BOARD OF WATER SUPPLY
KA 'OIHANA WAI
CITY AND COUNTY OF HONOLULU

630 SOUTH BERETANIA STREET • HONOLULU, HAWAI'I 96843
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RICK BLANGIARDI
MAYOR
MEIA

ERNEST Y. W. LAU, P.E.
MANAGER AND CHIEF ENGINEER
MANAKIA A ME KAHU WILIKĪ

ERWIN KAWATA
DEPUTY MANAGER
HOPE MANAKIA

NĀ'ĀLEHU ANTHONY, Chair
KAPUA SPROAT, Vice Chair
BRYAN P. ANDAYA
JONATHAN KANESHIRO
EDWIN H. SNIFFEN, Ex-Officio
GENE C. ALBANO, P.E., Ex-Officio

March 19, 2024

NOTICE

The Board of Water Supply, City and County of Honolulu, Regular Meeting will be held on Monday, March 25, 2024, at 2:00 p.m. in the Boardroom, Public Service Building, 630 South Beretania Street, Honolulu, HI 96843.

Limited seating will be available for in-person testifiers in the Boardroom. The public may also view the livestream of the meeting from the lobby of the Board of Water Supply, Public Service Building, 630 S. Beretania St., Honolulu, HI 96843.

TESTIMONY

Testimony may be submitted as follows:

- Written testimony should include the submitter's address, email address, and phone number. Testimony should be received by Monday, March 25, 2024, at noon. Submit written testimony by:
  - Email to board@hbws.org
  - Online at boardofwatersupply.com/testimony
  - Mail to Board of Water Supply, 630 S. Beretania St., Honolulu, HI 96843
  - Fax to (808) 748-5079
- Oral testimony will be accepted remotely and in person during the meeting. Pre-registration is encouraged to facilitate as much remote and in-person testimony as reasonably possible during the time allotted. Testifiers should also consider submitting a written version of their oral testimony.
  - To testify remotely by phone or video using the Zoom videoconferencing platform, please submit your request by:
    - Email to board@hbws.org
    - Online at boardofwatersupply.com/testimony

    Zoom registration instructions, as well as participant guidelines, will be sent to the contact information provided. Once confirmed as registered, testifiers will receive an email containing the links and instructions to join the Zoom session. Submit your request to testify remotely by Friday, March 22, 2024, at noon.
  - To testify in person at the Board of Water Supply, Public Service Building, 630 S. Beretania St., Honolulu, HI 96843, please pre-register by submitting your request by Monday, March 25, 2024:
    - Email to board@hbws.org
    - Online at boardofwatersupply.com/testimony

    In-person testifiers should check in with building security and then with testimony staff located in the lobby. Testifiers will be escorted to and from the Board Room. On-site registration will be available for walk-in requests.

Testimony is limited to two (2) minutes and shall be presented by the registered speaker only. Testimony submitted in writing or orally, electronically or in person, for use in the meeting process is public information. All testimony will be included as part of the approved meeting minutes at boardofwatersupply.com/boardmeetings.

MATERIALS AVAILABLE FOR INSPECTION

Meeting materials ("board packet" under HRS §92-7.5) are accessible at www.boardofwatersupply.com/boardmeetings.

VIEWING THE MEETING

The meeting will be viewable via live streaming on the BWS website: 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 Joy at (808) 748-5172 or email your request to board@hbws.org **at least three business days prior to the meeting date**. If a response is received after the requested three business days before the meeting date deadline, we will try to obtain the auxiliary aid/service or accommodation, but we cannot guarantee that the request will be filled.

Upon request, this notice is available in alternate formats such as large print, Braille, or electronic copy.

The agenda for the March 25, 2024, 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 February 26, 2024

2. Adoption of Resolution No. 983, 2024, Acceptance of Gift to the Board of Water Supply from Hardware Hawaii (HH Holdings, Inc.) for Detect-A-Leak Week

3. Adoption of Resolution No. 984, 2024, Acceptance of Gift to the Board of Water Supply from the Center for Water Security and Cooperation for Three (3) Fellowship Positions

ITEMS FOR INFORMATION

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

2. Results of the Sale of the Board of Water Supply Water System Revenue Bonds, Series 2024

3. Water Conservation Initiatives Update 2024

4. Status Update of Groundwater Levels at All Index Stations

5. Water Main Repair Report for February 2024

MINUTES

To watch the recording of this meeting, please click on the following link: https://vimeo.com/bwshonolulu/mar-25-2024. Closed captioning is available.

THE REGULAR MEETING OF THE
BOARD OF WATER SUPPLY

March 25, 2024

At 2:01 PM on March 25, 2024, in the Public Service Building Board Room at 630 South Beretania Street, Honolulu, Hawaii, Board Chair Nāʻālehu Anthony called to order the Regular Meeting.

Present:	Nāʻālehu Anthony, Chair Kapua Sproat, Vice Chair via Zoom Bryan P. Andaya, Board Member via Zoom Jonathan Kaneshiro, Board Member Gene C. Albano, Ex-Officio via Zoom
Also Present:	Ernest Lau, Manager and Chief Engineer Erwin Kawata, Deputy Manager Patrick Chun, Acting Program Administrator, Capital Projects Division Jennifer Elflein, Program Administrator, Customer Care Division Kathleen Elliott-Pahinui, Information Officer, Communications Office Raelynn Nakabayashi, Executive Assistant I, Executive Support Office Jason Nikaido, Program Administrator, Field Operations Division Kaliko Lum Kee, Acting Waterworks Controller, Finance Division Michele Thomas, Executive Assistant I, Human Resources Office via Vimeo Henderson Nuuhiwa, Program Administrator, Information Technology Division via Vimeo Michael Matsuo, Land Administrator, Land Division Barry Usagawa, Program Administrator, Water Resources Division Kevin Ihu, Program Administrator, Water System Operations Division Kathy Mitchell, Administrative Services Officer via Vimeo Kimberly Kuwaye, Manager Secretary Joy Cruz-Achiu, Board Secretary Steven Norstrom, Information Specialist II, Communications Office

Stella Bernardo, Information Specialist II,
Communications Office via Zoom
Michele Harman, Community Relations Specialist I,
Communications Office via Zoom
Wayne Maria, Information Specialist II,
Communications Office
Joyce Lin, Civil Engineer IV,
Office of the Managers and
Chief Engineer
Lorna Heller, Civil Engineer VI,
Water Resources Division

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

Absent: Edwin H. Sniffen, Ex-Officio

Chair Nāʻālehu Anthony opened the Board meeting with an ʻolelo noʻeau:

Aloha mai kākou e nā hoa makamaka mai ka lā hiki a ka lā kau. Welina nui me ke aloha! Mahalo nui no kēia ʻākoakoa ʻana o kākou no ka pono o ka lāhui, no ka pono o ka ʻāina, a no ka pono o ka wai nō hoʻi. **Ka ua kanilehua o Hilo.** ʻOlelo noʻeau number 1562: Hilo where the rain moistens the lehua blossoms. Paying respect to the life-giving rain of Hilo as Merrie Monarch approaches. Wishing all participants good luck.

Chair Anthony welcomed everyone to the March 25, 2024, Regular Meeting of the Board of Water Supply (BWS). He stated that the Board of Water Supply is dedicated to providing safe, dependable, and affordable supply of water now and into the future.

Before continuing the meeting, Chair Anthony stated that a recording would be played to share reminders for public participation and the virtual meeting regulations required by law.

The recording played: Goals for this meeting under Hawaii Revised Statutes, Section 92-7.5 are accessible at www.boardofwatersupply.com/boardmeeting. The public may attend this meeting in person at the Public Service building located at 630 South Beretania Street. The public may also view a live stream of today's meeting on our website at www.boardofwatersupply.com/live. We have been accepting written or oral testimony for today's meeting. Instructions and an online submittal form are available at boardofwatersupply.com/testimony. The deadline to submit advance written testimony has passed. Testimony received by noon today has been distributed to the board members. We will continue to accept written testimony today through our online form. Oral testimony in person or remotely will be accepted during today's meeting. To facilitate as much in-person and remote testimony as reasonably possible during the time allotted, preregistration and submittal of a written version of testimony at boardofwatersupply.com/testimony is strongly encouraged. To testify in person, please register using our online form or come to the public service building at 630 South Beretania Street. We have a representative in the lobby to provide intake and further instructions. To request to testify remotely, please complete the online form at boardofwatersupply.com/testimony. Requestors will receive an email containing links and instructions to join the Zoom session. Testifiers will have two minutes to state their position. A timekeeper will alert testifiers when there is one minute remaining. Once the two minutes are up, please summarize to allow time for questions from the Board. Then, make room for the next testifier. Board members attending any board meeting remotely must be visible to the public to be considered, present, and meet quorum guidelines. Board members participating remotely must also disclose their location and anyone present at their location during roll call. Meeting participants who are calling or video conferencing in, please mute your microphone when you're not speaking. If you have a question, comment, or wish to enter or second a motion on an action item, please unmute your microphone and identify yourself before continuing to speak. If you encounter technical issues during today's meeting, please use the Zoom chat to send a direct message to our support team. Their names are listed in the message to all participants. To open the chat window, please click the text Bubble icon on the Zoom Toolbar.

Chair Anthony requested a roll call for the Regular Meeting. He asked those participating remotely to give the appropriate disclosures up responding.

Vice Chair Kapua Sproat joined via Zoom, responded aye, and disclosed that she was alone at her location; Board Member Gene Albano responded aye and disclosed that he was alone at his location; and Board Member Jonathan Kaneshiro responded aye and was present in the

Boardroom. Chair Anthony was present in the Boardroom. Board Member Bryan Andaya was absent during the roll call but would be joining later in the meeting. Board Member Edwin Sniffen was absent.

Chair Anthony introduced those in the Boardroom: Manager Ernest Lau, Deputy Manager Erwin Kawata, Board Secretary Joy L. Cruz-Achiu, Manager Secretary Kimberly Kuwaye, and Information Specialist II Steven Norstrom and Wayne Maria. Deputy Jeff Lau and Deputy Jessica Wong joined via Zoom from the City and County Corporation Counsel.

REGULAR MEETING

APPROVAL OF MINUTES

Approval of the Minutes of the Regular Meeting Held on February 26, 2024.

MOTION TO APPROVE

Jonathan Kaneshiro and Kapua Sproat motioned and seconded, respectively, to approve the Minutes of the Regular Meeting Held on February 26, 2024.

In lieu of a roll call vote, Chair Anthony requested a voice vote on the motion and requested that Board Members in favor of the motion say "Aye." The Board members present responded with a verbal "Aye." Chair Anthony then inquired if any Board Members would like to object or vote "Nay" on the motion. There were no objections or "Nay" votes. Vice Chair Anthony announced that the motion was unanimously carried.

THE MINUTES OF THE REGULAR MEETING HELD ON DECEMBER 18, 2023, WERE APPROVED AT THE JANUARY 22, 2024, BOARD MEETING			
	AYE	NO	COMMENT
NĀ'ĀLEHU ANTHONY	X		
KAPUA SPROAT	X		
BRYAN P. ANDAYA			ABSENT
JONATHAN KANESHIRO	X		
EDWIN H. SNIFFEN			ABSENT
GENE C. ALBANO	X		

"March 25, 2024

ADOPTION OF RESOLUTION NO. 983, 2024, ACCEPTANCE OF GIFTS TO THE BOARD OF WATER SUPPLY FROM HARDWARE HAWAII (HH HOLDINGS, INC.) FOR DETECT-A-LEAK WEEK

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

Chair and Members:

Subject: Adoption of Resolution No. 983, 2024, Acceptance of Gifts to the Board of Water Supply from from Hardware Hawaii (HH Holdings, Inc.) for Detect-A-Leak Week

We recommend acceptance of the proposed gift to the Board of Water Supply (BWS), City and County of Honolulu, from Hardware Hawaii (HH HOLDINGS, INC.) of 5,000 toilet leak detection dye tablets valued at $600.00 in support of the BWS's annual Detect-A-Leak Week campaign.

Detect-A-Leak Week will be observed from April 14 through April 20, 2024. The goal is to raise awareness and encourage the public to conserve water by detecting and repairing leaks.

According to the United States Environmental Protection Agency, minor water leaks caused by running toilets, dripping faucets, and other household leaks account for more than one trillion gallons of water wasted each year across the US. Even small leaks can create a significant amount of water waste, costing customers money. One of the most common household leaks are found in toilets. An old or worn-out flapper can build up minerals or decay over time. It is highly recommended to regularly check your toilet flapper and replace it at least every five years, which is relatively easy, quick, and inexpensive.

During Detect-A-Leak Week, the public can pick up toilet leak detection dye tablets at any Hardware Hawaii store, Satellite City Hall location, in the lobby of the BWS's Public Service Building at 630 South Beretania Street, and at our Detect-A-Leak booth on Wednesday, April 17, from Noon to 1:00 p.m. inside Tamarind Park (Bishop Square).

We greatly appreciate the continued participation and commitment of our community partners and customers who support this very worthwhile program, which encourages all customers to embrace their role as responsible stewards of our precious water resource.

Respectfully Submitted,

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

Attachment"

DISCUSSION: Kathleen Elliott-Pahinui, Information Officer, Communications Office, gave the report.

MOTION TO APPROVE: Jonathan Kaneshiro and Kapua Sproat motioned and seconded, respectively, to approve the Adoption of Resolution No. 983, 2024, Acceptance of Gifts to the Board of Water Supply from Hardware Hawaii (HH Holdings, Inc.) for Detect-A-Leak Week.

Ms. Cruz-Achiu conducted a roll call: Vice Chair Kapua Sproat, aye; Board Member Jonathan Kaneshiro, aye; Board Member Gene Albano, aye; and Chair Nā'ālehu Anthony, aye. Board Member Bryan Andaya and Board Member Edwin Sniffen were absent

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

ADOPTION OF RESOLUTION NO. 983, 2024, ACCEPTANCE OF GIFTS TO THE BOARD OF WATER SUPPLY FROM HARDWARE HAWAII (HH HOLDINGS, INC.) FOR DETECT-A-LEAK WEEK WAS ADOPTED ON MARCH 25, 2024			
	AYE	NO	COMMENT
NĀ'ĀLEHU ANTHONY	X		
KAPUA SPROAT	X		
BRYAN P. ANDAYA			ABSENT
JONATHAN KANESHIRO	X		
EDWIN H. SNIFFEN			ABSENT
GENE C. ALBANO	X		

BOARD OF WATER SUPPLY
CITY AND COUNTY OF HONOLULU

RESOLUTION NO. 983, 2024

ACCEPTANCE OF GIFT FROM HARDWARE HAWAII (HH HOLDINGS, INC.) IN SUPPORT OF ANNUAL DETECT-A-LEAK WEEK CAMPAIGN

WHEREAS, the Board of Water Supply (BWS) will observe Detect-A-Leak Week, a public outreach campaign that encourages O'ahu residents to reduce water usage by detecting and fixing leaks, from April 14 through April 20, 2024, and

WHEREAS, detecting and fixing leaks is an effective way to achieve long-term savings on water bills and to protect our limited water supply; and

WHEREAS, a leaky toilet is one of the most common leaks found inside the home, usually caused by a deteriorating flush valve (flapper) that goes unnoticed, wasting thousands of gallons of water each year;

WHEREAS, in support of Detect-A-Leak Week, Hardware Hawaii (HH Holdings, Inc) partnered with the BWS and has generously offered 5,000 toilet leak detection dye tablets valued at $600.00 to remind island water users to detect and repair leaks, especially in toilets,

WHEREAS, the BWS may accept gifts to the Department as long as it does not provide special consideration, treatment, advantage, privilege, or exemption for or coerce a potential donor; and

BE IT RESOLVED that the BWS hereby accept the gift valued at and directs the Manager and Chief Engineer, or his delegate, to accept and thank Hardware Hawaii (HH Holdings, Inc.) for this gift.

ADOPTED

NĀ'ĀLEHU ANTHONY
Chair

Honolulu, Hawai'i
March 25, 2024

ADOPTION OF RESOLUTION NO. 983, 2024, ACCEPTANCE OF GIFTS TO THE BOARD OF WATER SUPPLY FROM HARDWARE HAWAII (HH HOLDINGS, INC.) FOR DETECT-A-LEAK WEEK WAS ADOPTED ON MARCH 25, 2024			
	AYE	NO	COMMENT
NĀ'ĀLEHU ANTHONY	X		
KAPUA SPROAT	X		
BRYAN P. ANDAYA			ABSENT
JONATHAN KANESHIRO	X		
EDWIN H. SNIFFEN			ABSENT
GENE C. ALBANO	X		

"March 25, 2024

ADOPTION OF RESOLUTION NO. 984, 2024, ACCEPTANCE OF GIFTS TO THE BOARD OF WATER SUPPLY FROM THE CENTER FOR WATER SECURITY AND COOPERATION FOR THREE (3) FELLOWSHIP POSITIONS

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

Chair and Members:

Subject: Adoption of Resolution No. 984, 2024, Acceptance of Gifts to the Board of Water Supply from from The Center for Water Security and Cooperation for Three (3) Fellowship Positions

We recommend the adoption of the attached Resolution No. 984, 2024, that accepts the proposed gift to the Board of Water Supply (BWS), City and County of Honolulu, from the Center for Water Security and Cooperation (CWSC). The CWSC is providing funding for three (3) Fellowship positions for their 2024 water utility cohort. The total value is estimated to be $21,000 for air, travel, lodging, and registration costs. Kathleen M. Elliott-Pahinui, Jennifer Elflein, and Stella Bernardo have been chosen to participate in the program.

The fellows will attend "Learning and Engagement Sessions," where they will interact with other utility leaders from across the country and learn new skills that will help them to create access and affordability plans for their utilities.

CWSC is a tax-exempt nonprofit corporation based in Washington, DC, whose mission is to advance water security by understanding, evaluating, and innovating in water law and governance. The CWSC defines water security as the ability to safeguard and availability of water sufficient to sustain lives and livelihoods and protect against threats to and from water.

Respectfully Submitted,

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

Attachment"

DISCUSSION:

Ernest Lau, Manager and Chief Engineer, gave the report.

Chair Nā'ālehu Anthony congratulated the attendees whom the Center chose for Water Security and Cooperation (CWSC) to participate in the 2024 water utility cohort. He thanked Manager Ernest Lau for making the connection.

MOTION
TO APPROVE

Jonathan Kaneshiro and Gene Albano motioned and seconded, respectively, to approve the Adoption of Resolution No. 984, 2024, Acceptance of Gifts to the Board of Water Supply from The Center for Water Security and Cooperation for Three (3) Fellowship Positions.

Ms. Cruz-Achiu conducted a roll call: Vice Chair Kapua Sproat, aye; Board Member Jonathan Kaneshiro, aye; Board Member Gene Albano, aye; and Chair Nā'ālehu Anthony, aye. Board Member Bryan Andaya and Board Member Edwin Sniffen were absent

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

ADOPTION OF RESOLUTION NO. 984, 2024, ACCEPTANCE OF GIFTS TO THE BOARD OF WATER SUPPLY FROM THE CENTER FOR WATER SECURITY AND COOPERATION FOR THREE (3) FELLOWSHIP POSITIONS WAS ADOPTED ON MARCH 25, 2024			
	AYE	NO	COMMENT
NĀ'ĀLEHU ANTHONY	X		
KAPUA SPROAT	X		
BRYAN P. ANDAYA			ABSENT
JONATHAN KANESHIRO	X		
EDWIN H. SNIFFEN			ABSENT
GENE C. ALBANO	X		

THE CENTER FOR WATER SECURITY AND COOPERATION

Ernest Y. W. Lau, P.E.
Manager and Chief Engineer
Board of Water Supply
630 S. Beretania St
Honolulu, HI 96843

March 8, 2024

Dear Chief Engineer Lau:

On behalf of the Center for Water Security and Cooperation, I am very pleased to inform you that we have selected three members of your team to be part of Cohort Two of the CWSC's Water Utility Leadership Fellowship! Congratulations!

The three selected fellows are: **Kathleen Elliott-Pahinui**, **Stella Bernardo**, and **Jennifer Elflein**. These selectees were chosen from among emerging utility leader applicants from across the United States. They are impressive, and we are looking forward to working with them over the course of the fellowship.

As we discussed at our session at the One Water Summit in Tucson, the purpose of the fellowship is threefold: (1) to create a water access and affordability plan for the utility; (2) to provide a space to learn important skills for the future, including best practices for access and a greater understanding of legal, policy, and institutional mechanisms that govern utility operations; and, (3) to become part of a growing peer network of utility leaders and community experts that will help them build a stronger utility for the future.

As part of this fellowship, the fellows will attend "Learning and Engagement Sessions" where they will interact with other utility leaders from across the country and learn new skills that will help them to create their access and affordability plans. Additionally, the fellows will be invited to a convening of past-and-present WULFs in Washington, DC in July 2024. The total monetary value of the fellowship is approximately $7000.00 per fellow.

We congratulate you again on the selection of these three members of your staff as fellows—we were so deeply impressed by their qualifications, their applications and their interviews and we look forward to working with them and to welcoming them to our vibrant WULF community.

If you have any questions, please do not hesitate to contact me at the email below or to contact my colleague, Luke Wilson at LWILSON@ourwatersecurity.org. We are more than happy to answer any questions that you might have or to provide any additional information about the fellowship.

We look forward to seeing you again soon!

Alexandra Campbell-Ferrari, Executive Director
The Center for Water Security and Cooperation
1701 Pennsylvania Ave NW, Suite 200
Washington, DC 20006
(202) 796-8672
acampbellferrari@ourwatersecurity.org

BOARD OF WATER SUPPLY
CITY AND COUNTY OF HONOLULU

RESOLUTION NO. 984, 2024

ACCEPTANCE OF GIFT TO THE BOARD OF WATER SUPPLY
FROM THE CENTER FOR WATER SECURITY AND COOPERATION

WHEREAS, water is critical for all life, for food, hygiene, and hydration; and access to water is a fundamental right for all residents of O'ahu; and

WHEREAS, the cost to deliver water can impact residents who are on fixed incomes, Asset Limited, Income Constrained, Employed, or otherwise financially challenged; and

WHEREAS, the Center for Water Security and Cooperation (CWSC) is providing funding for three (3) BWS representatives to participate in their 2024 Fellowship program to address water access and affordability and develop a plan for the BWS on these two issues; and

WHEREAS, this program will provide a space to learn important skills for the future, including best practices for access and a greater understanding of legal, policy, and institutional mechanisms that govern utility operations, and to become part of a growing peer network of utility leaders and community experts that will help them build a stronger utility for the future; and

WHEREAS, as part of this fellowship program, Kathleen M. Elliott-Pahinui, Jennifer Elflein, and Stella Bernardo have been chosen to participate in this program and will attend "Learning and Engagement Sessions" where they will interact with other utility leaders from across the country and learn new skills that will help them to create their access and affordability plans. Additionally, the fellows will be invited to a convening of past-and-present Fellows in Washington, DC, in July 2024. The total monetary value of the fellowship is approximately $7000.00 per fellow for a total monetary gift of $21,000.

WHEREAS, CWSC is a tax-exempt nonprofit corporation based in Washington, D.C., whose mission is to advance water security by understanding, evaluating, and innovating in water law and governance; and the CWSC defines water security as the ability to safeguard and availability of water sufficient to sustain lives and livelihoods and protect against threats to and from water; and

WHEREAS, CWSC believes the BWS will benefit from this program that the BWS may accept gifts to the Department as long as it does not provide special consideration, treatment, advantage, privilege, or exemption for or coerce a potential donor; and

BE IT RESOLVED that the Board of Water Supply hereby accepts the gift and directs the Manager and Chief Engineer, or his delegate, to accept and thank CWSC for their gift.

ADOPTED:

NĀ'ĀLEHU ANTHONY
Chair

Honolulu, Hawaii
March 25, 2024

ADOPTION OF RESOLUTION NO. 984, 2024, ACCEPTANCE OF GIFTS TO THE BOARD OF WATER SUPPLY FROM THE CENTER FOR WATER SECURITY AND COOPERATION FOR THREE (3) FELLOWSHIP POSITIONS WAS ADOPTED ON MARCH 25, 2024			
	AYE	NO	COMMENT
NĀ'ĀLEHU ANTHONY	X		
KAPUA SPROAT	X		
BRYAN P. ANDAYA			ABSENT
JONATHAN KANESHIRO	X		
EDWIN H. SNIFFEN			ABSENT
GENE C. ALBANO	X		

ITEM FOR INFORMATION NO. 1

"March 25, 2024

UPDATE ON THE 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 the Board of Water Supply's Response to the Potential Impacts of the Red Hill Fuel Contamination

Joyce Lin, Civil Engineer IV, Office of the Manager and Chief Engineer, will give an Update on the 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: Joyce Lin, Civil Engineer IV, Office of the Manager and Chief Engineer, gave the report.

Board Member Jonathan Kaneshiro referred to the map, slide 9. He inquired about the area surrounding the orange.

Ms. Joyce Lin replied that the area within the orange is the Red Hill Bulk Storage Facility boundary.

Board Member Kaneshiro asked where the closest BWS well is to the Red Hill Bulk Fuel Storage Facility that the BWS monitors.

Manager Ernest Lau responded that the closest BWS well the BWS Halawa Well, on Halawa Heights Road, which is currently shut down. He shared that the BWS also consistently detects Per- and polyfluoroalkyl substances (PFAS) at this well.

Board Member Kaneshiro inquired if the PFAS detections at Red Hill are similar to what the BWS is seeing at the BWS Halawa Wells.

Deputy Manager Erwin Kawata stated that the PFAS detections at the BWS Halawa Wells are about two parts per trillion (ppt).

Board Member Kaneshiro asked if the BWS is seeing any correlations between the results.

Manager Lau explained that regular testing of all monitoring wells in the whole Navy network is required to be able to connect the dots and have a complete picture of what is happening in the groundwater. The BWS is requesting that the Navy test bi-weekly or monthly at the least to help map what is happening with the PFAS underground; however, it has not been approved. He commented that if you look at the legend at the bottom of the map, you will see that the darkest red is at the highest concentration located near Adit Three and the Red Hill Shaft area, where the Navy had the large fuel and water mixture that spilled from the Aqueous Film Forming Foam (AFFF) drain line that got into the Navy's drinking water source and contaminated the water serving the Joint Base Pearl Harbor Hickam (JBPHH) drinking water system.

Chair Nā'ālehu Anthony inquired if the spill was where the dark red dots are pictured on the map.

Manager Lau replied that it was within that general area. He shared that the oily waste pit has been operating for 80 years in that same area. He shared that the oily waste pit is outside of Adit Three and the tunnel entrance to the Red Hill Shaft. It is basically a hole in the ground used to dump what was cleaned from the tanks, pipes, and fuel tank farm.

Chair Anthony asked if the granulated activated carbon (GAC) system was near the oil waste pit.

Manager Lau replied that it was within the general area.

Ms. Lin asked Chair Anthony which spill he referred to in an earlier question.

Chair Anthony responded that he was referring to the AFFF spill in 2022 and asked if that was where the darkest red dots were located.

Ms. Lin stated that the spill in 2022 happened in adit six, which is in the upper area of the tank farm.

Chair Anthony inquired if the Department of Health (DOH) is asking for more testing based on the Navy's monitoring well results.

Manager Lau stated that the DOH requests the Navy to test their monitoring wells every two months. Meanwhile, the BWS suggested to the DOH that the Navy should be required to test their monitoring wells frequently and not allow it to be an option.

Chair Anthony asked Deputy Manager Erwin Kawata if the discovered material had a signature that could be traced and identified.

Deputy Manager Erwin Kawata explained that PFAS contains a chemical signature, showing a pattern in the analysis like any other chemical. However, when other chemicals are present and all blend together, it gets more complex but that does not mean it's not there.

Chair Anthony inquired if it would be possible to determine if it was present in the past.

Deputy Manager Kawata replied that there are ways to separate the different chemicals and determine where they may be coming from.

Chair Anthony commented that as the monitoring well network tracks Total Petroleum Hydrocarbons (TPH), it would also be wise to track PFAS simultaneously.

Manager Lau agreed with Chair Anthony's comment. He shared that he has requested a meeting with the Honorable Assistant Secretary of Defense, Brendan Owens, to discuss 1) regular testing for PFAS at all Navy monitoring wells and sources that were shut down before PFAS and 2) the Hawaii Army National Guard Waiawa Unit Training and Equipment Site (UTES), located at Pearl City Industrial Park, which has PFAS detections. Under the Comprehensive Environmental Response, Compensation and Liability Act (CERCLA) Regulation, the Navy and the Department of Defense (DOD) are conducting the Remedial Investigation (RI) phase at various military locations. Manager Lau stated that he appreciates the information shared with the BWS; however, he is concerned about the military's decision not to follow the DOH's Technical Guide Manual on the RI procedures. He stated that he supports the DOH's response to the military to comply with state regulations during these types of investigations at an earlier stage, such as the RI stage.

Manager Lau stated that it is crucial to understand the entire 80-year life history of the Red Hill facility, including the past cleaning and disposal practices of various fuels and contaminants, the different substances

used at the facility, and the types of leaks. The BWS has written to the regulators regarding the investigation process and has expressed their concerns. He commented that under the 2015 Administrative Order on Consent (AOC) conditions, the investigation on PFAS should have started and not just under the CERCLA, which could prolong the process. Different fuel leaks and contamination should be investigated in unison to get a complete picture of what happens in the groundwater.

Chair Anthony asked Manager Lau if he had any comments regarding the Fuel Tank Advisory Committee (FTAC) meetings, what transpired since the 2021 spill, the integrity of the different testings, and if any technical notes were available.

Manager Lau responded that the Navy shared a PowerPoint presentation, which the BWS did not share at this month's meeting but asked Ms. Lin to include information in her following report.

Chair Anthony commented that the information they shared at the FTAC was detailed but unclear.

Manager Lau shared that the Navy created a swarm team consisting of approximately 20 military experts and has since come up with 13 possibilities of why TPH was detected in the JBPHH water system, but concluded that it was chlorine that interfered with the TPH analysis method, ruling out the 12 other possibilities. However, no consultant or expert came forward to attest to that conclusion. He also shared that the DOH and the EPA appear to agree with the swarm team's conclusion.

Chair Anthony stated that the BWS and the public continue to speak on the Red Hill contamination, looking to better understand the water system that the BWS is not a purveyor of. He asked Manager Lau why the BWS continued to inquire about a water system the BWS is not associated with and learn about what transpired within the last 30 months.

Manager Lau responded that although the water system does not belong to the BWS, it is important to seek answers and information to avoid the same catastrophe. He stated that those transitioning from the Navy's contaminated water system to the BWS water system continue to complain about health effects even two years later, which is why the BWS keeps Halawa Shaft shut down. Manager Lau stated that the widespread PFAS contamination in the groundwater is much more significant than expected.

There was in-person testimony:

Susan Pcola-Davis	*Shared information gathered from the FTAC, and the Community Representation Initiative (CRI) meeting. 37-page attachment provided.*

After Ms. Susan Pcola-Davis shared information from the FTAC meeting, and before she shared information from the Community Representation Initiative (CRI) meeting, Chair Anthony inquired if the Navy would update the Safe Waters website data based on their findings.

Manager Lau replied that the Navy has not commented on providing updated data on the Safe Water website as it relates to the question of whether chlorine may have interfered with the test results over the past two years, implying that over 8,000 tests done over those two years are invalid. He added that the BWS has yet to hear from the EPA and DOH if they agree with the Navy's conclusions and are conducting their own independent investigation.

During Ms. Pcola-Davis' CRI presentation, Manager Lau inquired if the Navy was averaging the monthly TPH detections as part of the long-term monitoring (LTM).

Ms. Pcola-Davis replied, yes.

Chair Anthony commented that the Navy's Long Term Monitoring (LTM) Periods Samples/Detections Chart (CRI, page 1) is missing data from areas with detections that are closer to the maximum TPH of 266 parts per billion (ppb) due to the averaging method used by the Navy.

Board Member Jonathan Kaneshiro suggested that Ms. Pcola-Davis shows the median versus the average percentage.

Ms. Pcola-Davis asked Board Member Kaneshiro how this information would help.

Board Member Kaneshiro replied that it would help to show the spread of detections across geospatial data.

There was in-person testimony:

Susan Gorman Chang	*Would appreciate if the Navy would provide the BWS, DOH, and EPA with their data. She wished the Navy would fund the State of Hawaii to hire an independent environmental epidemiologist to explore and find some correlations.*

There was remote testimony:

Meredith Wilson	*Expressed her support of the letter sent on March 8, 2024, to the EPA and DOH and agrees that the 2015 AOC provides regulators the authority to continue PFAS sampling and testing. She had questions for the BWS. Written testimony was also provided.*

As part of Ms. Meredith Wilson's testimony, she had a few questions for the BWS:

1. *Since the Navy officials have mention that the chlorine in samples is "causing peaks to show up," why has TPH been detected in the pre-chlorinated samples from Waiawa Shaft? At which point is the water chlorinated, before or after it reaches the Shaft?*

Deputy Manager Erwin Kawata agreed with Ms. Wilson that if samples were taken before chlorination and TPH was detected, how did chlorine affect the sample and cause the TPH detection when the sample was collected before chlorine was added? He stated that chlorine does not affect the TPH detected. Deputy Manager Kawata explained that when you collect a sample, the sample bottle contains a preservative that deactivates any chlorine that may be present. The main point is that if the petroleum hydrocarbon reacts with chlorine, you should get chlorinated hydrocarbons. The Navy's analysis shows chlorinated hydrocarbons are not there.

2. *The EPA newly provided a nice and simplified fact sheet on their Red Hill webpage showing what kinds of tests are being done in the different water sampling programs. De-icer nor certain fuel additives are being tested in tap water samples. Is there any logic in only testing the shaft or groundwater for these things and not the end users?*

Deputy Manager Kawata responded that de-icers and fuel additives should be tested everywhere within the system, including the consumer's tap. It should be tracked in a very methodical and organized way. The data collected gives you information as opposed to collecting only sporadic data.

3. *In general, how does silica gel cleanup affect petroleum metabolite testing? A California Water Board has stated testing should be done without it in or to evaluate risk.*

Deputy Manager Kawata explained that everything in nature, including petroleum, degrades to a certain extent. When petroleum degrades, it turns petroleum hydrocarbon into metabolites, which are water soluble, otherwise called polar compounds. Silica gel can remove and separate what dissolves in water and what doesn't. He agreed with the research paper link provided in Ms. Wilson's written testimony from the San Francisco Water Resources Control Board. The paper explains that some metabolites are much more toxic than parent compound; therefore, it should be analyzed for everything. Deputy Manager Kawata stated that the BWS does not use silica gel for cleanup. The BWS analyzes everything in the samples that the BWS has been monitoring since 2014.

4. *Can BWS identify any other partially oxidized fuel-related degradation products to test for? Of course, if we didn't have to guess and rely on original fuel composition info from the Navy, we could have a better idea of what to look for. But I fear that we're missing important analytes - some metabolites are actually more toxic than parent compounds.*

Deputy Manager Kawata stated that the mixture is very complex that can contain partially oxidized degradation products. He explained that Jet Propellent-5's (JP-5) fingerprint is difficult to match with the fingerprint of the sample because the sample can contain JP-5 mixed with other kinds of petroleum products that can be heavier or lighter JP-5. The resulting mixture will give a fingerprint or a mixture of all these different substances that will not look like JP-5. Deputy Manager Kawata further explained that separating and differentiating each component in the mixture is needed to identify which one of the compounds is of major interest from a health standpoint. He mentioned that higher-resolution, extremely advanced methods can do this.

At 3:08 PM, Board Member Bryan Andaya joined the meeting via Zoom. He disclosed he was alone at his location.

There was remote testimony:

Jamie Simic	*Shared that she has been receiving reports from families being affected in three other areas outside the surrounding Red Hill areas. She asked what tests were used in 2014.*

Manager Lau stated that the BWS is investigating the three areas Ms. Jamie Simic shared. He shared that at the FTAC meeting, he asked if samples had been taken and tested shortly after the event and before the Navy started flushing. Manager Lau asked Ms. Jamie Simic if her samples were taken to the University of Hawaii (UH) for testing.

Ms. Jamie Simic responded that she had three samples taken to UH, the results of which detected JP-5. She stated that she still has more water samples.

Manager Lau asked Ms. Simic to share the results with the BWS.

Ms. Simic replied that she would forward the test results and email.

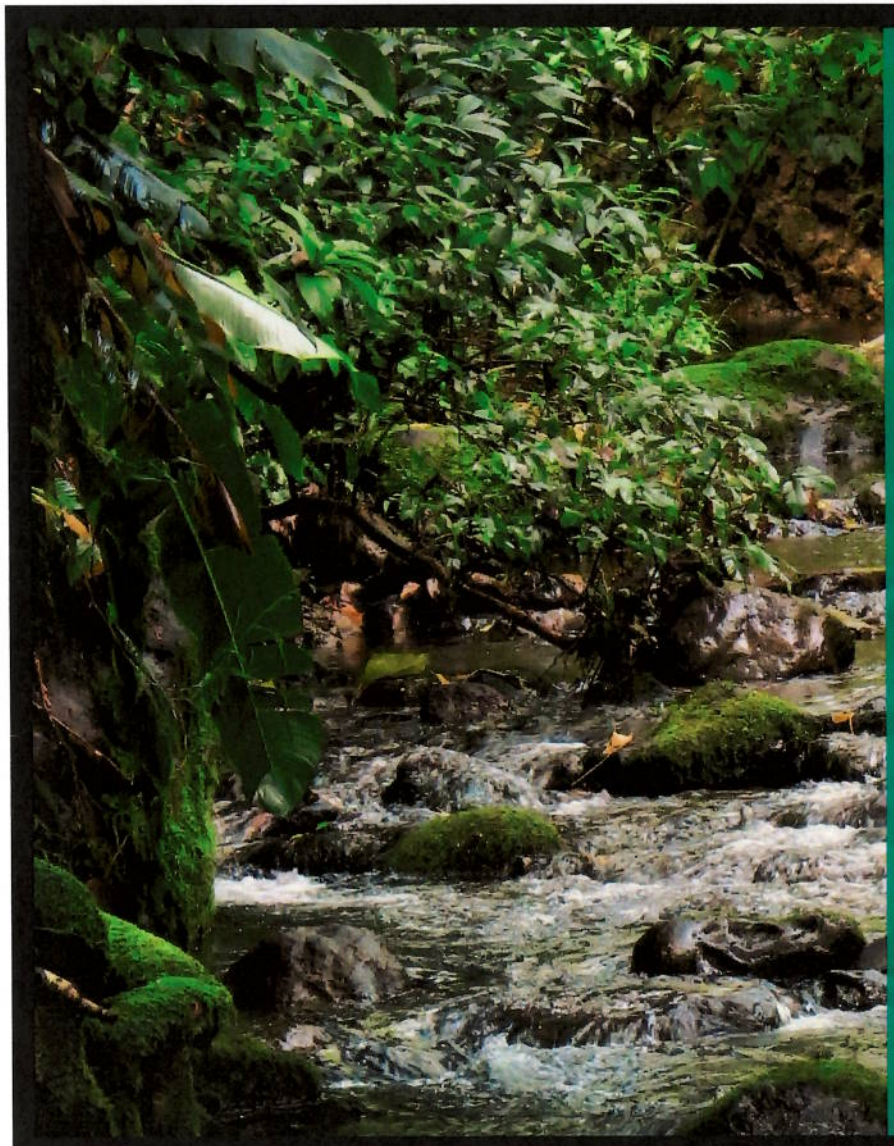
Manager Lau stated that the BWS investigates every complaint received, including those received shortly after the spill, due to the number of families relocating from affected Navy water systems and still experiencing the effects.

Deputy Manager Kawata replied regarding the locations provided by Ms. Simic: the BWS will collect samples and follow up on the complaint received in the Ewa Beach area. However, no specific address was provided for the complaint in Waianae. Therefore, the BWS will request a sample from a homeowner on the street that Ms. Simic provided. He explained that the samples from the locations, surrounding areas, and direct water sources would be tested for petroleum hydrocarbons such as diesel, gasoline, and oil fractions. Deputy Manager Kawata pointed out that the samples taken will have preservatives that will neutralize chlorinated water, and samples at the wellhead, before chlorination, will also be tested.

Ms. Simic inquired about the testing procedures in 2014. She shared that an acquaintance shared with her that the gastrointestinal specialist physician treating her in 2017 and 2018 couldn't determine what was causing her symptoms, which are now more severe.

Manager Lau shared that during the FTAC meeting, he asked the Navy, DOH, and EPA if samples were taken immediately after the 2021 spill. From his understanding, the Navy took samples and tested for total organic carbon (TOC), which was disposed of. At the meeting, it was also mentioned that community members had frozen water samples.

Ms. Simic appreciated the BWS for providing a safe place and investigating all concerns.



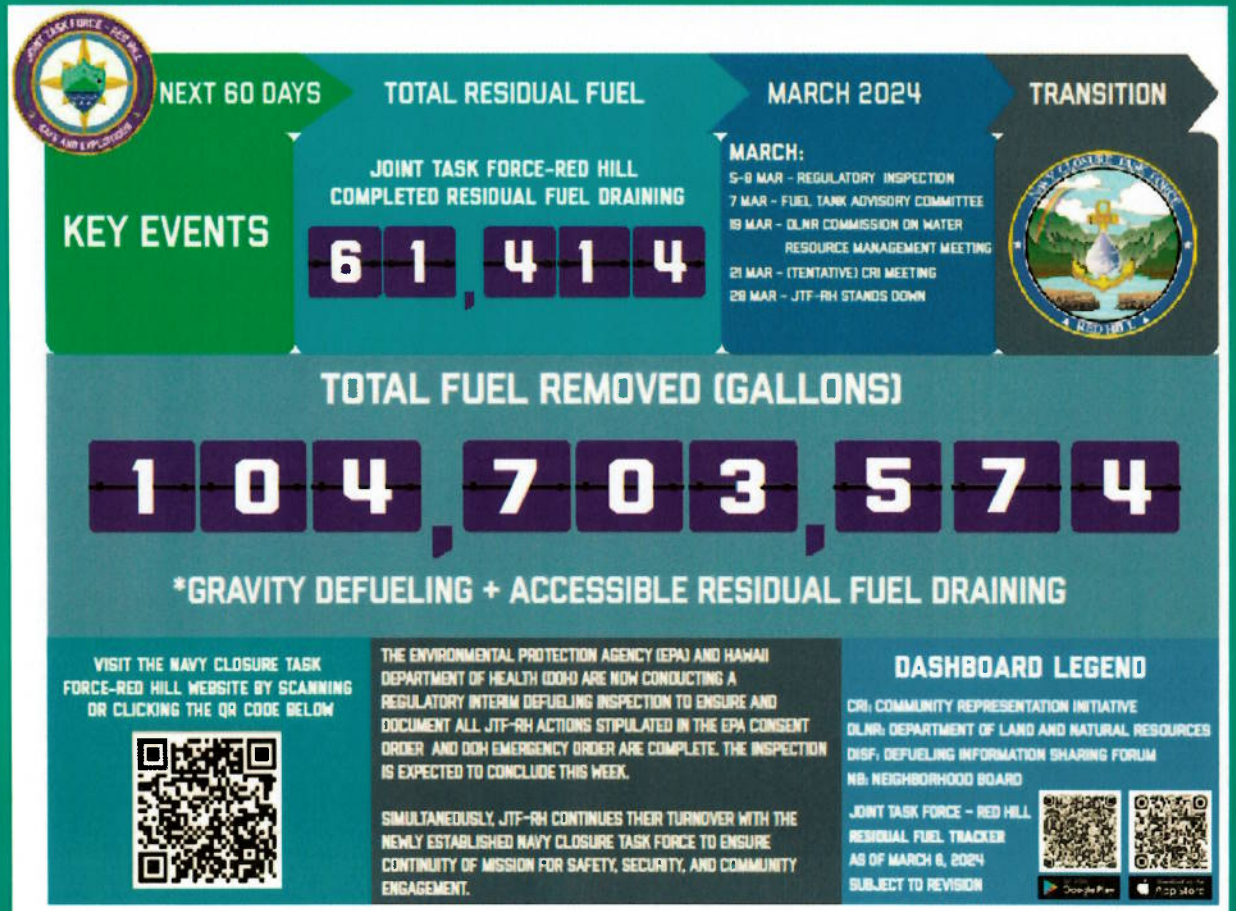
MARCH 2024
RED HILL UPDATES

Joyce Lin

March 25, 2024

boardofwatersupply.com

RECENT EVENTS



- Joint Task Force –Red Hill completed residual fuel defueling. Command transitioned to Navy Closure Task Force –Red Hill.
- 4000 gallons of fuel, 28,000 gallons of sludge, 900 gallons of Aqueous Film Forming Foam (AFFF) concentrate remains within Red Hill Bulk Fuel Storage Facility.
- Fuel Tank Advisory Meeting
- Community Representation Initiative Meeting #6

Source: Joint Task Force –Red Hill

CLOSURE of Red Hill Bulk Fuel Storage Facility

Closing Red Hill WILL NOT Impact Operational Readiness

Navy Closure Task Force –Red Hill (NCTF-RH)

- Tank Cleaning, including remaining AFFF concentrate and fuel sludge removal
- Pipeline Removal

Final closure method to be determined.

Tentative Facility Closure: July 2028

Rear Admiral Stephen D. Barnett

Tank Cleaning

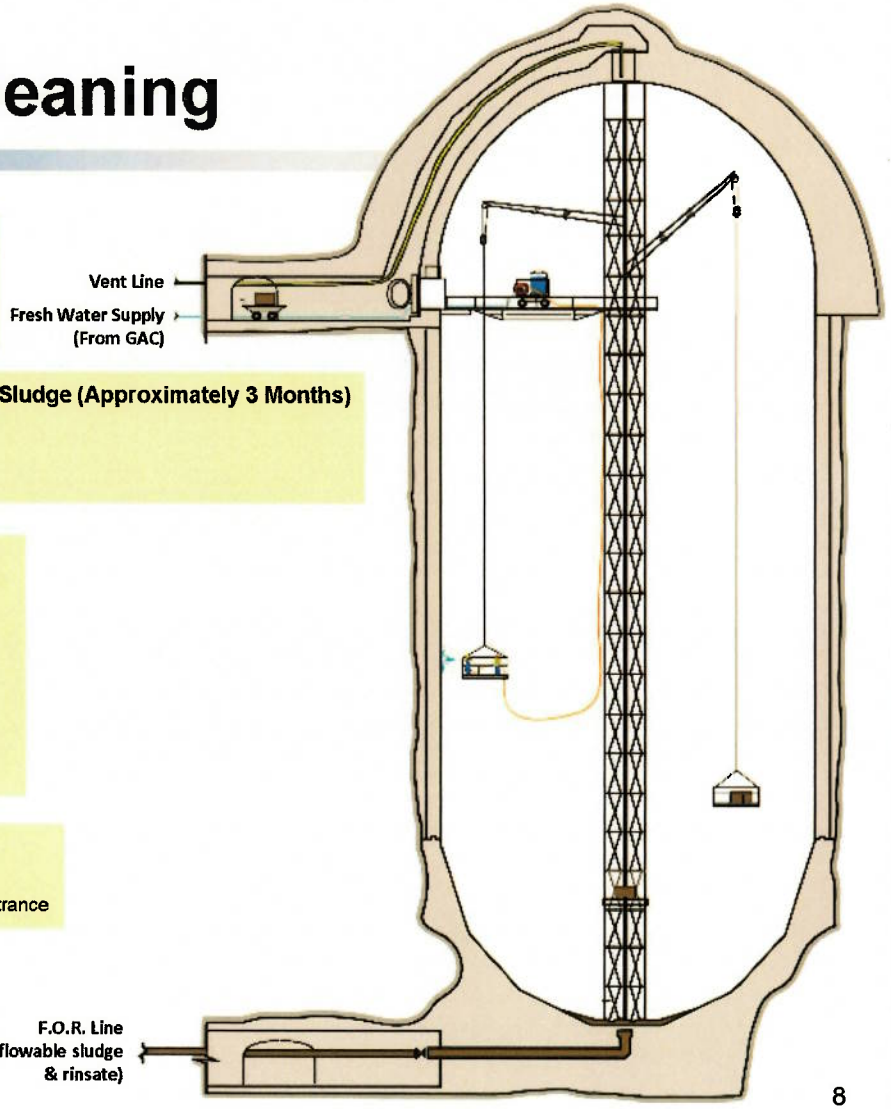
SAFE. DELIBERATE. ENGAGED. COMMITTED.

Step 1 Preparation (Approximately 3 Months)
- Isolate Tank and Disconnect Piping
- Install and Begin Tank Ventilation using Forced Air
- Remove Flowable Sludge

Step 2 Install Cleaning Infrastructure/Remove Solid Sludge (Approximately 3 Months)
- Install Center Tower Elevator
- Inspect and Repair Central Tower and Catwalk
- Load Test Central Tower and Catwalk
- Remove Solid Sludge

Step 3 Pressure Washing (Approximately 2 Months)
- Set-up Pressure Washing System
- Pressure Wash w/ 3% Simple Green
- Rinse
- Continuously Remove Rinsate
- Dry Tank Interior
- Validate Tank Cleanliness
- Submit Tank Cleaning Report
- Receive Regulatory Agency Approval

Step 4 De-Mobilization (Approximately 2 Months)
- Remove Booms and Infrastructure
- Install Permanent Lockable Steel Hatch at 8-foot entrance



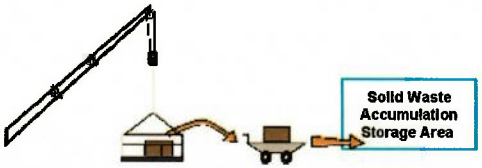
Source: Fuel Tank Advisory Committee Meeting Presentation by Navy Closure Task Force –Red Hill, March 7, 2024

Sludge Waste Disposal Process

SAFE. DELIBERATE. ENGAGED. COMMITTED.

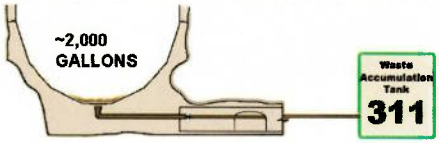
SOLID SLUDGE PROCESS

- After tank ventilation, solid sludge is shoveled into special containers which are then sealed
- Containers lifted out of tank & placed on carts to move waste to an accumulation area
- Containers are accompanied by a spill kit & inside of secondary containment throughout transport
- Accumulation area inspected weekly, containers are labeled and marked to contents, area is provided spill equipment and has secondary containment
- Containers loaded onto a truck, taken to port, then loaded on a ship
- Truck and ship are registered waste transporters
- Waste to be sent to an off-island landfill for ultimate disposal



Common Handling Notes

- Manifest is created identifying generator, transport disposal facility. Each signs upon receipt final copy comes back to Navy to confirm disposal facility received.
- Manifest from disposal facility is received by the Navy
- Copies of manifests sent to DOH/EPA upon their request



LIQUID SLUDGE PROCESS

- Tank flooded and discharge down the FOR Line to Tank 311
- Adit - 3 Tank 311 is the waste accumulation area.
- Tank inspected weekly, label and mark tank to contents, provide spill equipment inside secondary tank containment
- Tank 311 is pumped down to a tanker truck
- Tanker truck is a registered waste transporter
- Waste to be sent to an on-island oil recovery facility
- Contractor will separate oil from wastewater at a pre-treatment facility
- Recovered oil is sold for energy recovery/re-refining
- Leftover wastewater sent off for further treatment at wastewater treatment plant

Source: Fuel Tank Advisory Committee Meeting Presentation by Navy Closure Task Force –Red Hill, March 7, 2024

THE NAVY WILL TRACK THE SLUDGE FROM REMOVAL TO DISPOSAL

Pipeline Removal

Source: Fuel Tank Advisory Committee Meeting Presentation by Navy Closure Task Force –Red Hill, March 7, 2024

SAFE. DELIBERATE. ENGAGED. COMMITTED.

- Three pipelines will be removed during decommissioning
- The Navy will drain all residual fuel from the pipelines with robust containment measures prior to any removal
- Pipelines will be safely cut, removed, and transported in accordance with all applicable laws and regulations
- The Navy's contractor will ensure proper disposal or recycling of the removed pipelines

During decommissioning, Red Hill pipelines are estimated to contain approximately 4,000 gallons of residual fuel

If extended end-to-end, the total length of pipelines would match the distance from Pearl Harbor to Diamond Head

APPROXIMATELY 10 MILES OF PIPELINE WILL BE REMOVED

NAVY PFAS BASELINE TESTING

NAVFAC
Naval Facilities Engineering Systems Command

Naval Facilities Engineering Systems Command Pacific
JBPHH HI

Per- and Polyfluoroalkyl Substances Delineation
Baseline Groundwater Wells Investigation Report

Red Hill Bulk Fuel Storage Facility
JOINT BASE PEARL HARBOR-HICKAM O'AHU HI

November 27, 2023

In September 2023, the Navy sampled 21 groundwater monitoring wells for PFAS to determine the baseline groundwater water quality.

Table 1: Groundwater Monitoring Well Information

Well ID	Driller	Well Completion Date	Well Diameter (inches)	Screen Depth (Feet below ground surface)	Borehole Depth (Feet below ground surface)
RHMW01	VWD	02/2001	1	74–84	100
RHMW01R	VWD	03/2021	2	74–94	98.5
RHMW05	VWD	03/2010	2	78–93	103.5
RHMW07	VWD	10/2014	4	184–214	240
RHMW08	VWD	08/2016	4	278.9–308.9	315
RHMW09	VWD	07/2016	4	363.5–393.5	405
RHMW19	VWD	04/2020	4	415–445	455
RHMW20	YK Drilling	06/2023	4	223–253	261
NMW24	VWD	11/2022	4	80–110	116
NMW25	YK Drilling	07/2023	4	181.4–211.4	216.2
RHP01	YK Drilling	06/2022	2	125–155	160
RHP02	GeoTek Hawaii	05/2022	2	109.75–139.75	145
RHP03	VWD	07/2022	2	104–134	141.03
RHP04A	YK Drilling	08/2022	2	130.26–160.26	165
RHP04B	YK Drilling	10/2022	2	300.56–320.56	326
RHP04C	YK Drilling	02/2023	4	486.3–506.3	526
RHP05	GeoTek Hawaii	11/2022	2	203.85–233.85	238
RHP06	GeoTek Hawaii	07/2023	3	239–268.5	280.2
RHP07 [b]	VWD	02/2023	2	73.7–93.7	71
RHP08	Precision Drilling Services	08/2023	4	276–306	311
NMW32	YK Drilling	08/2023	4	161–191	210

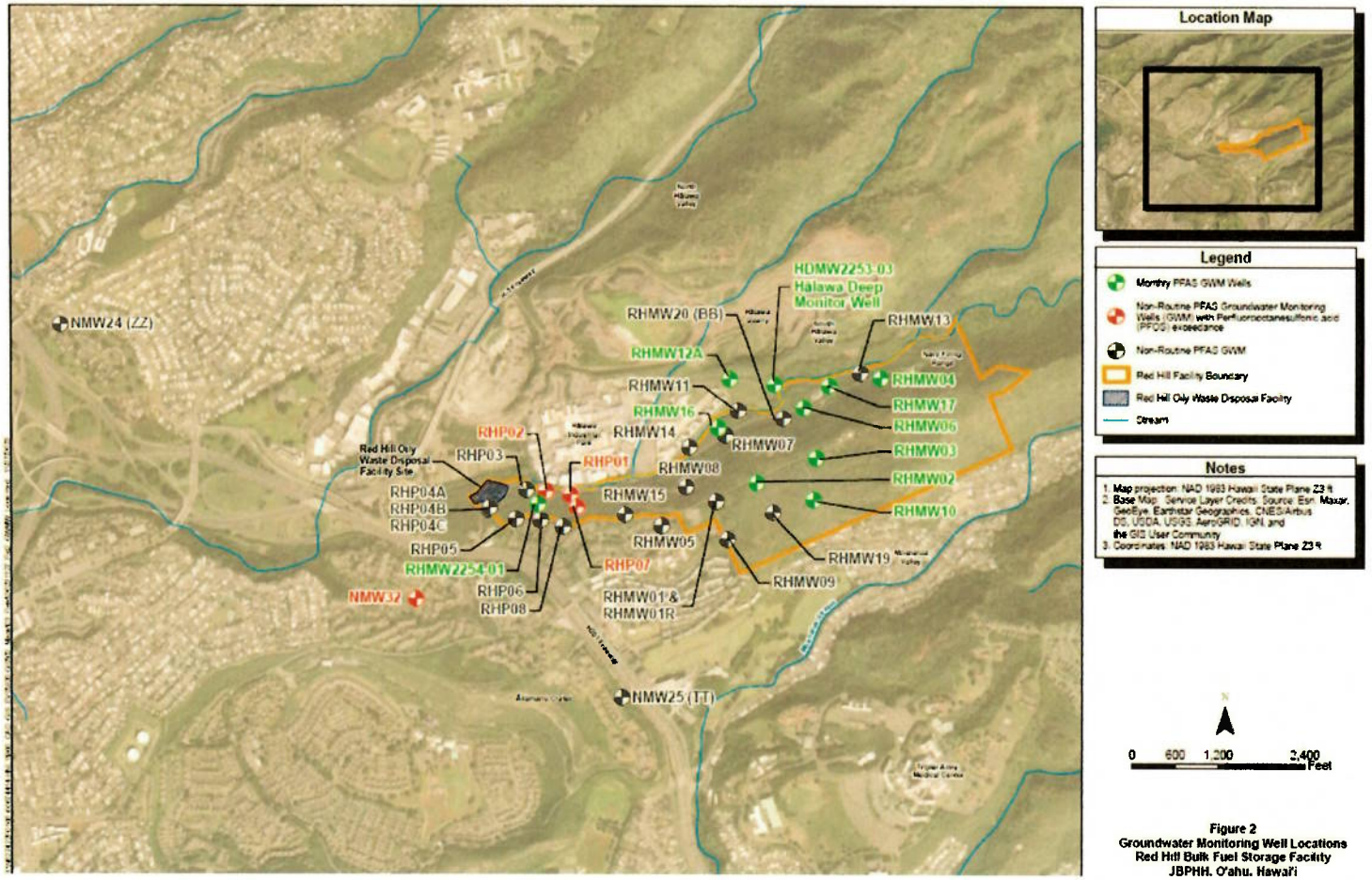
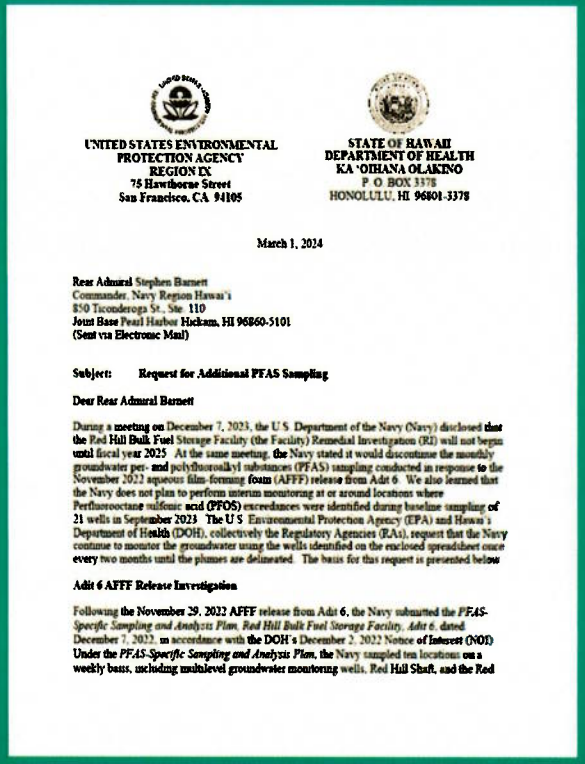


Figure 2
Groundwater Monitoring Well Locations
Red Hill Bulk Fuel Storage Facility
JBPHH. O'ahu. Hawai'i


Aiea Halawa Shaft
Legend
Navy Red Hill Monitoring Well PFAS Detections
PFOS Concentration
0 - 2 ppt
2.1 - 4.0 ppt
4.1 - 8 ppt
8.1 -16 ppt
Navy Sources
Navy Red Hill Monitoring Wells
N
0 340 680 1,400 2,000
Feet

ADDITIONAL PFAS TESTING NEEDED



UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
REGION IX
75 Hawthorne Street
San Francisco, CA 94105

STATE OF HAWAII
DEPARTMENT OF HEALTH
KA 'OIHANA OLAKINO
P O BOX 3378
HONOLULU, HI 96801-3378

March 1, 2024

Rear Admiral Stephen Barnett
Commander, Navy Region Hawai'i
850 Ticonderoga St., Ste 110
Joint Base Pearl Harbor Hickam, HI 96860-5101
(Sent via Electronic Mail)

Subject: Request for Additional PFAS Sampling

Dear Rear Admiral Barnett

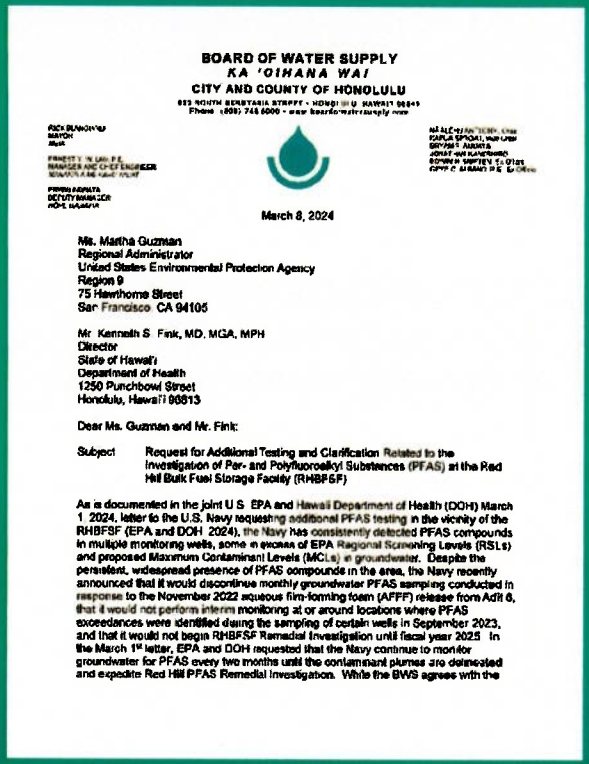
During a meeting on December 7, 2023, the U S Department of the Navy (Navy) disclosed that the Red Hill Bulk Fuel Storage Facility (the Facility) Remedial Investigation (RI) will not begin until fiscal year 2025 At the same meeting, the Navy stated it would discontinue the monthly groundwater per- and polyfluoroalkyl substances (PFAS) sampling conducted in response to the November 2022 aqueous film-forming foam (AFFF) release from Adit 6 We also learned that the Navy does not plan to perform interim monitoring at or around locations where Perfluorooctane sulfonic acid (PFOS) exceedances were identified during baseline sampling of 21 wells in September 2023 The U S Environmental Protection Agency (EPA) and Hawai'i Department of Health (DOH), collectively the Regulatory Agencies (RAs), request that the Navy continue to monitor the groundwater using the wells identified on the enclosed spreadsheet once every two months until the plumes are delineated. The basis for this request is presented below

Adit 6 AFFF Release Investigation

Following the November 29, 2022 AFFF release from Adit 6, the Navy submitted the *PFAS-Specific Sampling and Analysis Plan, Red Hill Bulk Fuel Storage Facility, Adit 6*, dated December 7, 2022, in accordance with the DOH's December 2, 2022 Notice of Interest (NOI) Under the *PFAS-Specific Sampling and Analysis Plan*, the Navy sampled ten locations on a weekly basis, including multilevel groundwater monitoring wells, Red Hill Shaft, and the Red

"These detections of PFOS in soil and groundwater may indicate a wider Red Hill problem with PFAS that cannot be solely attributed to the November 2022 AFFF release. Further investigation to determine the source and extent is warranted."
EPA and DOH Letter to Navy Dated March 1, 2024

"The Navy must be *required* to continue to perform a complete and thorough investigation of the environmental impacts associated with historic and more recent PFAS uses and releases from the RHBFSF, by continuing to conduct PFAS sampling at nearby monitoring wells on at least a monthly basis and to expeditious develop a concrete and workable plan for remediating the impacts of PFAS."
BWS Letter to EPA and DOH dated March 8, 2024



BOARD OF WATER SUPPLY
KA 'OIHANA WAI
CITY AND COUNTY OF HONOLULU

March 8, 2024

Ms. Martha Guzman
Regional Administrator
United States Environmental Protection Agency
Region 9
75 Hawthorne Street
San Francisco CA 94105

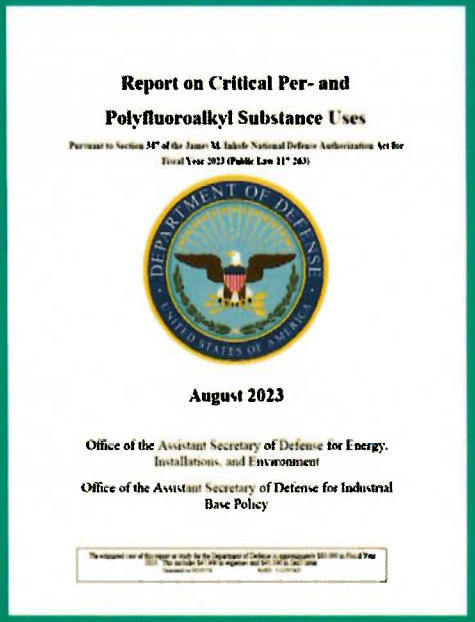
Mr Kenneth S Fink, MD, MGA, MPH
Director
State of Hawai'i
Department of Health
1250 Punchbowl Street
Honolulu, Hawai'i 96813

Dear Ms. Guzman and Mr. Fink:

Subject Request for Additional Testing and Clarification Related to the Investigation of Per- and Polyfluoroalkyl Substances (PFAS) at the Red Hill Bulk Fuel Storage Facility (RHBFSF)

As is documented in the joint U S EPA and Hawai'i Department of Health (DOH) March 1 2024, letter to the U.S. Navy requesting additional PFAS testing in the vicinity of the RHBFSF (EPA and DOH 2024), the Navy has consistently detected PFAS compounds in multiple monitoring wells, some in excess of EPA Regional Screening Levels (RSLs) and proposed Maximum Contaminant Levels (MCLs) in groundwater. Despite the persistent, widespread presence of PFAS compounds in the area, the Navy recently announced that it would discontinue monthly groundwater PFAS sampling conducted in response to the November 2022 aqueous film-forming foam (AFFF) release from Adit 6, that it would not perform interim monitoring at or around locations where PFAS exceedances were identified during the sampling of certain wells in September 2023, and that it would not begin RHBFSF Remedial Investigation until fiscal year 2025 In the March 1st letter, EPA and DOH requested that the Navy continue to monitor groundwater for PFAS every two months until the contaminant plumes are delineated and expedite Red Hill PFAS Remedial Investigation. While the BWS agrees with the

REPORT ON CRITICAL PFAS USES BY DEPARTMENT OF DEFENSE



Report on Critical Per- and Polyfluoroalkyl Substance Uses

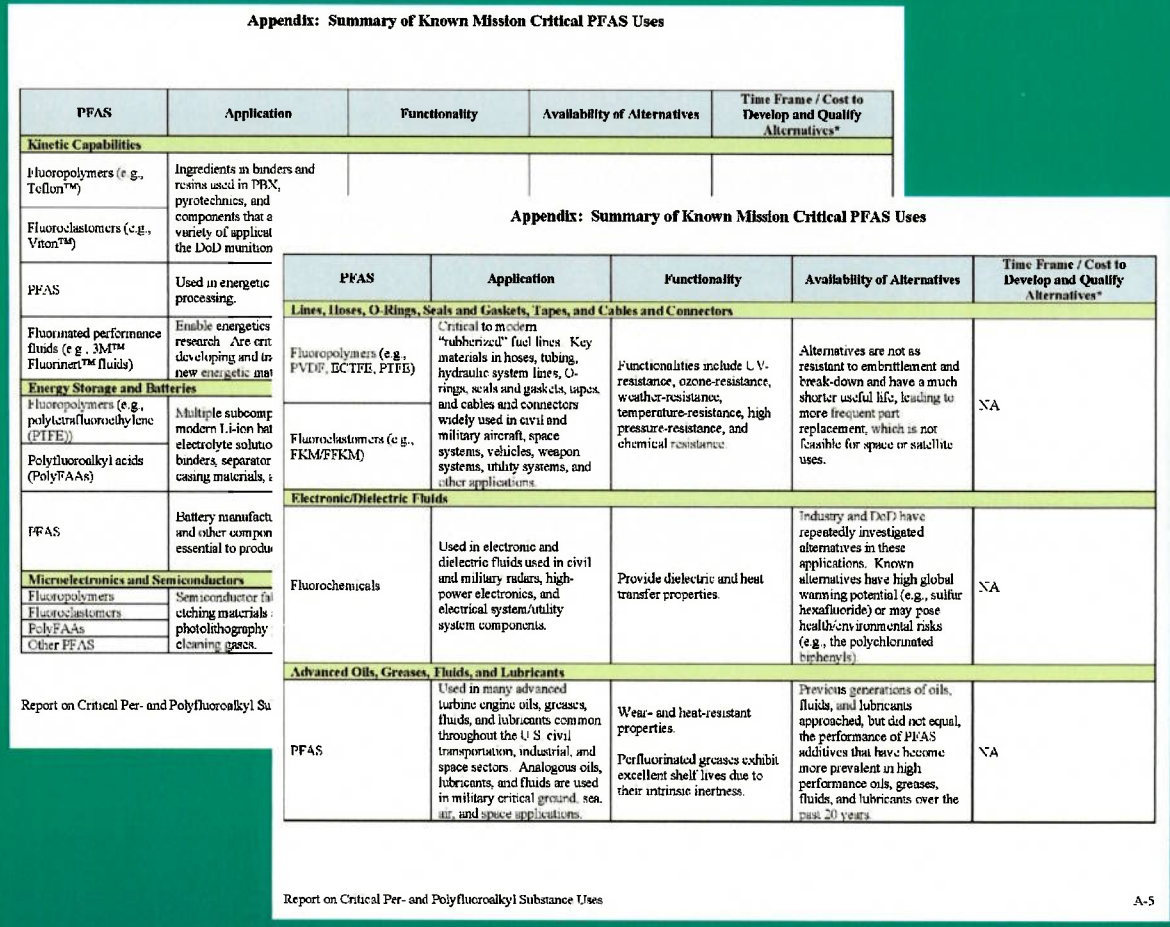
Pursuant to Section 347 of the James M. Inhofe National Defense Authorization Act for Fiscal Year 2023 (Public Law 117-263)

August 2023

Office of the Assistant Secretary of Defense for Energy, Installations, and Environment

Office of the Assistant Secretary of Defense for Industrial Base Policy

Source: Report from Office of the Assistant Secretary of Defense for Energy, Installations, and Environment



Appendix: Summary of Known Mission Critical PFAS Uses

PFAS	Application	Functionality	Availability of Alternatives	Time Frame / Cost to Develop and Qualify Alternatives*
Kinetic Capabilities				
Fluoropolymers (e.g., Teflon™)	Ingredients in binders and resins used in PBX, pyrotechnics, and components that a variety of applicat the DoD munition			
Fluoroelastomers (e.g., Viton™)				
PFAS	Used in energetic processing.			
Fluorinated performance fluids (e.g., 3M™ Fluorinert™ fluids)	Enable energetics research. Are crit developing and te new energetic mat			
Energy Storage and Batteries				
Fluoropolymers (e.g., polytetrafluoroethylene (PTFE))	Multiple subcomp modern Li-ion bat electrolyte solutio binders, separator casing materials, a			
Polyfluoroalkyl acids (PolyFAAs)				
PFAS	Battery manufactu and other compon essential to produ			
Microelectronics and Semiconductors				
Fluoropolymers	Semiconductor fal etching materials photolithography cleaning gases.			
Fluoroelastomers				
PolyFAAs				
Other PFAS				

Report on Critical Per- and Polyfluoroalkyl Su

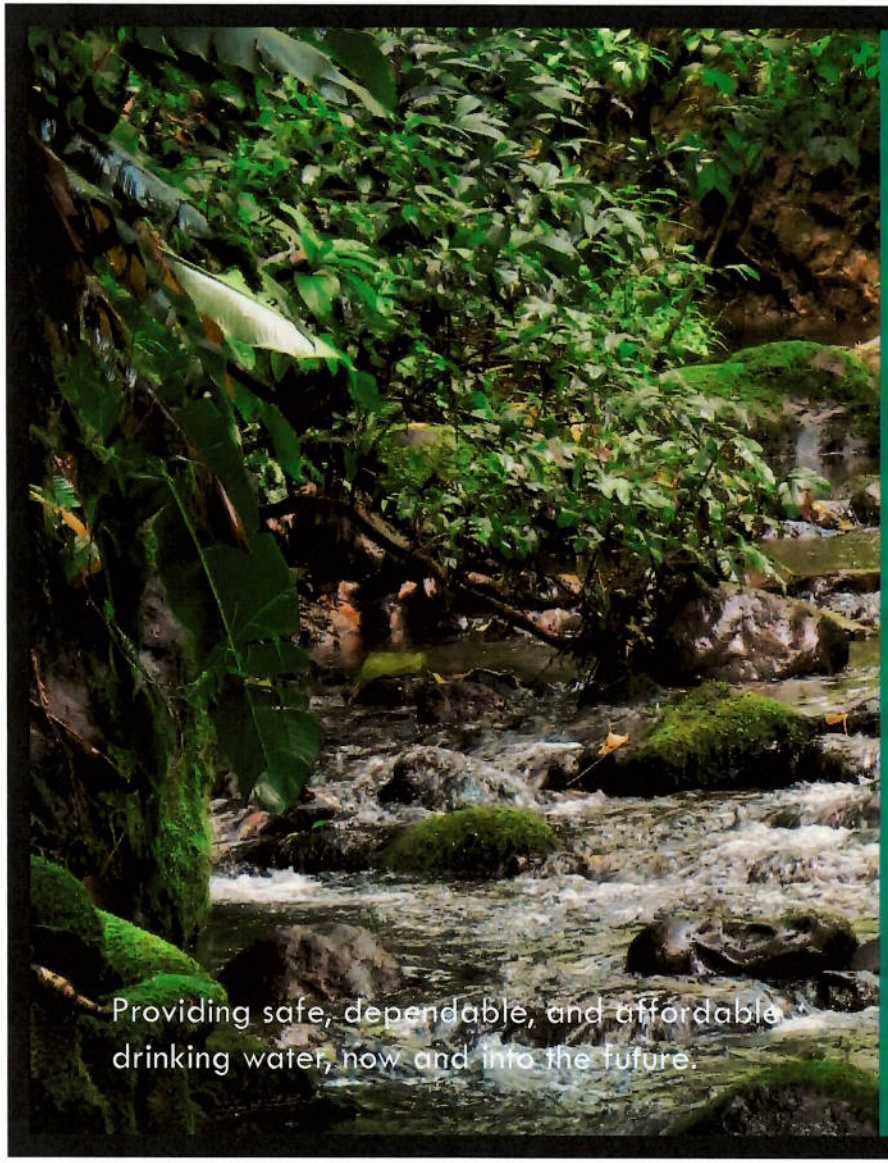
Appendix: Summary of Known Mission Critical PFAS Uses

PFAS	Application	Functionality	Availability of Alternatives	Time Frame / Cost to Develop and Qualify Alternatives*
Lines, Hoses, O-Rings, Seals and Gaskets, Tapes, and Cables and Connectors				
Fluoropolymers (e.g., PVDF, BCTFE, PTFE)	Critical to modern "rubberized" fuel lines. Key materials in hoses, tubing, hydraulic system lines, O-rings, seals and gaskets, tapes, and cables and connectors widely used in civil and military aircraft, space systems, vehicles, weapon systems, utility systems, and other applications.	Functionalities include UV-resistance, ozone-resistance, weather-resistance, temperature-resistance, high pressure-resistance, and chemical resistance.	Alternatives are not as resistant to embrittlement and break-down and have a much shorter useful life, leading to more frequent part replacement, which is not feasible for space or satellite uses.	NA
Fluoroelastomers (e.g., FKM/FFKM)				
Electronic/Dielectric Fluids				
Fluorochemicals	Used in electronic and dielectric fluids used in civil and military radars, high-power electronics, and electrical system/utility system components.	Provide dielectric and heat transfer properties.	Industry and DoD have repeatedly investigated alternatives in these applications. Known alternatives have high global warming potential (e.g., sulfur hexafluoride) or may pose health/environmental risks (e.g., the polychlorinated biphenyls)	NA
Advanced Oils, Greases, Fluids, and Lubricants				
PFAS	Used in many advanced turbine engine oils, greases, fluids, and lubricants common throughout the U.S. civil transportation, industrial, and space sectors. Analogous oils, lubricants, and fluids are used in military critical ground, sea, air, and space applications.	Wear- and heat-resistant properties. Perfluorinated greases exhibit excellent shelf lives due to their intrinsic inertness.	Previous generations of oils, fluids, and lubricants approached, but did not equal, the performance of PFAS additives that have become more prevalent in high performance oils, greases, fluids, and lubricants over the past 20 years.	NA

Report on Critical Per- and Polyfluoroalkyl Substance Uses A-5

UPCOMING EVENTS

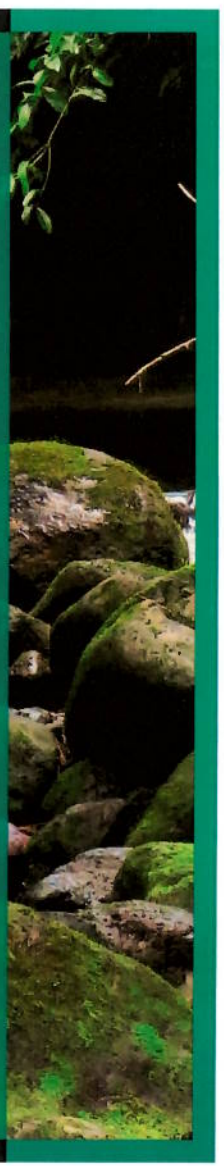
- Quarterly Meeting with Admiral Barnett and his team.
- Request to Meet with the Honorable Brandon Owens, Assistant Secretary of Defense for Energy, Installations and Environment on PFAS.
- Red Hill Bulk Fuel Storage Facility Closure Updates



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

MAHALO!

March 2024 Red Hill Updates



FTAC

Page	Slide	Description	Analysis
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3	Slide 1	Jan-March QTR 1 2023 TPH (d+o)	There were 19 detections. The highest detection was 160.5 ug/l. Most of the detections were clustered between January 18-19 and February 1-2, 2023
4	Slide 2	April-June QTR 2 2023 TPH (d+o)	Nine (9) detections. The highest detection was 141.4 ug/l. Most of the detections occurred April 6, 2023. Was something done differently? Process change?
5	Slide 3	July-Sept QTR 3 2023 TPH (d+o)	**89 Detections. The highest was 256. 13 detections were over 200 ug/l. The summer had an alarming number of detections.** What was happening during this time frame? Many customers were calling in complaints! Trendline moving upward.
6	Slide 4	Oct-Dec QTR 42023 TPH (d+o)	9 detections. The highest was 186.4 ug/l. Most of the detections
7	Slide 5	January 1 QTR 2024 TPH (d+o)	**40 detections. The highest was 226.9 ug/l.** Clusters of detections fell Between January 1-5, January 8-12, and January 24-25. **Trendline continues to move upward.**
8		A list of zones and locations where children were being exposed	Child Development Centers (CDC), Elementary schools, Pre-schools, Kids Cove, Assets, Church, School Age Center, Recreation center, Montessori, Youth Activities

9		Navy Water Distribution System	Zones affected by contamination
10	Slide 6	**January 2024** Child Locations with detections of Diesel Only or Diesel + Oil	Higher detections of TPH (d+o) were 176.5, 162.2, 158.5 152.4.
11	Slide 7	Scatter Diagram of the same data as slide 6.	Clusters around January 10-11, 2024
12	Slide 8	Bar graph of same data as Slides 6-7	19 Detections. Higher detections of TPH (d+o) were 176.5, 162.2, 158.5 152.4.
13-17		Spreadsheet for Slides 6-8	Raw data collected from 'UN'Safe Waters website Interactive map
18	Slide 9	**January 2024** TPH (d + o)	All addresses with detections by Zone (annotated)
19	Slide 10	Histogram of slide 9 **January 2024** Ranges (134.2-162.2) #15 (106.2-134.2) #14 (162.2-190.2) #11 (190.2-218.2) #3 (218.2-246.2) #2	Frequencies of occurrences in ranges of detections. There were 45 detections in this one month period. Trendline is moving upward. This is indicating that something needs to change.
20-24		**January 2024** Spreadsheet for all detections where children were exposed	A list of zones and locations where children were exposed
25-26		**Waiawa Shaft 2023-2024**	All Detections

FUEL TANK ADVISORY COMMITTEE

MARCH 7, 2024

Data Source: UnSAFE WATERS JBPHH

Susan A. Pcola-Davis

FTAC

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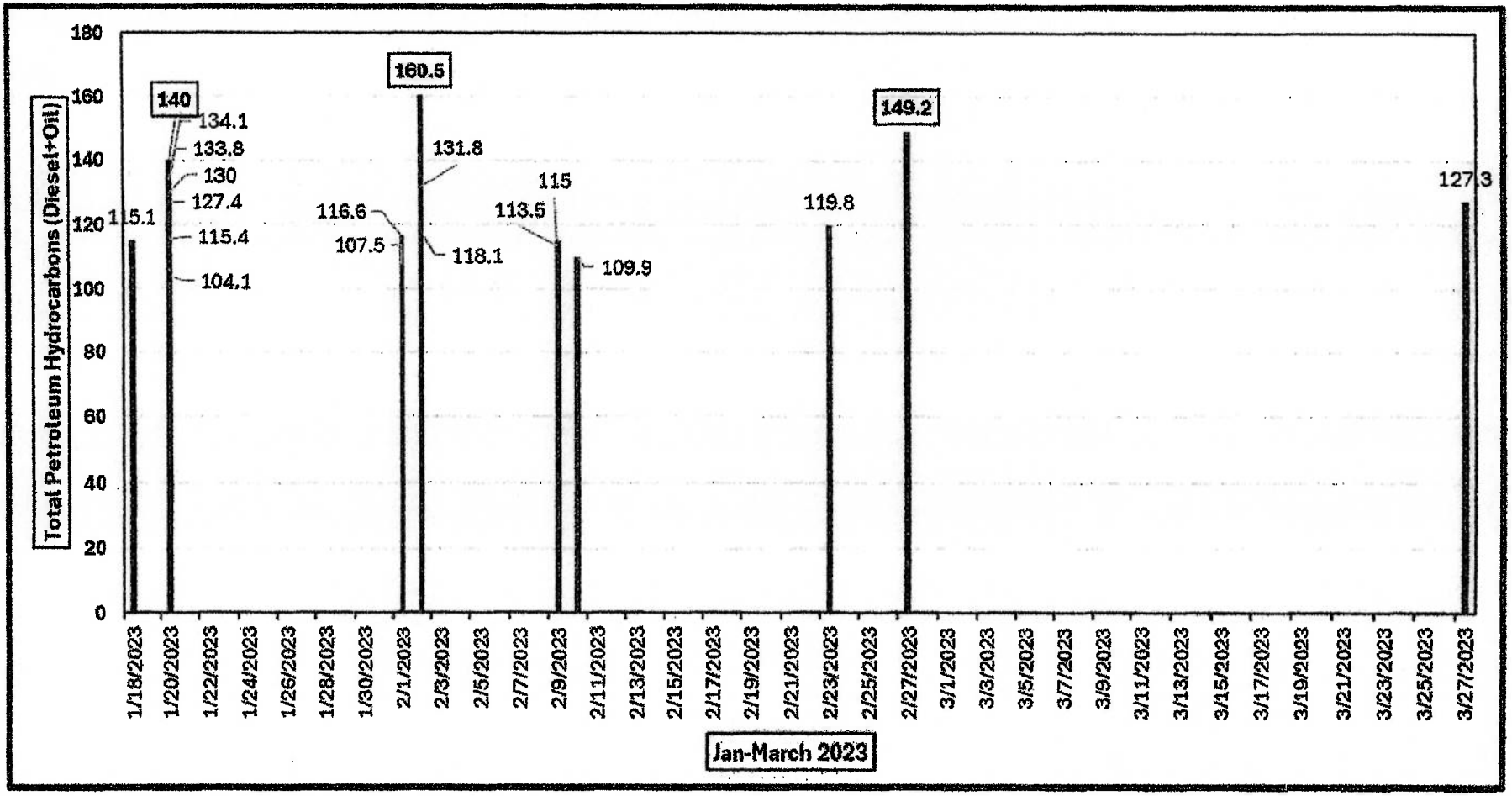
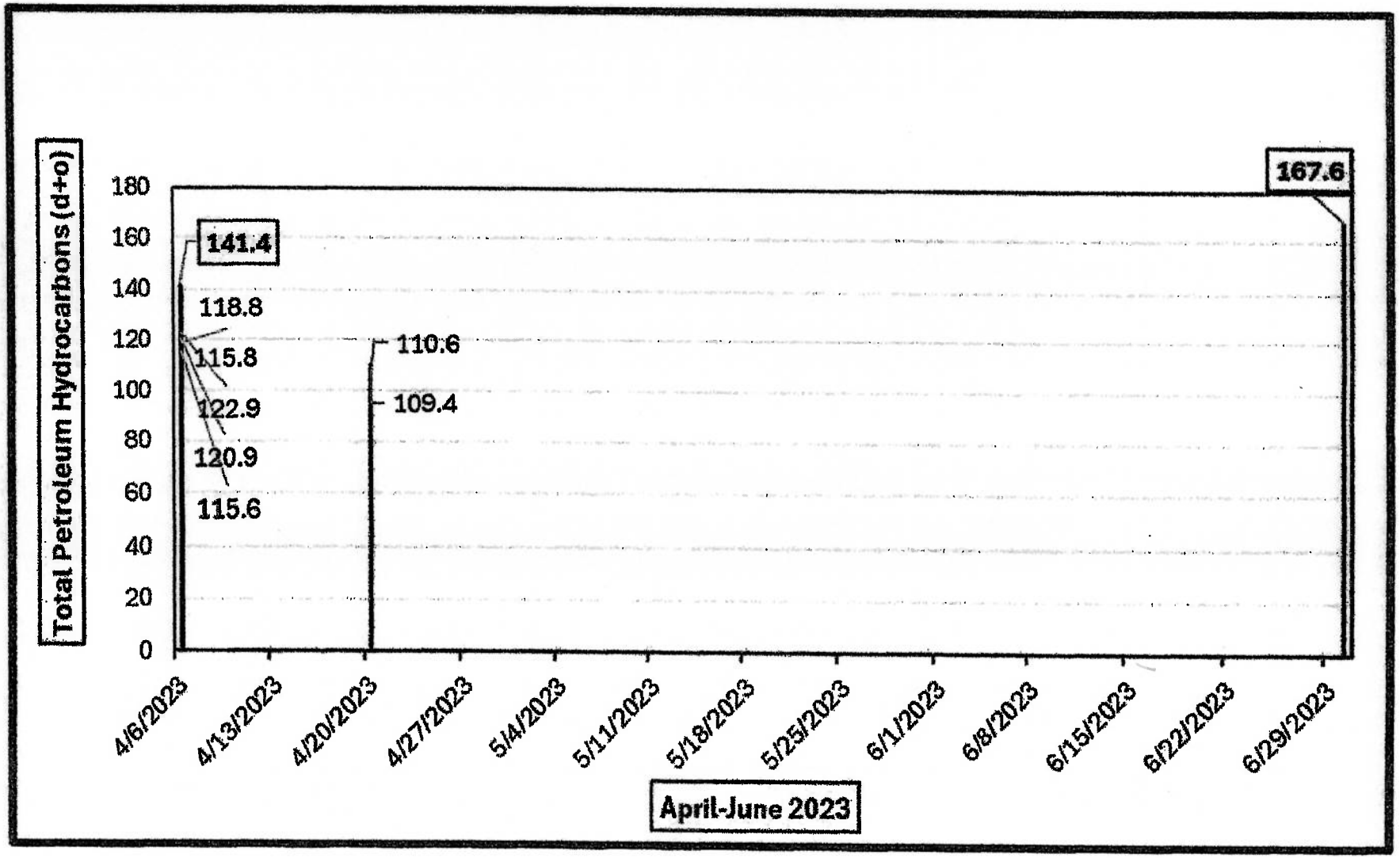
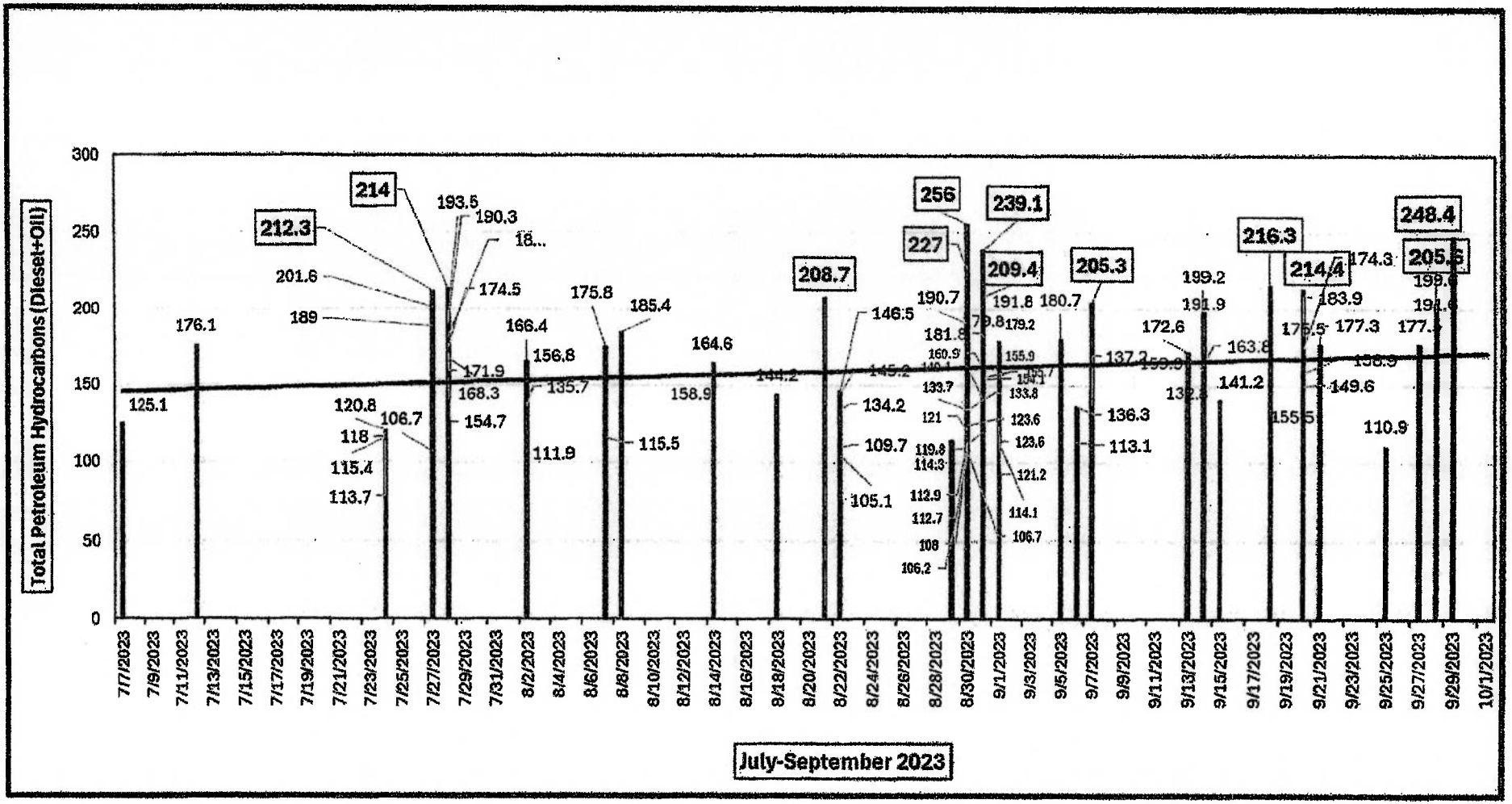

Total Petroleum Hydrocarbons (Diesel+Oil)
180
160
140
120
100
80
60
40
20
0
140
134.1
133.8
130
127.4
115.4
104.1
115.1
160.5
131.8
116.6
107.5
118.1
115
113.5
109.9
119.8
149.2
127.3
1/18/2023
1/20/2023
1/22/2023
1/24/2023
1/26/2023
1/28/2023
1/30/2023
2/1/2023
2/3/2023
2/5/2023
2/7/2023
2/9/2023
2/11/2023
2/13/2023
2/15/2023
2/17/2023
2/19/2023
2/21/2023
2/23/2023
2/25/2023
2/27/2023
3/1/2023
3/3/2023
3/5/2023
3/7/2023
3/9/2023
3/11/2023
3/13/2023
3/15/2023
3/17/2023
3/19/2023
3/21/2023
3/23/2023
3/25/2023
3/27/2023
Jan-March 2023


Total Petroleum Hydrocarbons (d+o)
180
160
140
120
100
80
60
40
20
0
141.4
118.8
115.8
122.9
120.9
115.6
110.6
109.4
167.6
4/6/2023
4/13/2023
4/20/2023
4/27/2023
5/4/2023
5/11/2023
5/18/2023
5/25/2023
6/1/2023
6/8/2023
6/15/2023
6/22/2023
6/29/2023
April-June 2023


Total Petroleum Hydrocarbons (Diesel+Oil)
300
250
200
150
100
50
0
July-September 2023
7/7/2023
7/9/2023
7/11/2023
7/13/2023
7/15/2023
7/17/2023
7/19/2023
7/21/2023
7/23/2023
7/25/2023
7/27/2023
7/29/2023
7/31/2023
8/2/2023
8/4/2023
8/6/2023
8/8/2023
8/10/2023
8/12/2023
8/14/2023
8/16/2023
8/18/2023
8/20/2023
8/22/2023
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9/3/2023
9/5/2023
9/7/2023
9/9/2023
9/11/2023
9/13/2023
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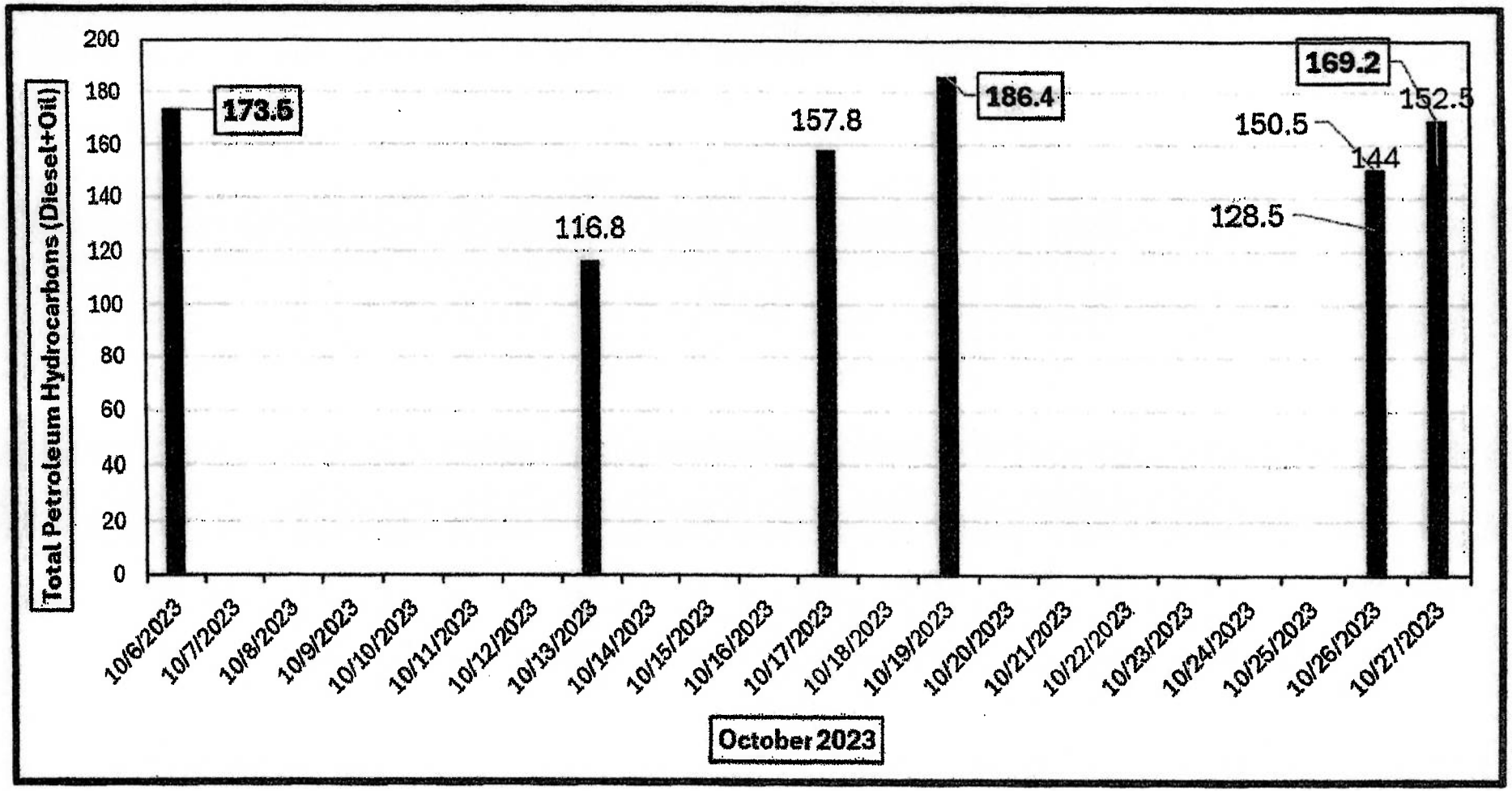
9/17/2023
9/19/2023
9/21/2023
9/23/2023
9/25/2023
9/27/2023
9/29/2023
10/1/2023
125.1
176.1
212.3
201.6
189
214
193.5
190.3
174.5
171.9
168.3
120.8
118
115.4
113.7
106.7
154.7
166.4
156.8
135.7
111.9
175.8
115.5
185.4
164.6
158.9
208.7
146.5
134.2
109.7
105.1
256
227
239.1
209.4
190.7
181.8
179.2
160.9
155.9
133.7
133.8
121
123.6
123.6
121.2
119.8
114.3
112.9
112.7
108
106.2
114.1
106.7
205.3
180.7
137.2
136.3
113.1
172.6
199.2
191.9
163.8
141.2
216.3
214.4
183.9
177.3
149.6
110.9
174.3
248.4
205.5

5


Total Petroleum Hydrocarbons (Diesel+Oil)
200
180
160
140
120
100
80
60
40
20
0
173.5
116.8
157.8
186.4
150.5
128.5
144
169.2
152.5
10/6/2023
10/7/2023
10/8/2023
10/9/2023
10/10/2023
10/11/2023
10/12/2023
10/13/2023
10/14/2023
10/15/2023
10/16/2023
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10/18/2023
10/19/2023
10/20/2023
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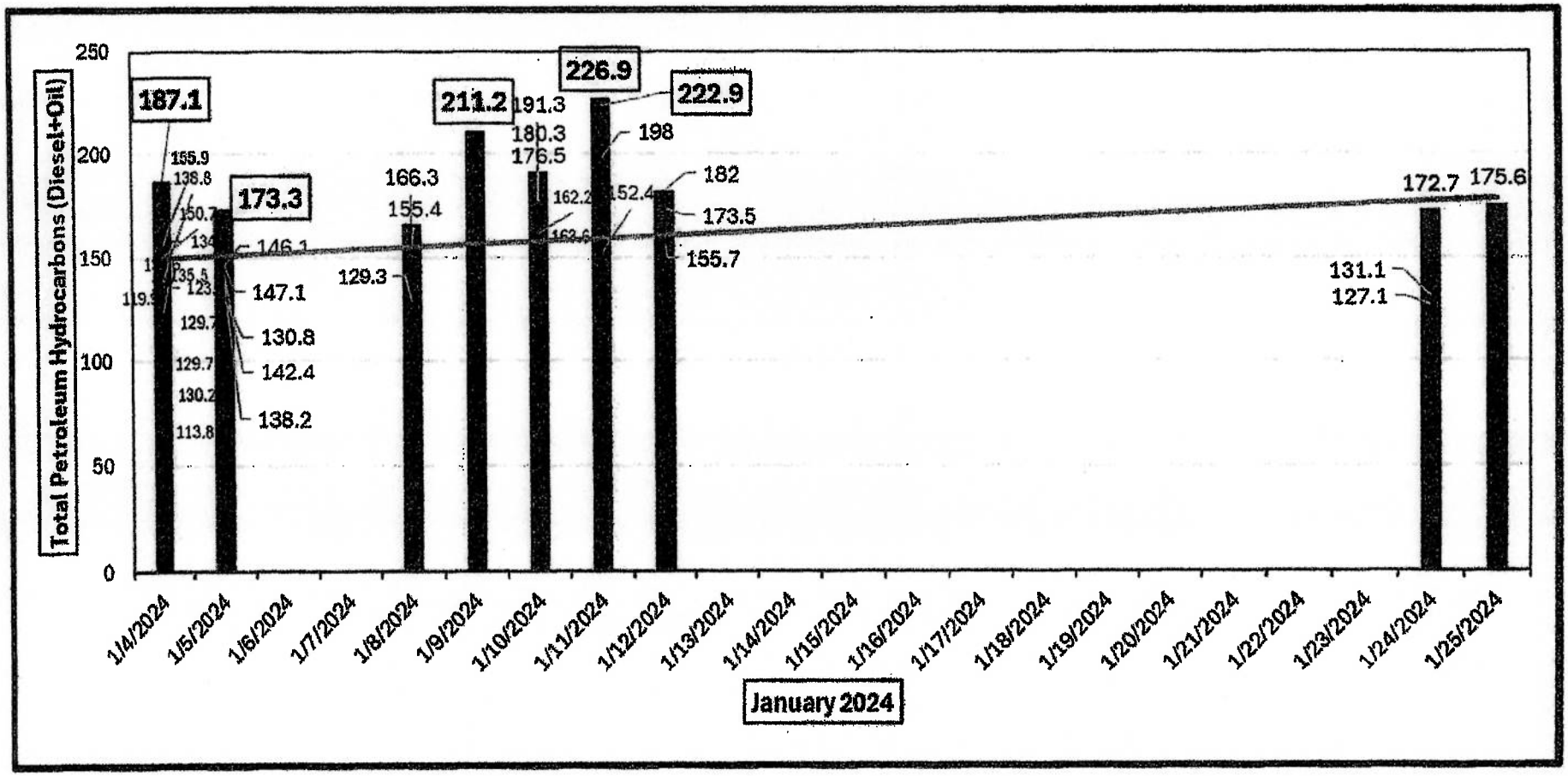
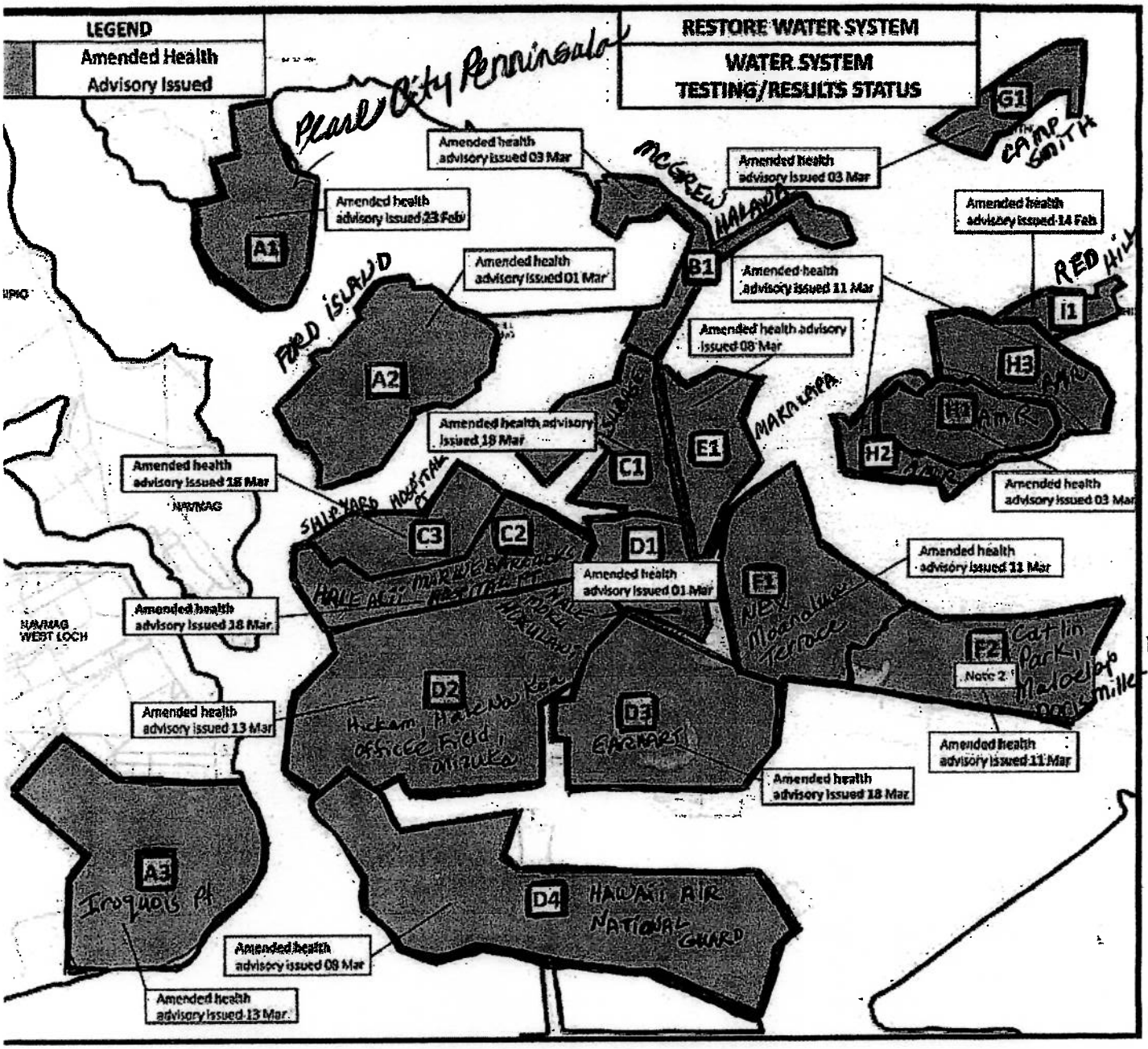
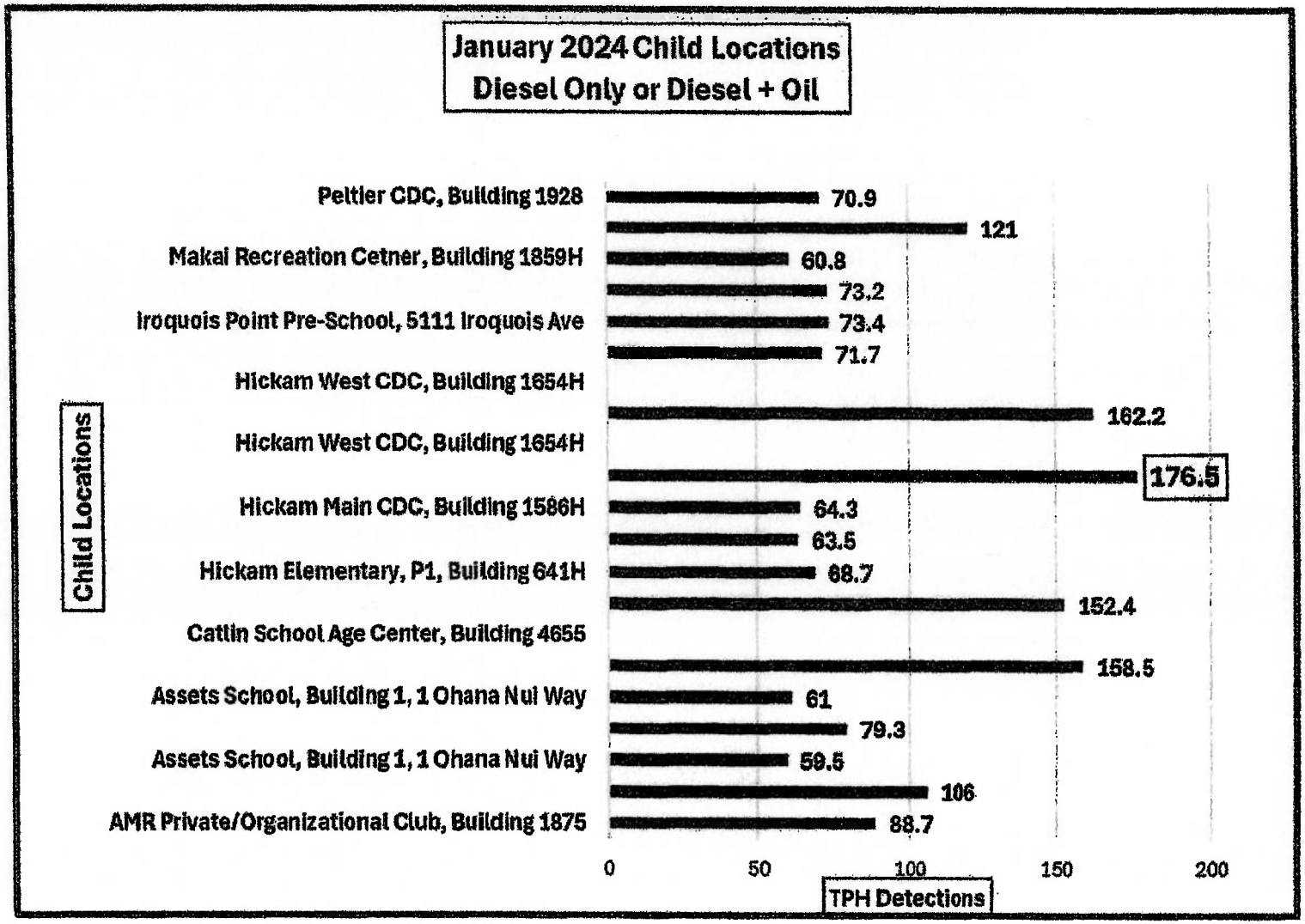
10/24/2023
10/25/2023
10/26/2023
10/27/2023
October 2023

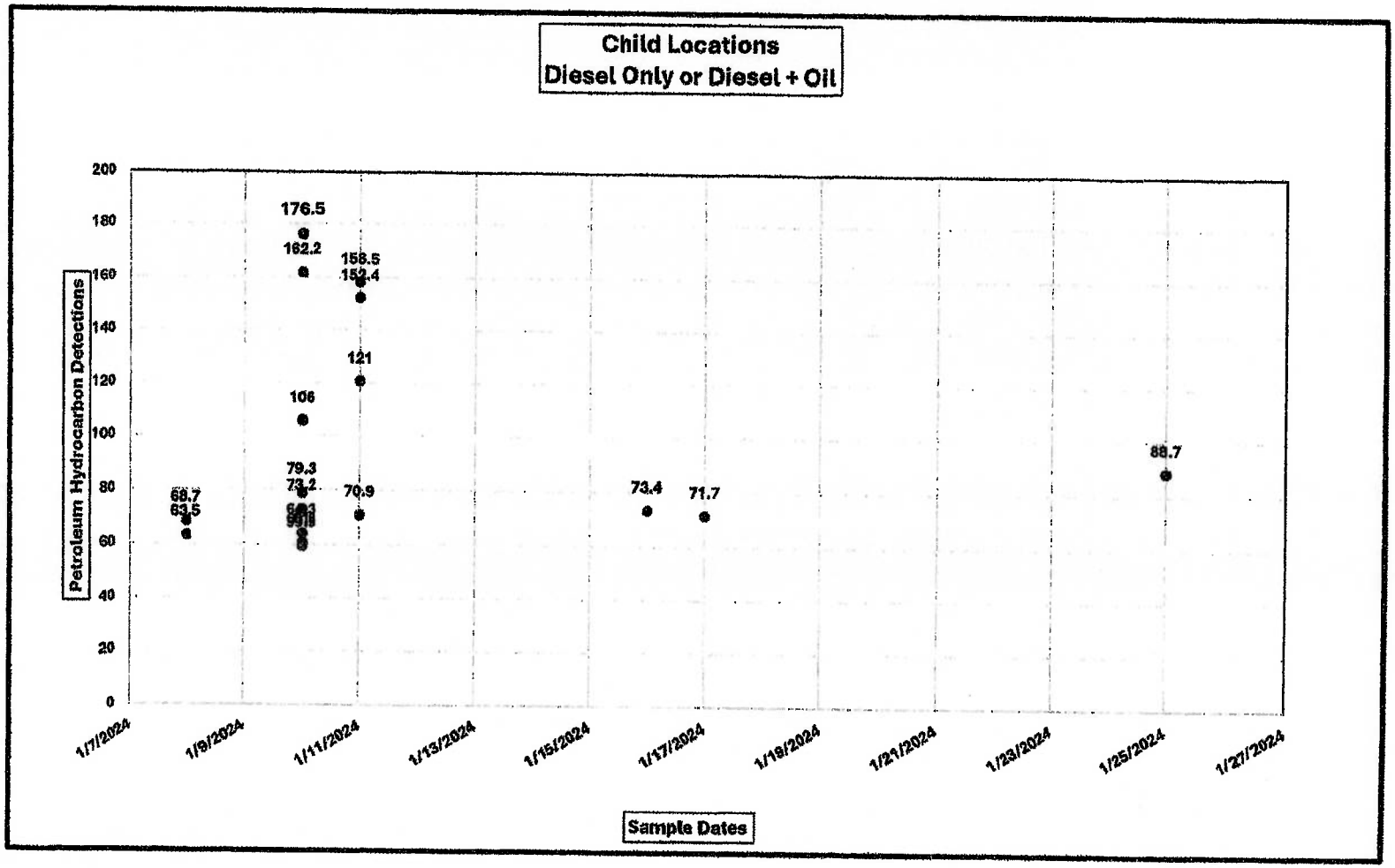

Total Petroleum Hydrocarbons (Diesel+Oil)
250
200
150
100
50
0
187.1
155.9
138.8
173.3
146.1
147.1
130.8
142.4
138.2
166.3
155.4
129.3
211.2
191.3
180.3
176.5
226.9
222.9
198
182
173.5
155.7
162.2
152.4
131.1
127.1
172.7
175.6
1/4/2024
1/5/2024
1/6/2024
1/7/2024
1/8/2024
1/9/2024
1/10/2024
1/11/2024
1/12/2024
1/13/2024
1/14/2024
1/15/2024
1/16/2024
1/17/2024
1/18/2024
1/19/2024
1/20/2024
1/21/2024
1/22/2024
1/23/2024
1/24/2024
1/25/2024
January 2024

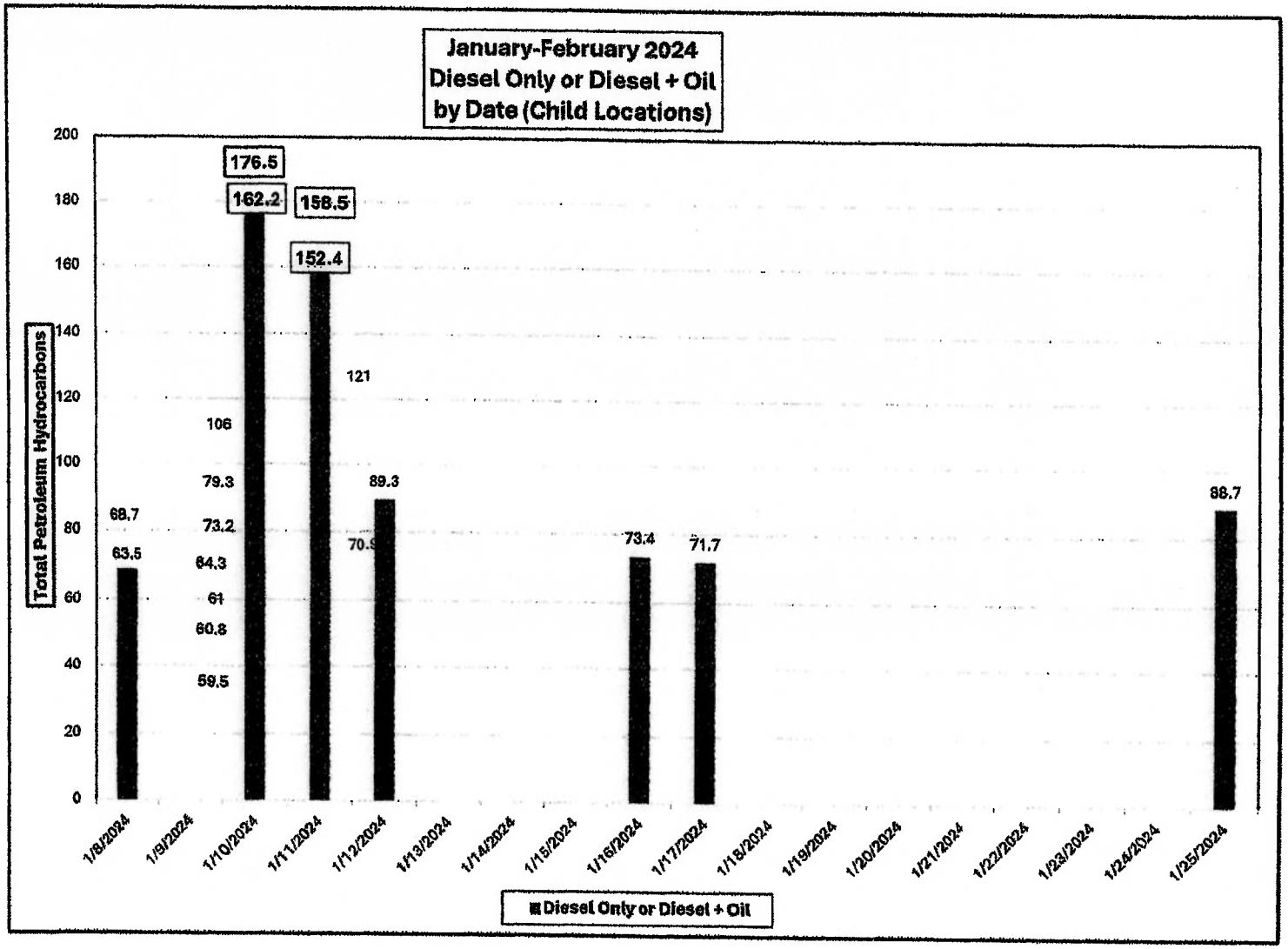
ALL Areas of Concern

LOCATION	WHY?
A2: Ford Island	Ford Island Child Development Center
A3: Iriquois Point	Iroquois Point Elementary
	Iroquois Point Pre-School
C1: Subase	Pier Side Child Development Center
D1: Hale Moku, Hokulani	Center Drive Child Development Center
	Kids Cove
	Pearl Harbor Kai Elementary
D2: Hale Moku, Officer Field, Onizuka	Hickam Harbor Child Development Center
D3: Earhart	Assets School
	Pearl Harbor Church oc Christ
	Chester Nimitz Elementary
	Holy Family Catholic Academy
	Mokulele Elementary
	School Age Center
	Hickam Main Child Development Center
	Hickam West Child Development Center
	Makai recreation Center
E1: Makalapa	Montessori Center of Pearl Harbor
	Navy Hale Keiki School
F1: Navy Exchange/Commissary/Food Court, Small Stores, Kiosks	Moanalua Pre-School
	Pearl Harbor Elementary
H1: AMR#1	AMR Child Development Center
	AMR Youth Activities
	AMR Private Organization
I1: Red Hill	Red Hill Elementary


LEGEND
Amended Health Advisory Issued
RESTORE WATER SYSTEM
WATER SYSTEM TESTING/RESULTS STATUS
Pearl City Peninsula
FORD ISLAND
MAKALAPA
RED HILL
CAMP SMITH
HALAWA
NAVMAG WEST LOCH
Iroquois Pt
Hickam Officer Field
EARHART
HAWAII AIR NATIONAL GUARD
Catlin Park
Halsey Radfor
Amended health advisory issued 03 Mar
Amended health advisory issued 23 Feb
Amended health advisory issued 01 Mar
Amended health advisory issued 08 Mar
Amended health advisory issued 18 Mar
Amended health advisory issued 15 Mar
Amended health advisory issued 11 Mar
Amended health advisory issued 14 Feb
Amended health advisory issued 13 Mar
Amended health advisory issued 09 Mar
Note 2
A1
A2
A3
B1
C1
C2
C3
D1
D2
D3
D4
E1
F1
F2
G1
H1
H2
H3
I1


January 2024 Child Locations
Diesel Only or Diesel + Oil
Child Locations
Peltier CDC, Building 1928
70.9
121
Makai Recreation Cetner, Building 1859H
60.8
73.2
Iroquois Point Pre-School, 5111 Iroquois Ave
73.4
71.7
Hickam West CDC, Building 1654H
162.2
Hickam West CDC, Building 1654H
176.5
Hickam Main CDC, Building 1586H
64.3
63.5
Hickam Elementary, P1, Building 641H
68.7
152.4
Cattin School Age Center, Building 4655
158.5
Assets School, Building 1, 1 Ohana Nui Way
61
79.3
Assets School, Building 1, 1 Ohana Nui Way
59.5
106
AMR Private/Organizational Club, Building 1875
88.7
0
50
100
150
200
TPH Detections


Child Locations
Diesel Only or Diesel + Oil
Petroleum Hydrocarbon Detections
200
180
160
140
120
100
80
60
40
20
0
176.5
162.2
158.5
152.4
121
106
79.3
73.2
70.9
68.7
63.5
73.4
71.7
88.7
1/7/2024
1/9/2024
1/11/2024
1/13/2024
1/15/2024
1/17/2024
1/19/2024
1/21/2024
1/23/2024
1/25/2024
1/27/2024
Sample Dates


January-February 2024
Diesel Only or Diesel + Oil
by Date (Child Locations)
Total Petroleum Hydrocarbons
200
180
160
140
120
100
80
60
40
20
0
176.5
162.2
158.5
152.4
121
106
89.3
79.3
73.2
70.9
68.7
64.3
63.5
61
60.8
59.5
73.4
71.7
88.7
1/8/2024
1/9/2024
1/10/2024
1/11/2024
1/12/2024
1/13/2024
1/14/2024
1/15/2024
1/16/2024
1/17/2024
1/18/2024
1/19/2024
1/20/2024
1/21/2024
1/22/2024
1/23/2024
1/24/2024
1/25/2024
Diesel Only or Diesel + Oil

Location	Address	Sampling Date	Client Sample ID	Analyte Name	Reported Results	TPH (d+o)
Zone A1 Pearl City Peninsula						
A1-WAIP2148	2148 Waipuilani Court	1/24/2024	A1-TW-0001480-23319-N	Petroleum Hydrocarbons (as Diesel)	63.2	127.1
A1-WAIP2148	2148 Waipuilani Court	1/24/2024	A1-TW-0001480-23319-N	**Petroleum Hydrocarbons (as oil)**	63.9	
Zone B1 McGrew, Halawa						
B1-HAPU2873A	2873A Hapue Loop	1/25/2024	B1-TW-0000486-23327-3-N	Petroleum Hydrocarbons (as Diesel)	84.9	175.6
B1-HAPU2873A	2873A Hapue Loop	1/25/2024	B1-TW-0000486-23327-3-N	**Petroleum Hydrocarbons (as oil)**	90.7	
Zone D2 Hickam, Hale Na Koa, Officer Field, Onizuka						
D2-10TH0211	211 10th Street	1/8/2024	D2-TW-0008317-23337-N	Petroleum Hydrocarbons (as Diesel)	74.3	129.3
D2-10TH0211	211 10th Street	1/8/2024	D2-TW-0008317-23337-N	**Petroleum Hydrocarbons (as oil)**	55	
D2-11TH0208	208 11th Street	1/4/2024	D2-TW-0008365-23337-N	Petroleum Hydrocarbons (as Diesel)	67.6	127
D2-11TH0208	208 11th Street	1/4/2024	D2-TW-0008365-23337-N	**Petroleum Hydrocarbons (as oil)**	59.4	
D2-13TH0214	214 13th Street	1/4/2024	D2-TW-0008400-23337-N	Petroleum Hydrocarbons (as Diesel)	70.7	136.6
D2-13TH0214	214 13th Street	1/4/2024	D2-TW-0008400-23337-N	**Petroleum Hydrocarbons (as oil)**	65.9	
D2-18TH0132	132 18th Street	1/4/2024	D2-TW-0008281-23337-N	Petroleum Hydrocarbons (as Diesel)	75.5	150.7
D2-18TH0132	132 18th Street	1/4/2024	D2-TW-0008281-23337-N	**Petroleum Hydrocarbons (as oil)**	75.2	
D2-19TH0014	14 19th Street	1/5/2024	D2-TW-0007245-23337-N	Petroleum Hydrocarbons (as Diesel)	72.3	130.8
D2-19TH0014	14 19th Street	1/5/2024	D2-TW-0007245-23337-N	**Petroleum Hydrocarbons (as oil)**	58.5	

D2-21ST0105	105 21st Street	1/8/2024	D2-TW-0007189-23337-N	Petroleum Hydrocarbons (as Diesel)	83.5	155.4
D2-21ST0105	105 21st Street	1/8/2024	D2-TW-0007189-23337-N	Petroleum Hydrocarbons (as oil)	71.9	
D2-2ND0137	137 2nd Street	1/5/2024	D2-TW-0006961-23337-N	Petroleum Hydrocarbons (as Diesel)	65.7	122.8
D2-2ND0137	137 2nd Street	1/5/2024	D2-TW-0006961-23337-3-N	Petroleum Hydrocarbons (as oil)	57.1	
D2-2ND0137	137 2nd Street	1/5/2024	D2-TW-0006961-23337-3-N	Petroleum Hydrocarbons (as Diesel)	81.1	
D2-2ND0137	137 2nd Street	1/5/2024	D2-TW-0006961-23337-3-N	Petroleum Hydrocarbons (as oil)	57.1	138.2
D2-3RD0205A	205A 3rd Street	1/4/2024	D2-TW-0007022-23337-N	Petroleum Hydrocarbons (as Diesel)	71	155.9
D2-3RD0205A	205A 3rd Street	1/4/2024	D2-TW-0007022-23337-N	Petroleum Hydrocarbons (as oil)	84.9	
D2-3RD0214	214 3rd Street	1/4/2024	D2-TW-0007015-23337-N	Petroleum Hydrocarbons (as Diesel)	54.3	106.2
D2-3RD0214	214 3rd Street	1/4/2024	D2-TW-0007015-23337-3-N	Petroleum Hydrocarbons (as oil)	51.9	
D2-3RD0214	214 3rd Street	1/4/2024	D2-TW-0007015-23337-3-N	Petroleum Hydrocarbons (as Diesel)	68	
D2-3RD0214	214 3rd Street	1/4/2024	D2-TW-0007015-23337-3-N	Petroleum Hydrocarbons (as oil)	51.9	119.9
D2-4TH0102	102 4th Street	1/4/2024	D2-TW-0007024-23337-N	Petroleum Hydrocarbons (as Diesel)	54.3	123.3
D2-4TH0102	102 4th Street	1/4/2024	D2-TW-0007024-23337-N	Petroleum Hydrocarbons (as oil)	69	
D2-4TH0117	117 4th Street	1/4/2024	D2-TW-0008218-23337-N	Petroleum Hydrocarbons (as Diesel)	72	135.5
D2-4TH0117	117 4th Street	1/4/2024	D2-TW-0008218-23337-N	Petroleum Hydrocarbons (as oil)	63.5	
D2-APOL0825	825 Apollo Avenue	1/5/2024	D2-TW-0007208-23337-N	Petroleum Hydrocarbons (as Diesel)	99.6	173.3
D2-APOL0825	825 Apollo Avenue	1/5/2024	D2-TW-0007208-23337-N	Petroleum Hydrocarbons (as oil)	73.7	
D2-CHAL2411C	2411C Challenger Loop	1/4/2024	D2-TW-0007802-23337-N	Petroleum Hydrocarbons (as Diesel)	79.7	134.4
D2-CHAL2411C	2411C Challenger Loop	1/4/2024	D2-TW-0007802-23337-N	Petroleum Hydrocarbons (as oil)	54.7	
D2-CHAL2434D	2434D Challenger Loop	1/4/2024	D2-TW-0008342-23337-N	Petroleum Hydrocarbons (as Diesel)	63	113.8
D2-CHAL2434D	2434D Challenger Loop	1/4/2024	D2-TW-0008342-23337-N	Petroleum Hydrocarbons (as oil)	50.8	

D2-CHAL2436B	2436B Challenger Loop	1/4/2024	D2-TW-0007987-23337-N	Petroleum Hydrocarbons (as Diesel)	65.1	129.7
D2-CHAL2436B	2436B Challenger Loop	1/4/2024	D2-TW-0007987-23337-N	**Petroleum Hydrocarbons (as oil)**	64.6	
D2-FOXB1114	1114 Fox Boulevard	1/4/2024	D2-TW-0008468-23337-N	Petroleum Hydrocarbons (as Diesel)	81	138.8
D2-FOXB1114	1114 Fox Boulevard	1/4/2024	D2-TW-0008468-23337-N	**Petroleum Hydrocarbons (as oil)**	57.8	
D2-FOXB1202	1202 Fox Boulevard	1/4/2024	D2-TW-0008474-23337-N	Petroleum Hydrocarbons (as Diesel)	70.5	134.7
D2-FOXB1202	1202 Fox Boulevard	1/4/2024	D2-TW-0008474-23337-N	**Petroleum Hydrocarbons (as oil)**	59.2	
D2-FOXB1921	1921 Fox Boulevard	1/4/2024	D2-TW-0007767-23337-N	Petroleum Hydrocarbons (as Diesel)	64.2	130.2
D2-FOXB1921	1921 Fox Boulevard	1/4/2024	D2-TW-0007767-23337-N	**Petroleum Hydrocarbons (as oil)**	66	
D2-HOOL0705	705 Hoolaulima Alley	1/4/2024	D2-TW-0008147-23337-N	Petroleum Hydrocarbons (as Diesel)	129	187.1
D2-HOOL0705	705 Hoolaulima Alley	1/4/2024	D2-TW-0008147-23337-N	**Petroleum Hydrocarbons (as oil)**	58.1	
D2-KOAA0502	502 Koaaina Alley	1/5/2024	D2-TW-0007782-23337-N	Petroleum Hydrocarbons (as Diesel)	67.7	121.9
D2-KOAA0502	502 Koaaina Alley	1/5/2024	D2-TW-0007782-23337-3-N	Petroleum Hydrocarbons (as Diesel)	54.2	
D2-LEWA0265	265 Lewa Hia Loop	1/5/2024	D2-TW-0007634-23337-N	Petroleum Hydrocarbons (as Diesel)	85.8	146.1
D2-LEWA0265	265 Lewa Hia Loop	1/5/2024	D2-TW-0007634-23337-N	**Petroleum Hydrocarbons (as oil)**	60.3	
D2-TINK1744	1744 Tinker Avenue	1/8/2024	D2-TW-0007330-23337-3-N	Petroleum Hydrocarbons (as Diesel)	102	166.3
D2-TINK1744	1744 Tinker Avenue	1/8/2024	D2-TW-0007330-23337-3-N	**Petroleum Hydrocarbons (as oil)**	64.3	

ZONE D3 Earhart

D3-BLDG1654H	Hickam West CDC, Buildir	1/10/2024	D3-TW-0015153-23342-N-1	Petroleum Hydrocarbons (as Diesel)	113	176.5
D3-BLDG1654H	Hickam West CDC, Buildir	1/10/2024	D3-TW-0015153-23342-N-1	**Petroleum Hydrocarbons (as oil)**	63.5	
D3-BLDG1586H	Hickam Main CDC, Buildin	1/10/2024	D3-TW-0015143-23342-N-2	Petroleum Hydrocarbons (as Diesel)	64.3	124.5
D3-BLDG1654H	Hickam West CDC, Buildir	1/10/2024	D3-TW-0015153-23342-N-2	**Petroleum Hydrocarbons (as oil)**	60.2	162.2
D3-BLDG1654H	Hickam West CDC, Buildir	1/10/2024	D3-TW-0015153-23342-N-2	Petroleum Hydrocarbons (as Diesel)	102	
D3-BLDG1654H	Hickam West CDC, Buildir	1/10/2024	D3-TW-0015153-23342-N-2	**Petroleum Hydrocarbons (as oil)**	60.2	162.2

D3-KIKA0716	716 Kikanai Loop	1/10/2024	D3-TW-0009733-23342-N	Petroleum Hydrocarbons (as Diesel)	133	**191.3**
D3-KIKA0716	716 Kikanai Loop	1/10/2024	D3-TW-0009733-23342-N	**Petroleum Hydrocarbons (as oil)**	58.3	
D3-KOKO0107	107 Kokomalei Street	1/10/2024	D3-TW-0009769-23342-N	Petroleum Hydrocarbons (as Diesel)	123	**180.3**
D3-KOKO0107	107 Kokomalei Street	1/10/2024	D3-TW-0009769-23342-N	**Petroleum Hydrocarbons (as oil)**	57.3	
D3-KOPI0135	135 Kopiko Street	1/10/2024	D3-TW-0009827-23342-N	Petroleum Hydrocarbons (as Diesel)	107	**163.6**
D3-KOPI0135	135 Kopiko Street	1/10/2024	D3-TW-0009827-23342-N	**Petroleum Hydrocarbons (as oil)**	56.6	
D3-MELI0202	202 Melia Street	1/9/2024	D3-TW-0011251-23342-N	Petroleum Hydrocarbons (as Diesel)	148	**211.2**
D3-MELI0202	202 Melia Street	1/9/2024	D3-TW-0011251-23342-N	**Petroleum Hydrocarbons (as oil)**	63.2	
ZONE F2 Catlin Park, Maloelap, Doris Miller, Halsey Radford Terrace						
F2-ANDE2851	2851 Anderson Avenue	1/11/2024	F2-TW-0010751-23335-N	Petroleum Hydrocarbons (as Diesel)	155	**226.9**
F2-ANDE2851	2851 Anderson Avenue	1/11/2024	F2-TW-0010751-23335-N	**Petroleum Hydrocarbons (as oil)**	71.9	
F2-ANDE3024	3024 Anderson Avenue	1/12/2024	F2-TW-0009616-23335-N	Petroleum Hydrocarbons (as Diesel)	126	**182**
F2-ANDE3024	3024 Anderson Avenue	1/12/2024	F2-TW-0009616-23335-N	**Petroleum Hydrocarbons (as oil)**	56	
F2-ARIZ2852	2852 Arizona Road	1/12/2024	F2-TW-0011003-23335-N	Petroleum Hydrocarbons (as Diesel)	116	**173.5**
F2-ARIZ2852	2852 Arizona Road	1/12/2024	F2-TW-0011003-23335-N	**Petroleum Hydrocarbons (as oil)**	57.5	
F2-BLDG4655	Catlin School Age Center,	1/11/2024	F2-TW-0014156-23335-N-1	Petroleum Hydrocarbons (as Diesel)	106	**158.5**
F2-BLDG4655	Catlin School Age Center,	1/11/2024	F2-TW-0014156-23335-N-1	**Petroleum Hydrocarbons (as oil)**	52.5	

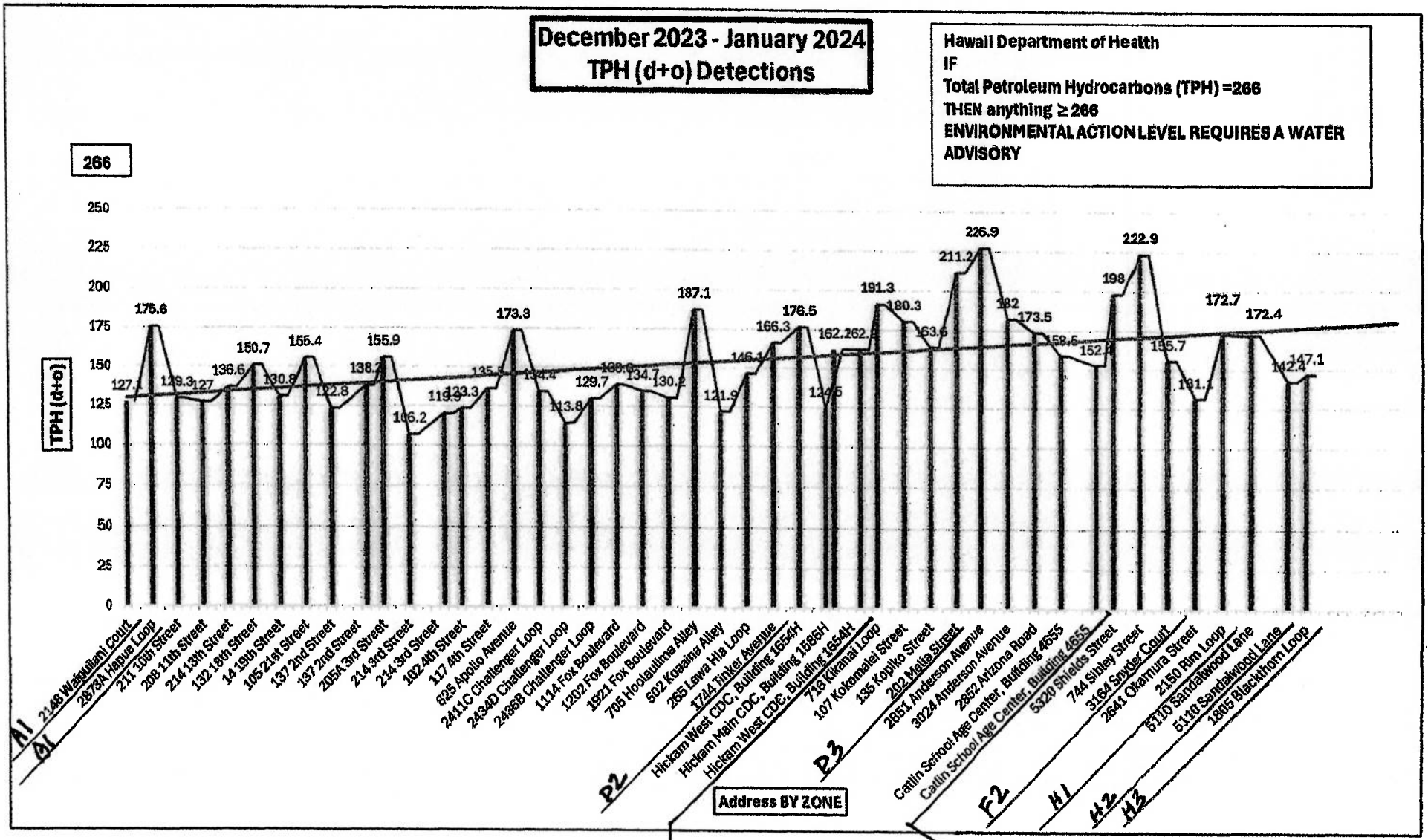
F2-BLDG4655	Catlin School Age Center,	1/11/2024	F2-TW-0014156-23335-N-2	Petroleum Hydrocarbons (as Diesel)	99.9	
F2-BLDG4655	Catlin School Age Center,	1/11/2024	F2-TW-0014156-23335-N-1	**Petroleum Hydrocarbons (as oil)**	52.5	**152.4**
F2-SHIE5320	5320 Shields Street	1/11/2024	F2-TW-0010927-23335-N	Petroleum Hydrocarbons (as Diesel)	138	**198**
F2-SHIE5320	5320 Shields Street	1/11/2024	F2-TW-0010927-23335-N	**Petroleum Hydrocarbons (as oil)**	60	
F2-SIBL0744	744 Sibley Street	1/11/2024	F2-TW-0010961-23335-N	Petroleum Hydrocarbons (as Diesel)	148	**222.9**
F2-SIBL0744	744 Sibley Street	1/11/2024	F2-TW-0010961-23335-N	**Petroleum Hydrocarbons (as oil)**	74.9	
F2-SNYD3164	3164 Snyder Court	1/12/2024	F2-TW-0010583-23335-N	Petroleum Hydrocarbons (as Diesel)	98.4	**155.7**
F2-SNYD3164	3164 Snyder Court	1/12/2024	F2-TW-0010583-23335-N	**Petroleum Hydrocarbons (as oil)**	57.3	

ZONE H1 AMR1						
H1-OKAM2641	2641 Okamura Street	1/24/2024	H1-TW-0013370-23327-A	Petroleum Hydrocarbons (as Diesel)	63.8	**131.1**
H1-OKAM2641	2641 Okamura Street	1/24/2024	H1-TW-0013370-23327-A	**Petroleum Hydrocarbons (as oil)**	67.3	
H1-RIML2150	2150 Rim Loop	1/24/2024	H1-TW-0012633-23327-A	Petroleum Hydrocarbons (as Diesel)	82.4	**172.7**
H1-RIML2150	2150 Rim Loop	1/24/2024	H1-TW-0012633-23327-A	**Petroleum Hydrocarbons (as oil)**	90.3	

ZONE H2 AMR2						
H2-SAND5110	5110 Sandalwood Lane	1/5/2024	H2-TW-0013650-23335-A	Petroleum Hydrocarbons (as Diesel)	104	**172.4**
H2-SAND5110	5110 Sandalwood Lane	1/5/2024	H2-TW-0013650-23335-A	**Petroleum Hydrocarbons (as oil)**	68.4	
H2-SAND5110	5110 Sandalwood Lane	1/5/2024	H2-TW-0013650-23335-A-P	Petroleum Hydrocarbons (as Diesel)	74	
H2-SAND5110	5110 Sandalwood Lane	1/5/2024	H2-TW-0013650-23335-A	**Petroleum Hydrocarbons (as oil)**	68.4	**142.4**

ZONE H1 AMR3						
H3-BLAC1805	1805 Blackthorn Loop	1/5/2024	H3-TW-0013888-23335-A	Petroleum Hydrocarbons (as Diesel)	92.1	**147.1**
H3-BLAC1805	1805 Blackthorn Loop	1/5/2024	H3-TW-0013888-23335-A	**Petroleum Hydrocarbons (as oil)**	55	

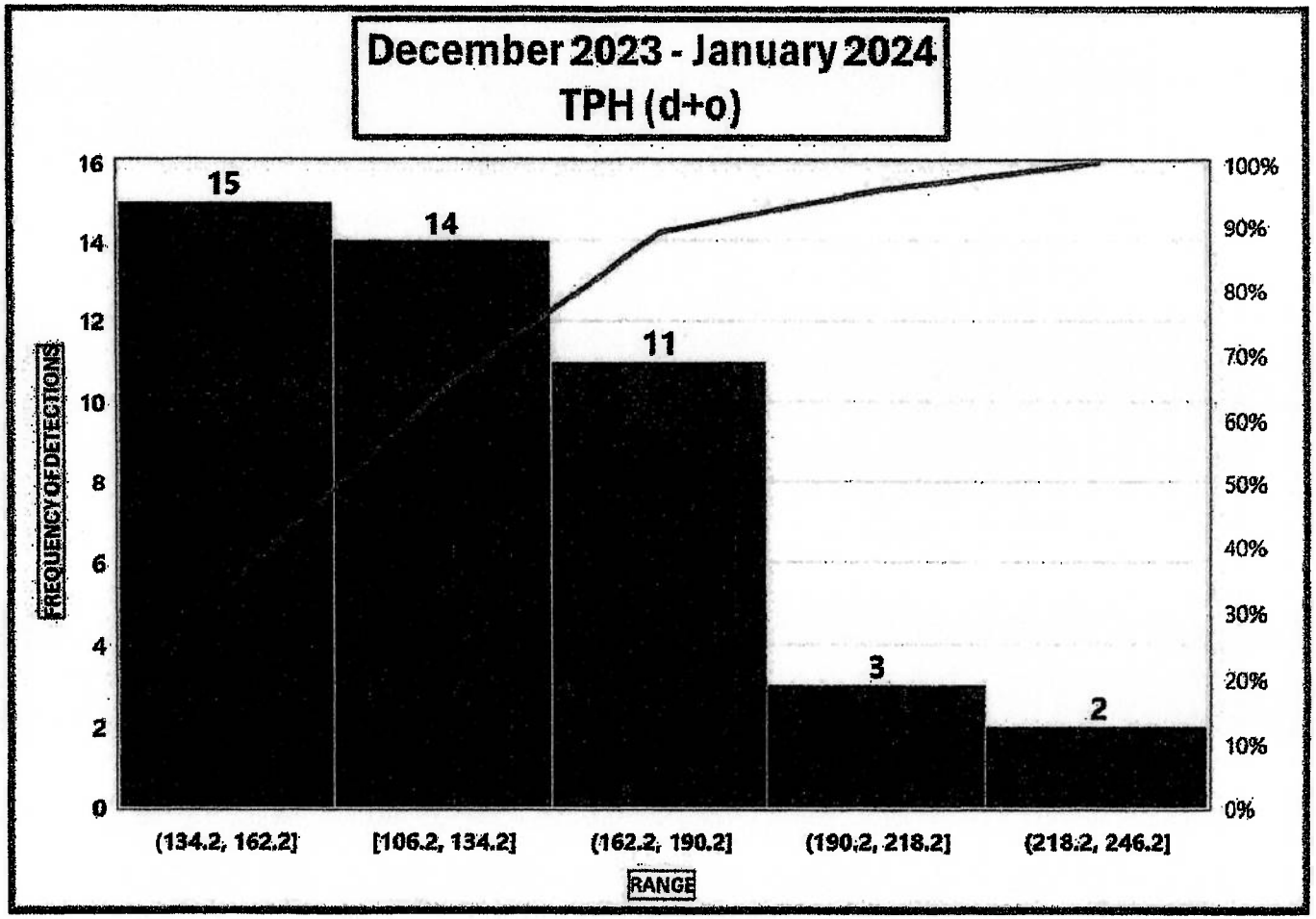
1 month timeframe
45 detections across 8 ZONES
SEE ZONE MAP



ALPHABETICAL BY ZONE
SEE SPREADSHEETS (pg 1-5)

All 3 tested on JAN 10, 2024 Spread sheet pg 3

2 TESTS JAN 11, 2024 Spreadsheet pg 4-5


December 2023 - January 2024
TPH (d+o)
FREQUENCY OF DETECTIONS
16
14
12
10
8
6
4
2
0
100%
90%
80%
70%
60%
50%
40%
30%
20%
10%
0%
15
14
11
3
2
(134.2, 162.2]
[106.2, 134.2]
(162.2, 190.2]
(190.2, 218.2]
(218.2, 246.2]
RANGE

January 2023 - January 31, 2024 Locations: ALL Schools, Child Dev Centers, Pre-Schools, Church, Youth Activities, Kids Cove, Assetts, Private Org
CDC=Child Development Center

ZONE Location	Address	Sampling Date	Client Sample ID	Analyte Name	Screening Level	Reported Results	TPH (d+o)
A2: Ford Island							
A2-BLDG0570	Ford Island CDC, Building 570	2/14/2023	A2-TW-0014310-22330-N-1	Petroleum Hydrocarbons (as Diesel)	200	76.9	
A2-BLDG0570	Ford Island CDC, Building 570	2/14/2023	A2-TW-0014310-22330-N-2	Petroleum Hydrocarbons (as Diesel)	200	70.6	
A2-BLDG0570	Ford Island CDC, Building 570	9/22/2023	A2-TW-0014310-23145-N-1	Petroleum Hydrocarbons (as Diesel)	200	87.6	
A2-BLDG0570	Ford Island CDC, Building 570	9/22/2023	A2-TW-0014310-23145-N-2	Petroleum Hydrocarbons (as Diesel)	200	73	
A3: Iriquois PT							
A3-CORM5553	Iroquois Point Elementary, 5553 C	2/13/2023	A3-TW-0012582-22342-N-5	Petroleum Hydrocarbons (as Oil)	200	70.9	
A3-CORM5553	Iroquois Point Elementary, 5553 C	8/14/2023	A3-TW-0012582-23157-N-1	Petroleum Hydrocarbons (as Diesel)	200	66.2	
A3-CORM5553	Iroquois Point Elementary, 5553 C	8/14/2023	A3-TW-0012582-23157-N-3	Petroleum Hydrocarbons (as Diesel)	200	90.9	
A3-CORM5553	Iroquois Point Elementary, 5553 C	8/14/2023	A3-TW-0012582-23157-N-4	Petroleum Hydrocarbons (as Diesel)	200	70.5	145.3
A3-CORM5553	Iroquois Point Elementary, 5553 C	8/14/2023	A3-TW-0012582-23157-N-4	Petroleum Hydrocarbons (as Oil)	200	74.8	
A3-CORM5553	Iroquois Point Elementary, 5553 C	8/14/2023	A3-TW-0012582-23157-N-5	Petroleum Hydrocarbons (as Diesel)	200	84.1	
A3-CORM5553	Iroquois Point Elementary, 5553 C	1/17/2024	A3-TW-0012582-23337-N-3	Petroleum Hydrocarbons (as Diesel)	200	71.7	
A3-IROQ5111	Iroquois Point Pre-School, 5111 Ir	8/15/2023	A3-TW-0012569-23157-N-1	Petroleum Hydrocarbons (as Diesel)	200	58.5	
A3-IROQ5111	Iroquois Point Pre-School, 5111 Ir	8/15/2023	A3-TW-0012569-23157-N-2	Petroleum Hydrocarbons (as Diesel)	200	54.8	
A3-IROQ5111	Iroquois Point Pre-School, 5111 Ir	8/15/2023	A3-TW-0012569-23157-N-4	Petroleum Hydrocarbons (as Diesel)	200	60.1	
A3-IROQ5111	Iroquois Point Pre-School, 5111 Ir	8/15/2023	A3-TW-0012569-23157-N-5	Petroleum Hydrocarbons (as Diesel)	200	61.6	
A3-IROQ5111	Iroquois Point Pre-School, 5111 Ir	1/16/2024	A3-TW-0012569-23337-N-1	Petroleum Hydrocarbons (as Diesel)	200	73.4	
C1: Subase							
C1-BLDG1655	Pier Side CDC, Building 1655	8/16/2023	C1-TW-0014751-23162-N-1	Petroleum Hydrocarbons (as Diesel)	200	55.6	
C1-BLDG1855	Pier Side CDC, Building 1655	8/16/2023	C1-TW-0014751-23162-N-2	Petroleum Hydrocarbons (as Diesel)	200	94.7	
D1: Hale Moku, Hokulani							
D1-BLDG0204	Kids Cove, Building 204	8/29/2023	D1-TW-0015067-23145-N-1	Petroleum Hydrocarbons (as Diesel)	200	79.3	
D1-BLDG0204	Kids Cove, Building 204	8/29/2023	D1-TW-0015067-23145-N-2	Petroleum Hydrocarbons (as Diesel)	200	88.8	

D1-BLDG0930	Center Drive CDC, Building 930	6/27/2023	D1-TW-0015074-23145-N-1	Petroleum Hydrocarbons (as Diesel)	200	64.5	
D1-BLDG0930	Center Drive CDC, Building 930	6/27/2023	D1-TW-0015074-23145-N-2	Petroleum Hydrocarbons (as Diesel)	200	64.1	
D1-BLDGD1-22	Pearl Harbor Kai Elementary, Built	3/29/2023	D1-TW-0015098-22330-N-3	Petroleum Hydrocarbons (as Diesel)	200	54.9	
D1-BLDGD1-22	Pearl Harbor Kai Elementary, Built	3/29/2023	D1-TW-0015098-22330-N-4	Petroleum Hydrocarbons (as Diesel)	200	77.8	
D1-BLDGD1-22	Pearl Harbor Kai Elementary, Built	9/21/2023	D1-TW-0015098-23145-N-3	Petroleum Hydrocarbons (as Diesel)	200	89.2	
D1-BLDGD1-22	Pearl Harbor Kai Elementary, Built	9/21/2023	D1-TW-0015098-23145-N-5	Petroleum Hydrocarbons (as Diesel)	200	78.8	
D2-BLDG623H	Hickam Harbor CDC, Building 623	8/8/2023	D2-TW-0015492-23157-N-1	Petroleum Hydrocarbons (as Diesel)	200	57.6	
D2-BLDG623H	Hickam Harbor CDC, Building 623	8/8/2023	D2-TW-0015492-23157-N-2	Petroleum Hydrocarbons (as Diesel)	200	50	
D2-BLDG641H	Hickam Elementary, P1, Building 6	1/8/2024	D2-TW-0015498-23337-N-4	Petroleum Hydrocarbons (as Diesel)	200	68.7	
D2-BLDG641H	Hickam Elementary, P1, Building 6	1/8/2024	D2-TW-0015498-23337-N-5	Petroleum Hydrocarbons (as Diesel)	200	63.5	
D3: Earhart							
D3-BLDG0001	Assets School, Building 1, 1 Ohan	9/7/2023	D3-TW-0017506-23162-N-1	Petroleum Hydrocarbons (as Diesel)	200	120	189.2
D3-BLDG0001	Assets School, Building 1, 1 Ohan	9/7/2023	D3-TW-0017506-23162-N-1	Petroleum Hydrocarbons (as Oil)	200	69.2	
D3-BLDG0001	Assets School, Building 1, 1 Ohan	9/7/2023	D3-TW-0017506-23162-N-2	Petroleum Hydrocarbons (as Diesel)	200	80.6	
D3-BLDG0001	Assets School, Building 1, 1 Ohan	9/7/2023	D3-TW-0017506-23162-N-3	Petroleum Hydrocarbons (as Diesel)	200	102	
D3-BLDG0001	Assets School, Building 1, 1 Ohan	9/7/2023	D3-TW-0017506-23162-N-5	Petroleum Hydrocarbons (as Diesel)	200	86.1	137.2
D3-BLDG0001	Assets School, Building 1, 1 Ohan	9/7/2023	D3-TW-0017506-23162-N-5	Petroleum Hydrocarbons (as Oil)	200	51.1	
D3-BLDG0001	Assets School, Building 1, 1 Ohan	1/10/2024	D3-TW-0017506-23342-N-2	Petroleum Hydrocarbons (as Diesel)	200	106	
D3-BLDG0001	Assets School, Building 1, 1 Ohan	1/10/2024	D3-TW-0017506-23342-N-3	Petroleum Hydrocarbons (as Diesel)	200	59.5	
D3-BLDG0001	Assets School, Building 1, 1 Ohan	1/10/2024	D3-TW-0017506-23342-N-4	Petroleum Hydrocarbons (as Diesel)	200	79.3	
D3-BLDG0001	Assets School, Building 1, 1 Ohan	1/10/2024	D3-TW-0017506-23342-N-5	Petroleum Hydrocarbons (as Diesel)	200	61	
D3-BLDG0515	Pearl Harbor Church of Christ, Bui	4/18/2023	D3-TW-0017510-22347-N-1	Petroleum Hydrocarbons (as Diesel)	200	84.8	
D3-BLDG0515	Pearl Harbor Church of Christ, Bui	7/25/2023	D3-TW-0017510-23162-N-1	Petroleum Hydrocarbons (as Diesel)	200	78.6	
D3-BLDG0515	Pearl Harbor Church of Christ, Bui	7/25/2023	D3-TW-0017510-23162-N-2	Petroleum Hydrocarbons (as Diesel)	200	81.8	
D3-BLDG0520	Chester Nimitz Elementary, Buildi	10/23/2023	D3-TW-0017507-23162-N-2	Petroleum Hydrocarbons (as Diesel)	200	60.2	
D3-BLDG0520	Chester Nimitz Elementary, Buildi	10/23/2023	D3-TW-0017507-23162-N-3	Petroleum Hydrocarbons (as Diesel)	200	65.2	
D3-BLDG0520	Chester Nimitz Elementary, Buildi	10/23/2023	D3-TW-0017507-23162-N-4	Petroleum Hydrocarbons (as Diesel)	200	52.6	
D3-BLDG0520	Chester Nimitz Elementary, Buildi	10/23/2023	D3-TW-0017507-23162-N-5	Petroleum Hydrocarbons (as Diesel)	200	51.1	
D3-BLDG0830	Holy Family Catholic Academy, Bu	9/28/2023	D3-TW-0017509-23162-N-1	Petroleum Hydrocarbons (as Diesel)	200	117	199.6
D3-BLDG0830	Holy Family Catholic Academy, Bu	9/28/2023	D3-TW-0017509-23162-N-1	Petroleum Hydrocarbons (as Oil)	200	82.6	

D3-BLDG0830	Holy Family Catholic Academy, Bu	9/28/2023	D3-TW-0017509-23162-N-2	Petroleum Hydrocarbons (as Diesel)	200	120	205.6
D3-BLDG0830	Holy Family Catholic Academy, Bu	9/28/2023	D3-TW-0017509-23162-N-2	Petroleum Hydrocarbons (as Oil)	200	85.6	
D3-BLDG0830	Holy Family Catholic Academy, Bu	9/28/2023	D3-TW-0017509-23162-N-4	Petroleum Hydrocarbons (as Diesel)	200	72.2	
D3-BLDG0830	Holy Family Catholic Academy, Bu	9/28/2023	D3-TW-0017509-23162-N-5	Petroleum Hydrocarbons (as Diesel)	200	53.4	
D3-BLDG1309H	Mokulele Elementary, Bldg A, Built	3/6/2023	D3-TW-0015133-22347-N-3	Petroleum Hydrocarbons (as Diesel)	200	54.8	
D3-BLDG1309H	Mokulele Elementary, Bldg A, Built	8/10/2023	D3-TW-0015133-23162-N-1	Petroleum Hydrocarbons (as Diesel)	200	55.2	
D3-BLDG1309H	Mokulele Elementary, Bldg A, Built	8/10/2023	D3-TW-0015133-23162-N-2	Petroleum Hydrocarbons (as Diesel)	200	54.6	
D3-BLDG1309H	Mokulele Elementary, Bldg A, Built	8/10/2023	D3-TW-0015133-23162-N-3	Petroleum Hydrocarbons (as Diesel)	200	57.5	
D3-BLDG1309H	Mokulele Elementary, Bldg A, Built	8/10/2023	D3-TW-0015133-23162-N-4	Petroleum Hydrocarbons (as Diesel)	200	57.7	
D3-BLDG1309H	Mokulele Elementary, Bldg A, Built	8/10/2023	D3-TW-0015133-23162-N-5	Petroleum Hydrocarbons (as Diesel)	200	57.8	
D3-BLDG1335H	School Age Center, Building 1335I	10/23/2023	D3-TW-0015141-23162-N-1	Petroleum Hydrocarbons (as Diesel)	200	64.4	
D3-BLDG1335H	School Age Center, Building 1335I	10/23/2023	D3-TW-0015141-23162-N-2	Petroleum Hydrocarbons (as Diesel)	200	53.4	
D3-BLDG1586H	Hickam Main CDC, Building 1586I	6/28/2023	D3-TW-0015143-23162-N-1	Petroleum Hydrocarbons (as Diesel)	200	54.8	
D3-BLDG1586H	Hickam Main CDC, Building 1586I	6/28/2023	D3-TW-0015143-23162-N-2	Petroleum Hydrocarbons (as Diesel)	200	54.2	
D3-BLDG1597H	Hickam Main CDC, Building 1597I	6/30/2023	D3-TW-0015148-23162-N-1-T	Petroleum Hydrocarbons (as Diesel)	200	55.6	
D3-BLDG1586H	Hickam Main CDC, Building 1586I	1/10/2024	D3-TW-0015143-23342-N-2	Petroleum Hydrocarbons (as Diesel)	200	64.3	
D3-BLDG1654H	Hickam West CDC, Building 1654	3/7/2023	D3-TW-0015153-22347-N-1	Petroleum Hydrocarbons (as Diesel)	200	54.2	
D3-BLDG1654H	Hickam West CDC, Building 1654	10/23/2023	D3-TW-0015153-23162-N-1	Petroleum Hydrocarbons (as Diesel)	200	51.1	
D3-BLDG1654H	Hickam West CDC, Building 1654	1/10/2024	D3-TW-0015153-23342-N-1	Petroleum Hydrocarbons (as Diesel)	200	113	176.5
D3-BLDG1654H	Hickam West CDC, Building 1654	1/10/2024	D3-TW-0015153-23342-N-1	Petroleum Hydrocarbons (as Oil)	200	63.5	
D3-BLDG1654H	Hickam West CDC, Building 1654	1/10/2024	D3-TW-0015153-23342-N-2	Petroleum Hydrocarbons (as Diesel)	200	102	162.2
D3-BLDG1654H	Hickam West CDC, Building 1654	1/10/2024	D3-TW-0015153-23342-N-2	Petroleum Hydrocarbons (as Oil)	200	60.2	
D3-BLDG1859H	Makai Recreation Cetner, Building	4/18/2023	D3-TW-0015186-22347-N-1	Petroleum Hydrocarbons (as Diesel)	200	73.2	
D3-BLDG1859H	Makai Recreation Cetner, Building	4/18/2023	D3-TW-0015186-22347-N-2	Petroleum Hydrocarbons (as Diesel)	200	64.5	
D3-BLDG1859H	Makai Recreation Cetner, Building	9/28/2023	D3-TW-0015186-23162-3-N-1	Petroleum Hydrocarbons (as Diesel)	200	97.5	
D3-BLDG1859H	Makai Recreation Cetner, Building	9/28/2023	D3-TW-0015186-23162-N-1	Petroleum Hydrocarbons (as Diesel)	200	154	Anamoly?
D3-BLDG1859H	Makai Recreation Cetner, Building	9/28/2023	D3-TW-0015186-23162-N-2	Petroleum Hydrocarbons (as Diesel)	200	52.2	
D3-BLDG1859H	Makai Recreation Cetner, Building	1/10/2024	D3-TW-0015186-23342-N-1	Petroleum Hydrocarbons (as Diesel)	200	73.2	
D3-BLDG1859H	Makai Recreation Cetner, Building	1/10/2024	D3-TW-0015186-23342-N-2	Petroleum Hydrocarbons (as Diesel)	200	60.8	
E1: Makalapa							
E1-BLDG0081	Montessori Center of Pearl Harbor	9/14/2023	E1-TW-0015290-23152-N-1	Petroleum Hydrocarbons (as Diesel)	200	81.2	

E1-BLDG0081	Montessori Center of Pearl Harbor	9/14/2023	E1-TW-0015290-23152-N-2	Petroleum Hydrocarbons (as Diesel)	200	55.6	
E1-BLDG0364	Navy Hale Keiki School, Building 3	1/19/2023	E1-TW-0015244-22337-N-5	Petroleum Hydrocarbons (as Diesel)	200	58.8	
E1-BLDG0364	Navy Hale Keiki School, Building 3	8/24/2023	E1-TW-0015244-23152-N-1	Petroleum Hydrocarbons (as Diesel)	200	65.2	
E1-BLDG0364	Navy Hale Keiki School, Building 3	8/24/2023	E1-TW-0015244-23152-N-2	Petroleum Hydrocarbons (as Diesel)	200	52.1	
E1-BLDG0364	Navy Hale Keiki School, Building 3	8/24/2023	E1-TW-0015244-23152-N-3	Petroleum Hydrocarbons (as Diesel)	200	59.4	
F1: NEX, Moanalua Terrace							
F1-BOUG4857	Moanalua Pre-School - Kamaaina	7/26/2023	F1-TW-0014170-23155-N-1	Petroleum Hydrocarbons (as Diesel)	200	64.8	
F1-BOUG4857	Moanalua Pre-School - Kamaaina	7/24/2023	F1-TW-0014170-23155-N-2	Petroleum Hydrocarbons (as Diesel)	200	58.3	
F1-MOAN0001	Pearl Harbor Elementary School, :	10/11/2023	F1-TW-0017726-23155-N-1	Petroleum Hydrocarbons (as Diesel)	200	70.3	
F1-MOAN0001	Pearl Harbor Elementary School, :	10/11/2023	F1-TW-0017726-23155-N-2	Petroleum Hydrocarbons (as Diesel)	200	56.1	
F1-MOAN0001	Pearl Harbor Elementary School, :	10/11/2023	F1-TW-0017726-23155-N-3	Petroleum Hydrocarbons (as Diesel)	200	56.6	
F1-MOAN0001	Pearl Harbor Elementary School, :	10/11/2023	F1-TW-0017726-23155-N-4	Petroleum Hydrocarbons (as Diesel)	200	88.1	
F1-MOAN0001	Pearl Harbor Elementary School, :	10/11/2023	F1-TW-0017726-23155-N-5	Petroleum Hydrocarbons (as Diesel)	200	53.6	
H1:AMR							
H1-BLDG1782	AMR Child & Youth Services, Build	10/10/2023	H1-TW-0017683-23147-A-1	Petroleum Hydrocarbons (as Diesel)	200	78.3	
H1-BLDG1783	AMR CDC, Building 1783	4/6/2023	H1-TW-0017684-22332-A-1	Petroleum Hydrocarbons (as Diesel)	200	75.6	132.3
H1-BLDG1783	AMR CDC, Building 1783	4/6/2023	H1-TW-0017684-22332-A-1	Petroleum Hydrocarbons (as Oil)	200	56.7	
H1-BLDG1783	AMR CDC, Building 1783	4/6/2023	H1-TW-0017684-22332-A-2	Petroleum Hydrocarbons (as Oil)	200	65.8	
H1-BLDG1783	AMR CDC, Building 1783	6/28/2023	H1-TW-0017684-23147-A-1-T	Petroleum Hydrocarbons (as Diesel)	200	58	
H1-BLDG1783	AMR CDC, Building 1783	6/28/2023	H1-TW-0017684-23147-A-2	Petroleum Hydrocarbons (as Diesel)	200	60.5	
H1-BLDG1795	AMR Youth Activities Center, Build	4/6/2023	H1-TW-0017687-22332-A-2	Petroleum Hydrocarbons (as Diesel)	200	54	118.8
H1-BLDG1795	AMR Youth Activities Center, Build	4/6/2023	H1-TW-0017687-22332-A-2	Petroleum Hydrocarbons (as Oil)	200	64.8	
H1-BLDG1875	AMR Private/Organizational Club,	8/21/2023	H1-TW-0017689-23147-A-1	Petroleum Hydrocarbons (as Oil)	200	50.7	
H1-BLDG1875	AMR Private/Organizational Club,	1/25/2024	H1-TW-0017689-23327-A-2	Petroleum Hydrocarbons (as Diesel)	200	88.7	
I1: Red Hill							
I1-ALAK1265	Red Hill Elementary School, 1265	2/16/2023	I1-TW-0011966-22315-A-2	Petroleum Hydrocarbons (as Diesel)	200	53.6	
I1-ALAK1265	Red Hill Elementary School, 1265	2/16/2023	I1-TW-0011966-22315-A-3	Petroleum Hydrocarbons (as Diesel)	200	62.7	

I1-ALAK1265	Red Hill Elementary School, 1265	2/16/2023	I1-TW-0011966-22315-A-4	Petroleum Hydrocarbons (as Diesel)	200	57.9

Waiawa Shaft	Sampling Date	Client Sample ID	Analyte Name	Screening Level	Reported Results
Shaft	2/9/2023	SHAFT-HW-0016021-22315-N	Barium	2000	1.9
Shaft	2/9/2023	SHAFT-HW-0016021-22315-N	Chromium	100	1.6
Shaft	2/9/2023	SHAFT-HW-0016021-22315-N	Copper	1300	22.4
Shaft	2/9/2023	SHAFT-HW-0016021-22315-N	Lead	15	0.29
Shaft	2/9/2023	SHAFT-HW-0016021-22315-N	Petroleum Hydrocarbons (as Diesel)	NA	60.6
Shaft	2/9/2023	SHAFT-HW-0016021-22315-N	Petroleum Hydrocarbons (Total)	266	61
Shaft	7/13/2023	SHAFT-HW-0016021-23130-N	Barium	2000	1.7
Shaft	7/13/2023	SHAFT-HW-0016021-23130-N	Bis(2-ethylhexyl)phthalate	6	0.61
Shaft	7/13/2023	SHAFT-HW-0016021-23130-N	Chromium	100	0.8
Shaft	7/13/2023	SHAFT-HW-0016021-23130-N	Copper	1300	12.1
Shaft	7/13/2023	SHAFT-HW-0016021-23130-N	Lead	15	0.15
Shaft	7/13/2023	SHAFT-HW-0016021-23130-N	Selenium	50	2.7
Shaft	7/13/2023	SHAFT-HW-0016021-23130-3-N	Barium	2000	1.7
Shaft	7/13/2023	SHAFT-HW-0016021-23130-3-N	Bis(2-ethylhexyl)phthalate	6	0.67
Shaft	7/13/2023	SHAFT-HW-0016021-23130-3-N	Chromium	100	0.7
Shaft	7/13/2023	SHAFT-HW-0016021-23130-3-N	Copper	1300	15.8
Shaft	7/13/2023	SHAFT-HW-0016021-23130-3-N	Lead	15	0.28
Shaft	7/13/2023	SHAFT-HW-0016021-23130-3-N	Selenium	50	2.6
Shaft	10/19/2023	SHAFT-HW-0016021-23130-N-R1	Barium	2000	1.9
Shaft	10/19/2023	SHAFT-HW-0016021-23130-N-R1	Copper	1300	12.2
Shaft	10/19/2023	SHAFT-HW-0016021-23130-N-R1	Lead	15	0.3
Shaft	10/19/2023	SHAFT-HW-0016021-23130-N-R1	Selenium	50	1.6
Shaft	1/12/2024	SHAFT-HW-0016021-23330-N	Barium	2000	1.8
Shaft	1/12/2024	SHAFT-HW-0016021-23330-N	Bis(2-ethylhexyl)phthalate	6	1.1
Shaft	1/12/2024	SHAFT-HW-0016021-23330-N	Chromium	100	1.3

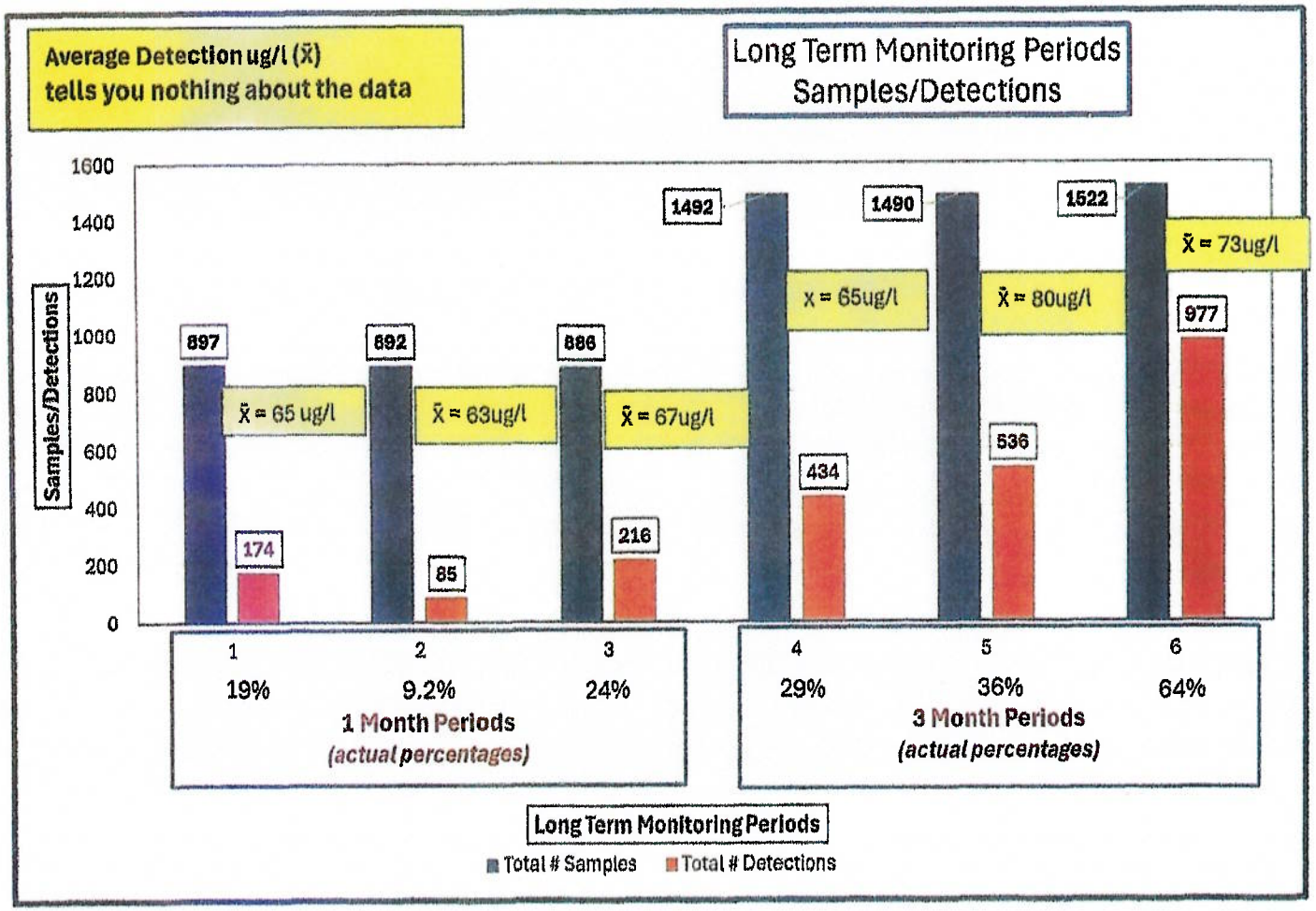
Shaft	1/12/2024	SHAFT-HW-0016021-23330-N	Copper	1300	25.6
Shaft	1/12/2024	SHAFT-HW-0016021-23330-N	Lead	15	0.38
Shaft	1/12/2024	SHAFT-HW-0016021-23330-N	Petroleum Hydrocarbons (as Diesel)	NA	89.3
Shaft	1/12/2024	SHAFT-HW-0016021-23330-N	Petroleum Hydrocarbons (Total)	266	89
Shaft	1/12/2024	SHAFT-HW-0016021-23330-N	Selenium	50	1.7

Shaft	1/30/2024	SHAFT-HW-0016021-23330-N-P-R1	Barium	2000	1.8
Shaft	1/30/2024	SHAFT-HW-0016021-23330-N-R1	Barium	2000	1.8
Shaft	1/30/2024	SHAFT-HW-0016021-23330-N-P-R1	Bis(2-ethylhexyl)phthalate	6	0.95
Shaft	1/30/2024	SHAFT-HW-0016021-23330-N-R1	Bis(2-ethylhexyl)phthalate	6	0.76
Shaft	1/30/2024	SHAFT-HW-0016021-23330-N-P-R1	Chromium	100	1.2
Shaft	1/30/2024	SHAFT-HW-0016021-23330-N-R1	Chromium	100	0.62
Shaft	1/30/2024	SHAFT-HW-0016021-23330-N-P-R1	Copper	1300	27.2
Shaft	1/30/2024	SHAFT-HW-0016021-23330-N-R1	Copper	1300	28.9
Shaft	1/30/2024	SHAFT-HW-0016021-23330-N-P-R1	Lead	15	0.3
Shaft	1/30/2024	SHAFT-HW-0016021-23330-N-R1	Lead	15	0.39
Shaft	1/30/2024	SHAFT-HW-0016021-23330-N-R1	Selenium	50	1.3
Shaft	1/30/2024	SHAFT-HW-0016021-23330-N-R1	Thallium	2	0.05

COMMUNITY REPRESENTATION MEETING

MARCH 21, 2024

SUSAN A. PCOLA-DAVIS



My Graph

Measure: Long term monitoring periods **AKA APPLES TO ORANGES**

1. X Axis: **Number of Detections**
2. Y Axis: **Total # Samples**
3. Periods 1-3 Percentages by period (1-month periods)
4. Periods 4-6 Percentages by periods (3-month periods)
5. USING THESE TWO DIFFERENT PERIOD SCALES ON THE SAME GRAPH SHOWS THE DECEPTION OF THE VALUES
6. Yellow Average Boxes: Show Average ug/L per period. **NOT RELEVANT**

Proportions of Sampling based on the Plan
Total # Homes = 9715

Period 1: 897 (5%)
Period 2: 892 (5%)
Period 3: 886 (5%)

RESIDENCES	9715
Other	1503
Total	11218

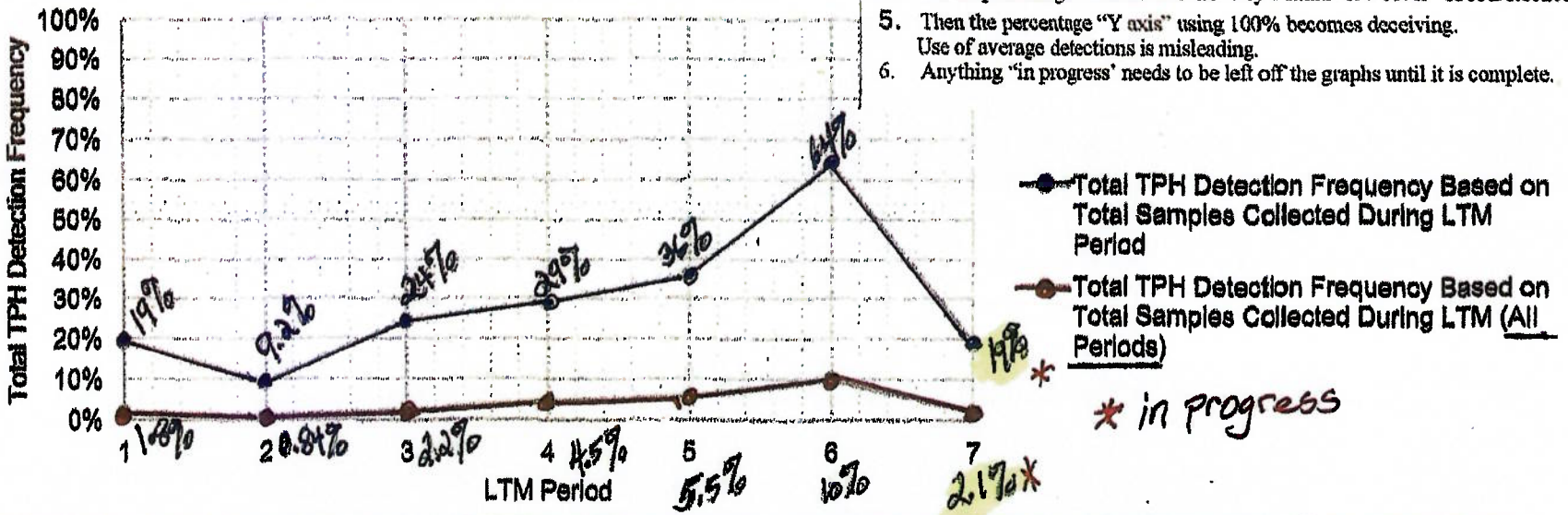
Period 4: 497 x 3=1492 (10%)
Period 5: 496 x 3=1490 (10%)
Period 6: 507 x 3=1522 (10%)

FIAC MARCH 7, 2024

Overview of Low-Level TPH Detections

SAFE. DELIBERATE. ENGAGED. COMMITTED.

1. Slide did not use data labels.
2. Column with Total TPH detections through all periods. How was that calculated? Why is it important?
3. Added cells for the total number of samples and total number of detections for perspective.
4. Use of percentages will not tell the story behind "low level" TPH Detections.
5. Then the percentage "Y axis" using 100% becomes deceiving. Use of average detections is misleading.
6. Anything "in progress" needs to be left off the graphs until it is complete.

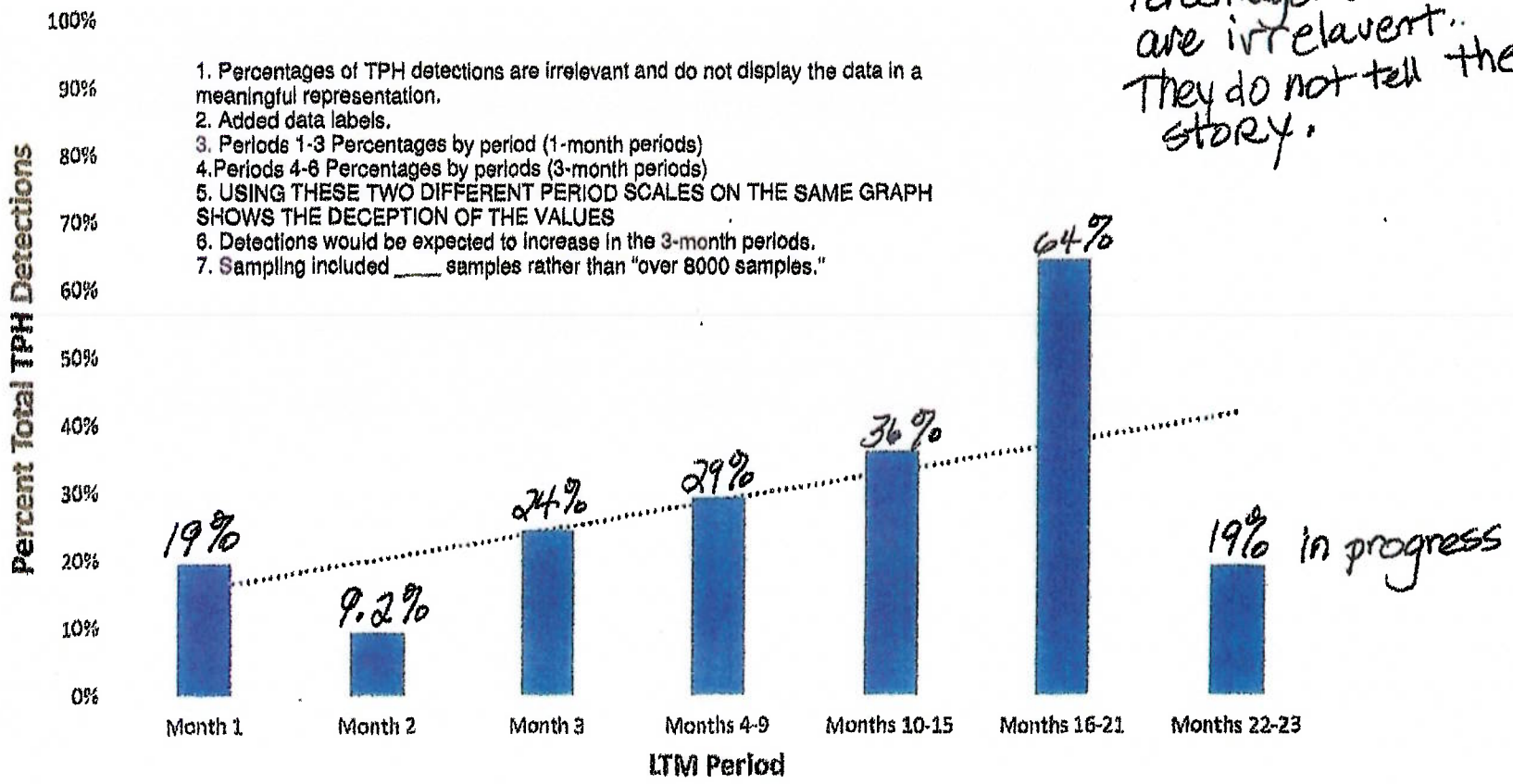


LTM Period	Number of Samples	Number of Total TPH Detects	Total TPH Detection Frequency (Based on Number of Samples Collected During Current LTM Period)	Total TPH Detection Frequency (Based on Total Number of Samples Collected During All LTM Periods)	Average Detected Concentration
Period 1 (Month 1)	897	174	19%	1.8%	65 ug/L
Period 2 (Month 2)	892	85	9.2%	0.84%	63 ug/L
Period 3 (Month 3)	886	216	24%	2.2%	67 ug/L
Period 4 (Month 4)	1,492	434	29%	4.5%	65 ug/L
Period 5 (Month 10)	1,490	536	36%	5.5%	67 ug/L
Period 6 (Month 16)	1,522	977	64%	10%	80 ug/L
Period 7 (Month 22)*	1,094	208	19% (In-progress) *	2.1% (In progress) *	73 ug/L
Total	8273	2630			

Sate Waters website
Additional Information
Petroleum Hydrocarbon Detection Summary
(7)

Low Level Petroleum Hydrocarbon Detections

Percent of Total Petroleum Hydrocarbon Detections by LTM Period
March 2022 – February 2024



Percentages of TPH are irrelavent.. They do not tell the story.

in progress

- Long Term Monitoring TPH sampling included over 8000 samples through Period 7
- Detections increased notably in Long Term Monitoring Periods 5 and 6

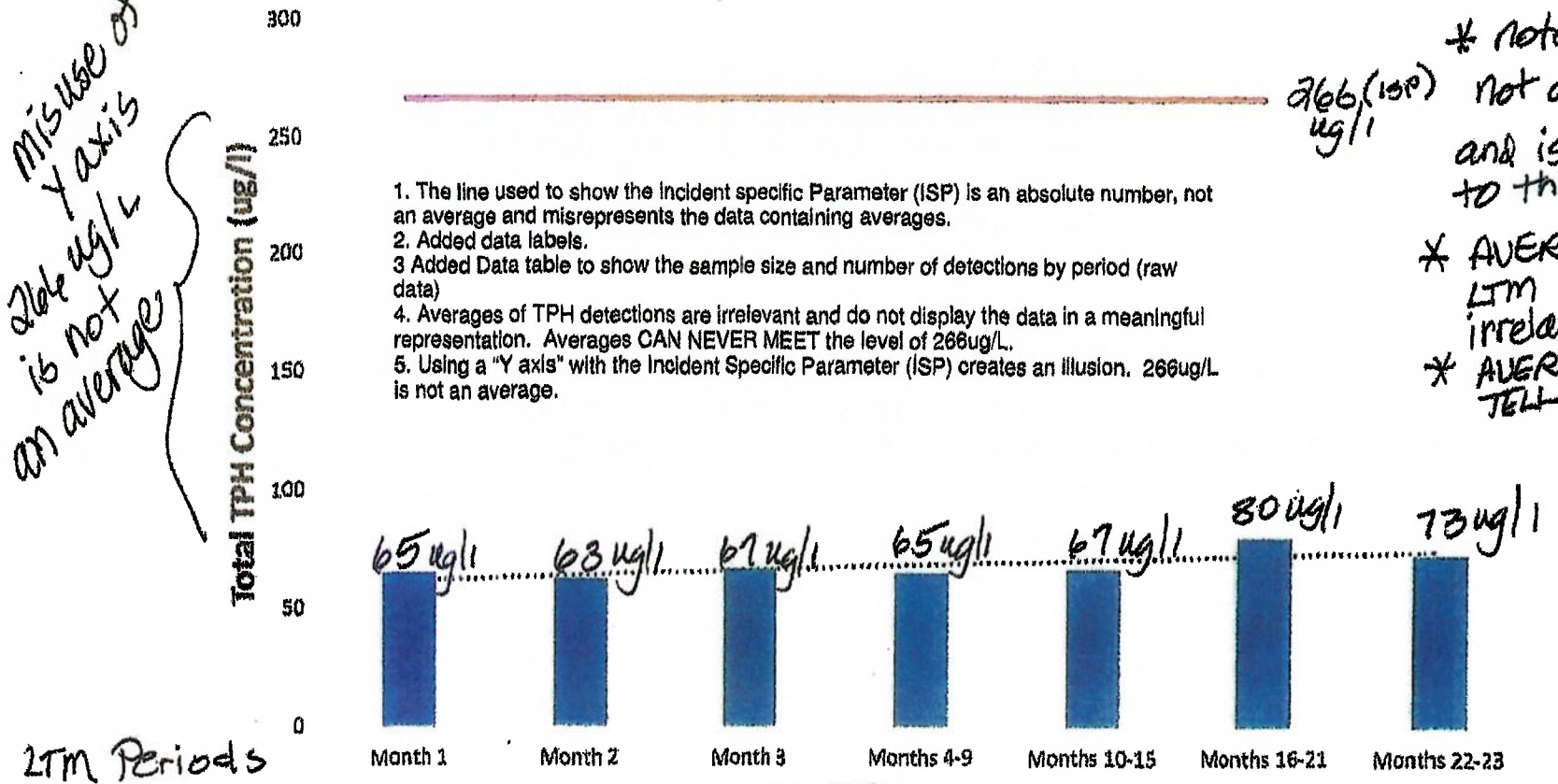
Safe Waters Website
Additional information
Petroleum Hydrocarbon Detection Summary

9

Low Level Petroleum Hydrocarbon Detections

Average Total Petroleum Hydrocarbon Concentration by LTM Period
March 2022 – February 2024

misuse of Y axis
266 ug/L is not an average



1. The line used to show the Incident specific Parameter (ISP) is an absolute number, not an average and misrepresents the data containing averages.
2. Added data labels.
3 Added Data table to show the sample size and number of detections by period (raw data)
4. Averages of TPH detections are irrelevant and do not display the data in a meaningful representation. Averages CAN NEVER MEET the level of 266ug/L.
5. Using a "Y axis" with the Incident Specific Parameter (ISP) creates an illusion. 266ug/L is not an average.

* note 266 is not an average and is irrelevant to this measure
* AVERAGE PER LTM PERIOD is irrelevant.
* AVERAGES DO NOT TELL THE STORY

LTM Periods

	Month 1	Month 2	Month 3	Months 4-9	Months 10-15	Months 16-21	Months 22-23
SAMPLE SIZE	897	892	886	1492	1490	1582	In progress
# detection	174	85	216	434	536	977	

All TPH detections have been below Incident Specific Parameter (ISP) of 266 ug/l

The difference between **ug/L** (micrograms per liter) and **mg/L** (milligrams per liter) lies in their scale:

1. ug/L (Micrograms per Liter):

1 ug/L is equal to **0.001 mg/L.**
It represents a very small concentration, where the substance is present in **microgram** quantities per liter of solution.
For example, if a pollutant has a concentration of 5 ug/L in water, it means there are 5 micrograms of that substance in every li

2. mg/L (Milligrams per Liter):

1 mg/L is equal to **1000 ug/L.**
It represents a larger concentration, where the substance is present in **milligram** quantities per liter of solution.
For instance, if a chemical has a concentration of 2 mg/L in a solution, it means there are 2000 micrograms of that substance i

In summary, **ug/L** is a smaller unit of measurement than **mg/L**, with 1 mg/L being equivalent to 1000 ug/L.
These units are commonly used in environmental and water quality assessments to express the concentration of various subs

Engage with and Ask Big Questions of Your Data

Here are examples of questions to ask yourself when handling data:

- What am I hoping to understand?
- What do I need to know to make a certain business decision?
- What story is this data telling?
- What do the relationships between variables mean for the Navy Water Distribution System Consumers?
- What if ____ changed? Which variables, trends, or forecasts would be impacted?
- What needs to change in the data to get the desired outcome?
- Why does the data trend in this direction, and what does it mean for the future?
- How can I further analyze the data to get the answers needed to make important decisions?

Make the data work for you by determining what you need to know and the best way to answer questions using available data. Improving your data and analytical skills is an ongoing process, and each experience offers a chance to learn more

Meredith Wilson
BWS Board Meeting Testimony – 3/25/24

Aloha, I am happy that BWS has continued to stay on top of all the innerworkings related to Red Hill and its ongoing threat to Oahu.

Your March 8th letter to EPA & DOH was necessary to remind them that they should be *requiring* & not *requesting* anything of the Navy moving forward. In fact, it is correct that the 2015 AOC provides regulators to continue including PFAS sampling under their authority.

I, too, am upset that the Navy plans to not begin the Remediation Investigation until FY 2025. This may be in part due to their lack of approved contaminant fate & transport and groundwater models.

Since you are another water purveyor, I have a few questions regarding testing:

1. Since the Navy officials have mentioned that chlorine in samples is "causing peaks to show up," why has TPH been detected in the pre-chlorinated samples from Waiawa Shaft? At which point is the water chlolrinated, before or after it reaches the Shaft?

2. The EPA newly provided a nice & simplified Fact Sheet (attached) on their Red Hill webpage showing what kinds of tests are being done in the different Water Sampling Programs. De-icer nor certain fuel additives are being tested in tap water samples. Is there any logic in only testing the Shaft or Groundwater for these things and not the end users?

3. In general, how does silica gel cleanup affect petroleum metabolite testing? A California Water Board has stated testing should be done *without it* in order to evaluate risk.

4. Can BWS identify any other partially oxidized fuel-related degradation products to test for? Of course, if we didn't have to guess and rely on original fuel composition info from the Navy, we could have a better idea of what to look for. But I fear that we're missing important analytes—some metabolites are actually more toxic than parent compounds.

There are attempts to diminish opportunities for public testimony like we recently saw proposed by Naval authorities for the CRI meetings. I applaud the BWS Board for reliably providing a safe & productive space where we can engage.

Mahalo for your time & Ola I Ka Wai.

References:

EPA Red Hill Water Sampling Programs fact sheet-
https://www.epa.gov/system/files/documents/2024-03/fact-sheet-red-hill-water-sampling-programs.pdf

CA Water Board Literature Review of Petroleum Metabolites-
https://www.waterboards.ca.gov/rwqcb2/publications_forms/documents/SF_WB_Petroleum_Metabolites.pdf

EPA Provisional Peer-Reviewed Toxicity Values for Complex Mixtures of Aliphatic and Aromatic Hydrocarbons-
https://assessments.epa.gov/risk/document/&deid=355902#downloads

Red Hill Water Sampling Programs

Drinking Water Source Sampling

Routine regulatory samples are collected semi-annually from drinking water wells/shafts prior to entering the drinking water distribution system. Samples are analyzed for regulated drinking water chemicals and evaluated for exceedances of health-based standards or MCLs. Under the **Drinking Water Long-Term Monitoring** (March 2022 – March 2024) and **Extended Drinking Water Monitoring** (April 2024 – March 2025) programs, samples are collected from active sources each monitoring period for regulated drinking water chemicals as well as TPH and other analytes (napthalenes, Total Organic Carbon -TOC).

Tap Water Sampling

Tap samples are also collected from buildings and residences as part of the Drinking Water Long-Term Monitoring and Extended Drinking Water Monitoring. A total of **65%** of the residences will have been sampled at least once by March 2024. The remaining **35%** of residences will be sampled under Extended Drinking Water Monitoring. Sample locations are to be geo-spatially distributed throughout each zone of the water system.

Groundwater Sampling

Groundwater samples are collected as part of the environmental investigation and represent specific locations and depths in the aquifer. Currently, samples are collected every one to three months from **37 groundwater monitoring wells** to provide information about the extent and magnitude of contamination in the aquifer and help inform where and what types of remediation should occur.

Fact Sheet Updated: March 21, 2024

What is Navy sampling for in the water?

		Drinking Water Source Sampling	Tap Water Sampling	Groundwater Sampling
TPH	• Gasoline Range • Diesel Range • Oil Range	Yes	Yes	Yes
Fuel Constituents	• Benzene, • Toluene, • Ethylbenzene, • Xylenes, • Naphthalene, • Benzo[a]pyrene	Yes	Yes	Yes
Fuel Additives	• EDB • EDC	Yes	No	Yes, EDB in some samples
De-Icer	• 2-(2-methoxyethoxy) ethanol	Yes, Red Hill Shaft only	No	Yes, in some samples
Metals	• Lead • Arsenic • Chromium • Mercury	Yes, except for lead	Yes	No, except for lead in some samples
General Water Quality Parameters	• Total Coliform (bacteria) • Chlorine • Ferrous Iron • Nitrate • Chloride	No, except for nitrate	Yes, except iron, chlorides	No, except for nitrate and chloride

Note: This table includes the most critical compounds. Additional compounds are included in each sampling program.

This table will be updated for **Extended Drinking Water Monitoring** (starting April 2024) when the plan is finalized.

What is TPH?

Total Petroleum Hydrocarbons (TPH) refers to hydrocarbons from a petroleum source such as crude oil. The term is used in the context of chemical analyses performed by laboratories on soil, water and air samples. There are thousands of individual petroleum compounds ranging from gases such as butane, to solids such as tar used to produce asphalt.

How to interpret results

If the laboratory detects a chemical when analyzing samples, regulators compare the results to one or more of the following numbers:

Non-Detect (ND): a "non-detect" result indicates that the chemical in question was not measured in the sample above the lowest level the analytical method can see. This is known as a detection limit. It is not possible to have a **ZERO result**. Every lab method has a detection limit.

Screening Criteria – Incident Specific Parameters (ISPs): for the Drinking Water Long-Term Monitoring Plan, the Hawai'i Department of Health (DOH) set a Red Hill ISP for Total Petroleum Hydrocarbons (TPH) in drinking water, currently set at **266 ppb**. Sample concentrations above this threshold indicate that additional evaluation of potential health risk is required.

Screening Criteria – Environmental Action Levels (EALs): are published by DOH and are used to screen concentrations of contaminants in soil, soil gas, and groundwater to help expedite the identification and evaluation of potential environmental concerns at contaminated sites.

Screening Criteria – Regional Screening Levels (RSLs): are published by EPA for more than **850 contaminants**. They are used to evaluate human health risks from exposure to contamination in soil, tap water, and air and for making environmental cleanup decisions. They represent the most current and best available science with respect to chemical toxicity.

Drinking Water Standard – Maximum Contaminant Levels (MCLs): are a legally enforceable drinking water standard under the Safe Drinking Water Act. EPA has established MCLs for approximately **80 contaminants**.

Fact Sheet Updated: March 21, 2024

What do TPH methods measure?

Laboratory methods for measuring TPH in the environment look for chemical compounds derived from petroleum However, laboratory methods can mis-identify natural organic substances such as those associated with decaying vegetation as TPH.

Is all TPH toxic?

Petroleum compounds vary greatly with respect to properties such as their toxicity. Benzene, a component of gasoline, is highly toxic and a known human carcinogen. In contrast, petroleum jelly is composed of compounds that are considered completely benign. Using TPH measurements to evaluate risk carries uncertainties because these measurements do not identify specific petroleum chemicals that are present. To determine the presence of specific petroleum compounds requires the use of more targeted chemical analyses.

How much is a Part Per Billion?

A way to visualize one part per billion (ppb) in water is to think of it as one drop in one billion drops of water or about one drop of water in a swimming pool. One part per million is about one cup of water in a swimming pool.

ITEM FOR INFORMATION NO. 2

"March 25, 2024

RESULTS OF THE SALE OF THE BOARD OF WATER SUPPLY WATER SYSTEM REVENUE BONDS, SERIES 2024

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

Chair and Members:

Subject: Result of the Sales of the Board of Water Supply Water System Revenue Bonds

Pursuant to Board of Water Supply Resolution No. 981, 2024, authorizing the issuance of Water System Revenue Bonds, the Board issued a total of $72,815,000 principal amount of Board of Water Supply Water System Revenue Bonds, Series 2024 dated April 3, 2024.

The proceeds of the Series 2024 bonds will be used: (1) to pay the cost of improvements authorized in the capital budget of the Board; (2) to pay the costs of issuance of the Series 2024 bonds; and (3) to fund a trust fund to provide for the refunding and redemption of all the Board's Water System Revenue Bonds, Series 2014A and Series 2014B.

The bonds were assigned a rating of AAA, with a Stable Outlook, from both S&P Global Ratings and Fitch Ratings. The Series 2024 bonds were sold on March 12, 2024, at an all-in true interest cost of 4.12 percent.

Net proceeds for the bonds of $54,000,000 will be deposited into the BWS Improvement Fund for the capital budget.

BofA Securities served as the lead underwriter, Raymond James served as the co-manager, and Orrick, Herrington & Sutcliffe LLP served as bond counsel to the Board.

Respectfully Submitted,

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

Attachment"

The foregoing was for information only.

DISCUSSION: Kaliko Lum Kee, Acting Waterworks Controller, Finance Division, gave the report.

Chair Anthony congratulated the BWS for selling the BWS bonds and maintaining the AAA rating.

Manager Lau thanked Mr. Kaliko Lum Kee and his team for their hard work and the successful sale of the BWS bonds.

ITEM FOR INFORMATION NO. 3

"March 25, 2024

WATER CONSERVATION INITIATIVES UPDATE 2024

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

Chair and Members:

Subject: Water Conservation Initiatives Update 2024

The Board of Water Supply looks at conservation as a cornerstone in protecting our precious wai and we have many activities to promote conservation on our island. Today, we are pleased to share with you an update from our Communications and Water Resources teams on initiatives and programs we have been working on and rolling out to promote conservation.

Respectfully Submitted,

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

Attachment"

The foregoing was for information only.

DISCUSSION: Steven Norstrom, Information Specialist II, Communications Office, and Lorna Heller, Civil Engineer VI, Water Resources Division, gave the report. There were no comments or discussion.

Board Member Bryan Andaya expressed his appreciation for the department's conservation efforts. He mentioned the aging infrastructure and delivery systems of various condominiums and homeowner association communities and suggested that the BWS look into incorporating them into the water conservation program.

Chair Anthony agreed with Board Member Andaya. He suggested looking into buildings that allow submetering to determine the cause or who is responsible.

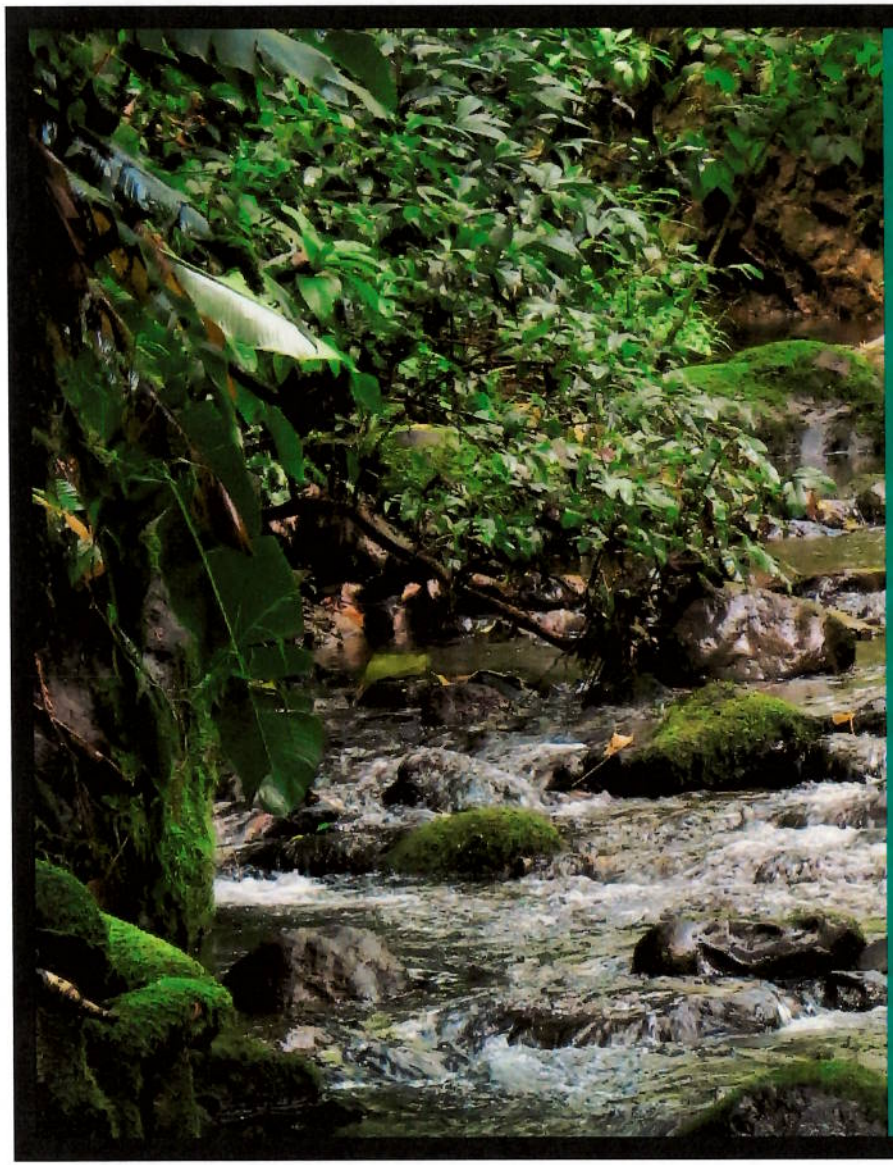
Ms. Kathleen Elliott-Pahinui stated that the BWS has a robust program under Mr. Steven Norstrom's guidance, contacting the Association of Apartment Owners (AOAO) and Homeowner Associations (HOA). She shared that Manager Lau and Mr. Norstrom have visited several communities, and the BWS will be part of a town hall meeting with Senator Mike Gabbard in Kapolei. Ms. Elliott-Pahinui also shared that Manager Lau asked Ms. Lorna Heller and herself to participate in the Hawaii State Pace Funding Program, which helps with commercial building retrofits with hopes of expanding it to condominiums. The BWS

has attended bi-weekly meetings with various City and State Offices to share information about the program.

Manager Lau clarified that the program Ms. Elliott-Pahinui described is the Commercial Property Assessed Clean Energy (C-PACE), under the Hawaii Green Infrastructure Authority, a low-cost financing program allowing associations to spread the cost over time. The BWS wants to partner with Hawaii Energy to leverage rebates and buy down costs for associations to fund improvements.

Chair Anthony commented that seeing the cost savings and the case study on switching toilets to high-efficiency toilets in hotels would be interesting.

Board Member Andaya congratulated all the American Water Works Association and the Hawaii Water Works Association awardees.



CONSERVATION UPDATE

Steven Norstrom, Communications
Lorna Heller, Water Resources
March 25, 2024
boardofwatersupply.com

OVERVIEW

- Water Sensible Program
- WaterSmart
- Conservation Advertising
- Rain Barrel Workshops
- Calendar Contest
- Xeriscape Garden

WATER SENSIBLE PROGRAM TIMELINE

2017	2018	2019	2022	2023
Water Sensible contract awarded to Honeywell	Launched Residential Clothes Washers and Rain Barrel Rebates	Launched Food Service Program, WBIC Rebate, Direct Install Program	Launched Commercial Rebate Program, and Cooling Tower and Toilet Rebates	Launched Smart Water Monitor, Submeter Rebates, and Trade Ally Program

RESIDENTIAL PROGRAM OVERVIEW

Clothes Washer
$75 rebate

ASK ABOUT ENERGY STAR

look for WaterSense Meets EPA Criteria

Toilet

look for WaterSense Meets EPA Criteria

Weather Based
Irrigation Controller
Up to $100

Smart Water Monitor
Up to $200

Rain Barrel
$40 rebate

TOILET REBATE INCREASED TO $100 (JANUARY 19 – APRIL 18)

COMMERCIAL PROGRAM OVERVIEW

Kitchen

Landscaping

Plumbing

Cooling Tower

WATER WISDOM LARGE CONDOMINIUM PROGRAM

Board of Water Supply

New WaterWisdom Program For Condominium Residents

Water is a finite resource, and cutting water usage is essential to ensure an adequate supply today and for future generations. We need to make wise water use a part of our daily routine.

WaterWisdom

Here are some easy ways to use less water:

- Shorten your shower by a minute to save water.
- Turn off your tap when brushing your teeth. This can save approximately 70 gallons of water per month.
- A leaking pipe outside your building or misdirected/broken sprinkler wastes precious water. Report it immediately to your building manager. Remember, an apartment building is a community, and what impacts your building affects everyone.
- Fix drips and faucet leaks in your unit. Drips often go unreported since they seem small, but a constant drip can lead to a spike in water consumption, wasting more than 200 gallons of water a year.
- Use your washing machine with full loads only.
- Check for leaks. The most damaging leaks are silent and happen in water heaters, walls, and floors. They also can be destructive and expensive to fix.
- Inspect bathroom fixtures for leaks. A faulty toilet flapper can waste as much as 200 gallons of water per hour.
- Wash fruits and vegetables in a pan or bowl of water instead of under running tap water.
- Use the water from any leftover ice to water your indoor plants.

NEW WATER CONSERVATION PROGRAMS

Top water user outreach

- Hotels, other businesses, condos and townhomes

Direct install for Kupuna living on their own

- Free low flow showerheads and faucet aerators
- Water audits of homes
- Ensure Kupuna are getting appropriate rebates

TRADE ALLY PROGRAM

Training	Help Sell Goods and Services	Marketing Resources	Vendor List
Protecting Future Generations	Additional Revenue	Recognition Amongst Peers	CO-OP Advertising

PROGRAM HIGHLIGHTS BY THE NUMBERS

69,560,400
Gallons Saved/Year

13,331
Rebates Issued

$890,721
($) Rebates Provided

1,908
Toilets

986
Rain Barrels

9,972
Clothes Washers

453
WBICs

Water Sensible Monthly Dashboard
February 2024

Residential Rebate Table: Clothes Washer, Rain Barrel, & WBIC

Metric	Cumulative Clothes Washers*	Cumulative Rain Barrels*	Cumulative WBIC**	Monthly Clothes Washers	Monthly Residential Rain Barrels	Monthly WBIC
Applications Received	11,113	849	553	197	17	13
Rebates Provided	10,142	996	457	172	12	8
Incentives	$757,800	$39,640	$29,213	$12,900	$480	$501
Gallons Saved/Year	59,426,400	2,191,200	5,166,500	846,240	26,400	60,800
Lifetime Gallons Saved	788,811,360	33,352,000	32,292,500	9,308,640	264,000	608,000

*Program Inception - May 2018 **WBIC Inception - March 2019

Residential Rebate Table: Smart Water Monitor

Metric	Cumulative Smart Water Monitor*	Monthly Smart Water Monitor
Applications Received	24	3
Rebates Provided	8	2
Incentives	$1,549	$400
Gallons Saved/Year	131,400	32,850
Lifetime Gallons Saved	254,423,250	328,500

*Rebate Inception - July 2023

Residential Rebate Table: Toilets

Metric	Cumulative Residential Toilets*	Monthly Residential Toilets
Applications Received	1,626	104
Rebates Provided	1,831	136
Incentives	$87,247	$6,120
Gallons Saved/Year	3,218,898	239,088
Lifetime Gallons Saved	64,377,960	4,781,760

*Rebate Inception - September 2022

Commercial Rebate Table

Metric	Cumulative Commercial Kitchen, Plumbing, and Landscape*	Cumulative Commercial Cooling Tower**	Monthly Commercial Kitchen, Plumbing, and Landscape	Monthly Commercial Cooling Tower
Applications Received	49	2	0	0
Rebates Provided	227	1	0	0
Incentives	$12,295	$413	$0	$0
Gallons Saved/Year	631,380	584,000	0	0
Lifetime Gallons Saved	11,649,280	2,920,000	0	0

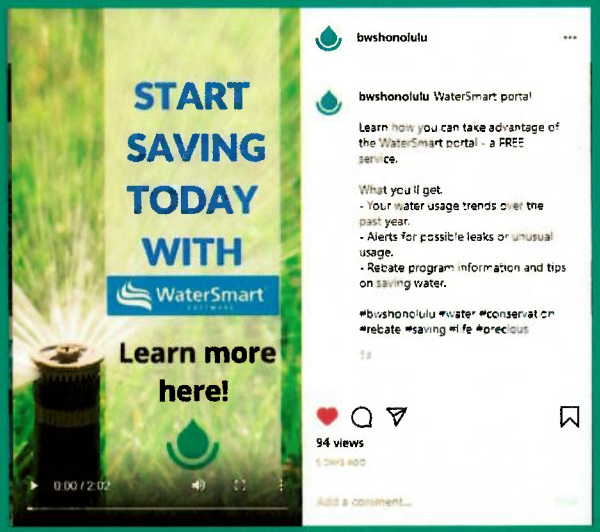
* Program Inception - February 2022 **Cooling Tower Inception - December 2022

CUSTOMER SERVICE

CUSTOMER SERVICE MONTHLY METRICS

TOTAL	METRIC
2	REBATE CYCLE TIME (# WEEKS)
9.6	CUSTOMER SATISFACTION SURVEY - OVERALL REBATE PROGRAM SATISFACTION
9.7	CUSTOMER SATISFACTION SURVEY - LIKELIHOOD TO RECOMMEND

WATERSMART



www.honolulu.watersmart.com

WATER SENSIBLE & CONSERVATION SOCIAL MEDIA

MARKETING

- April: Water Conservation / Detect-A-Leak
- May: Water Conservation / Poster and Poetry Contest
- June: Water Conservation / Disaster Preparedness
- July: Water Conservation / Smart Irrigation Month
- August: Water Conservation / Disaster Preparedness
- September: Water Conservation / Disaster Preparedness
- October: Water Conservation / Imagine A Day Without Water
- November & December: Water Conservation / Holiday Theme

WATER CONSERVATION EVENTS

- Ka Wai Wednesday
- World Water Day
- Detect-A-Leak Week
- Smart Irrigation Month
- BWS Water Conservation Week
- Source Water Protection Week
- Imagine a Day Without Water

Proclamation

WHEREAS, O'ahu's limited precious water resources are vital to sustain our high-standard of living and prosperous economy, while maintaining the health and welfare of residents; and

WHEREAS, the City and County of Honolulu's Board of Water Supply (BWS) continues its mission to protect O'ahu's water supply by providing its residents with an abundance of fresh and safe drinking water through more than 2,100 miles of pipeline; and

WHEREAS, residents are called upon to be responsible stewards of this finite resource through regular leak detection, such as the repair of leaky pipes, faucets, irrigation systems, and toilets, and to replace older inefficient toilets with WaterSense (1.28 gallons per flush) labeled models, as an effective way to save water from going to waste; and

WHEREAS, the BWS will observe the annual Detect-A-Leak Week campaign from April 16 – 22, 2023, to promote the significance of leak detection, with an emphasis on the importance of replacing older toilets with WaterSense labeled models; and

WHEREAS, Hardware Hawai'i is co-sponsoring this campaign by contributing four WaterSense labeled toilets to be given away to help consumers save water and money on their water bills; and

WHEREAS, free toilet leak detection dye tablets will be available during Detect-A-Leak Week at Hardware Hawai'i stores, satellite city halls, or in the lobby of the BWS's Public Service building.

NOW, THEREFORE, I, RICK BLANGIARDI, Mayor of the City and County of Honolulu, do hereby proclaim April 16 – 22, 2023, to be

2023 DETECT-A-LEAK WEEK

to strongly encourage O'ahu residents to participate in regular water conservation practices, especially leak detection in homes and places of business.

Done this 16th day of April, 2023,
in Honolulu, Hawai'i.

RICK BLANGIARDI

WATER CONSERVATION EVENT PARTNERS

- Board of Water Supply
- Dept of Facility Maintenance
- Dept of Environmental Services
- Resilience Office
- Commission of Water Resource Management
- Dept Forestry and Wildlife
- Division of Aquatics Research
- Hawai'i State Parks
- Hawai'i Climate Commission
- Hawai'i Invasive Species Council
- Sierra Club of Hawai'i
- Ko'olau Mountains Watershed Partnership
- Wai'anae Mountains Watershed Partnership
- Honolulu Fire Department
- Division of Aquatics Research
- UH College of Tropical Agriculture and Human Resources
- Dept of Health
- Dept of Water Hawai'i County
- Sustainable Coastlines Hawai'i

HAWAII GREEN BUSINESS PROGRAM (GBP)

WORK WITH BUSINESSES TO:

- Conserve Energy & Water
- Preserve Culture & Natural Resources
- Increase Community involvement
- Prevent Pollution
- Reduce Waste

CATEGORIES:

- Hotel
- Restaurant
- Venue or event
- Office
- Grocery

DBEDT

Board of Water Supply

Hawaii State Department of Health

HAWAII GREEN BUSINESS PROGRAM

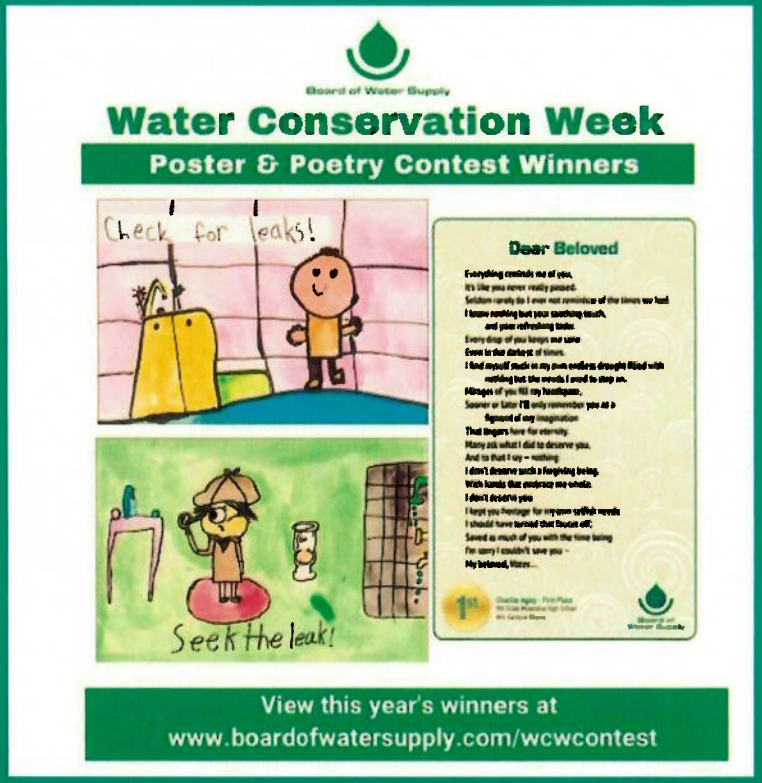
RAIN BARREL WORKSHOPS

XERISCAPE GARDEN

- February 2023 reopened Garden
  focus on new garden volunteers
- August 5, 2023- Annual Xeriscape Garden Plant Sale
- 2024 Temporary Closure of Garden during building upgrades
  (reroofing, painting, window/door frames, electrical, lighting)
- Morning news: KHON2 Take2 (monthly)
  gardening segment focus on Xeriscape
- Outreach to schools, parks, senior groups and community events

ANNUAL CALENDAR CONTEST

- 2024 Theme: Our Water, Our Home
- Poster Schools: 50
  Poem Schools: 11
- Number submitted:
  - Posters: 841
  - Poems: 312




Mahalo!
BOARD OF
WATER SUPPLY
Providing safe, dependable, and affordable
drinking water, now and into the future.

ITEM FOR INFORMATION NO. 4

"March 25, 2024

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

Five aquifer index stations were in low groundwater condition for the production month of February 2024. Kaimukī, Moanalua, Pearl City, Punalu'u, and Waialua are in Caution Status. The monthly production average for February 2024 was 127.10 million gallons per day.

The Board of Water Supply rainfall index for the month of February 2024 was 87 percent of normal, with a 5-month moving average of 84 percent. As of March 5, 2024, the Hawai`i Drought Monitor shows abnormally dry conditions across the southwestern half of O'ahu. The National Weather Service is forecasting below-normal precipitation through June 2024.

Most monitoring wells exhibited slightly increasing head levels for the month of February 2024, primarily reflecting the seasonal lower production. Average monthly production for February 2024 was higher than February 2023 and similar to the 5-year monthly average. Increased conservation messaging is recommended into mid-2024.

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. There were no comments or discussion.

PRODUCTION, HEAD AND RAINFALL REPORT
MONTH OF FEBRUARY 2024

POTABLE

STATION	MGD
HONOLULU (1)	
KULIOUOU	0.07
WAILUPE	0.13
AINA KOA	0.00
AINA KOA II	0.52
MANOA II	0.95
PALOLO	1.06
KAIMUKI HIGH	2.18
KAIMUKI LOW	0.60
WILDER	8.04
BERETANIA HIGH	1.11
BERETANIA LOW	1.86
KALIHI HIGH	3.70
KALIHI LOW	2.49
KAPALAMA	0.18
KALIHI SHAFT	8.09
MOANALUA	2.44
HALAWA SHAFT	0.00
KAAMILO	0.87
KALAUAO	8.80
PUNANANI	9.26
KAAHUMANU	0.28
HECO WAIAU	2.71
MANANA	0.23
WAIALAE IKI	0.55
WELLS SUBTOTAL:	56.12
MANOA TUNNEL	0.17
PALOLO TUNNEL	0.00
GRAVITY SUBTTL:	0.17
HONOLULU SUBTTL:	56.29

STATION	MGD
WINDWARD (2)	
WAIMANALO II	0.67
WAIMANALO III	0.00
KUOU I	0.00
KUOU II	0.79
KUOU III	0.78
LULUKU	0.86
HAIKU	0.30
IOLEKAA	0.00
KAHALUU	0.57
KAHANA	0.59
PUNALUU I	0.00
PUNALUU II	1.14
PUNALUU III	0.08
KALUANUI	1.96
MAAKUA	0.29
HAUULA	0.26
WELLS SUBTOTAL:	8.30
WAIM. TUNNELS I & II	0.00
WAIM. TUNNELS III&IV	0.19
WAIHEE INCL. WELLS	0.30
WAIHEE TUNNEL	4.68
LULUKU TUNNEL	0.16
HAIKU TUNNEL	0.38
KAHALUU TUNNEL	1.70
GRAVITY SUBTOTAL:	7.41
WIND. SUBTOTAL:	15.71

STATION	MGD
NORTH SHORE (3)	
KAHUKU	0.38
OPANA	1.00
WAIALEE I	0.42
WAIALEE II	0.69
HALEIWA	0.00
WAIALUA	1.18
N.SHORE SUBTOTAL:	3.67

MILILANI (4)	
MILILANI I	1.53
MILILANI II	0.00
MILILANI III	0.60
MILILANI IV	1.81
MILILANI SUBTOTAL:	3.94

WAHIAWA (5)	
WAHIAWA	1.73
WAHIAWA II	0.94
WAHIAWA SUBTOTAL:	2.66

PEARL CITY-HALAWA (6)	
HALAWA 277	0.00
HALAWA 550	0.00
AIEA	0.00
AIEA GULCH 497	0.00
AIEA GULCH 550	0.19
KAONOHI I	1.46
WAIMALU I	0.00
NEWTOWN	1.75
WAIAU	1.71
PEARL CITY I	0.77
PEARL CITY II	1.07
PEARL CITY III	0.19
PEARL CITY SHAFT	0.86
PEARL CITY-HALAWA SUBTOTAL:	7.99

STATION	MGD
WAIPAHU-EWA (7)	
WAIPIO HTS.	1.67
WAIPIO HTS. I	0.00
WAIPIO HTS. II	0.29
WAIPIO HTS. III	1.05
WAIPAHU	6.67
WAIPAHU II	1.86
WAIPAHU III	1.44
WAIPAHU IV	2.53
KUNIA I	4.36
KUNIA II	1.61
KUNIA III	1.34
HOAEAE	4.50
HONOULIULI I	0.00
HONOULIULI II	5.57
MAKAKILO	0.00
WAIPAHU-EWA SUBTOTAL:	32.89

WAIANAE (8)	
MAKAHA I	0.79
MAKAHA II	0.00
MAKAHA III	0.12
MAKAHA V	0.08
MAKAHA VI	0.00
MAKAHA SHAFT	0.00
KAMAILE	0.05
WAIANAE I	0.27
WAIANAE II	0.33
WAIANAE III	0.76
WELLS SUBTOTAL:	2.40
WAIA. C&C TUNNEL	1.40
WAIA. PLANT. TUNNELS	0.14
GRAVITY SUBTOTAL:	1.54
WAIANAE SUBTOTAL:	3.94

NONPOTABLE

NONPOTABLE	MGD
KALAUAO SPRINGS	0.47
BARBERS POINT WELL	0.92
GLOVER TUNNEL NP	0.31
NONPOTABLE TOTAL:	1.70

RECYCLED WATER (JANUARY 2024)

RECYCLED WATER	MGD
HONOULIULI WRF R-1	3.47
HONOULIULI WRF RO	1.47
RECYCLED TOTAL:	4.94

PRODUCTION, HEAD AND RAINFALL REPORT
MONTH OF FEBRUARY 2024

PRODUCTION SUMMARIES

TOTAL WATER	MGD
PUMPAGE	117.98
GRAVITY	9.12
POTABLE TOTAL:	127.10
NONPOTABLE	1.70
RECYCLED WATER	4.94
TOTAL WATER:	133.73

CWRM PERMITTED USE AND BWS ASSESSED YIELDS FOR BWS POTABLE SOURCES

	WATER USE DISTRICTS	A PERMITTED USE/ BWS YLDS	B FEB 2024	C DIFF. A-B
1	HONOLULU	83.32	56.12	27.20
2	WINDWARD	25.02	15.71	9.31
3	NORTH SHORE	4.70	3.67	1.03
4	MILILANI	7.53	3.94	3.59
5	WAHIAWA	4.27	2.66	1.61
6	PEARL CITY-HALAWA	12.25	7.99	4.26
7	WAIPAHU-EWA	50.63	32.89	17.74
8	WAIANAE	4.34	3.94	0.40
	TOTAL:	192.06	126.93	65.13

CWRM PERMITTED USE FOR BWS NONPOTABLE SOURCES

	WATER USE DISTRICTS	A PERMITTED USE	B FEB 2024	C DIFF. A-B
7	WAIPAHU-EWA (BARBERS POINT WELL)	1.00	0.92	0.08
	TOTAL:	1.00	0.92	0.08

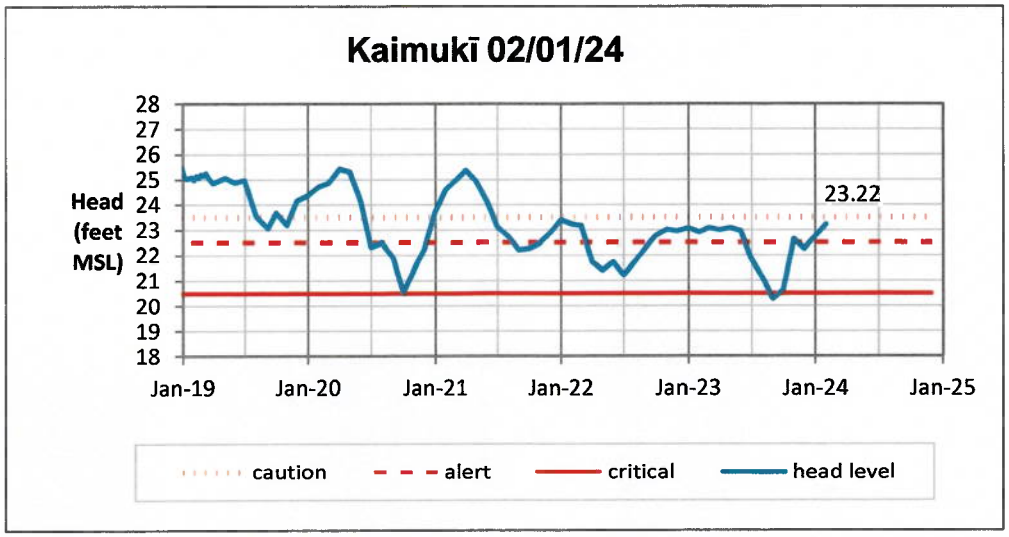
EFFECTIVE WATER DEMAND PER DISTRICT

IMPORT/EXPORT BETWEEN WATER USE DISTRICTS

FROM	TO		MGD
2	1	WINDWARD EXPORT	0.14
7	8	BARBERS PT LB	4.66

	WATER USE DISTRICTS	SUBTOTAL	IMPORT	EXPORT	EFFECTIVE WATER DEMAND
1	HONOLULU	56.29	0.14	-	56.43
2	WINDWARD	15.71	-	0.14	15.57
3	NORTH SHORE	3.67	-	-	3.67
4	MILILANI	3.94	-	-	3.94
5	WAHIAWA	2.66	-	-	2.66
6	PEARL CITY-HALAWA	7.99	-	-	7.99
7	WAIPAHU-EWA	32.89	-	4.66	28.23
8	WAIANAE	3.94	4.66	-	8.60
	TOTAL:	127.10	4.80	4.80	127.10

Head Report


Kaimukī 02/01/24
Head (feet MSL)
28
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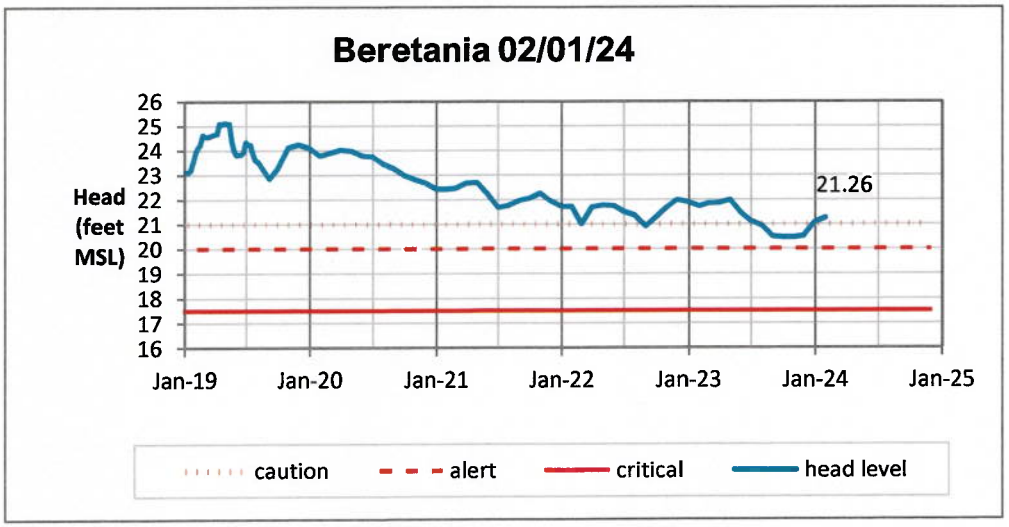
23.22
Jan-19
Jan-20
Jan-21
Jan-22
Jan-23
Jan-24
Jan-25
caution
alert
critical
head level


Beretania 02/01/24
Head (feet MSL)
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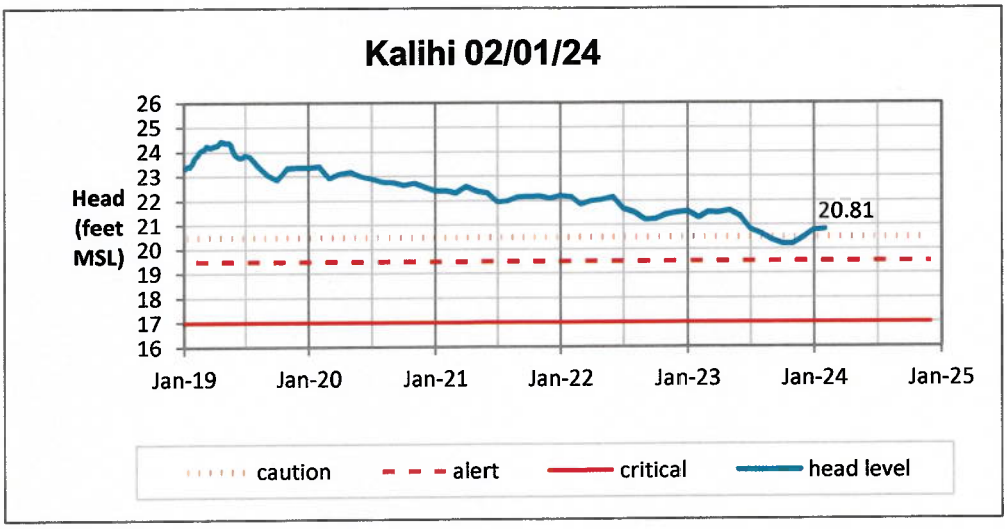
Kalihi 02/01/24
Head (feet MSL)
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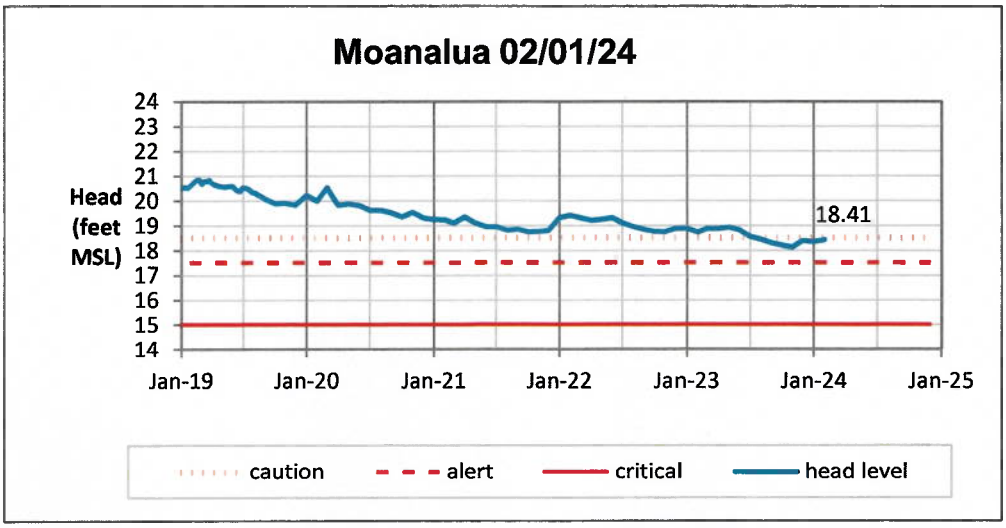
Head Report


Moanalua 02/01/24
Head (feet MSL)
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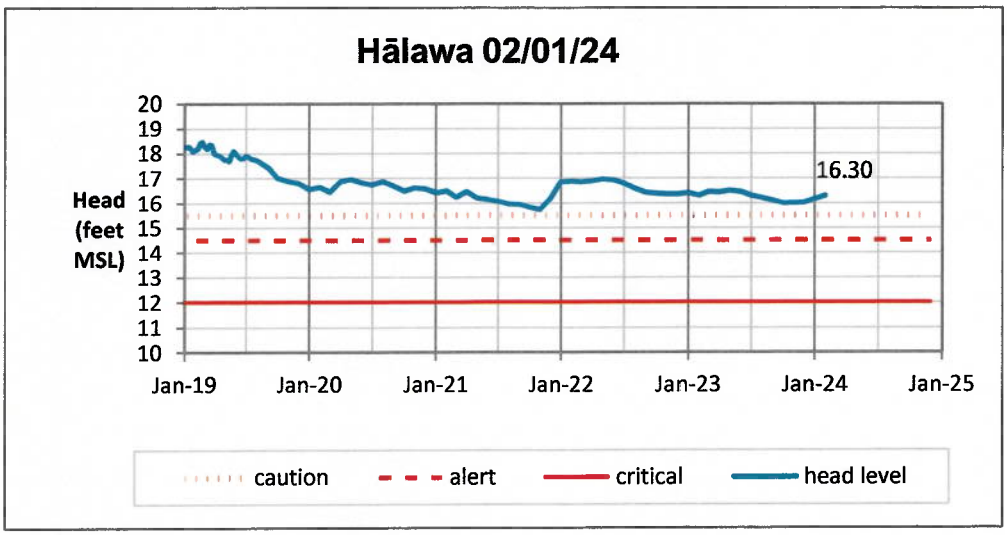
Hālawa 02/01/24
Head (feet MSL)
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caution
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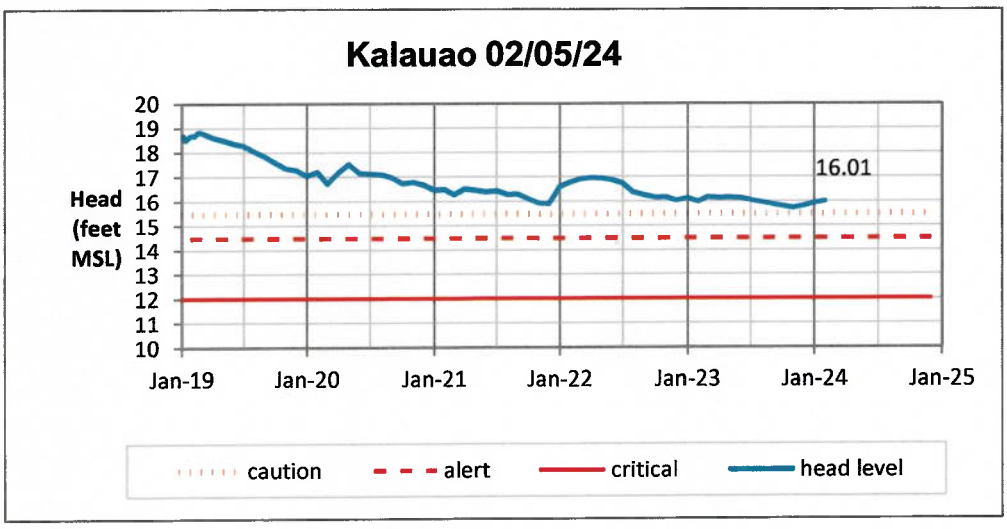
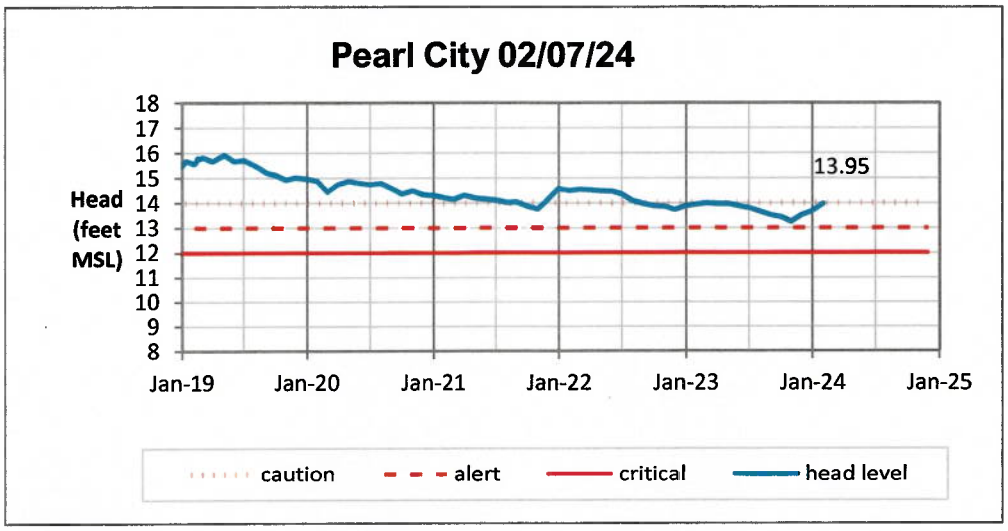
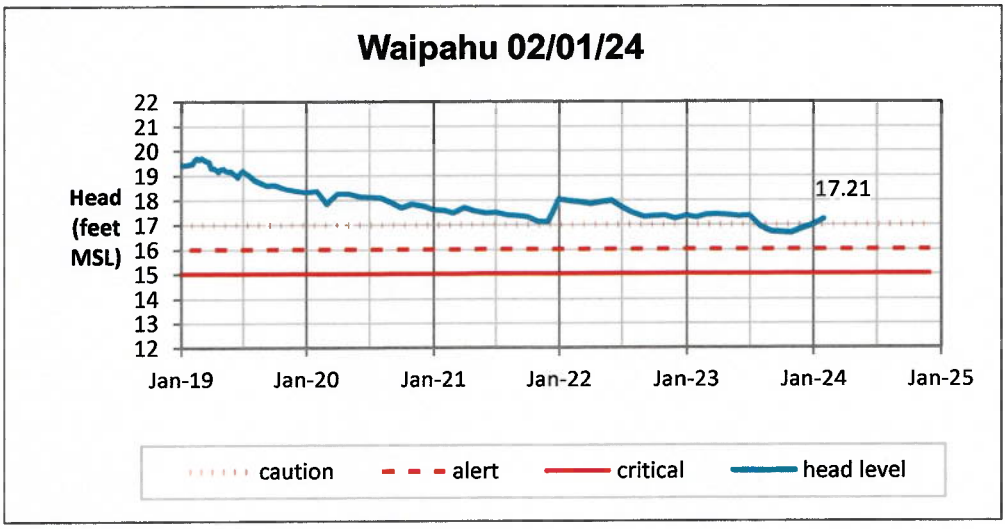
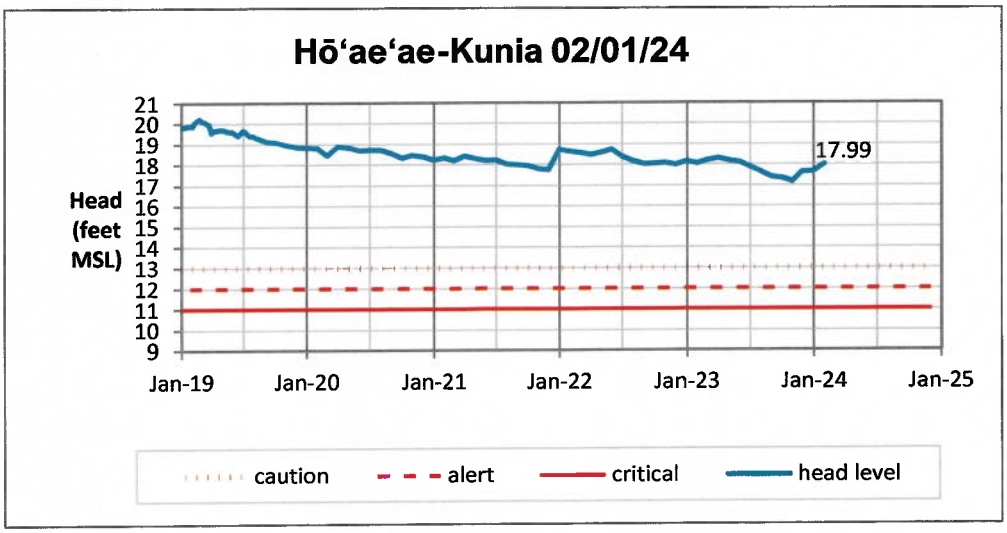
head level


Kalauao 02/05/24
Head (feet MSL)
20
19
18
17
16
15
14
13
12
11
10
16.01
Jan-19
Jan-20
Jan-21
Jan-22
Jan-23
Jan-24
Jan-25
caution
alert
critical
head level

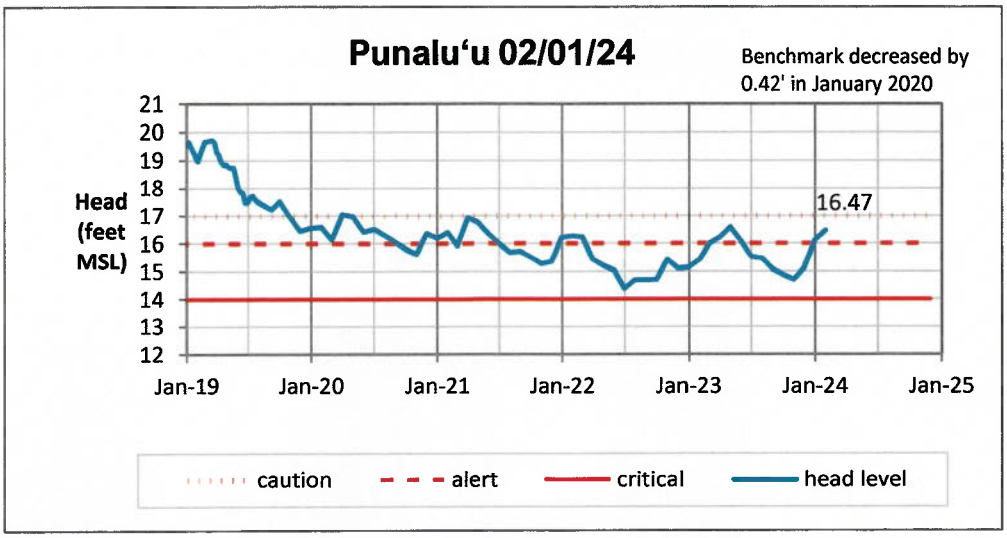
Head Report

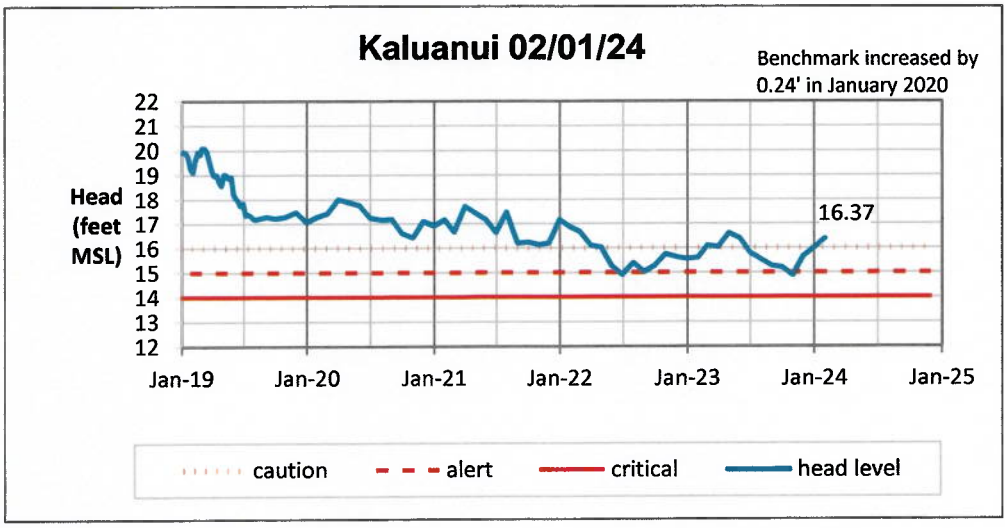

Pearl City 02/07/24
Head (feet MSL)
18
17
16
15
14
13
12
11
10
9
8
13.95
Jan-19
Jan-20
Jan-21
Jan-22
Jan-23
Jan-24
Jan-25
caution
alert
critical
head level

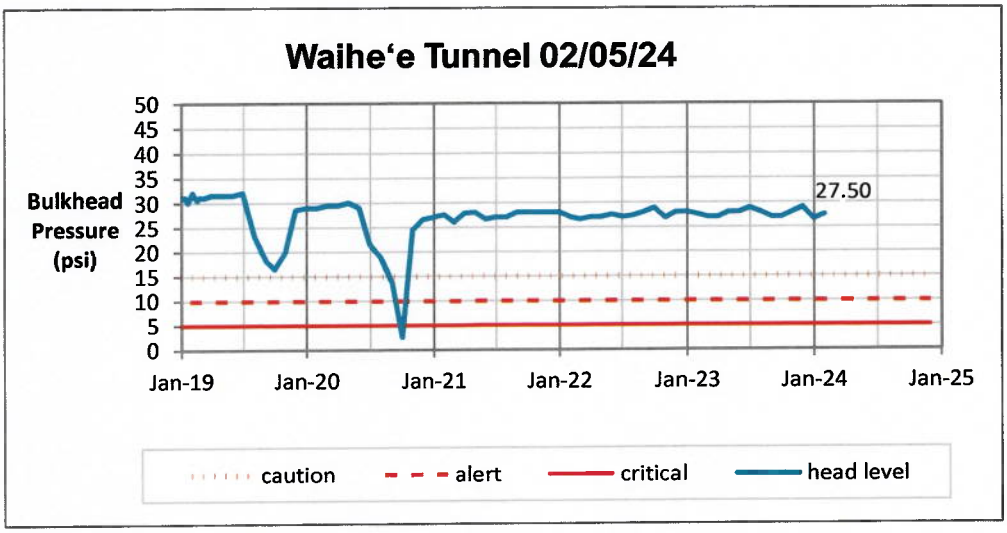

Waipahu 02/01/24
Head (feet MSL)
22
21
20
19
18
17
16
15
14
13
12
17.21
Jan-19
Jan-20
Jan-21
Jan-22
Jan-23
Jan-24
Jan-25
caution
alert
critical
head level


Hōʻaeʻae-Kunia 02/01/24
Head (feet MSL)
21
20
19
18
17
16
15
14
13
12
11
10
9
17.99
Jan-19
Jan-20
Jan-21
Jan-22
Jan-23
Jan-24
Jan-25
caution
alert
critical
head level

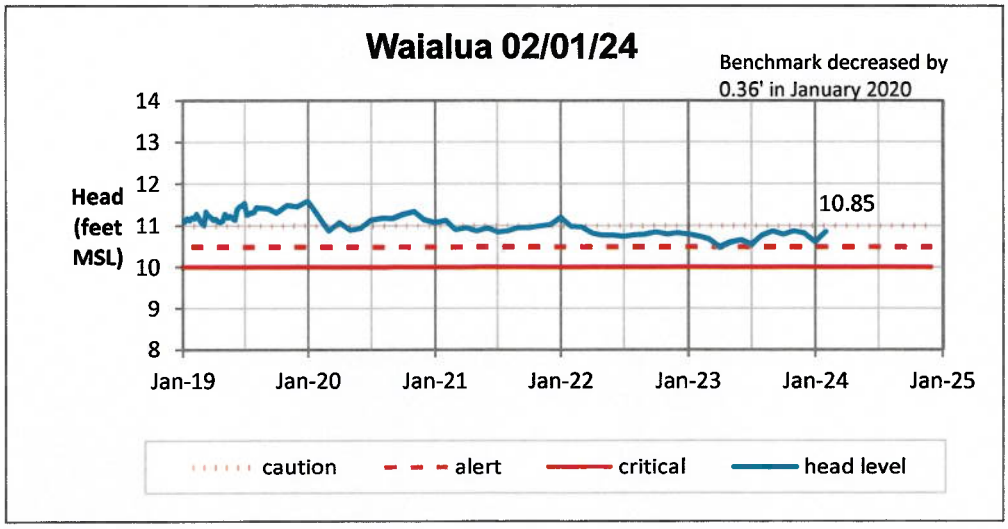
Head Report

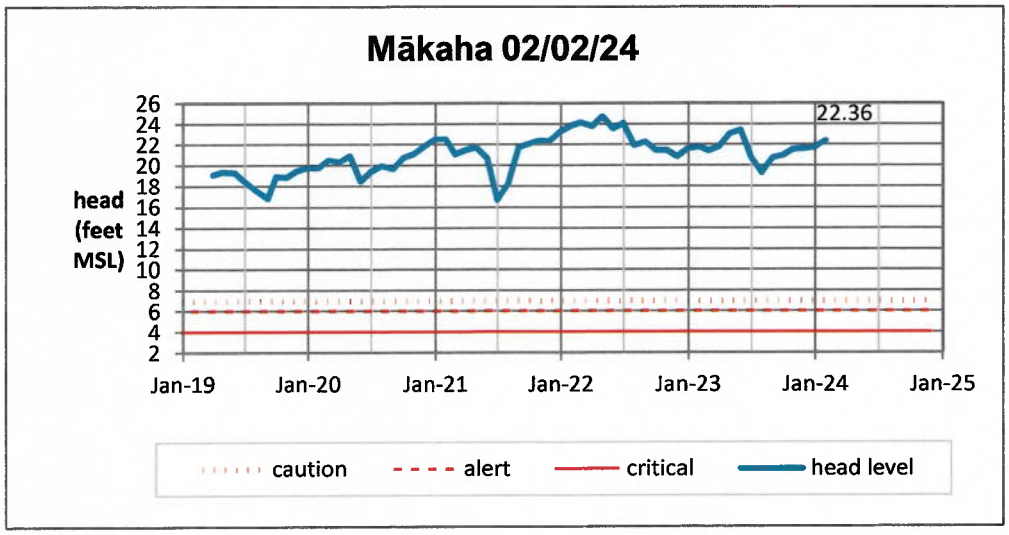

Punalu'u 02/01/24
Benchmark decreased by 0.42' in January 2020
Head (feet MSL)
21
20
19
18
17
16
15
14
13
12
16.47
Jan-19
Jan-20
Jan-21
Jan-22
Jan-23
Jan-24
Jan-25
caution
alert
critical
head level

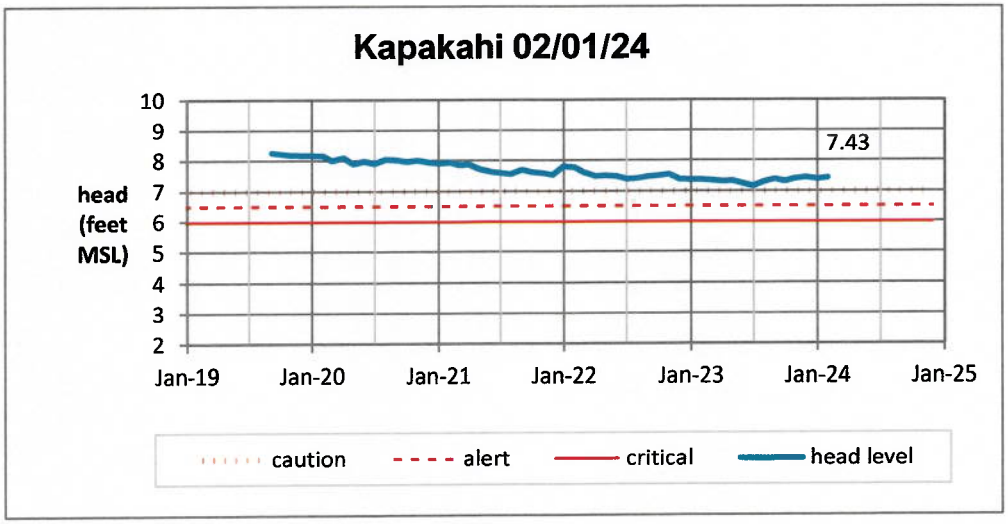

Kaluanui 02/01/24
Benchmark increased by 0.24' in January 2020
Head (feet MSL)
22
21
20
19
18
17
16
15
14
13
12
16.37
Jan-19
Jan-20
Jan-21
Jan-22
Jan-23
Jan-24
Jan-25
caution
alert
critical
head level

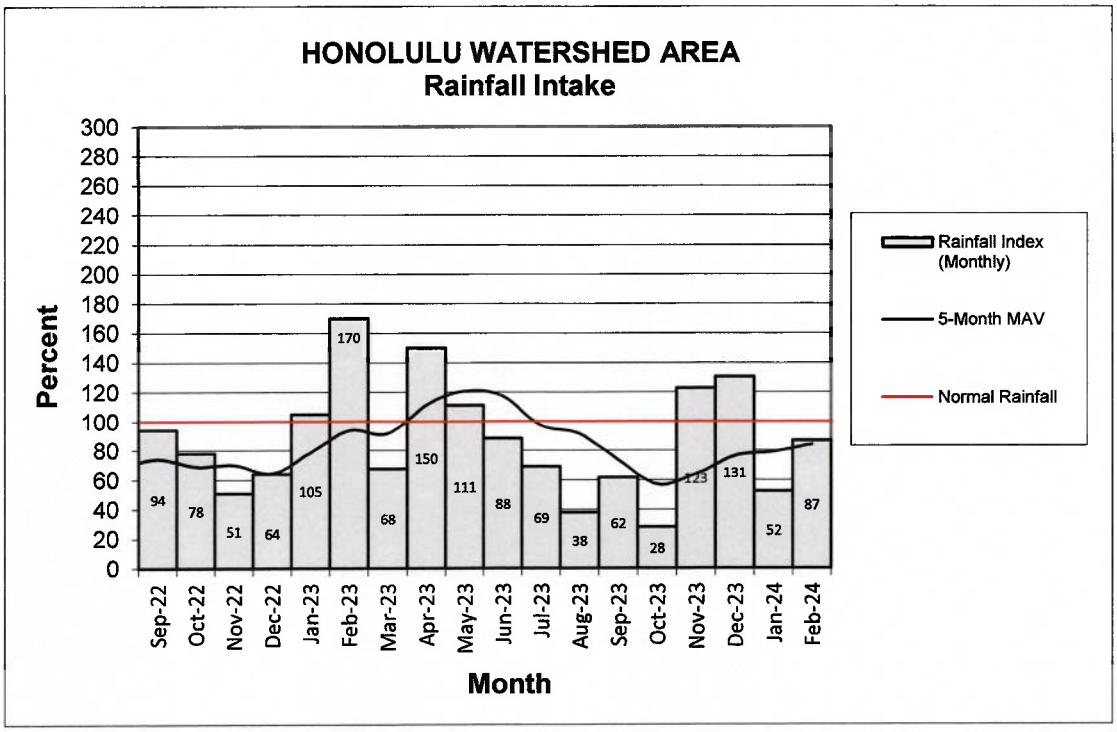

Waihe'e Tunnel 02/05/24
Bulkhead Pressure (psi)
50
45
40
35
30
25
20
15
10
5
0
27.50
Jan-19
Jan-20
Jan-21
Jan-22
Jan-23
Jan-24
Jan-25
caution
alert
critical
head level

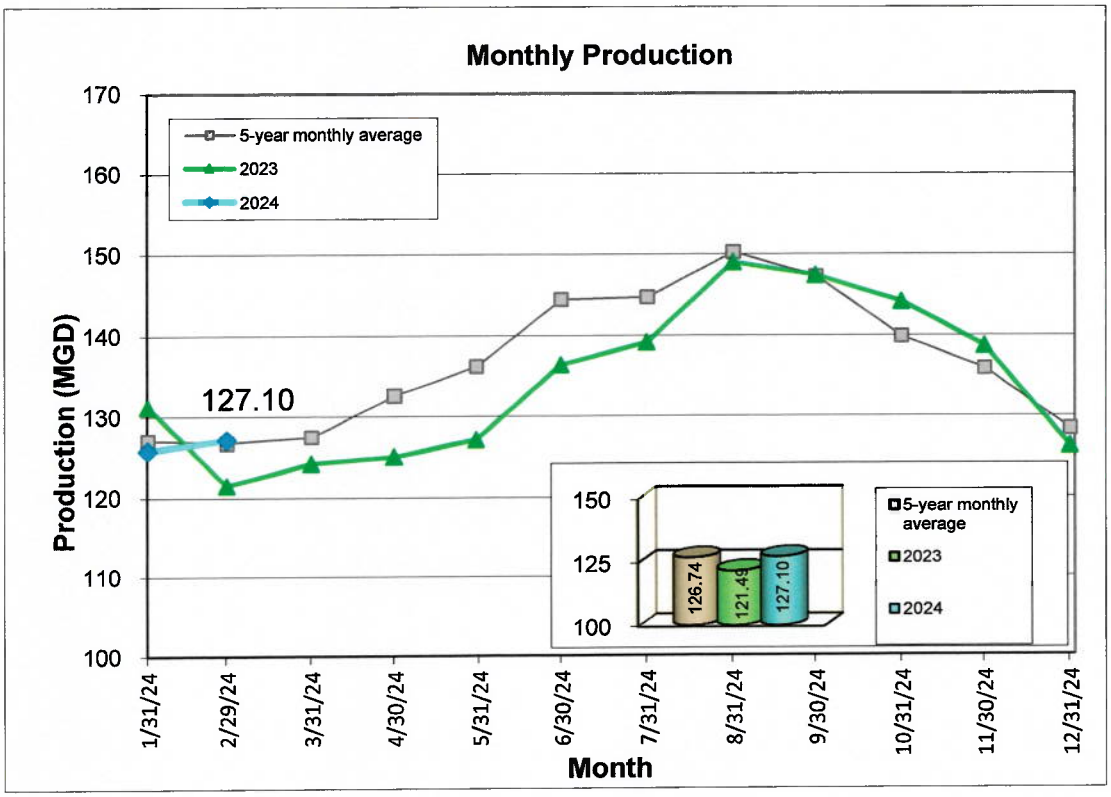
Head Report


Waialua 02/01/24
Benchmark decreased by 0.36' in January 2020
Head (feet MSL)
14
13
12
11
10
9
8
10.85
Jan-19
Jan-20
Jan-21
Jan-22
Jan-23
Jan-24
Jan-25
caution
alert
critical
head level


Mākaha 02/02/24
head (feet MSL)
26
24
22
20
18
16
14
12
10
8
6
4
2
22.36
Jan-19
Jan-20
Jan-21
Jan-22
Jan-23
Jan-24
Jan-25
caution
alert
critical
head level


Kapakahi 02/01/24
head (feet MSL)
10
9
8
7
6
5
4
3
2
7.43
Jan-19
Jan-20
Jan-21
Jan-22
Jan-23
Jan-24
Jan-25
caution
alert
critical
head level


HONOLULU WATERSHED AREA
Rainfall Intake
Percent
Month
Rainfall Index (Monthly)
5-Month MAV
Normal Rainfall
Sep-22
Oct-22
Nov-22
Dec-22
Jan-23
Feb-23
Mar-23
Apr-23
May-23
Jun-23
Jul-23
Aug-23
Sep-23
Oct-23
Nov-23
Dec-23
Jan-24
Feb-24
94
78
51
64
105
170
68
150
111
88
69
38
62
28
123
131
52
87


Monthly Production
Production (MGD)
Month
5-year monthly average
2023
2024
127.10
126.74
121.49
127.10
1/31/24
2/29/24
3/31/24
4/30/24
5/31/24
6/30/24
7/31/24
8/31/24
9/30/24
10/31/24
11/30/24
12/31/24

ITEM FOR INFORMATION NO. 5

"January 22, 2024

WATER MAIN REPAIR REPORT FOR FEBRUARY 2024

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

Chair and Members:

Subject: Water Main Repair Report for February 2024

Jason Nikaido, Program Administrator, Field Operations Division, will report on water main repair work for the month of February 2024.

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.

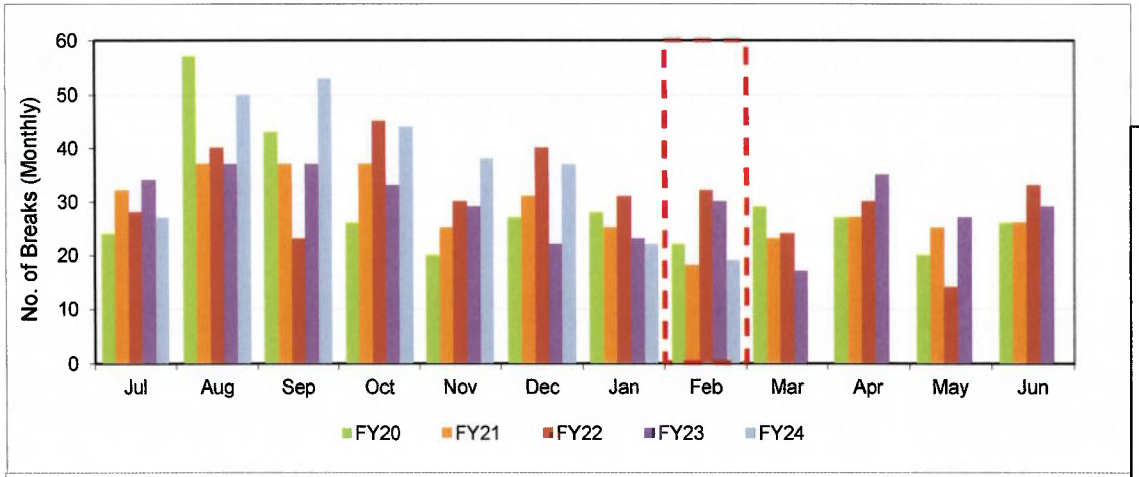
WATER MAIN REPAIR REPORT
for February 2024

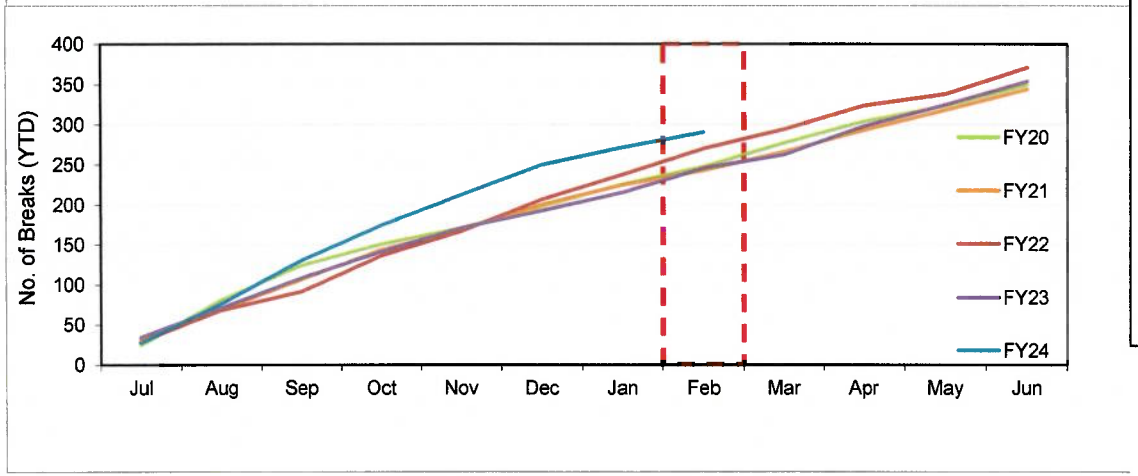
Monthly Main Breaks

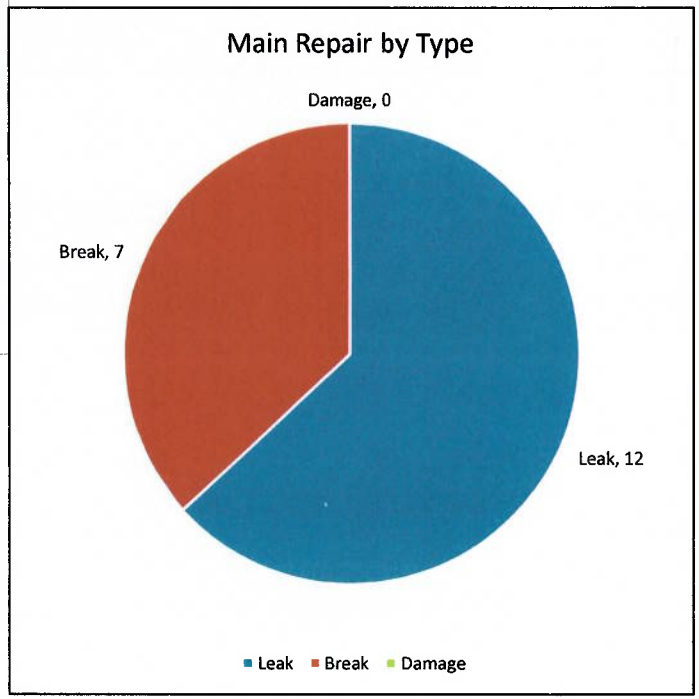
FY	JUL	AUG	SEP	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	TOTAL
2024	27	50	53	44	38	37	22	**19**					**290**
2023	34	37	37	33	29	22	23	30	17	35	27	29	**353**
2022	28	40	23	45	30	40	31	32	24	30	14	33	**370**
2021	32	37	37	37	25	31	25	18	23	27	25	26	**343**
2020	24	57	43	26	20	27	28	22	29	27	20	26	**349**

Main Repair by Type

Type	JUL	AUG	SEP	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	TOTAL
Leak	--	--	--	--	--	24	12	**12**					48
Break	--	--	--	--	--	13	10	**7**					30
Damage	--	--	--	--	--	0	0	**0**					0
Total	---	---	---	---	---	**37**	**22**	**19**	**0**	**0**	**0**	**0**	**78**







Date	Address	Size (In)	Pipe Type	Date	Address	Size (In)	Pipe Type
2/1/2024	187 Kamehameha Hwy, Wahiawa	6	CI				
2/2/2024	891 Hoomaemae St, Pearl City	8	AC				
2/4/2024	41 Akamu Pl, Honolulu	6	CI				
2/7/2024	3161 Woodlawn Dr, Honolulu	6	CI				
2/9/2024	2640 Kalihi St, Honolulu	12	PVC				
2/9/2024	46-124 Humu St, Kaneohe	8	CI				
2/9/2024	317 Ilimalia Lp, Kailua	8	CI				
2/10/2024	317 Ilimalia Lp, Kailua	8	CI				
2/14/2024	1573 Hoohulu St, Pearl City	8	CI				
2/15/2024	94-050 Leolua St, Waipahu	12	CI				
2/18/2024	94-989 Kahuailani St, Waipahu	8	CI				
2/18/2024	1236 Elm St, Honolulu	12	CI				
2/22/2024	3401 Paty Dr, Honolulu	8	CI				
2/22/2024	195 Aikahi Lp, Kailua	8	AC				
2/23/2024	66-958 Kuewa Dr, Waialua	6	CI				
2/23/2024	750 Mokulua Dr, Kailua	12	PVC				
2/25/2024	87-186 Manuliilii Pl, Waianae	8	PVC				
2/27/2024	591 Pohukaina St, Honolulu	8	DI				
2/28/2024	45-39 Malulani St, Kaneohe	8	CI				

LEAK DETECTION
for February 2024

POIs Investigated

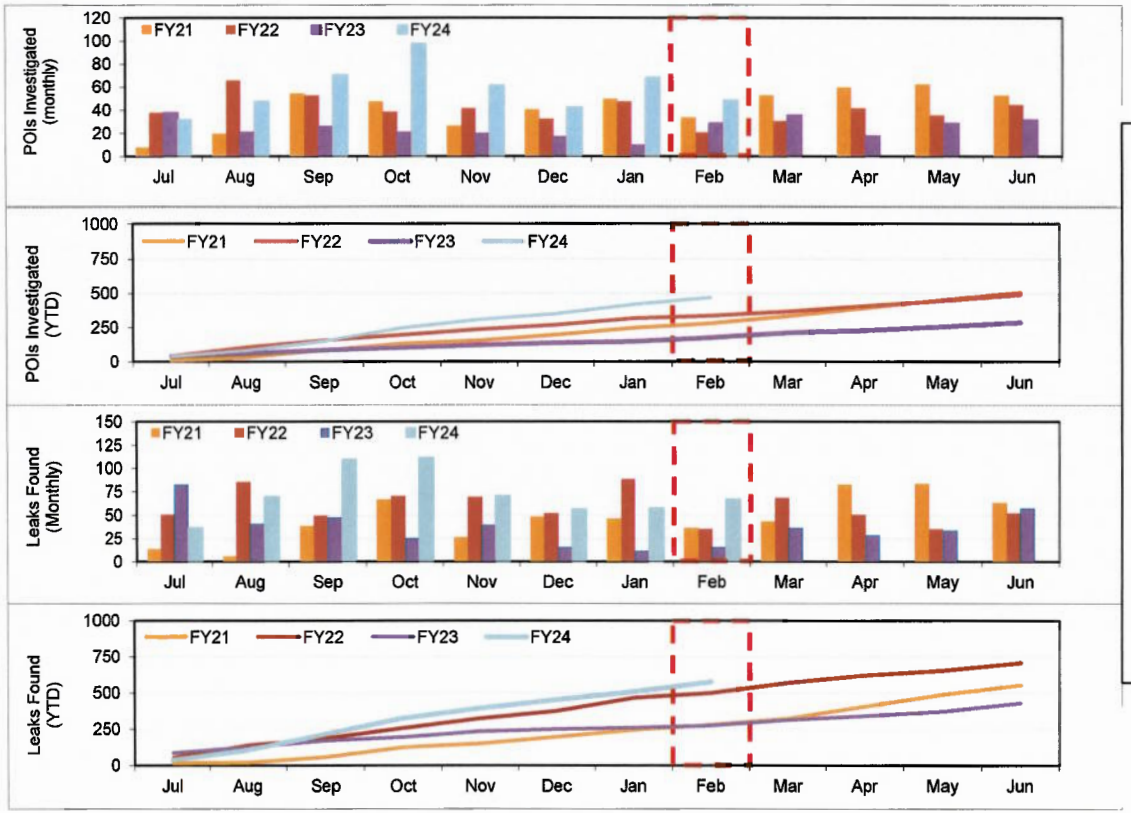
FY	JUL	AUG	SEP	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	TOTAL
2024	31	47	70	97	61	42	68	**48**					**464**
2023	37	20	25	20	19	16	9	28	35	17	28	31	285
2022	37	65	52	38	41	32	47	20	30	41	35	44	482
2021	7	19	54	47	26	40	49	33	52	59	62	52	500

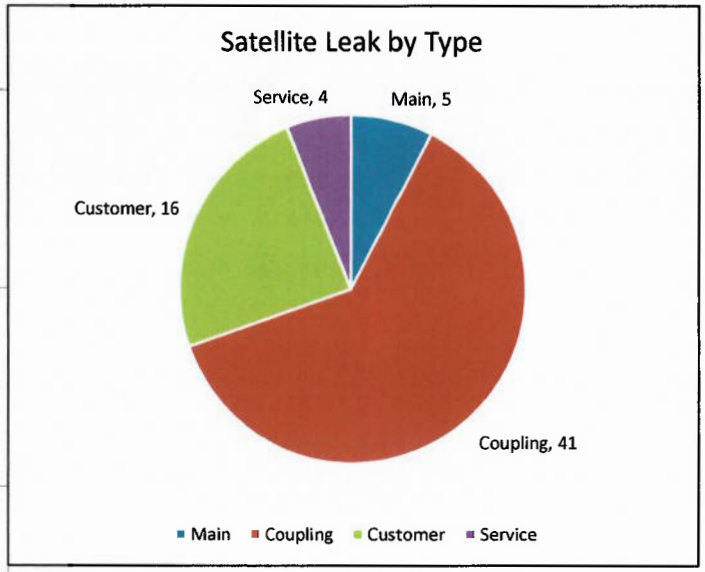
Leaks Found

FY	JUL	AUG	SEP	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	TOTAL
2024	36	69	109	111	70	56	57	**66**					**574**
2023	82	40	47	25	39	15	11	15	36	28	33	57	428
2022	50	85	49	70	69	52	88	35	68	50	35	52	703
2021	13	5	38	66	26	48	46	36	43	82	83	63	549

Satellite Leak by Type

Type	JUL	AUG	SEP	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	TOTAL
Main	6	14	13	6	5	4	3	**5**					56
Coupling	17	35	74	71	48	46	47	**41**					379
Customer	9	13	14	23	12	1	5	**16**					93
Service	4	7	8	11	5	5	2	**4**					46
Total	**36**	**69**	**109**	**111**	**70**	**56**	**57**	66	**0**	**0**	**0**	**0**	**574**





MOTION TO ADJOURN

There being no further business, Chair Anthony, at 3:45 PM, called for a motion to adjourn the Regular Session. Jonathan Kaneshiro so moved, seconded by Kapua Sproat, and unanimously carried.

The minutes of the Regular Meeting held on March 25, 2024, are respectfully submitted,

JOY CRUZ-ACHIU

APPROVED:

NĀʻĀLEHU ANTHONY
Chair of the Board

APR 2 2 2024
Date

THE MINUTES OF THE REGULAR MEETING HELD ON MARCH 25, 2024, WERE APPROVED AT THE APRIL 22, 2024, BOARD MEETING			
	AYE	NO	COMMENT
NĀʻĀLEHU ANTHONY	X		
KAPUA SPROAT	X		
BRYAN P. ANDAYA	X		
JONATHAN KANESHIRO	X		
EDWIN H. SNIFFEN			ABSENT
GENE C. ALBANO	X		