

Navy Water System Incident: Update on Drinking Water System Flushing and Water Quality Data Collection

Agenda Item D.2.a.

Hawai'i Department of Health
for
Department of Land and Natural Resources
Commission on Water Resource Management
February 15, 2022



Agenda

1. Public Health Advisory
2. Status of the Drinking Water System Flushing
3. Water Quality Data Collection - Sampling Plan & Long Term Monitoring of the Drinking Water
4. Guidance to Amending the Public Health Advisory - Lines of Evidence



Current Advisory



Navy water system users under advisory should avoid using the water for drinking, cooking or oral hygiene.



Pets under advisory should not drink water.



Those who detect a fuel-like odor should also avoid using the water for bathing, dishwashing or laundry.



<https://health.hawaii.gov/news/newsroom/hawaii-department-of-health-advises-navy-water-system-consumers-not-to-drink-consume-tap-water/>

Symptoms from Exposure to Petroleum Hydrocarbons in Drinking Water

- Stomach upset, nausea, vomiting and diarrhea
- Lightheadedness, headache and difficulty concentrating
- Skin irritation, redness or peeling skin
- Difficulty breathing, coughing and a pneumonia like syndrome

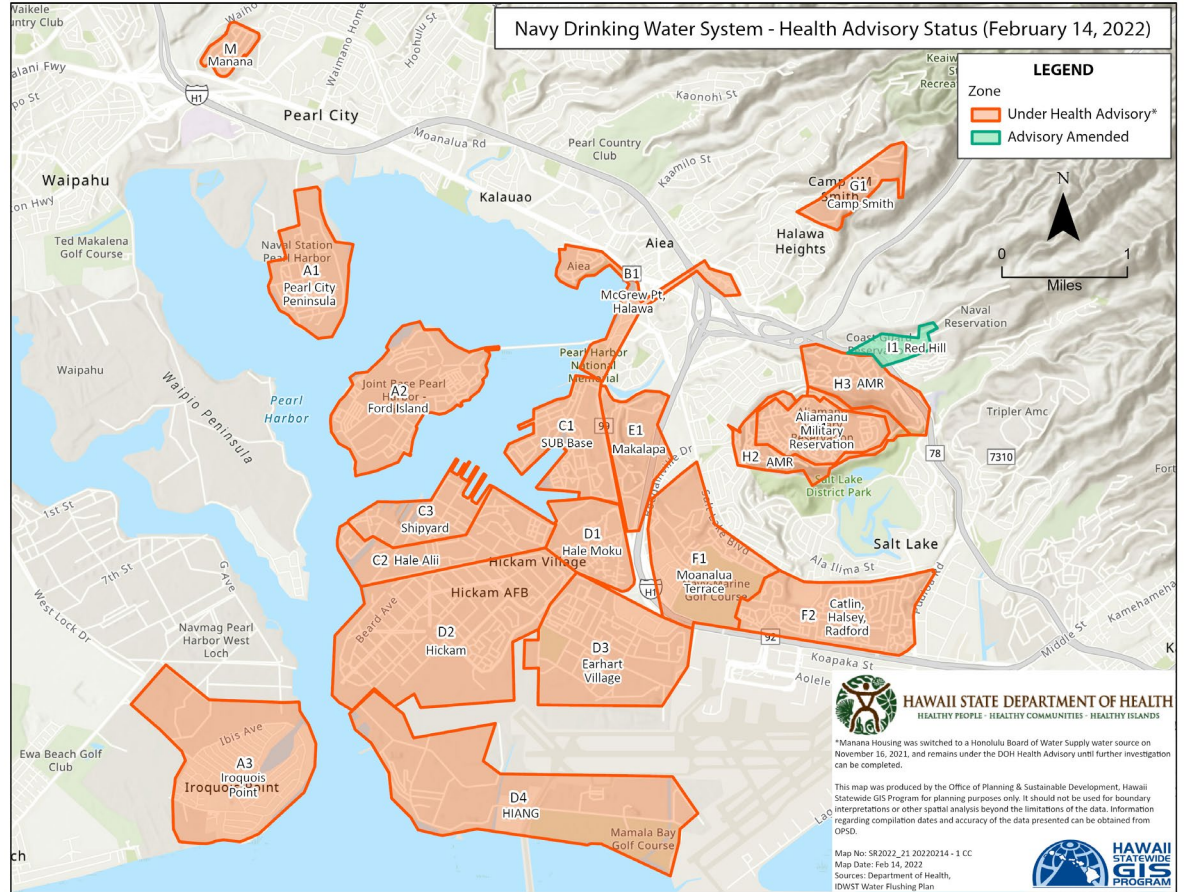
Hawaii Poison Control Center

1-800-222-1222



Navy Drinking Water System - Health Advisory Status

(as of 2/14/2022)



Navy Drinking Water System Flushing Status

(as of 2/15/2022)

No Shortcuts: The Path to Safe Tap Water

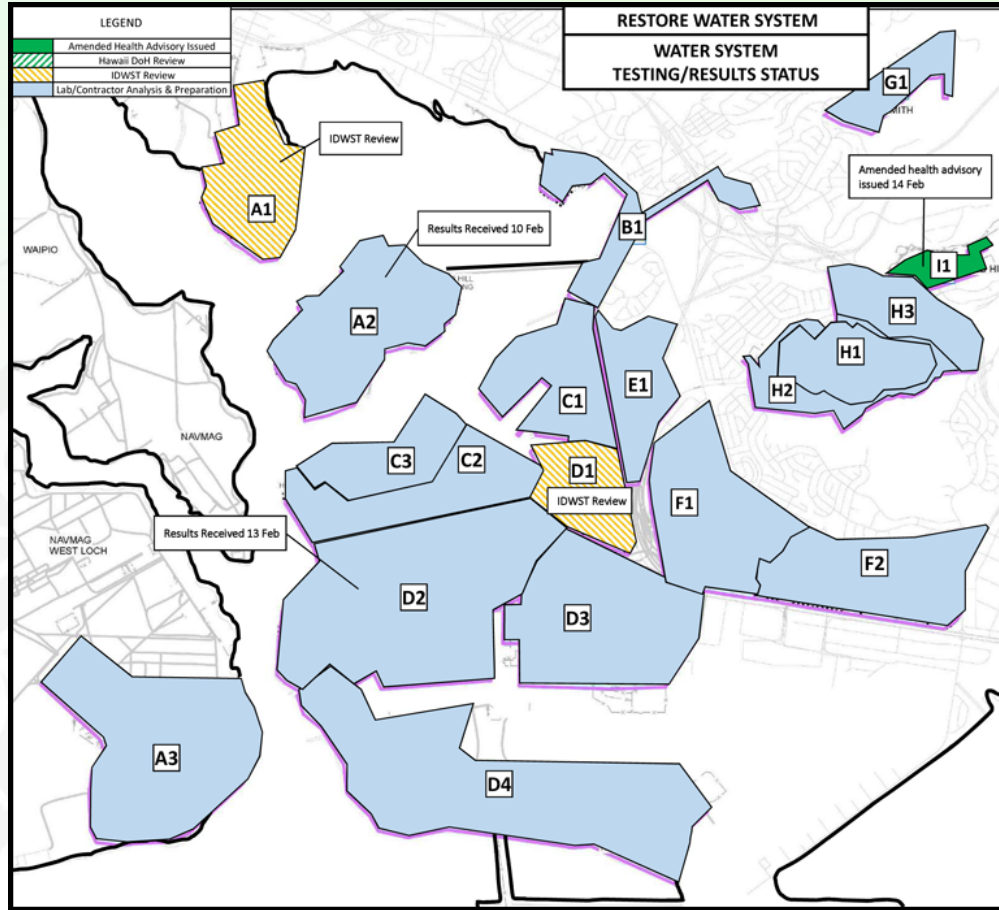
HEALTH ADVISORY AMENDMENT PROCESS



Zone status as of February 15, 2022



IDWST Water System Flushing Zone Water System Testing/ Results Status (as of 2/14/2022)



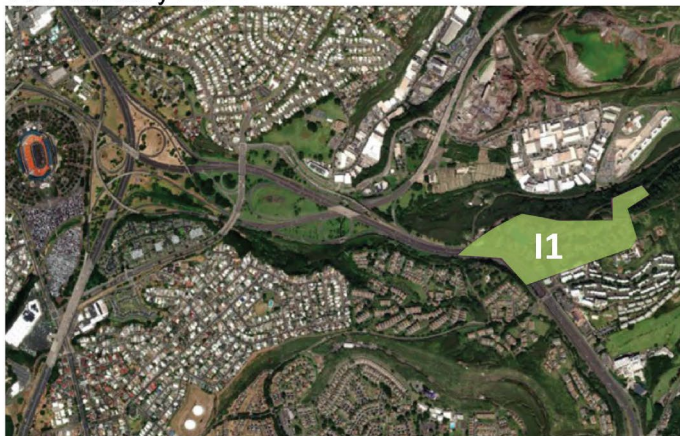
https://jbphh-safewaters.org/public/framework/appcontainer.aspx?url=../homepage/html_title.aspx&idhtml=10738&title=Water%20System%20Flushing%20Zone%20Map&idMenu=88798&ddIDSN=SYSTEM&DSN=SYSTEM

Stage 4 Sampling Results Report Red Hill Housing (Flushing Zone I1) (as of 2/9/2022)



Interagency Drinking Water System Team

Drinking Water Distribution System
Recovery Plan: *Stage 4 Sampling Results
Report for Red Hill Housing (Zone I1)*
Joint Base Pearl-Hickam (JBPHH)
09 February 2022



Neighborhoods included in Zone I1: Red Hill Housing



Drinking Water Sampling Plan: Initial Sampling Effort

Initial Sampling Effort of 10% of homes and non-residential buildings with a minimum of 3 non-residential buildings per zone. All Schools and Child Development Centers were sampled.

Zone I1

135 houses + 6 non-residences + 1 School = 142 total

Initial samples collected by Navy and DOH during Public Health Advisory = 30 house/buildings (25 @ 25 houses; 20 @ 1 school; 4 @ 4 buildings)



Drinking Water Sampling Plan: Long Term Monitoring

Months 1-3 after initial sampling: Sample an additional 5% of homes per month, per Zone; minimum of 5 houses/buildings.

Months 4-24 after initial sampling: Sample an additional 10% of the homes per zone over each 6-month and remaining 3-month period (i.e., not per month); minimum of 15 houses/buildings per period.

Zone I1 total samples collected under Long Term Monitoring Plan:

- 3 months of 8 houses/buildings = 24 houses/buildings
- 4 periods of 15 houses/buildings = 60 houses/buildings

**Total # houses/buildings sampled in Zone I1 (initial & LTM sampling)
= 133**



DOH Guidance to Amend the Public Health Advisory



DOH's Guidance on the Approach to Amend Public Health Advisory initiated November Joint Base Pearl Harbor-Hickam Public Water System (PWS) HEER Incident Case No.: 20211128-1848

Purpose: This guidance provides the criteria that (Advisory) issued on November 29, 2021.

DOH's priority is to protect the public health of the State before DOH will amend the health advisory and the long-term monitoring (LTM) of system water.

Background: A chemical release of petroleum, water distribution system and the Red Hill Shaft November 29, 2021. State and Federal Drinking Water Parameters (ISPs) do not comprehensively monitor State and Federal DW MCLs, EALs, or ISPs require evaluating the data generated during the investigation assessed for each Flushing Zone of the Drinking Water System.

DOH Project Screening Levels: State and Federal Screening Levels. The actions for the thresholds

DOHGuidanceOnApproachToAmendPublicHealthAdvisory

Table 1: Lines of Evidence Under Evaluation

1. Ensure no contamination is entering the water system.	
Objective	Lines of Evidence
1a	All reported sources of contamination are contained.
1b	The regulated public water data is compliant.
1c	No additional contaminant distribution system is occurring.

2. Ensure no contamination re-

Objective	Lines of Evidence
2a	Water within the distribution system and Federal DW MCLs, and ISPs.
2b	Water in premise plumbing meets State and Federal DW MCLs, EALs, and ISPs.

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Table 2: Threshold Determinations that Drinking Water is NOT Fit For Human Consumption

If the DOH MCLs or DOH Project Screening Levels are exceeded, the Drinking Water Health Advisory shall NOT be amended and the drinking water is considered NOT fit for human consumption.

Table 2 Contaminant	DOH MCL (ug/L)
Benzene	5
Toluene	1,000
Ethylbenzene	700
Xylenes (total)	10,000
JP-5 as Combined Total Petroleum Hydrocarbons (TPH)-Gasoline, Diesel, and Oil Ranges (Incident Specific Parameter)	Not Applicable
1,1,1-Trichloroethane	200
1,1,2-Trichloroethane	5
1,2-Dichloroethylene	7
1,2,4-Trichlorobenzene	70
1,2-Dichlorobenzene	600
1,2-Dichloroethane (EDC)	5
1,2-Dichloropropane (DCP)	5
1,4-Dichlorobenzene	75
Carbon tetrachloride (CTC)	5
Chlorobenzene	100
cis-1,2-Dichloroethylene	70
Dichloromethane	5
Styrene	100
Tetrachloroethylene	5
trans-1,2-Dichloroethylene	100
Trichloroethylene (TCE)	5
Vinyl Chloride	2
Benzo[a]pyrene	0.2
Di(2-ethylhexyl)phthalate	6
Antimony	6
Arsenic	10

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Table 2 Contaminant	DOH MCL (ug/L)	DOH Project Screening Level (ug/L)
Barium	2000	4
Beryllium	4	4
Cadmium	5	5
Chromium	100	100
Copper ¹	1300	1300
Lead ¹	15	15
Mercury	2	2
Selenium	50	50
Thallium	2	2
Dichloroethylene, 1,2- (mixed isomers)	70	70
Total trihalomethanes (THM) (sum of chloroform, bromoform, bromodichloromethane, and dibromochloromethane)	80	80
Total haloacetic acids (THAA) (sum of monochloro-, dichloro-, and trichloroacetic acids and mono- and dibromoacetic acids)	60	60
Bromate	10	10
Chlorite	1000	1000

Table 2 Contaminant	DOH MCL (ug/L)	DOH Project Screening Level (ug/L)
1,1,1-Trichloroethane	200	200
1,1,2-Trichloroethane	5	5
1,2-Dichloroethylene	7	7
1,2,4-Trichlorobenzene	70	70
1,2-Dichlorobenzene	600	600
1,2-Dichloroethane (EDC)	5	5
1,2-Dichloropropane (DCP)	5	5
1,4-Dichlorobenzene	75	75
Carbon tetrachloride (CTC)	5	5
Chlorobenzene	100	100
cis-1,2-Dichloroethylene	70	70
Dichloromethane	5	5
Styrene	100	100
Tetrachloroethylene	5	5
trans-1,2-Dichloroethylene	100	100
Trichloroethylene (TCE)	5	5
Vinyl Chloride	2	2
Benzo[a]pyrene	0.2	0.2
Di(2-ethylhexyl)phthalate	6	6
Antimony	6	6
Arsenic	10	10

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Basis	Notes
None	
Present	

Table 3: Threshold Concentrations to Trigger Investigation(s)
If the DOH Project Screening Level is exceeded, the Navy shall investigate the source(s) of the contamination under direction of the DOH.

Table 3 Contaminant	DOH MCL (ug/L)	DOH Project Screening Level (ug/L)	Basis	Notes
1-methylphthalate	None	10		
2-methylphthalate	None	10		
Naphthalene	None	17		HICOH 2017: (lowest of drinking water toxicity and taste and odor action levels). If the Project Screening Level for the listed contaminants are exceeded, the Navy shall: <ol style="list-style-type: none"> 1. Notify the DOH within 24 hours of receipt of the preliminary analytical results. 2. Start the investigation of the source of the contamination pursuant to the DOH Technical Guidance Manual. 3. Submit a draft Corrective Action Plan to the DOH for approval within 72 hours of receipt of the preliminary analytical results. 4. Comply with interim actions as identified by DOH.
Total Organic Carbon (TOC) (Incident Specific Parameter)	None	2000		TOC used as an additional surrogate for TPH to increase confidence in representativeness of sample data. <ul style="list-style-type: none"> While most Oahu ground water sources are closer to 1000 ug/L or below, the proposed EA acknowledges that distribution system conditions and operational changes may cause a temporary increase in baseline TOC fluctuations. The proposed EA can be supported by all current EPA approved drinking water methods utilized for compliance with 40 CFR 141.1216(e) as revised: https://www.ecfr.gov/current/title-40/chapter-I/subchapter-D/part-141/subpart-141.1216(e)
Fuel like Odor in the Water or Chlorine Precipitation (Incident Specific Parameter)	N/A	Present	Public Health Advisory	Within 12 hours of field observations by Navy or DOH or EPA or within 24 hours of receipt of a complaint by the Navy or DOH, the Navy shall follow the SPHER Water Response Resident Resources on the Water Rapid Response Team process and notify CDH of the status of the response. This concludes to be a trigger under the long term Monitoring Plan.

DOHGuidanceOnApproachToAmendPublicHealthAdvisory.20220212.docx

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Contact the following with concerns

Department of Health Safe Drinking Water Branch

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US Navy:

808-449-1979

808-448-3262

808-448-2557

808-448-2570

808-448-2583

US Army:

808-620-7938

808-620-7951





**DOH's mission is to protect public health
and the environment.**

