

### Joint Base Pearl Harbor Hickam Potable Water System and Red Hill Shaft Recovery

Presented by

**Naval Facilities Engineering Systems Command Hawaii** 

**Commander Navy Region Hawaii** 

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#### **AGENDA**

- Monthly Water Reporting
- Water System Recovery and Flushing Plan
- Red Hill Shaft Recovery and Monitoring Plan



# **Monthly Reporting**

**JBPHH Aquifer Pumping** 

**Commander Navy Region Hawaii** 



### **JBPHH Monthly Reporting**

#### Joint Base Pearl Harbor Hickam (JBPHH) Water System

Water Use Permit	Well No.	Well Name	Allocation (mgd)
85	3-2254-001	Red Hill Shaft	4.659
86	3-2253-032	Aiea Halawa Shaft	0.697
111	3-2558-010	Waiawa Shaft	14.977
Total			20.333

- Monthly Reporting to DLNR CWRM is up to date
  - January 2022 Monthly Data reported on 4 February 2022
  - Weekly submissions to CWRM since 22 December 2021
- January 12-Month Average JBPHH Pumping under permitted 20.333 MGD
  - 12-Month Average Pumping Data (As of 31 DEC): 19.862 MGD
    - Red Hill Shaft: 4.423 MGD
    - Aiea Halawa Shaft: 0.283 MGD
    - Waiawa Shaft: 15.156 MGD
- Waiawa Pumpage since Water Conservation Efforts Implemented (6 DEC Present)
  - Maximum Single Day: 17.586 MG
  - Minimum Single Day: 11.735
  - Average: 15.074 MGD



## Water System Recovery and Flushing Plan

Per Jointly Signed Approved Plan

**Commander Navy Region Hawaii** 



### Water System Recovery and Flushing Plan

### **Execution of Recovery Plan**

- Stage 1: Recovery of Distribution System and Tanks
- Stage 2: Flush Points of Service
- Stage 3: Certify to Potable Standards
- Stage 4: Monitor

#### Stage 1: Recovery of Distribution System

- Systematic Flushing plan
- Discharge Water Treated with Granulated Activated Carbon if discharged to land or storm drain system
  - NPDES Permit issued for Flushing via Navy Storm Drain on 17 DEC
  - C&C Environmental Permit issued 27 DEC
  - DoT Storm Drains Permit issued 21 DEC

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		STATE OF HAWAII DEPARTMENT OF HEALTH	Ineply, skase referse redenare
		P. 0. BOX 3378 HONOLULU, HI 86801-3378	21DG545.FNL.21
		December 17, 2021	
Via e-mai	il only ( <u>james.g.</u>	meyer2.mil@us.navy.mil)	
Captain J CEC, USI Naval Fac Commar 400 Mars JBPHH, H	ames Meyer N, Regional Engi cilities Engineerir nd, Hawaii hall Road Hawaii 96860-313	ineer ng Systems 39	
Dear Cap	tain Meyer:		
Subject:	NOTICE OF G National Poll Mobile GAC V JBPHH, Islan File No. HI211	SENERAL PERMIT COVERAGE (I utant Discharge Elimination Syst Water Treatment Units d of Oahu, Hawaii DG545	NGPC) Iem (NPDES)
This letter	r is to notify you t	that	
1	NAVAL FACILIT	TIES ENGINEERING SYSTEMS C	OMMAND, HAWAII
(Permittee treated ef authorizes from certa Submissio	e) is now covered fluent from leakin s the Permittee to ain project location on:	d under the NPDES General Perming underground storage tank reme o discharge to certain receiving Station(s), all as identified in the Notice	it authorizing discharges of dial activities. This only ate waters discharge point(s) of Intent (NOI) e-Permitting
	(5)	HPD-ZJ47-VA960 ubmitted online on December 15. 2	2021):
provided informati	that Permittee on submitted in	shall comply with applicable adr n the NOI (Administrative Require	ninistrative rules <sup>1</sup> and the ements).
<sup>1</sup> Hawali Admi Appendix D. H	nistrative Rules (HAR) Cl AR Chapters 11-54 and		-55, Appendix A; HAR Chapter 11-55, th website at:
	HUNDER		



### Water System Flushing Zone Map





### Distribution system and home flushing are complete (Stage 1 & 2)

• Final Zone (A3 – Iroquois Point) was complete on Tues. 08 Feb.

### Sampling and testing underway to clear zones (Stage 3)

• First Zone (I1 – Red Hill housing) DOH amended advisory on Feb 14.

### Long-term sampling for monitoring (Stage 4)

• Plan submitted to IDWST for review

## <u>Reviewing reduced irrigation plans for common areas, housing, and environmentally sensitive areas</u>



## Red Hill Shaft Recovery and Monitoring Plan



### **Red Hill Shaft Recovery and Monitoring Plan**

- Jointly developed and approved by DOH, USEPA, and Navy
  - Extensive inputs from DLNR staff
    - CWRM
    - Division of Aquatic Resources
    - Division of Forestry and Wildlife
- Signed January 26, 2022
- The RHSRMP:
  - Provides a general roadmap for Red Hill Shaft recovery
  - Describes the operations and supports the discharge permitting of the Groundwater Capture Zone project
  - Defines the multiple levels of monitoring for aquifer and stream protection

Red Hill Shaft Recovery and Monitoring Plan (RHSRMP) JBPHH, Oahu, Hawaii

January 2022

Sherri R. Eng, N45 Commander, Navy Region Hawaii By Direction of the Commander

IIS EPA Region 9

Wothleen S. Ho Deputy Direction of Environmental Health Hawaii Department of Health



### **5MGD GAC Operations**

- Start-up 29 January
  - DOH, EPA, CWRM, USGS present
- Flow stabilized at 4.6 MGD
- · Consistent Non-Detects for TPH in both influent and effluent
- Continuous water-level monitoring in 20+ monitoring wells to characterize aquifer response to pumping
- Stream monitoring at 5 stations twice per week, with water quality and eDNA samples collected before (7-8 JAN) and after (5 FEB) start-up
- Effluent beneficial use study underway



Sampling of 5MGD GAC Effluent

Monitoring 5MGD GAC Discharge

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### **RHSRMP Monitoring Programs**

- 1. Groundwater Well Network Monitoring Water Quality Sampling and Testing Water Level Monitoring Soil Vapor Monitoring
- 2. GAC Process Performance Monitoring
- 3. NPDES Discharge Monitoring
- 4. Halawa Stream Ecological Monitoring







### **Remediation Activities**

#### **Fuel Recovery**

- 1. Fuel accounting
- 2. Fuel recovery through skimming and absorbents

### Water Development Tunnel

- 1. Navy diver inspection
- 2. ROV inspection
- 3. Identification of contamination pathways

### Adit (Tunnel) Investigations

- 1. Soil vapor monitoring
- 2. Geophysics
- 3. Air quality monitoring

### **Remediation Strategies**

 Developing data-driven remediation objectives for soil, rock media, and groundwater

### Leach Tank Investigation

 Soil sampling and characterization to support excavation actions





#### Due to Impacts to WRM Navy has committed to:

- 1. Conduct a **Pearl Harbor Water Resources Master Plan** to reduce Navy water footprint and increase Oahu water security by pursuing 20MGD in water balance solutions in the areas of:
  - 1. Conservation
  - 2. Water Reuse
  - 3. Enhanced Recharge
  - 4. Source Protection
  - 5. Production Capacity Expansion
- 2. Pursue watershed protection efforts through the DoD Readiness and Environmental Protection Integration (REPI) Program
  - 1. Fencing, ungulate removal, and invasive species removal to improve recharge in the upper watershed
- 3. Pursue reuse and conservation
  - 1. Program to upgrade the JBPHH wastewater treatment plant for reuse
  - 2. Conversion of irrigation to non-potable sources
  - 3. Water audits and metering



### **Back Up**



### **Overall Goal:**

"The overall goal of this plan is to recover and remediate the Red Hill Shaft drinking water quality and quantity for the people of Hawaii while causing no further harm to human or environmental health."

#### **Immediate Goal:**

"The immediate focus towards this project goal is to remove any fuel contamination and create a contaminant capture zone in the vicinity of the Red Hill Shaft through pumping operations."

#### Long Term Goal:

"This plan also sets the full context for the larger, longer-term recovery and mitigation activities based on environmental data that is collected and modeled to support solutions protective of the Red Hill Shaft, the aquifer system, and nearby receptors."