

Update from the Permitted Interaction Group (“The Group”)

2/15/2022

Background: Commission's legal authority

The Commission:

- is specifically charged to provide that no substance be discharged into such waters and that the people of Hawai'i have a substantial interest in...the maintenance of high standards of water quality. (HRS §174C-2 Declaration of Policy)
- is charged to provide coordination, cooperation, or approval necessary to the effectuation of any plan or project of the federal government in connection with or concerning the waters of the State. (HRS §174C-5 (12) General Powers and Duties).
- has jurisdiction statewide to hear any dispute regarding water resource protection, water permits, or constitutionally protected water interests (HRS §174C-10 Dispute resolution).
- may declare a water shortage exists. If an emergency condition arises due to a water shortage within any area... the commission may issue an emergency order and require appropriate action including but not limited to apportioning, rotating, limiting, or prohibiting the use of the water resources of the area. (HRS §174C-62 Declaration of water shortage)
- **The Commission shall retain and continue to have jurisdiction for the purpose of reviewing and modifying every permit as may be necessary in fulfillment of its duties and obligations under this code.** (HAR §13-171-22 Review of water use permit)

Background: What we already know

Findings of Fact: Department of Health investigations have already established damage to environmental and human health from the Red Hill Facility operations and the persistent risk the facility poses

Precautionary Principle: The Commission can simultaneously acknowledge scientific uncertainty while taking action to protect the public trust

Contamination and remediation lessons from elsewhere

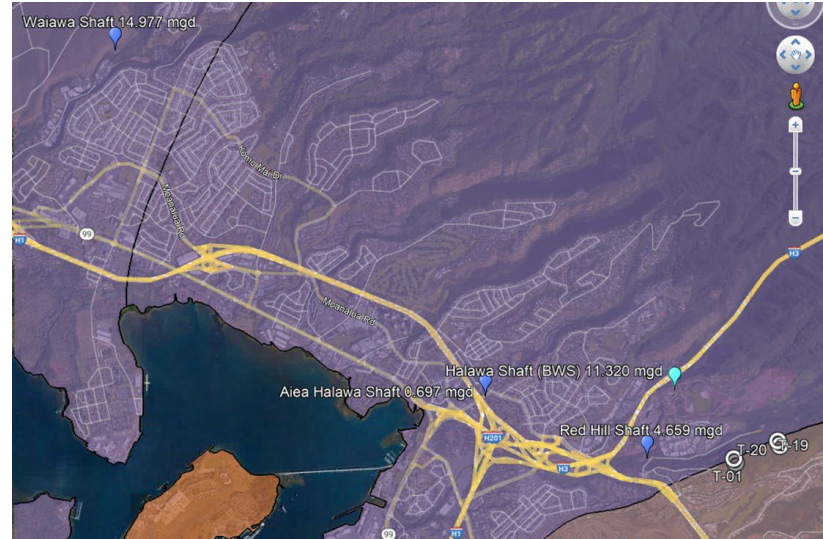
The Advisory Group's initial scope of work (1/7/2021):

- a) **Recommend potential permit modifications and conditions for the NAVFAC Hawai'i Water Use Permits.**
- b) Recommend potential permit modifications and conditions for other Water Use Permits, including the Honolulu Board of Water Supply, to immediately deal with the current water crisis and contamination event at Red Hill.
- c) Investigate whether a water shortage exists in the Pearl Harbor aquifer sector area or Honolulu aquifer sector area pursuant to HRS 174C-62, and whether the Pearl Harbor Water Shortage Plan is activated and should be followed.
- d) Review proposed expansion of monitoring network of wells at Red Hill and propose recommendations as appropriate.
- e) Identify financial and in-kind contributions the Navy can provide to the Ko'olau Watershed Partnership that promote Aquifer recharge to offset groundwater system losses due to the presence or risk of contamination from the Red Hill Fuel Bulk Facility.
- f) Identify additional staff positions needed by CWRM to monitor and mitigate impacts of the Red Hill Fuel Bulk Facility and seek commensurate funding from the Navy.
- g) Review the legal options the Commission can pursue.

a) NAVFAC Hawai'i Water Use Permits (WUPs)

Three sources supply the JBPHH potable water system:

- 3-2254-001 **Red Hill Shaft**, constructed in 1943 (Water Use Permit no. 00085 issued in 1980 for 4.659 mgd)
- 3-2255-032 **Aiea-Halawa Shaft**, constructed in 1937 (Water Use Permit no. 00086 issued in 1980 for 0.697 mgd)
- 3-2558-010 **Waiawa Shaft**, constructed in 1951 (Water Use Permit no. 00111 issued in 1980 for 14.977 mgd)



CWRM has authority to modify WUPs (HRS §174C and HAR §13-171-22)

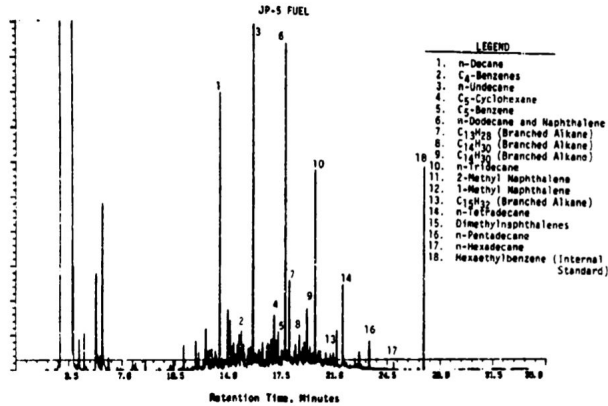
Source: CWRM staff submittal B-1 from 1/7/2022 and dialogue with staff and deputy AG

The Advisory Group has identified several priorities:

- To initiate a Water Commission process to update permit modifications and special conditions for the three NAVFAC Hawai'i Water Use Permits to protect the waters of Hawaii.
- To recommend the permanent decommissioning of the Red Hill underground fuel tanks.
- To prepare for a water shortage or water emergency, in consultation with the Honolulu Board of Water Supply, for relevant aquifers in anticipation of the upcoming dry season.

Key concepts on the fuel release -> CWRM kuleana

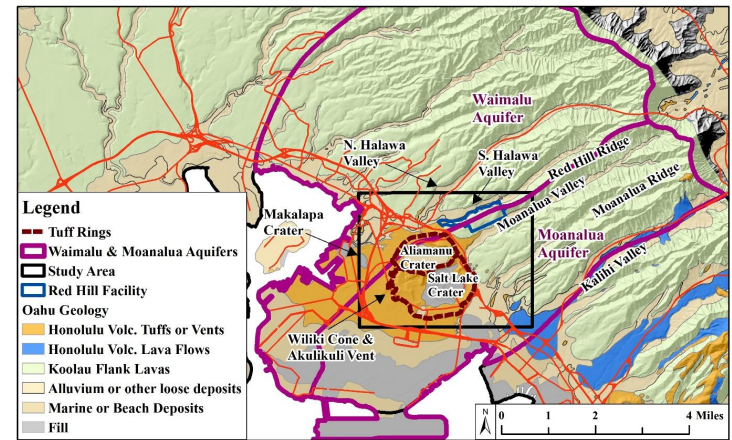
- The geology of this region is complex
- Stakeholders are not in agreement about how groundwater moves in this area; highly dependent on pumping



(Spicer et al. 1984)

- The contaminant is chemically complex
- Contaminant fate and transport is similarly poorly understood

The Commission should actively support timely, rigorous, and transparent modeling, sampling and monitoring, and remediation



(Ito et al. 2019)

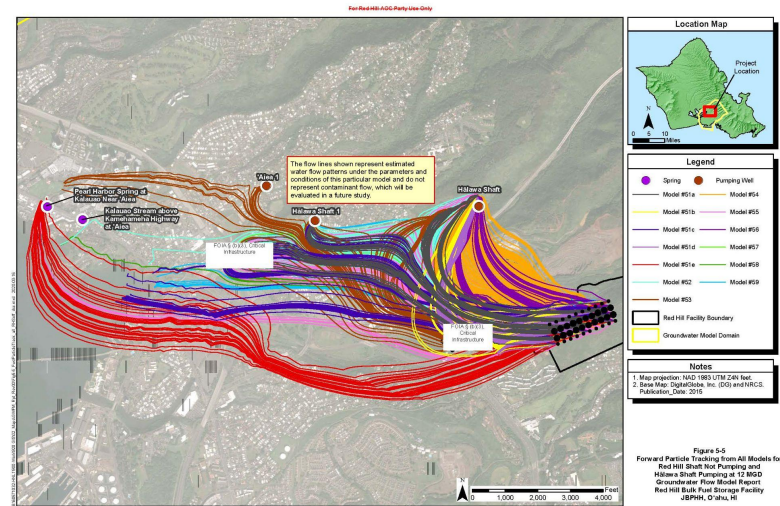


Figure 5-4
Forward Pesticide Tracking from All Models for Red Hill Shrub Pumping and Storage Facility
Groundwater Flow Model Report
Red Hill Bulk Fuel Storage Facility
JBPH, Oahu, HI

(NAVFAC 2020)

Monitoring and sampling assignments

- a) **Recommend potential permit modifications and conditions for the NAVFAC Hawai'i Water Use Permits, including but not limited to (i-vi):**
 - i) A required implementation schedule, monitoring protocol, and enforcement of the Drinking Water Sampling Plan approved by the Department of Health.
 - ii) Determine the appropriate groundwater monitoring model to be used by the Commission to enforce its Water Use Permits issued to the Navy.
 - iii) Recommend ways for the Commission to be fully represented at the decision-making table concerning the future of the Red Hill Fuel Bulk Storage Facility.
 - iv) Suggest how the Commission can assist in public disclosure of the status of the Red Hill Facility, including the progress of Navy actions to defuel its petroleum fuel storage tanks, with attendance by informed Navy officials at future Water Commission meetings.
 - v) Ensure that agreed upon water-quality and ground water sampling is conducted by the Navy, and that all monitoring results and risks are shared quickly and transparently with the Commission, State Department of Health, and the Honolulu Board of Water Supply.
- d) **Review proposed expansion of monitoring network of wells at Red Hill and propose recommendations as appropriate.**

Support scientifically rigorous, transparent monitoring and sampling and suggest apply precautionary principle where data are sparse

a-i) Take official notice of key DOH-issued documents

- DoH Hearing Officer's D&O, FoF, CoL
- IDWST Drinking Water Sampling Plan
- Red Hill Shaft Recovery and Mitigation Plan (RHSRMP)

a-ii) CWRM could rely on a version of the Navy model *that reflects comments submitted by DOH, EPA, HBWS, USGS, and other experts*

a-iii and d) CWRM staff already engaged in monitoring well permitting; Advisory Group following NAVFAC-DOH led Aquifer Recovery Working Group exchanges

a-iv) Continue CWRM monthly Red Hill updates

a-v) Advisory Group needs to follow up with IDWST on electronic data management system or suggest CWRM coordinate independent sample analysis

Water shortage assignments

b) Recommend potential permit modifications and conditions for other Water Use Permits, including HBWS, to immediately deal with the current water crisis and contamination event at Red Hill.

c) Investigate whether a water shortage exists in the Pearl Harbor aquifer sector area or Honolulu aquifer sector area pursuant to HRS §174C-62, and whether the Pearl Harbor Water Shortage Plan is activated and should be followed.

- HBWS suspended pumping of Hālawā shaft and nearby wells due to models indicating flow to these sites and nearby springs when Red Hill shaft is shut off
- **How long will it take to remediate and recover all the waters affected by the Red Hill contamination? (assuming no further releases)**

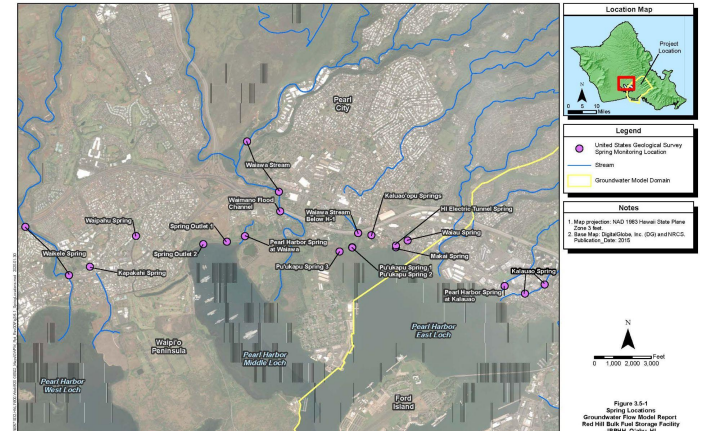
Implications for waters of O'ahu

The Pearl Harbor aquifer is crucial for meeting municipal water demands of the island and supporting numerous but poorly assessed public trust purposes



- Five BWS wells closest to Red Hill Facility site contribute 11.5% of the 140 MGD average daily production.
- Navy Water Well (“Red Hill Shaft”) supplies 24% of JBPHH drinking water needs each day.

Source: HBWS

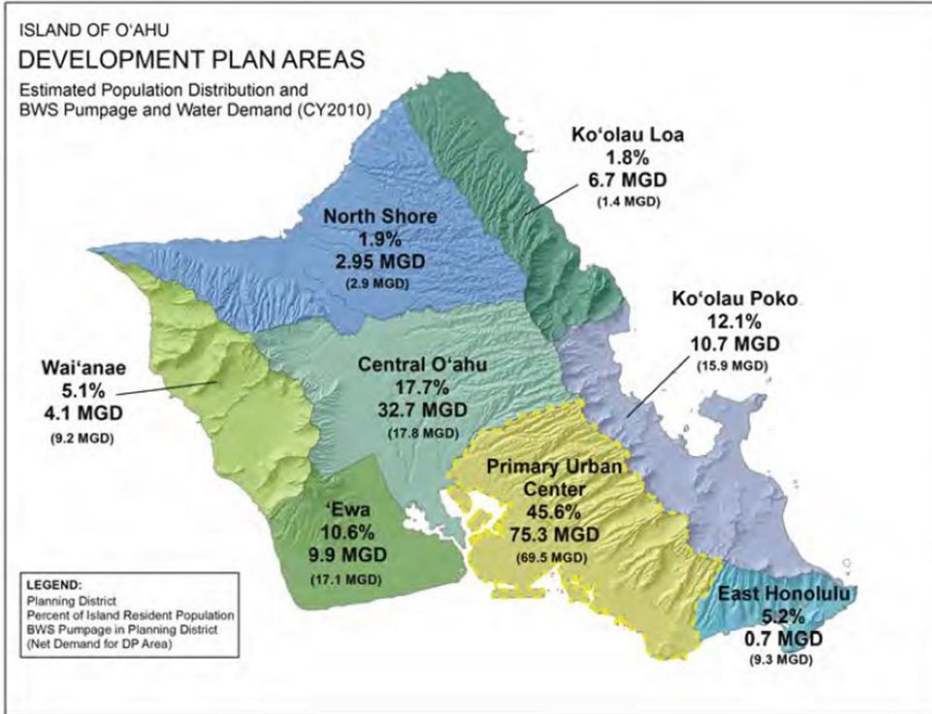
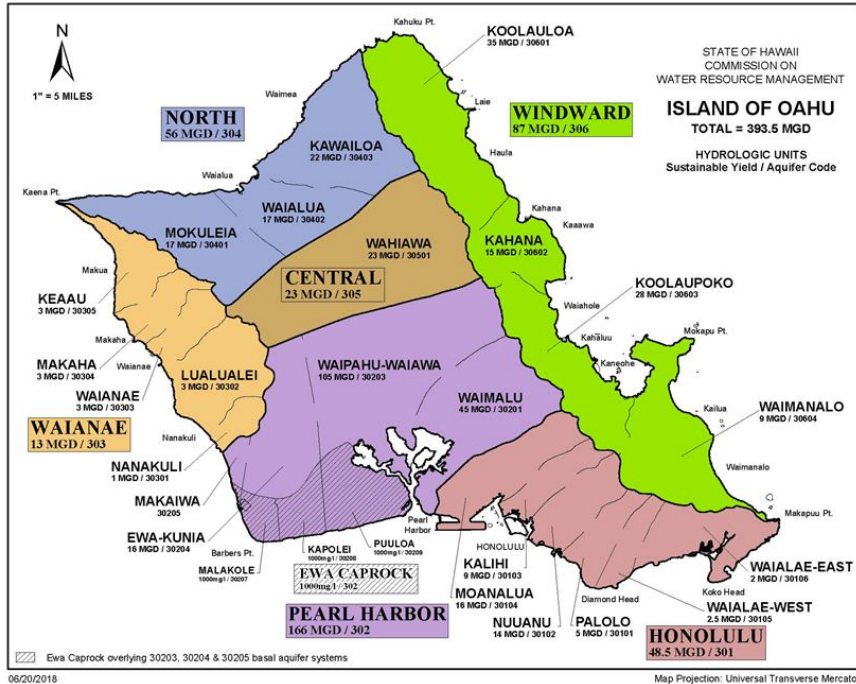


Source: Honolulu Star Advertiser

Springs of Pu'u'uloa (NAVFAC 2020)

Implications for waters of O'ahu

The Pearl Harbor aquifer is crucial for meeting municipal water demands of the island and supporting numerous but poorly assessed public trust purposes



Source: CWRM

Source: HBWS Primary Urban Center Watershed Management Plan

Apply a holistic approach to the water shortage assessment

- Consider: aquifer connectivity, HBWS transfers across CWRM administrative units, other permitted uses, public trust mandate
- Ongoing dialogue with both CWRM staff and HBWS critical as they will need to impose restrictions and draw water from alternative sources relevant to both c) permit modifications and d) water shortage/emergency
- Must consider how pumping patterns will impact non-municipal water resources/other stakeholders and public trust responsibilities of CWRM



Kūhiawaho, Waiawa (photo: A. Faucci)

How long will it take to remediate and recover the waters affected by the Red Hill contamination (assuming no further releases)?

Long range assignments

e) Identify financial and in-kind contributions the Navy can provide to the Ko'olau Watershed Partnership that promote Aquifer recharge to offset groundwater system losses due to the presence or risk of contamination from the Red Hill Fuel Bulk Facility.

- Language included in the Red Hill Shaft Recovery and Mitigation Plan requiring the Navy develop a plan for water conservation, reuse, enhancing recharge, source protection, production capacity

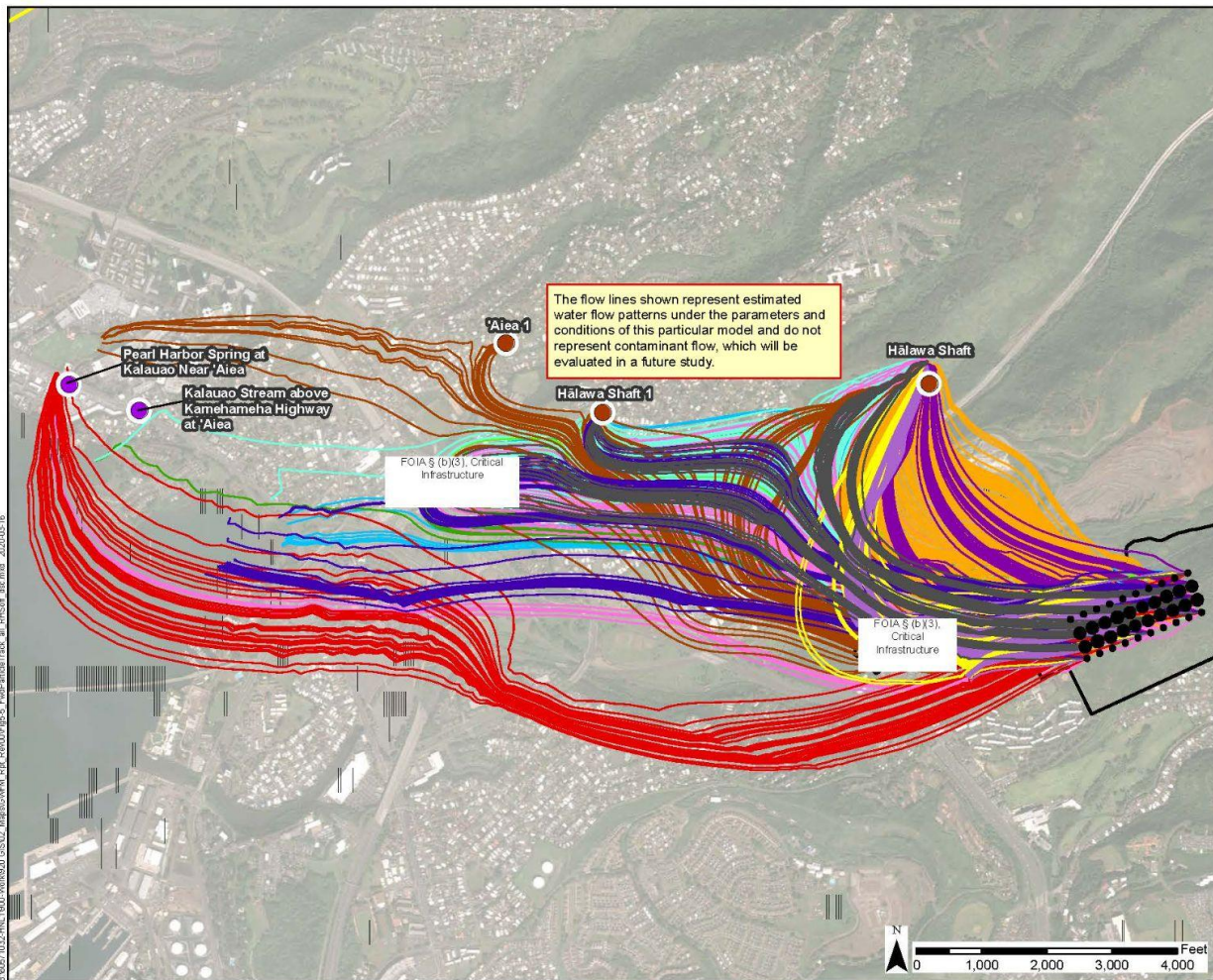
Ongoing:

f) Identify additional staff positions needed by CWRM to monitor and mitigate impacts of the Red Hill Fuel Bulk Facility and seek commensurate funding from the Navy

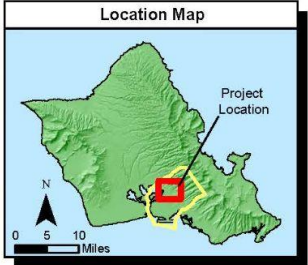
g) Review the legal options the Commission can pursue

Groundwater Flow Model Report (March 2020)

For Red Hill AOC Party-Use Only



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Notes

- Map projection: NAD 1983 UTM Z4N feet.
- Base Map: DigitalGlobe, Inc. (DG) and NRCS. Publication Date: 2015

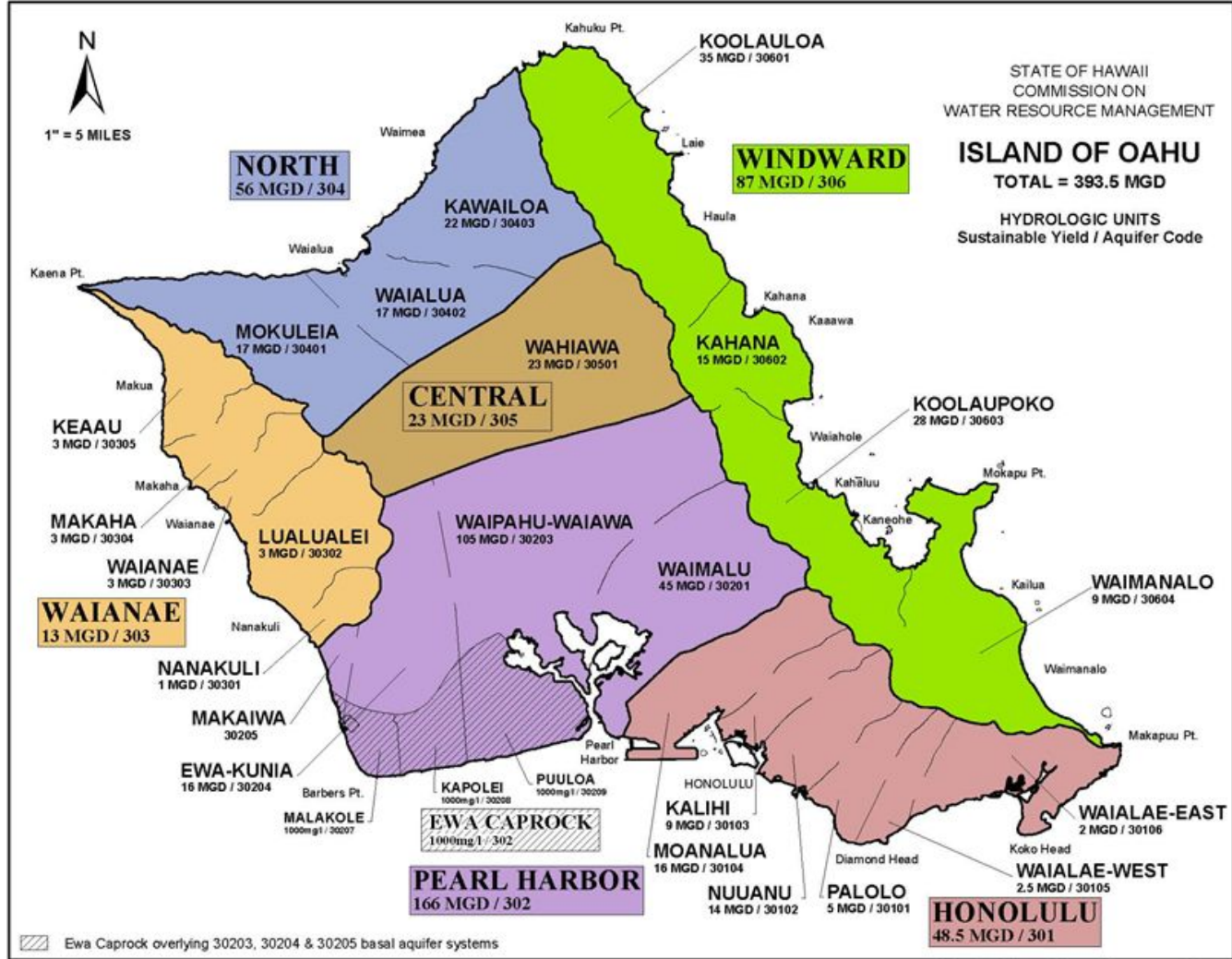
Figure 5-5
Forward Particle Tracking from All Models for Red Hill Shaft Not Pumping and Halawa Shaft Pumping at 12 MGD Groundwater Flow Model Report Red Hill Bulk Fuel Storage Facility JBPHH, O'ahu, HI



DOH hearing officer's Decision and Order, Finding of Fact #71:

“The Navy obviously does not want the Red Hill Facility to release fuel, and the Navy is trying to prevent releases. But despite everything the Navy is attempting to do, it is not enough: the evidence shows that the Red Hill Facility is simply too old, too poorly designed, too difficult to maintain, too difficult to inspect, along with being too large to realistically prevent future releases. It is not just one problem but a combination of many.”

The Advisory Group is currently working with stakeholders to develop specific requirements, implementation schedules, and enforcement aspects for specific permit modifications and conditions to the Commission for their consideration and approval at a following meeting. Areas under consideration for updated permit conditions include water use and efficiency, aquifer remediation, monitoring wells, public transparency, and data sharing.



STATE OF HAWAII
COMMISSION ON
WATER RESOURCE MANAGEMENT

ISLAND OF OAHU
TOTAL = 393.5 MGD

HYDROLOGIC UNITS
Sustainable Yield / Aquifer Code

Pau- Questions?