the estimated water demands are dependant upon the size of the project. The table includes all permits for both small and large development. The 25 projects are the larger developments that have larger estimated water demands.

Board Member Soon requested that the BWS provide a breakdown and explanation of new development projects at a future meeting.

Mr. Usagawa continued with the presentation and shared the Assessed Water Shortage Condition and Water Conservation Responses table.

Water Shortage Condition	Source Capacity/Demand Trigger	Assessed Water Shortage Condition	Progressively Restrictive Conservation Response
No Water Shortage	Available pumping units meet max day demand in 16 hours, standby pumps not included.		Voluntary – General Seasonal Messaging
Alert	Available pumping units meet $Q_d$ max day demand in 20 hours, standby pumps not included.	Honolulu Water System Max Day Demand $Q_d = 74$ mgd	Voluntary – Targeted Seasonal Messaging Requesting 20% Water Use Reductions
Critical	Available pumping units cannot meet $Q_d$ max day demand in 22 hours, standby pumps not included.	Aiea-Halawa Water System Max Day Demand $Q_d = 4$ mgd	Mandatory in Progressively Restrictive Order: 1) Require Targeted Water Use Reductions; 2) Water Abolments, Flow Restrictions, Rate Surcharges; 3) Moratorium if improvements extend more than 2 years.

Vice Chair Kapua Sproat expressed her concern about pumping the water system for 20 to 22 hours per day for an extended time due to stress on the system, rising chlorides, and damage to the aquifer. She asked if the water system can handle pumping for up to 22 hours per day.

Mr. Usagawa replied that the current water shortage condition is based on limits to pump capacity from the shutdown, but the aquifer levels are fortunately still relatively high. The BWS’s water system history has proven it’s capable of pumping 22 hours per day by redistributing water throughout the system. However, in cases where Oahu is suffering from drought conditions, where low groundwater conditions exist, pumping heavily could affect the resource.

Manager Lau stated that the BWS will need to continuously monitor weather conditions as it is a great unknown.

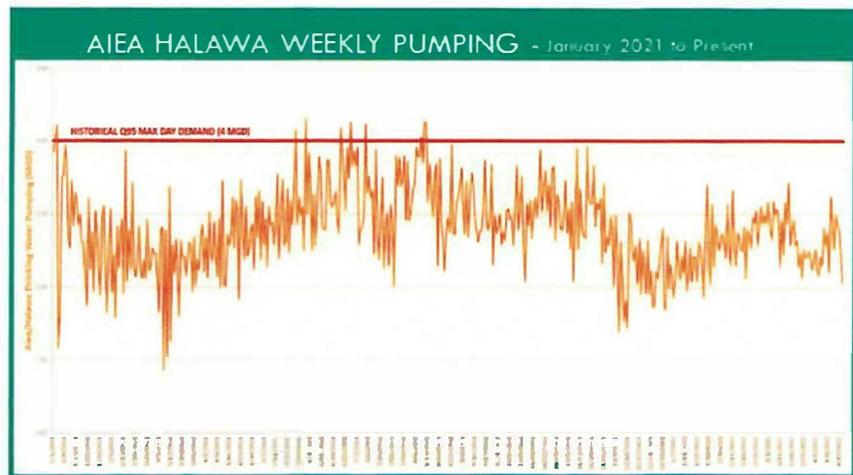
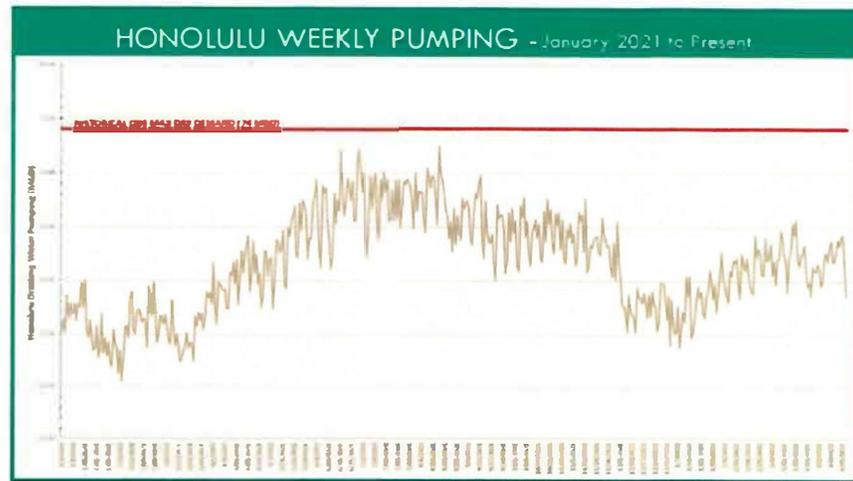
Chair Andaya reiterated that the Honolulu water system is currently in Alert status with pumpage at 60 mgd and is below the max day demand of 74 mgd. The Aiea and Halawa water system is in Critical status, with pumpage at 3.1 mgd and is below the max day demand of 4 mgd. He inquired if the Aiea and Halawa water systems would need to pump for 22 hours to meet the 4 mgd max day demand.

Mr. Usagawa responded that to meet the 4 mgd max day demand the Aiea and Halawa water systems would need to pump 22 or more hours during the summer.

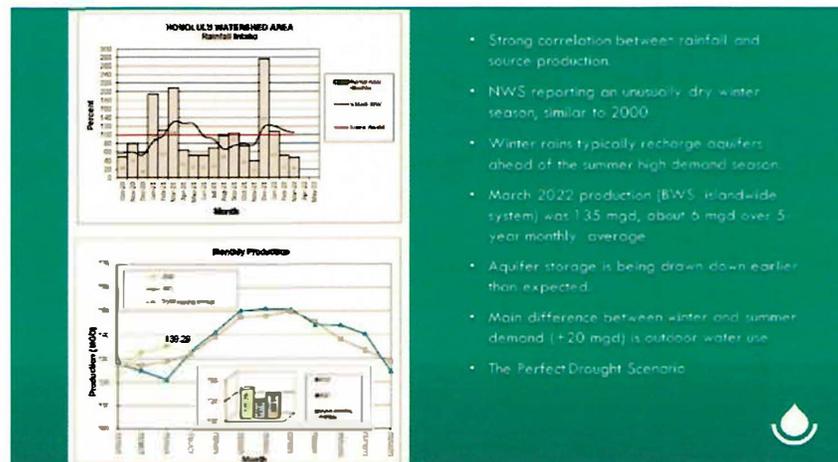
Manager Lau replied since the Aiea and Halawa wells are shut down the remaining wells will need to make up the max day demand.

Chair Andaya asked to clarify whether the presentation applied to the current situation or possible future situation.

Manager Lau replied that the graphs shown below are the current situation for Honolulu Wells and Aiea and Halawa Wells.



Manager Lau requested Ms. Joy Cruz-Achiu to go back to slide four, Honolulu Watershed Area Rainfall Intake and Monthly Production.



Manager Lau explained that in the top graph is the Honolulu Watershed Area Rainfall Intake, which indicates the red line as normal rainfall. In February and March 2022 rainfall fell well below. The bottom graph is the islandwide Monthly Production, which indicates how much water was pumped to meet the water demand. Referring to the bottom graph Manager Lau stated in March 2022 the BWS has had to pump 14 mgd more than what was pumped during the same time in 2021 and above the 5-year monthly average.

Vice Chair Sproat expressed her concern about the increased monthly water monthly production and reduced rainfall.

Chair Andaya inquired if the Aiea and Halawa max day demand is being met now.

Manager Lau responded that Aiea and Halawa is currently producing 3.1 mgd, but the max day will occur in the summer.

Vice Chair Sproat asked if the Summary of New Development Projects included the max day demand for Aiea and Halawa and expressed her concern that the max day demand for Aiea and Halawa and Honolulu water systems is not part of the new development projects.

Manager Lau explained that the projects list is a combination of residential and commercial projects categorized by future demands on three different timelines. The project summary is the best estimate from information gathered from government agencies and the private sector.

Chair Andaya observed that majority of the growth projects for future water demands are from 5-years and beyond.

Manager Lau agreed with Chair Andaya's observation. He stated that half of the Honolulu projects are to be completed in the near future and the other half in the later years.

Chair Andaya inquired about the Aiea and Halawa water system project which is in critical condition. He commented that the majority of the new well projects to increase production is beyond 5-years.

Manager Lau responded that the Aiea and Halawa water system is smaller and requires less to meet the max day demand.

Chair Andaya asked if the BWS can connect both the Honolulu and Aiea and Halawa water systems to make up for the water shortage.

Manager Lau replied that the BWS is working to route water from other sources within the system to replace what was lost due to the shutdown of the Aiea and Halawa wells. He stated that moving water from the Honolulu water system that is short of meeting the max day demand would not be ideal. The BWS is looking into pipeline projects and new wells that would allow the BWS to produce the water needed to meet the max day demands. Manager Lau shared that the BWS is currently rerouting water

from the Pearl City water system to feed the Aiea and Halawa water systems.

Board Member Soon commented that with new development projects being completed the max day demand would increase. Although the Red Hill source is contaminated he believes it's not source, but the capacity to pump and move more water into the areas of need. Board Member Soon understands that it's the balance between both but asked is there capacity in the system to pump more water.

Manager Lau responded that the aquifer can support the demand, but we lost the pumping capacity. He stated that the BWS will continue to look at all the options to move water from areas of excess capacity to meet water demands. Manager Lau shared that he agreed with Mr. Usagawa's viewpoint on protecting our water resources. He stated the issue isn't only about having additional wells but also about water conservation and greater efficiency. He explained that less water usage would allow the water system to handle growth.

Board Member Soon asked if there is anything that the Board can do to assist with the drilling of new wells.

Manager Lau replied that it would help if the permitting process could be expedited. He shared that Mayor Blangiardi signed the BWS letter to Governor Ige to consider expediting the permitting process.

Chair Andaya requested for Mr. Usagawa to continue with his presentation.

Before continuing with his presentation, Mr. Usagawa mentioned that the historical max day water demand decreased because of conservation. He also shared that in the fiscal year 2023 the BWS has a construction project that will interconnect the Pearl City system to the Aiea and Halawa water systems. This project will be simpler than drilling new wells.

Chair Andaya asked that at the next meeting more information be shared with the Board.

Manager Lau agreed to Chair Andaya's request.

Mr. Usagawa continued with his presentation.

At the end of Mr. Usagawa's presentation, Chair Andaya asked if there were any further questions or discussion.

Board Member Na'alehu Anthony requested to see the last slide of Mr. Usagawa's presentation. He stated that BWS has not implemented any of the controls listed on the slide and we are just considering options as we gather more data to get a better understanding of the potential water shortage.

Manager Lau responded that Board Member Anthony was correct.

Board Member Anthony agreed with the other Board Members requesting more information on the new development projects. He commented Oahu has sufficient water. However, due to the shutdown of three wells, the BWS water system cannot support the summer water demand. Board Member Anthony commented that the BWS is responding to the threat on the aquifer that was not imposed by the BWS. The BWS tried to give many warnings to avoid the catastrophe but was dismissed in all their efforts. In response, the BWS is working to accommodate and assure that all BWS customers are provided with sufficient water.

Board Member Anthony specifically requested the BWS to provide information on the projects that would be affected in the Aiea and Halawa and Honolulu areas, the development type, and what stage of the process the project is in. He is curious to know if the BWS would be able to continue with the development projects under such restrictive conditions and if so what would be at stake.

Board Member Anthony expressed his appreciation for the cautionary steps the BWS is taking and all the efforts to bring Kalihi and Kalauao Wells back in service, and the development of new Ewa Wells to meet the water demands.

Manager Lau thanked Board Member Anthony for his comments.

Mr. Usagawa shared that he would like to explore all the possibilities of conservation to see if Aiea and Halawa water demand would exceed the max day demand of 4 mgd. He stated with conservation awareness and the help of the community he is curious to see if the BWS can make it through the summer and accommodate new development projects and then adjust the strategies for the subsequent summers.

Board Member Anthony expressed his deep appreciation to the BWS for all their efforts.

Board Member Soon asked what the BWS's priorities are to support solutions.

Mr. Usagawa responded that the number one priority is to protect the water resource. He explained that overdrawing water from the Honolulu aquifers could cause impacts of rising chlorides and lower water levels. However, he pointed out that aquifer levels in the Aiea and Halawa areas are higher than in Honolulu. He stated that conservation can prevent overpumping. If the community can maintain the water usage at lower levels, we'll be able to get through the summer months.

Manager Lau commented that BWS would provide that information at the next meeting.

Vice Chair Sproat also requested at the next meeting how the "low hanging fruit" would be affected by conservation. She commented that now is the time for innovation. She thanked Mr. Usagawa, Manager Lau, and the

BWS who have worked incredibly hard to keep the BWS and the community sustained.

Board Member Jade Butay agreed with Board Member Soon, Board Member Anthony, and Vice Chair Sproat concerns and questions. It is important to prioritize and work towards a solution that will work for everyone.

Board Member Anthony commented that there is no quick solution to all the development requests. He stated the loss of three wells was not foreseen. Therefore, the community is learning to cope with the loss of those wells, while the BWS is working on recovery efforts.

Manager Lau agreed with Board Member Anthony's comments and stated that "it feels like this is a completely different world than it was six months ago."

Board Member Soon asked what would it take to utilize Aiea and Halawa Wells again?

Manager Lau replied that in order to turn the Aiea and Halawa Wells back on the BWS would need to be absolutely certain that there would be no chance of fuel tainted water being pumped into the BWS water system. The BWS would need a good understanding of the nature and extent of the fuel contamination to the aquifer. Manager Lau mentioned that the BWS is exploring the cost and timeline of a treatment study for Halawa Shaft.

Board Member Soon asked Manager Lau if the water were treatable would BWS turn on the Aiea and Halawa pumps.

Manager Lau responded that in the current state of Red Hill he would not be able to turn on the pumps due to the risks involved. He stated the investigation of the extent of the contamination is in the early stages and may take years to be completed.

Chair Andaya inquired if the BWS has a targeted date to bring Kalihi Pump Station and Kalauao Well back online.

Manager Lau responded that the BWS is diligently working to put the low service pumps at Kalihi Pump Station back on by June 2022.

Chair Andaya asked how much water would turning on Kalihi Pump Station bring?

Manager Lau replied that by bringing the Kalihi low service pump back online the BWS would be able to add 7 mgd to the current total. The Kalihi high service pumps would need to wait for the winter to be brought back online. He mentioned that the Kalauao Wells has three wells out of service, of which the BWS is working to bring two wells back online.

Mr. Usagawa added that with Kalauao Well in service that would be another 5 mgd. The BWS's permitted use is 11 mgd.

Manager Lau stated with both Kalihi Pump Station and Kaluaao Well partially back online, it will give the BWS the additional water capacity to weather the summer.

Chair Andaya inquired if the presentation presented are the steps and stages that would be taken if the community needed to go into mandatory conservation. Additionally, if mandatory conservation or moratorium needed to be implemented the BWS would hold a public hearing and come back to the Board to decide.

Manager Lau responded that Chair Andaya was correct. The purpose of Mr. Usagawa's presentation was for awareness purposes. The presentation shows the different stages of water shortage conditions that would trigger the different water restrictions.

Vice Chair Sproat inquired if the presented water shortage plans and moratorium controls are according to BWS Administrative rules. She commented that the Commission of the Water Resource (CWRM) also has its own administrative rules that would declare a water shortage.

Manager Lau agreed with Vice Chair Sproat's comments, that the water shortage plan is following the BWS administrative rules but will also need to abide by CWRM's regulations.

Board Member Dawn Szewczyk asked if the BWS has considered installing granulated activated carbon (GAC).

Manager Lau mentioned that in 2010 the Navy used GAC and air stripping in a treatment study to remove fuel at Red Hill Shaft that pumps 5 mgd. He stated Halawa Shaft is much larger.

Mr. Usagawa replied that there has been a lot of discussion and debate on the use of GAC.

Manager Lau stated that the BWS welcomes discussions with different development communities and landowners to learn about the changes in the water system and come up with solutions.

There were no further comments or discussion on Mr. Usagawa's presentation.

Manager Lau recognized Ms. Kathleen Elliott-Pahinui to share the update on the water conservation and communication efforts in response to the potential impacts of Red Hill.

Ms. Kathleen Elliot-Pahinui shared the different ways to conserve and the tools used to share that information with the community.

Board Member Max Sword inquired if Ms. Elliott-Pahinui had the opportunity to speak with the Hawaii Hotel Alliance.

Ms. Elliott-Pahinui responded that she was reaching out to Jerry Gibson of the Hawaii Hotel Alliance.

Board Member Anthony expressed his gratitude for the hard work in outreach that Ms. Elliott-Pahinui and the Communications team continue to do. He shared that he has noticed that there have been a lot of BWS ads all over the digital media space.

Board Member Soon suggested using the BWS customer survey to determine outreach and conservation.

Ms. Elliott-Pahinui agreed with Board Member Soon's suggestion.

Chair Andaya asked Ms. Elliott-Pahinui to elaborate on the feedback that has been received from developers and the visitor industry.

Ms. Elliott-Pahinui replied that the developers and visitor industry have been given the same presentation. She shared that the BWS has received positive feedback and they understand the reason for conservation.

Manager Lau commented that keeping the communication open among the development community, and large landowners is valuable. He hopes to establish a working group that includes various commercial stakeholders and groups.

Board Member Soon suggested that the BWS reach out to the economics group Lambda Alpha International.

Manager Lau agreed with Board Member Soon's suggestion and requested that if other Board Members have any suggestions please contact him.

Chair Andaya commented that conservation is important and appreciates the work it takes to produce media. He asked if the work that the BWS does can be incorporated into messaging and media.

Ms. Elliott-Pahinui agreed that it would be a great idea to include the work that the BWS does in the advertisements and commercials. She stated that she would work to produce a compilation and the best media type.

There were no further comments or discussion on Ms. Elliott-Pahinui's presentation.

Manager Lau recognized Mr. Erwin Kawata to provide an update on the Red Hill investigation and proposed monitoring wells.

Mr. Kawata shared that since the contamination of events at Red Hill the regulatory agencies and the Navy have been in continuous discussions and gathering vital data to determine the best action plan. However, progress has been slow due to the intense work involved. Mr. Kawata mentioned that Manager Lau and himself have been invited to participate in the development and implementation of an action plan to address the problem and a committee meeting that is being organized.

Board Member Soon asked who is facilitating the meeting.

Mr. Kawata responded that the meeting was initially organized by the Navy. However, as of April 2022, the Department of Health (DOH) and Environmental Protection Agency (EPA) have since taken the lead to facilitate the meeting.

Board Member Anthony inquired if the collected data, of nearly 600 pages would be discussed in the upcoming meeting.

Mr. Kawata responded that the existing data is currently part of all discussions. The BWS has requested that the Navy format the data to be more user-friendly. He commented that he has reviewed the data and has identified information that would be useful to track the different trends.

Board Member Anthony looks forward to hearing about the data collected.

Board Member Anthony asked if data updates are provided when each testing is completed.

Mr. Kawata replied that the BWS is aware that regular weekly samples are being collected. The recent data that was shared was data that was collected from summer 2021 to April 2022.

Board Member Soon asked what would it take for the BWS to reopen the Halawa Shaft again. He requested a prioritized list that focuses on restoring the use of Halawa Shaft.

Mr. Kawata commented that Board Member Soon's concerns are shared by the regulatory agencies. The regulatory agencies are re-evaluating the process to decide what information needs to be collected, who is responsible to collect the data, and the timeframe allowed to digest and interpret the data. He stated that there are challenges that are delaying the restoration process due to the lack of understanding of the subsurface and underground aquifer.

Board Member Soon understands more information is needed to reach some comfort in the reopening of Halawa Shaft.

Manager Lau stated that while investigations and information is being collected the BWS will proceed with its work and explore new wells.

Vice Chair Sproat recalls that in a previous meeting, a statement was made by Mr. Kawata. Mr. Kawata stated that it would take years before Halawa Shaft could safely be brought back online due to the thousands of gallons of fuel that have accumulated over the years causing the fuel from the vadose zone to seep into the aquifer.

Mr. Kawata responded that Vice Chair Sproat's recollection was correct. The BWS believes that since there is not enough information and a lot of unknowns reduces the chance of bringing Halawa Shaft back online.

Vice Chair Sproat inquired if there has been any indication of when the BWS will know the size and movement of the plume from the meetings with the regulatory agencies.

Mr. Kawata replied that it takes up to three years to build a model which includes drilling a monitor well and collecting data. However, two monitor wells would provide minimal data for any groundwater model.

Vice Chair Sproat thanked Mr. Kawata for his continuous efforts to ensure that the BWS gets the job done correctly. She supports the BWS in moving forward with new developments and meeting existing water demands.

Mr. Kawata appreciated all the points that were discussed. He stated that the BWS and the regulatory agencies are having ongoing discussions and are hopeful that the Red Hill aquifer can be mitigated.

Vice Chair Sproat commented that the free product that is actively dripping into the aquifer continues to increase concern due to the complexity of the issue.

Mr. Kawata agreed with Vice Chairs' comment.

Chair Andaya asked if there were any further comments or discussion. Hearing none, he thanked Mr. Usagawa, Ms. Elliott-Pahinui, Mr. Kawata, and Manager Lau for the update.

Chair Andaya asked Board Secretary Ms. Cruz-Achui if there was anyone on the telephone or downstairs waiting to testify. Ms. Cruz-Achui responded no testifiers were waiting to testify.

Chair Andaya announced that he would resume with the order of the agenda.

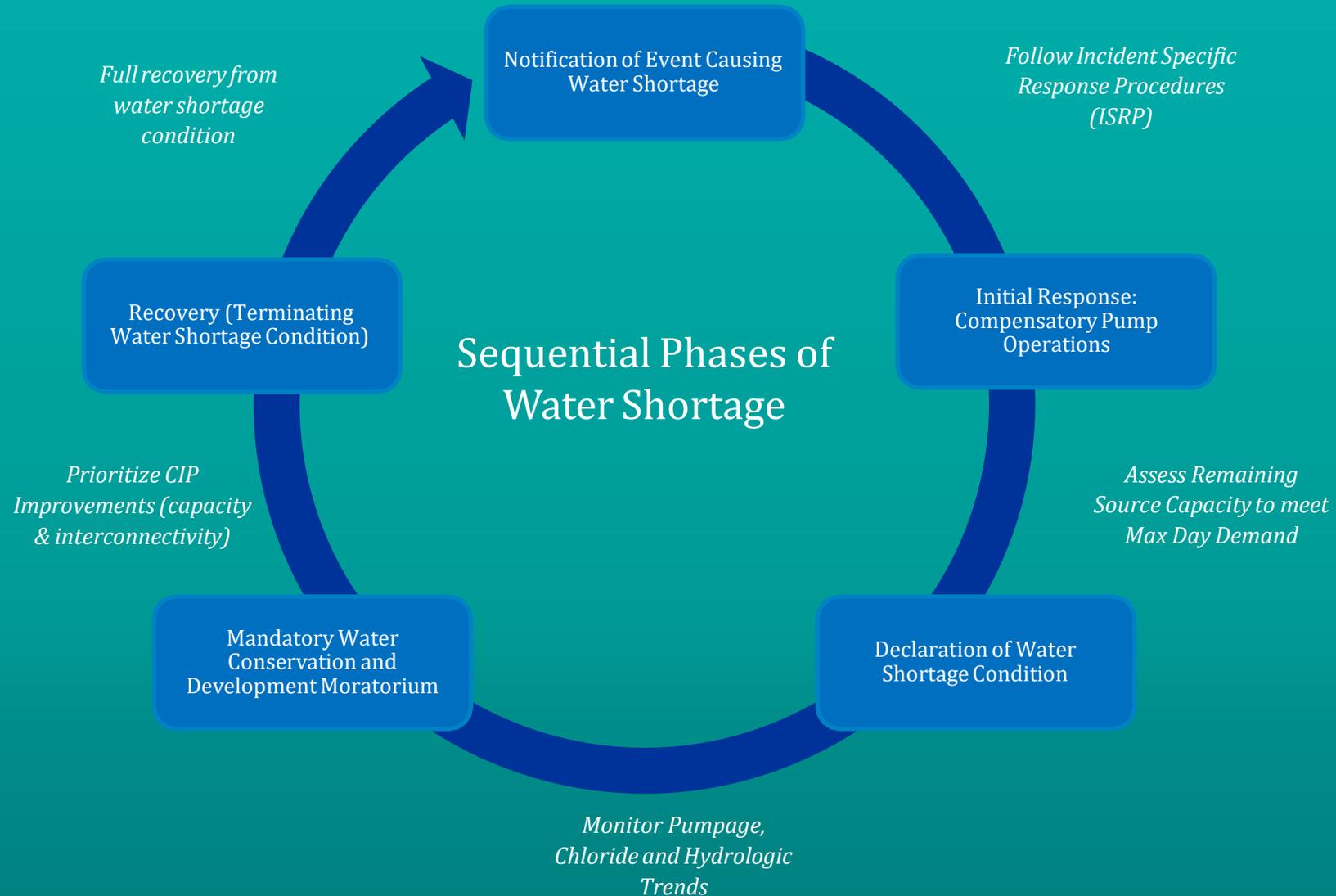


# UPDATE ON IMPACTS OF RED HILL SHAFT FUEL CONTAMINATION

## WATER SHORTAGE UPDATE

Barry Usagawa, Water Resources Division  
[boardofwatersupply.com](http://boardofwatersupply.com)

# WATER SHORTAGE PLAN PROVIDES STRATEGIC AND TACTICAL STEPS TO ASSESS, DECLARE AND CONTROL WATER DEMAND



# HAWAII DROUGHT MONITOR

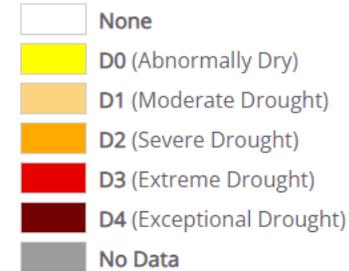
## Hawaii

[Home](#) > Hawaii

**Map released: Thurs. April 14, 2022**

**Data valid: April 12, 2022 at 8 a.m. EDT**

### Intensity



### Authors

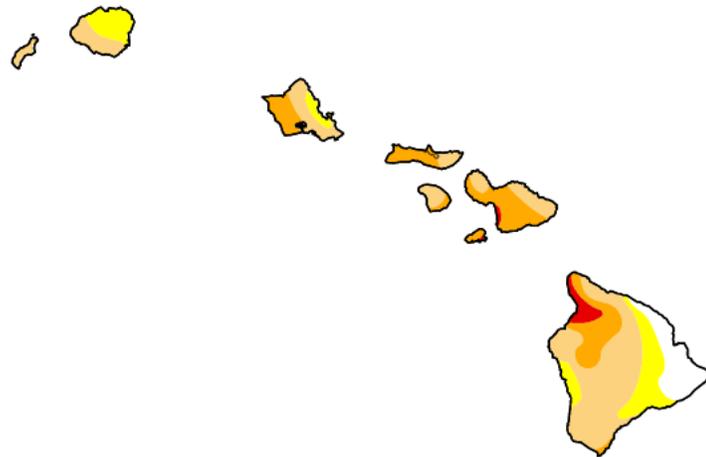
United States and Puerto Rico Author(s):

**Richard Tinker**, NOAA/NWS/NCEP/CPC

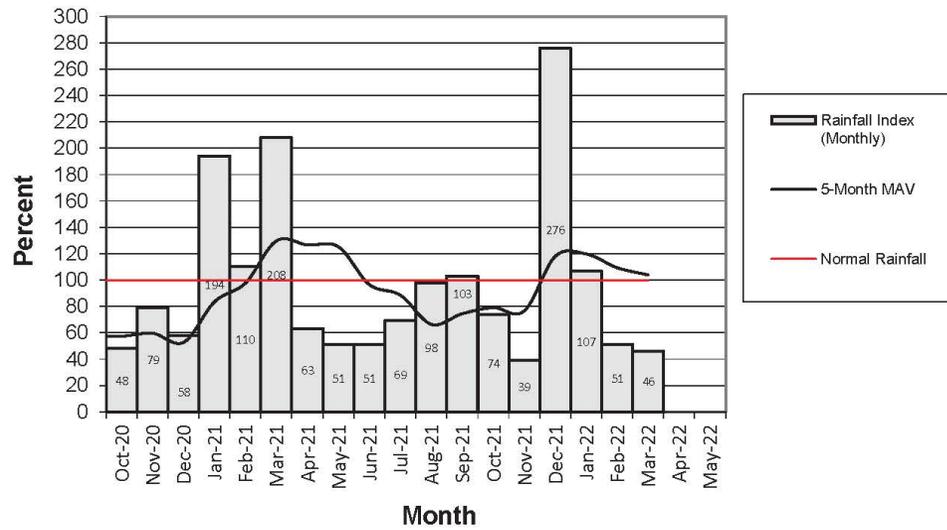
Pacific Islands and Virgin Islands Author(s):

**Denise Gutzmer**, National Drought Mitigation Center

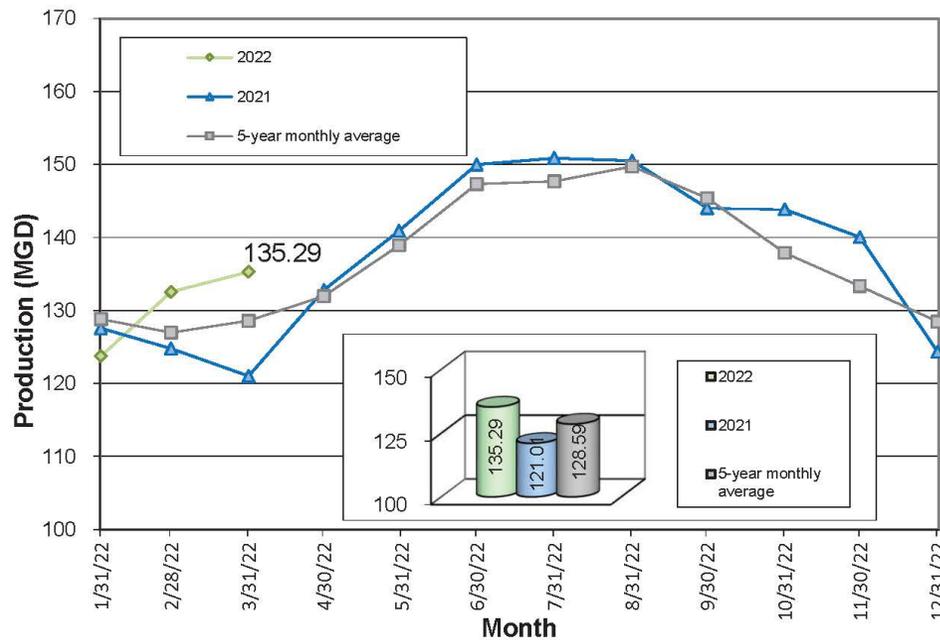
*The Drought Monitor focuses on broad-scale conditions.  
Local conditions may vary. See accompanying [text summary](#) for forecast statements.*



### HONOLULU WATERSHED AREA Rainfall Intake



### Monthly Production



- Strong correlation between rainfall and source production to meet water demand.
- NWS reporting an unusually dry winter season, similar to 2000
- Winter rains typically recharge aquifers ahead of the summer high demand season.
- March 2022 production (BWS islandwide system) was 135 mgd, about 6 mgd over 5-year monthly average and about 14 mgd over 2021.
- Aquifer storage is being drawn down earlier than expected.
- Main difference between winter and summer demand (+20 mgd) is outdoor water use
- The Perfect Drought Scenario



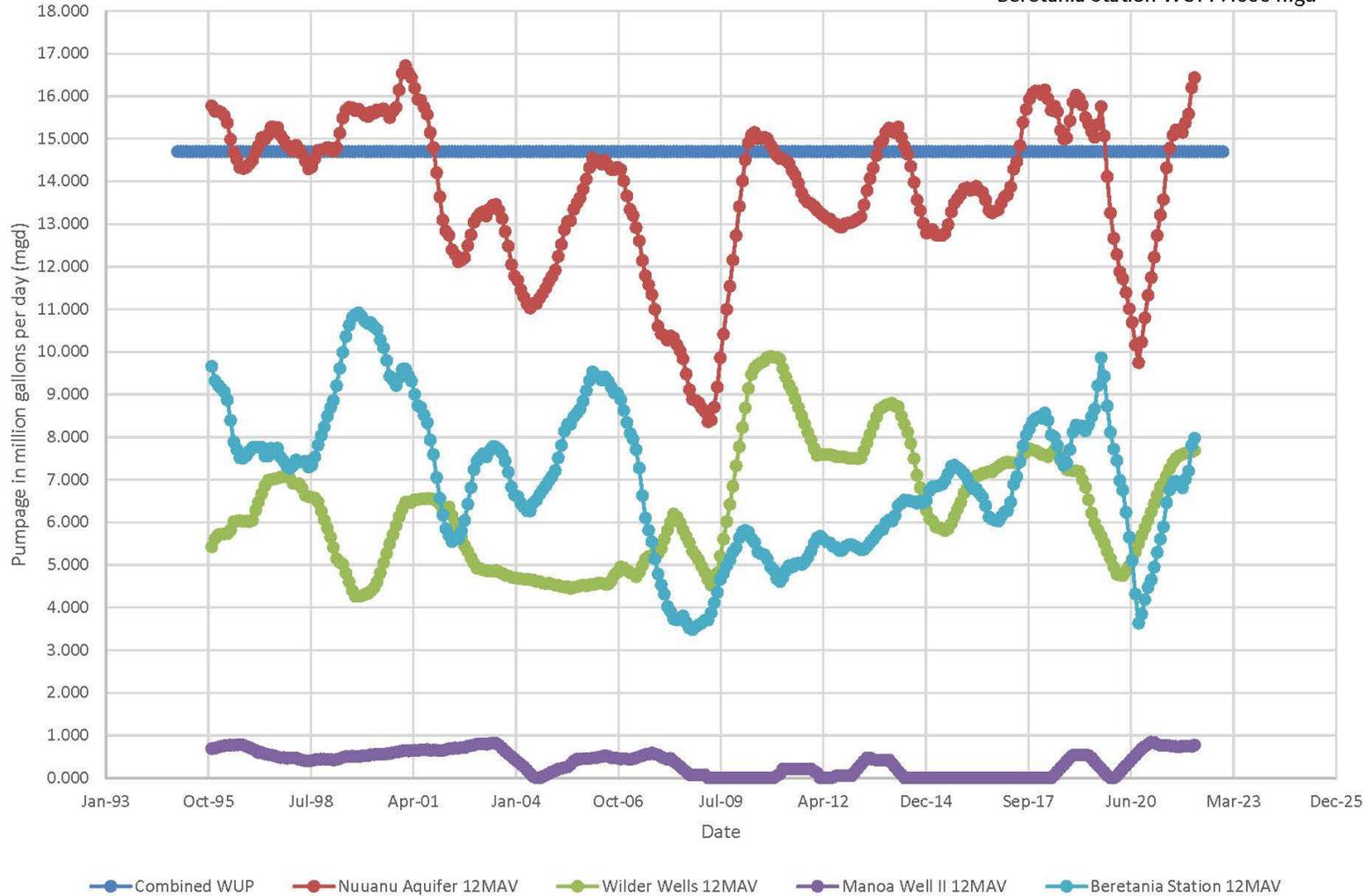
# COMPENSATORY OPERATIONAL ADJUSTMENTS

- Halawa Shaft 20% of Honolulu water system and Aiea & Halawa Wells are 50% of Aiea Halawa water system
- During the 5-7 year period of new well construction or until those sources can be turned back on, the following compensatory operational adjustments will occur:
  - Available pump run times are increased
  - Stand-by pumps typically reserved for pump equipment failures have to be turned on
  - Pumpage may exceed State Permitted Use on a 12-month moving average creating possible violations and penalties
  - Chlorides are monitored to ensure chloride levels do not rise significantly. If chlorides rise, pumpage is decreased (e.g., Beretania Pump Station) and pumpage is spread to other sources.
  - Water transfers from adjacent systems are increased, which decreases available pump capacities from those systems.
  - Pump capacities from the affected systems becomes sub-standard, operating at run times greater than 16-hours/day to meet max day demands



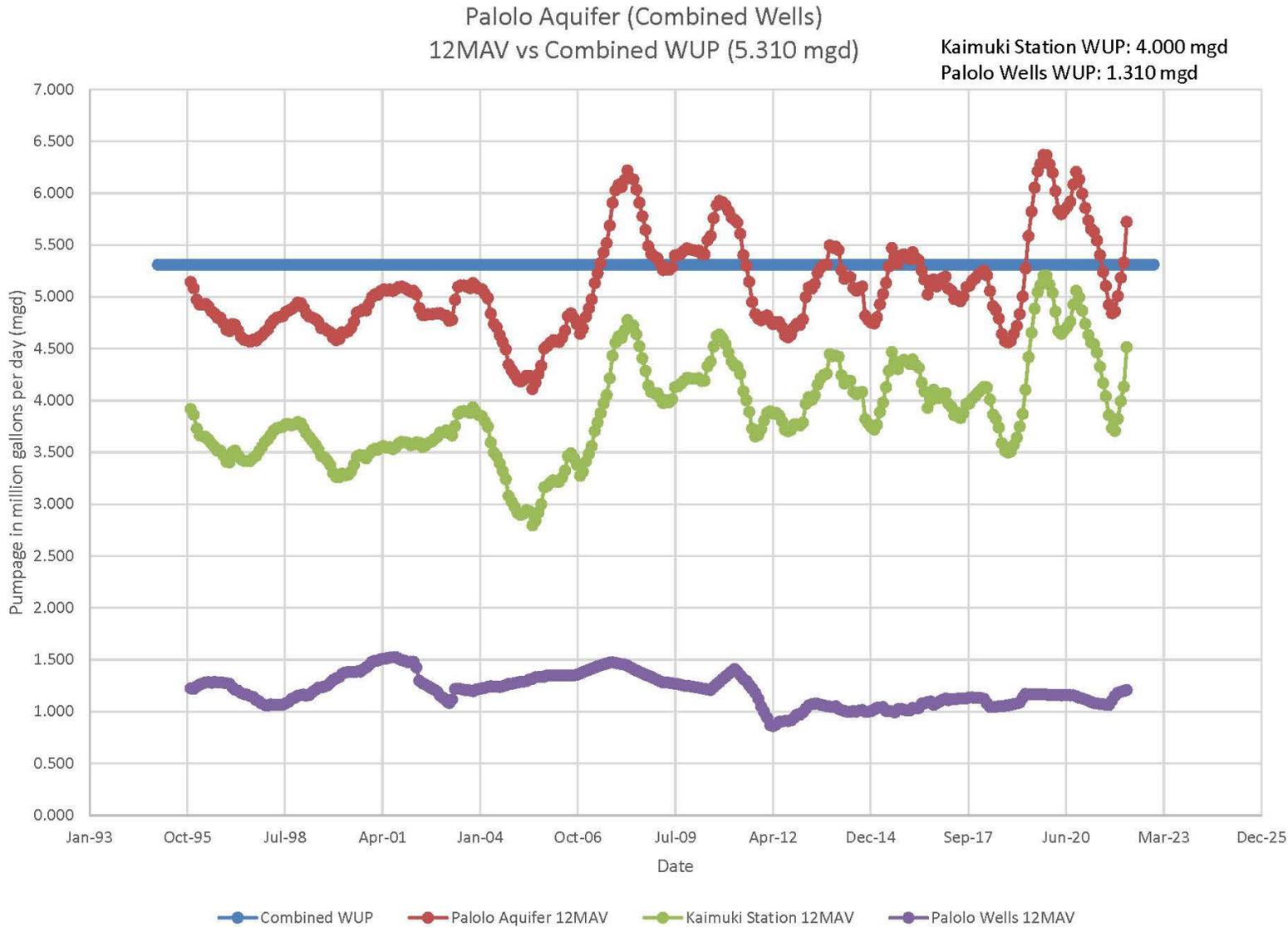
Nuuanu Aquifer (Combined Wells)  
12MAV vs Combined WUP (14.700 mgd)

Wilder Wells WUP: 7.000 mgd  
Manoa Well II WUP: 0.700 mgd  
Beretania Station WUP: 7.000 mgd



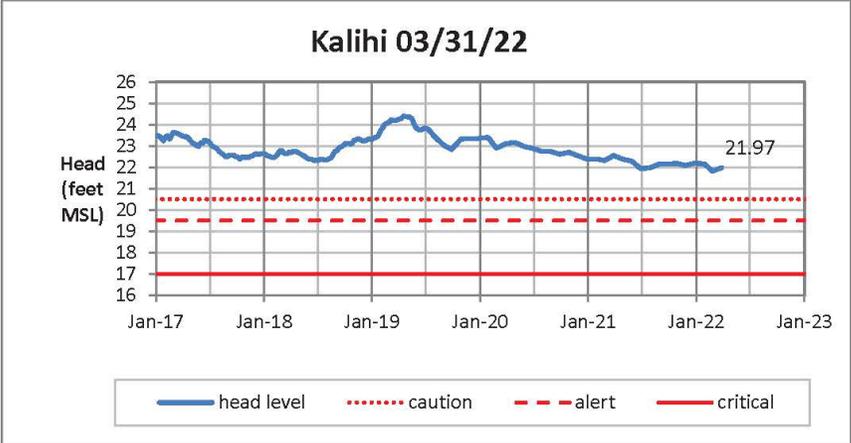
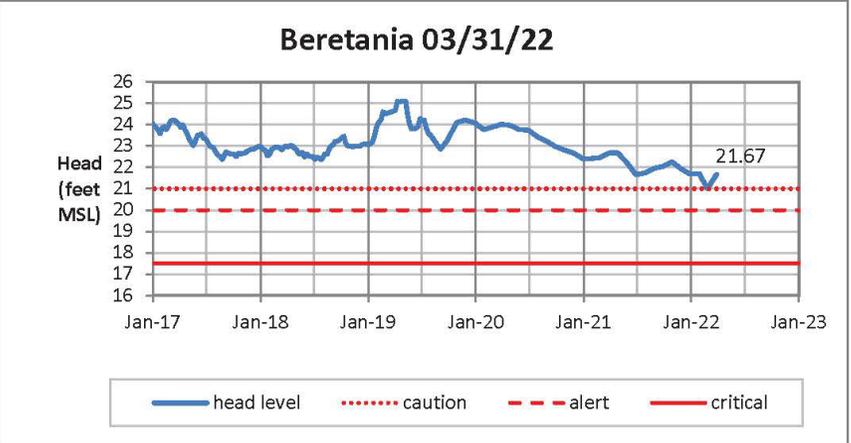
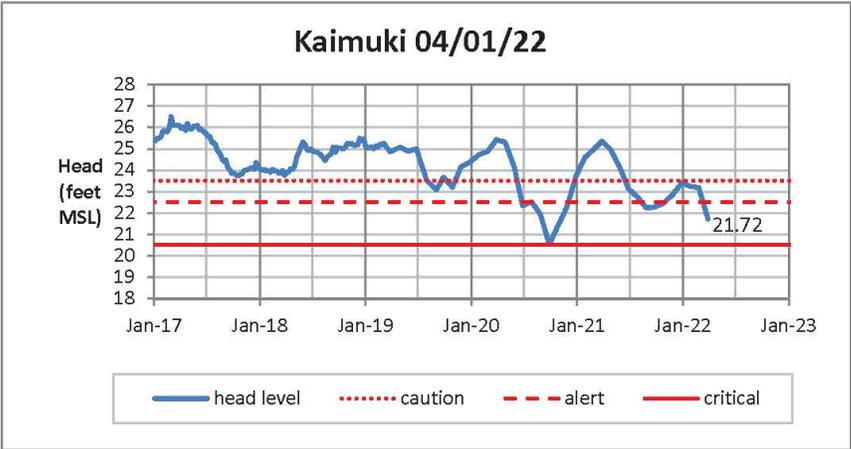
- Nuuanu Aquifer pumpage is exceeding permitted use but Beretania Station was reduced because of rising chlorides. The 12-mo MAV will take time to drop because of averaging.
- Chlorides have dropped to acceptable levels since pumpage was reduced in February





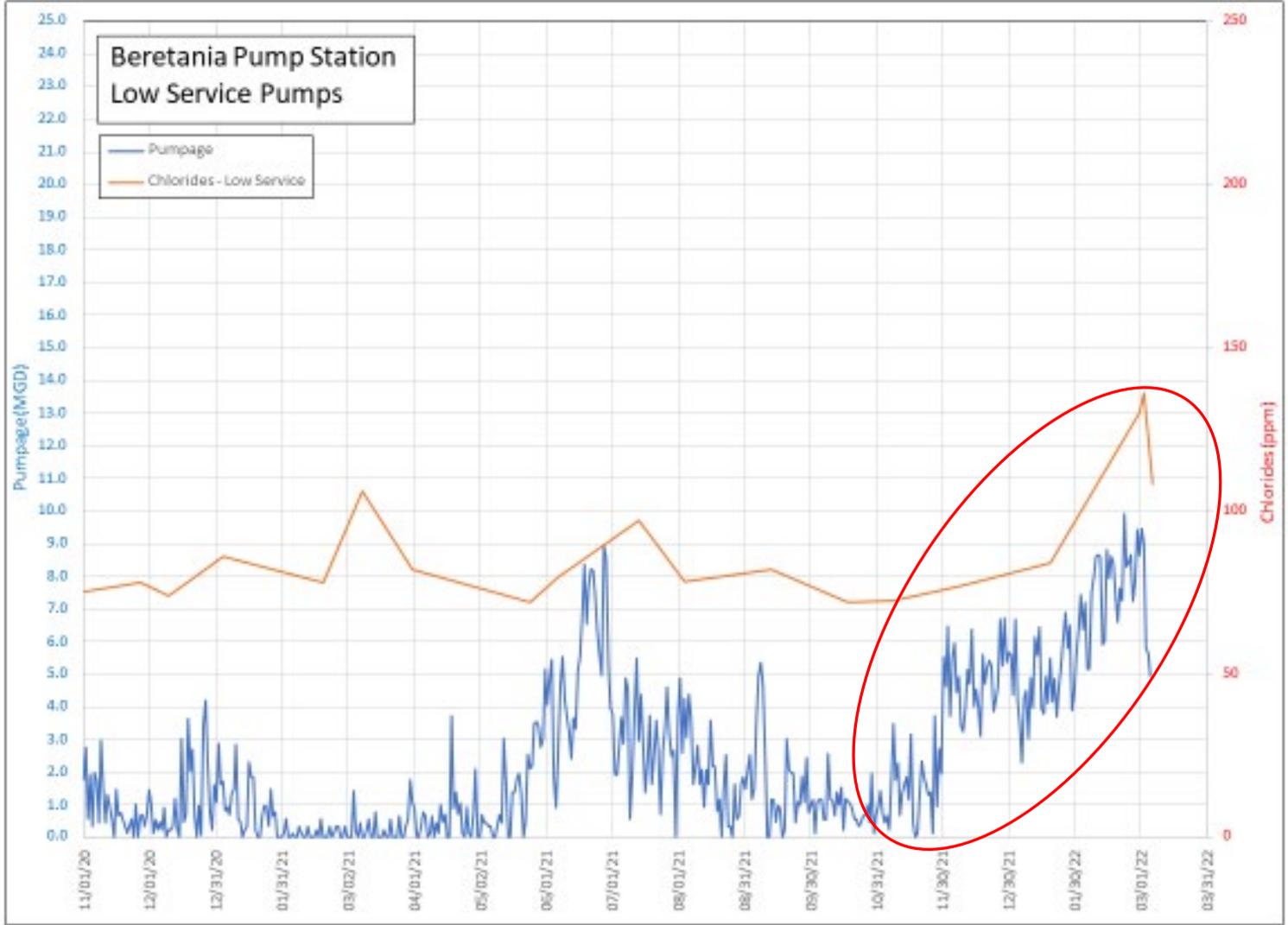
- Palolo Aquifer pumpage is exceeding permitted use since Beretania Station was cutback
- Chlorides are not an issue at Kaimuki Station, but heads are starting to drop early in the season.
- With the repairs of Kalihi Station and Kalauao Wells, pumpage will be reduced at Kaimuki

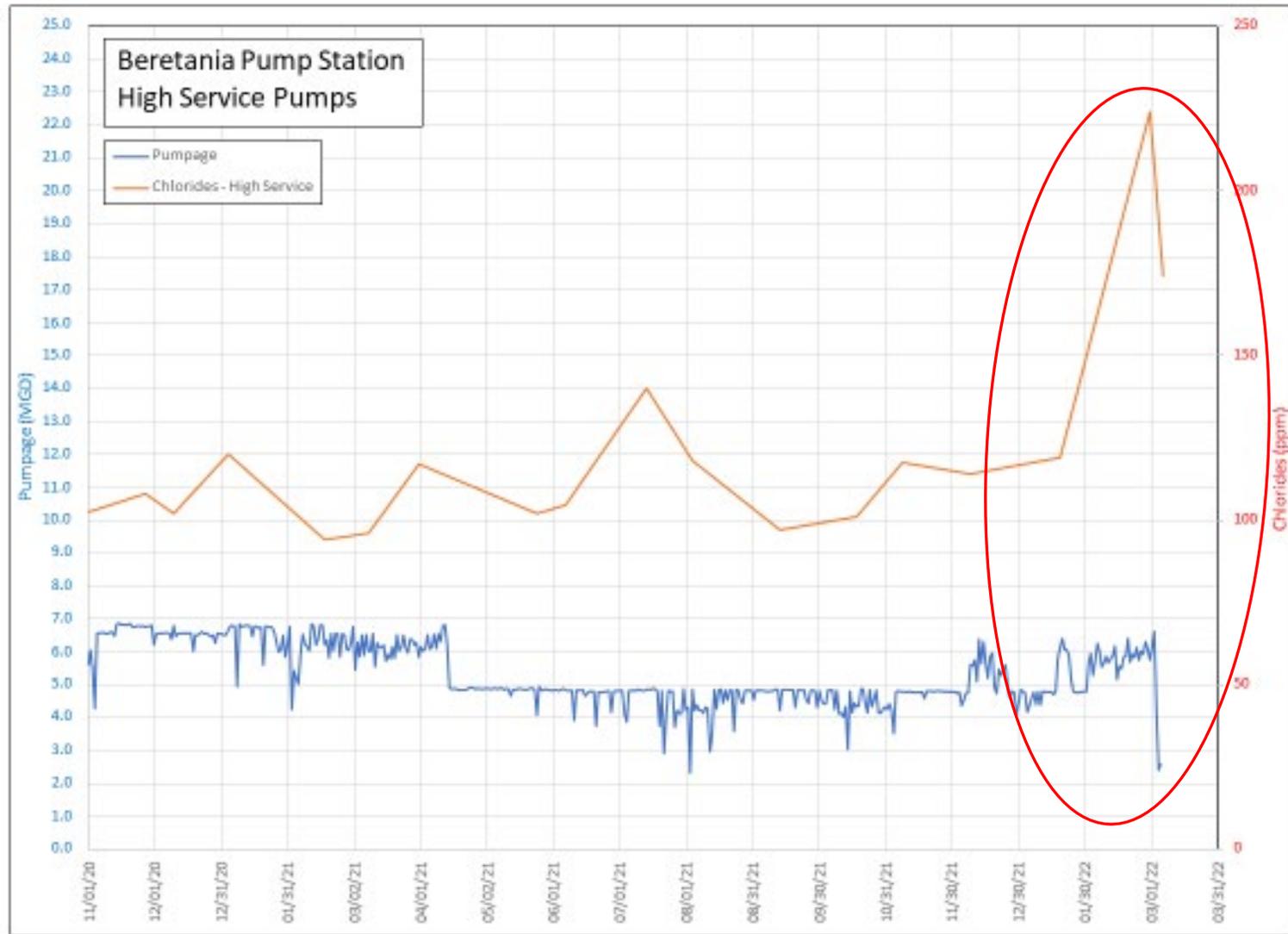




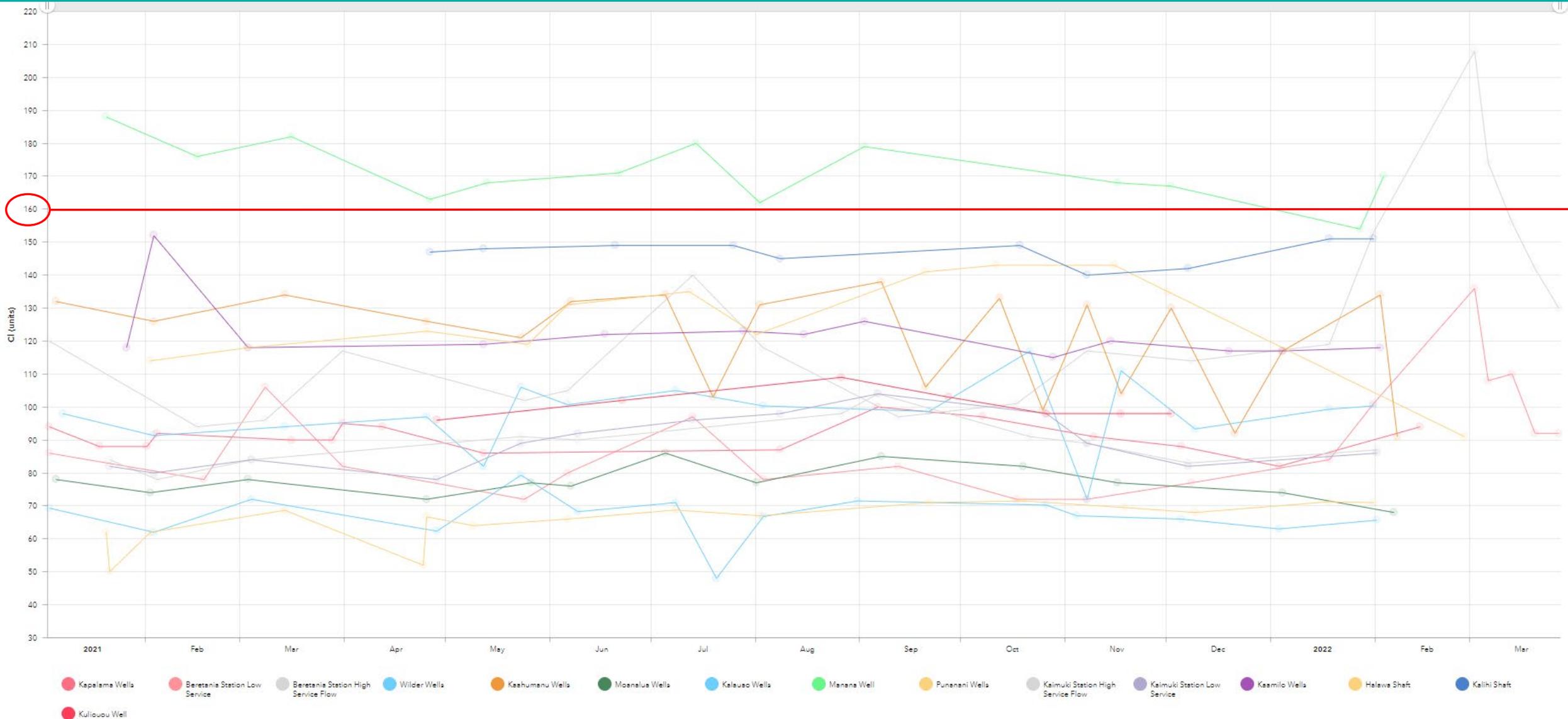
- Kaimuki index well levels dropped to Alert Low Groundwater Level when Kaimuki Station pumpage was increased to compensate for a reduction at Beretania Station & shut down of Halawa Shaft
- Beretania and Kalihi index well head levels remain high
- With the repairs of Kalihi Station and Kalauao Wells, pumpage will be reduced at Kaimuki and water levels are expected to respond
- All other South Oahu index wells and 12-mo MAV pumpage are within acceptable levels.







# CHLORIDES TREND HONOLULU WATER SYSTEM JAN 2021 TO MARCH 2022.



# BWS WATER SHORTAGE DEFINITIONS

*A **water shortage** condition exists when water supply is not available to meet existing and/or future water demands due to degradation of water quality or extended disruptions to water system delivery infrastructure.*

*A **low groundwater** condition exists when 3 or more index well levels fall below levels designated (caution, alert, critical), and chloride levels rise for 3 consecutive months at sufficient sources to hamper operations. Sec 3-318 to 322 BWS Rules & Regulations*



# WATER SHORTAGE CONDITION TRIGGERS

Water Shortage Condition	Source Capacity Demand Trigger	Chloride Content Trigger*
No Water Shortage	Available pumping units meet max day demand in 16 hours w/ standby not included.	Stable Chloride and Head Level Trends
Alert	Available pumping units meet $Q_{95}$ max day demand in 20 hours, standby pumps not included.*	Chloride content rises between 12 ppm and 16 ppm over three consecutive months at sufficient sources to hamper operations.
Critical	Available pumping units cannot meet $Q_{95}$ max day demand in 22 hours, standby pumps not included*	Chloride content rises over 16 ppm over three consecutive months at sufficient sources to hamper operations.

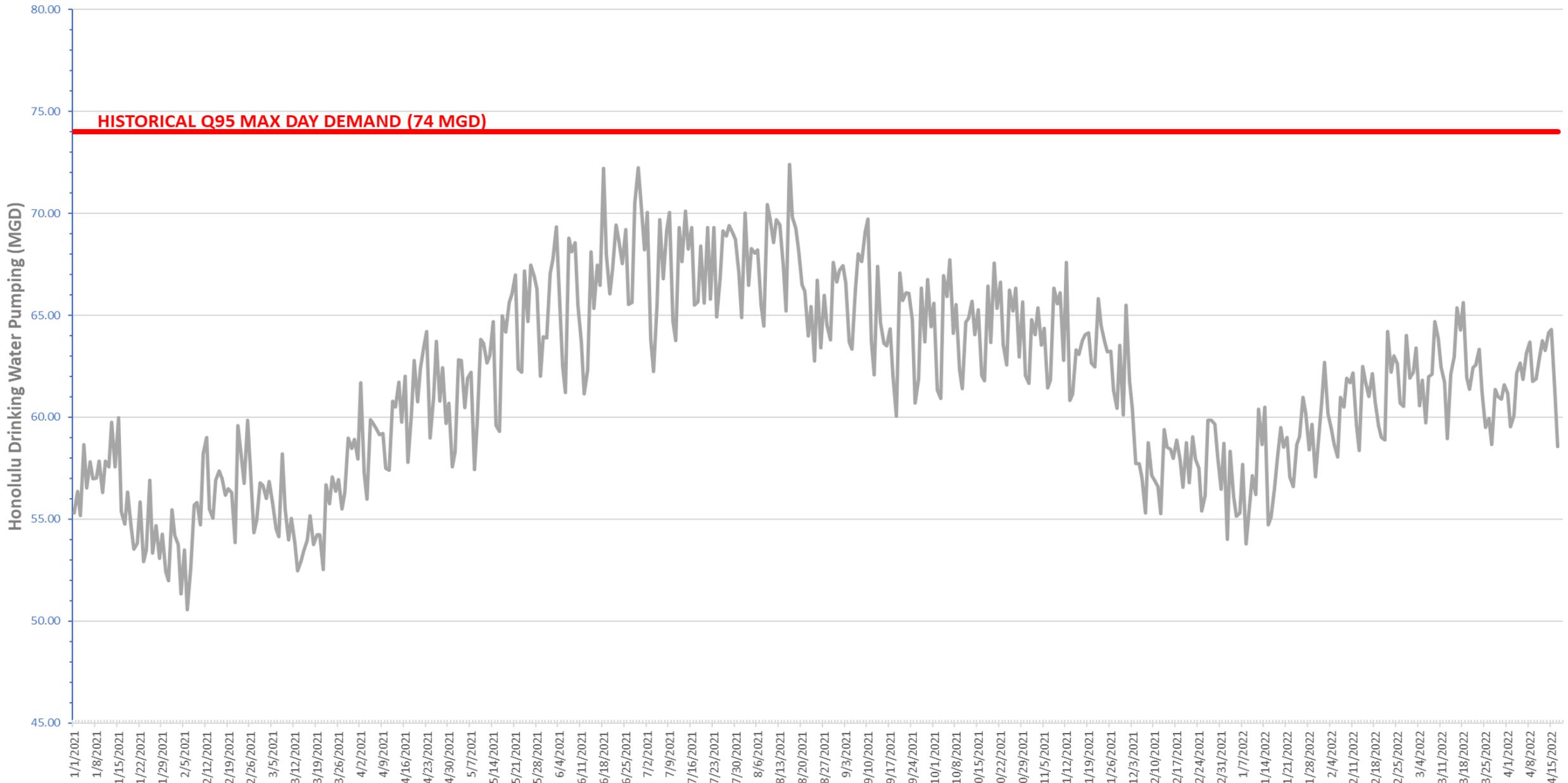
\* $Q_{95}$  or 95<sup>th</sup> percentile. Assumes 5-10% Water Conservation Reductions to flatten max day demand peaks

Requirement for Monitoring chloride trends and index well head levels more frequently (from monthly to weekly).

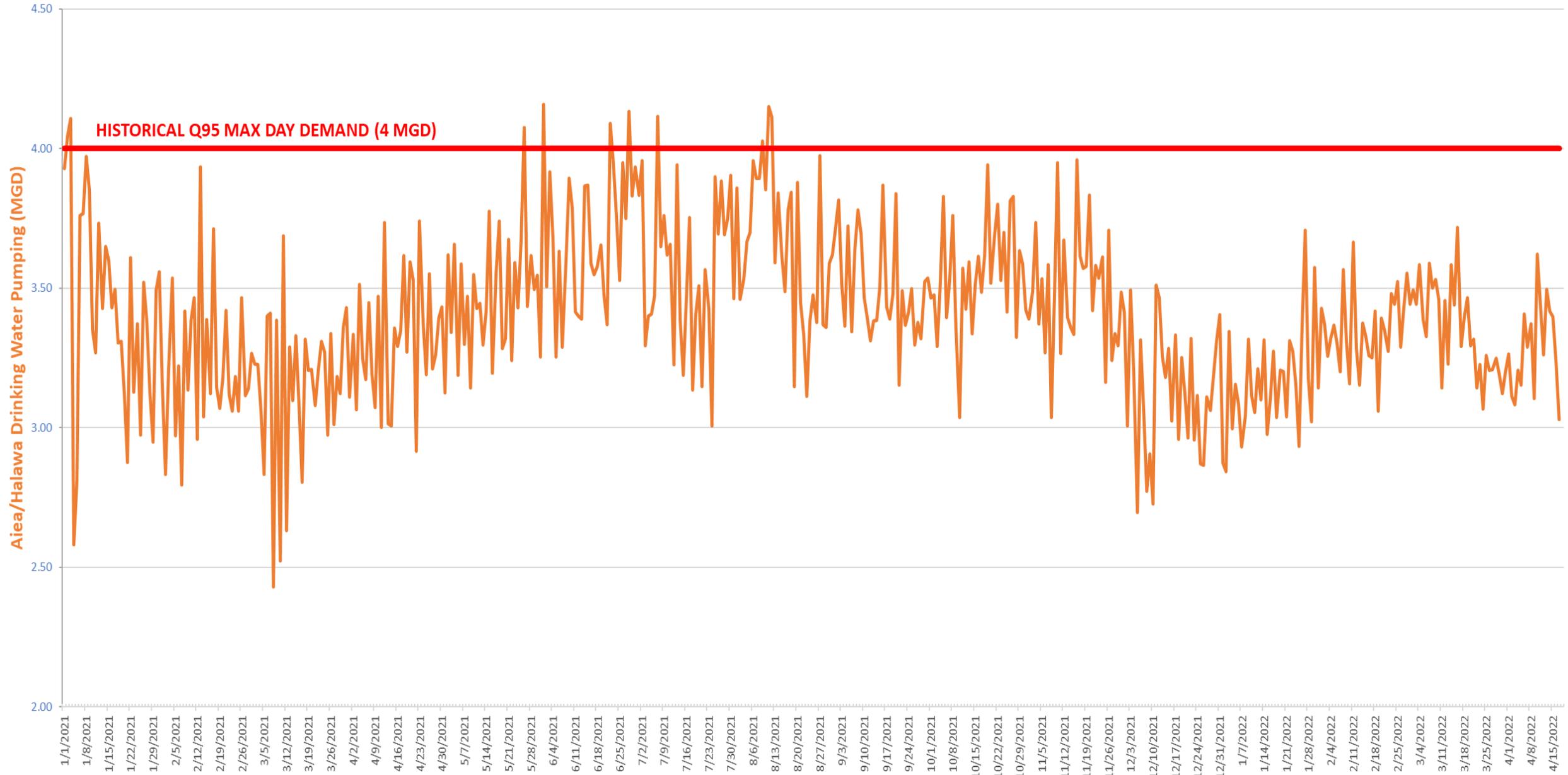
Available remaining pumping stations may have to be pumped harder to meet  $Q_{95}$  max day demand and with drought, may increase chloride levels and decrease head levels into Alert or Critical low groundwater levels.



# HONOLULU WEEKLY PUMPING - January 2021 to Present



# AIEA HALAWA WEEKLY PUMPING - January 2021 to Present



# SUMMARY OF NEW UPCOMING DEVELOPMENT PROJECTS (BEST ESTIMATE, SUBJECT TO CHANGE)

<b>Honolulu Water System Projects</b>		<b>Avg Day Demand</b>	<b>Max Day Demand</b>
Permits under review & construction & Approved Construction Plans	3,929	2.5 mgd	
Proposed Projects (3-5 years)	12	0.8 mgd	
Proposed Projects (Beyond 5 years)	25	2.1 mgd	
Total	3,966	5.4 mgd	8.1 mgd

<b>Aiea Halawa Water System Projects</b>		<b>Avg Day Demand</b>	<b>Max Day Demand</b>
Permits under review & construction & Approved Construction Plans	117	0.024 mgd	
Proposed Projects (3-5 years)	1	0.028 mgd	
Proposed Projects (Beyond 5 years)	3	0.99 mgd	
Total	121	1.04 mgd	1.5 mgd



# UPDATE ON REPAIRS OF KALIHI PUMP STATION AND KALAUAO WELLS

- We continue to prioritize the repairs of these stations.
- The pumps are being flushed and tested for Safe Drinking Water compliance
- Anticipate completion of Kalihi Station low service pumps by June 2022
- Anticipate completion of 2 of 3 pumps at Kalauao Wells by June 2022 for a total of 5 of 6 pumps in operation
- With these pump stations on-line, we expect Honolulu water system pumps to be operating 20 hours/day during summer max day demand (i.e., Alert Condition)



# Assessed Water Shortage Condition and Water Conservation Responses (Update)

Water Shortage Condition	Source Capacity/Demand Trigger	Assessed Water Shortage Condition	Progressively Restrictive Conservation Response
No Water Shortage	Available pumping units meet max day demand in 16 hours, standby pumps not included		Voluntary – General Seasonal Messaging
Alert	Available pumping units meet $Q_{95}$ max day demand in 20 hours, standby pumps not included.	<b>Honolulu Water System</b> Max Day Demand $Q_{95} = 74$ mgd	Voluntary – Targeted Seasonal Messaging Requesting 10%+ Water Use Reductions
Critical	Available pumping units cannot meet $Q_{95}$ max day demand in 22 hours, standby pumps not included	<b>Aiea Halawa Water System</b> Max Day Demand $Q_{95} = 4$ mgd	Mandatory in Progressively Restrictive Order 1) Require Targeted Water Use Reductions 2) Water Allotments, Flow Restrictors, Rate Surcharges 3) Moratorium if improvements extend more than 2 years



# BWS RULES AND REGULATIONS

## CHAPTER II: WATER SERVICE TO CONSUMERS

### **Sec. 2-209: Conservation Measures and Interruption of Water Supply**

1. The Department will exercise reasonable diligence to deliver water to the consumer and avoid shortages or interruptions in service, but will not be liable for any interruption, shortage, insufficiency of supply, or any loss or damage occasioned thereby.
2. Whenever, in the Department's opinion, special conservation measures are advisable in order to forestall water shortages, the Department may restrict the use of water by any means or method of control.



# SECTION 1-101 AVAILABILITY OF WATER

## 1. General Requirements

- a. *Extensions from and connections to the public water system will be approved by the Department where pressure conditions permit; provided, that the water meters are within the service limit except as provided for in Sec. 2-217, Elevation Agreement, and the Department has sufficient pressure and water supply available for domestic use and fire protection and can assume new or additional service without detriment to those presently being served.*



# SECTION 1-101 AVAILABILITY OF WATER

5. *Availability of Water for Proposed Developments.* The Department may issue water commitments to proposed developments as follows:

- **Category 1: Areas with Adequate Water Supply.** The Department may issue advance water commitments to proposed developments in areas where the water system has adequate supplies to assume new or additional services.
- **Category 2: Areas with Limited Additional Water Supply.** The Department may restrict the issuance of advance water commitments to proposed developments in areas where the water system has limited additional supplies to assume new or additional services.
- **Category 3: Areas with No Additional Water Supply.** The Department shall not issue water commitments to proposed developments in areas where the water system has no additional supplies to assume new or additional services. The only exception shall be the issuance of a single 3/4-inch meter to proposed developments on existing single vacant lots.

BWS typically operates under Category 2 water availability, where **water commitments are confirmed when residential subdivision construction plans are approved or when building permits are approved for all other developments.** In a Critical Water Shortage Condition with Mandatory Conservation, BWS may operate under Category 3, for water systems with no additional water supply until the water system improvements to increase capacity are completed.



# BUILDING MORATORIUM CONTROLS (DRAFT)

In a Critical Water Shortage Condition, BWS may implement development conditions to control the rate of water demand growth and the risk of water shortage if available pumping units are insufficient to accommodate existing and/or future growth. Limitations could include:

- Limit approvals to a single minimum size water meter for existing vacant lots.
- For proposed redeveloped parcels, limit water demands to
  - Existing use or previous water allocations (previously paid WSFC)
  - Existing water meter size, which may be higher than existing use
- Require alternative onsite water supplies such as grey water reuse, stormwater catchments, A/C condensate recovery and high efficiency plumbing fixtures to stay within limits
- Fee in Lieu: Retrofit another building to high efficiency plumbing fixtures and obtain fixture credits for the redevelopment, (No Net Gain in Water Use)
- Possible Options: Apply to all Permits, or
  - Allow Affordable Housing, Residential Renovations-No additional units, No increase in meter size, DHHL, as long as No Detrimental Impacts to Existing Customer's





# RED HILL AND CONSERVATION COMMUNICATIONS UPDATE

Kathleen M. Pahinui  
Public Information Officer

April 25, 2022  
[boardofwatersupply.com](http://boardofwatersupply.com)

# 7 TIPS TO CONSERVE



**TIP #1 - WATER LAWNS JUST  
1-2 TIMES A WEEK**



**TIP #2 - DON'T WATER LAWNS BETWEEN  
9 AM AND 5 PM**



**TIP #3 - CHECK FOR PLUMBING LEAKS**



**TIP #4 - INSTALL WATER-EFFICIENT FIXTURES**



**TIP #5 - TAKE SHORTER SHOWERS**



**TIP #6 - PUT A NOZZLE ON YOUR GARDEN  
HOSE**



**TIP #7 - DON'T LET THE FAUCET RUN AND  
RUN**

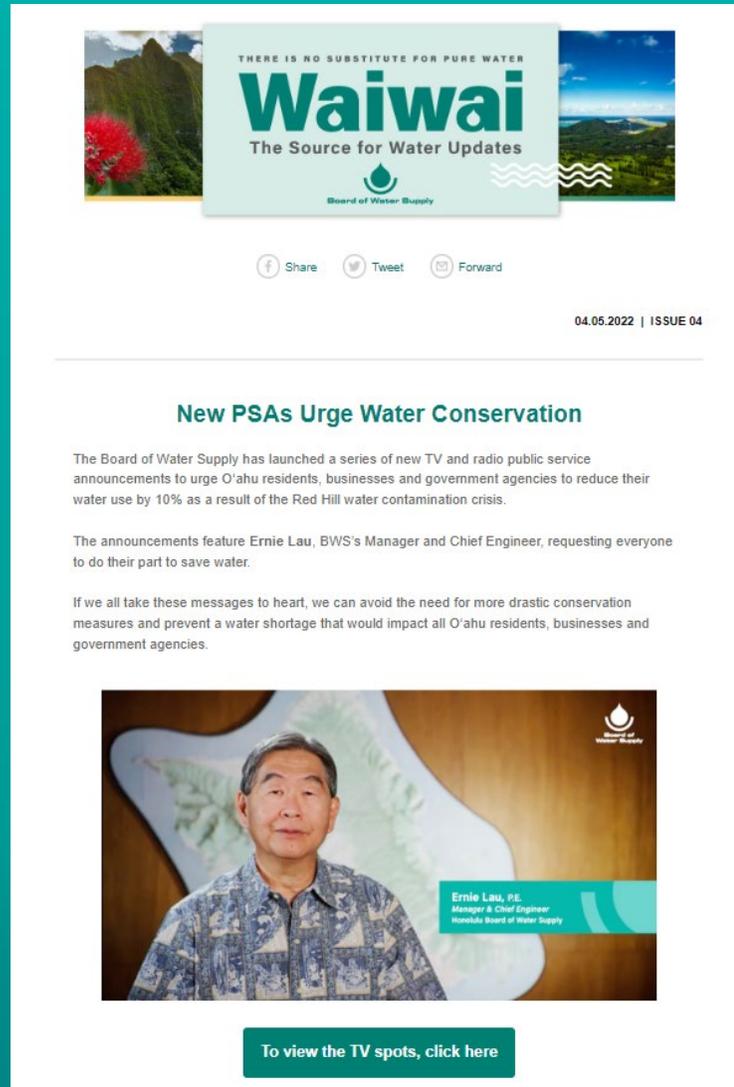


# CONSERVATION OUTREACH – 181 MEETINGS

- Hawaii Tourism Authority
- Hawaii Lodging & Tourism Assn
- Hawaii Acute Care Assn
- NAIOP
- General Contractors Assn
- Developers
- Hospitals
- Shopping Centers
- State Agencies
- City Agencies
- University of Hawaii
- Large Condominiums
- Golf Courses
- Neighborhood Boards
- Community Groups
- Letters to top 600 water users in affected areas
- Pilot hotel program
- Events
  - Hawaii Hotel and Restaurant Show
  - Ward Village April Bloom Festival
  - Mauka to Makai – Waikiki Aquarium
  - Ellison Onizuka Day of Exploration
  - Building Industry Assn Show



# WAIWAI E-NEWSLETTER



Header: THERE IS NO SUBSTITUTE FOR PURE WATER  
**Waiwai**  
The Source for Water Updates  
Board of Water Supply

04.05.2022 | ISSUE 04

### New PSAs Urge Water Conservation

The Board of Water Supply has launched a series of new TV and radio public service announcements to urge O'ahu residents, businesses and government agencies to reduce their water use by 10% as a result of the Red Hill water contamination crisis.

The announcements feature Ernie Lau, BWS's Manager and Chief Engineer, requesting everyone to do their part to save water.

If we all take these messages to heart, we can avoid the need for more drastic conservation measures and prevent a water shortage that would impact all O'ahu residents, businesses and government agencies.



Ernie Lau, PE  
Manager & Chief Engineer  
Honolulu Board of Water Supply

To view the TV spots, click here



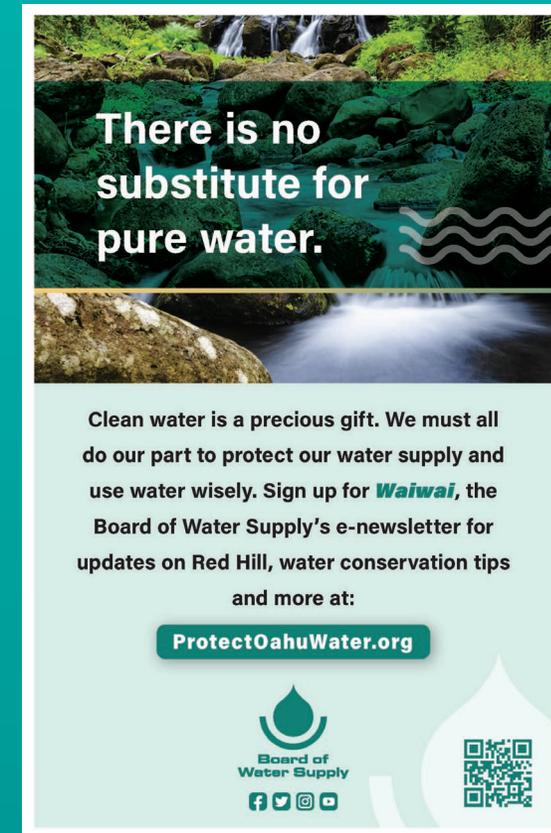
THERE IS NO SUBSTITUTE FOR PURE WATER  
**Waiwai**  
The Source for Water Updates

Visit our Website for the **NEWEST** Updates

CLICK HERE

Board of Water Supply

## Civil Beat



There is no substitute for pure water.

Clean water is a precious gift. We must all do our part to protect our water supply and use water wisely. Sign up for **Waiwai**, the Board of Water Supply's e-newsletter for updates on Red Hill, water conservation tips and more at:

[ProtectOahuWater.org](https://ProtectOahuWater.org)

Board of Water Supply

f t i y



## Waiwai Flyer

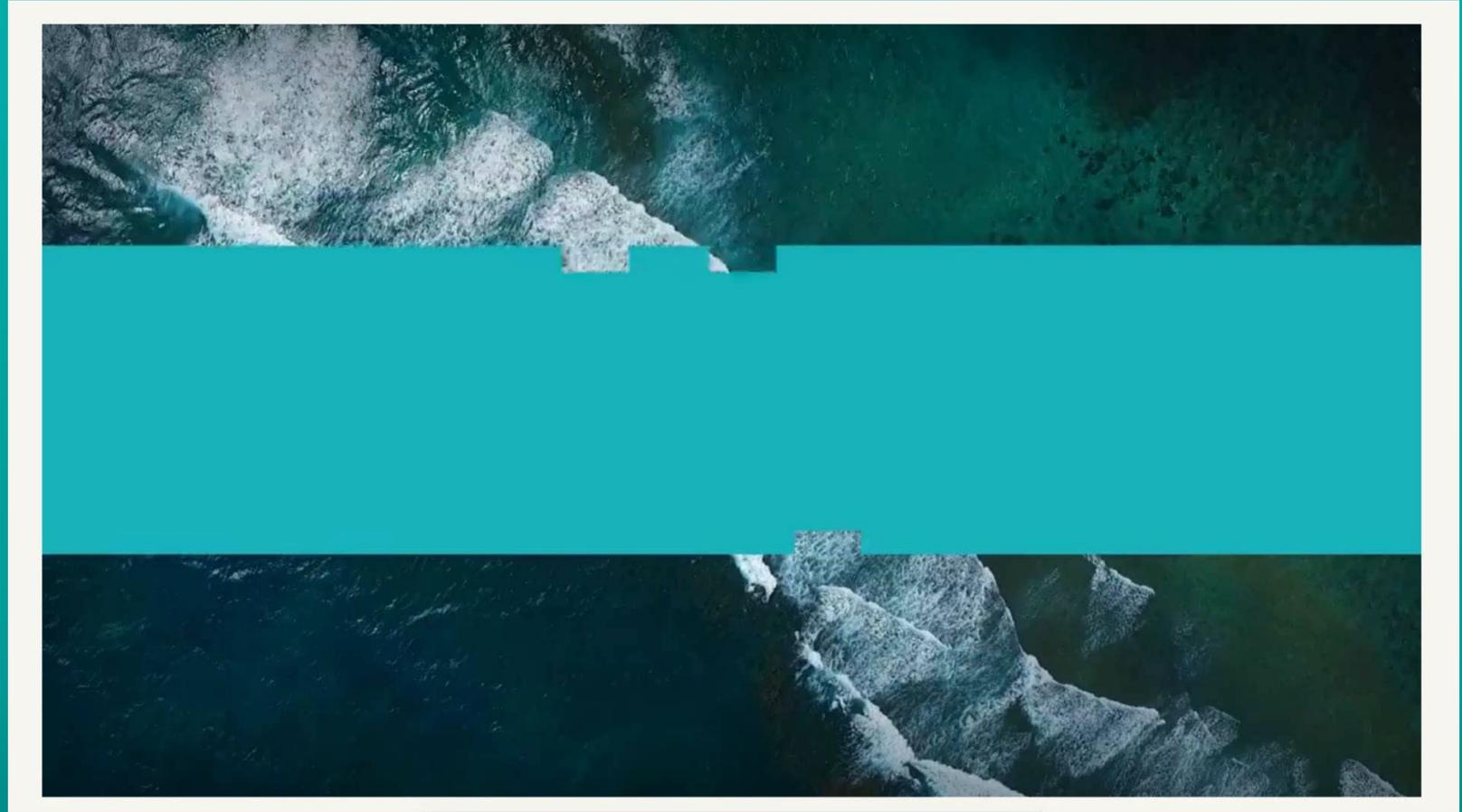


# NEW PUBLIC SERVICE ANNOUNCEMENTS



# WATER WISDOM WEDNESDAYS

- Bryan Andaya
- Ernie Lau
- Steven Norstrom
- Heather Iwasaki
- Kapua Sproat
- Na'alehu Anthony
- Wayne Tanaka
- Marti Townsend
- Jennifer Elflein



# PROTECT OAHU WATER.ORG

ALERT: Check Weekly Pumping & See How We're Doing for Conservation — DISMISS

ALERT: Kalaehoukoe Reservoir project info briefing on 4/14. — DISMISS



SEARCH

ABOUT US CONTACT

ACCOUNT

PERMITS CUSTOMER SERVICE WATER QUALITY CONSERVATION WATER RESOURCES COMMUNITY NEWS & EVENTS

## Protect Oahu Water



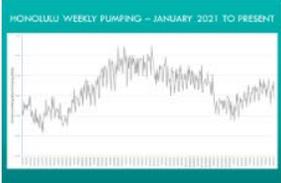
### OUR MISSION SINCE 1929

Provide Oahu safe, dependable and affordable water now and for the future

### WEEKLY BWS UPDATES

BWS well test results | Water Conservation PSAs

### RED HILL UPDATES



### WAIWAI E-NEWSLETTER



### Red Hill Resources

- Check weekly pumping & see how we're doing
- See the latest BWS news & updates on Red Hill

### Your Source for Water Updates

- See current and past issues of our e-newsletter
- Sign-up for periodic email updates

### WATER WISDOM WEDNESDAYS



### FREQUENTLY ASKED QUESTIONS



# SOCIAL MEDIA

### Oahu Weekly Pumping

January 2021 to March 31

ISLAND WEEKLY PUMPING - January 2021 to Present

Water usage is **UP** iSlandwide

Get conservation tips at [www.boardofwatersupply.com/detectaleak](http://www.boardofwatersupply.com/detectaleak)

### Honolulu Weekly Pumping

January 2021 to March 25

HONOLULU WEEKLY PUMPING - January 2021 to Present

Water usage is **UP** in metro HNL

Get conservation tips at [www.boardofwatersupply.com/detectaleak](http://www.boardofwatersupply.com/detectaleak)

### Aiea & Halawa Weekly Pumping

January 2021 to March 31

AIEA HALAWA WEEKLY PUMPING - January 2021 to Present

Water usage is **UP** in Aiea & Halawa

Get conservation tips at [www.boardofwatersupply.com/detectaleak](http://www.boardofwatersupply.com/detectaleak)



# SOCIAL MEDIA

**CHECK FOR LEAKS**  
*Every drop counts!*

It's vital to check your outdoor spigots & irrigation systems for leaks



  
Board of Water Supply  
hbws.me/7ways

Check your irrigation system for leaks



**Detect-A-Leak Week**  
April 10 - April 16  
[www.boardofwatersupply.com/detectaleak](http://www.boardofwatersupply.com/detectaleak)



**Be a Leak Detective!**

Unexplained increase in your water bill?



Could be a sign of a property leak

**Detect-A-Leak Week**  
[www.boardofwatersupply.com/detectaleak](http://www.boardofwatersupply.com/detectaleak)





## #TuesdayTip:

If you accidentally drop ice cubes when filling your glass from the freezer, don't throw them in the sink. Drop them in a house plant instead.

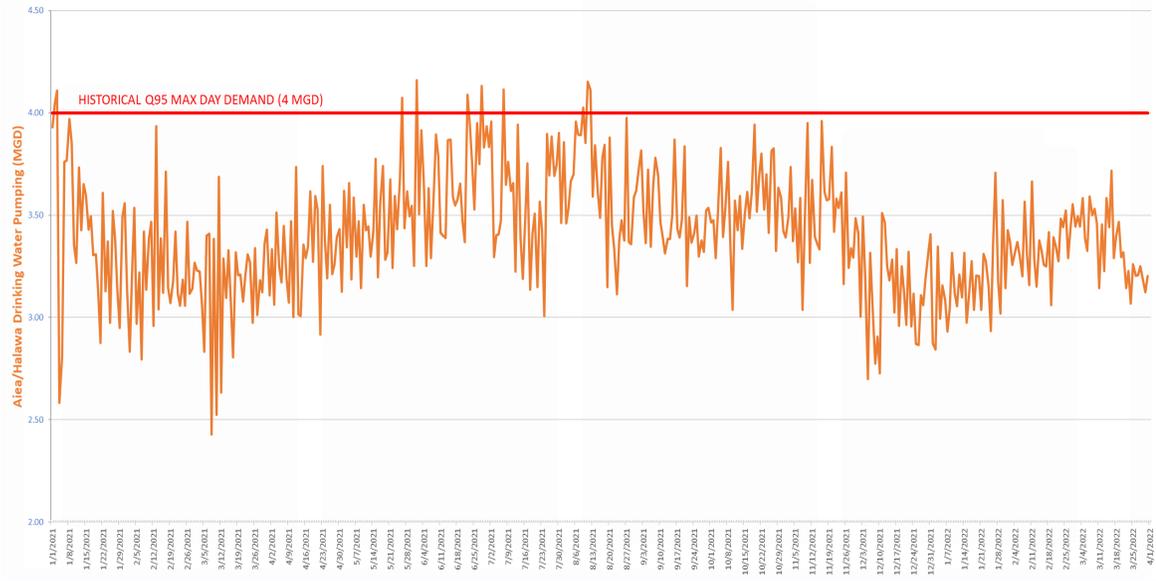


#KaWaiOla #WaterForLife

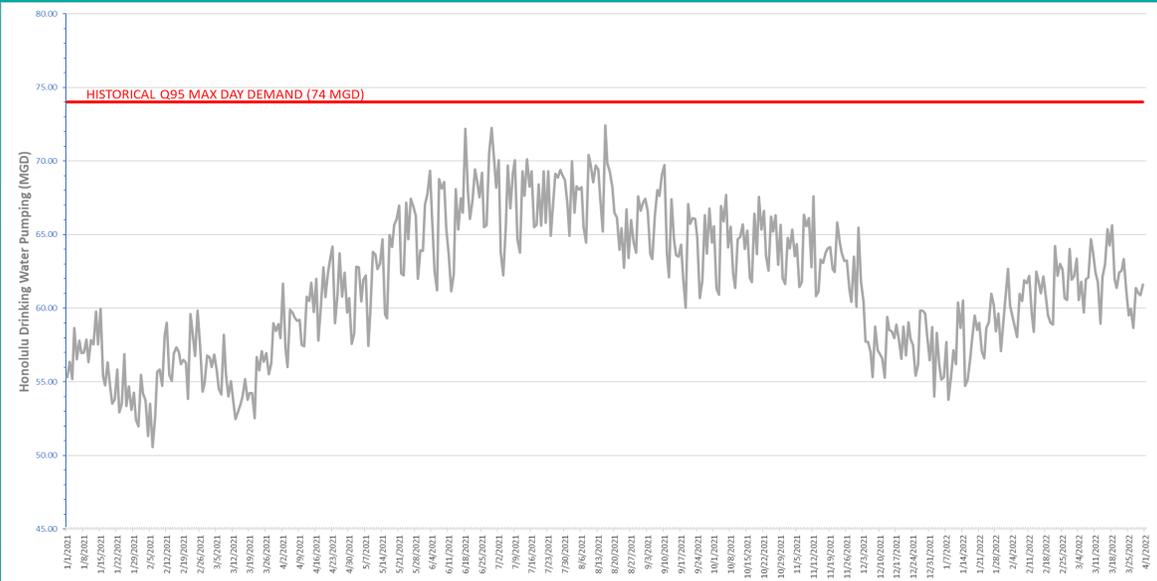


# SOCIAL MEDIA

## AIEA HALAWA WEEKLY PUMPING - January 2021 to Present



## HONOLULU WEEKLY PUMPING - January 2021 to Present



# VISITOR INDUSTRY



While staying in a hotel, or even at home, consider reusing your towels.

*Make every drop count!*

## Hotel Initiatives:

- Employee Education
- In-room video
- Possible Mirror / Window Clings
- Social Media
- Restaurant Water Audits
- App to drive visitors to retail stores in hotels
- Beach / Pool Shower signage
- Events

## Other Visitor Industry

- Social Media Toolkit
- Articles in print media



# CONSERVATION BOOKLET

## Your Water, Conservation, & the Board of Water Supply



## Oahu's Water Supply

### Where The Water Comes From

Oahu sustains a population approaching one million people, with five times as many more visitors. Our only source of drinking water is groundwater: Hawaiian native forests have evolved over thousands of years to become the best quality watershed covers. Native vegetation in the forest fills every level. It soaks up rainfall like a giant sponge, allowing water to seep slowly underground where it is filtered and stored in the porous volcanic rock of the island.

Because of our large population, effective water management is a major element in planning for expanding water needs. Our water resources on Oahu are limited, so conservation is a key element in our long-term strategy to protect and enhance this precious resource. If we save enough water now, we'll have what we need for years to come.



### The Origins of Water

The hydrologic cycle on an oceanic island is one of constant motion and transformation. As water changes form through evaporation, condensation, melting and freezing, energy is released and absorbed, linking water to the environment's larger energy cycle.

## Ways To Help Conserve Water

### Recommended Voluntary Reductions

- Irrigation and lawn/landscape watering twice a week, before 9:00 a.m. or after 5:00 p.m.
- Postponing installation of new lawns (which require constant irrigation)
- Postponing car washes and refilling of swimming pools
- Take shorter showers
- Run full loads for clothes washers and dish washers
- Check for dripping faucets and running toilets
- Check for and repair property leaks

The BWS hopes that voluntary conservation results will help avoid mandatory measures.



## 7 Easy Ways To Save Water

Save water for a dry day. Experts estimate that about one-third of water from your tap goes down the drain through wasteful water use. You can reduce senseless water loss through our 7 Easy Ways to Save Water:

1. Water lawns just 2-3 times a week.
2. Don't water lawns between 9 a.m. and 5 p.m.
3. Check for leaks in plumbing and toilets.
4. Install water-efficient plumbing fixtures.
5. Take shorter showers.
6. Put a nozzle on your garden hose.
7. Don't let the faucet run and run.

Visit our website at [www.boardofwatersupply.com/conservation](http://www.boardofwatersupply.com/conservation) for more water-saving ideas.



# WATER SMART

WaterSmart provides participating customers with detailed information on their water use and personalized recommendations for using water more efficiently.

This information is available online or by mobile.

Overtime, customers who access the WaterSmart platform are more likely to use water efficiently.

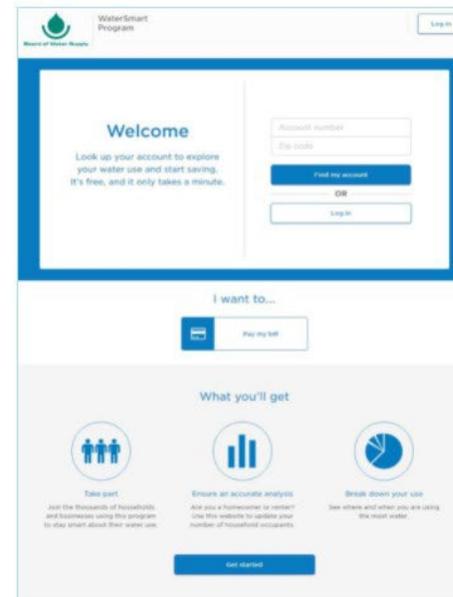


Create your WaterSmart® account today!

**JUMP TO:** [Contact Us](#) | [FAQs](#) | [Getting Started Video](#) | [Log Into WaterSmart® Portal](#) | [Leak Detection Tips](#)

## About the WaterSmart® Program

The Board of Water Supply (BWS) mission is to provide safe, dependable and affordable water now and into the future, Ka Wai Ola—Water for Life. WaterSmart® is an initiative that would help to ensure a sustainable water supply by promoting water conservation, a key objective in the BWS Water Master Plan.



Log into the WaterSmart® Portal

BWS first introduced WaterSmart® to roughly 38,000 customers in 2017, giving them the chance to learn how their water use compares with similar neighboring households and to have free and convenient access to tools that help them have a better understand their water use. The project was co-funded by Energy Excelerator, a Hawaii-based accelerator program for energy and water startups.

## Quick Links

[Frequently Asked Questions](#)

[Contact Us Form](#)

[WaterSmart® Portal Login](#)

[BWS Conservation Program](#)



# WATER SENSIBLE

Through the Water Sensible program, Oahu residents and businesses have the opportunity to save water and money.

Water Sensible launched with a residential water conservation rebate program and has expanded its offerings to include the commercial sector. It has also recently launched a program to help condominiums and townhome complexes improve their water conservation efforts.

## WATER SENSIBLE PROGRAM

[Go to: Commercial Rebates](#) | [Food Service](#) | [Residential Rebates](#) | [WaterWisdom](#) | [Program FAQs](#) |



[#WaterSensible](#) [#WaterForLife](#) [#KaWaOla](#) [#BoardOfWaterSupply](#) [#WaterConservation](#)

The Honolulu Board of Water Supply (BWS) is working hard to preserve and protect our most essential resource – water. Through the Water Sensible program, Oahu residents and businesses will have the opportunity to save water and money. Water Sensible launched with a residential water conservation rebate program and has expanded its offerings to include the commercial sector. It has also recently launched a WaterWisdom program to help condominiums and townhome complexes improve their water conservation efforts.



### For More Information:

Call (808) 237-6877

Email [watersensible@honeywell.com](mailto:watersensible@honeywell.com).

[#WaterSensible](#) [#WaterForLife](#) [#KaWaOla](#) [#BoardOfWaterSupply](#) [#WaterConservation](#)

Updated: 02/11/22



# QUESTIONS / DISCUSSION





# RED HILL GROUNDWATER CONTAMINATION STUDY UPDATE

Erwin Kawata

April 25, 2022

[boardofwatersupply.com](http://boardofwatersupply.com)

# TODAY'S DISCUSSION

- Red Hill groundwater investigation update
  - Navy aquifer recovery focus group meetings
  - Red Hill Remediation and Restoration Action Plan
- BWS exploratory and monitoring well update



# NAVY AQUIFER RECOVERY FOCUS GROUP UPDATE

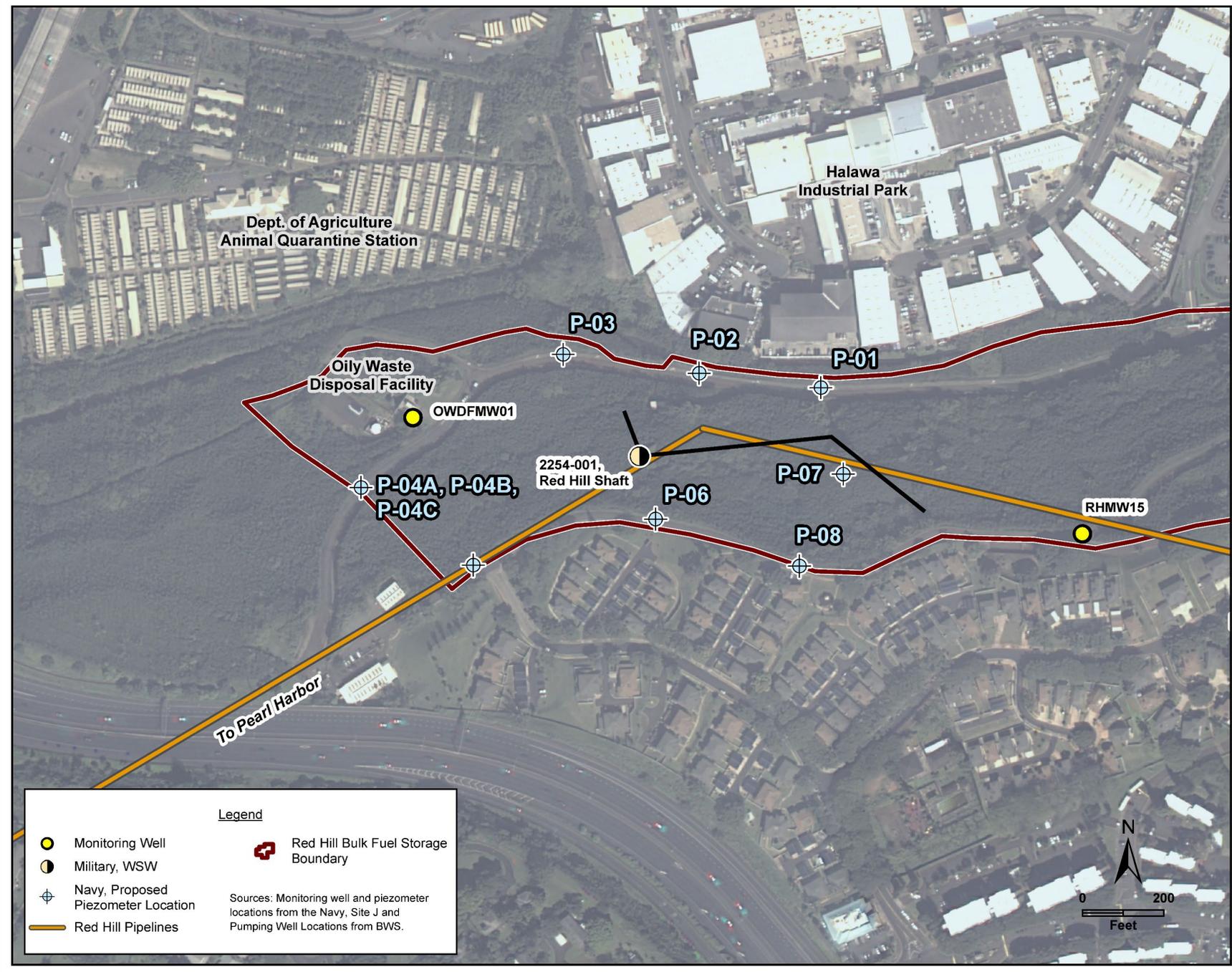
- Navy monitoring well data collected since the November 2021 release indicate TPH levels higher than amounts detected in the past (RHMW 9, 10 and 19)
- Navy reported observing fuel on rock cores during drilling of RHMW17
- Adapting the Navy's groundwater flow model (EPA and DOH disapproved the model) to evaluate the May and November 2021 releases
- Vapor readings from boreholes in the tunnel floor coincide with areas in Red Hill Shaft that Navy divers observed fuel entering the Shaft



## AQUIFER RECOVERY FOCUS GROUP UPDATE – CONT.

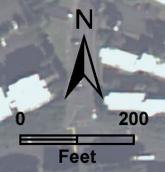
- CWRM recently approved various Navy monitoring well installation within and beyond the Red Hill tank facility property boundary





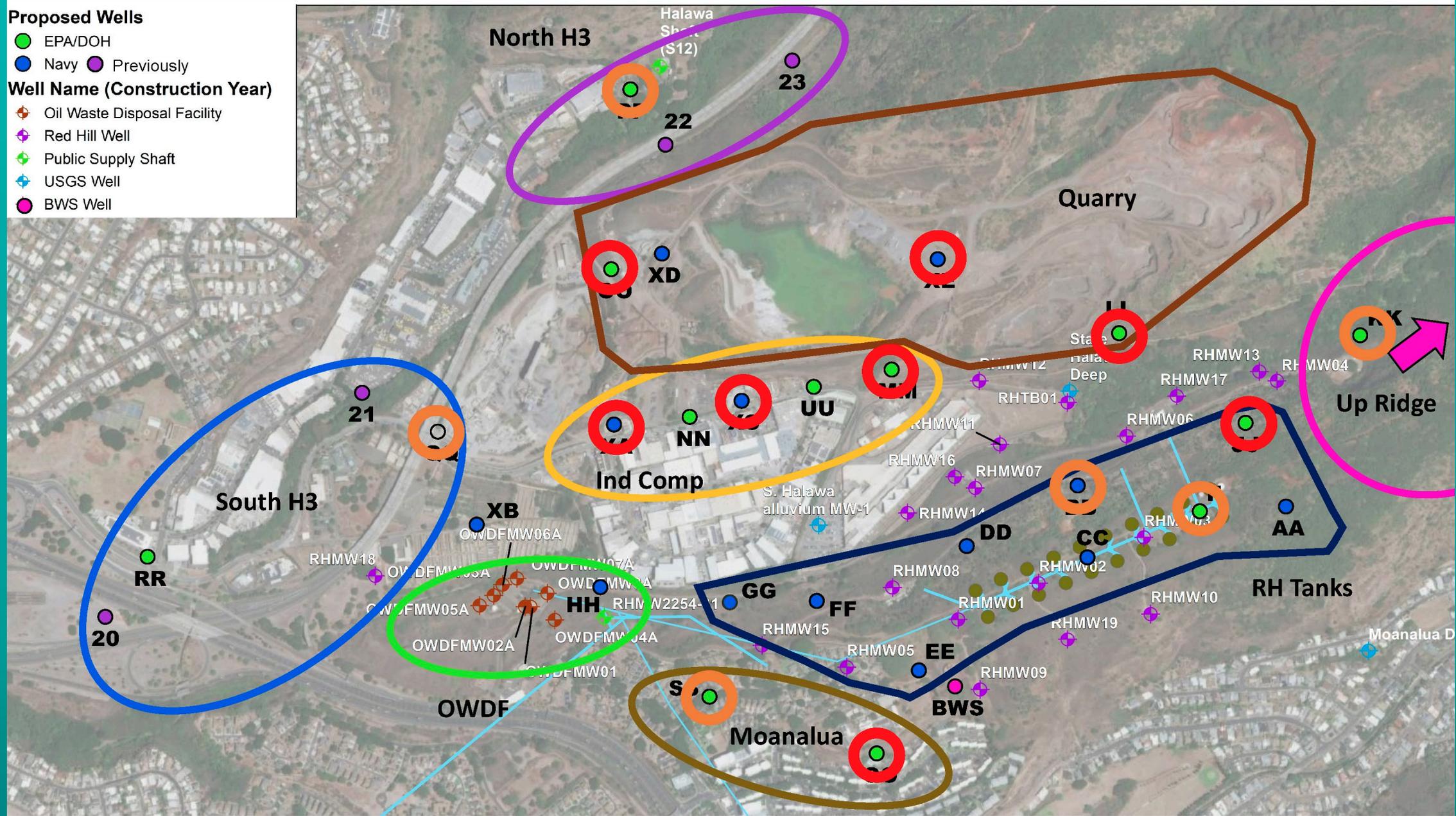
**Legend**

 Monitoring Well	 Red Hill Bulk Fuel Storage Boundary
 Military, WSW	
 Navy, Proposed Piezometer Location	
 Red Hill Pipelines	Sources: Monitoring well and piezometer locations from the Navy, Site J and Pumping Well Locations from BWS.



**Proposed Wells**

- EPA/DOH
  - Navy
  - Previously
- Well Name (Construction Year)**
- Oil Waste Disposal Facility
  - Red Hill Well
  - Public Supply Shaft
  - USGS Well
  - BWS Well



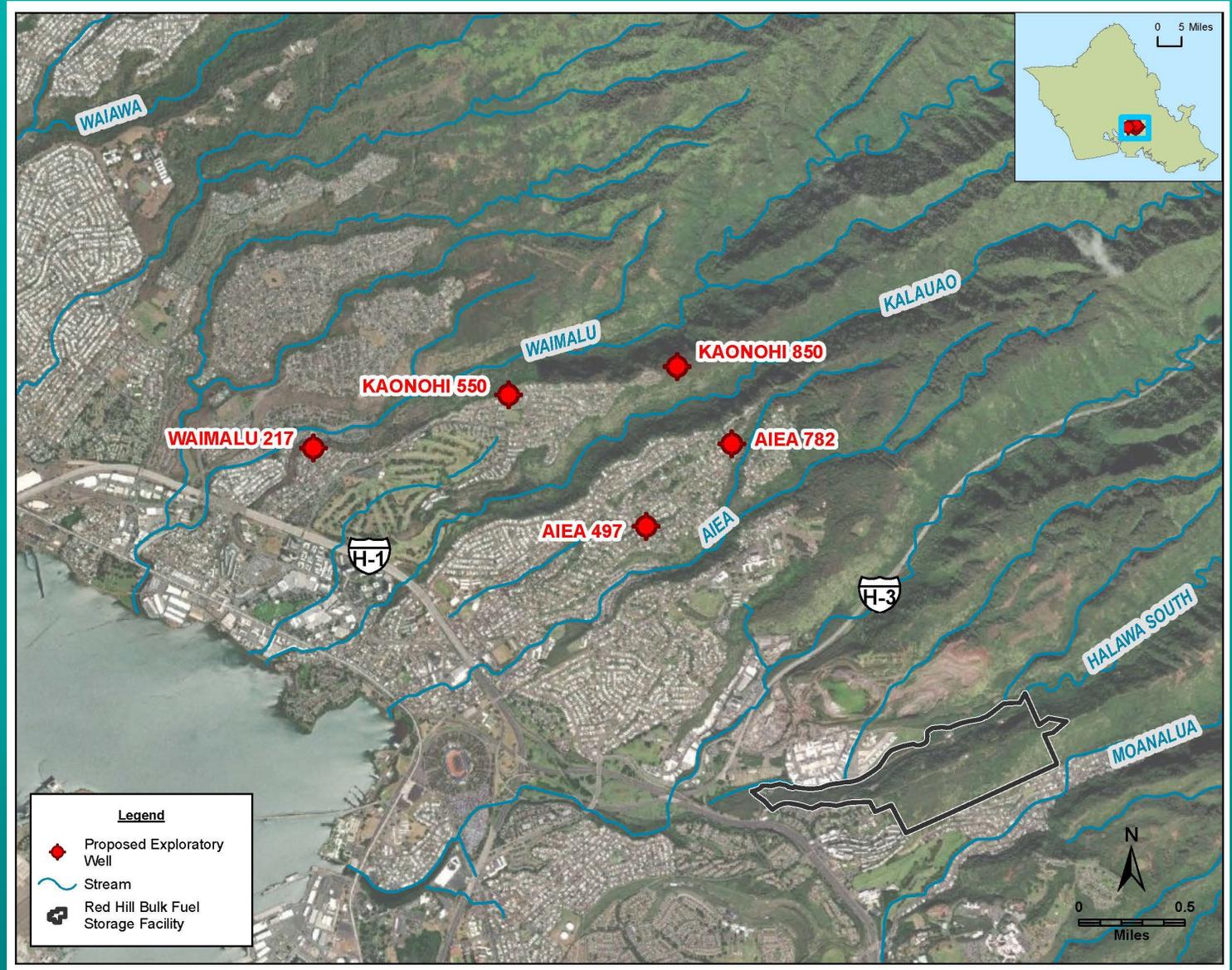
# RED HILL REMEDIATION AND RESTORATION ACTION PLAN

- EPA and DOH leading effort to develop an action plan to address the contamination and restore aquifer groundwater quality
- Invited BWS to participate on a committee to help guide the development and implementation of the plan
- BWS representatives on the committee are Ernie Lau and Erwin Kawata
- First meeting pending



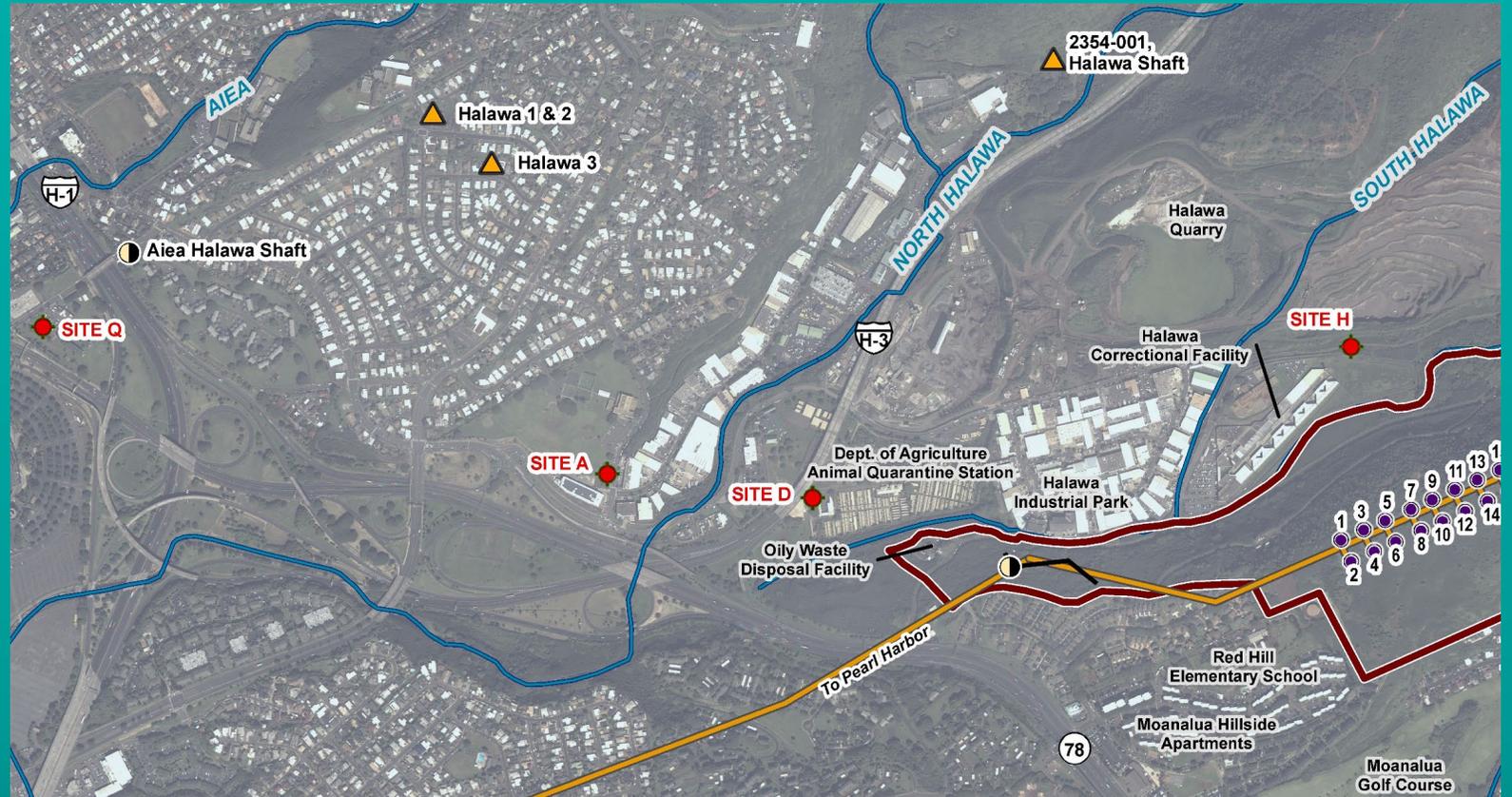
# BWS EXPLORATORY WELL INSTALLATION UPDATE

- Site visit completed to all sites.  
EA preparation underway.
- Well designs for Aiea 497, Aiea 782, Kaonohi, 550, Kaonohi 850 and Waimalu 217 submitted for internal BWS review.
- Well installation at Moanalua Valley Park cancelled.  
Alternate location near park under review.



# BWS MONITORING WELL INSTALLATION UPDATE

- Site H monitoring well installation planned for FY22
- All other locations site visit completed.
- Well installation design in progress for Site A, D, and Q



# QUESTIONS / DISCUSSION



**APPROVAL OF MEETING**

Approval of the Minutes of the Regular Meeting Held on March 28, 2022.

**MOTION TO APPROVE**

Na'alehu Anthony and Max Sword motioned and seconded, respectively, to approve the Minutes of the Regular Meeting of March 28, 2022.

Chair Andaya requested Board Secretary, Ms. Joy Cruz-Achui conduct the roll call vote.

Ms. Cruz-Achui conducted a roll call vote: Vice Chair Kapua Sproat, aye; Board Member Ray Soon, aye; Board Member Max Sword, aye; Board Member Na'alehu Anthony, aye; Board Member Jade Butay, aye; Board Member Dawn Szewczyk, aye; and Chair Bryan Andaya, aye.

Ms. Cruz-Achui announced that the motion passed with seven ayes.

THE MINUTES OF THE REGULAR MEETING HELD ON MARCH 28, 2022 WERE APPROVED AT THE APRIL 25, 2022 BOARD MEETING			
	AYE	NO	COMMENT
BRYAN P. ANDAYA	X		
KAPUA SPROAT	X		
RAY C. SOON	X		
MAX J. SWORD	X		
NA'ALEHU ANTHONY	X		
JADE T. BUTAY	X		
DAWN B. SZEWCZYK	X		

"April 25, 2022

ADOPTION OF  
RESOLUTION  
NO. 939, 2022,  
KAZU HAYASHIDA,  
TO HONOR HIS  
MEMORY AND  
ACCOMPLISH-  
MENTS IN  
LEADERSHIP  
POSITIONS AT  
THE BOARD OF  
WATER SUPPLY  
FROM 1974  
TO 2000

Chair and Members  
Board of Water Supply  
City and County of Honolulu  
Honolulu, Hawaii 96843

Chair and Members:

Subject: Adoption of Resolution No. 939, 2022, Kazu Hayashida,  
To Honor His Memory and Accomplishments in Leadership  
Positions at the Board of Water Supply from 1974 to 2000

We recommend adoption of Resolution 939, 2022, which honors the memory and accomplishments of the late Kazu Hayashida who led the Board of Water Supply as its Manager and Chief Engineer from 1978 to 1994.

Mr. Hayashida was an outstanding leader who also served twice on the BWS Board of Directors in ex-officio capacities. This resolution recognizes his many years of public service; his contributions to maintaining the sustainability of Oahu's water resources and distribution system that continue to guide our operations; and his deep and unwavering commitment to the Board of Water Supply, its employees, and our island water users.

Respectfully Submitted,

/s/ ERNEST Y. W. LAU, P.E  
Manager and Chief Engineer

Attachment"

DISCUSSION:

Manager Lau shared that Mr. Kazu Hayashida was his boss from 1980 to 1995 and was known as the water sheriff. Manager Lau recalls the pineapple and sugar cane pesticide contamination and how Mr. Hayashida dealt with the situation which succeeded. He expressed his appreciation and gratitude to the late Mr. Hayashida for the leadership and mentorship he provided throughout the years.

Chair Andaya thanked Manager Lau for the BWS's tribute to Mr. Hayashida. May his spirit guide the BWS in our current challenges. He asked for a motion to approve the adoption of Resolution 939, 2022, Kazu Hayashida, To Honor His Memory and Accomplishments in Leadership Positions at the BWS from 1974 to 2000.

MOTION  
TO APPROVE

Dawn Szewczyk and Ray Soon motioned and seconded, respectively, to approve the Adoption of Resolution 939, 2022, Kazu Hayashida, To Honor His Memory and Accomplishments in Leadership Positions at the Board of Water Supply from 1974 to 2000.

Chair Andaya requested Board Secretary, Ms. Joy Cruz-Achiu conduct the roll call vote.

Ms. Cruz-Achiu conducted a roll call vote: Vice Chair Kapua Sproat, aye; Board Member Ray Soon, aye; Board Member Max Sword, aye; Board Member Na'alehu Anthony, aye; Board Member Jade Butay, aye; Board Member Dawn Szewczyk, aye; and Chair Bryan Andaya, aye.

Ms. Cruz-Achiu announced that the motion passed with seven ayes.

ADOPTION OF RESOLUTION NO. 939, 2022, KAZU HAYASHIDA, TO HONOR HIS MEMORY AND ACCOMPLISHMENTS IN LEADERSHIP POSITIONS AT THE BOARD OF WATER SUPPLY FROM 1974 TO 2000, ADOPTED APRIL 25, 2022			
	AYE	NO	COMMENT
BRYAN P. ANDAYA	X		
KAPUA SPROAT	X		
RAY C. SOON	X		
MAX J. SWORD	X		
NA'ALEHU ANTHONY	X		
JADE T. BUTAY	X		
DAWN B. SZEWCZYK	X		



**BOARD OF WATER SUPPLY  
CITY AND COUNTY OF HONOLULU**

**RESOLUTION NO. 939, 2022**

**KAZU HAYASHIDA  
TO HONOR HIS MEMORY AND ACCOMPLISHMENTS  
IN LEADERSHIP POSITIONS AT THE BOARD OF WATER SUPPLY FROM 1974 TO 2000**

**WHEREAS**, as a Professional Engineer, KAZU HAYASHIDA served the Board of Water Supply (BWS) and the people of Oahu in several BWS leadership positions for more than 20 years, always working to ensure safe, dependable, and affordable drinking water now and into the future; and

**WHEREAS**, MR. HAYASHIDA served as an ex-officio member of this Board as the City Director of Public Works, from 1974 to 1976; as the BWS's Manager and Chief Engineer, from October 1978 until December 1994; and once again as an ex-officio board member in his capacity as the Director of the State of Hawaii Department of Transportation, from 1995 until his retirement from HIDOT in 2000; and

**WHEREAS**, as BWS Manager, MR. HAYASHIDA provided this semi-autonomous City agency and its employees with his professional, confident, and supportive leadership, demonstrating great foresight as he effected innovative ideas and actions to lead the Department into the next era of water management -- including creating the Municipal Water Use Plan, improving water system operations and maintenance with state-of-the-art equipment, and implementing facilities construction projects that brought Oahu's water system to the forefront; and

**WHEREAS**, MR. HAYASHIDA led the department's response to the 1982 discovery of pesticide contamination in BWS wells in Central Oahu during a time when such contamination was predicted to never happen. He initiated regular water monitoring of all BWS wells in Central and Leeward Oahu, and North Shore for pesticide contamination and the first pilot testing of cooling tower aeration to remove the contamination from the drinking water. This work led to the design, construction, and operation of the first granular activated carbon (GAC) treatment system on Oahu at a time when large scale municipal water treatment using GAC was not known in the United States. Today, BWS has twelve GAC treatment facilities in Mililani, Waipahu, Kunia, Haleiwa and Waialua that collectively treats over 20 million gallons of water per day to safe drinking water standards; and

**WHEREAS**, he used his considerable influence to increase public education and awareness of the importance of water conservation through creation of the annual Water Conservation Week Poster Contest, his "Water Sheriff" role, the Halawa Xeriscape Garden, and other programs to preserve and protect Oahu's municipal water resources for future generations; and

**WHEREAS**, MR. HAYASHIDA successfully oversaw many difficult challenges such as mandatory water conservation in 1984 and Hurricanes Iwa in 1982 and Iniki in 1991, and his many contributions to the Department and this Board have greatly shaped, and will continue to impact, the direction and operations of the Department for many years to come; and

**WHEREAS**, KAZU HAYASHIDA's counsel, encouragement, and accomplishments have earned him the respect, trust, and admiration of the BWS's employees and Board, and he will be missed by his family, colleagues, and the BWS ohana; now, therefore

**BE IT RESOLVED** by the Members of the Board of Water Supply, City and County of Honolulu, that we do hereby express to the family of KAZU HAYASHIDA our deepest appreciation and sincere gratitude for the thoughtful and insightful guidance, unwavering commitment, and strong leadership he provided as Manager and Chief Engineer of the Honolulu Board of Water Supply; and

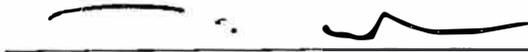
**BE IT FURTHER RESOLVED** that the Members of this Board extend its sincerest sympathies to the family of KAZU HAYASHIDA for their loss of this exceptional man; and

**BE IT FINALLY RESOLVED** that this Resolution be presented to the family of KAZU HAYASHIDA.



Resolution No. 939, 2022

Adopted this 25<sup>th</sup> day of April 2022  
Board of Water Supply, Honolulu, Hawaii

  
BRYAN P. ANDAYA  
Chair of the Board

"April 25, 2022

ADOPTION OF RESOLUTION NO. 940, 2022, AUTHORIZING THE SUBMITTAL OF AMERICAN RESCUE PLAN ACT 2021 (ARPA) STATE & LOCAL FISCAL RECOVERY FUND (FRF) FUNDING REQUESTS TO THE CITY & COUNTY OF HONOLULU FOR ELIGIBLE INVESTMENTS IN WATER AND EXPENDITURES FOR INFRA-STRUCTURE, AS ALLOWABLE UNDER ARPA, AND AUTHORIZING THE MANAGER AND CHIEF ENGINEER, BOARD OF SUPPLY TO ACCEPT FRF FUNDS FOR THE DESIGNATED PROJECT APPLICATIONS UPON APPROVAL BY THE CITY & COUNTY OF HONOLULU

Chair and Members  
Board of Water Supply  
City and County of Honolulu  
Honolulu, Hawaii 96843

Chair and Members:

Subject: Adoption of Resolution No. 940, 2022, Authorizing the Submittal of American Rescue Plan Act 2021 (ARPA) State & Local Fiscal Recovery Fund (FRF) Funding Requests to the City & County of Honolulu for Eligible Investments in Water and Expenditures for Infrastructure, as Allowable Under ARPA, and Authorizing the Manager and Chief Engineer, Board of Water Supply to Accept FRF Funds for the Designated Project Application Project Applications Upon Approval by the City & County of Honolulu

We recommend the approval of Resolution No. 940, 2022, authorizing the submittal of funding requests to the City and County FOR of Honolulu (City) from its allocation of American Rescue Plan Act 2021 (ARPA) State and Local Fiscal Recovery Funds (FRF) for eligible investments in water infrastructure.

The Board of Water Supply (BWS) has evaluated projects proposed in its Fiscal Year 2023 Capital Improvement Program (CIP) Budget and has prepared applications for submittal to the City. Should the request requests be approved by the City, they shall be reflected as appropriations to the Extramural Fund in the CIP Budget submitted by the Manager for approval and adoption by the Board.

We believe it is in the best interest of the BWS and its customers to obtain FRF funding to finance improvements to the water system. These investments will allow the BWS to continue to provide safe, dependable and affordable water for Oahu.

Respectfully Submitted,

/s/ ERNEST Y. W. LAU, P.E  
Manager and Chief Engineer

Attachment"

DISCUSSION:

Raelynn Nakabayashi, Executive Assistant I, Executive Support Office, gave the report.

Board Member Sword asked if the demolition and replacement of the fence around the various BWS sites are included in the budget. He commented that there's a lot of damage to the fencing.

Ms. Nakabayashi replied that station renovations include properly securing the property with fencing in the overall project. The upgrade to the expanded metal mesh is our current water system standard and this type of fencing is preferred over chainlink as it prevents the use of bolt cutters to trespass.

Chair Andaya asked if there were any further comments or discussion. Hearing none, he thanked Ms. Nakabayashi. He asked for a motion to approve the Adoption of Resolution No. 940, 2022, Authorizing the Submittal of American Rescue Plan Act 2021 (ARPA) State & Local Fiscal Recovery Fund (FRF) Funding Requests to the City & County of Honolulu for Eligible Investments in Water and Expenditures for Infrastructure, as Allowable Under ARPA, and Authorizing the Manager and Chief Engineer, Board of Water Supply to Accept FRF Funds for the Designated Project Application Upon Approval by the City & County of Honolulu.

Chair Andaya commented that it's exciting that the BWS Fiscal Year 2022-2023 includes projects that interconnect the water systems to assist with the current situations.

**MOTION  
TO APPROVE**

Max Sword and Ray Soon motioned and seconded, respectively, to approve the Adoption of Resolution No. 940, 2022, Authorizing the Submittal of American Rescue Plan Act 2021 (ARPA) State & Local Fiscal Recovery Fund (FRF) Funding Requests to the City & County of Honolulu for Eligible Investments In Water and Expenditures for Infrastructure, as Allowable Under ARPA, and Authorizing the Manager and Chief Engineer, Board of Water Supply to Accept FRF Funds for the Designated Project Applications Upon Approval by the City & County of Honolulu.

Chair Andaya requested Board Secretary, Ms. Joy Cruz-Achiu conduct the roll call vote.

Ms. Cruz-Achiu conducted a roll call vote: Vice Chair Kapua Sproat, aye; Board Member Ray Soon, aye; Board Member Max Sword, aye; Board Member Na'alehu Anthony, aye; Board Member Jade Butay, aye; Board Member Dawn Szewczyk, aye; and Chair Bryan Andaya, aye.

Ms. Cruz-Achiu announced that the motion passed with seven ayes.

ADOPTION OF RESOLUTION NO. 940, 2022,  
 AUTHORIZING THE SUBMITTAL OF AMERICA RESCUE  
 PLAN ACT 2021 (ARPA) STATE & LOCAL FISCAL  
 RECOVERY FUND (FRF) FUNDING REQUEST TO THE  
 CITY & COUNTY OF HONOLULU FOR ELIGIBLE  
 INVESTMENTS IN WATER AND EXPENDITURES FOR  
 INFRASTRUCTURE, AS ALLOWABLE UNDER ARPA, AND  
 AUTHORIZING THE MANAGER AND CHIEF ENGINEER,  
 BOARD OF WATER SUPPLY TO ACCEPT FRF FUNDS  
 FOR THE DESIGNATED PROJECT APPLICATIONS UPON  
 APPROVAL BY THE CITY & COUNTY OF HONOLULU,  
 ADOPTED ON APRIL 25, 2022

	AYE	NO	COMMENT
BRYAN P. ANDAYA	X		
KAPUA SPROAT	X		
RAY C. SOON	X		
MAX J. SWORD	X		
NA'ALEHU ANTHONY	X		
JADE T. BUTAY	X		
DAWN B. SZEWCZYK	X		

BOARD OF WATER SUPPLY  
CITY AND COUNTY OF HONOLULU

RESOLUTION NO. 940, 2022

**AUTHORIZING THE SUBMITTAL OF AMERICAN RESCUE PLAN ACT 2021 (ARPA) STATE AND LOCAL FISCAL RECOVERY FUND (FRF) FUNDING REQUESTS TO THE CITY AND COUNTY OF HONOLULU FOR ELIGIBLE INVESTMENTS IN WATER AND EXPENDITURES FOR INFRASTRUCTURE, AS ALLOWABLE UNDER ARPA, AND AUTHORIZING THE MANAGER AND CHIEF ENGINEER, BOARD OF WATER SUPPLY, TO ACCEPT FRF FUNDS UPON APPROVAL BY THE CITY AND COUNTY OF HONOLULU**

**WHEREAS, under the American Rescue Plan Act of 2021 (Pub. L. 117-2) signed into Public Law on March 11, 2021 (ARPA), Congress appropriated approximately \$6 billion in federal funding to Hawaii, including direct allocations of \$386,252,141 to the City and County of Honolulu through the Coronavirus State and Local Fiscal Recovery Fund (FRF); and**

**WHEREAS, one of the eligible uses of FRF is to make investments in water infrastructure; and**

**WHEREAS, the United States Department of Treasury in administering the FRF promulgated Final Rules and Compliance and Reporting Guidance, including "Infrastructure" within the seven (7) categories of eligible expenses, herein referred to as "US Treasury Eligible Expenses"; and**

**WHEREAS, pursuant to Article VII, Revised Charter of the City and County of Honolulu (RCH) there has been established a department of water supply known as the Board of Water Supply (the "BWS"), consisting of a seven-member policy-making board of water supply (the "Board"), the manager and chief engineer of the board of water supply (the "Manager") and the necessary staff; and**

**WHEREAS, pursuant to Article VII, RCH, the BWS has the full and complete authority to manage, control and operate water systems owned and under the jurisdiction of the City and County, including all the City and County water rights and water sources, together with all materials, supplies and equipment and all real and personal property used or useful in connection with such water systems, and has pursuant to such authority managed, controlled and operated such water systems; and**

**WHEREAS, Article VII, RCH prescribes the powers, duties and functions of the BWS, and establishes the BWS may make contracts necessary or convenient to the execution and performance of its powers, duties and functions; and**

WHEREAS, the City and County of Honolulu has established a process by which its direct allocation of FRF shall be made available for eligible projects and expenditures under ARPA; and

WHEREAS, the BWS wishes to submit FRF Funding Requests to the City and County of Honolulu for capital improvement projects that are eligible for the use of FRF under ARPA and make related expenditures in compliance with US Treasury Eligible Expenses to fulfill its duties and functions; and

WHEREAS, it is necessary and advisable and in the best interest of the BWS and its customers to obtain FRF funding to finance improvements to the water system; and

WHEREAS, the BWS will work with the City & County of Honolulu to meet the established deadlines for the use and expenditure of FRF; and

WHEREAS, should the FRF Funding Requests be approved by the City and County of Honolulu, they shall be reflected in future annual capital budget as appropriations to the Extramural Fund (ref. Resolution 778, 2007) submitted by the Manager for approval and adoption by the Board; and

WHEREAS, the Chair of the Board and the Manager support the submittal of FRF Funding Requests; now therefore,

BE IT RESOLVED by the Members of the Board, in accordance with Hawaii Revised Statutes and RCH, that the Manager is authorized to submit FRF Funding Requests for capital improvement projects as described above and accept FRF funds upon approval by the City and County of Honolulu.

ADOPTED:



BRYAN P. ANDAYA  
Chair

Honolulu, Hawaii  
April 25, 2022

ADOPTION OF RESOLUTION NO. 940, 2022,  
AUTHORIZING THE SUBMITTAL OF AMERICA RESCUE  
PLAN ACT 2021 (ARPA) STATE & LOCAL FISCAL  
RECOVERY FUND (FRF) FUNDING REQUEST TO THE  
CITY & COUNTY OF HONOLULU FOR ELIGIBLE  
INVESTMENTS IN WATER AND EXPENDITURES FOR  
INFRASTRUCTURE, AS ALLOWABLE UNDER ARPA, AND  
AUTHORIZING THE MANAGER AND CHIEF ENGINEER,  
BOARD OF WATER SUPPLY TO ACCEPT FRF FUNDS  
FOR THE DESIGNATED PROJECT APPLICATIONS UPON  
APPROVAL BY THE CITY & COUNTY OF HONOLULU,  
ADOPTED ON APRIL 25, 2022

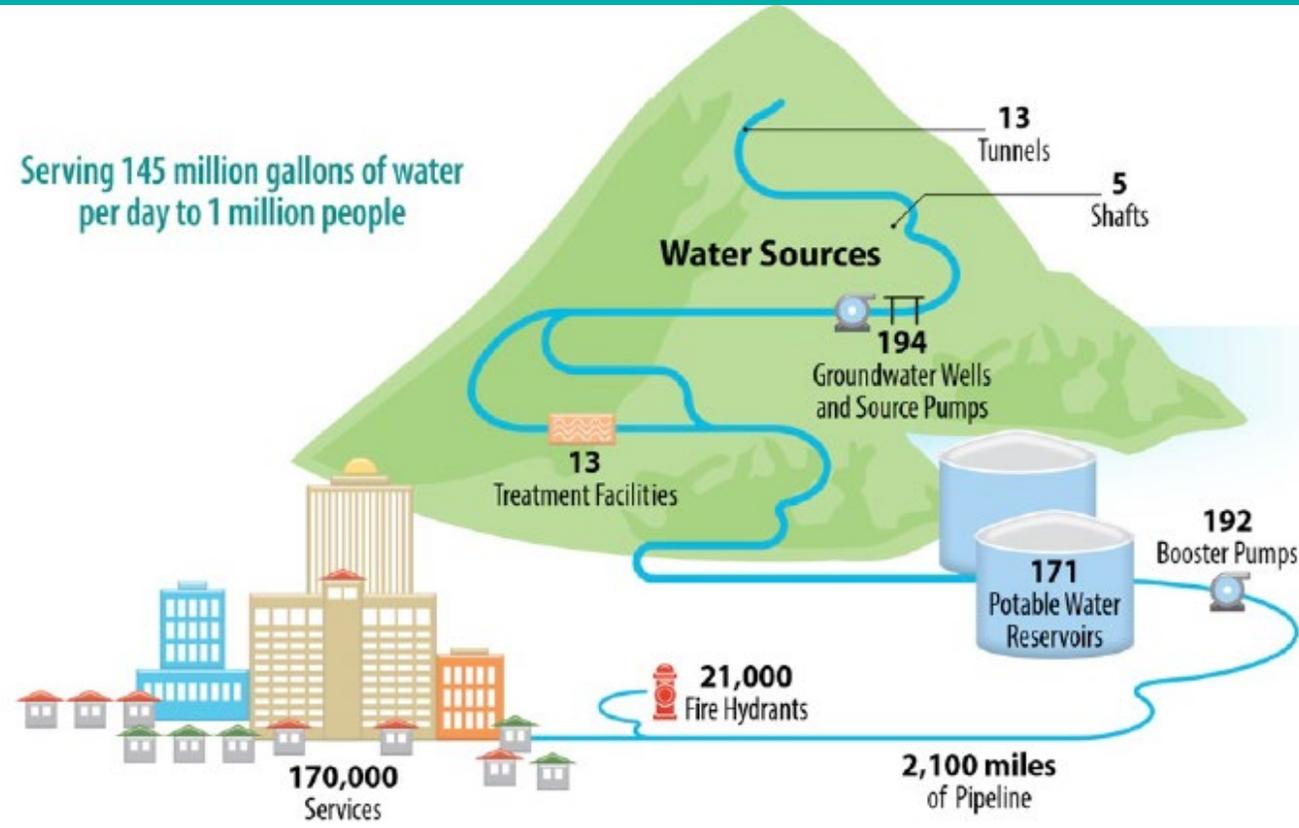
	AYE	NO	COMMENT
BRYAN P. ANDAYA	X		
KAPUA SPROAT	X		
RAY C. SOON	X		
MAX J. SWORD	X		
NA'ALEHU ANTHONY	X		
JADE T. BUTAY	X		
DAWN B. SZEWCZYK	X		



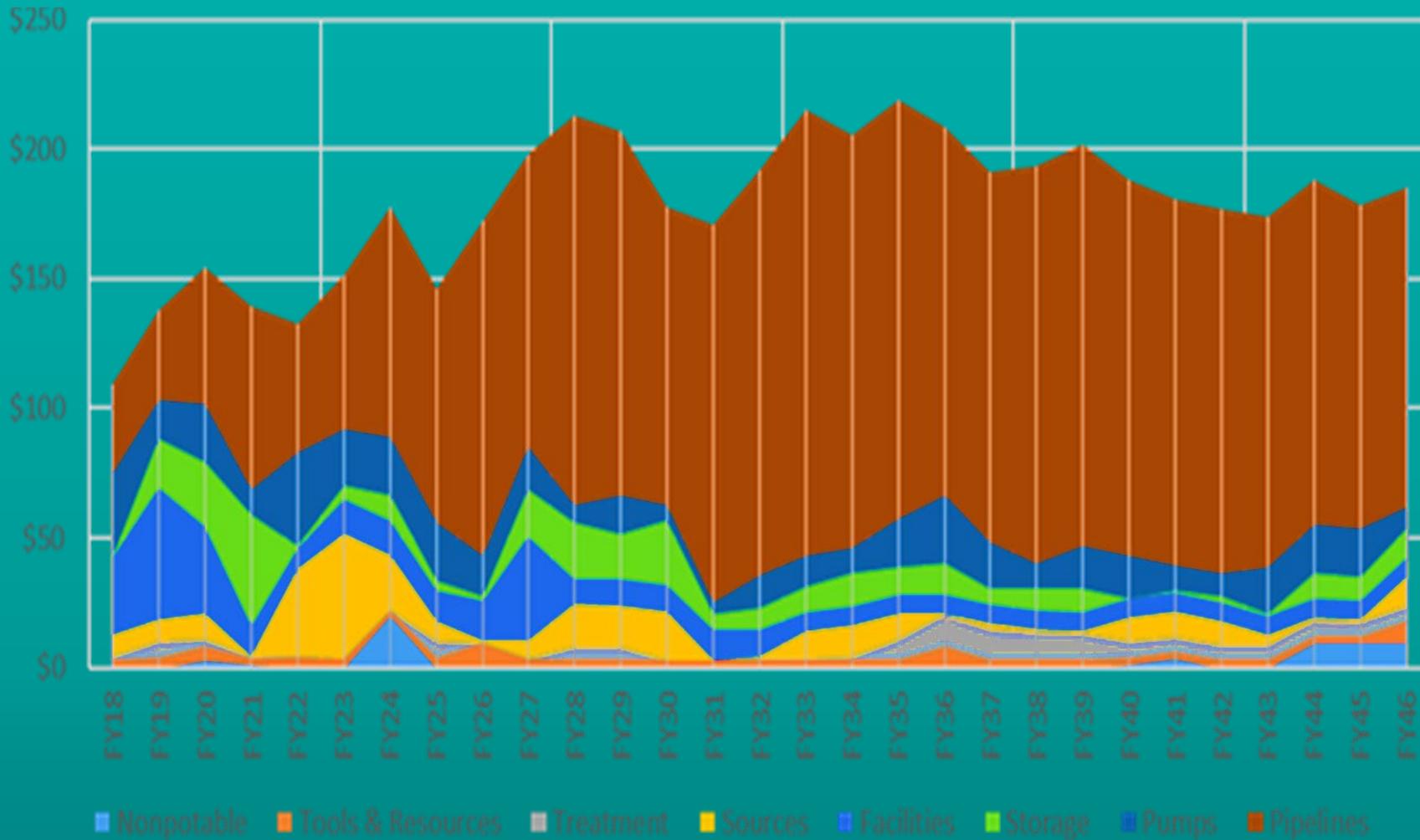
# RESOLUTION NO. 940, 2022

April 25, 2022  
[boardofwatersupply.com](http://boardofwatersupply.com)

*These intertwined plans establish a foundation for BWS policy makers, managers and technical staff to sustain O'ahu's water system and assure ample, quality fresh water for generations into the future.*



# FUNDING LEVELS BY ASSET CATEGORY





**RESOLUTION**

URGING THE BOARD OF WATER SUPPLY, IN LIGHT OF THE RED HILL CRISIS AND ITS IMPACT ON EXISTING INFRASTRUCTURE NEEDS, TO PURSUE THE USE OF AMERICAN RESCUE PLAN ACT FUNDS TO PLAN, DESIGN, AND CONSTRUCT CRITICAL WATER INFRASTRUCTURE PROJECTS TO ADDRESS HONOLULU'S LIMITED AND THREATENED WATER RESOURCES.

WHEREAS, the Navy's Red Hill fuel storage facility ("Red Hill facility") was constructed during World War II and consists of 20 tanks mined inside a volcanic ridge near Pearl Harbor; and

WHEREAS, each tank:

- Measures 100 feet in diameter and 250 feet high;
- Can hold up to 12.5 million gallons of fuel, for a total Red Hill facility capacity of 250 million gallons of fuel; and
- Provides for the distribution of this fuel to ships and planes located at Joint Base Pearl Harbor-Hickam through 2.5 miles of pipeline; and

WHEREAS, hundreds of thousands of O'ahu residents—civilian and military—rely on fresh drinking water from an aquifer that sits 100 feet below the Red Hill facility; and

WHEREAS, the following fuel leaks related to the Red Hill facility have occurred since 2014:

- January 2014: 27,000 gallons of jet fuel leaked from a tank at the Red Hill facility;
- Early 2020: An oil sheen was detected on surface water near Hotel Pier at Pearl Harbor, with the Navy disclosing in June 2021 that 7,700 gallons of fuel were collected from soil and water; and
- May 2021: A Red Hill facility pipeline released 19,000 gallons of leaked fuel; and

WHEREAS, on November 28, 2021, military residents began complaining about fuel odors coming from their drinking water; and

**Resolution Status**

Voting Legend: \* = Aye w/Reservations

Date	↑↓ Type	Description
03/29/2022	INTRO	Introduced.
04/19/2022	TSH	Reported out for adoption.
		CR-88
		<b>4 AYES:</b> CORDERO, ELEFANTE, KIA'ĀINA, TULBA



# SLFRF ELIGIBILITY CRITERIA

Eligible use category: Investments in water, sewer & broadband

Expenditure category: Infrastructure – Drinking water: other water infrastructure

Project Name	Amount
Haleiwa Wells Renovation	\$6,000,000
Wilhelmina 811 Reservoir	\$8,500,000
Monsarrat Avenue Water System Improvements	\$4,800,000
Security Improvements	\$4,600,000
Kaahumanu & Manana Wells Control Valve Renovation	\$1,400,000
	<b>\$25,300,000</b>





# HALEIWA WELLS RENOVATION

LOCATION: 64-210 KAMEHAMEHA HIGHWAY

REQUEST: \$6,000,000

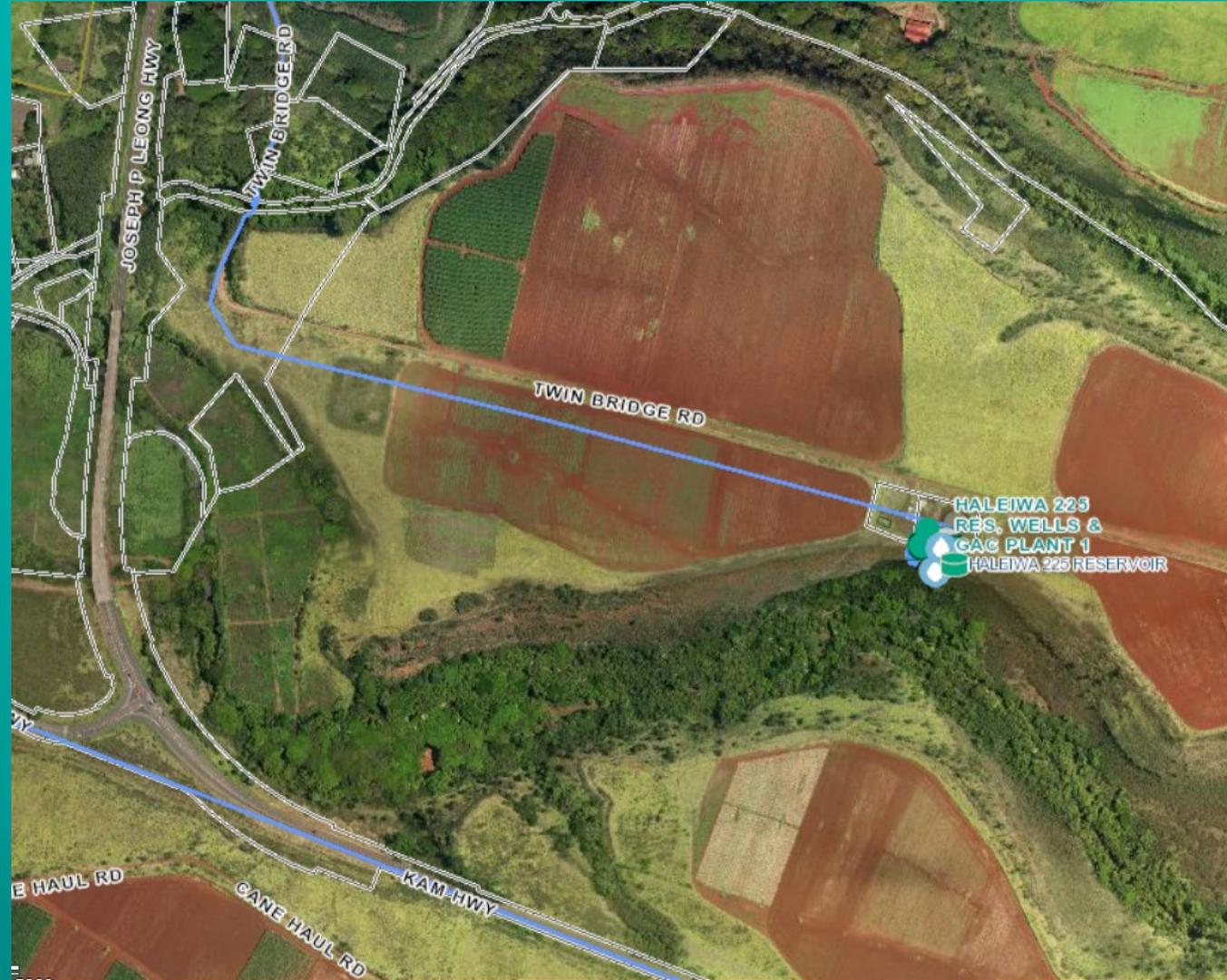


Haleiwa Wells, located at 64-210 Kamehameha Highway, is a potable water station in the North Shore Water Use District.

The facility was constructed in 1981 and serves the North Shore 225 Water System.

This system provides potable water for drinking, sanitation, agriculture and public safety (fire protection) to the 96791 & 96712 zip codes, which have resident populations of approximately 15,000 people\*

\*DBEDT's State of Hawaii Data Book 2020 - 7,350 (Waialua 96791) and 7,407 (Haleiwa 96712).







# WILHELMINA RISE 811 RESERVOIR REPLACEMENT

LOCATION: 4615 SIERRA DRIVE

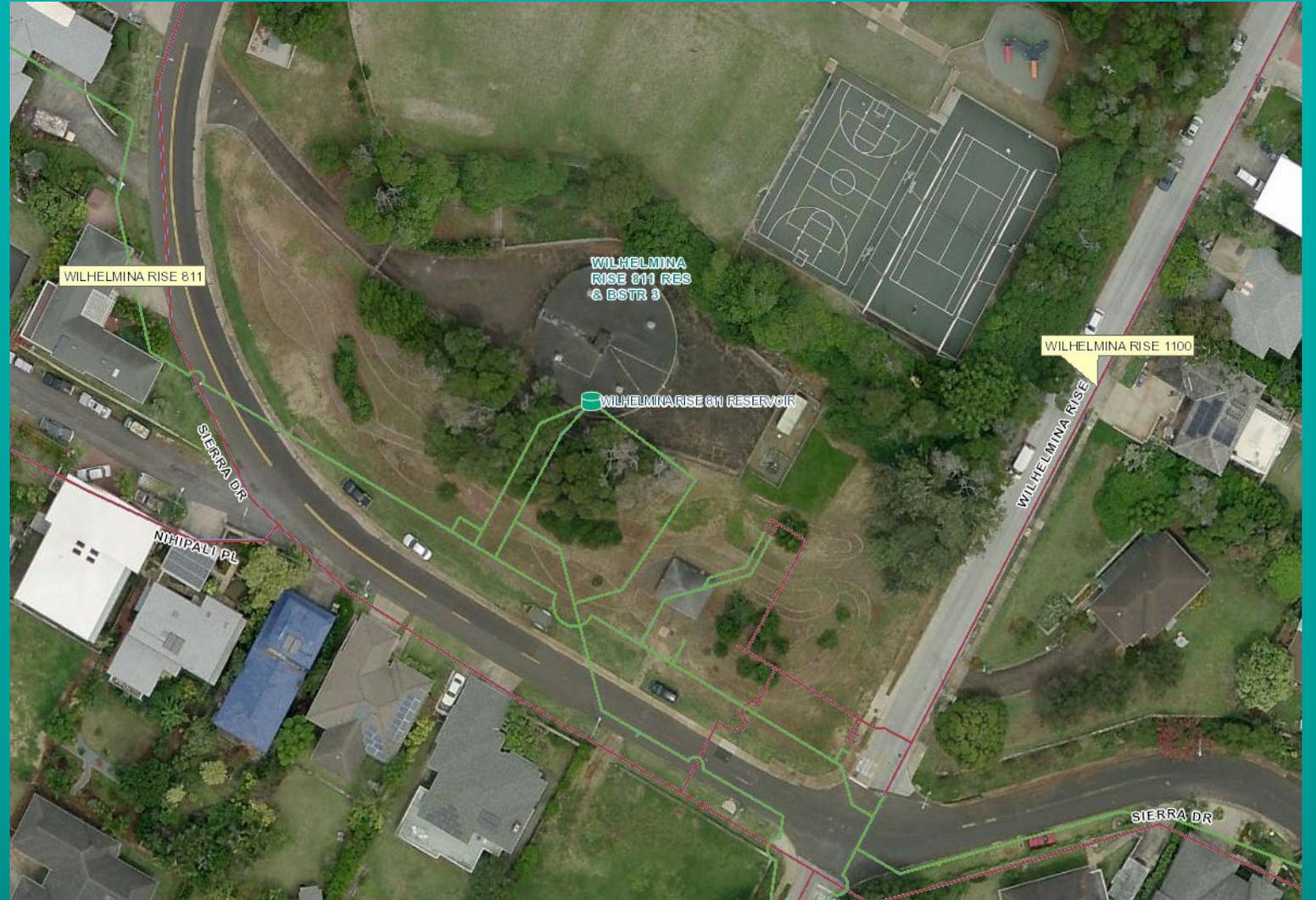
REQUEST: \$8,500,000



Wilhelmina Rise 811 Reservoir, located at 4615 Sierra Drive, is a potable water station in the Honolulu Water Use District.

The facility was constructed in 1931 and serves the Wilhelmina 811 and 1100 Water Systems.

This system provides potable water for drinking, sanitation, agriculture and public safety (fire protection).





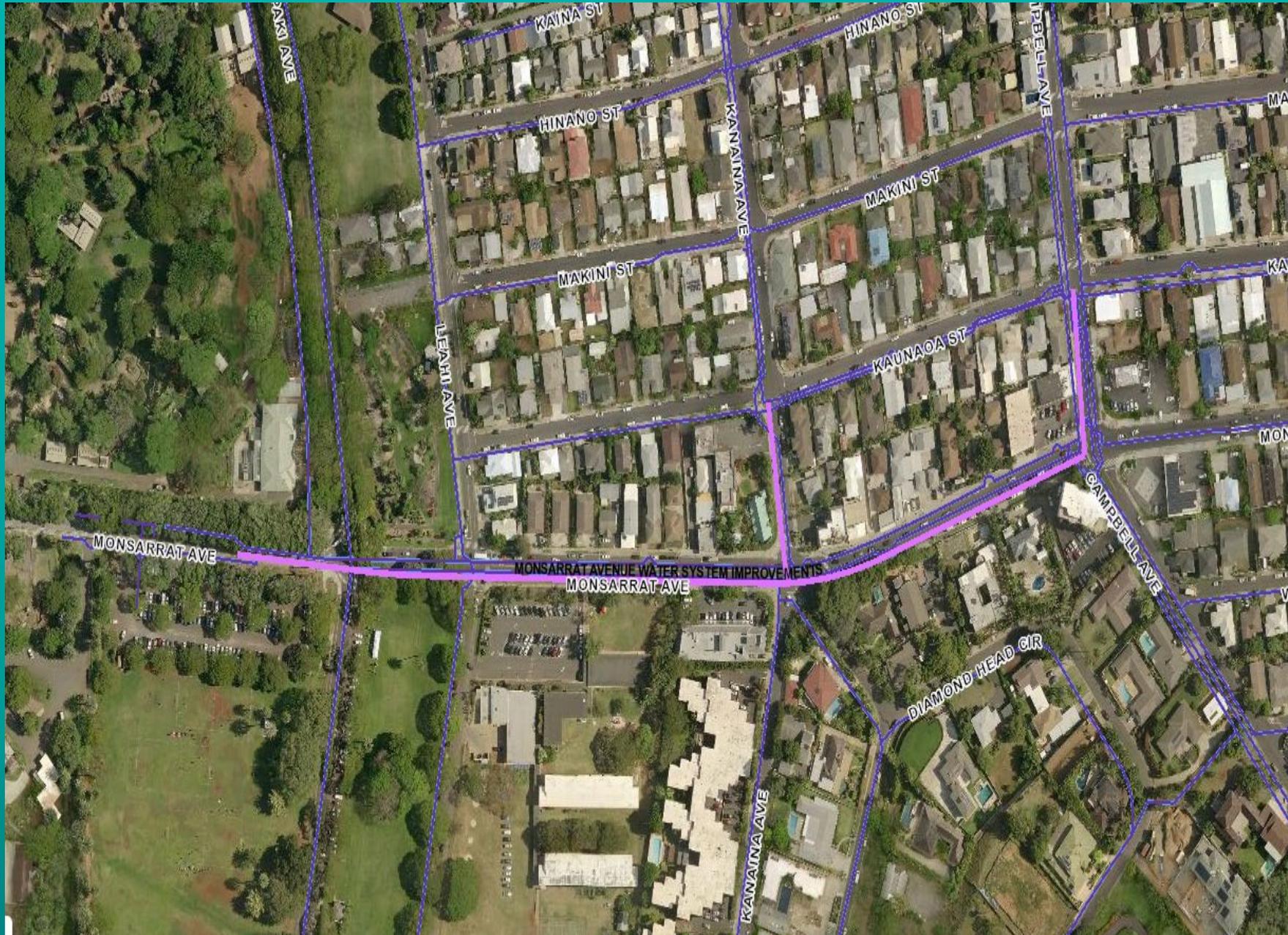


# MONSARRAT AVENUE WATER SYSTEM IMPROVEMENTS

LOCATION: AREAS ALONG MONSARRAT AVENUE, CAMPBELL AVENUE, AND  
KANAINA AVENUE

REQUEST: \$4,800,000





The Monsarrat Avenue WSI Project consists of existing cast iron 6-inch, 12-inch, 16-inch and 30-inch waterlines to be replaced with a new 24-inch ductile iron waterlines along portions of Monsarrat Avenue, Campbell Avenue, and Kanaina Avenue. These lines are recorded as constructed back as far as 1928 and has had several main breaks prompting the replacement of these segments.





# SECURITY IMPROVEMENTS AT VARIOUS LOCATIONS (FY23)

LOCATION: HONOULIULI WELLS II, MAKAKILO WELL I, MAKAKILO BOOSTER I  
AND WAIPAHAU WELLS IV

REQUEST: \$4,600,000



# CUT CHAIN LINK FENCING



# INEFFECTIVE BARBED WIRE



# EXPANDED METAL FENCING



# BWS Facility Map

## HONOULIULI WELLS II

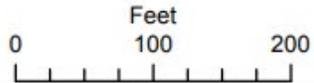
Facility ID: 9018

Street Address:

94-302 KUNIA RD

BWS Security Contact: (808) 748-5911

-  Door/Access
-  Emergency Connection
-  Shower/Eyewash
-  Gates
-  Fences
-  Access from Road
-  Structure



Facility Location = ●



Honouliuli Wells II - This well is a major source of water for the Ewa-Waianae population. The facility itself is isolated and the pumps are located outside (not within a structure).



## BWS Facility Map

### MAKAKILO WELL

Facility ID: 5083  
Street Address:  
92-419 MAKAKILO DR  
BWS Security Contact: (808) 748-5911

- ▲ Door/Access
- 🚒 Emergency Connection
- 🚿 Shower/Eyewash
- 🚪 Gates
- + + + Fences
- Access from Road
- ▭ Structure

0 100 200  
Feet

Facility Location = ●



Makakilo Well & Makakilo Booster 1 - These are a part of the BWS's largest boosted system.

This site experiences issues with trespassing and vandalism to our facilities.

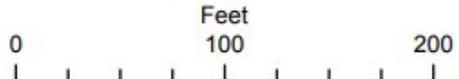


# BWS Facility Map

## WAIPAHA WELLS IV & GAC

Facility ID: 6453  
Street Address:  
94-1150 MANAGERS DR  
BWS Security Contact: (808) 748-5911

- ▲ Door/Access
- 🔌 Emergency Connection
- 🌊 Shower/Eyewash
- 🚪 Gates
- + + + Fences
- Access from Road
- ▭ Structure



Waipahu Wells IV - This source has pumps that are outside (not within a structure). As recently as 02/23/22, there was property damage reported at this location (fence cut & pried open)

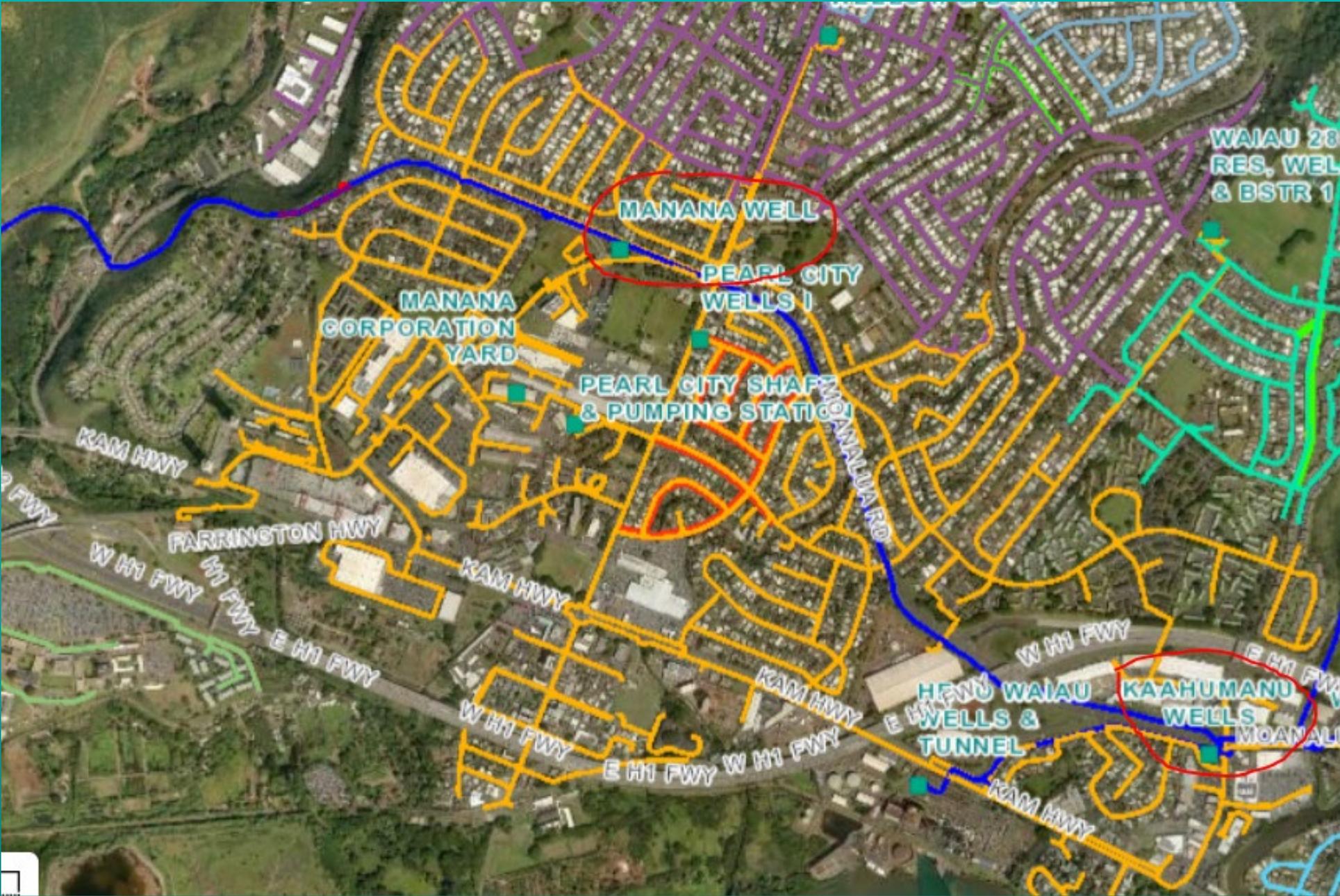




# KAAHUMANU WELLS & MANANA WELLS CONTROL VALVE RENOVATIONS

LOCATION: 98-752 KULEANA STREET & 1310 KUALA STREET  
REQUEST: \$1,400,000







# Mahalo!

## BOARD OF WATER SUPPLY

Resolution No. 940, 2022

Raelynn Nakabayashi

(808) 748-5177, [rnakabayashi@hbws.org](mailto:rnakabayashi@hbws.org)

[boardofwatersupply.com](http://boardofwatersupply.com) for more information

April 25, 2022

Providing safe, dependable, and affordable  
drinking water, now and into the future.

"April 25, 2022

**AUTHORIZING A  
PUBLIC HEARING  
TO CONSIDER  
THE PROPOSED  
FISCAL YEAR  
2022-2023  
OPERATING AND  
CAPITAL  
IMPROVEMENT  
PROGRAM  
BUDGET**

**Chair and Members  
Board of Water Supply  
City and County of Honolulu  
Honolulu, Hawaii 96843**

**Chair and Members:**

**Subject: Authorizing a Public Hearing to Consider the Proposed  
Fiscal Year 2022-2023 Operating and Capital Improvement  
Program Budget**

We recommend that the Board authorize a public hearing to be held at 2:00 p.m. on Tuesday, May 23, 2022, to consider the resolution to adopt the proposed Operating and Capital Improvement Program Budget for the fiscal year beginning July 1, 2022 and ending June 30, 2023.

Attached is the draft of the "Notice of Public Hearing" to be published prior to the hearing date.

Respectfully Submitted,

*/s/* ERNEST Y. W. LAU, P.E.  
Manager and Chief Engineer

Attachment"

**DISCUSSION:**

Raelynn Nakabayashi, Executive Assistant I, Executive Support Office, gave the report.

Board Member Szewczyk noted that the Board letter noted the wrong day for the Public Hearing. In the Board letter it stated that the Board would meet on Tuesday, May 23, 2022 as opposed to Monday, May 23, 2022.

Chair Andaya noted for the record that the Public Hearing is scheduled for Monday, May 23, 2022.

Chair Andaya asked if there were any further comments or discussion. Hearing none, he thanked Ms. Nakabayashi for the report. He asked for a motion to Authorize a Public Hearing to Consider the Proposed Fiscal Year 2022-2023 Operating and Capital Improvement Program Budget.

**MOTION  
TO APPROVE**

Ray Soon and Max Sword motioned and seconded, respectively, to Authorize a Public Hearing to Consider the Proposed Fiscal Year 2022-2023 Operating and Capital Improvement Program Budget.

Chair Andaya requested Board Secretary, Ms. Joy Cruz-Achiu conduct the roll call vote.

Ms. Cruz-Achiu conducted a roll call vote: Vice Chair Kapua Sproat, aye; Board Member Ray Soon, aye; Board Member Max Sword, aye; Board

Member Na'alehu Anthony, aye; Board Member Jade Butay, aye; Board Member Dawn Szewczyk, aye; and Chair Bryan Andaya, aye.

Ms. Cruz-Achui announced that the motion passed with seven ayes.

Chair Andaya commented that it's exciting that the BWS Fiscal Year 2022-2023 includes projects that interconnect the water systems to assist with the current situations.

AUTHORIZING A PUBLIC HEARING TO CONSIDER THE PROPOSED FISCAL YEAR 2022-2023 OPERATING AND CAPITAL IMPROVEMENT PROGRAM BUDGET WAS APPROVED ON APRIL 25, 2022			
	AYE	NO	COMMENT
BRYAN P. ANDAYA	X		
KAPUA SPROAT	X		
RAY C. SOON	X		
MAX J. SWORD	X		
NA'ALEHU ANTHONY	X		
JADE T. BUTAY	X		
DAWN B. SZEWCZYK	X		

## NOTICE OF PUBLIC HEARING

NOTICE IS HEREBY GIVEN that the BOARD OF WATER SUPPLY (BWS), CITY AND COUNTY OF HONOLULU, will hold a PUBLIC HEARING in the Board Room, Public Service Building, 630 South Beretania Street, on Monday, May 23, 2022, at 2:00 p.m. or soon thereafter, where all interested persons shall be afforded the opportunity of being heard on the adoption of the Proposed to the Fiscal Year (FY) 2023 Operating and Capital Improvement Program Budget of the Board of Water Supply, beginning July 1, 2022, and ending June 30, 2023

Some Board members may be participating in the meeting by interactive conference technology from remote locations. The public may attend the meeting from the lobby of the Board of Water Supply, Public Service Building, 630 S. Beretania St. Honolulu, HI 96843, via interactive conference technology.

### TESTIMONY CAN BE SUBMITTED AS FOLLOWS:

- Written testimony may be emailed to [board@hbws.org](mailto:board@hbws.org), faxed to (808) 748-5079, or mailed to Board of Water Supply, 630 S. Beretania St., Honolulu, HI 96843. Testimony is requested by Monday, May 23, 2022, at noon. Written testimonies should include the submitter's address, email address, and phone number. Written testimony will be posted to the BWS website at [boardofwatersupply.com](http://boardofwatersupply.com).
- On-line testimony will be accepted at [boardofwatersupply.com/testimony](http://boardofwatersupply.com/testimony). Fill out and submit the form by Monday, May 23, 2022, at noon.
- Telephone testimony will be accepted during the meeting at (808) 748-6040. Callers will be placed in a queue and brought up to testify one at a time.
- In-person testimony will be accepted during the meeting from the lobby of the Board of Water Supply, Public Service Building, 630 S. Beretania St. Honolulu, HI 96843 via interactive conference technology.

### MATERIALS AVAILABLE FOR INSPECTION

Meeting materials ("board packet" under HRS Section 92-7.5) are accessible at [boardofwatersupply.com/boardmeetings](http://boardofwatersupply.com/boardmeetings). Persons requesting a printed copy of the materials should contact Luella Paekukui at (808) 748-5176.

## VIEWING THE MEETING

The meeting will be viewable via live streaming on:

- (1) the BWS website: [www.boardofwatersupply.com/live](http://www.boardofwatersupply.com/live). Video will appear on screen. You may have to click the arrow on video to start it. You may have to unmute audio as muted audio tends to be the default setting.

Persons wishing to present telephone testimony are requested to register by 1:00 p.m. on Friday, May 20, 2022, with Luella Paekukui, (808) 748-5176, by providing your name, phone number, and subject matter of testimony. Testimony is limited to two (2) minutes and shall be presented by the registered speaker only. Any person requiring special assistance may contact Luella Paekukui at (808) 748-5176 no later than May 18, 2022, so that appropriate accommodations can be provided.

BOARD OF WATER SUPPLY  
CITY AND COUNTY OF HONOLULU

ITEM FOR INFORMATION NO. 2

"April 25, 2022

RECRUITMENT  
STATUS

Chair and Members  
Board of Water Supply  
City and County of Honolulu  
Honolulu, Hawaii 96843  
Chair and Members:

Subject: Recruitment Status

Michele L. Thomas, Executive Assistant, Human Resources Office, will be presenting an update on the Recruitment Status for the period of January 2022 to March 2022.

Respectfully Submitted,

/s/ ERNEST Y. W. LAU, P.E.  
Manager and Chief Engineer

Attachment"

The foregoing was for information only.

DISCUSSION:

Michele L. Thomas, Executive Assistant I, Human Resources Office, gave the report.

Chair Andaya commented that he understands "The Great Resignation". He asked if employees disclose their reasons for transferring or leaving when they leave the BWS.

Ms. Thomas replied that an exit interview with the Manager and herself is offered to each employee before leaving the BWS. She stated that asking why an employee is choosing to transfer or leave would assist the BWS to assess if any changes could be made to encourage the employee to stay. However, in most cases, the employee chooses not to disclose that information.

Board Member Soon inquired if the BWS has insight or idea as to why an employee chooses to transfer or leave.

Manager Lau responded that employees transfer or leave because of promotional opportunities, location, and flexibility. He respects the decision that supports and works for the employee's family. The BWS continues to explore different options to retain current employees.

Ms. Thomas added that the Manager and management are discussing the options that flexibility would be able to offer employees to accommodate various life circumstances. The BWS is also offering employees training opportunities to broaden their horizons and allow them to grow in their positions with the BWS.

Board Member Soon asked if the BWS is hiring from within, the BWS to fill positions that are left by employees.

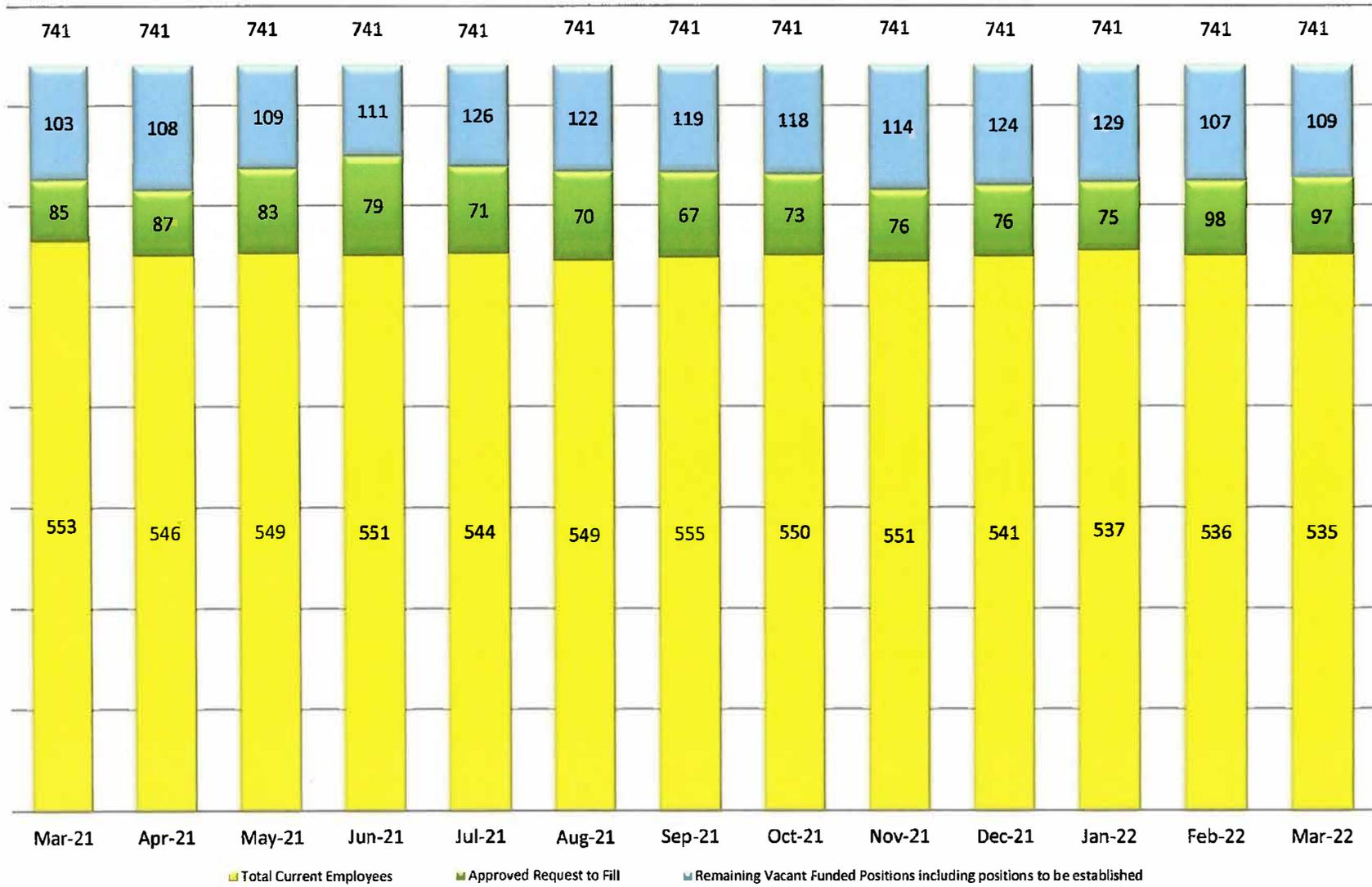
Ms. Thomas replied that the BWS tries to promote from within, offering current employees the opportunity to advance. However, some positions cannot be filled internally; therefore, when this happens, the BWS is required to seek replacements externally. She stated that the BWS continues to develop partnerships with local schools, both college and high schools, to fill positions.

Manager Lau stated that there is a diverse amount of job opportunities in the community. The BWS has employees that are choosing to transfer or leave and other city and government agency employees are joining the BWS. The BWS has hired several Civil Engineer I's that are being mentored and trained to grow with the BWS.

Ms. Thomas added that the BWS is very active in hiring. In the last quarter there 30 individuals started employment at the BWS.

Chair Andaya asked if there were any further questions. Hearing none, he thanked Ms. Thomas for the report.

## Positions Filled March 1, 2021 through March 31, 2022



For the Period Jan22 - Mar22 Actions: 8 New Hires, 5 Promotions, 1 Demotion, 3 Transfers, 13 Separations, 1 Retirement

# BOARD OF WATER SUPPLY

City and County of Honolulu

## RECRUITMENT AND SEPARATION STATUS For Period January 31, 2022 to March 31, 2022

### Status of Positions Under Recruitment

	as of		
	1/31/2022	2/28/2022	3/31/2022
Pending DHR Open List (external recruitment)	21	26	40
Pending Internal recruitments	4	15	9
Pending Final Interview Questions	15	6	16
Pending Interviews with Division	25	17	15
Anticipated Starts (pre-employment clearances)	7	12	9
Total Positions Under Recruitment	75	98	97

### Filled Positions

Month	Jan-22	Feb-22	Mar-22
Open list	2	1	5
Internal Promotions	0	3	2
Internal Demotions/Transfers	1	1	2
Upward Reallocations	0	5	3

### Separations

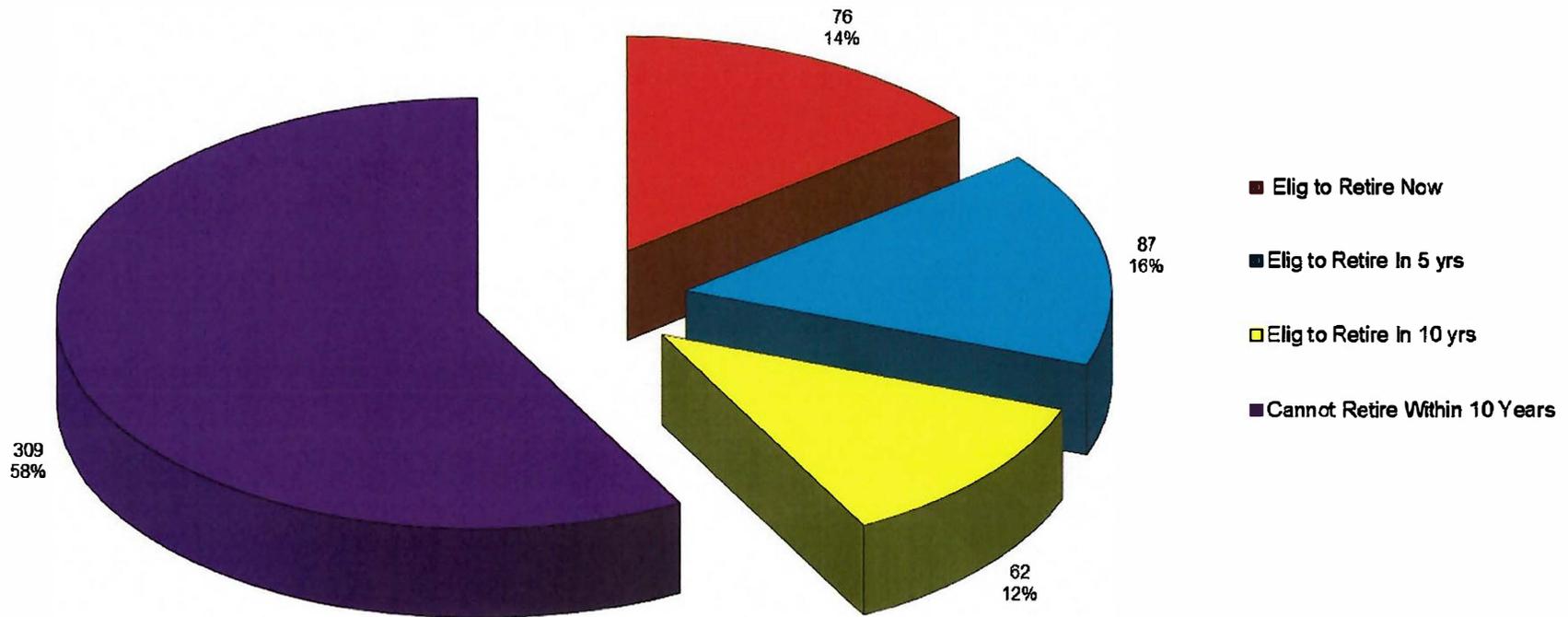
Month	Jan-22	Feb-22	Mar-22
Retire	0	0	1
Resign/Termination/Other	6	2	5

*Legend:*

*DHR = Department of Human Resources City and County of Honolulu*

*Reallocation = Employee has demonstrated competency in higher level position and position was adjusted*

## BWS Retirement Projections As of March 31, 2022



ITEM FOR INFORMATION NO. 3

"April 25, 2022

STATUS  
UPDATE OF  
GROUNDWATER  
LEVELS AT  
ALL INDEX  
STATIONS

Chair and Members  
Board of Water Supply  
City and County of Honolulu  
Honolulu, Hawaii 96843

Chair and Members:

Subject: Status Update of Groundwater Levels at All Index Stations

There were four aquifer index stations in low groundwater condition for the production month of February 2022. Kaimuki, Beretania, Punaluu, and Waialua are in Caution Status. The monthly production average for February 2022 was 132.52 million gallons per day.

The Board of Water Supply rainfall index for the month of February 2022 was 51 percent of normal, with a 5-month moving average of 109 percent. As of March 1, 2022, the Hawaii Drought Monitor shows moderate drought conditions across Oahu. The National Weather Service is forecasting enhanced probabilities for above-normal precipitation between March and June 2022.

Most monitoring wells exhibited slightly decreasing head levels for the month, likely due to the relatively lower rainfall during February. Average monthly Production for February 2022 was higher than the previous year and the 5-year monthly average.

Respectfully Submitted,

/s/ ERNEST Y. W. LAU, P.E  
Manager and Chief Engineer

Attachment"

The foregoing was for information only.

DISCUSSION:

Barry Usagawa, Program Administrator, Water Resources Division, gave the report.

Chair Andaya asked if there were any further comments or questions. Hearing none, he thanked Mr. Usagawa for his presentation.

**PRODUCTION, HEAD AND RAINFALL REPORT  
MONTH OF MARCH 2022**

**POTABLE**

STATION	MGD
HONOLULU (1)	
KULIOUOU	0.00
WAILUPE	0.13
AINA KOA	0.13
AINA KOA II	0.75
MANOA II	0.90
PALOLO	1.13
KAIMUKI HIGH	2.29
KAIMUKI LOW	4.32
WILDER	7.34
BERETANIA HIGH	2.84
BERETANIA LOW	5.60
KALIH HIGH	0.00
KALIH LOW	0.00
KAPALAMA	1.42
KALIH SHAFT	8.69
MOANALUA	0.85
HALAWA SHAFT	0.04
KAAMILO	0.87
KALAUAO	7.24
PUNANANI	12.37
KAHUMANU	0.37
HECO WAIU	2.61
MANANA	0.50
WELLS SUBTOTAL:	60.39
MANOA TUNNEL	0.17
PALOLO TUNNEL	0.00
GRAVITY SUBTOTAL:	0.17
HONO. SUBTOTAL:	60.56

STATION	MGD
WINDWARD (2)	
WAIMANALO II	0.00
WAIMANALO III	0.00
KUOU I	1.00
KUOU II	0.01
KUOU III	0.77
LULUKU	0.90
HAIKU	0.30
IOLEKAA	0.00
KAHALUU	0.70
KAHANA	0.00
PUNALUU I	0.00
PUNALUU II	3.89
PUNALUU III	1.10
KALUANUI	1.30
MAAKUA	0.27
HAUULA	0.27
WELLS SUBTOTAL:	10.51
WAIM. TUNNELS I & II	0.00
WAIM. TUNNELS III&IV	0.19
WAIHEE INCL. WELLS	0.38
WAIHEE TUNNEL	4.19
LULUKU TUNNEL	0.31
HAIKU TUNNEL	0.00
KAHALUU TUNNEL	1.51
GRAVITY SUBTOTAL:	6.58
WIND. SUBTOTAL:	17.09

STATION	MGD
NORTH SHORE (3)	
KAHUKU	0.42
OPANA	1.02
WAIALEE I	0.03
WAIALEE II	0.20
HALEWA	0.00
WAIALUA	1.93
N.SHORE SUBTOTAL:	3.59

STATION	MGD
MILILANI (4)	
MILILANI I	1.51
MILILANI II	0.00
MILILANI III	0.61
MILILANI IV	2.50
MILILANI SUBTOTAL:	4.62

STATION	MGD
WAHIAWA (5)	
WAHIAWA	0.97
WAHIAWA II	2.05
WAHIAWA SUBTOTAL:	3.02

STATION	MGD
PEARL CITY-HALAWA (6)	
HALAWA 277	0.00
HALAWA 550	0.00
AIEA	0.00
AIEA GULCH 497	1.03
AIEA GULCH 550	0.69
KAONOHI I	1.63
WAIMALU I	0.00
NEWTOWN	1.12
WAIU	1.01
PEARL CITY I	0.83
PEARL CITY II	1.13
PEARL CITY III	0.25
PEARL CITY SHAFT	0.91
PEARL CITY-HALAWA SUBTOTAL:	8.60

STATION	MGD
WAIPAHU-EWA (7)	
WAIPIO HTS.	0.40
WAIPIO HTS. I	0.00
WAIPIO HTS. II	0.13
WAIPIO HTS. III	1.21
WAIPAHU	5.70
WAIPAHU II	1.92
WAIPAHU III	3.69
WAIPAHU IV	2.36
KUNIA I	4.31
KUNIA II	1.96
KUNIA III	1.50
HOAEAE	6.31
HONOULIULI I	0.00
HONOULIULI II	4.16
MAKAKILO	0.16
WAIPAHU-EWA SUBTOTAL:	33.81

STATION	MGD
WAIANAE (8)	
MAKAHA I	0.60
MAKAHA II	0.00
MAKAHA III	0.14
MAKAHA V	0.03
MAKAHA VI	0.00
MAKAHA SHAFT	0.00
KAMAILE	0.00
WAIANAE I	0.31
WAIANAE II	0.72
WAIANAE III	0.68
WELLS SUBTOTAL:	2.48
WAI. C&C TUNNEL	1.40
WAI. PLANT. TUNNELS	0.12
GRAVITY SUBTOTAL:	1.52
WAIANAE SUBTOTAL:	4.00

**NONPOTABLE**

NONPOTABLE	MGD
KALAUAO SPRINGS	0.37
BARBERS POINT WELL	1.19
GLOVER TUNNEL NP	0.28
NONPOTABLE TOTAL:	1.85

**RECYCLED WATER (FEBRUARY 2022)**

RECYCLED WATER	MGD
HONOULIULI WRF R-1	5.57
HONOULIULI WRF RO	1.24
RECYCLED WATER TOTAL:	6.81

**PRODUCTION, HEAD AND RAINFALL REPORT  
MONTH OF MARCH 2022**

**PRODUCTION SUMMARIES**

TOTAL WATER	MGD
PUMPAGE	127.02
GRAVITY	8.27
POTABLE TOTAL:	135.29
NONPOTABLE	1.85
RECYCLED WATER	6.81
TOTAL WATER:	143.95

CWRM PERMITTED USE AND BWS ASSESSED YIELDS FOR BWS POTABLE SOURCES				
WATER USE DISTRICTS		A	B	C
		PERMITTED USE/ BWS YLDS	MAR 2022	DIFF. A-B
1	HONOLULU	82.93	60.39	22.54
2	WINDWARD	25.02	12.52	12.50
3	NORTH SHORE	4.70	3.59	1.10
4	MILILANI	7.53	4.62	2.91
5	WAHIAWA	4.27	3.02	1.25
6	PEARL CITY-HALAWA	12.25	8.60	3.65
7	WAIPAHU-EWA	50.63	33.81	16.82
8	WAIANAE	4.34	2.48	1.86
TOTAL:		191.67	129.03	62.64

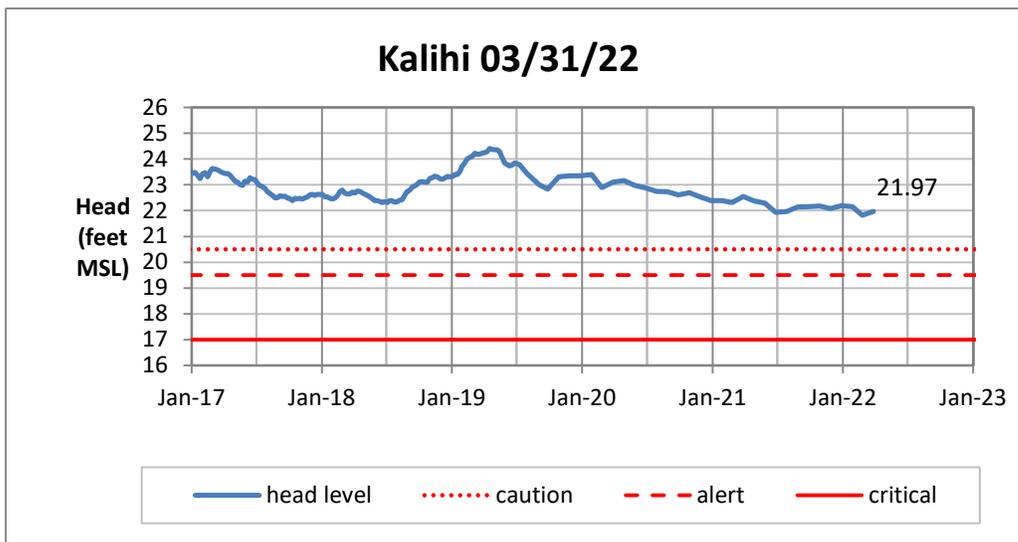
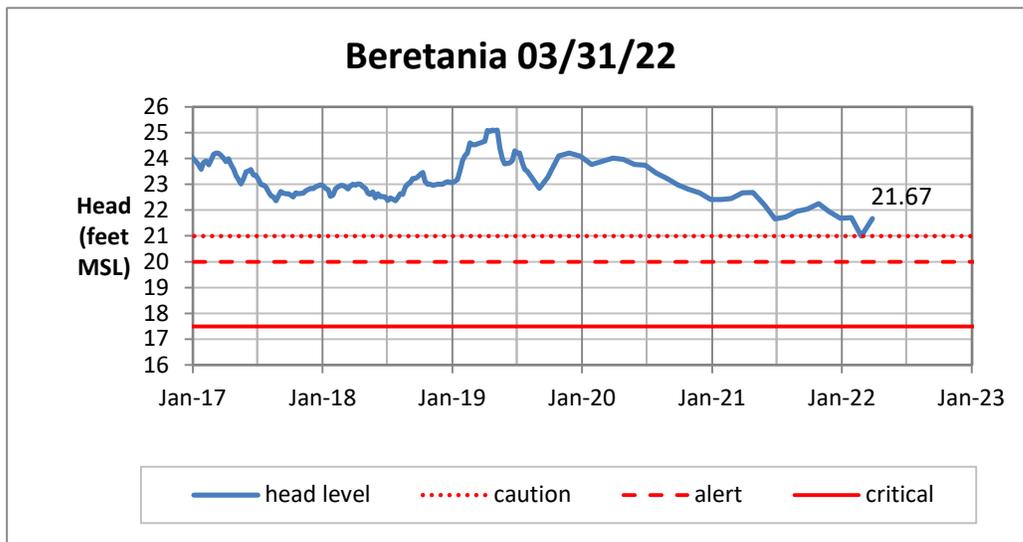
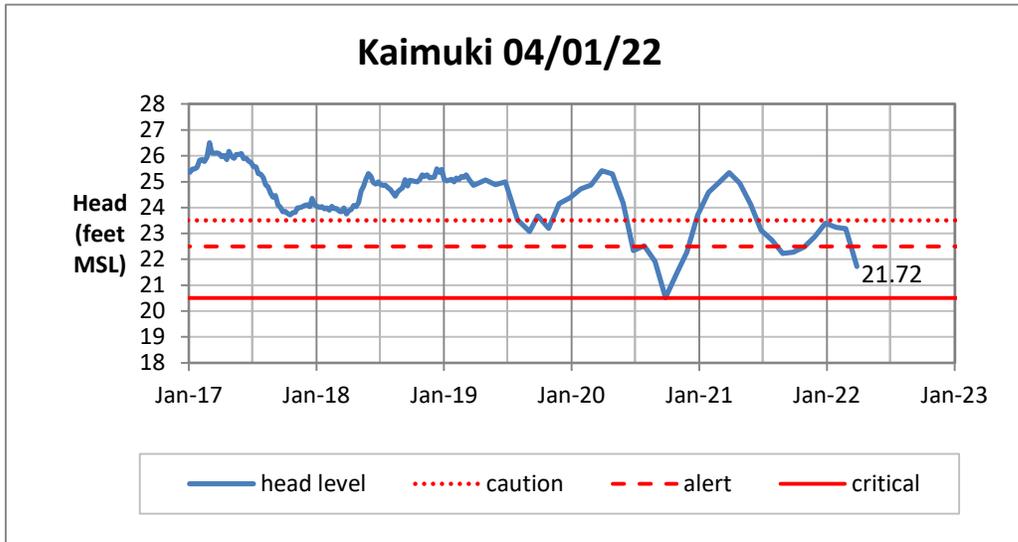
CWRM PERMITTED USE FOR BWS NONPOTABLE SOURCES				
WATER USE DISTRICTS		A	B	C
		PERMITTED USE	MAR 2022	DIFF. A-B
7	WAIPAHU-EWA (BARBERS POINT WELL)	1.00	1.19	-0.19
TOTAL:		1.00	1.19	-0.19

**EFFECTIVE WATER DEMAND PER DISTRICT**

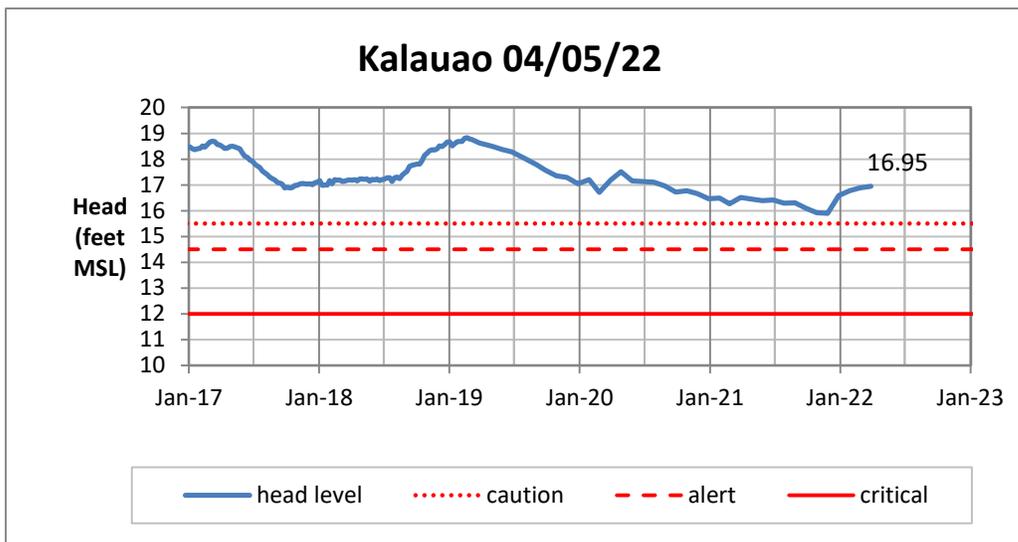
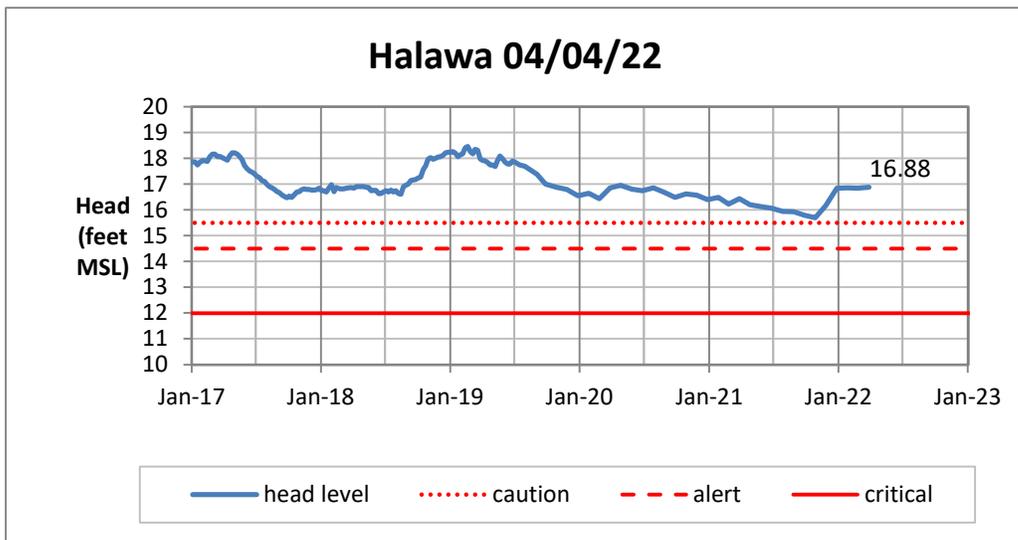
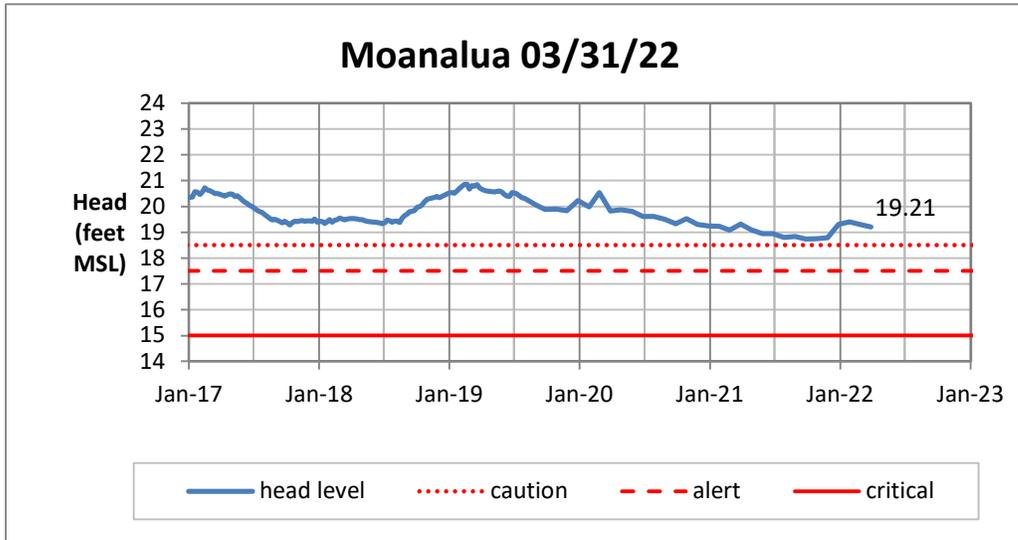
IMPORT/EXPORT BETWEEN WATER USE DISTRICTS			
FROM	TO		MGD
2	1	WINDWARD EXPORT	1.00
7	8	BARBERS PT LB	5.56

WATER USE DISTRICTS		SUBTOTAL	IMPORT	EXPORT	EFFECTIVE WATER DEMAND
1	HONOLULU	60.56	1.00	-	61.56
2	WINDWARD	17.09	-	1.00	16.09
3	NORTH SHORE	3.59	-	-	3.59
4	MILILANI	4.62	-	-	4.62
5	WAHIAWA	3.02	-	-	3.02
6	PEARL CITY-HALAWA	8.60	-	-	8.60
7	WAIPAHU-EWA	33.81	-	5.56	28.26
8	WAIANAE	4.00	5.56	-	9.56
TOTAL:		135.29	6.56	6.56	135.29

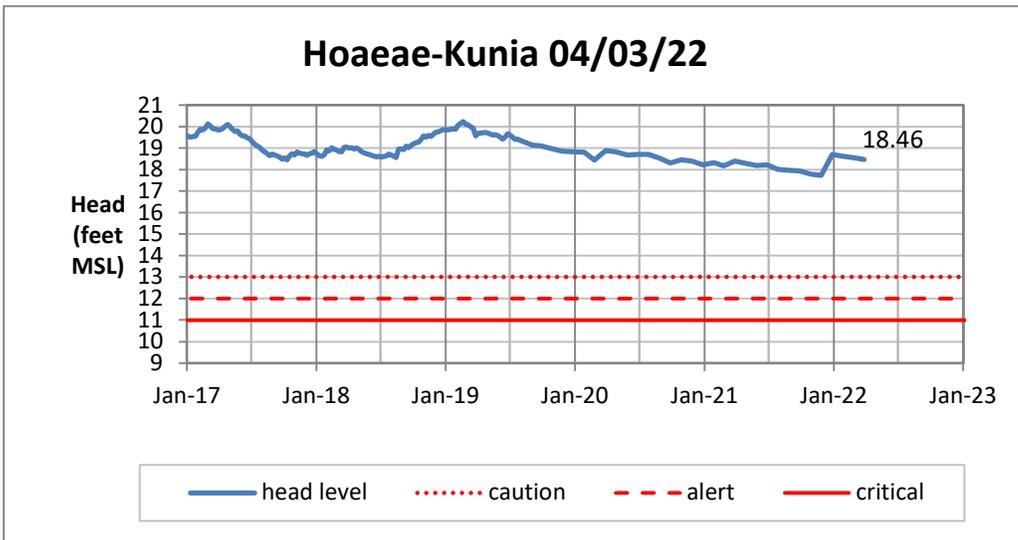
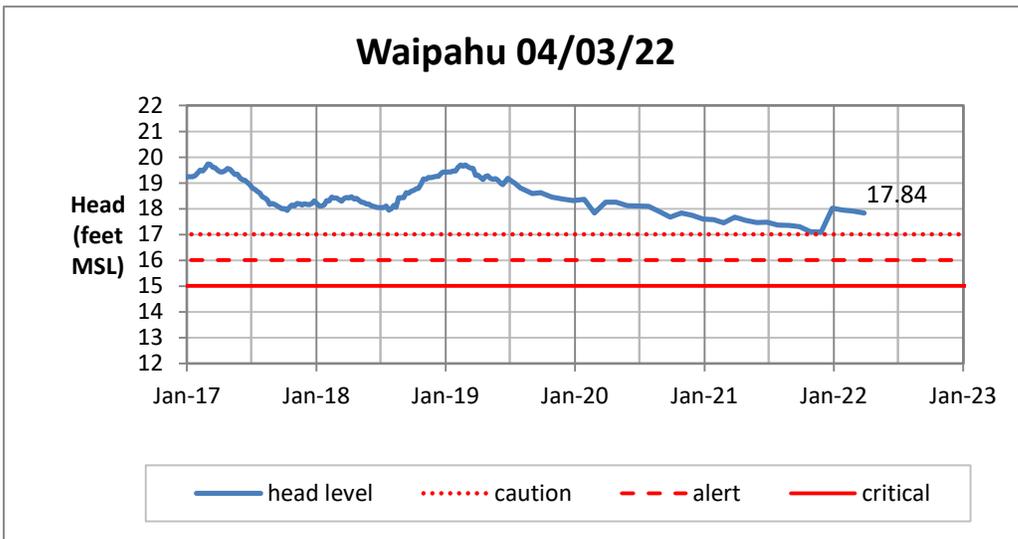
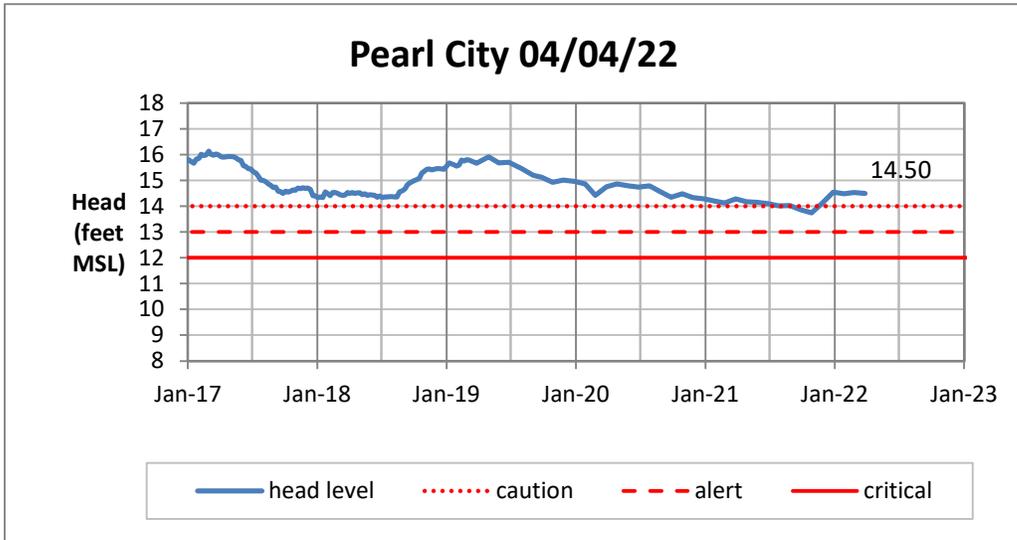
# Head Report



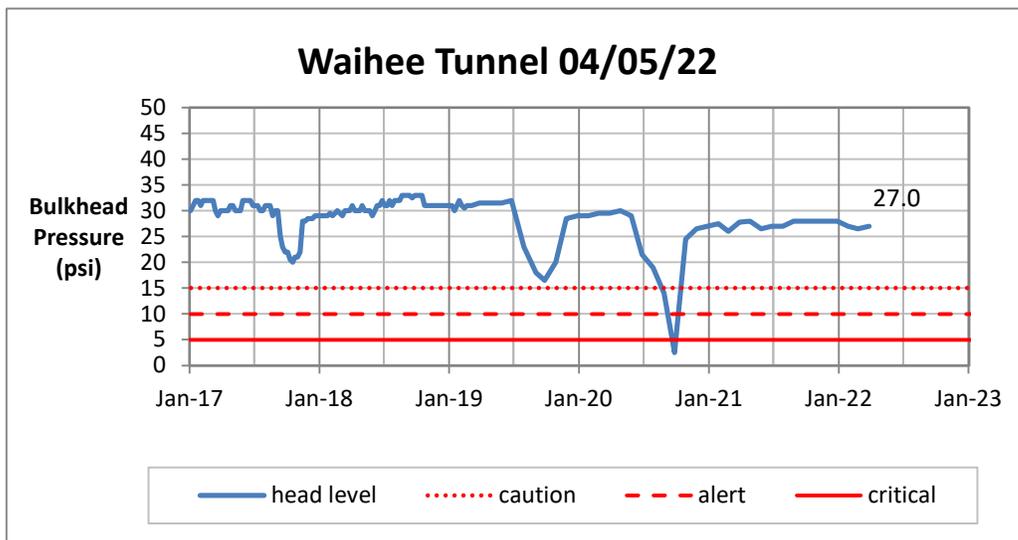
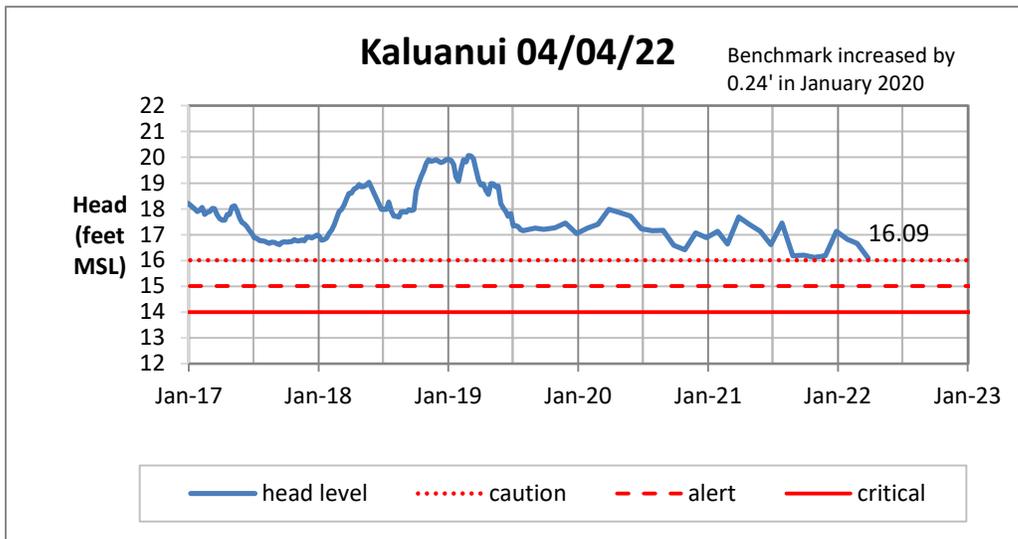
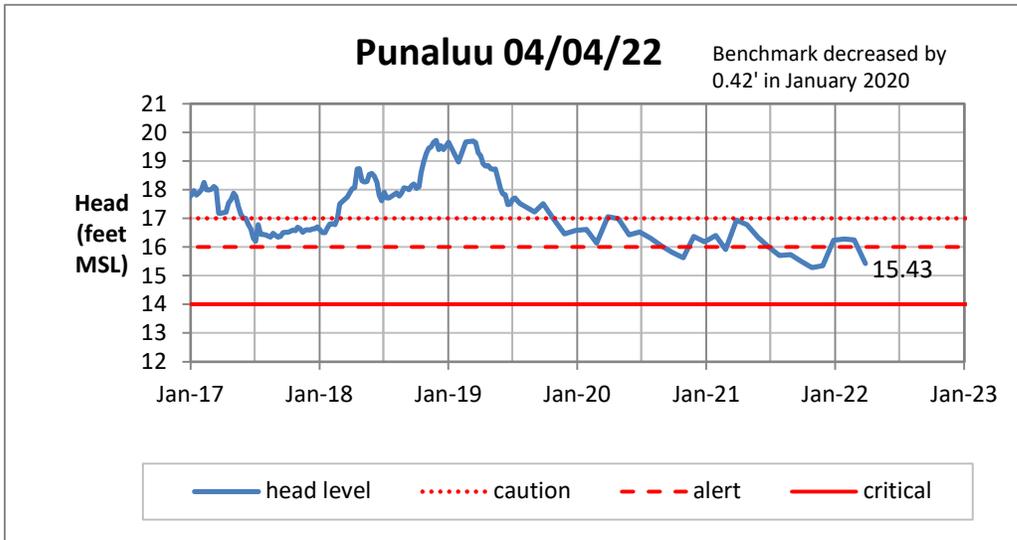
# Head Report



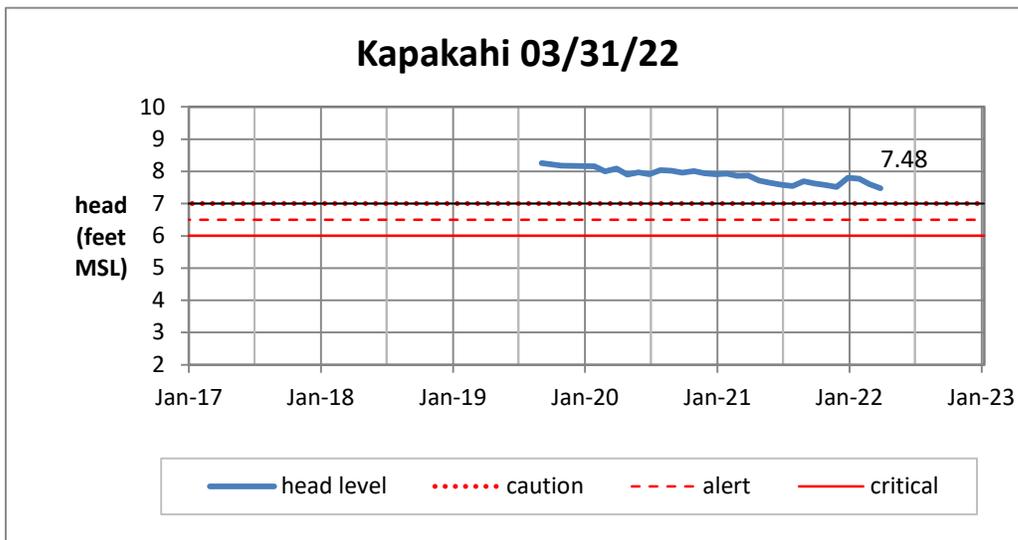
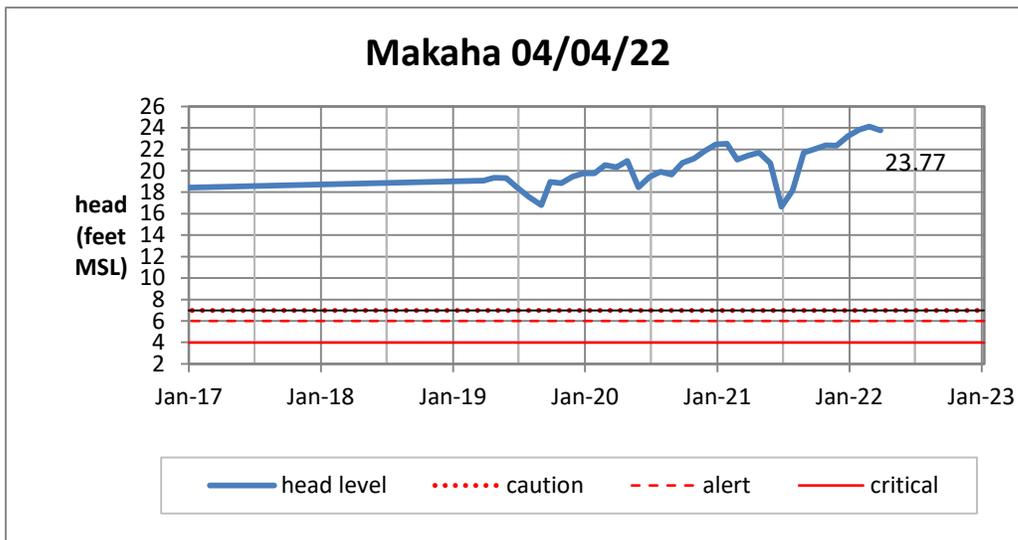
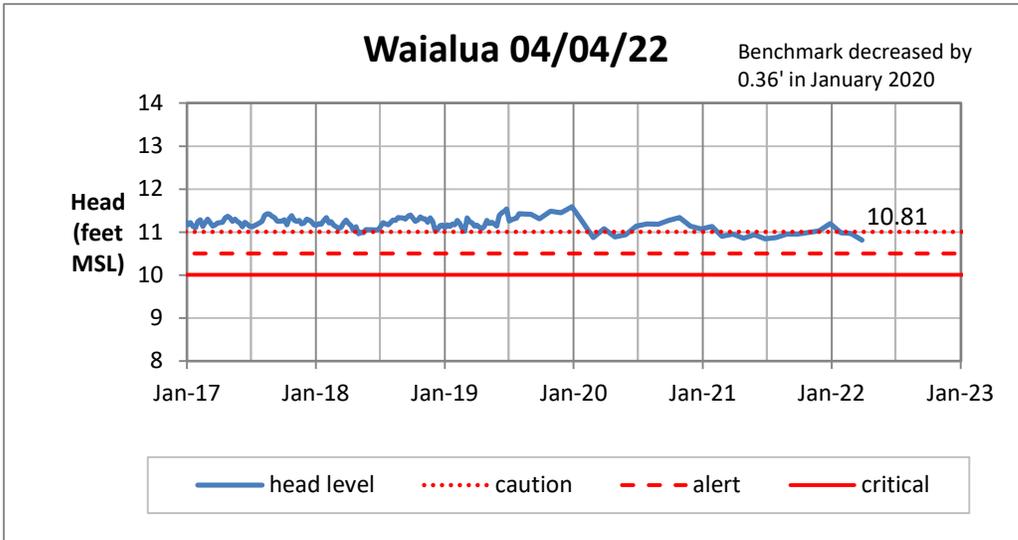
# Head Report

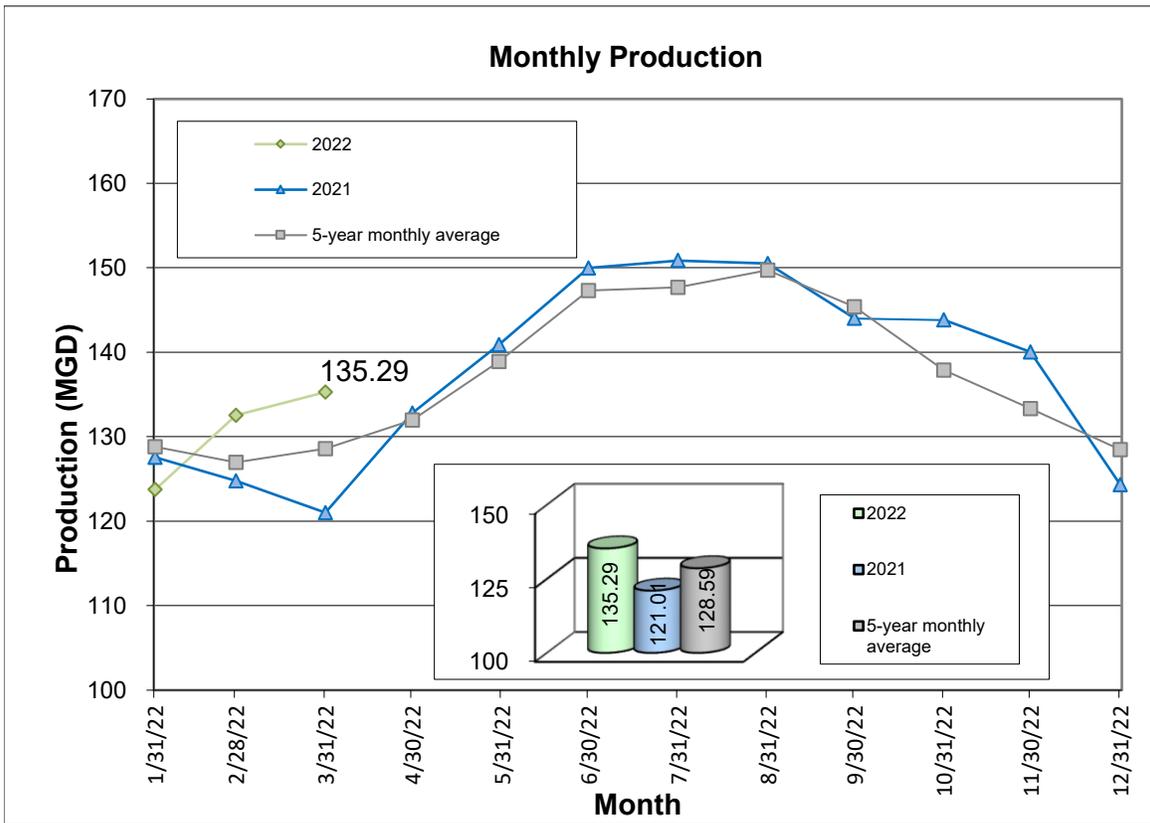
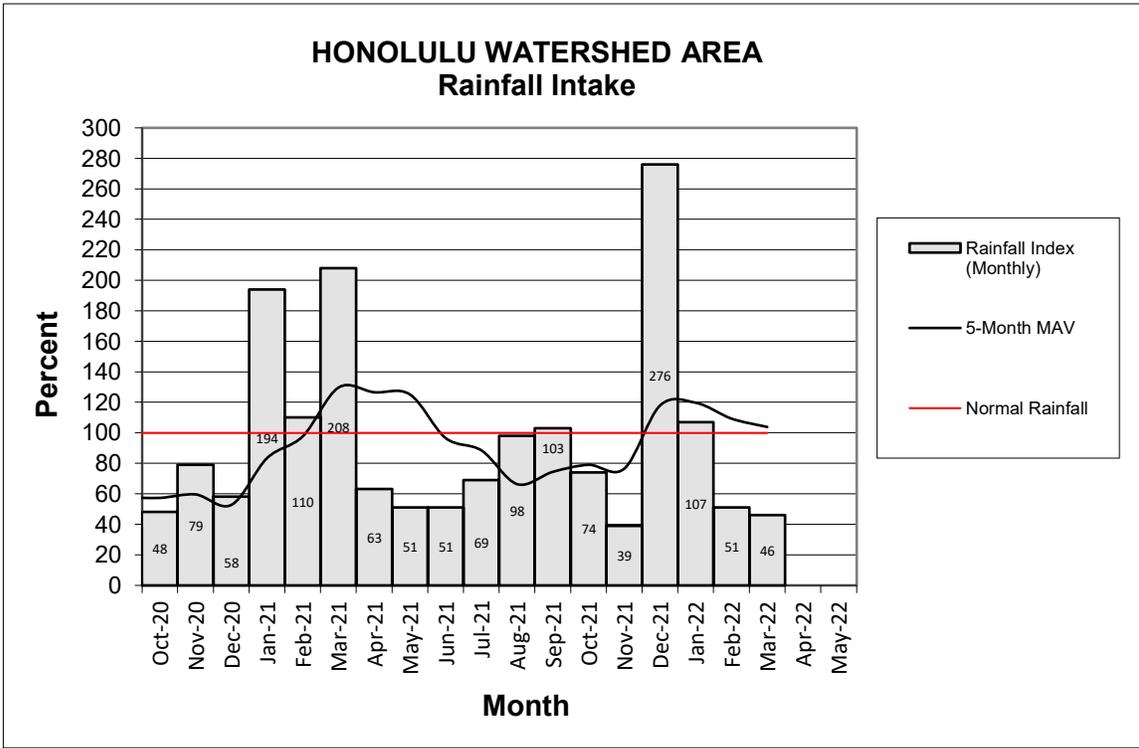


# Head Report



# Head Report





ITEM FOR INFORMATION NO. 4

"April 25, 2022

WATER MAIN  
REPAIR  
REPORT FOR  
MARCH 2022

Chair and Members  
Board of Water Supply  
City and County of Honolulu  
Honolulu, Hawaii 96843

Chair and Members:

Subject: Water Main Repair Report for March 2022

Jason Nikaido, Program Administrator, Field Operations Division, will report on water main repair work for the month of March 2022.

Respectfully submitted,

/s/ ERNEST Y. W. LAU, P.E  
Manager and Chief Engineer

Attachment"

The foregoing was for information only.

DISCUSSION:

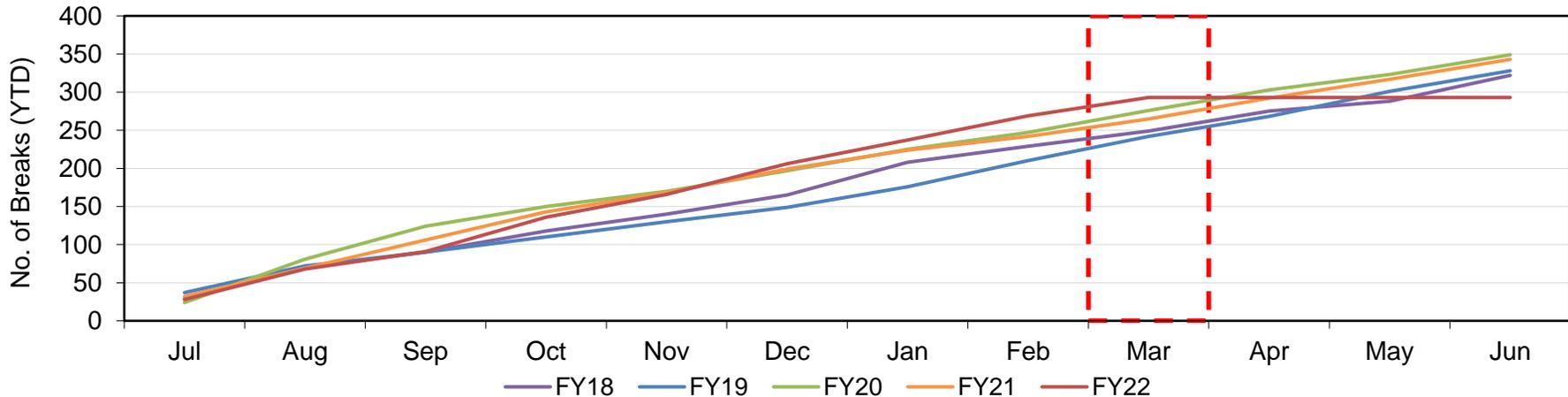
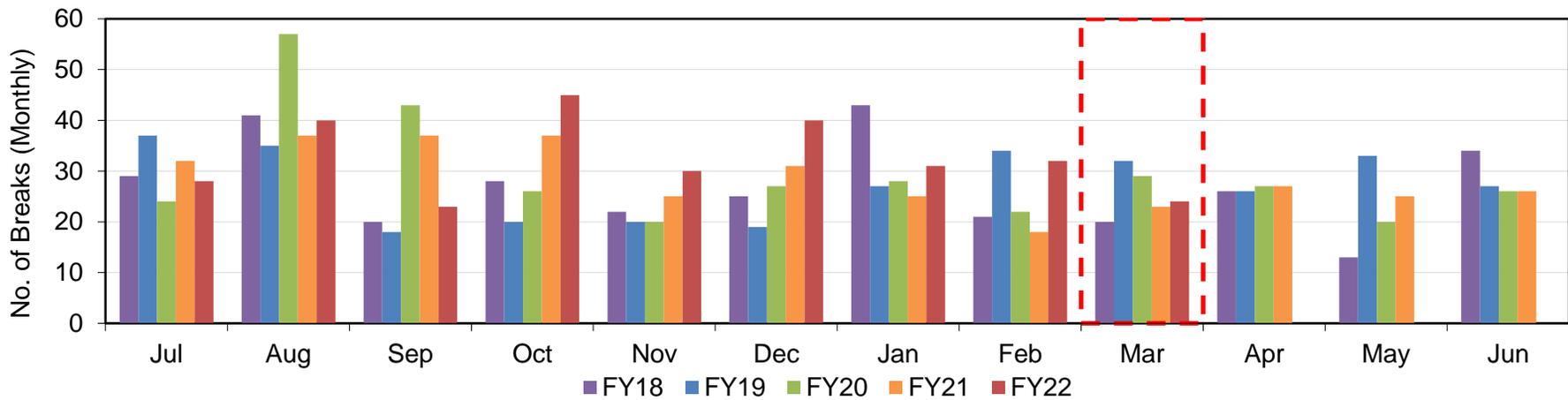
Jason Nikaido, Program Administrator, Field Operations Division, gave the report. There were no comments or discussion.

Chair Andaya asked if there were any further comments or questions. Hearing none, he thanked Mr. Nikaido for his presentation.

WATER MAIN REPAIR REPORT  
for March 2022

Monthly Main Breaks

FY	JUL	AUG	SEP	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	TOTAL
2022	28	40	23	45	30	40	31	32	24				293
2021	32	37	37	37	25	31	25	18	23	27	25	26	343
2020	24	57	43	26	20	27	28	22	29	27	20	26	349
2019	37	35	18	20	20	19	27	34	32	26	33	27	328
2018	29	41	20	28	22	25	43	21	20	26	13	34	322

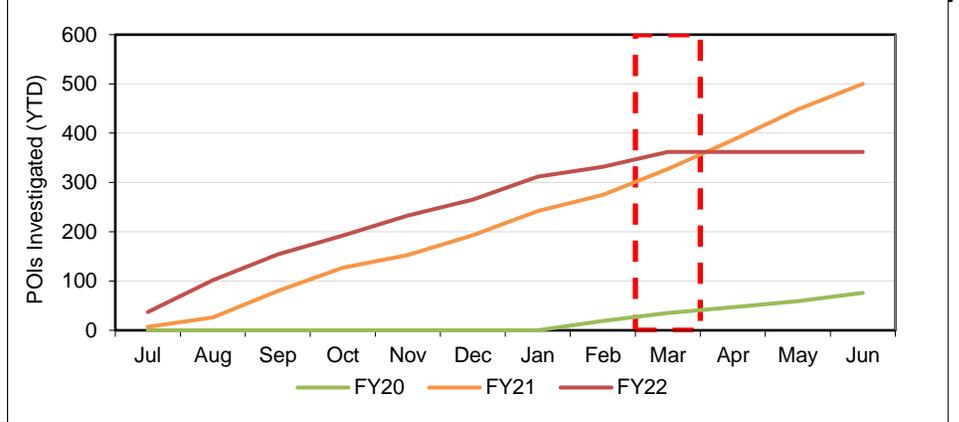
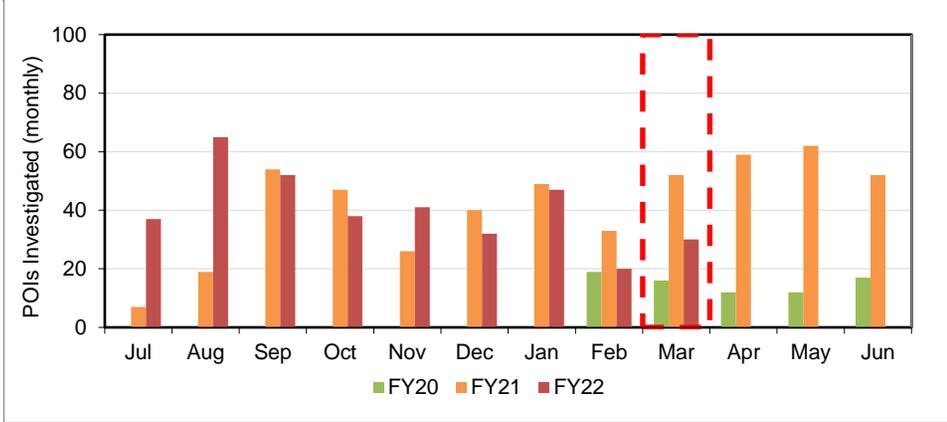


Date	Address	Size (In)	Pipe Type
3/1/2022	2430 Lamaku Pl, Honolulu	6	CI
3/2/2022	1773 Hooehoihoi Pl, Pearl City	8	CI
3/2/2022	59-249 Ke Nui Rd, Pupukea	8	PVC
3/2/2022	702 Wyllye St, Honolulu	6	CI
3/3/2022	2344 Ahamoa St, Pearl City	8	CI
3/6/2022	162 Rose St, Wahiawa	6	CI
3/6/2022	98-2025 Hapaki St, Aiea	8	DI
3/6/2022	1945 Ulana St, Honolulu	8	DI
3/7/2022	1767 Palamoi St, Pearl City	8	CI
3/8/2022	383 Kaumakani St, Honolulu	12	CI
3/9/2022	3634 A Halekapa Pl, Honolulu	6	CI
3/12/2022	54-258 Kaipapau Loop, Hauula	6	CI
3/15/2022	1846 Lusitana St, Honolulu	6	CI
3/15/2022	41-710 Mahailua St, Waimanalo	4	CI
3/16/2022	2218 Hikino St, Honolulu	8	DI
3/16/2022	3014 Polohilani Pl, Honolulu	8	CI
3/21/2022	3216 Kaohinani Dr, Honolulu	6	CI
3/24/2022	1222 N School St, Honolulu	8	CI
3/26/2022	95-1153 Wikao St, Mililani	8	PVC
3/28/2022	86-267 Moekolu St, Waianae	4	DI
3/29/2022	86-202 Kawili St, Waianae	8	PVC
3/30/2022	964 Lunahooko Pl, Kailua	4	CI
3/31/2022	148 Lakeview Circle, Wahiawa	6	CI
3/31/2022	89-664 Mokiawe St, Waianae	8	AC

## LEAK DETECTION for March 2022

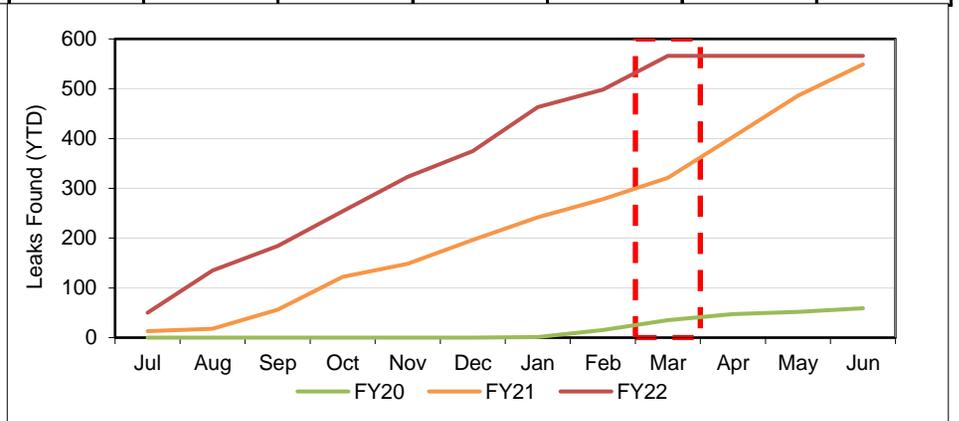
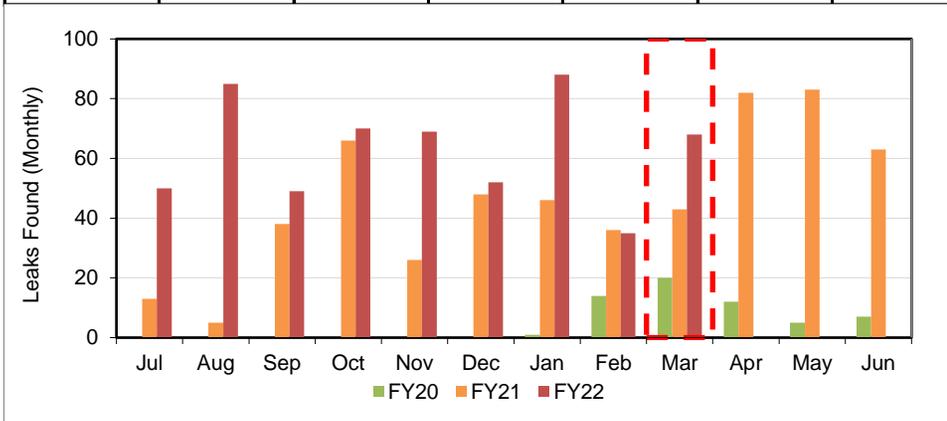
### POIs Investigated

FY	JUL	AUG	SEP	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	TOTAL
2022	37	65	52	38	41	32	47	20	<b>30</b>				362
2021	7	19	54	47	26	40	49	33	52	59	62	52	500
2020							0	19	16	12	12	17	76



### Leaks Found

FY	JUL	AUG	SEP	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	TOTAL
2022	50	85	49	70	69	52	88	35	<b>68</b>				566
2021	13	5	38	66	26	48	46	36	43	82	83	63	549
2020							1	14	20	12	5	7	59



**MOTION TO  
RECESS INTO  
EXECUTIVE  
SESSION**

There being no further business Chair Andaya at 5:09 PM called for a motion to adjourn the Open Session. Ray Soon so moved; seconded by Dawn Szewczyk and unanimously carried.

Upon unanimous approved motion, the Board recessed into Executive Session Pursuant to [HRS § 92-5 (a)(4)] at 5:10 PM to Consider Issues Pertaining to Matters Posted for Discussion at an Executive Session.

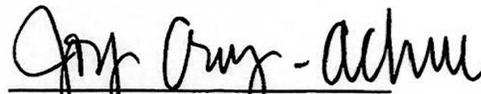
**OPEN  
SESSION**

The Board reconvened in Open Session at 6:02 PM.

**MOTION TO  
ADJOURN**

There being no further business Chair Andaya at 6:03 PM called for a motion to adjourn the Regular Session. Ray Soon so moved; seconded by Dawn Szewczyk and unanimously carried.

The minutes of the Regular Meeting held on April 25, 2022 are respectfully submitted,

  
JOY CRUZ-ACHIU

THE MINUTES OF THE REGULAR SESSION BOARD MEETING ON APRIL 25, 2022 WERE APPROVED AT THE MAY 23, 2022 BOARD MEETING			
	AYE	NO	COMMENT
BRYAN P. ANDAYA	X		
KAPUA SPROAT	X		
RAY C. SOON			ABSENT
MAX J. SWORD	X		
NA'ALEHU ANTHONY	X		
JADE T. BUTAY	X		
DAWN B. SZEWCZYK	X		

APPROVED:

  
BRYAN P. ANDAYA  
Chair of the Board

**MAY 23 2022**  
Date