



Honolulu Board of Water Supply
Stakeholder Advisory Group Meeting 56
Thursday, October 23, 2025, 4:00 – 6:00 pm
Neal S. Blaisdell Center

Meeting Notes

PURPOSE AND ORGANIZATION OF MEETING NOTES

The purpose of these notes is to provide an overview of the Board of Water Supply (BWS) Stakeholder Advisory Group meeting. They are not intended as a transcript or as minutes. Major points of the presentations are summarized herein, primarily for context. Copies of presentation materials were provided to all participants and are available on the BWS website. Participants made many comments and asked many questions during the meeting. These are paraphrased to be more concise.

ATTENDEES

This was an in-person meeting in which 16 stakeholders participated, in addition to BWS staff, consultants and members of the public. The stakeholders represent diverse interests and communities island wide.

The following Stakeholders Advisory Group members attended:

Alison Richardson	Coca-Cola Company
Bob Leinau	Resident of Council District 2
Brady Jencks	Resident of Council District 7
Brian Miyamoto	Hawaii Farm Bureau
Cruz Vina, Jr.	Resident of Council District 8
Cynthia Rezendes	Resident of Council District 1
Dana Okano	Hawaii Community Foundation
Jicky Ferrer	AARP Hawaii
John Reppun	KEY Project
Kaleo Manuel	Kamehameha Schools
Mahealani Cypher	Resident of Council District 3
Mark Fox	Environmental
Matt Bailey	Castle Hospitality Group
Pono Chong	Resident of Council District 7
Ryan Obrero	Honolulu Board of Realtors
Wayne Tanaka	Sierra Club

WELCOME

Facilitator Dave Ebersold welcomed everyone to the 56th meeting of the BWS Stakeholder Advisory Group.

Meeting objectives were identified as:

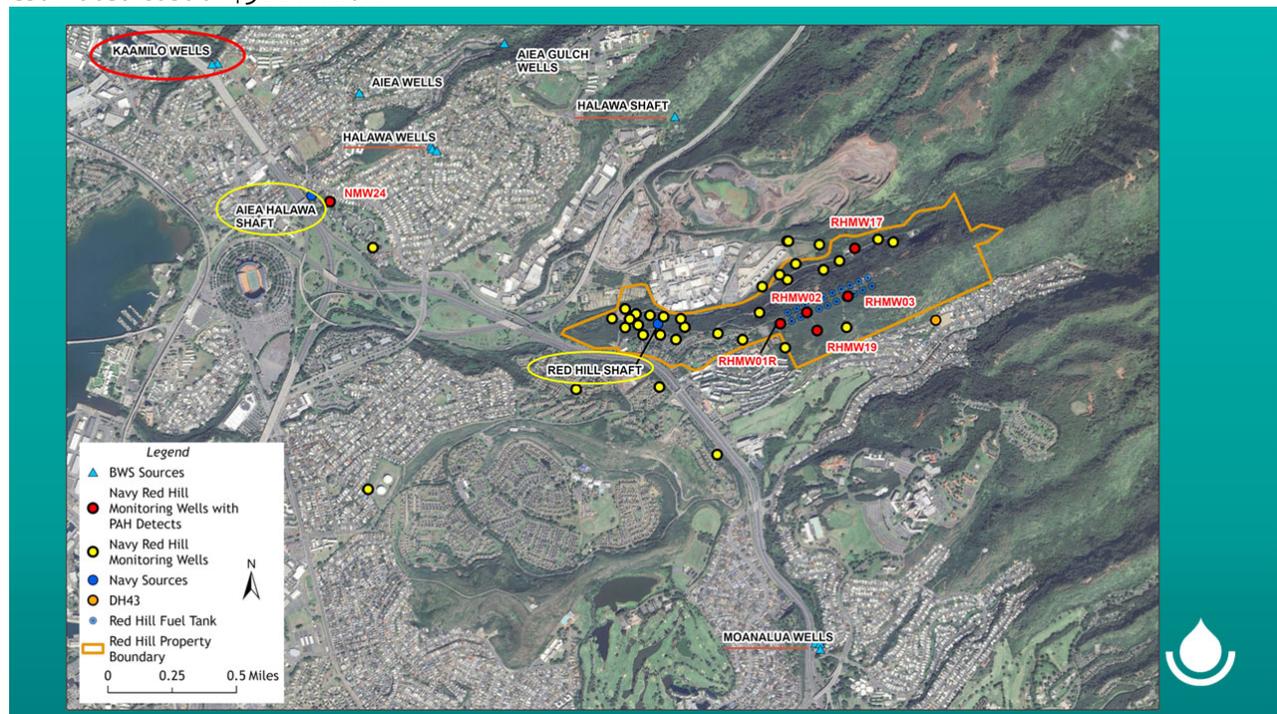
- Provide BWS updates
- Review groundwater assessment status updates
- Accept notes from meeting #55
- Update on BWS conservation efforts

PUBLIC COMMENTS: None.

BWS UPDATES

Dave invited Ernest Lau, BWS Manager and Chief Engineer, to share BWS updates. Ernest began his presentation with an update on Kaamilo Wells, emphasizing BWS's response to detections of Perfluoroalkyl substances (PFAS) in the groundwater. He explained that Kaamilo Wells, which previously served the Honolulu area, was redirected to supply the Aiea-Halawa community after the Red Hill incident in November 2021. At that time, BWS made the decision to shut down three critical water sources: Halawa Shaft, Halawa Wells, and Aiea Wells. Ernest noted that Kaamilo Wells includes two well pumps and two booster pumps that help move water to higher elevations.

Ernest shared a map (shown below) indicating the location of Kaamilo Wells and the Navy's Aiea-Halawa Shaft and Red Hill Shaft, both of which remain shut down. Kaamilo Wells, Halawa Shaft, and Halawa Wells are consistently testing positive for PFAS, while Moanalua Wells show occasional detections. Ernest emphasized that despite being shut down, Halawa Shaft and Halawa Wells are still routinely sampled and explained that BWS plans to install both temporary and permanent water treatment systems at Kaamilo Wells, with the Navy pursuing similar efforts for their sources. The Navy has installed a temporary treatment system at Aiea-Halawa Shaft, though it is still awaiting Department of Health approval. At Red Hill Shaft, the design for a permanent system has been approved, with an estimated cost of \$500 million.



Ernest shared an excerpt from the PFAS Data Summary No. 1 document published by the Naval Facilities Engineering Systems Command, which included a map of groundwater sampling locations and results (shown below). He pointed out that the Red Hill site is under investigation by the Navy through the federal CERCLA Superfund process. Two specific areas are being examined: Area A, where

approximately 1,300 gallons of Aqueous film-forming foam (AFFF) concentrate were spilled in November 2022 near Adit 6, and Area B, where Red Hill Shaft is located. He described shallow and deep groundwater samples, noting that the shallow groundwater (40-50 feet below surface) shows higher PFAS concentrations, while deep groundwater, which are also tapped by BWS wells, shows lower concentrations.

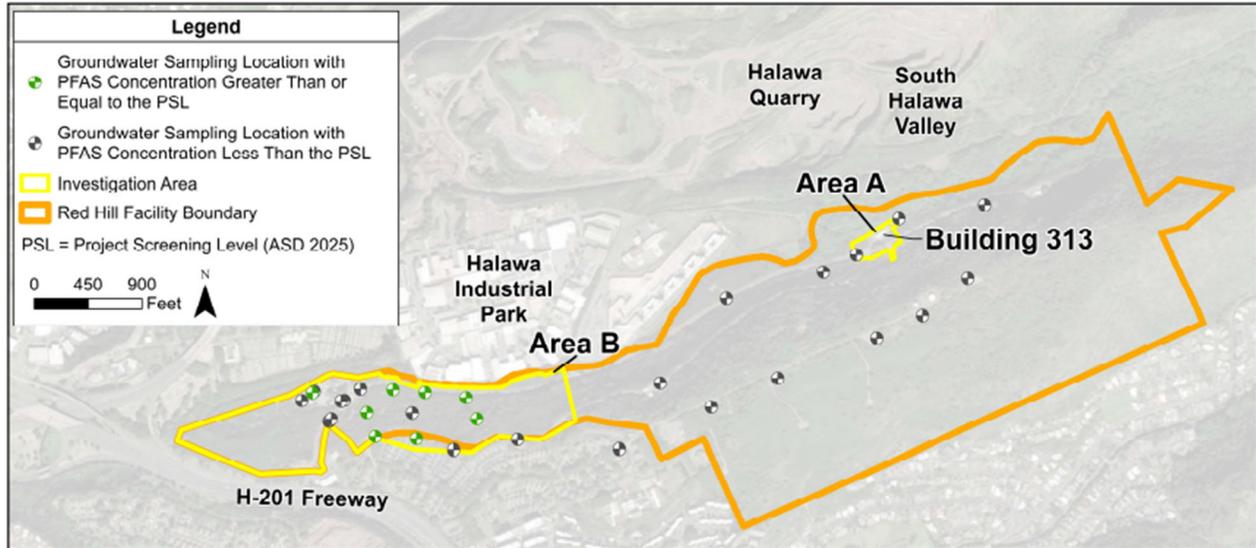
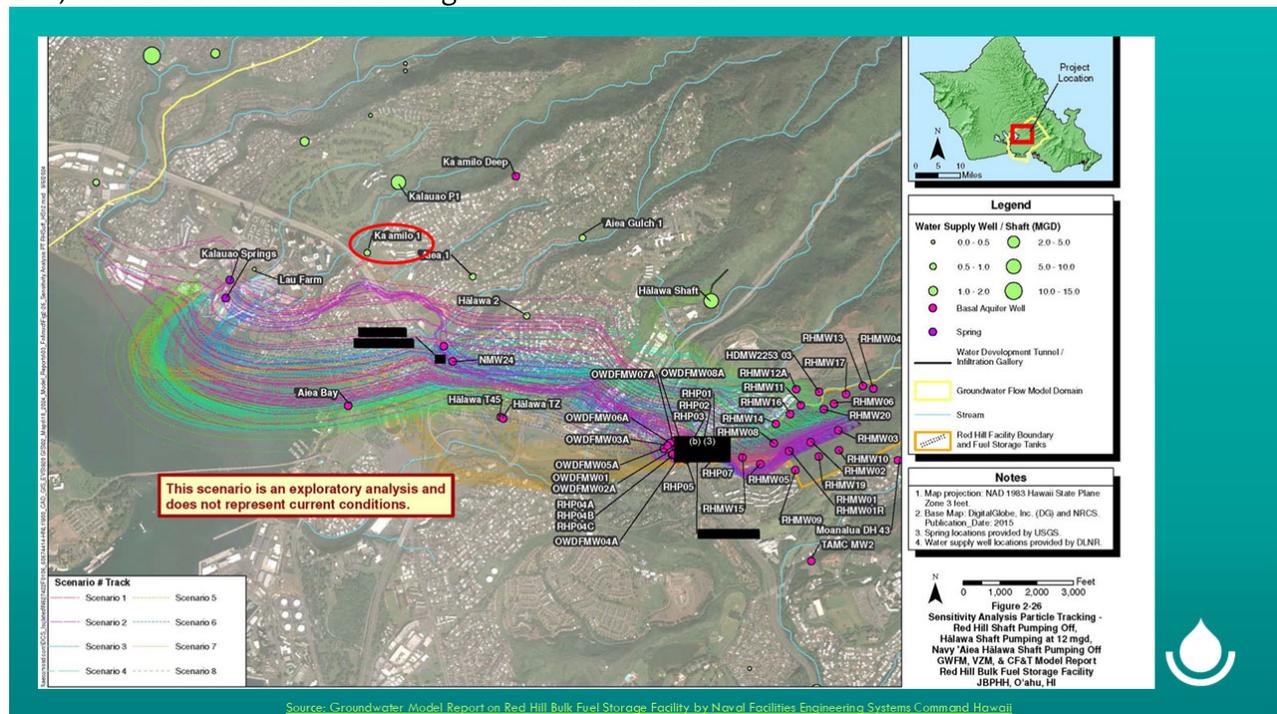


Figure 1: Groundwater Sampling Locations and Results

Ernest presented a Navy particle track model (shown below) illustrating potential flow paths of contaminants from the Red Hill Fuel Tank Facility. The model, which has not been approved by DOH or EPA, showed a few tracks extending toward Kaamilo Wells.



Source: Groundwater Model Report on Red Hill Bulk Fuel Storage Facility by Nav of Facilities Engineering Systems Command Hawaii

Ernest also discussed new EPA National Primary Drinking Water Regulations adopted in April 2024, which set enforceable limits on several PFAS compounds, including PFOS at 4 parts per trillion (ppt). Although enforcement will not begin until April 2029, BWS is already sampling and responding as if compliance is required now. Kaamilo Wells has shown rising PFOS concentrations nearing or exceeding

the 4 ppt limit in recent samples, leading to its shutdown in May 2025. Ernest stressed that BWS urged Aiea-Halawa residents to conserve water as the area operates with reduced well capacity.

Ernest informed the stakeholder group that BWS is implementing a temporary water treatment system using granulated activated carbon (GAC) at Kaamilo Wells, with a permanent facility in design and estimated to cost around \$20 million. GAC, which BWS currently uses in 12 other treatment plants on Oahu, functions like a sponge to absorb contaminants. The temporary system includes two tanks connected to the well pump, with water treated before entering the distribution system.

Ernest asked Marc Chun, BWS Assistant Program Administrator for Water Resources, to confirm the cost of the temporary water treatment system. Marc said the first year cost is approximately \$3 million, primarily for startup, followed by an annual operating cost of around \$2 million. Ernest also noted that pipeline installation connecting the treatment system to the well is being completed in-house by BWS Water System Operations Division staff. Final approval from the Safe Drinking Water Branch of the Department of Health (DOH) is required before the system can be activated.

Q: Mahealani Cypher asked what is done with the spent carbon. Ernest replied that the carbon will be properly disposed of, likely in a landfill. However, BWS is exploring carbon regeneration technologies that could destroy PFAS at high temperatures. With PFAS treatment needs increasing, carbon regeneration and reuse may become viable and would be the first of its kind in Hawaii.

Q: Cynthia Rezentes ask if there has been a study on PFAS leaching from landfill disposal. Ernest confirmed that DOH conducted sampling a few years ago and found PFAS in landfill leachate due to its prevalence in everyday products. BWS aims to avoid contributing to this by exploring PFAS destruction and carbon regeneration.

COMMENT: Cynthia Rezentes commented that Oahu already faces long-standing waste issues and can't afford more contaminants in landfills. Ernest agreed, stating that landfills are sited away from populated areas, often in central Oahu. But their liner systems won't last forever, and leachate may eventually reach aquifers.

COMMENT: Cruz Vina Jr. informed the group that a grounds tour of the Aiea monitoring well site is scheduled for January 11. He noted that both he, Wayne Sasaki, and Ernest are part of the Pearl Harbor-Kalaeloa Restoration Advisory Board (RAB). Ernest explained the RAB's role in increasing transparency around military contamination and its remediation, including Red Hill, which is part of the broader Pearl Harbor Superfund site.

Q: Bob Leinau asked if the EPA is working on preventing PFAS use rather than reacting after the fact. Ernest confirmed that the EPA has taken some steps, like banning older PFAS variants like PFOS and PFOA in firefighting foams. While these chemicals brought convenience, we now understand their consequences. Some federal discussions are underway about extending the 2029 enforcement deadline, but BWS is operating as if that deadline is firm. Regarding PFAS treatment, Marc Chun added that in addition to Kaamilo Wells, BWS is advancing treatment at Pearl City Shaft and Moanalua Wells. BWS has existing GAC systems at many sites, and while GAC is effective, they are evaluating whether it is the most efficient method while also reviewing long-term disposal strategies.

Q: Ryan Obrero asked why PFAS detections are more concentrated on the Leeward side versus Windward Oahu. Ernest offered that it's likely due to less development on the Windward side, while Leeward aquifers are more permeable and lie beneath more industrial, commercial, and residential activity.

Q: Jicky Ferrer asked if Green Fund resources or other federal sources can be used to finance treatment infrastructure now, before PFAS spreads further. He also asked if we could seek military support for proactive treatment systems across the islands. Ernest agreed, stating that federal funding is an important way to reduce the financial burden on ratepayers. BWS received \$10 million two years ago to drill monitoring wells, \$2 million more this past session, and is continuing to seek legislative partnerships.

COMMENT: Jicky Ferrer commented that Delta was fined over \$78 million for a jet fuel spill, stating that BWS could seek higher compensation benchmarks for infractions in Hawaii. Ernest said BWS is evaluating such strategies to recoup as much as possible. Regarding the Green Fee, BWS plans to submit projects for the initial \$140 million of funding and use it this cycle.

GROUNDWATER ASSESSMENT STATUS UPDATES

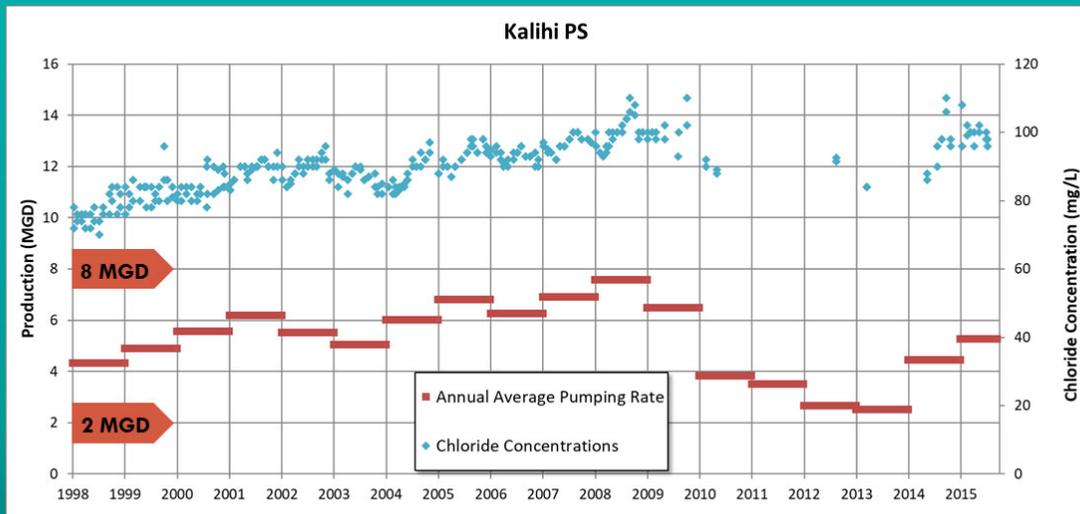
Dave introduced Bill Fernandez, Water Resources Engineer with CDM Smith, to provide an update on the groundwater assessment portion of the BWS Water Master Plan.

Bill began his presentation by describing the objectives of the source water evaluation in the Water Master Plan. These include assessing the relationship between groundwater quantity and quality, especially how historic pumping has impacted water quality. The evaluation supports the development of water shortage plans, integrates findings from the One Water initiative, and explores future supply options. Bill emphasized that this meeting focused on groundwater quality and quantity, while findings from other tasks would be shared with the Stakeholder Advisory Group in the future.

Bill introduced the freshwater lens and transition zone, explaining that rainfall recharge infiltrates into the aquifer, floating above the denser saltwater wedge beneath it. The transition zone between fresh and saltwater is a key monitoring point. BWS uses deep wells to sample Total Dissolved Solids (TDS) and track movement within the transition zone. Oahu's transition zone is hundreds of feet thick due to sea level rise, pumping, and changes in recharge. Over-pumping can depress the freshwater lens and pull saline water upward into wells, leading to chloride increases. BWS must balance providing enough supply for customers while protecting groundwater resources.

Bill provided a water quality analysis example from the Kalihi Pump Station. He shared a graph (shown below) showing chloride trends from 1998 to 2016. Chloride concentrations gradually increased in the first decade, peaking around 2009 before leveling off. Although chloride levels remained below the 250 mg/L secondary MCL, BWS has proactively managed this by reducing pumping to avoid drawing saline water. The chart also overlaid annual pumping rates, showing a correlation between higher pumping (increasing to nearly 8 MGD) and rising chloride concentrations.

COMPARISON OF WQ AND PUMPING – KALIHI



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To better understand these trends, additional data was analyzed, including rainfall, climate variables, and transition zone depths. The analysis revealed a rising transition zone, with its top entering the well screen in 2009 & 2015, coinciding with peak chloride readings.

BWS analyzed six additional wells, examining historical pump rates and identifying stable periods to determine sustainable targets. He shared a table (shown below) comparing permitted pumpage, historical usage, target rates, and actual 2020+ averages. Kalihi Pumping Station’s recommended pumping rate was 4 MGD, and actual production has closely aligned with that. Kalauao, although permitted for 11.75 MGD, showed better water quality at 8 MGD. BWS has successfully implemented these recommendations, with recent Kalihi chloride concentrations remaining stable.

WMP 2016 SUGGESTED PUMPING RATES

Source	Permit Value (mgd)	5 Year Average Pumping (2011- 2015) (mgd)	Approximate Stable Period (CY)	Suggested Average Flow During Stable Period (mgd)	5 Year Average Pumping (2020 - 2024) (mgd)
Kalihi	6.95	3.4	2014-2015	4.0	3.9
Kaimukī	4	4.0	2011-2012	3.9	4.1
Kalauao	11.75	8.7	2012-2015	8.0	7.5
Punanani	11.97	10.8	2010-2013	10.0	10.3
Beretania	7	6.0	2007-2010	5.0	5.2
Totals	41.67	32.9		30.9	31.0

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Bill noted that the next steps are to expand the analysis to 14 additional wells. These include locations with historic chloride issues, PFAS detections, increased stress from Halawa Shaft shutdown, or its role as a critical system. Analyses will consider rainfall recharge, pumping by non-BWS users, sea level rise, and temperature effects.

Q: Bob Leinau asked about the lag between drought and recharge and about blending chloride-heavy water. Bill confirmed that blending is used when chlorides exceed 250 mg/L, often combining water from deeper and shallower wells. Barry Usagawa, BWS Program Administrator for Water Resources, added that following a multi-year drought from 1998-2003, aquifers only rebounded after 2004's rainfall, highlighting a lag of 6 months to over a year. He expressed concern over decreasing rainfall, especially in Waianae, and emphasized the important role of conservation.

Q: Jicky Ferrer asked about remote monitoring and Artificial Intelligence. Bill explained most data is still collected manually by BWS, though USGS also contributes monitoring results. Dave added that deep monitoring is still labor intensive.

Q: John Reppun asked if private wells report to BWS. Ernie clarified that private wells report only to the Commission on Water Resource Management. BWS also shares data from its deep monitor wells with the Commission.

Q: Bob Leinau questioned whether leakage through caprock could be reduced. Barry explained that caprock leakage supports springs and estuaries, so disrupting it could be harmful. He discussed aquifer storage and recovery efforts, such as BWS's Nuuanu Reservoir Hydroelectric & Managed Aquifer Recharge project, which captures and treats stormwater for injection into the aquifer.

Q: Cynthia Rezentes asked whether using multiple shallower wells would reduce intrusion risk. Bill confirmed that many sources already consist of multiple wells, some of which operate like tunnels that draw from higher in the lens. Ernie said BWS is exploring optimization strategies for long-term aquifer sustainability. Barry added that modern well standards limit depth to the upper quarter of the freshwater lens.

Q: Dana Okano asked whether there are requirements for how deep wells can be drilled, and why some wells sit so close to the transition zone. Bill responded that when these wells were installed decades ago, the freshwater lens was much higher but shifts in groundwater levels over time have brought the transition zone closer to the existing well depths.

Q: Kaleo Manuel asked about modifying old deep wells versus drilling new ones. Barry noted that some wells have been backfilled to reduce chloride intrusion, but overall, BWS focuses on managing pumpage. Ernest said aging wells may eventually require replacement and moving wells inland or shallower may be part of future strategy.

Q: Bob Leinau asked about efforts to enhance groundwater recharge, referencing areas like Lake Wilson and Nuuanu. He questioned whether engineers could calculate how much water could be stored without harming stream ecology, and how effective recharge methods are. Bill said direct recharge is often ineffective due to deep aquifers and low-permeability layers, especially in places like Nuuanu. That's why BWS is exploring injection-based methods, though these require strong evidence that stream and coastal ecosystems won't be harmed. Barry added that climate change is reducing recharge due to less rainfall and more evapotranspiration. BWS is investing in forest protection and supports the City's proposed stormwater fee, which could fund urban green infrastructure to boost recharge in developed areas.

Q: Brady Jencks supported the injection well project and asked whether Nuuanu Reservoir #1 might be used. Bill said both Reservoirs #1 and #2 are being considered, though elevation and pipeline requirements differ. Barry noted previous University of Hawaii drilling near Reservoir #1 encountered unsuitable geology.

COMMENT: Cynthia Rezendes asked BWS to urge the City and County of Honolulu to be more proactive on encouraging impervious surfaces.

Q: Pono Chong brought up using stormwater for centralized aquifer recharge. Barry described efforts to incentivize green infrastructure through the City's upcoming stormwater fee. He emphasized that in addition to recharging forests, recharging urban areas through green infrastructure will be increasingly important.

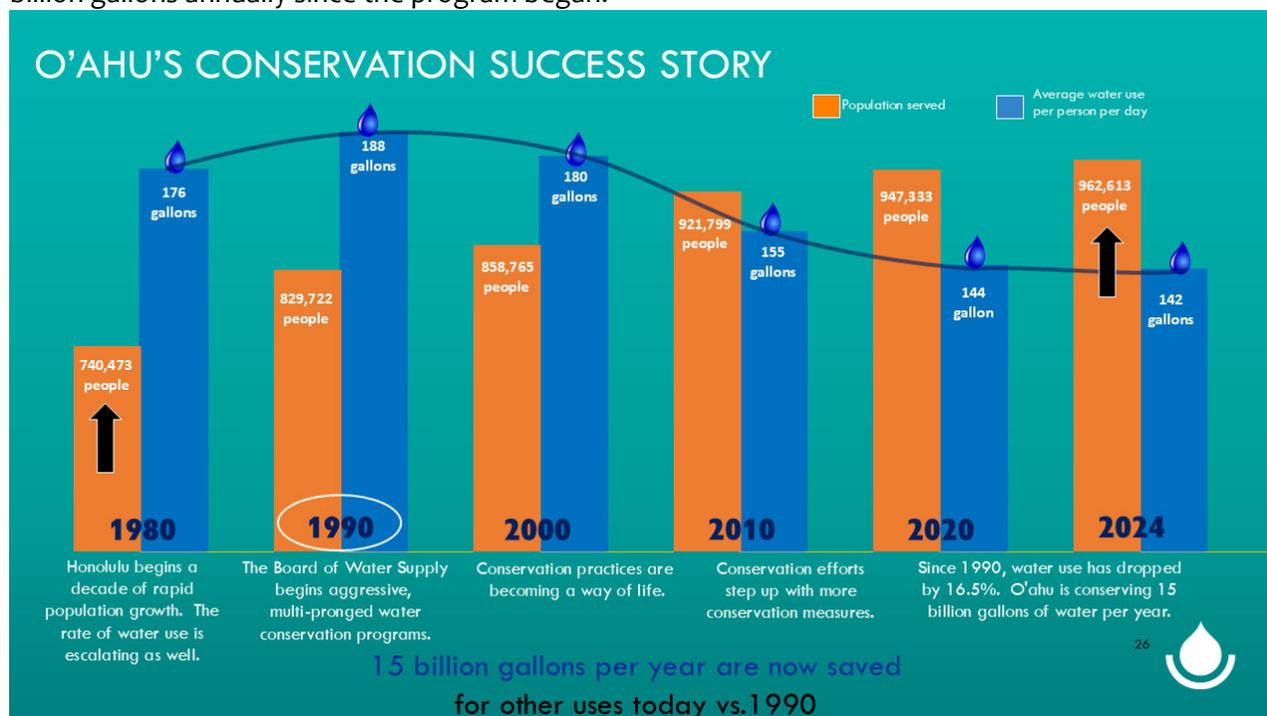
ACCEPTING MEETING 54 NOTES

Meeting 54 notes were approved.

ANNUAL WATER CONSERVATION UPDATE

Dave introduced Lorna Heller, BWS Civil Engineer and Water Conservation Branch Head, to provide an update on the BWS's water conservation program. Lorna also introduced Steven Norstrom, BWS Information Specialist, and Sean Harrington, a Project Engineer with Honeywell, who both help administer the WaterSensible program that promotes sustainable water use practices across Oahu. These efforts are essential given Oahu's dependence on groundwater, which is replenished by rainfall. Conservation is key to preventing over-pumping and saltwater intrusion.

Lorna shared a graph (shown below) showing Oahu's population steadily increasing since 1980, compared with decreasing average daily water use since the launch of BWS's conservation program in 1990. Water conservation has helped improve water efficiency across homes and businesses, saving 15 billion gallons annually since the program began.



The residential rebate program offers incentives for water-efficient fixtures, including toilets, Energy Star clothes washers, weather-based irrigation controllers, smart water monitors, and rain barrels. In 2022, BWS expanded these rebates to businesses, focusing on kitchen, landscape, plumbing, and cooling tower upgrades. Monthly dashboards from Honeywell track program performance.

Product	Rebate Amount	Potential Savings
WaterSense Labeled Toilet	\$100	Save up to 13,000 gallons/yr
WaterSense Irrigation Controller and Sensor	UP TO \$135	Save over \$150 on annual water bills
Smart Water Monitor	UP TO \$200	Reduce water usage by over 15%
ENERGY STAR Clothes Washer	\$75	Save up to 4,900 gallons/yr
Rain Barrel	\$40	Save over \$100 on annual water bills

Since 2018, the program has saved over 117 million gallons annually through 22,000+ rebates totaling \$1.6 million. Clothes washers and toilets remain the most popular rebates. An analysis of recent purchases showed Lowe’s and Home Depot are top retailers, with online purchases growing to 6%. Customers reported big retail stores, online resources, and bill inserts as the top sources for hearing about the WaterSensible program.

Lorna emphasized the importance of customer satisfaction, noting most rebates are processed in under two weeks and satisfaction scores average 9.8 out of 10. She also discussed the Trade Ally Program launched in 2023, which partners with businesses to promote WaterSensible and connect customers with installation services.

Lorna also introduced WaterSmart, a free online tool that helps customers track and reduce water use, identify eligible rebates, and detect leaks. Steven followed with an overview of the WaterWisdom program for multifamily buildings. Since residents in these units often don’t receive individual water bills, the program provides toolkits, audit services, and financing opportunities through partnerships with Hawaii Energy and the Green Infrastructure Authority.

Steven talked about the direct install program, which includes leak detection, fixture checks, water bill reviews, and post-audit reports for multifamily and kupuna households, including single-family homes. He shared a success story from Island Colony in Waikiki, where replacing 405 toilets earned a \$40,000 rebate and saved \$35,000 in one year.

Other success stories included Country Club Village, Palms of Kilani, and Juliana Towers. A commercial example at Alakea Corporate Tower showed a significant drop in water use after installing a

conductivity controller for the cooling tower, saving \$93,500 gallons of water per month after the upgrade. The Ramada Plaza hotel replaced outdated 3.5-gallon toilets with WaterSense models, earning a \$9,000 rebate and realizing a 3-month payback period. Steven also highlighted the Smart Water Monitor, a new \$200 residential rebate that notifies customers of leaks via Wi-Fi and can shut off water to prevent damage.

Lorna continued the presentation to discuss outreach and awareness strategies. BWS engages with the public through events, social media, and direct mail, especially targeting condo and apartment residents who don't receive water bills. She noted social media ads have contributed to 8% of customers learning about the program.

Steven added that BWS participates in events such as Detect-A-Leak Week, disaster fairs, and Imagine a Day Without Water, which promotes the One Water concept. The 2025 event at Windward Mall was the most successful to date, and they're considering Waianae as a future site.

Lorna noted that since 2009, BWS has partnered in the Hawaii Green Business Program, recognizing sustainable businesses. The conservation team also conducts rain barrel workshops using recycled barrels from Coca-Cola. Lorna recognized BWS Stakeholder Advisory Group member and Coca-Cola employee Alison Richardson, thanking them for their support. The barrels offer an affordable way for homeowners to reduce outdoor water use.

Lorna provided an update on the BWS's annual calendar contest. In 2025, 46 schools submitted nearly 1,000 posters and 15 schools submitted 350 poems. The 2026 theme is "Everyday Conservation," and entries are expected to surpass 1,000. Xeriscape Garden activities have expanded as volunteer interest grows, with additional outreach through KHON's "Get Dirty" segment and events with schools, parks, and senior groups.

Lorna concluded her presentation by thanking the BWS conservation team and Honeywell for their collaboration in supporting Oahu's water conservation efforts.

Q: Ryan Obrero asked whether BWS partners with organizations like the plumbers' union to promote the rebates. As a co-owner of an air conditioning company, he noted that such upgrades aren't commonly recommended in his field but could be if there was more education and encouragement to use the rebates. Sean Harrington responded that BWS does not currently partner with the plumbers' union, but they do operate a Trade Ally program open to all interested contractors, including plumbers and cooling tower specialists. The program serves as a public directory on BWS's website and is designed to connect building managers with tradespeople who support water conservation.

Q: Bob Leinau asked if the Hawaii Green Infrastructure Authority (HGIA) charges a fee for audits in multifamily properties and how their services compare to those offered by the Hawaii Green Business Program (GBP). Steven Norstrom explained that HGIA is a state agency that works with BWS and Hawaii Energy to offer low-interest financing for water-efficient upgrades. Lorna Heller added that GBP is a partnership between BWS, the State Department of Health, and the State Energy Office. GBP works primarily with commercial facilities to identify sustainable practices in water, energy, and waste reduction. BWS Information Officer Kathleen Elliott-Pahinui clarified that BWS conducts their own audits at no cost to customers.

Q: Jicky Ferrer asked if greywater recycling systems could be included in BWS's rebate program to incentivize their installation in existing or new homes. He also asked if condensate water from AC units in condominiums could be reused in community gardens for example. Sean Harrington explained that

greywater systems are effective but difficult to retrofit due to plumbing requirements, though modular options are emerging. He mentioned Kobayashi Group is incorporating greywater tech in new developments, and BWS is in discussions with a company providing residential-scale systems. Regarding AC condensate, Sean noted that the water is typically very clean and could be reused in specific cases, such as for cooling towers or irrigation, but would require case-by-case evaluation and site-level support.

COMMENT: Jicky Ferrer also suggested collecting AC condensate water for non-potable uses such as toilet flushing to reduce potable water demand. Sean Harrington agreed, noting that potable water is overused for non-potable purposes, and such systems could significantly offset demand.

COMMENT: Jicky Ferrer asked if SAG members could be added to a newsletter or notification list to stay informed about community workshops and the Hawaii Waterworks Association conference.

COMMENT: Dana Okano expressed her appreciation to Lorna and the BWS team for their inspiring work and strong results promoting conservation on Oahu.

NEXT STEPS

Dave shared the list of stakeholder advisory group meetings for 2026: January 15, April 16, July 16 and October 15. He mentioned that additional virtual meetings may be scheduled.

Dave concluded the meeting by honoring the memory of Arlene Post, a former CDM Smith staff member who contributed to the foundation and success of the BWS Stakeholder Advisory Group. He then thanked the attendees for their attention and participation and concluded the meeting.