

Documentation to Amend Drinking Water Health Advisory in Zone C2

Joint Base Pearl Harbor Hickam (JBPHH)
O‘ahu, Hawai‘i

Interagency Drinking Water System Team
Zone C2 Removal Action Report
March 2022

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Note: Department of Defense critical infrastructure security information (DCRIT) is not included



Interagency Drinking Water System Team
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Line of Evidence 0

Introduction

DOH Checklist to Amend the Public Health Advisory in Flushing Zone C2



Zone C2 Checklist to Amend the Public Health Advisory initiated November 29, 2021 for Joint Base Pearl Harbor -Hickam Public Water System No. 360 HEER Incident Case No.: 20211128-1848

Purpose: This checklist identifies the documentation and review that the Hawaii Department of Health (DOH) conducted to **amend** the Public Health Advisory (Advisory) in each Zone under the *DOH's Guidance on the Approach to Amending the Drinking Water Health Advisory*, dated December 30, 2021. This review was conducted as an oversight role in addition to the review conducted as a part of the Interagency Drinking Water System Team (IDWST).

DOH's priority is to protect the public health and environment of the people of Hawaii. DOH will evaluate the "lines of evidence" that must be met before amending the health advisory and issuing notices that the water can be used for all purposes including drinking. The Navy must also commit to following the long-term monitoring (LTM) of system water quality for this incident under the IDWST Drinking Water Sampling Plan, as amended.

Background: A chemical release of petroleum, which is a hazardous substance, entered the Joint Base Pearl Harbor-Hickam (JBPHH) drinking water distribution system and the Red Hill Shaft. This release triggered an

emergency response and DOH issuance of an Advisory on November 29, 2021 for the entire JBPHH Public Water System No. 360. State and Federal Drinking Water (DW) Maximum Contaminant Levels (MCLs) under the Safe Drinking Water Act do not adequately address petroleum contamination of drinking water. DOH has established Environmental Action Levels (EALs) and Incident Specific Parameters (ISPs) to more comprehensively monitor and respond to petroleum contaminated drinking water. Any contaminants that exceed the State and Federal DW MCLs, EALs, or ISPs require additional action prior to amending the Advisory. Satisfaction of the lines of evidence will be achieved by evaluating the data generated during the investigation conducted by the IDWST. The data will be assessed for each Zone of the Drinking Water Distribution System Recovery Plan. All lines of evidence will require documentation.

DOH Project Screening Levels: State and Federal Drinking Water MCLs, specified State EALs, and ISPs are considered in development of Project Screening Levels. The actions for the thresholds for each contaminant are listed in *DOH's Guidance on the Approach to Amending the Drinking Water Health Advisory*.

DOH Checklist to Amend the Public Health Advisory in Flushing Zone C2



Objective 0 - Introduction to Lines of Evidence Under Evaluation / Document Summary

Reference	Status	Documentation
Tab 0	Complete	DOH Checklist to Amend the Drinking Water Health Advisory.
Tab 0.1	Complete	<ul style="list-style-type: none"> Executive Summary Memo for Zone C2 Removal Action Report Signed statement by the Owner/Operator Representative of the Water System, that asserts that all lines of evidence have been met, including the following statement with a signature: "I certify under penalty of law that I have personally examined and am familiar with the information submitted and believe the submitted information is true, accurate, and complete."

Objective 1a – Line of Evidence: Reported sources of contamination are isolated and contained.

Incident Specific Criteria - Contamination from **Red Hill Shaft** is isolated from Navy's water distribution system.

Reference	Status	Documentation
Tab 1a.0	Complete	Executive Summary Memo.
Tab 1a.1	Complete	Memorandum for Record documenting that the Red Hill Shaft has been physically disconnected from the NAVFAC system.
Tab 1a.2	Complete	Memo for Record showing SCADA data that Waiawa Shaft is the single source of water for the NAVFAC system since 03 December 2021.
Tab 1a.3	Complete	Photograph of concrete blocking between air gapped isolation flanges.

Objective 1b – Line of Evidence: The regulated public water system's water quality data is compliant.

Incident Specific Criteria - Data does not exceed Federal DW MCLs, specified State EALs, and ISPs for **Waiawa Shaft (only source of the drinking water)**.

Reference	Status	Documentation
Tab 1b.0	Complete	Executive Summary Memo.
Tab 1b.1	Complete	<ul style="list-style-type: none"> Sample Results for Waiawa Shaft (the source) taken 1/13/2022 Level 4 Validated Laboratory Report for EPA Methods 8260 (VOCs), 8270 (SVOCs), 8015 (TPH-G, TPH-D, TPH-O) plus Tentatively Identified Compounds (TICs) Level 4 Validated Laboratory Report for EPA Methods 8260 (VOCs), 8270 (SVOCs), 8015 (TPH-G, TPH-D, TPH-O) plus Tentatively Identified Compounds (TICs) Sample Results of Waiawa Shaft Entry Point (after treatment) taken 1/11/2022 Level 4 Validated Laboratory Report for Sampling Plan Addendum 1, Table 3a: Distribution Sampling (Step 2b) Summary Drinking Water Analytical Methods, Analytes, Action Levels, and Method Detection Limits Level 4 Validated Laboratory Report for Sampling Plan Addendum 1, Table 3a: Distribution Sampling (Step 2b) Summary Drinking Water Analytical Methods, Analytes, Action Levels, and Method Detection Limits

DOH Checklist to Amend the Public Health Advisory in Flushing Zone C2



Objective 1c – Line of Evidence: No additional contamination through the distribution system is occurring.

Incident Specific Criteria - Cross Connection Control investigation shows distribution system is protected, resulting in no additional sources of contamination.

Reference	Status	Documentation
Tab 1c.0	Complete	Executive Summary Memo.
Tab 1c.1	Complete	<p>Certificate Regarding Cross-Connection Control Review and Confirmation – Zone C2, verifying that building and service connections with petroleum activities are protected from backflow risks with the following documentation:</p> <ul style="list-style-type: none"> • A “gap analysis” of the petroleum related activities versus appropriate device inventory (i.e., inappropriate device, missing Cross-Connection Control protection, untested device, etc.). • A map that includes: All facilities with petroleum activities; locations of existing backflow prevention devices; and Water system infrastructure. • An inventory database: A list of petroleum-related activities and identified appropriate cross connection control (CCC) devices at these activities, as required, i.e., if there was human consumptive use and where cross connection potential or hazard was identified.
Tab 1c.2	Complete	COMNAVREG HAWAII INSTRUCTION 11330.2D, dated 19 Sep 2016, Backflow Prevention and Cross-Connection Control Program

Objective 2a – Line of Evidence: Water within the distribution system does not exceed State and Federal DW MCLs, specified State EALs, and

ISPs.

- Zone flushing plan demonstrates entire distribution system is flushed.
- Sample results show the water in distribution system does not exceed State and Federal DW MCLs, specified State EALs, and ISPs. (Guidance Table 2 and Table 3)
- Drinking water does not show sheen, olfactory evidence, or other qualitative methods of petroleum.

Reference	Status	Documentation
Tab 2a.0	Complete	Executive Summary Memo.
Tab 2a.1	Complete	<p>Memorandum for the Record of the Distribution System Recovery Plan Addendum – Zone C2 Analysis which includes:</p> <ul style="list-style-type: none"> • Hydraulic model that exhibits and flushing line map(s) and plan to show that the flushing approach will achieve directional flushing. • A one-page high resolution zonal flushing map should be provided. • Narrative of assumptions in the development of their flushing model inclusive of any simulations that they ran.
Tab 2a.2	Complete	Summary with documentation from Dr. Whelton discussing flushing goals providing validity of volumetric exchange model.

DOH Checklist to Amend the Public Health Advisory in Flushing Zone C2



Objective 2a – Line of Evidence: Water within the distribution system does not exceed State and Federal DW MCLs, specified State EALs, and

ISPs.

- Incident Specific Criteria –
- Zone flushing plan demonstrates entire distribution system is flushed.
 - Sample results show the water in distribution system does not exceed State and Federal DW MCLs, specified State EALs, and ISPs. (Guidance Table 2 and Table 3)
 - Drinking water does not show sheen, olfactory evidence, or other qualitative methods of petroleum.

Reference	Status	Documentation
Tab 2a.3	Complete	Identification of consecutive flushing zones and flushing phasing order. Time based contaminant slug model showing possible migration of contaminant from Red Hill Shaft used to identify zones requiring additional volumetric flushing (Hydraulic Model)
Tab 2a.4	Complete	Table showing volumetric goals and recorded flushing volumes that occurred in the field for the distribution system.
Tab 2a.5	Complete	Certification of Water Storage Facilities and Water Source for Zone C2 with Water Storage Tanks S1 and S2 Flushing Report.
Tab 2a.6	Complete	<ul style="list-style-type: none"> • Distribution System Exceedance Investigation Summary and Results. • Drinking Water Distribution System Recovery Plan: Stage 2 Sampling Results for Zone C2, JBPHH.

Objective 2b – Line of Evidence: Water in premise plumbing of homes/buildings does not exceed State and Federal DW MCLs, specified State

EALs, and ISPs.

- Incident Specific Criteria –
- Flushing Plan includes procedures to ensure no service connections will re-contaminate the distribution system.
 - Sample Plan includes 72-hour stagnation to account for leaching of contaminants from premise plumbing.
 - Sample results show water in premise plumbing of homes/buildings does not exceed State and Federal DW MCLs, specified State EALs, and ISPs.

Reference	Status	Documentation
Tab 2b.0	Complete	Executive Summary Memo.
Tab 2b.1	Complete	Records of Completed Residential and Non-Residential Flushing Zone C2 with: <ul style="list-style-type: none"> • EDMS Residential Flushing Records Zone C2 • EDMS Non-Residential Flushing Records Zone C2 • NAVFAC SCADA Data Zone C2 28 Dec 2021 to 12 Jan 2022 (for the Distribution System pressure logs during flushing and confirmation that the 30 psi within the distribution system was maintained).
Tab 2b.2	Complete	Sample Results, Level 2 and Level 4 Validated as required by Sampling Plan Section 6.0, report from EDMS.
Tab 2b.3	Complete	Exceedance Investigation Summary and Results Zone C2.
Tab 2b.4	Complete	Memorandum for Record showing that irrigation flushing is complete.

DOH Checklist to Amend the Public Health Advisory in Flushing Zone C2



Objective 2b – Line of Evidence: Water in premise plumbing of homes/buildings does not exceed State and Federal DW MCLs, specified State EALs, and ISPs.		
Incident Specific Criteria –		
<ul style="list-style-type: none"> Flushing Plan includes procedures to ensure no service connections will re-contaminate the distribution system. Sample Plan includes 72-hour stagnation to account for leaching of contaminants from premise plumbing. Sample results show water in premise plumbing of homes/buildings does not exceed State and Federal DW MCLs, specified State EALs, and ISPs. 		
Reference	Status	Documentation
Tab 2b.5	Complete	DOH Guidance for Active Irrigation Line Purging and Flushing

March 5, 2022

From: Naval Facilities Engineering Systems Command Representative, IDWS Team
To: Interagency Drinking Water System Team

SUBJ: ZONE C2 REMOVAL ACTION REPORT

Ref: (a) Drinking Water Sampling Plan, December 2021
(b) Drinking Water Distribution System Recovery Plan, December 2021
(c) Single Family Home Flushing Plan Checklist and Standard Operating Procedures, December 23, 2021
(d) Non-Residential Facility Flushing Plan Checklist and Standard Operating Procedures, January 4, 2022
(e) DOH's Guidance on the Approach to Amending the Drinking Water Health Advisory, December 30, 2021; HEER Incident Case No.: 20211128-1848
(f) DOH Checklist to Amend the Drinking Water Health Advisory

Encl: (1) Zone C2 Removal Action Report

1. The enclosed report documents completion of the requirements outlined in references (a) through (f). This is in response to HEER Incident Case No.: 20211128-1848 involving the Joint Base Pearl Harbor Hickam (JBPHH) Public Water System No. 360.

2. On the 20th of November, a spill of jet fuel, specifically JP-5 jet fuel, occurred at the Red Hill Bulk Fuel Storage Facility in an access tunnel that provides fire suppression and service lines for the facility. The fuel spill was cleaned up and, on the 23rd of November, Admiral Paparo, directed an independent investigation of the spill event, and ordered the investigating officer to also determine any connection between the 20 November event and the spill that occurred earlier this year, on the 6th of May. The results of the investigation are pending public release.

On the 27th of November, the Commander, Navy Region Hawaii, RDML Tim Kott, met with the Fleet Logistics Center Commander, who operates The Red Hill Fuel Storage Facility for the Navy, and they jointly made the decision to stop Red Hill Tank fuel transfer operations based on the ongoing investigation into the recent spills.

On Sunday, the 28th of November, the JBPHH HQs and Hawaii Department of Health (HDOH) began receiving phone calls from military residents reporting a chemical or petroleum taste and smell to the water on the Navy's drinking water system. As more calls were received, it became clear that the reports were clustered around neighborhoods fed by the Red Hill Shaft Well, so the Navy, on the evening of the 28th of November, shut down that well and stood up the Region's Emergency Operations Center to handle the issue. As more calls continued to come in of contaminated water over the next 24 hours, Admiral Paparo, as the senior Navy commander in Hawaii, ordered the establishment of a Joint Crisis Action Team on the 29th of November. The Navy immediately began flushing its potable water distribution system.

SUBJ: ZONE C2 REMOVAL ACTION REPORT

On December 8, 2021, HDOH issued Directive One which provided requirements for flushing of the Navy Water System. The Navy began working with HDOH and the U.S. Environmental Protection Agency (EPA) to meet the requirements of this directive and resume flushing of the potable water system.

On December 17, 2021, HDOH, the U.S. Navy, the U.S. Army and EPA established an Interagency Drinking Water System (IDWS) Team to restore safe drinking water to affected JBPHH housing communities. The working group was established to ensure that the agencies were coordinated in actions to restore safe drinking water to Navy water system users and that they had a clear, coordinated source of information as work continued to restore safe drinking water. On the same day, the U.S. Navy, U.S. Army, HDOH, and the EPA jointly signed the Water Distribution System Recovery Plan agreement. The signing of this plan was the second work product of the IDWS Team, which is focused on efficiently and effectively restoring safe drinking water to JBPHH military housing communities. Earlier in that week, the team jointly signed the Drinking Water Sampling Plan.

The flushing of the water distribution lines resumed on December 20, 2021. Residence and non-residence facilities were flushed and sampled after the completion of flushing and testing of the distribution system of a specific Zone. This report specifically documents the requirements outlined in references (a) through (f) for Zone C2.

3. The removal action report (RAR) for Zone C2 documents two specific lines of evidence necessary to amend the drinking water health advisory for Zone C2 as provided by HDOH. The two lines of evidence under evaluation included:

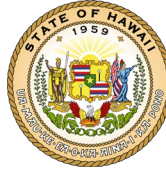
- i. Ensure no contamination is entering the water system.
- ii. Ensure no contamination remains in the system and water chemistry concerns are addressed.

Each line of evidence has several objectives with specific lines of evidence and incident specific criteria required to be met. Achievement of the criteria will be described and supported with documentation in the subsequent sections of the RAR.

4. I certify under penalty of law that I have personally examined and I am familiar with the information submitted and the submitted information is true, accurate, and complete.

MENO.MICHAEL
EL.WAYNE.JR.
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M. W. Meno
Captain, U.S. Navy Civil Engineer Corps



Interagency Drinking Water System Team
Zone C2 Removal Action Report
March 2022

Line of Evidence 1a

All Reported Sources of Contamination Are Isolated and Contained

Table 1: Lines of Evidence Under Evaluation – Ensure no contamination is entering the water system.

Objective 1a - All reported sources of contamination are isolated and contained.

Incident Specific Criteria - Contamination from **Red Hill Shaft** is isolated from Navy's water distribution system.

Lines of Evidence	Completion Status	Outstanding Items
Navy confirmation that Red Hill Shaft is isolated from the Navy's water distribution system.	Complete.	<ul style="list-style-type: none">• None.

February 19, 2022

From: Naval Facilities Engineering Systems Command Representative, IDWS Team
To: Interagency Drinking Water System Team

SUBJ: SUMMARY OF LINE OF EVIDENCE OBJECTIVE 1A – ALL REPORTED SOURCES OF CONTAMINATION ARE ISOLATED AND CONTAINED

Encl: (1) 1a.1 Memorandum for Record with Isolation Date
(2) 1a.2 Summary of Operator Logs and SCADA Data
(3) 1a.3 Photograph of Concrete Blocking Between Air Gapped Isolation Flanges

1. Enclosures (1), (2), and (3) document completion of Line of Evidence objective 1a, all reported sources of contamination are isolated and contained. On the evening of November 28, 2021, the Red Hill Shaft was secured from operation and all pumping operations ceased. The Aiea/Halawa shaft briefly served as the secondary source starting on November 28, 2021, but it was shut down on December 3, 2021 to prevent potential westward contaminant migration in the aquifer and because there were concerns over high chloride concentrations caused by saltwater intrusion. Since December 3, 2021, the Waiawa Shaft has been the sole water source providing potable water to the distribution network. It is located 5.5 miles west of the Red Hill Fuel Facility, and testing has not detected any water quality issues at this source. The Red Hill Shaft discharge pipes were physically re-arranged and encased in concrete on December 24, 2021 as shown in Enclosure (1) and (3), thereby isolating the system as required by Line of Evidence 1a. The Supervisory Control and Data Acquisition (SCADA) data in Enclosure (2) shows the previous statement to be true. All reported sources of contamination are isolated and contained.

2. The Red Hill Shaft pumps are now being used to control the spread of contamination by creating a capture zone in the aquifer by pumping to a 5 million gallons/day Granular Activated Carbon (GAC) system which discharges into the Halawa Stream. The new piping from the pumps to the GAC treatment came from the 20" header where the 20x24 reducer was removed on 24 DEC 2021. A thrust block was poured at this location around the existing blinded wye fitting as shown in Enclosure (3).

3. I certify under penalty of law that I have personally examined and I am familiar with the information submitted and I believe the submitted information is true, accurate, and complete.

WETZEL.CHRISTOPHE
R.JAMES.1540194862

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C. J. Wetzel
LT, CEC, USN

04 JANUARY 2022

MEMORANDUM FOR RECORD

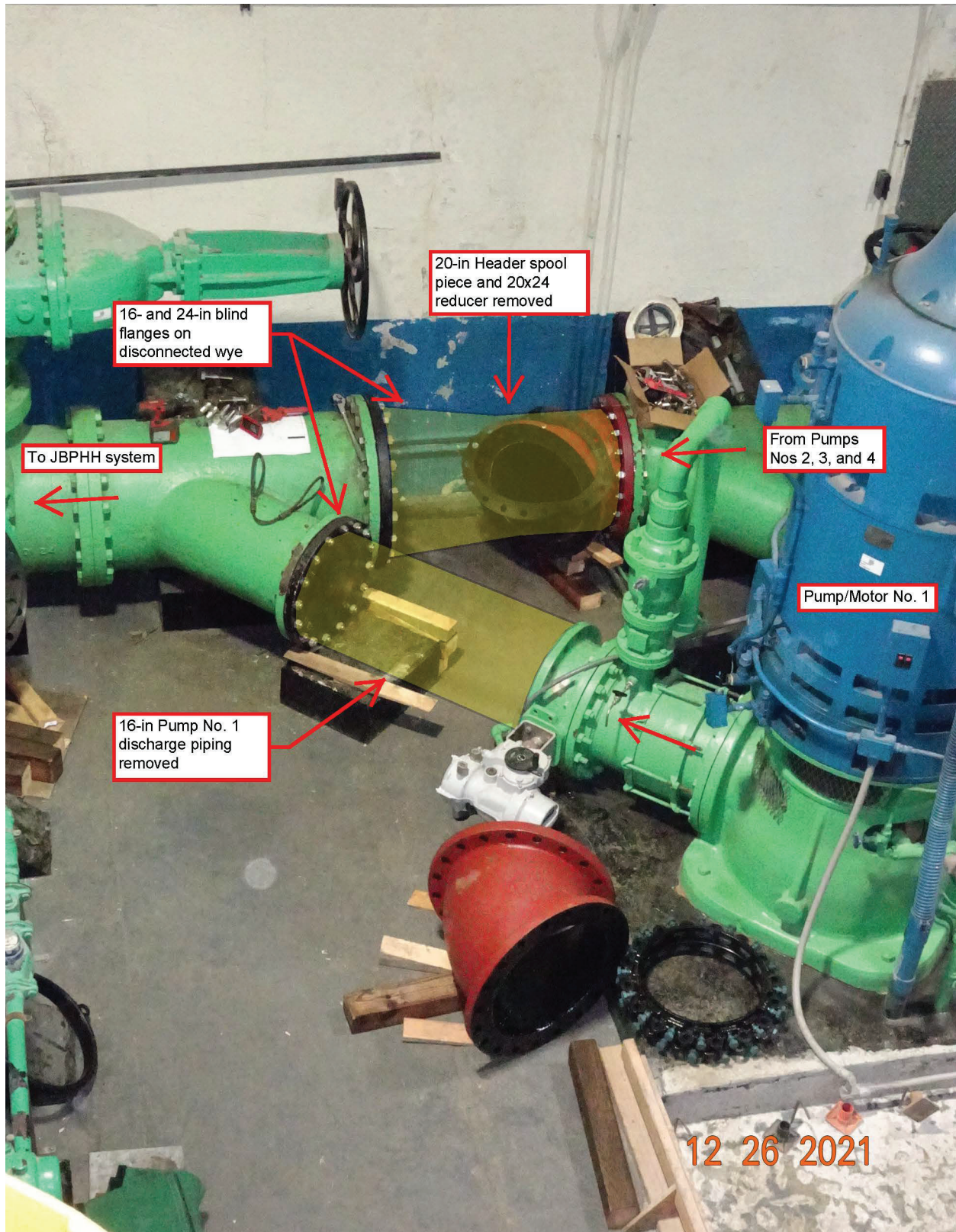
SUBJECT: Red Hill Potable Water Pumping Station

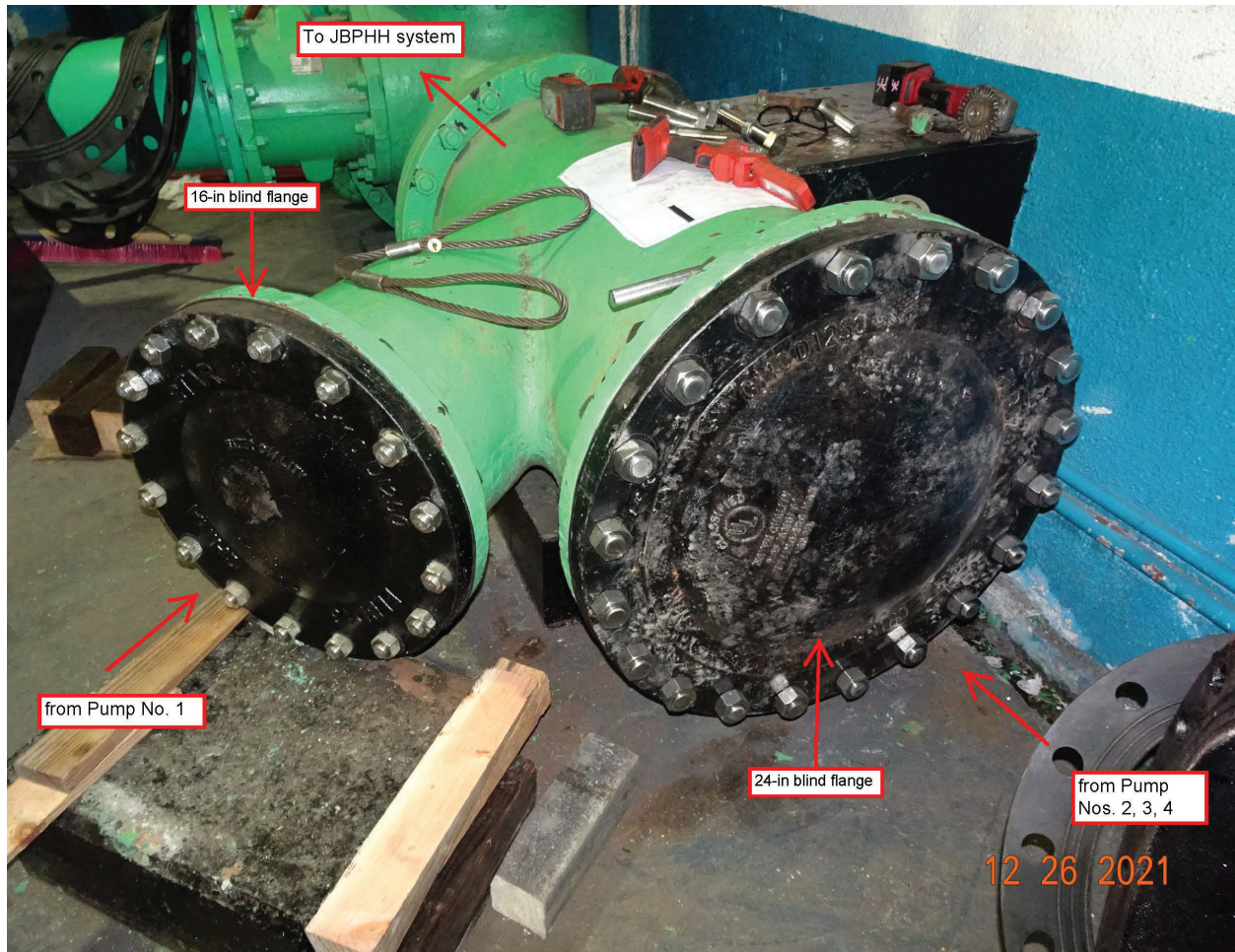
ENC: (1) Red Hill Pump Station Photographs, Post Pump Isolation dated 12/26/2021
(2) JBPHH Potable Water LOTO Log

1. This Memorandum For Record (MFR) is to document the Red Hill Shaft pump status in relation to the Joint Base Pearl Harbor Hickam Potable Water System.
2. In response to fuel contaminants found in the Red Hill Shaft aquifer/development tunnel, the main Red Hill Pumping Station pumps were secured from the Potable Water system. On 3 December 2021, all four Red Hill pumps were electrically Locked Out, Tagged Out (LOTO), see Enclosure (2). (Note: Pump #1 was LOTO on 10 June 2020 due to an unrelated pump issue, and is still out of service, LOTO.) After initially being shut down operationally, and LOTO electrically, the Red Hill pumps were physically isolated from the Potable Water system on 24 December 2021.
3. Physical isolation was performed with in-house NAVFAC forces, with a completion date of 24 December 2021. This work was performed by isolating the system from the pumps at the "wye" fitting adjacent to Red Hill Pump #1. The wye fitting is shown on Enclosure (1). A blind flange was placed on the main header and the wye branch.
4. The 24" blind flange on the main header physically air-gapped and isolated Red Hill pumps #2, #3, and #4. The 16" blind flange in the wye branch physically air-gapped and isolated Red Hill pump #1. This work is shown on Enclosure 1.
5. The work the NAVFAC in-house forces performed removed any source or pathway from the Red Hill aquifer to the JBPHH Potable Water system.

MITCHELL.JEREMY.W.1395400700
J. MITCHELL
Deputy Public Works Officer
Joint Base Pearl Harbor Hickam

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NAVFAC Hawaii - Potable Water Utilities Lock Out Tag Out (LOTO) Form



Locked Out		Back in Service		Location	Circuit / Equipment being LOTO	Reason for LOTO	Lock No.	Tag No.	Authorized Employee
Date	Time	Date	Time						
18 MAR 20	0930			REDHILL	MP#1	Pump overhaul		010	Dykky
5 JUN 20		20 MAR 21	1200	WAIANUA	CD #20	FAULT IN OVERHAUL		1	
10 JUN 20	0900			REDHILL	PUMP CONTROL MP#1	PUMP OVERHAUL		011	Dykky
10 JUN 20	0900			REDHILL	NCC MP#1	PUMP OVERHAUL		012	Dykky
10 JUN 20	0945			WAIANUA	CD #40	FAULT-PUMP CONTROLS		2	AN
10 MAY 21				HALANUA	NCC#1	MOTOR FAULT		3	AN
2 JUN 21	0800			WAIANUA	CD#80	FAULT PUMP CONTROLS		5	AN
2 JUN 21	0800	30 JUN 21	2030	WAIANUA	CD#100	HECO OUTAGE		4	AN
2 JUN 21	0900			HALANUA	NCC #2	PUMP REMOVED		6	AN
30 JUN 21	2330	7 JUL 21	1900	WAIANUA	CD#10	FAIL TO CLOSE		8	AN
19 JUL 21	0745	19 JUN	0900	HALANUA	EXHAUST FAN	REPLACE OIL			DS
17 NOV 21	1230			HALANUA	PUMP #1	PUMP FAIL			AN
17 NOV 21	1230			WAIANUA	PUMP #2	MOTOR FAIL			AN
30 DEC 21	0925			REDHILL	NCC MP#2	COMPRESSOR INTERFERE WELK IS WELL			AN

NAVFLAC

February 10, 2022

SUMMARY OF OPERATOR LOGS AND SUPERVISORY CONTROL AND DATA ACQUISITION (SCADA) DATA

1. OBJECTIVE: Provide a description of water sources that supplied the Joint Base Pearl Harbor Hickam (JBPHH) potable water system (system) prior-to and after the fuel contamination incident that occurred in late November 2021.

2. BACKGROUND:

2.1. Portions of the Navy water distribution system serving JBPHH and surrounding areas were exposed to low levels of fuel contamination with initial indications in the form of smell reports occurring on or about 28 November 2021.

2.2. Prior to the aquifer contamination incident, water users connected to the Navy's system were supplied by three Navy owned water sources, Red Hill Shaft, Aiea/Halawa Shaft and Waiawa Shaft. In the time period prior to the incident, Waiawa Shaft was the main water source supplying water to the JBPHH system with at least one pump operating full time (100%). A single Red Hill Shaft pump was operated intermittently as a secondary source to the system. The Aiea/Halawa shaft was not being operated due to concerns over high chloride concentrations caused by saltwater intrusion into the aquifer.

2.3. On the evening of 28 November 2021, the Red Hill Shaft was secured and all pumping operations ceased. The Aiea/Halawa shaft briefly served as the secondary source starting on 28 November 2021 but was shut down on 03 December 2021 to prevent westward contaminant migration in the aquifer.

2.4. Since 03 December 2021, Waiawa Shaft has been the sole water source providing potable water to the distribution network. It is located 5.5 miles west of the Red Hill Fuel Facility and testing has not found any water quality issues at this source.

3. DATA INTERPERETATION: The Supervisory Control and Data Acquisition (SCADA) data provided in reference (a) includes tabular and graphical depictions of flow from the three source pump stations, aquifer water surface elevations above mean sea level (MSL) and the water level in the 6 million gallon (MG) S1 and S2 water storage tanks. The data was provided as a daily average (i.e. data was averaged over the 24 hours of each day from 00:00 to 23:59) and ranges from 01 November 2021 to 08 January 2022.

3.1 WAIAWA SHAFT/PUMP STATION: Prior to 28 November, The Waiawa Pump Station (PS) was supplying an average of 16.6 million gallons per day (MGD) of potable water to the system. After 28 November, demand reductions from turning off irrigation and smaller residential demand reduced the water supplied by the Waiawa PS to an average of 15.5 MGD. This was 76% of the 22 MGD total system demand prior to 28 November 2021.

There was an inverse correlation between the aquifer water surface elevation and water pumped out of the aquifer. When Waiawa PS was pumping between 16 and 18 MGD, the aquifer water surface elevation dropped to between 8.0 and 10.0 feet MSL. When pumping was reduced between 15 and 16 MGD, the aquifer water surface was raised to between 15.0 and 17.0 feet

above MSL. See Figure 1 below for a graphical depiction of the daily average aquifer water surface elevation and pumps flows from Waiawa Shaft.

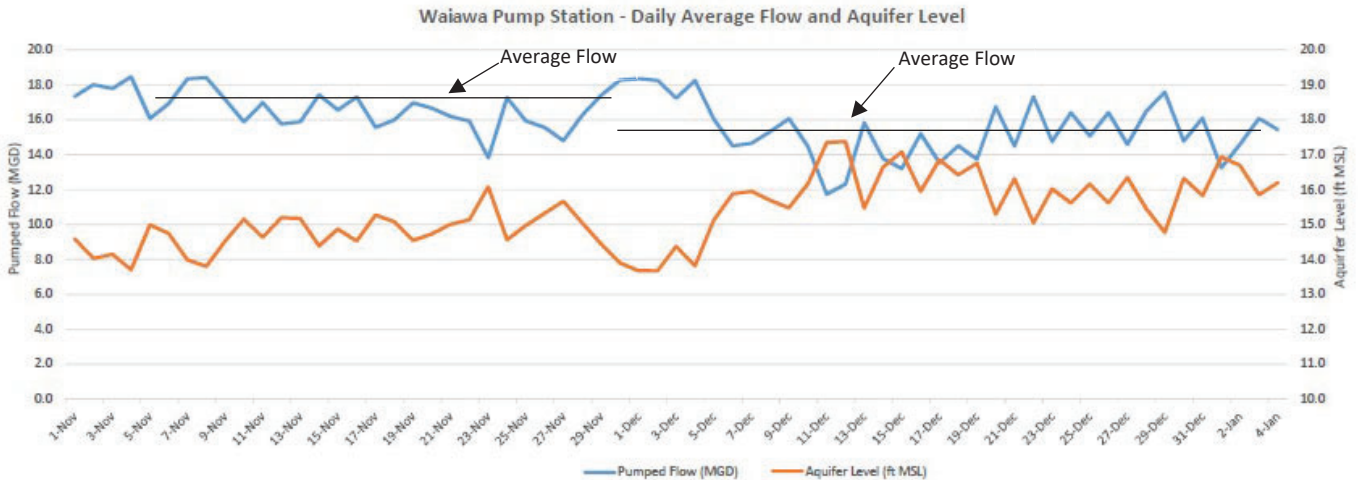


Figure 1. Waiawa Shaft Daily Average Flows and Aquifer Water Surface Elevation

3.2 RED HILL SHAFT/PUMP STATION: Prior to being shut down on 28 November 2021, the Red Hill PS was supplying an average of 5.3 MGD to the system. The represented 24% of the 22 MGD total system demand. As shown in Figure 2, the Red Hill Pump Station has not been operated since 28 November 2021.

Since pumping ceased, the aquifer water surface elevation has raised from approximately 2 ft MSL to almost 6 ft MSL

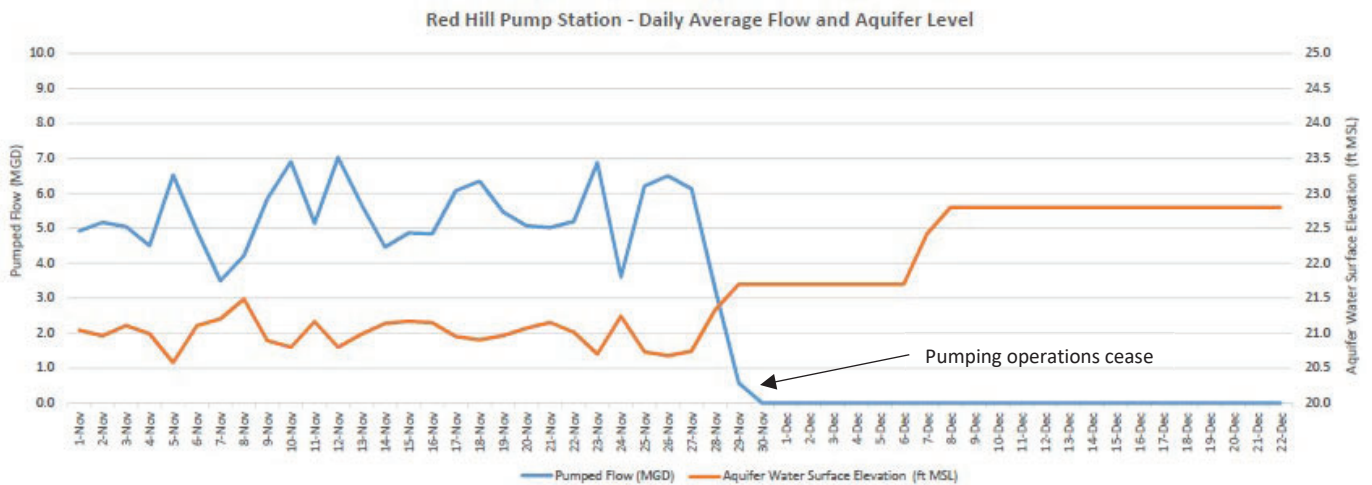


Figure 2. Red Hill Shaft Daily Average Flows and Aquifer Water Surface Elevation

3.3 HALAWA/AIEA SHAFT/PUMP STATION: Halawa Shaft was briefly operated from 28 November to 03 December 2021. The reasons for shutdown are as follows:

1. Demand reductions made it so that Waiawa Shaft could supply 100% of the water to the system,

2. there were concerns over westward plume migration from Red Hill if Halawa remained active,
3. water system operators had advised that high chloride concentrations in the Halawa/Aiea Shaft had caused water quality problems in the past.

The aquifer water surface elevation was around 12.0 ft MSL prior to turning the pumps on at the Halawa/Aiea PS. After the pumping ceased, the aquifer recovered to around 12.8 ft MSL.

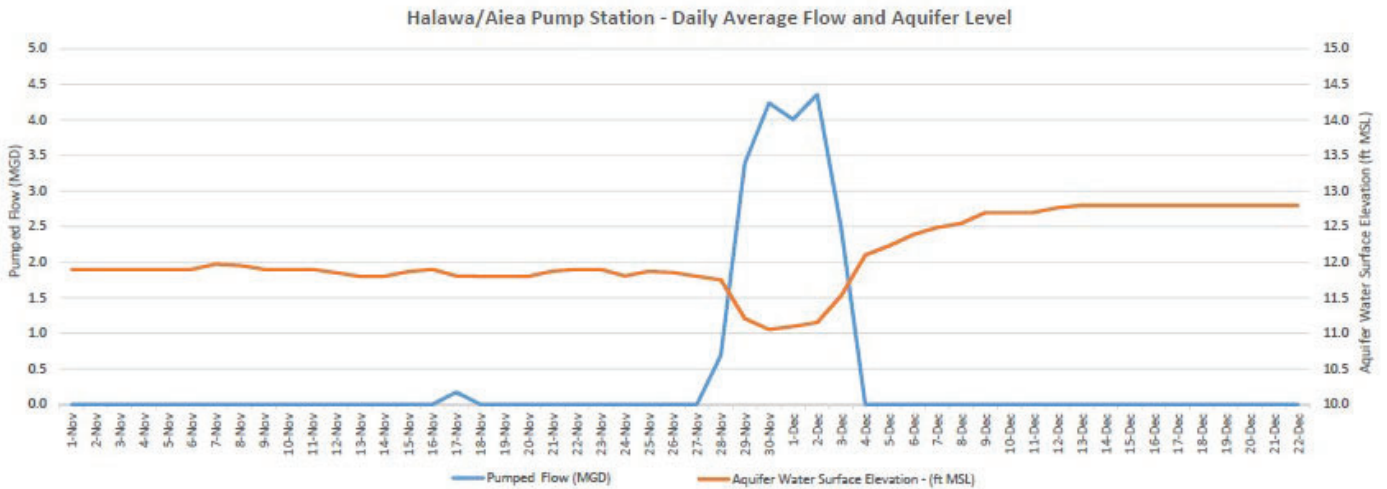


Figure 2. Halawa/Aiea Shaft Daily Average Flows and Aquifer Water Surface Elevation

**Photograph of Concrete Blocking Between
Air Gapped Isolation Flange**





Interagency Drinking Water System Team
Zone C2 Removal Action Report
March 2022

Line of Evidence 1b

**Regulated Public Water System's Water Quality Data is
Compliant**

Table 1: Lines of Evidence Under Evaluation – Ensure no contamination is entering the water system.

Objective 1b - The regulated public water system's water quality data is compliant.

Incident Specific Criteria - Data does not exceed Federal DW MCLs, specified State EALs, and ISPs for **Waiawa Shaft**.

Lines of Evidence	Completion Status	Outstanding Items
Date Sample Taken at Step 0 of the Sampling Plan Addendum 1	Complete	<ul style="list-style-type: none">• None.
Date Sample Taken at Entry Point to Distribution	Complete	<ul style="list-style-type: none">• None.

February 17, 2022

From: Naval Facilities Engineering Systems Command Representative, IDWS Team
To: Interagency Drinking Water System Team

SUBJ: SUMMARY OF LINE OF EVIDENCE OBJECTIVE 1B – THE REGULATED PUBLIC WATER SYSTEM’S WATER QUALITY IS COMPLIANT

Encl: (1) 1b.1 Source Water and Entry Point of Distribution Sample

1. Enclosure (1) documents completion of Line of Evidence 1b, the regulated public water system’s water quality is compliant. On the evening of November 28, 2021, the Red Hill Shaft was secured from operation and all pumping operations ceased. The Aiea/Halawa shaft briefly served as the secondary source starting on November 28, 2021, but it was shut down on December 3, 2021 to prevent potential westward contaminant migration in the aquifer and because there were concerns over high chloride concentrations caused by saltwater intrusion. Since December 3, 2021, the Waiawa Shaft has been the sole water source providing potable water to the distribution network. It is located 5.5 miles west of the Red Hill Fuel Facility, and testing has not detected any water quality issues at this source.
2. On January 11, 2022, water from the Waiawa shaft was sampled at the entry point to the distribution system (EPD). The results of the analysis are presented in Enclosure (1), Field Sample ID 20111-WS-ZT01. On January 13, 2022, additional samples were taken at the Waiawa shaft source. The results of these samples are also presented in Enclosure (1), Field Sample IDs 220113-WS-ZT01 and 220113-WS-ZT03. This data shows that the water from the Waiawa shaft does not exceed State of Hawaii and Federal Drinking Water standards, Maximum Contaminate Levels, Environmental Action Levels and Incident Specific Parameters, and the regulated public water system’s water quality is complaint.
3. I certify under penalty of law that I have personally examined and I am familiar with the information submitted and I believe the submitted information is true, accurate, and complete.

RODRIGUEZ.ALBERTO
.MAURICIO.13963161
68
A. M. Rodriguez
LT, CEC, USN

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RODRIGUEZ.ALBERTO.MAURICIO.
1396316168
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1b.1 Source Water and Entry Point of Distribution Sample

Well Shaft Sampling

Chemistry Results

Drinking Water Sampling, JBPHH, Oahu Hawaii

Location ID:	I1-SHFTWAIA		I1-SHFTWAIA		I1-SHFTWAIA	
Location Type:	Well		Well		Well	
Residence:	Waiawa Shaft		Waiawa Shaft		Waiawa Shaft	
Field Sample ID:	220111-WS-ZT01		220113-WS-ZT01		220113-WS-ZT03	
Sample Date:	2022-01-11		2022-01-13		2022-01-13	
Sample Type:	N (PostChlorination Sample)		N (PreChlorination Sample)		N (PreChlorination Sample)	

GENCHEM (mg/L)	Incident Specific Parameters	Environmental		DOH Safe Drinking		Environmental	
		Action Levels	Water Branch (SDWB)	Water Branch (SDWB)	Protection Agency Maximum	Protection Agency Maximum	
		Groundwater	Regulatory	Regulatory	Contaminant Levels	Contaminant Levels	SDG:
		Action Levels	Constituents	Constituents			810121191
Total Organic Carbon	2	None	None	None	0.190 U	--	0.250 U

HC (µg/L)	Incident Specific Parameters	Environmental		DOH Safe Drinking		Environmental	
		Action Levels	Water Branch (SDWB)	Water Branch (SDWB)	Protection Agency Maximum	Protection Agency Maximum	
		Groundwater	Regulatory	Regulatory	Contaminant Levels	Contaminant Levels	SDG:
		Action Levels	Constituents	Constituents			5801092421
Petroleum Hydrocarbons (as Diesel)	200	400	None	None	90.0 U	91.0 U	92.0 U
Petroleum Hydrocarbons (as Gasoline)	200	300	None	None	31.0 U	31.0 U	31.0 U
Petroleum Hydrocarbons (as Motor Oil)	200	500	None	None	180 U	180 U	180 U

HERB (µg/L)	Incident Specific Parameters	Environmental		DOH Safe Drinking		Environmental	
		Action Levels	Water Branch (SDWB)	Water Branch (SDWB)	Protection Agency Maximum	Protection Agency Maximum	
		Groundwater	Regulatory	Regulatory	Contaminant Levels	Contaminant Levels	SDG:
		Action Levels	Constituents	Constituents			980559
Pentachlorophenol	None	None	None	None	--	--	0.0200 U

HG (µg/L)	Incident Specific Parameters	Environmental		DOH Safe Drinking		Environmental	
		Action Levels	Water Branch (SDWB)	Water Branch (SDWB)	Protection Agency Maximum	Protection Agency Maximum	
		Groundwater	Regulatory	Regulatory	Contaminant Levels	Contaminant Levels	SDG:
		Action Levels	Constituents	Constituents			2A12046
Mercury	0.025	0.025	2	2	0.0170 U	--	--

METAL (µg/L)	Incident Specific Parameters	Environmental		DOH Safe Drinking		Environmental	
		Action Levels	Water Branch (SDWB)	Water Branch (SDWB)	Protection Agency Maximum	Protection Agency Maximum	
		Groundwater	Regulatory	Regulatory	Contaminant Levels	Contaminant Levels	SDG:
		Action Levels	Constituents	Constituents			980559
Antimony	6	6	6	6	0.0915 J	--	0.110 U
Arsenic	10	10	10	10	0.207 J	--	0.210 U
Barium	220	220	2000	2000	1.72	--	1.80 J
Beryllium	0.66	0.66	4	4	0.0624 U	--	0.0910 U
Cadmium	3	3	5	5	0.0416 U	--	0.0290 U
Chromium	11	11	100	100	1.46	--	1.50
Copper	2.9	2.9	1300	1300	21.2	--	46.0
Lead	15	5.6	15	15	0.265	--	0.0630 J
Selenium	5	5	50	50	0.704	--	0.350 J
Thallium	2	2	2	2	0.0210 U	--	0.0410 U

SVOC (µg/L)	Incident Specific Parameters	Environmental		DOH Safe Drinking		Environmental	
		Action Levels	Water Branch (SDWB)	Water Branch (SDWB)	Protection Agency Maximum	Protection Agency Maximum	
		Groundwater	Regulatory	Regulatory	Contaminant Levels	Contaminant Levels	SDG:
		Action Levels	Constituents	Constituents			5801092721
					2A12046		810121191

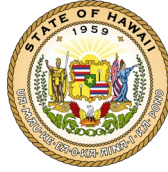
1b.1 Source Water and Entry Point of Distribution Sample

Well Shaft Sampling

Chemistry Results

Drinking Water Sampling, JBPHH, Oahu Hawaii

	70	70	70	70	70	EPD	Shaft	Shaft
1,2,4-Trichlorobenzene						--	0.0930 U	--
1,2-Dichlorobenzene	10	10	600	600		--	0.0520 U	--
1,3-Dichlorobenzene	None	None	None	None		--	0.0410 U	--
1,4-Dichlorobenzene	5	5	75	None	None	--	0.0410 U	--
1-Methylnaphthalene	2.1	10	None	None	0.00801 U	--		0.0190 U
2,4,5-Trichlorophenol	None	None	None	None	--	--	0.100 U	--
2,4,6-Trichlorophenol	None	None	None	None	--	--	0.100 U	--
2,4-Dichlorophenol	None	None	None	None	--	--	0.210 U	--
2,4-Dimethylphenol	None	None	None	None	--	--	0.170 U	--
2,4-Dinitrophenol	None	None	None	None	--	--	1.70 U	--
2,4-Dinitrotoluene	None	None	None	None	--	--	0.100 U	--
2,6-Dinitrotoluene	None	None	None	None	--	--	0.100 U	--
2-Chloronaphthalene	None	None	None	None	--	--	0.0720 U	--
2-Chlorophenol	None	None	None	None	--	--	0.0520 U	--
2-Ethylhexyl adipate	None	None	None	None	0.00962 U	--	--	--
2-Methylnaphthalene	4.7	10	None	None	0.00904 U	--		0.0190 U
2-Methylphenol (o-Cresol)	None	None	None	None	--	--	0.0520 U	--
2-Nitroaniline	None	None	None	None	--	--	0.100 U	--
3,3'-Dichlorobenzidine	None	None	None	None	--	--	0.270 U	--
3-Nitroaniline	None	None	None	None	--	--	0.170 U	--
4,6-Dinitro-2-methylphenol	None	None	None	None	--	--	0.570 U	--
4-Bromophenyl phenyl ether	None	None	None	None	--	--	0.0620 U	--
4-Chloro-3-methylphenol	None	None	None	None	--	--	0.130 U	--
4-Chloroaniline	None	None	None	None	--	--	0.610 U	--
4-Chlorophenyl phenyl ether	None	None	None	None	--	--	0.0520 U	--
4-Nitroaniline	None	None	None	None	--	--	0.220 U	--
4-Nitrophenol	None	None	None	None	--	--	1.80 U	--
Acenaphthene	None	None	None	None	--	--	0.0520 U	--
Acenaphthylene	None	None	None	None	--	--	0.0620 U	--
Alachlor	None	None	None	None	0.0110 U	--	--	0.0480 U
Anthracene	None	None	None	None	--	--	0.0520 U	--
Atrazine	None	None	None	None	0.00734 U	--		0.0290 U
Benzo(a)anthracene	None	None	None	None	--	--	0.0520 U	--
Benzo(a)pyrene	0.06	0.06	0.2	0.2	0.0117 UJ		0.0410 U	0.00960 U
Benzo(b)fluoranthene	None	None	None	None	--	--	0.0410 U	--
Benzo(g,h,i)perylene	None	None	None	None	--	--	0.0410 U	--
Benzo(k)fluoranthene	None	None	None	None	--	--	0.0520 U	--
Benzyl butyl phthalate	None	None	None	None	--	--	0.280 U	--
Bis(2-chloroethoxy)methane	None	None	None	None	--	--	0.0520 U	--
Bis(2-chloroethyl) ether (2-Chloroethyl ether)	None	None	None	None	--	--	0.0310 U	--
Bis(2-ethylhexyl)phthalate	3	3	6	6	0.437 U		0.770 U	0.580 U
Carbazole	None	None	None	None	--	--	0.100 U	--
Chlordane	None	None	None	None	0.0669 U		--	0.0320 U
Chrysene	None	None	None	None	--	--	0.0410 U	--



Interagency Drinking Water System Team
Zone C2 Removal Action Report
March 2022

Line of Evidence 1c

**No Additional Contamination through the Distribution
System is Occurring**

Table 1: Lines of Evidence Under Evaluation – Ensure no contamination is entering the water system.

Objective 1c - No additional contamination through the distribution system is occurring.

Incident Specific Criteria - Cross Connection Control investigation shows distribution system is protected, resulting in no additional sources of contamination.

Lines of Evidence	Completion Status	Outstanding Items
No contamination of the distribution system is occurring from cross-connections with other petroleum sources during this incident	Complete	<ul style="list-style-type: none">• None.
Cross Connection Control/Backflow Program-related documents	Complete	<ul style="list-style-type: none">• None.

February 19, 2022

From: Naval Facilities Engineering Systems Command Representative, IDWS Team
To: Interagency Drinking Water System Team

SUBJ: SUMMARY OF LINE OF EVIDENCE OBJECTIVE 1C – NO ADDITIONAL
CONTAMINATION THROUGH THE DISTRIBUTION SYSTEM IS OCCURRING

Encl: (1) 1c.1 Certification of Inventory and Petroleum Facility Locations with Associated
Backflow Preventers.
(2) 1c.2 Backflow Prevention and Cross-Connection Control Program Instruction

1. Enclosures (1) and (2) document completion of Line of Evidence 1c, no additional contamination through the distribution system is occurring. On the evening of November 28, 2021, the Red Hill Shaft was secured from operation and all pumping operations ceased. The Aiea/Halawa shaft briefly served as the secondary source starting on November 28, 2021, but it was shut down on December 3, 2021 to prevent potential westward contaminant migration in the aquifer and because there were concerns over high chloride concentrations caused by saltwater intrusion. Since December 3, 2021, the Waiawa Shaft has been the sole water source providing potable water to the distribution network. It is located 5.5 miles west of the Red Hill Fuel Facility, and testing has not detected any water quality issues at this source.

2. Enclosure (1) identifies all water service connections where petroleum activities exist and documents adequate backflow prevention devices installed at those petroleum service activities. Enclosure (2) provides the governing instructions for backflow prevention devices referenced in Enclosure (1). This data shows that no additional contamination through the water distribution system is occurring.

3. I certify under penalty of law that I have personally examined and I am familiar with the information submitted and I believe the submitted information is true, accurate, and complete.

RODRIGUEZ.ALBE
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A. M. Rodriguez
LT, CEC, USN



DEPARTMENT OF THE NAVY
NAVAL FACILITIES ENGINEERING SYSTEMS COMMAND, HAWAII
400 MARSHALL ROAD
JBPHH, HAWAII 96860-3139

11000 Ser
PWO/0082
March 8, 2022

Director of the State of Hawaii
Department of Health (DOH)

Dear DOH Director:

SUBJECT: CERTIFICATE REGARDING CROSS CONNECTION CONTROL REVIEW
AND CONFIRMATION – ZONE C2

Enclosure: [1] ZONE C2: POL Activities Backflow Prevention Devices
[2] ZONE C2: POL Activities Map

On behalf of the United States Department of the Navy, operator of the Joint Base Pearl Harbor-Hickam Public Water System (PWS ID No. 360 Water System), and in connection with and pursuant to the removal action required by the DOH Hazard Evaluation and Emergency Response Office Incident Case No. 20211128-1848, the undersigned certifies that the Navy has made all necessary inquiry into their Water System and represents and warrants as set forth below.

All service connections where petroleum activities exist in the Water System, **Zone C2**, are identified in Enclosure [1], "Zone C2: POL Activities Backflow Prevention Devices." Petroleum activities include, but are not limited to, operating or having gas stations, fuel storage, facilities with aboveground or underground storage tanks (>100-gallon capacity), fuel transfer, motor pools, vehicle maintenance facilities, fuel recovery pits, waste oil collection facilities or systems.

All service connections where petroleum activities exist, as identified in Enclosure [1] have adequate backflow protection as recommended by and in accordance with COMNAVREGHIINST 11330.2D, BACKFLOW PREVENTION AND CROSS-CONNECTION CONTROL PROGRAM. Adequate backflow protection includes installation of devices appropriate to the identified hazard condition, correct design and installation of the device, timely testing by a certified tester, and regular maintenance/repair/replacement.

All facilities identified with adequate backflow protection have had their assemblies tested by a DOH-approved certified tester in the past year in accordance with Hawaii Administrative Rules, Title 11-21-8(b) Maintenance requirements.

The Navy has committed to the funding and performance in FY2022 of a comprehensive cross connection control survey of the entire JBPHH water system per the December 2021 AH Engineers & Scientists Water Quality CAT Memorandum.

SUBJECT: CERTIFICATE REGARDING CROSS CONNECTION CONTROL REVIEW
AND CONFIRMATION – ZONE C2

Buildings 1484, 1664, 1534, 1429, and 1436 were identified as facilities that may contain petroleum activities. Information for building 1484 is included in Enclosures [1] and [2]. Building 1664 was field verified to not have any petroleum activities. Building 1534 is abandoned and not in use. Buildings 1429 and 1436 contain propane, not petroleum activities.

The undersigned has due authority to deliver to DOH this Certification on behalf of the Navy.

Sincerely,

HARMEYER.RAN
DALL.ERNEST.11
86692663

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HARMEYER.RANDALL.ERNE
ST.1186692663
Date: 2022.03.08 17:49:45
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R. E. HARMEYER
Captain, CEC, U.S.
Navy Public Works
Officer By Direction of
the Commanding Officer

Enclosure [1] - ZONE C2: POL Activities Backflow Prevention Devices

POL Activities Backflow Prevention Devices												Zone: C2		
ASSET NAME	Location (Bldg. #)	Reference Location	Description of petroleum -related activity	BFP Manufacturer	BFP Model	BFP Size	Serial # or VIN #	Installation Date or In Service Date	Changed (Replacement) Date	Last Tested Date	Last Repaired Date			
NO BFP ASSETS, HOSE BIBS	35	TRANSPORTATION	AST ES-1 / 3,190 (58@55-GAL DRUMS) DRUMS SPILL PALLETS NEW AND USED POL	HOSE BIB	AVB	0.75	N/A	N/A	N/A	N/A	N/A			
			GAL DIESEL											
			AST E-16 / 240 GAL USED OIL											
NO BFP ASSETS, HOSE BIBS	38	TRANSPORTATION MUSTER ROOM	HAZARDS NO LONGER IN AREA	HOSE BIB	AVB	0.75	N/A	N/A	N/A	N/A	N/A			
NO BFP ASSETS, HOSE BIBS	41	STATION C	AST D-30 / 150 GAL DIESEL	HOSE BIB	AVB	0.75	N/A	N/A	N/A	N/A	N/A			
SA-FWO 0046BP	150	GENERATOR	AST D-32 / 120 GAL DIESEL	WATTS	909	2	88853	1/1/2000	N/A	3/9/2021	N/A			
SA-FWV 0096BP	165	GENERATOR	AST D-32 / 385 (7@55-GAL DRUMS)INSULATING OIL	FEBCO	710	1.5	N/A	1/1/1999	N/A	1/14/2021	N/A			
NO BFP ASSETS, HOSE BIBS	166	NAVFAC SHOPS	DRUMS B-5 / 1,375 (25@55-GAL DRUMS) USED INSULATING OIL	HOSE BIB	AVB	0.75	N/A	N/A	N/A	N/A	N/A			
			DRUMS B-6 / 330 (6@55-GAL DRUMS) NEW AND USED INSULATING OIL											
			AST D-5 / 9,000 GAL JP-5											
SA-FW 701	177	NAVFAC SHOPS	AST D-11 / 10,000 GAL JP-5	WATTS	909	1.5	86920	1/1/1997	N/A	2/3/2021	N/A			
SA-FW 701	177	NAVFAC SHOPS	AST DP-1 / MOBILE TANK / 250 GAL DIESEL											
			AST DP-7 / 500 GAL DIESEL											
			AST DP-8 / 500 GAL DIESEL											
SA-FW 701	177	NAVFAC SHOPS	AST DP-6 / 250 GAL DIESEL											
			AST DP-9 / 250 GAL DIESEL											
			AST DP-11 / 169 GAL DIESEL											
			AST DP-12 / 272 GAL DIESEL											
			AST DP-13 / 230 GAL DIESEL											
			AST DP-15 / 100 GAL DIESEL											
NO BFP ASSETS, HOSE BIBS	197	TRANSPORTATION HEAVY EQUIPMENT	AST DP-16 / 370 GAL DIESEL	HOSE BIB	AVB	0.75	N/A	N/A	N/A	N/A	N/A			
NO BFP ASSETS, HOSE BIBS	284	SEA BEES	AST E-14 / 250 GAL USED OIL ES-3 / 1,760 (32@55-GAL DRUMS) NEW AND USED POL	HOSE BIB	AVB	0.75	N/A	N/A	N/A	N/A	N/A			
NO BFP ASSETS, HOSE BIBS	397	JTT HITS	AST NS-284-1 / 65 GAL LUBE OIL	HOSE BIB	AVB	0.75	N/A	N/A	N/A	N/A	N/A			
SA-FWV 5103	617	GENERATOR FOR BLDG 618	AST NS-397-1 / 250 GAL DIESEL	HOSE BIB	AVB	0.75	N/A	N/A	N/A	N/A	N/A			
SA-FWV 35BP	899	RIGGERS LOFT	AST FOR GENERATOR	WATTS	909	1.5	7504	1/1/1999	N/A	1/6/2021	N/A			
SA-FWV 7113	1208	NIMITZ GATE GENERATOR	AST NS-1208-SG	WATTS	909	2	17266	1/1/2000	N/A	1/7/2021	N/A			
				FEBCO	765	2	H023483	1/1/2019	N/A	3/5/2021	N/A			

Enclosure [1] - ZONE C2: POL Activities Backflow Prevention Devices

POL Activities Backflow Prevention Devices

Zone: C2

ASSET NAME	Location (Bldg. #)	Reference Location	Description of petroleum -related activity	BFP Manufacturer	BFP Model	BFP Size	Serial # or VIN #	Installation Date or In Service Date	Changed (Replacement) Date	Last Tested Date	Last Repaired Date
SA-FWV 1315	1315	FIRE PUMP	AST NS-1315 / 75 GAL DIESEL	WATTS	909	1.5	319406	1/1/2000	N/A	3/5/2021	N/A
NO BFP ASSETS, HOSE BIBS	1358	BILGE WATER COMPOUND	AST C-27 / 250 GAL DIESEL	HOSE BIB	AVB	0.75	N/A	N/A	N/A	N/A	N/A
SA-FWV 101411	1395	SEWER LIFT STATION	AST C-23 / 200 GAL DIESEL	WATTS	909	0.75	35552	1/1/2018	N/A	1/21/2021	N/A
SA-FWV 1241	1575	BLDG 1575	AST C-18 / 200 GAL DIESEL	WATTS	909	1	607260	1/1/2011	N/A	2/16/2022	N/A
SA-FWO 0085	1575	BLDG 1575	AST C-29 / 700 GAL DIESEL	WATTS	909	0.75	432854	1/1/1992	N/A	3/2/2021	N/A
			AST T-4 / 10,000 GAL OILY								
			WASTEWATER								
SA-FWV 12001	1424	NAVFAC SHOPS	AST T-9 / 4,000 GAL OILY	WATTS	909	4	184572	1/1/1998	N/A	6/14/2021	N/A
			WASTEWATER								
			AST T-10 / 500 GAL USED OIL								
SA-FWV 1411	1425	NAVFAC SHOPS	AST T-31 / 180 GAL DIESEL	WATTS	909	6	250631	6/1/1997	N/A	6/11/2021	N/A
			AST C-24 / 3,500 GAL DIESEL								
SA-FW 1871	1871	MAIN SEWER STATION	AST C-24A / 300 GAL DIESEL	WILKINS	975	1	ABC9581	10/1/2021	N/A	10/1/2021	N/A
			AST C-24B / 244 GAL DIESEL								
SA-FWV 0510BP	1910	BILGE WATER COMPOUND	AST A-5 / 3,000 GAL OILY SLUDGE	WATTS	909	1.5	393403	6/1/1997	N/A	1/5/2021	N/A
			AST A-6 / 3,000 GAL OILY SLUDGE								
			AST 76 / 20,000 GAL OILY SLUDGE								
			AST 77 / 20,000 GAL OILY SLUDGE								
			AST 78 / 20,000 GAL OILY SLUDGE								
			AST 79 / 20,000 GAL OILY SLUDGE	WATTS	909	1.5	393403	6/1/1997	N/A	1/5/2021	N/A
			AST 80 / 18,500 GAL OILY SLUDGE								
			AST 81 / 18,500 GAL OILY SLUDGE								
			AST 82 / 18,500 GAL OILY SLUDGE								
			AST 83 / 18,500 GAL OILY SLUDGE								
NO BFP ASSETS, HOSE BIBS	B-5726	BILGE WATER COMPOUND	AST-A-4 / 1,600,000 GAL BILGE WATER	HOSE BIB	AVB	0.75	N/A	N/A	N/A	N/A	N/A
NO BFP ASSETS, 1 HOSE BIB	S246	DRYDOCK 4 CRANE MAINTENANCE AREA	55 GAL DRUMS HYDRAULIC OIL 55 GAL DRUMS DIESEL 275 GAL TOTE	HOSE BIB W/ AVB	AVB	0.75	N/A	N/A	N/A	N/A	N/A
NO BFP ASSETS, HOSE BIBS	S1068	BILGE WATER COMPOUND		HOSE BIB	AVB	0.75	N/A	N/A	N/A	N/A	N/A
			AST 7 / 400 GAL OILY SLUDGE								
			AST 15 / 2,000 GAL OILY SLUDGE								
			AST 21 / 2,300 GAL USED OIL								
			AST 10, 11, 12, 13, 14 / 5@1,000 GAL EA OILY SLUDGE	HOSE BIB	AVB	0.75	N/A	N/A	N/A	N/A	N/A
			AST 51 & 52 / 2@5,000 GAL USED OIL								
			AST 71 / 7,000 GAL USED OIL								

Enclosure [1] - ZONE C2: POL Activities Backflow Prevention Devices

POL Activities Backflow Prevention Devices

Zone: C2

ASSET NAME	Location (Bldg. #)	Reference Location	Description of petroleum -related activity	BFP Manufacturer	BFP Model	BFP Size	Serial # or VIN #	Installation Date or In Service Date	Changed (Replacement) Date	Last Tested Date	Last Repaired Date
NO BFP ASSETS, HOSE BIBS	S-169	GOV GAS STATION	AST E-11 / 12,000 GAL DIESEL/GASOLINE (6,000 GAL EA)	HOSE BIB	AVB	0.75	N/A	N/A	N/A	N/A	N/A
			AST E-12 / 12,000 GAL DIESEL/GASOLINE (6,000 GAL EA)								
			AST E-13 / 10,000 GAL ETHANOL (E-85)								
NO BFP ASSETS, HOSE BIBS	S-169	GOV GAS STATION	MOBILE TANKERS EP-5 / 2,000 GAL DIESEL	HOSE BIB	AVB	0.75	N/A	N/A	N/A	N/A	N/A
			MOBILE TANKERS EP-8 / 2,000 GAL DIESEL								
			MOBILE TANKERS EP-9 / 2,000 JP-5								
NO BFP ASSETS, HOSE BIBS	S726	BILGE WATER COMPOUND	AST 9 / 10,000 GAL USED OIL AST 20 / 20,000 GAL SLUDGE	HOSE BIB	AVB	0.75	N/A	N/A	N/A	N/A	N/A
SA-FW 2010	B23	BRAVO PIERS DOCK OUTLETS	DOCK FUEL TRANSFER TO SHIPS/SUBMARINES	WATTS	957QT	2.5	RA-2082	1/1/2011	N/A	8/17/2021	N/A
SA-FW 2011	B23	BRAVO PIERS DOCK OUTLETS	DOCK FUEL TRANSFER TO SHIPS/SUBMARINES	WATTS	957QT	2.5	RA-2076	6/14/2017	N/A	8/17/2021	N/A
SA-FW 2012	B24	BRAVO PIERS DOCK OUTLETS	DOCK FUEL TRANSFER TO SHIPS/SUBMARINES	WATTS	957QT	2.5	RA-2182	1/1/2011	N/A	8/17/2021	N/A
SA-FW 2013	B24	BRAVO PIERS DOCK OUTLETS	DOCK FUEL TRANSFER TO SHIPS/SUBMARINES	WATTS	957QT	2	RA-2100	2/1/2017	N/A	8/17/2021	N/A
SA-FW 2014	B24	BRAVO PIERS DOCK OUTLETS	DOCK FUEL TRANSFER TO SHIPS/SUBMARINES	WATTS	957QT	2.5	RE-0968	1/1/2011	N/A	8/17/2021	N/A
SA-FW 2016	B25	BRAVO PIERS DOCK OUTLETS	DOCK FUEL TRANSFER TO SHIPS/SUBMARINES	WATTS	957QT	2.5	RF-0128	1/1/2011	N/A	8/17/2021	N/A
SA-FW 2017	B25	BRAVO PIERS DOCK OUTLETS	DOCK FUEL TRANSFER TO SHIPS/SUBMARINES	WATTS	957QT	2.5	RF-0154	1/1/2011	N/A	8/17/2021	N/A
SA-FW 2019	B25	BRAVO PIERS DOCK OUTLETS	DOCK FUEL TRANSFER TO SHIPS/SUBMARINES	WATTS	957QT	2	SC-0232	6/1/2018	N/A	8/17/2021	N/A
SA-FW 2021	B26	BRAVO PIERS DOCK OUTLETS	DOCK FUEL TRANSFER TO SHIPS/SUBMARINES	WATTS	957QT	2	SC-0226	6/26/2018	N/A	8/17/2021	N/A
SA-FW 223	B26	BRAVO PIERS DOCK OUTLETS	DOCK FUEL TRANSFER TO SHIPS/SUBMARINES	WATTS	957QT	2.5	SB-1384	7/11/2018	N/A	8/13/2021	N/A
SA-FW 207	B22	BRAVO PIERS DOCK OUTLETS	DOCK FUEL TRANSFER TO SHIPS/SUBMARINES	WATTS	957QT	2.5	RC-0804	1/1/2011	N/A	8/16/2021	N/A
SA-FW 208	B22	BRAVO PIERS DOCK OUTLETS	DOCK FUEL TRANSFER TO SHIPS/SUBMARINES	WATTS	957QT	2.5	QH-2316	1/1/2011	N/A	8/16/2021	N/A
SA-FW 209	B23	BRAVO PIERS DOCK OUTLETS	DOCK FUEL TRANSFER TO SHIPS/SUBMARINES	WATTS	957QT	2.5	QB-1830	1/1/2011	N/A	8/16/2021	N/A

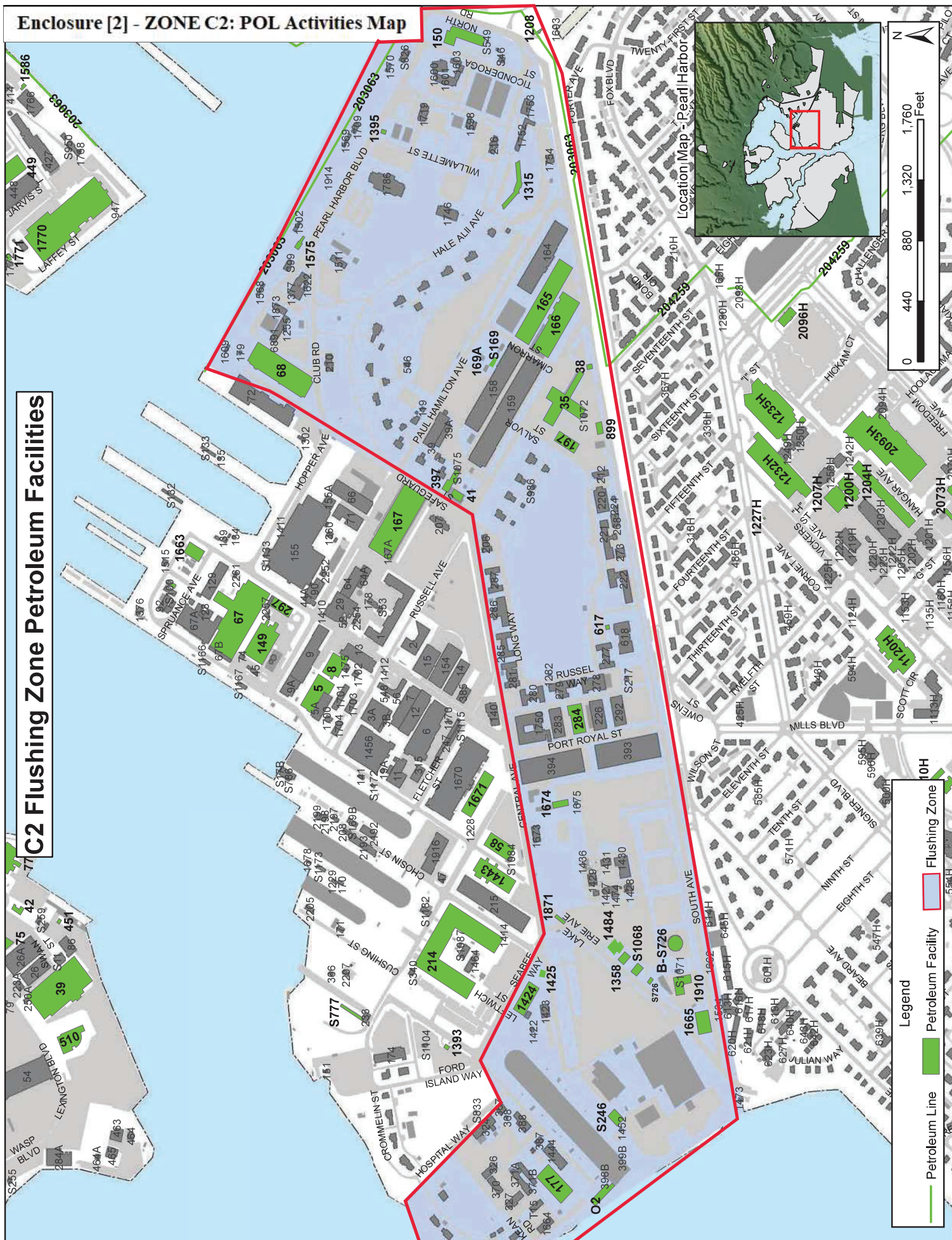
Enclosure [1] - ZONE C2: POL Activities Backflow Prevention Devices

POL Activities Backflow Prevention Devices

Zone: C2

ASSET NAME	Location (Bldg. #)	Reference Location	Description of petroleum - related activity	BFP Manufacturer	BFP Model	BFP Size	Serial # or VIN #	Installation Date or In Service Date	Changed (Replacement) Date	Last Tested Date	Last Repaired Date
SA-FW 215	B24	BRAVO PIERS DOCK OUTLETS	DOCK FUEL TRANSFER TO SHIPS/SUBMARINES	WATTS	957QT	2.5	RE-0970	1/1/2011	N/A	8/17/2021	N/A
SA-FW 218	B25	BRAVO PIERS DOCK OUTLETS	DOCK FUEL TRANSFER TO SHIPS/SUBMARINES	WATTS	957QT	2.5	SC-0234	6/25/2018	N/A	8/17/2021	N/A
SA-FW 220	B26	BRAVO PIERS DOCK OUTLETS	DOCK FUEL TRANSFER TO SHIPS/SUBMARINES	WATTS	957QT	2	SC-0192	1/1/2011	N/A	8/17/2021	N/A
SA-FW 222	B26	BRAVO PIERS DOCK OUTLETS	DOCK FUEL TRANSFER TO SHIPS/SUBMARINES	WATTS	957QT	2	SC-0222	1/1/2011	N/A	8/17/2021	N/A
SA-FW 224	B26	BRAVO PIERS DOCK OUTLETS	DOCK FUEL TRANSFER TO SHIPS/SUBMARINES	WATTS	957QT	2	SB-1378	7/11/2018	N/A	8/17/2021	N/A
SA-FW 225	B26	BRAVO PIERS DOCK OUTLETS	DOCK FUEL TRANSFER TO SHIPS/SUBMARINES	WATTS	957QT	2	SC-0190	1/1/2011	N/A	8/16/2021	N/A
SA-FW 07138P	1665	BILGE WATER COMPOUND/ HAZARDOUS AND FLAMMABLE MATERIAL STORAGE	55 GAL DRUMS VARIOUS TYPES OF OIL	FEBCO	860	1	H075	1/1/1999	N/A	1/26/2021	N/A
SA-FW 26001	1674	2 FUEL TRUCK	FUEL TRUCK / 1,000 GAL DIESEL FUEL TRUCK / 1,000 GAL GASOLINE	WATTS	909	2	90148	5/12/2018	N/A	2/4/2021	N/A
NO BFP ASSETS, HOSE BIBS	O2	OSCAR PIERS	5@280 GAL DOUBLE WALLED SUBSURFACE OIL	HOSE BIB	AVB	0.75	N/A	N/A	N/A	N/A	N/A
SA-FW 671	68	DRUM STORAGE AREA	55 GAL DRUMS NEW & USED OIL	WATTS	909	2	89048	1/1/2000	N/A	2/8/2021	N/A
SA-FWV-1484	1484	BUILDING 1484	TWO 75 GAL TOTES	WATTS	909	2	89097	1/1/2000	N/A	1/5/2022	N/A

C2 Flushing Zone Petroleum Facilities



Enclosure [2] C2 Piers





DEPARTMENT OF THE NAVY

COMMANDER
NAVY REGION HAWAII
850 TICONDEROGA ST STE 110
JBPHH HI 96860-5101

COMNAVREGHIINST 11330.2D

N4

19 Sep 2016

COMNAVREG HAWAII INSTRUCTION 11330.2D

From: Commander, Navy Region Hawaii

Subj: BACKFLOW PREVENTION AND CROSS-CONNECTION CONTROL PROGRAM

Ref: (a) Recommended Practice for Backflow Prevention and Cross-Connection Control, (AWWA Manual M14), American Water Works Association
(b) MIL-HDBK-I 005/7, Military Handbook Water Supply Systems
(c) State of Hawaii, Department of Health, Administrative Rules Title 11, Chapter 21, Cross-Connection and Backflow Control
(d) NAVFACINST 11330.11E
(e) Manual of Cross-Connection Control, Foundation for Cross-Connection Control and Hydraulic Research, University of Southern California
(f) NAVFAC MO-210, Maintenance and Operation of Water Supply, Treatment, and Distribution Systems

1. Purpose. To supplement current Navy directives pertaining to the protection of the Base potable water supply.

2. Cancellation. COMNAVREGHIINST 11330.2C.

3. Definitions. References (a) through (c) define technical terms used herein as follows:

a. Backflow. The reversal of the normal flow of water caused by either backpressure or back-siphonage.

b. Back-pressure. The flow of water or other liquids, mixtures or substances under pressure into the distribution pipes of a potable water supply system from any source or sources other than the intended source.

c. Back-siphonage. The flow of water or other liquids, mixtures or substances into the distribution pipes of a potable water supply system from any source other than its intended source caused by the sudden reduction of pressure in the potable water supply system.

d. Backflow Preventer. A device or means designated to prevent backflow. These include:

(1) Air Gap. The unobstructed vertical distance through the free atmosphere between the lowest opening from any pipe or faucet supplying water to a tank, plumbing fixture, or other device and the flood level rim of said vessel. An approved air-gap must be at least double the diameter of the supply pipe, measured vertically, above the top of the overflow rim of the vessel, and in no case less than six inches.

(2) Reduced Pressure Principle Device. An approved assembly of two independently acting approved check valves together with a hydraulically operating, mechanically independent pressure relief valve located between the check valves, as described in reference (b) and specified in reference (d).

(3) Double Check Valve Assembly. An approved assembly of two independently operating approved check valves with tightly closing shut-off valves on each end of the check valves, plus properly located test cocks for the testing of each check valve.

(4) Atmospheric Vacuum Breaker. A device designed to not subject to static line pressure and contains a check valve and an air-let valve.

(5) Pressure Vacuum Breaker. A device that is designed to operate under conditions of static line pressure and contains one or two independently operating, spring-loaded air-inlet valves located on the discharge side of the check valve (or valves), plus properly located test cocks, and tightly closing shut-off valves.

e. Certified Tester. A certified tester means three classes of certified testers:

(1) A limited tester - A person trained and qualified to perform periodic testing, inspection, and repairs on the specific devices contained within a specific plant or institution. This person is usually an employee of the plant or institution and assigned the duty of taking care of the backflow prevention equipment as part of his or her overall plant duties, and does not extend to backflow prevention devices that are not part of the specific plant or institution.

(2) A general tester - A person trained and qualified to perform the periodic testing, inspection, and repairs on all devices that are on the market. This person may be an employee of a water agency, an employee of a municipal agency, or an individual operating a backflow device testing service.

(3) A manufacturer's agent - A person who is an employee of a manufacturer of backflow prevention equipment and is thoroughly familiar with the backflow prevention devices produced by his/her employer. This person maybe familiar with other makes and models of backflow prevention devices but is restricted to only his/her employer's products. The Director of the Department of Health, State of Hawaii or his duly authorized representative, must approve all certified testers.

f. Cross-Connection. Any physical connection or arrangement of piping or fixtures between two otherwise separate piping systems, one of which contains potable water for human consumption and the other water for irrigation, fire protection, industrial and other uses, or non-potable water or industrial fluids of questionable safety, through which, or because of which, backflow may occur into the potable water system. This would include bypass arrangements, jumper connections, removable sections, swivel or changeover devices, and any other temporary or permanent devices through which, or because of which backflow could occur.

4. Background

a. Reference (b) presents requirements for the design of water supply systems for naval shore activities. Reference (b) indicates the design requirements for protecting the potable system from contamination by cross-connections with non-potable supplies and units containing polluted water. Reference (b) further indicates the need to protect the potable system from contamination by irrigation systems.

b. Reference (d) sets forth criteria for specifying backflow preventers of the reduced pressure principle type. It requires that such devices have a current Certificate of Approval and provides a list of approved backflow prevention devices.

c. Reference (e) cites methods and devices by which hazards may be eliminated without interfering with the functions of plumbing or water supply distribution systems. It is a comprehensive reference, and covers all aspects of cross-connection control.

d. Reference (f) provides technical guidance for the operation and maintenance of water supply systems at naval shore activities. Chapter 8 of reference (f) describes how the water system becomes contaminated. Chapter 9 reference (f) further requires that approved backflow preventers be installed according to the degree of the hazard involved and indicates the need for periodic testing and inspection of the devices by certified personnel. It also suggests a time interval for inspection and indicates that all devices be tested according to the manufacturer's service instructions. It further points out the requirements for record keeping.

e. To assure the quality of the water at the customer's tap, both the customer and Navy Facilities Engineering Command, Hawaii (NAVFAC HI), the water supplier, must participate in a backflow prevention and cross-connection control program.

5. Policy. Protect the existing potable water system at all times from hazardous cross-connections by the installation, operation, and maintenance of approved backflow preventers. Backflow prevention and cross-connection control measures must be in accordance with the recommendations and requirements of references (a) through (f).

6. Discussion

a. The objectives of the backflow prevention and cross-connection control program are to achieve the following:

- (1) Protection of the quality of the base water supply.
- (2) Elimination of existing hazards.
- (3) Prevention of future unprotected cross-connections.

b. The backflow prevention and cross-connection control program requires the following:

- (1) The survey all existing cross-connections to determine they are adequately protected.
- (2) The recording of data on all existing backflow preventers to enable up-to-date monitoring. The data must include at least the following information:
 - (a) Activity name.
 - (b) Building number (if appropriate).
 - (c) Sketch of approximate location of backflow preventer.
 - (d) Size, type, model number, and manufacturer of the backflow preventer.
 - (e) Date installed (if known).
 - (f) Type of Hazard.
- (3) Operate, maintained and repair all known existing backflow preventers to ensure their proper operation for the protection of the water system.
- (4) Inspect and test all existing backflow preventers at the minimum time intervals to determine their effectiveness as shown in the table. If successive tests on a backflow preventer indicate repeated failures, test preventer at more frequent interval to be determined by NAVFAC HI Utilities and Energy Management Department, Potable Water Division (OPC61). All testing must be performed in accordance with the manufacturer's instruction.

<u>METHOD OR DEVICE</u>	<u>3</u> <u>MONTHS</u>	<u>6</u> <u>MONTHS</u>	<u>12</u> <u>MONTHS</u>
Pressure Type Vacuum Breaker			X
Double Check Valve Assembly			X
Reduce Pressure Principle devices used for shore-to ship connections	X		

<u>METHOD OR DEVICE</u>	<u>3 MONTHS</u>	<u>6 MONTHS</u>	<u>12 MONTHS</u>
Other Reduced Pressure Principle device		X	
Air Gap			X
Reduced Pressure Principle devices used to separate the Navy's potable water system from another agency's potable water system			X

(5) Review all plans and specifications or sketches and material description for new connections to NAVFAC HI Potable Water Systems by NAVFAC HI OPC61 to verify the safety of the cross-connections.

(6) Report all known or suspected accidental contamination immediately to NAVFAC HI OPC61 to enable corrective action, and avoid widespread contamination of the water system.

7. Implementation. Maintain the following provisions of the backflow prevention and cross-connection control program by the shore activities as indicated below:

a. All shore activities and other agencies who receive potable water from water systems owned and operated by NAVFAC HI must:

(1) Conduct a Cross-Connection Control and Backflow Prevention Survey of the areas under their jurisdiction including building plumbing, fire protection, exterior hose bibs, lawn irrigation systems, etc. The survey must include an inspection of the consumer's premises for hazards noted in references (a) and (e) and document any findings observed during the survey. The survey must also document all existing backflow preventers. The activity is responsible for funding the survey.

(2) Conduct follow-up surveys of the areas under their jurisdiction within 5 years after the initial survey to update the status of the initial findings and provide new information, findings, and recommendations as required. The activity funds the follow-up surveys as a lump sum amount or incremental amounts of the cost determined by NAVFAC HI OPC61.

(3) Take immediate action to eliminate hazards if the survey indicates that there are cross-connection hazards.

(4) Forward copy of all surveys to NAVFAC HI OPC61.

(5) The activity may submit a work request to have NAVFAC HI conduct the survey.

b. All shore activities and other agencies who have existing backflow preventers that do not conform to the requirements of reference (e) and the NAVFAC HI OPC61 and, who receive water from systems owned and operated by NAVFAC HI, must provide funding to have their backflow preventers tested and certified by certified testers from NAVFAC HI OPC61.

c. All shore activities and other agencies who have requirements for new backflow preventers and who receive water from systems owned and operated by NAVFAC HI must:

(1) Provide funding to have their backflow preventers installed, tested, and certified.

(2) Provide funding for the re-testing and re-certification of the backflow preventer should the backflow preventer fail the initial test.

(3) Ensure initial certification and all re-certification is performed by NAVFAC HI OPC61. Certification by other agencies is not accepted.

d. All shore activities and other agencies who have existing backflow preventers registered with NAVFAC HI OPC61 will have their devices inspected, maintained, and certified by NAVFAC HI funding for the inspection, maintenance, and certification must be provided by NAVFAC HI OPC61.

e. The activities who are responsible for the design of the connection to a NAVFAC HI Potable Water System must submit construction drawings and specifications for the connection to NAVFAC HI OPC61 for approval, prior to its construction.

f. NAVFAC HI job planners must obtain approval for the connection to the NAVFAC HI Potable Water System from NAVFAC HI OPC61, if NAVFAC HI is to perform the work and construction drawings are not required for the connection.

g. The activity who requires the connection to NAVFAC HI Potable Water System must obtain approval for the connection from NAVFAC HI OPC61 prior to construction of the connection.

h. All shore activities who install backflow preventers or administer contracts for their installation NAVFAC HI must ensure that all newly installed backflow preventers are tested and inspected by a certified tester from NAVFAC HI OPC61 at the same time that the water outage occurs for the connection to the water system. Backflow preventer must pass all tests prior to supplying potable water.

19 Sep 2016

i. All activities that suspect that the potable water system may have been contaminated must call NAVFAC HI OPC61 Steam/Air/Potable Water Division Manager, telephone number 473-0388. In addition, warn all personnel in the area of the possible contamination to stop drinking the water.


8. Responsibility

a. Commanding Officers and Officers-in-Charge of shore activities must ensure that hazards from cross-connections are eliminated and that new connections are approved.

b. Commanding Officers and Officers-in-Charge of shore activities in doubt as to the proper methods of backflow prevention and cross-connection control may request engineering and technical assistance from NAVFAC HI (Code 431), Long Range Maintenance Planning Branch, telephone number (808) 474-3700.

9. Records Management. Manage all records created by this instruction, regardless of media or format per SECNAV Manual 5210.1 of January 2012.

10. Review and Effective Date. Per OPNAVINST 5215.17A of 26 May 2016, the Facilities and Environmental (N4) will review this instruction annually on the anniversary of its issuance date to ensure applicability, currency, and consistency with Federal, DoD, SECNAV, and Navy policy and statutory authority using OPNAV 5215/40. This instruction will automatically expire 5 years after its issuance date unless reissued or canceled prior to the 5-year anniversary date, or an extension has been granted.



R. A. ESPINOSA
Chief of Staff
Acting

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Interagency Drinking Water System Team
Zone C2 Removal Action Report
March 2022

Line of Evidence 2a

Water within the Distribution System does not exceed State and Federal Drinking Water MCLs, Specified State EALs, and ISPs

Table 1: Lines of Evidence Under Evaluation – Ensure no contamination remains in the system and water chemistry concerns are addressed.

Objective 2a - Water within the distribution system does not exceed State and Federal DW MCLs, specified State EALs, and ISPs.

Incident Specific Criteria –

- Zone flushing plan demonstrates entire distribution system is flushed.
- Sample results show the water in distribution system does not exceed State and Federal DW MCLs, specified State EALs, and ISPs. (Guidance Table 2 and Table 3)
- Drinking water does not show sheen, olfactory evidence, or other qualitative methods of petroleum.

Lines of Evidence	Completion Status	Outstanding Items
JBPHH water system's approach to flushing and their metrics for success.	Complete	<ul style="list-style-type: none"> • None.
Validity of the volumetric exchange model	Complete	<ul style="list-style-type: none"> • None.
Verification that the entire distribution system is flushed volumetrically.	Complete	<ul style="list-style-type: none"> • None.
Residential Sampling Report for Flushing Zone (Risk Management Summary)	Complete	<ul style="list-style-type: none"> • None.

February 19, 2022

From: Naval Facilities Engineering Systems Command Representative, IDWS Team
To: Interagency Drinking Water System Team

SUBJ: SUMMARY OF LINE OF EVIDENCE OBJECTIVE 2A – WATER WITHIN THE DISTRIBUTION SYSTEM DOES NOT EXCEED STATE AND FEDERAL DW MCLs, SPECIFIED STATE EALs, AND ISPs

Encl: (1) 2a.1 Memorandum for Record
(2) 2a.2 Validity and Application of Volumetric Exchange Method
(3) 2a.3 Hydraulic Model
(4) 2a.4 Records of Completed Volumetric Exchanges
(5) 2a.5 Water Source and Water Storage Facilities
(6) 2a.6 Distribution System Sample and Exceedance Resample Report

1. Enclosures (1) through (6) document completion of Line of Evidence 2a, that water within the Zone C2 distribution system does not exceed State of Hawaii and Federal Drinking Water standards, Maximum Contaminate Levels, Environmental Action Levels and Incident Specific Parameters. On the evening of November 28, 2021, the Red Hill Shaft was secured from operation and all pumping operations ceased. The Aiea/Halawa shaft briefly served as the secondary source starting on November 28, 2021, but it was shut down on December 3, 2021 to prevent potential westward contaminant migration in the aquifer and because there were concerns over high chloride concentrations caused by saltwater intrusion. Since December 3, 2021, the Waiawa Shaft has been the sole water source providing potable water to the Joint Base Pearl Harbor-Hickam (JBPHH) distribution network. Zone C2 is part of the JBPHH Drinking Water system that is operated and maintained by the United States Navy. Flushing operations for Zone C2 are summarized in Enclosure (1), signed by LCDR Carl Chase, team lead for the Drinking Water Distribution System Recovery Team.

2. Details on the drinking water system and flushing operations and protocols are provided in Enclosures (1), (3), and (5). The guidance provided by Dr. Whelton on the recommended volume exchanges to be flushed in the distribution system is provided in Enclosure (2).

3. The records of the distribution system volumetric exchanges flushed are provided in Enclosure (4). Level 2 sampling data collected after distribution flushing is summarized in Enclosure (6).

4. Sample results with analyte detections exceeding the prescribed MCL, EAL, or ISP are documented in Enclosure (6). The follow-on investigation summary and additional sampling results are also documented in Enclosure (6).

5. The information provided in Section 2a, including the flushing process followed and the subsequent sampling results, demonstrate that water within the Zone C2 distribution system does not exceed State of Hawaii and Federal Drinking Water standards, Maximum Contaminate Levels, Environmental Action Levels and Incident Specific Parameters.

6. I certify under penalty of law that I have personally examined and I am familiar with the information submitted and I believe the submitted information is true, accurate, and complete.

WETZEL.CHRISTOP
HER.JAMES.154019
4862

Digitally signed by
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Date: 2022.02.19 19:37:51 -08'00'

C. J. Wetzel
LT, CEC, USN

27 Jan 2022

MEMORANDUM FOR THE RECORD

From: LCDR Carl Chase, JBPHH Drinking Water Distribution System Recovery Team

To: Interagency Drinking Water System Team

Subj: DISTRIBUTION SYSTEM RECOVERY PLAN ADDENDUM – ZONE C2 ANALYSIS

Ref: (a) Memorandum for the Record from LCDR John Daly regarding the Distribution System Zone Flushing, December 28, 2021

(b) State of Hawaii Department of Health, Directive One– Flushing Requirements Navy Water System Incident, Case No.: 20211128-1848 (HI Directive One, dated 08 December, 2021)

(c) Drinking Water Distribution System Recovery Plan, 17 December 2021

(d) Incident Specific Criteria to Meet Lines of Evidence Objectives 1c and 2a, dated 05 January 2022

1. OBJECTIVE: The Drinking Water Distribution System Recovery Plan (DWDSRP) was signed by the Interagency Working Group on 17 December 2021. This addendum provides additional technical information to document the system flushing methodology and engineering approach used to restore Flushing Zone C2 to service as requested by the State of Hawaii Department of Health (HI DoH) in reference (d).

2. BACKGROUND:

2.1. Portions of the Navy water distribution system serving JBPHH and surrounding areas were exposed to low levels of fuel contamination with initial indications in the form of smell reports occurring on or about 28 November 2021.

2.2. Prior to the aquifer contamination incident (incident), water users connected to the Navy's system were supplied by three Navy owned water sources, Red Hill Shaft, Aiea/Halawa Shaft and Waiawa Shaft. In the time period prior to the incident, Waiawa Shaft was the main water source supplying approximately 16 million gallons per day (MGD) to the JBPHH system with at least one pump operating full time (100%). A single Red Hill Shaft pump was operated intermittently as a secondary source to supply approximately 5.5 MGD to the system. The Aiea/Halawa shaft was not being operated due to concerns over high chloride concentrations caused by saltwater intrusion into the aquifer.

2.3. On the evening of 28 November 2021, the Red Hill Shaft was secured and all pumping operations ceased. The Aiea/Halawa shaft briefly served as the secondary source starting on 28 November 2021 but was shut down on 03 December 2021 to prevent westward contaminant migration in the aquifer.

2.4. Since 03 December 2021, Waiawa Shaft has been the sole water source providing potable water to the distribution network. It is located 5.5 miles west of the Red Hill Fuel Facility and testing has not found any water quality issues at this source.

3. ENGINEERING ANALYSIS AND TOOLS: DWDSRP development utilized engineering judgement informed by existing tools and data sources such as ArcGIS, Supervisory Control and Data Acquisition (SCADA) system historic/current data, hydraulic models, and input from water system infrastructure contamination subject matter experts (SMEs).

3.1. ArcGIS was the primary tool used for mapping, volumetric calculations, and spatial analysis of the JBPHH utility systems.

3.2. System flows were measured by meters at key points within the distribution system. Data was recorded and stored by the Navy's SCADA system historian. SCADA is also monitored 24/7 by water system operators.

3.3. A hydraulic model was developed in 2014 and calibrated to conditions at the time. It is a skeletonized model depicting major transmission lines to many areas of the base. It does not include all mainline pipes, the Hickam area, or laterals feeding residence and non-residence facilities. The model was considered to be of limited use in determining the effectiveness of system flushing. It was primarily used to determine areas that were most likely impacted by the contamination event. The results directly correlated with initial reporting from impacted residents.

3.4 Dr. Andrew Whelton, a Purdue University associate professor of civil, environmental, and ecological engineering and recognized for his expertise in disaster response and recovery, provided recommendations to the US Navy based on his research and experience. His work is often cited in EPA literature and he is a leading expert in the field of recovering contaminated drinking water plumbing. His recommendations were incorporated into the DWDSRP.

4. CONSTRAINTS: In addition to Section 1.3 of the DWDSRP, the following constraints were considered during development of the plan:

4.1. Waiawa Shaft pumps are capable of pumping 19 MGD with 2 pumps running at full speed. There are 4 pumps at Waiawa Shaft, 2 are operational, one is standby, and one is down for maintenance. Average daily demand at JBPHH since the incident has ranged from 11 to 14 MGD. Maximum potable water system flushing flows were limited to 5 MGD to avoid excessive drawdown of the S1/S2 tanks and stay within the capacity of Waiawa Shaft pumps.

4.2. The two 6 million gallon (each) tanks, S1 and S1 could not be drawn down below the 28-foot level. This constraint was imposed by the water system operators who wanted to avoid low water system pressures that would be caused by S1/S2 drawdown below 28-feet.

4.3. Discharge to the Navy's sanitary sewer system and the Fort Kamehameha Wastewater Treatment Plant (Ft. Kam WWTP) was limited to 1 MGD by wastewater operations staff. Much of the infrastructure Ft. Kam WWTP was considered to be in poor condition and some process elements do not have a backup unit. The direct discharge of too much potable water to the plant was also thought to pose the risk of "wash out" of the microbes that provide secondary treatment.

4.4. Discharges of potable water to land or storm sewers were required by HI Directive One to be treated prior to discharge. Treatment was provided through 1 MGD mobile granular activated carbon (GAC) units. The units had several constraints on their use including site access, adequate staging areas that were level with sufficient area for the units and support crews, impacts to the community, traffic control, and distance to discharge. Each GAC was kept in a single location for at least 24 hours due to labor and time required for unit setup and breakdown.

4.5. Water service was required be maintained to residents and JBPHH tenants. Many families have remained in their homes and mission essential Government activities require continuous water service.

4.6. JBPHH did not have an established unidirectional flushing plan developed prior to the incident. Unidirectional flushing typically involves inducing one-way flow through each pipe segment in a water distribution system by closing mainline isolation valves and opening hydrants for a short period of time. The number of hydrants required would be determined by the pipe size and the minimum water velocity required to flush sediments and other contaminants from the pipe segment. True unidirectional flushing of the system was determined not to be a feasible method for flushing the JBPHH potable water system for the following reasons:

4.6.1. Per section 1.2 of the DWDSRP, the distribution system was to be recovered with critical urgency. Additionally, SMEs advised that the longer contaminants remained in the system, the more likely it was that they would migrate into plastics, gaskets, sediments, etc. A unidirectional flushing program would take several months to develop and implement and the timeline was not considered feasible for a return to service.

4.6.2. Water system operators indicated that many mainline isolation valves would not properly close and could not be relied upon to isolate pipe segments.

4.7. Dr. Whelton recommended three volumetric turnovers for impacted pipe networks. Flushing zones with higher risk of contamination were identified and prioritized using water user complaint history, testing results, the hydraulic model, and the hydraulic proximity to Red Hill Shaft. A factor of safety was applied to the highest priority zones by specifying a minimum of five volumetric turnovers. Zones where the hydraulic modelling indicated that contamination may have travelled, were in close hydraulic proximity to Red Hill Shaft, and had few complaints were flushed with the recommended three volumetric turnovers. Low priority was given to zones where SCADA data indicated that water was fed solely from Waiawa Shaft before and after the incident. To reduce water waste, flush zones with lower risk of contamination were volumetrically turned over a minimum of once or twice.

5. Following Dr. Whelton's recommendation, the DWDSRP was designed with a directional flush of the distribution system starting from the clean water source and moving systematically through the entire system. The limited water source capacity at Waiawa Shaft and disposal constraints required that the system be broken down into smaller flush zones. 19 total zones were established that could be independently flushed without adverse hydraulic or water quality impacts to previously flushed zones. Section 2.4 of the DWDSRP depicts the network diagram and zone relationships.

6. FLUSH ZONE C2:

6.1. DESCRIPTION OF FLOW: This zone is fed from two parallel 18-inch and 24-inch transmission mains/ The 18-inch transmission main is connected to the distribution network serving the Naval Station (NAVSTA) area and Hale Ali'i Housing located in the eastern portion of the zone. The 24-inch transmission main is connected to distribution networks serving the Marine Barracks and Dry Dock 4 areas in the western portion of the zone. The 24-inch main also connects to Zone D2 to the south. See Figure 1 for a schematic representation of Zone C2.

6.5.2. Hydrants 318 and 300 were selected to flush the distribution network in the Hale Ali'I housing area.

6.5.3. Hydrant 243 was selected to flush the distribution network in the Marine Barracks area.

6.5.4. Hydrant 337 was selected to pull water through the 24-inch transmission and the distribution mains near the large warehouse and Battery Shop (X51)

6.5.5. Hydrant 214 was selected to flush the distribution network in the Dry Dock 4 area.

6.5.6. Hydrant 225 was selected to flush the distribution network in the Hospital Point housing area.

6.6. DEAD-END LINES: It is possible that flushing was not induced in some small neighborhood loops or dead-end lines serving facilities or piers. To address this concern, additional distribution water line samples were taken in locations selected in a joint effort by the Navy, DoH, and EPA. These samples are representative of other dead-end lines within the zone.

6.7. FLUSHING ACTUALS: Water was simultaneously discharged through:

123	Shift		Flush Time			Documentation	
Date	Begin	End	Start	Stop	RunTime	Email Summary	UT Log
4-Jan	8:00	20:00		16:40	3:20	20220104 0800-2000	Y
4-Jan		20:00	8:00		12:00	20220104 2000-0800	N/A
5-Jan	8:00	20:00			9:17	20220105 0800-2000	Y

TOTAL RUN @ FLOW of 200

TIME 16:37

VOLUME 199400 Gallons

243	Shift			Flush Time			Documentation		
Date	Begin	End	Start	Stop	RunTime	Email Summary	UT Log		
6-Jan	8:00	20:00		12:50	18:06	5:16	20220106 0800-2000 Y		
<div><div>TOTAL RUN @ FLOW of 200</div><div>TIME 5:16</div><div>VOLUME 63200 Gallons</div></div>									

214	Shift			Flush Time			Documentation	
Date	Begin	End	Start	Stop	RunTime	Email Summary	UT Log	
6-Jan	8:00	20:00		10:04	9:56	20220106 0800-2000	Y	
6-Jan	20:00	8:00			12:00	20220106 2000-0800	N/A	
7-Jan	8:00	20:00		8:30	0:30	20220107 0800-2000	Y	
<div><div>TOTAL RUN @ FLOW of 200</div><div>TIME 22:26</div><div>VOLUME 269200 Gallons</div></div>								

300	Shift			Flush Time			Documentation	
Date	Begin	End	Start	Stop	RunTime	Email Summary	UT Log	
5-Jan	8:00	20:00		13:47	6:13	20220105 0800-2000	Y	
5-Jan	20:00	8:00			12:00	20220105 2000-0800	N/A	
6-Jan	8:00	20:00			11:00	3:00	20220106 0800-2000	N
TOTAL RUN @ FLOW of 200								
TIME 21:13								
VOLUME 254600 Gallons								

225	Shift			Flush Time			Documentation	
Date	Begin	End	Start	Stop	RunTime	Email Summary	UT Log	
6-Jan	20:00	8:00		20:06		11:54 20220106 2000-0800	Y	
7-Jan	8:00	20:00			9:04	1:04 20220107 0800-2000	Y	
<div><div>TOTAL RUN @ FLOW of 200</div><div>TIME12:58</div><div>VOLUME155600 Gallons</div></div>								

315	Shift			Flush Time			Documentation	
Date	Begin	End	Start	Stop	RunTime	Email Summary	UT Log	
5-Jan	8:00	20:00		13:46	6:14	20220105 0800-2000	N	
5-Jan	20:00	8:00			12:00	20220105 2000-0800	N/A	
6-Jan	8:00	20:00		10:33	2:33	20220106 0800-2000	Y	
<div><div>TOTAL RUN @ FLOW of 200</div><div>TIME20:47</div><div>VOLUME249400 Gallons</div></div>								

318	Shift		Flush Time			Documentation	
Date	Begin	End	Start	Stop	RunTime	Email Summary	UT Log
5-Jan	8:00	20:00	13:47			6:13 20220105 0800-2000	Y
5-Jan	20:00	8:00				12:00 20220105 2000-0800	N/A
6-Jan	8:00	20:00	10:00			2:00 20220106 0800-2000	Y
<div><div>TOTAL RUN @ FLOW of 200</div><div>TIME20:13</div><div>VOLUME242600 Gallons</div></div>							

Hydrant	Volume
123	199,400
214	269,200
225	155,600
243	63,200
300	254,600
315	249,400
318	242,600
337	228,200
TOTAL	1,662,200

337	Shift		Flush Time			Documentation	
Date	Begin	End	Start	Stop	RunTime	Email Summary	UT Log
6-Jan	8:00	20:00	14:00			6:00 20220106 0800-2000	Y
6-Jan	20:00	8:00				12:00 20220106 2000-0800	N/A
7-Jan	8:00	20:00	9:01			1:01 20220107 0800-2000	Y
<div><div>TOTAL RUN @ FLOW of 200</div><div>TIME19:01</div><div>VOLUME228200 Gallons</div></div>							

6.7.4. The total volume flushed through the system was 1,662 KGal for 6.6 volumetric turnovers. Actual volumetric turnovers exceeded the minimum requirement.

6.8. SCADA DATA: Flow meters 9599, 9598 9405 and 9404 are located in this zone. However, since it was possible that contamination reached Zone C2 from upstream zones, an analysis of these meters to determine flow directions was of limited use.

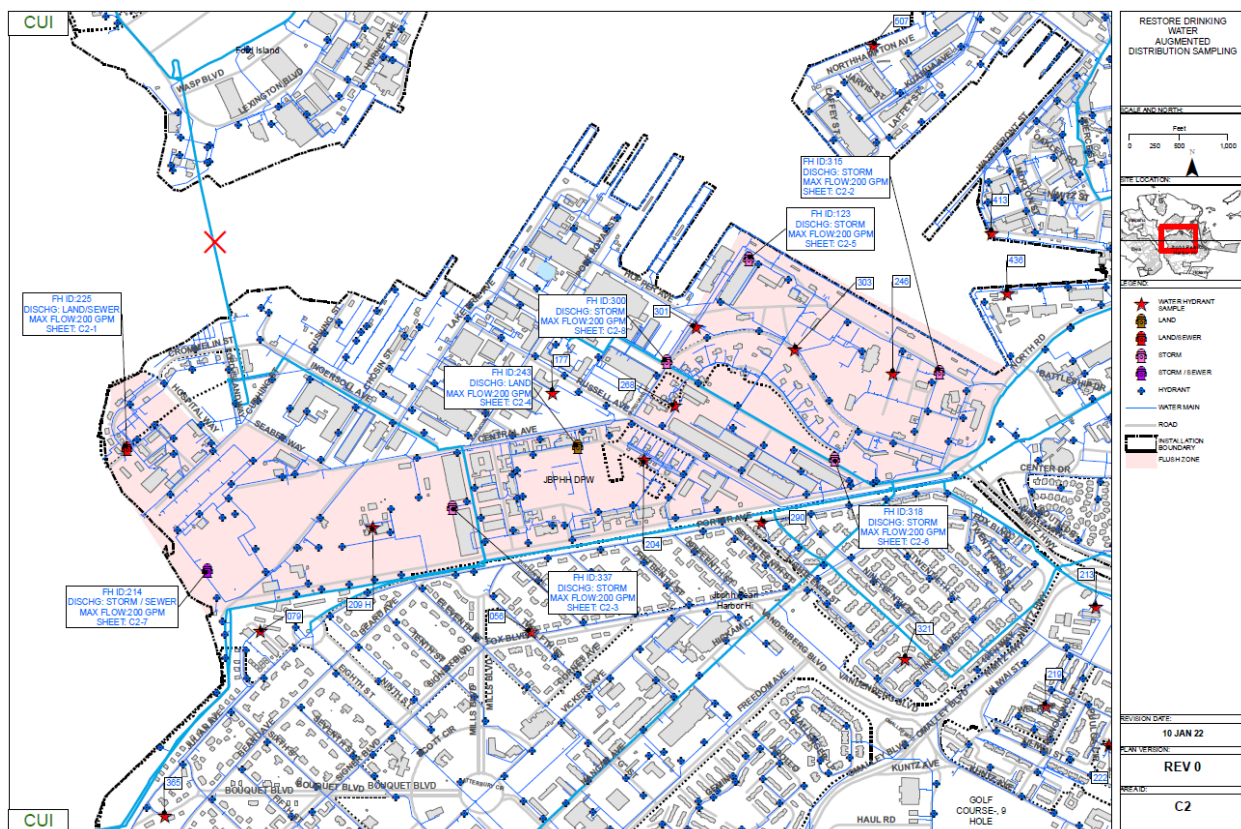


Figure 1: Flush Zone C2

CC
CLEAR, CONCISE, USE

C. C. CHASE

February 15, 2022

From: Naval Facilities Engineering Systems Command Representative, IDWS Team
To: Interagency Drinking Water System Team

SUBJ: VALIDITY AND APPLICATION OF VOLUMETRIC EXCHANGE METHOD

Ref: (a) Drinking Water Distribution System Recovery Plan, December 2021

Encl: (1) Dr. Whelton email documenting volumetric exchange method dtd 08 JAN 22

1. This letter documents the basis of the volumetric exchange method used in the development of reference (a). The basis of the flushing method was based on two key recommendations from Dr. Whelton, who served as the Navy's consultant in the early stages of the incident. Enclosure (1) documents key recommendations from Dr. Whelton which included flushing from a clean source, systematically moving through the entire system, and flushing at least three times the pipe volume. Rules of three is what Dr. Whelton generally recommends.

2. Reference (a) incorporated the recommendations from Dr. Whelton by creating a flushing sequence that began with clean water from the Waiawa shaft and flushing systematically through the entire system. The volumetric exchanges for each zone and zone flushing sequence plan was developed by Navy engineers. This is outlined in table 2.4, Distribution System Recovery Plan Diagram, and section 2.5, Flushing Plan Phasing, of reference (a). A safety factor was applied to the rule of three to obtain five volumetric turnovers for the phase 1 zone areas. Phase 2 zone areas had three volumetric turnovers. Phase 3 zone area had two volumetric turnovers and phase 4 zone areas had one volumetric turnover. The phase 3 and phase 4 zone volumetric turnover determinations were made after considering the up-gradient zone flushing volumes and the non-potable use of water in the zones.

3. I certify under penalty of law that I have personally examined and I am familiar with the information submitted and the submitted information is true, accurate, and complete.

MENO.MICHAEL.WAYNE.JR. Digitally signed by
MENO.MICHAEL.WAYNE.JR.
1088310035 Date: 2022.02.15
07:17:55 -10'00'

M. W. Meno
Captain, U.S. Navy Civil Engineer Corps

****Phone numbers have been redacted****

From: Whelton, Andrew J <[REDACTED]>
Sent: Saturday, January 8, 2022 4:58 AM
To: Lee, Andre K (NAVFAC HI BD) CIV USN NAVFAC HAWAII PEARL (USA) <[REDACTED]>
Cc: Isaacson, Kristofer P <[REDACTED]>; Proctor, Caitlin Rose <[REDACTED]>
Subject: [URL Verdict: Neutral][Non-DoD Source] RE: Cross Connection Control Plan and Flushing Plan documentation requirements for DoH

LCDR Daly,

I am free to talk later this afternoon today if you want. I'm Mountain Standard Time.
Below is some information.

Andy
[REDACTED]

FEEDBACK

1. You applied unidirectional flushing and if you opened hydrants fully you likely maximized velocity in the pipes you were flushing. The issue they seem to be getting at is scouring velocity which you identify. This is used for removing sediment (typical cleaning of water pipes) as you know. There is no SOP for water contamination response and recovery, so you applied standard water distribution system maintenance practice of unidirectional flushing. This is good. The state I think invoked water main disinfection standard which, to my knowledge isn't applicable here unless you conducted shock disinfection.
 - a. For perspective, per a Water Research Foundation study: Microbial Control Strategies for Main Breaks and Depressurization, Project 4307. Published 2014. Denver, Colorado.
 1. Scouring velocity helps removed sediment from water mains/pipes. To achieve 2.5 to 3 log removal of sand particles for 4-to-16-inch diameter PVC pipes, 3 ft/s is needed.
 2. In that report, to achieve this removal for a 6-inch diameter PVC pipe, Q was 308 GPM
 3. In that report, to achieve this removal for 4-inch diameter PVC pipe, Q was 137 GPM
 - b. We recommended starting flushing from the clean water source and moving systematically through the entire system in a unidirectional way. If you all did this, be sure to explain that. That helps minimize the change residual "old" water gets untouched, or is left in the system.
 - c. You could calculate scouring velocities in each of the areas. If any are lower than desired you can go back and just keep repeat flushing giving an added level of safely.
 - d. The state's interest in scouring velocity may be of concern that (JP-5?) free product adsorbed to sediment/scales and they want to be certain it got scoured out. If it didn't, it could dissolve it's constituents into water over time.
 - e. Dead-ends are really important. You need to specifically address how you will get that water out. In West Virginia, many weeks after the spill and utility had flushed out the black-licorice smelling contaminated water out someone in a distal part of the system complained about odor. To my recollection the utility thought it was psychological, but it turned out there was a dead-end they didn't flush. Somehow that contaminated water got drawn into a nearby home and someone was exposed.

- f. Question: How long was each hydrant open typically?
 - g. I think we mentioned flushing 3 times the pipe volume. Rules of three is what I often recommend. Flushing velocity is certainly important. I vaguely remember NAVFAC had contracted a consultant to create the flushing plan.
2. JP-5 isn't a single contaminant which we've talked about before. It's a mixture of 100s-1000s of individual chemicals. Even if JP-5 itself is hydrophobic and primarily found in emulsions or floating on the surface, some of these constituents will still diffuse into the water itself. The question they are likely after is how do you know you removed all parts of JP-5 that may have gotten entrained in the water system? This goes back to what chemicals are you testing for in the water distribution system. JP-5 constituents have different water solubility and octanol-water partitioning coefficients (Log Kow = How much they like to be in biofilm and plastics, not water). Additionally, the different materials (Metal vs PVC vs HDPE vs. gaskets) may be more prone to soaking up some JP-5 contaminants and not others depending on their characteristics. For example, PVC has been shown to be less susceptible to soaking up some crude oil-based contaminants than HDPE pipes (Huang et al. study with Whelton). Ultimately, the fate of the chemicals in the drinking water system will not be the same for all JP-5 constituents. Remember the drawing I drew on the whiteboard when meeting with CDR Chase, NAVFAC, COE, and Army? It showed different constituents may be in different parts of the water system. That's what DOH is likely after. Question to you: What wide screen testing have you done in the water distribution system since December 22? This can help you hunt down that the contaminants are present or gone.
3. Escalation should be based on how much flushing you are okay with trying. If you want to remove and replace infrastructure (that has sometimes happened after other contamination events on the mainland and overseas), it's a viable but laborious option. As an extreme example, following the Camp Fire it was estimated it would take over a year of continuous flushing to return some contaminated pipes to safe use, so for some conditions they removed and replaced pipes. However, this flushing timeline will vary significantly depending on the water distribution systems and water testing results – AND chemicals or individual JP-5 constituents present. If I knew what the chemicals were still being found and what was done to try to get rid of them, I could give a more informed opinion. Food grade surfactants were used in Israel after a drinking water contamination incident...BUT using surfactants is not trivial and can cause all sorts of damage to water system components and leave residual. This probably isn't an email, but more discussion. Happy to talk. If you decide you want to go this way we should be more engaged technically in what this means. It's not likely an email response/effort, but more involved.
4. Here's a paper where we reviewed petroleum (and other material) drinking water distribution and plumbing contamination incidents and flushing [Decontaminating chemically contaminated residential premise plumbing systems by flushing - Environmental Science: Water Research & Technology \(RSC Publishing\) DOI:10.1039/C5EW00118H](https://doi.org/10.1039/C5EW00118H). Unfortunately, when we went to

review the underlying evidence of each incident, often the utility and state didn't document much. Even incidents overseas had little documentation. It seems groups simply tried something, it did or didn't work, and they moved on. They also didn't sample much and rarely it an entire water distribution system that was affected.

Again, I can get on a zoom call or phone this afternoon MST to connect. I was called into the Colorado wildfires to help the communities identify and design water sampling and recovery plans. We're getting data every day and meeting with state and federal agencies. This is the Marshall Fire and Middle Fork Fire. I apologize for the delayed response.

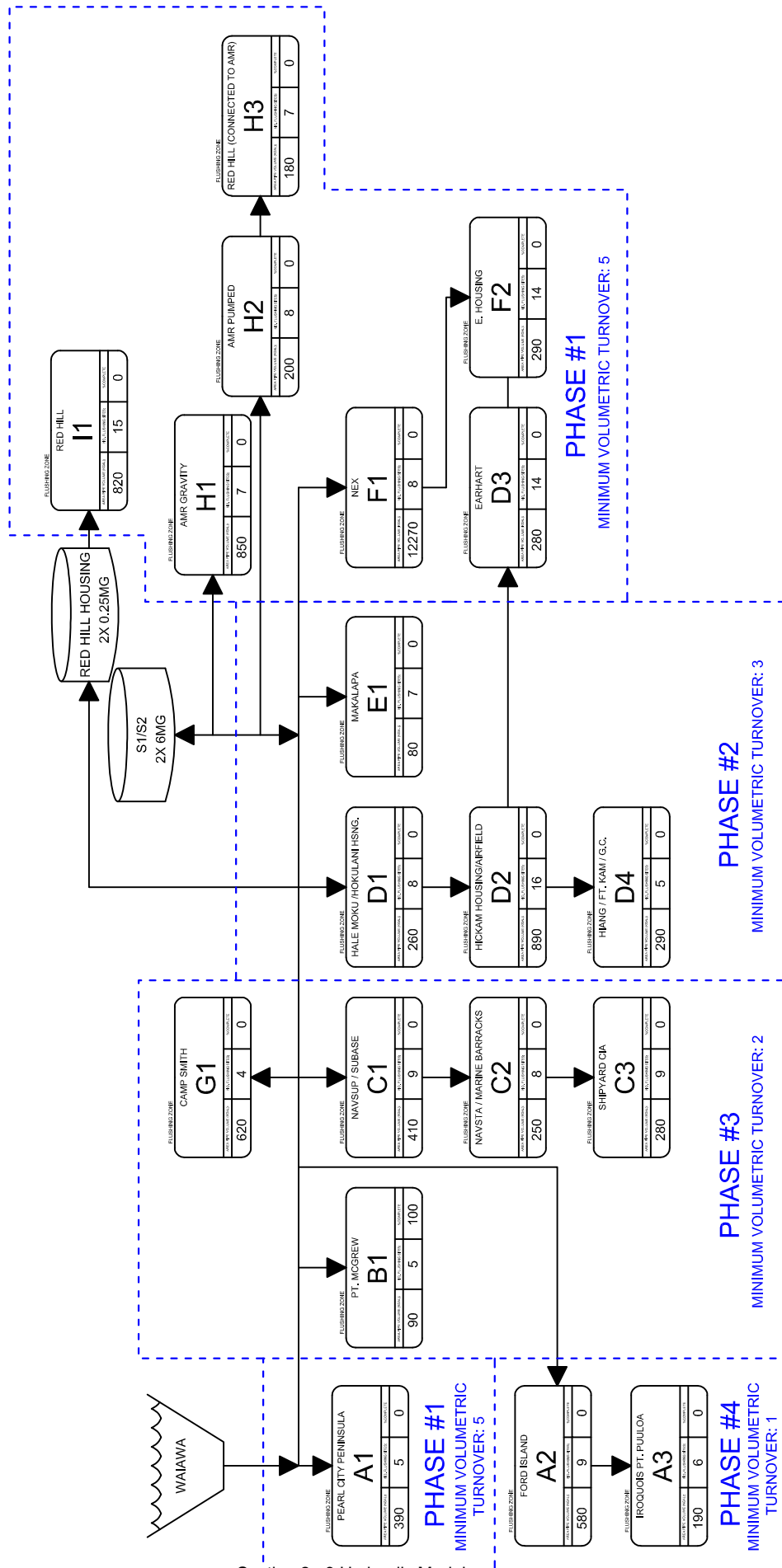
Andy

Cell/text: [REDACTED]

**Link to Dr.Whelton's Paper: <https://pubs.rsc.org/en/content/articlelanding/2015/ew/c5ew00118h>

WATER SYSTEM FLUSHING ZONE MAP





Section 2a.3 Hydraulic Model



JBP HH Hydraulic Model

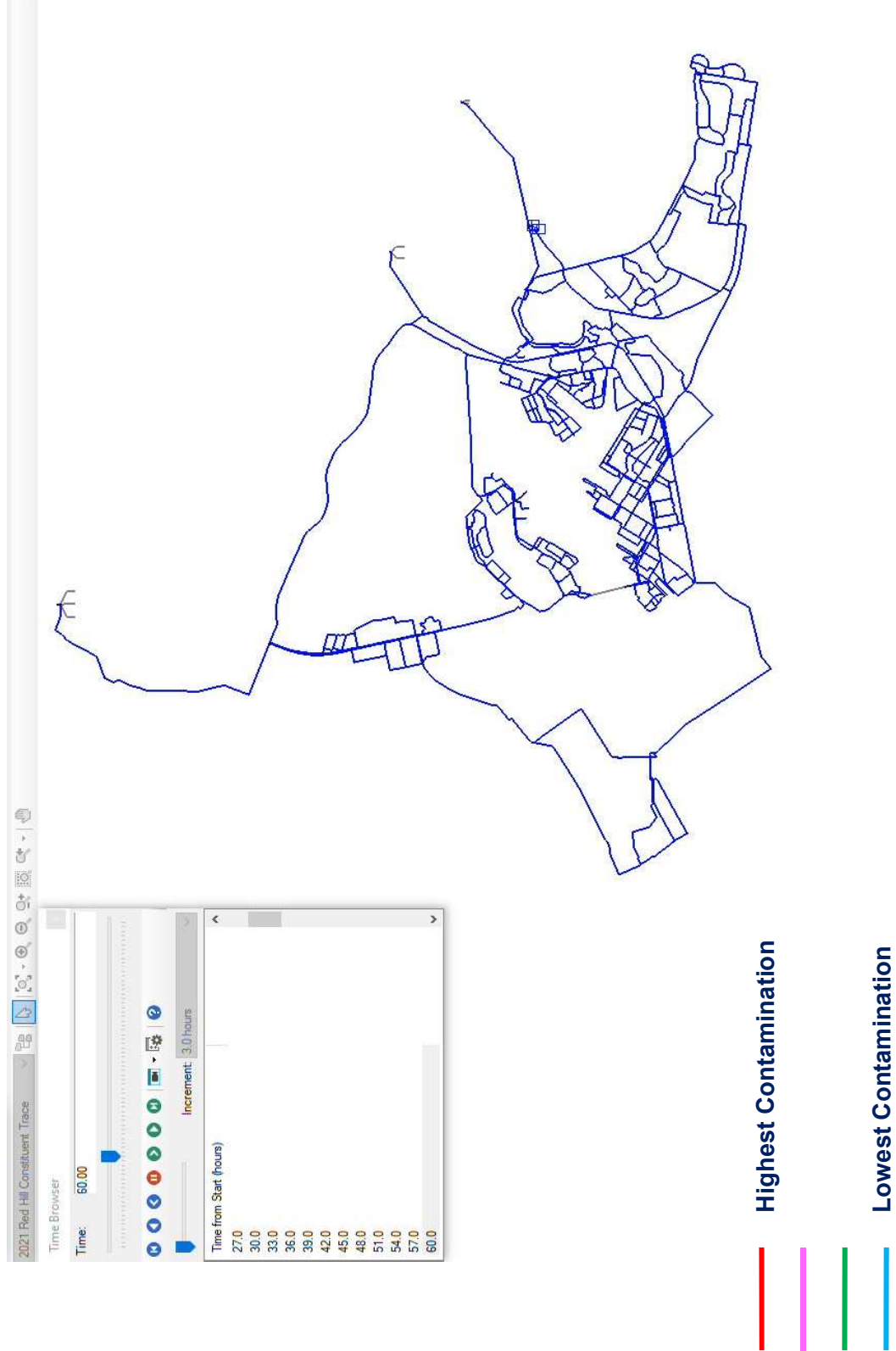
Interagency Drinking Water Supply Team

18 January 2022

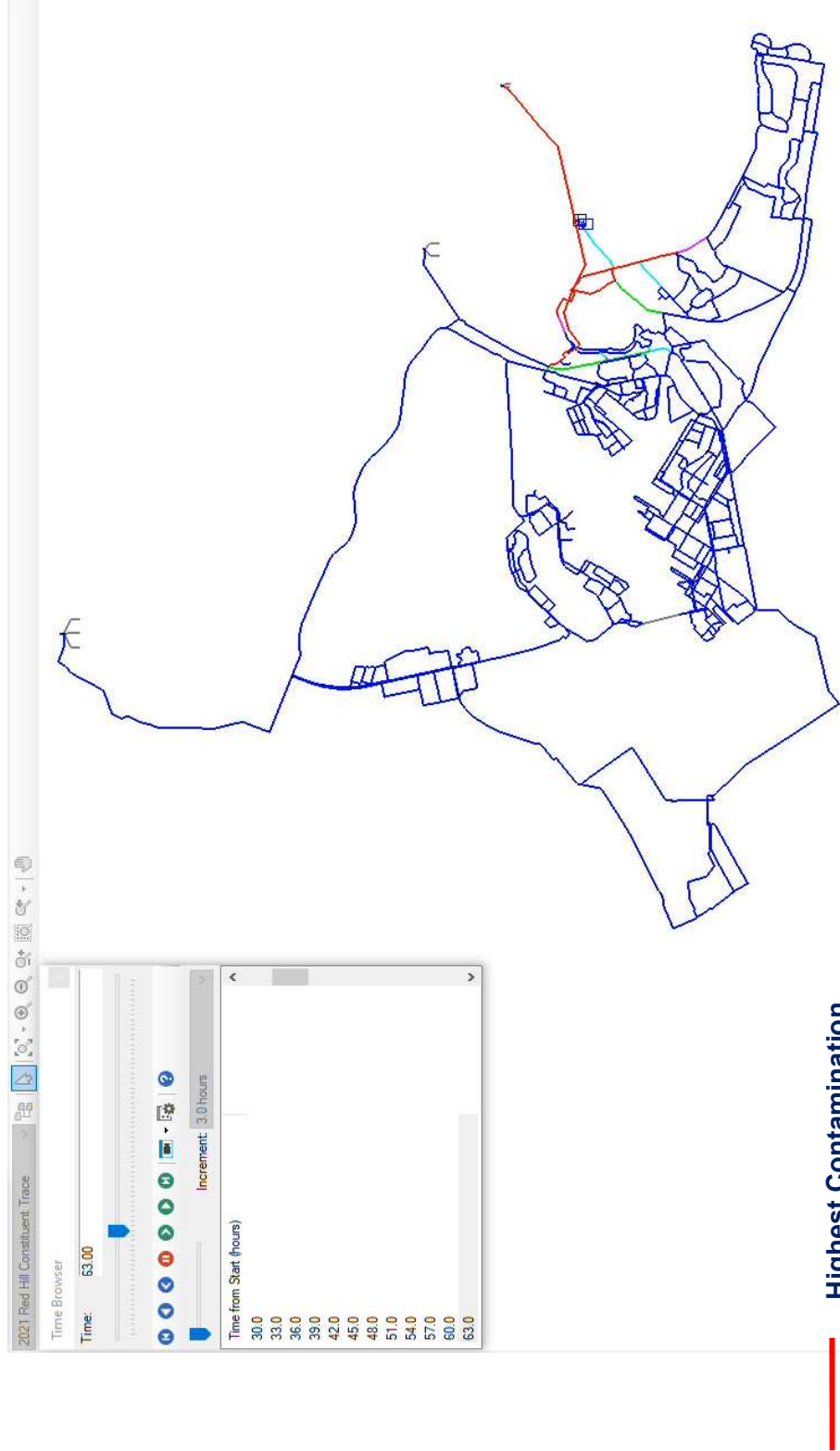
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JBP HH Hydraulic Model



JBP HH Hydraulic Model

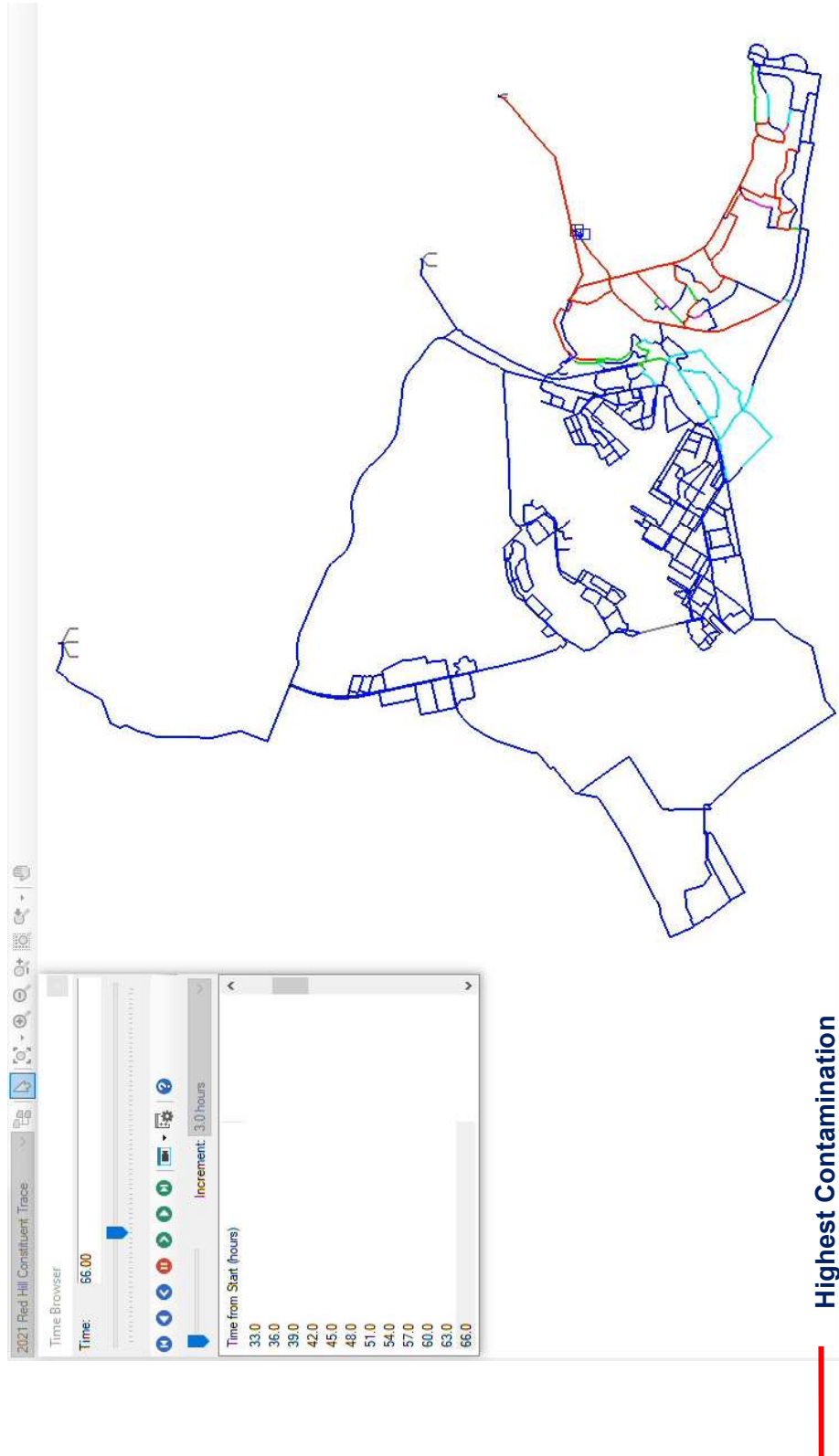


Highest Contamination

Lowest Contamination

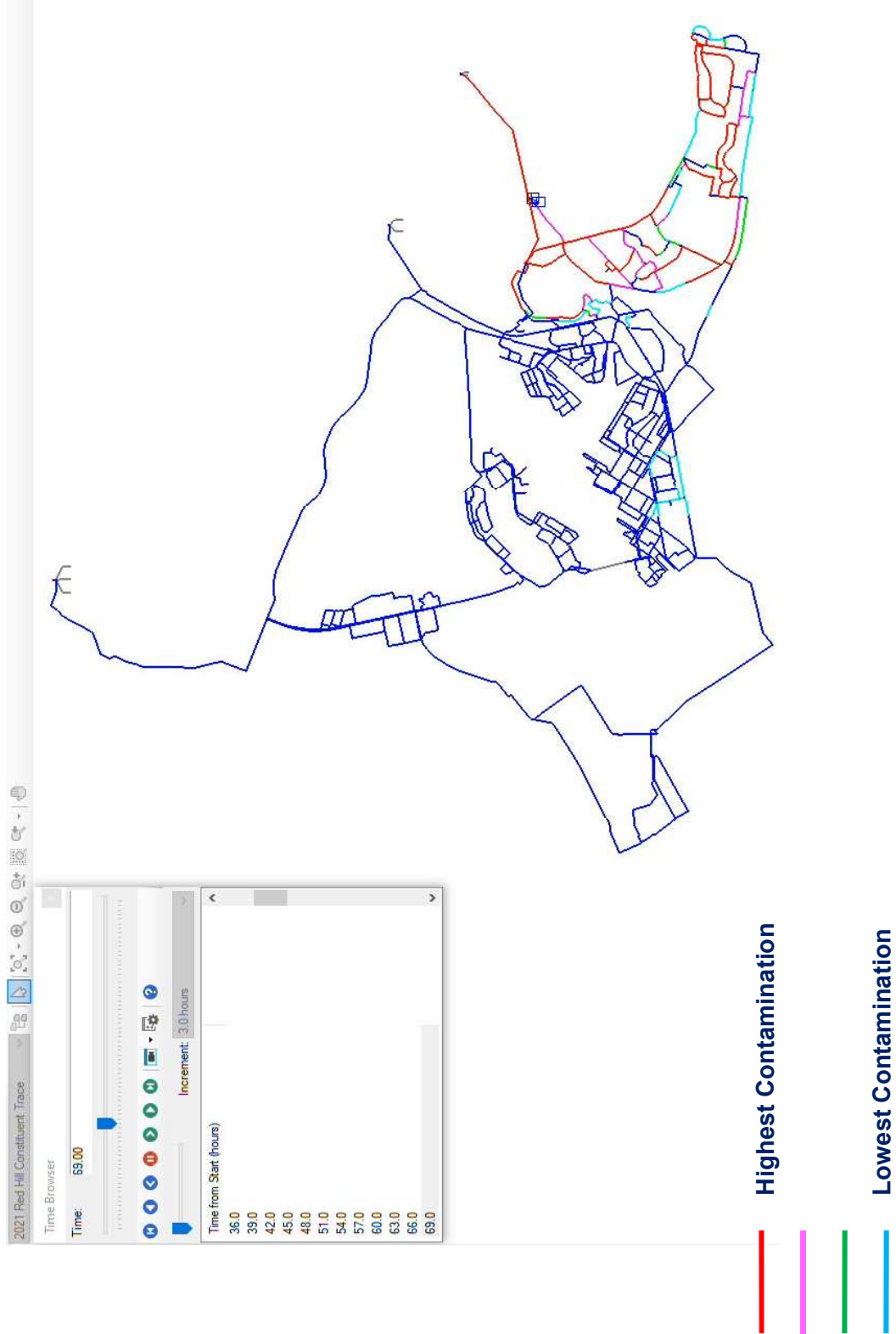


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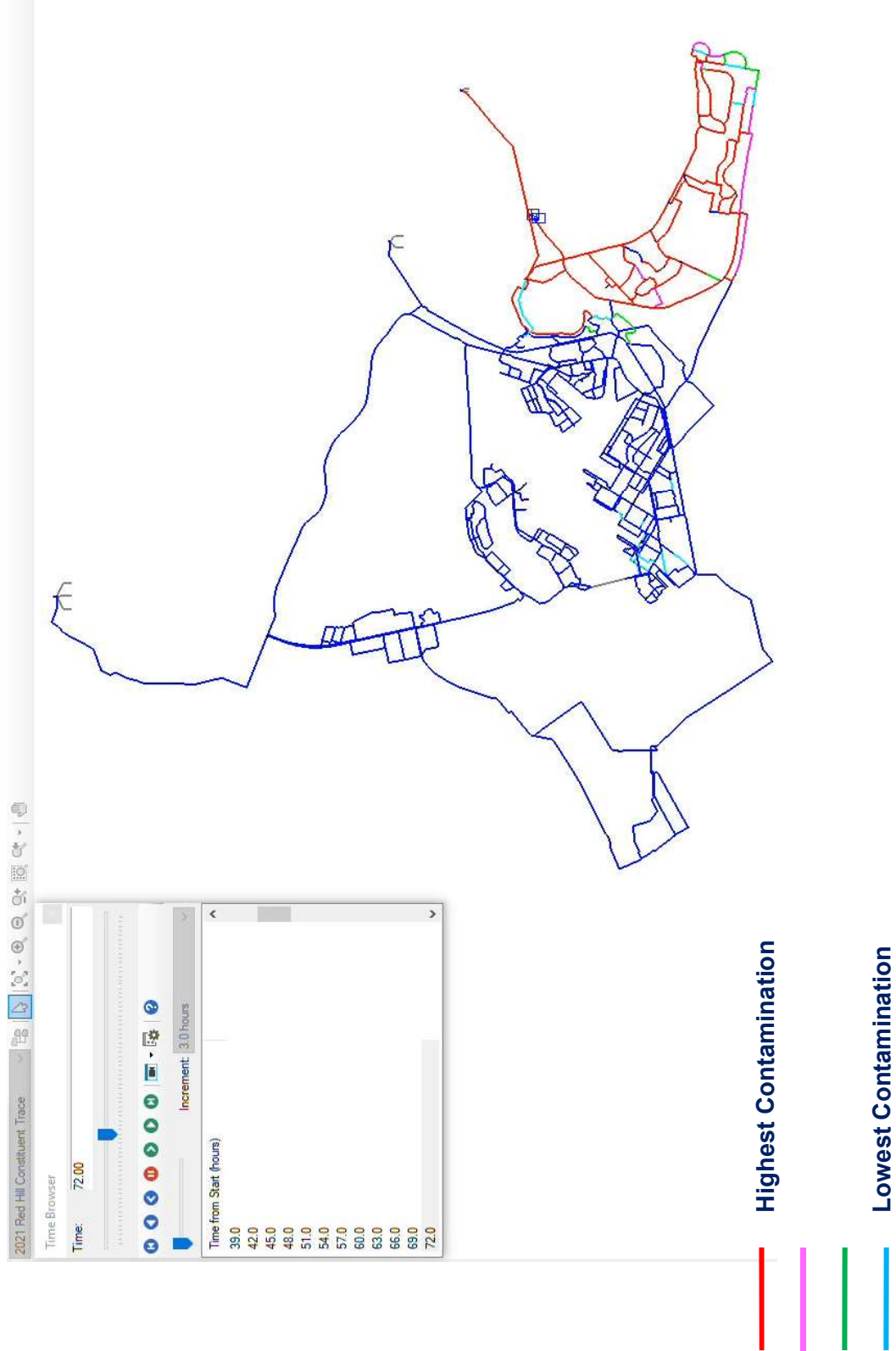


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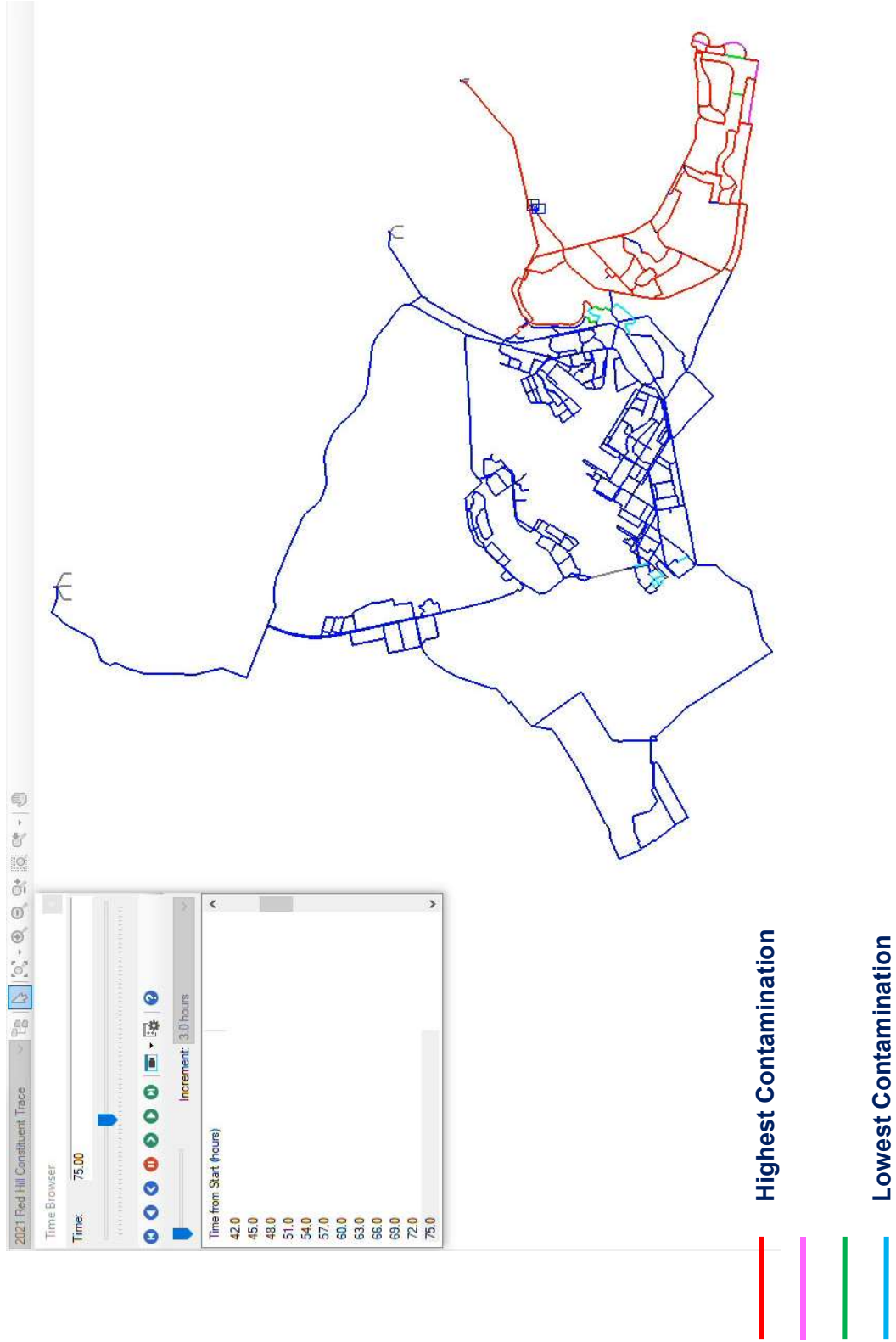




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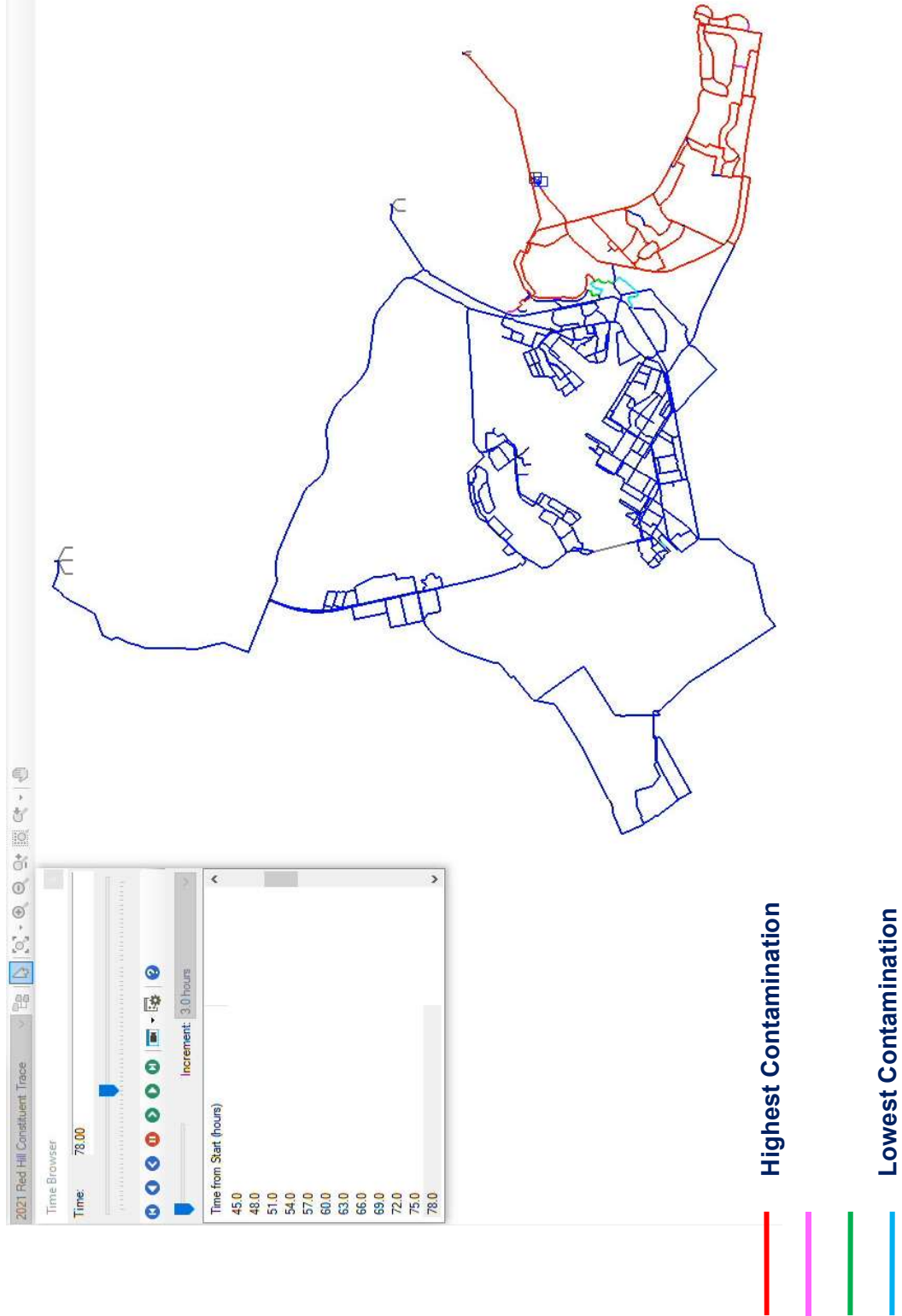


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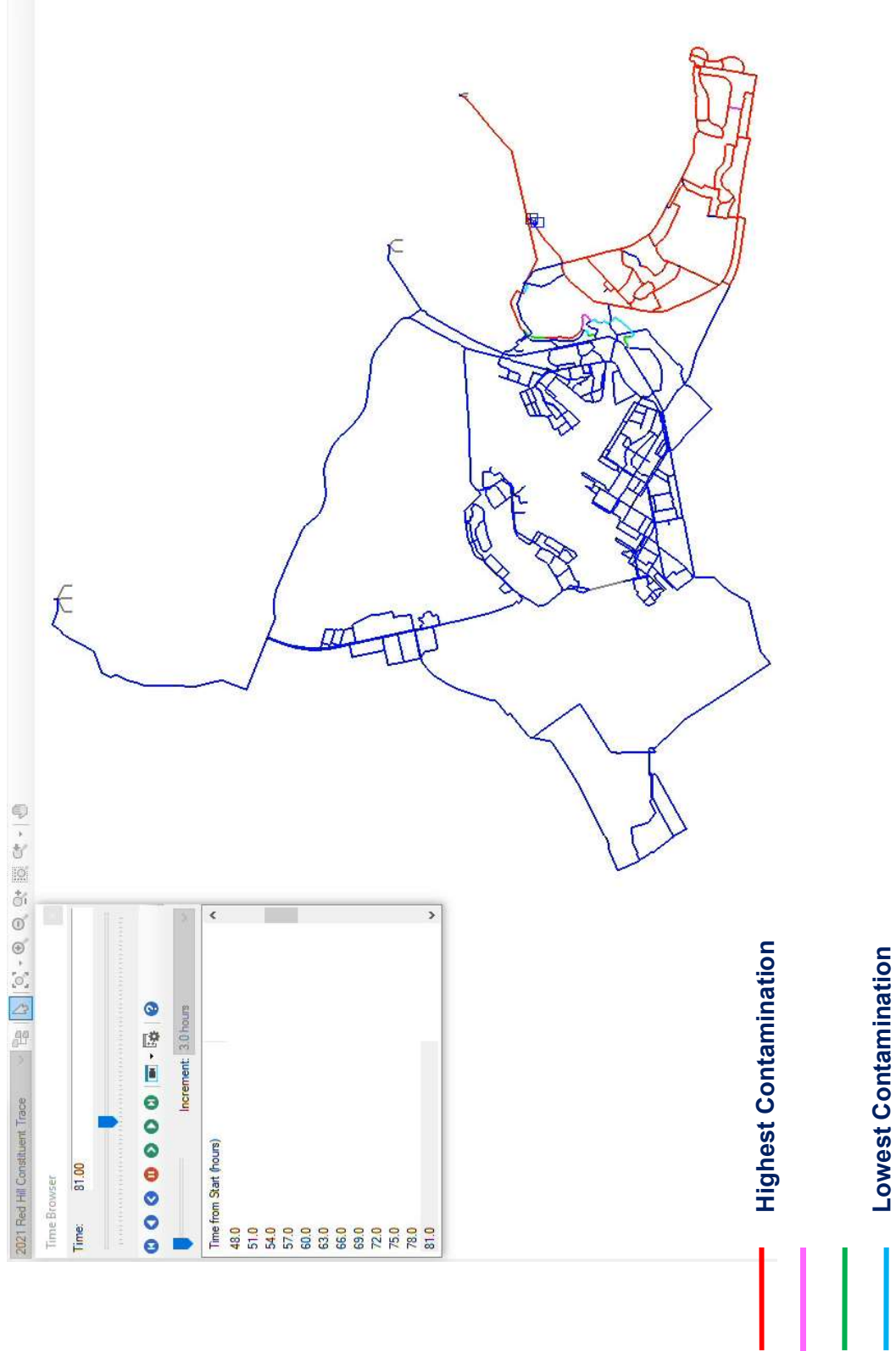


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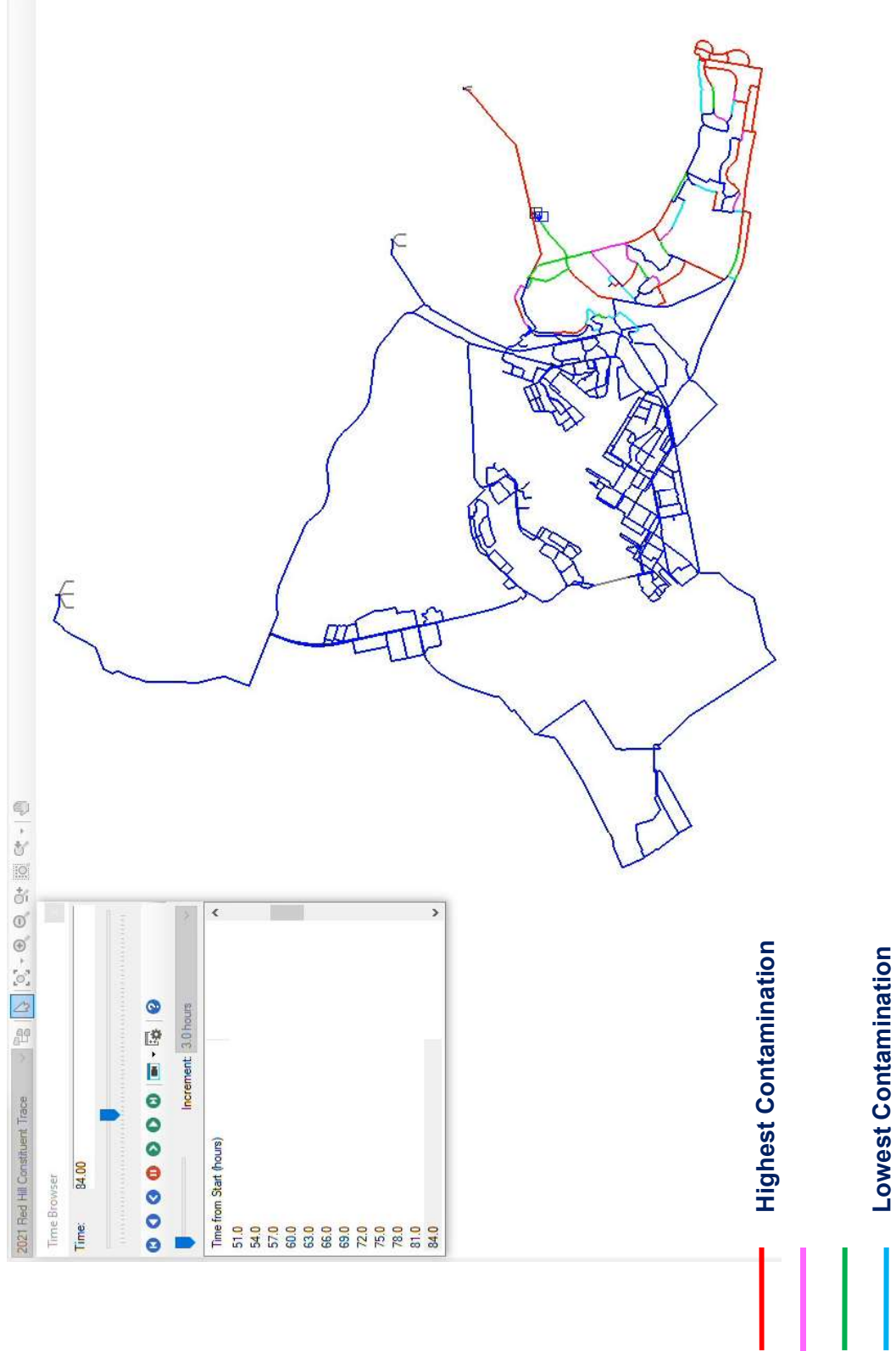


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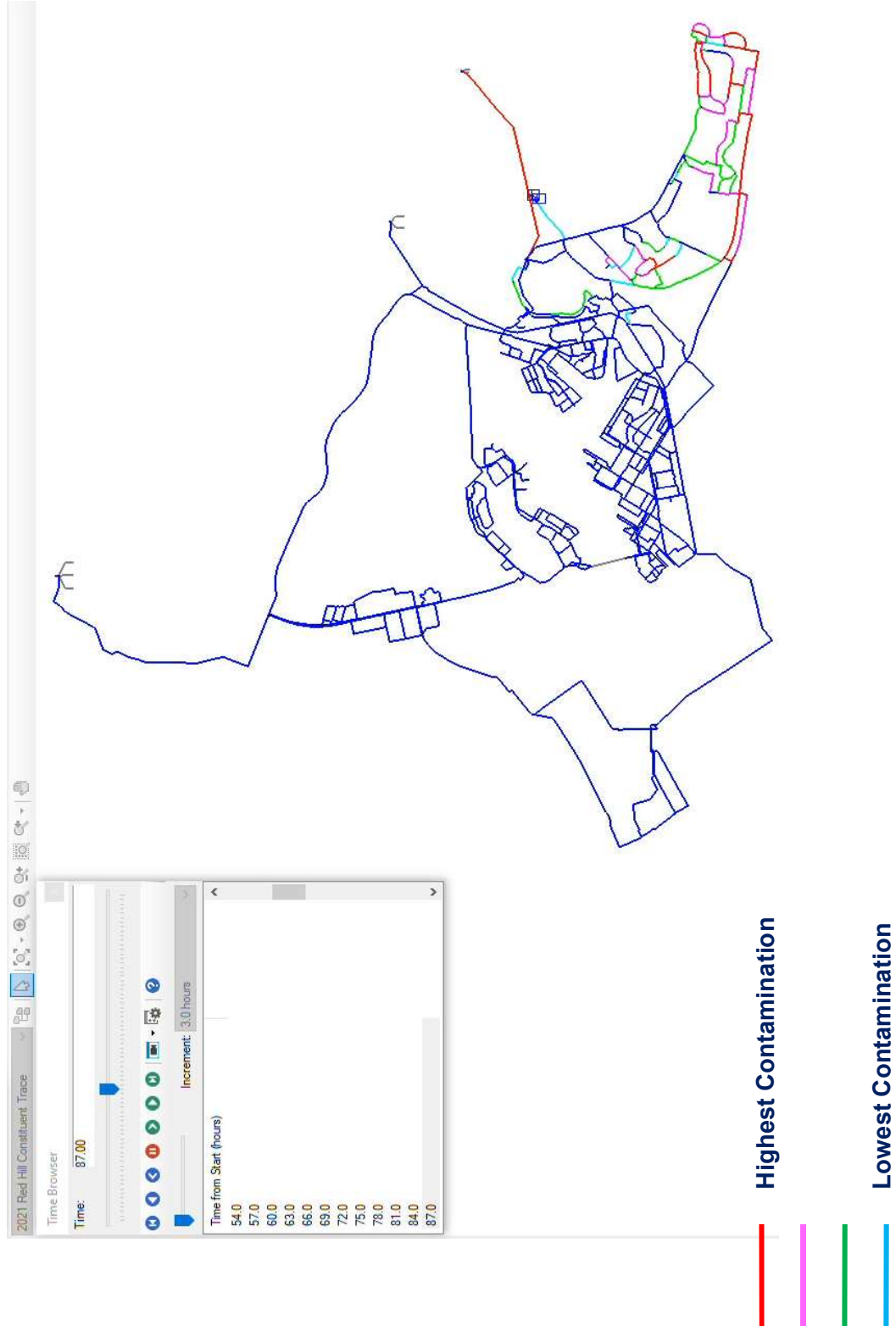


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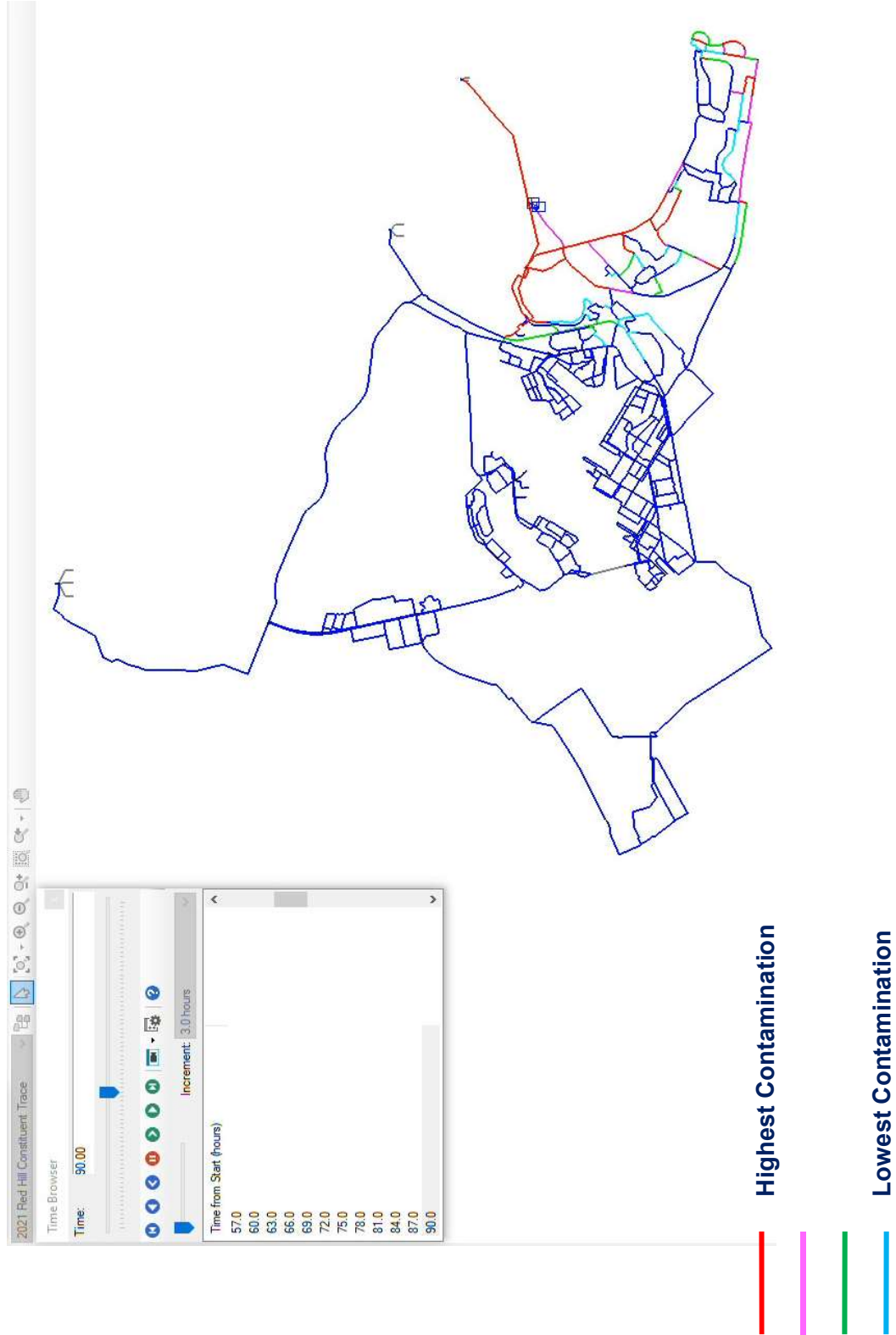


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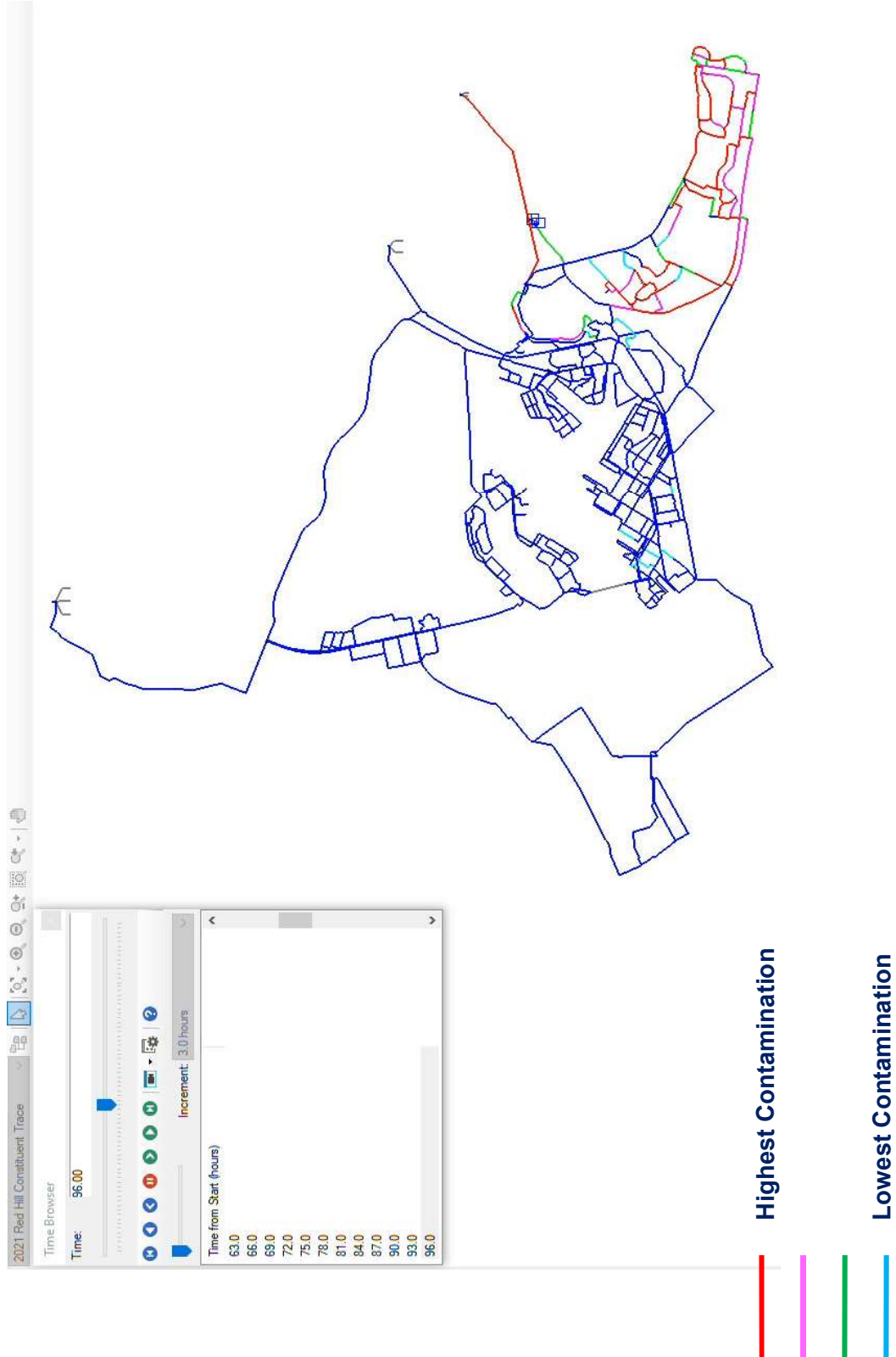


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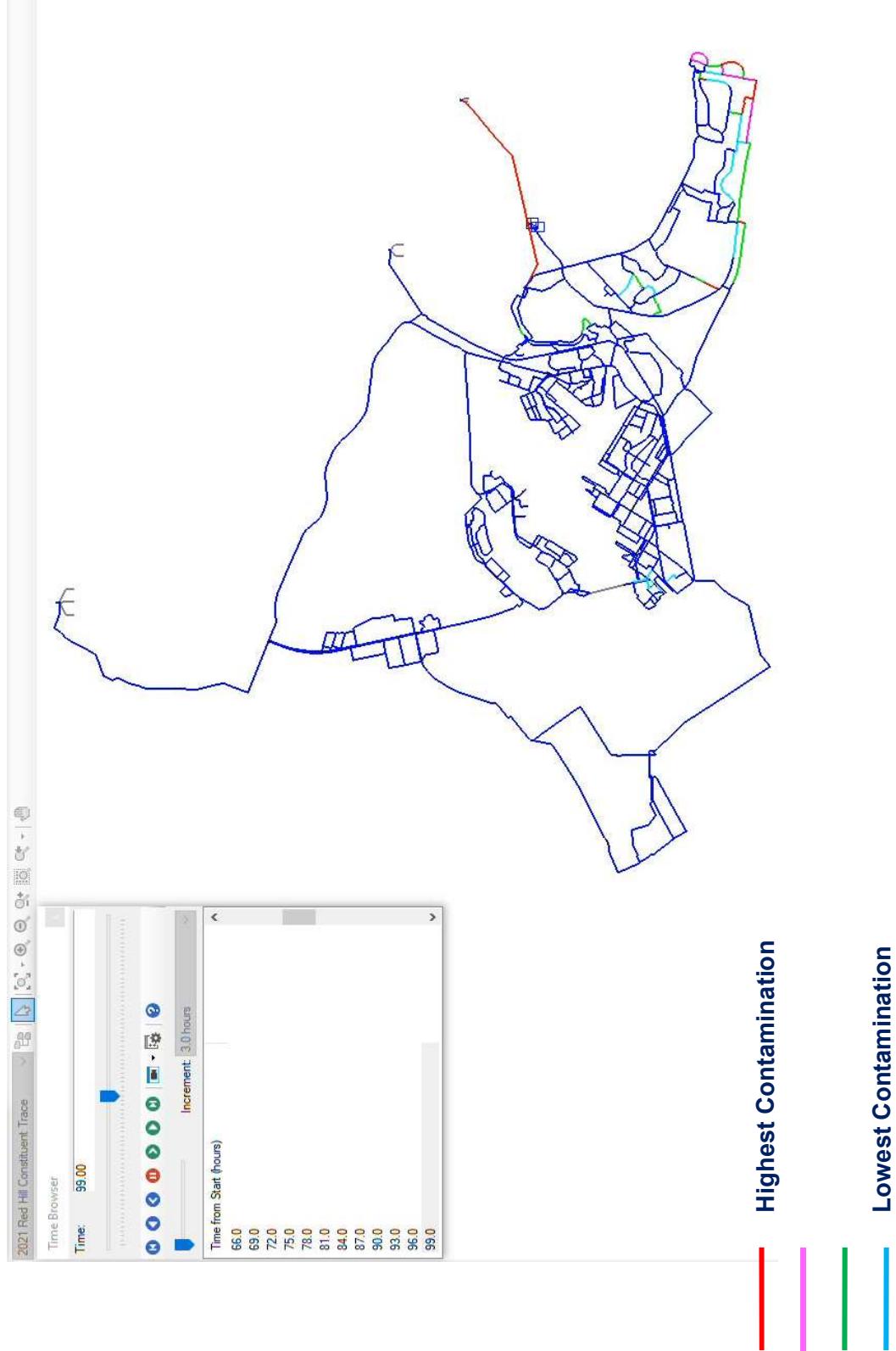


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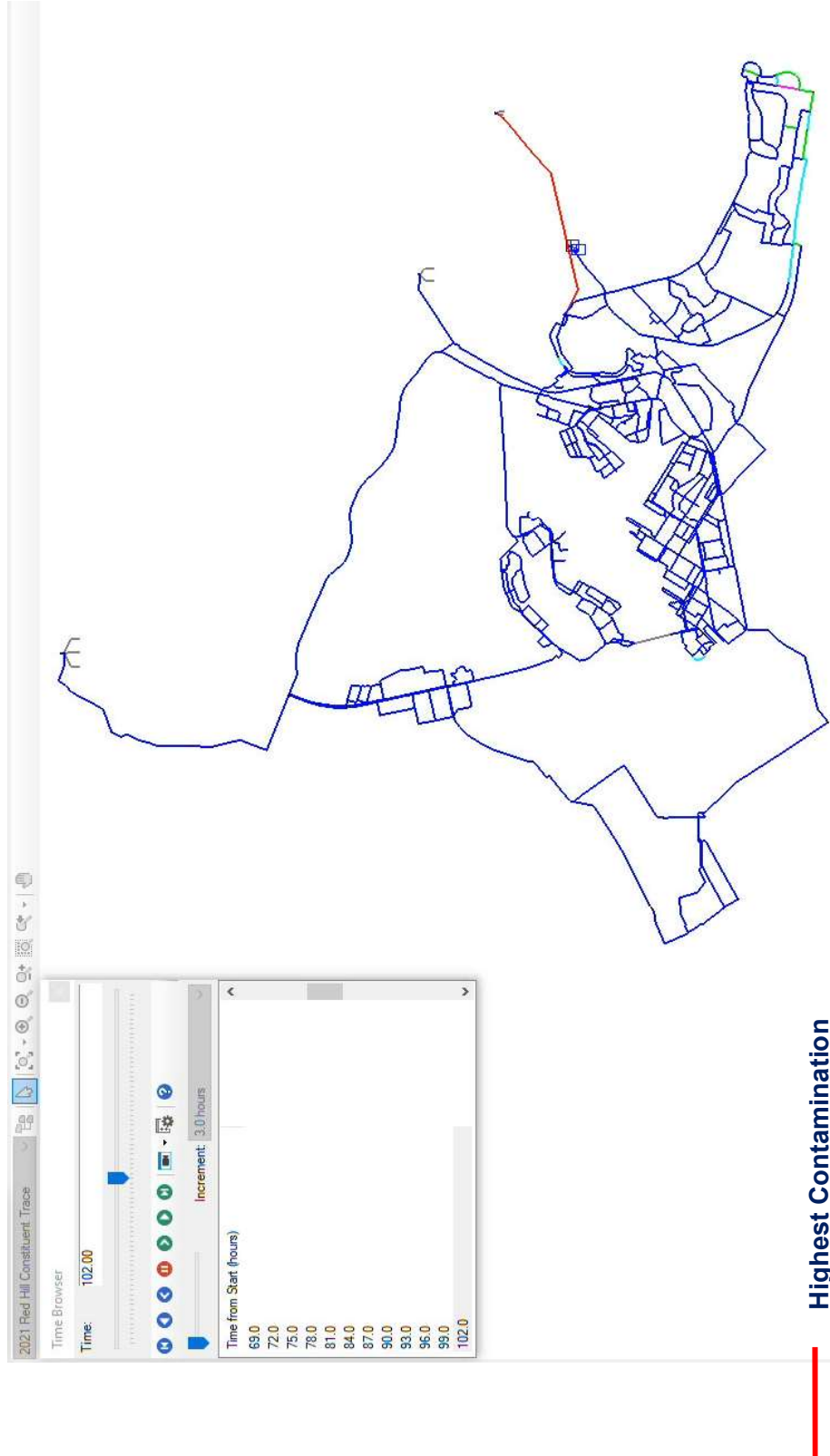


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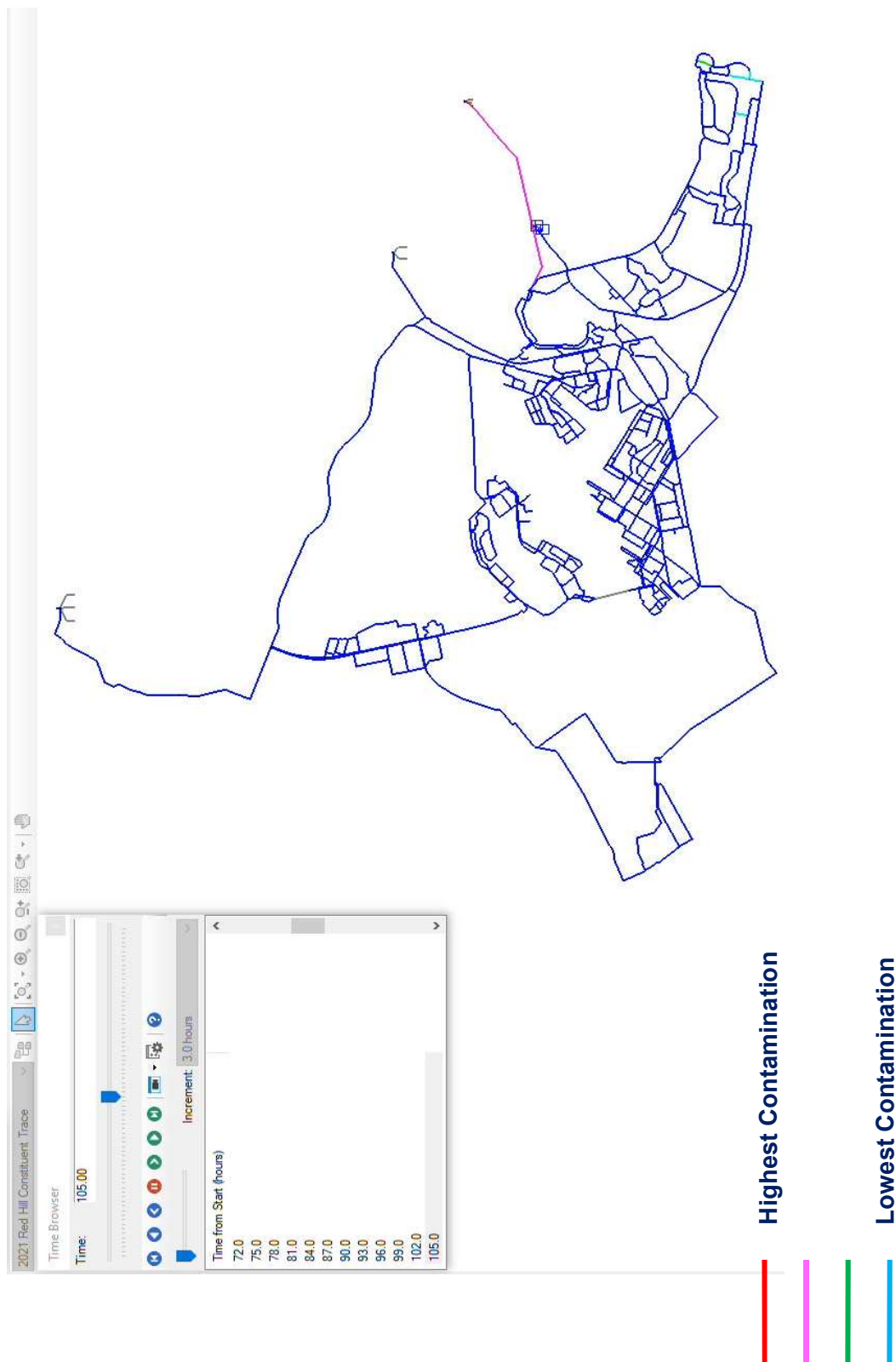


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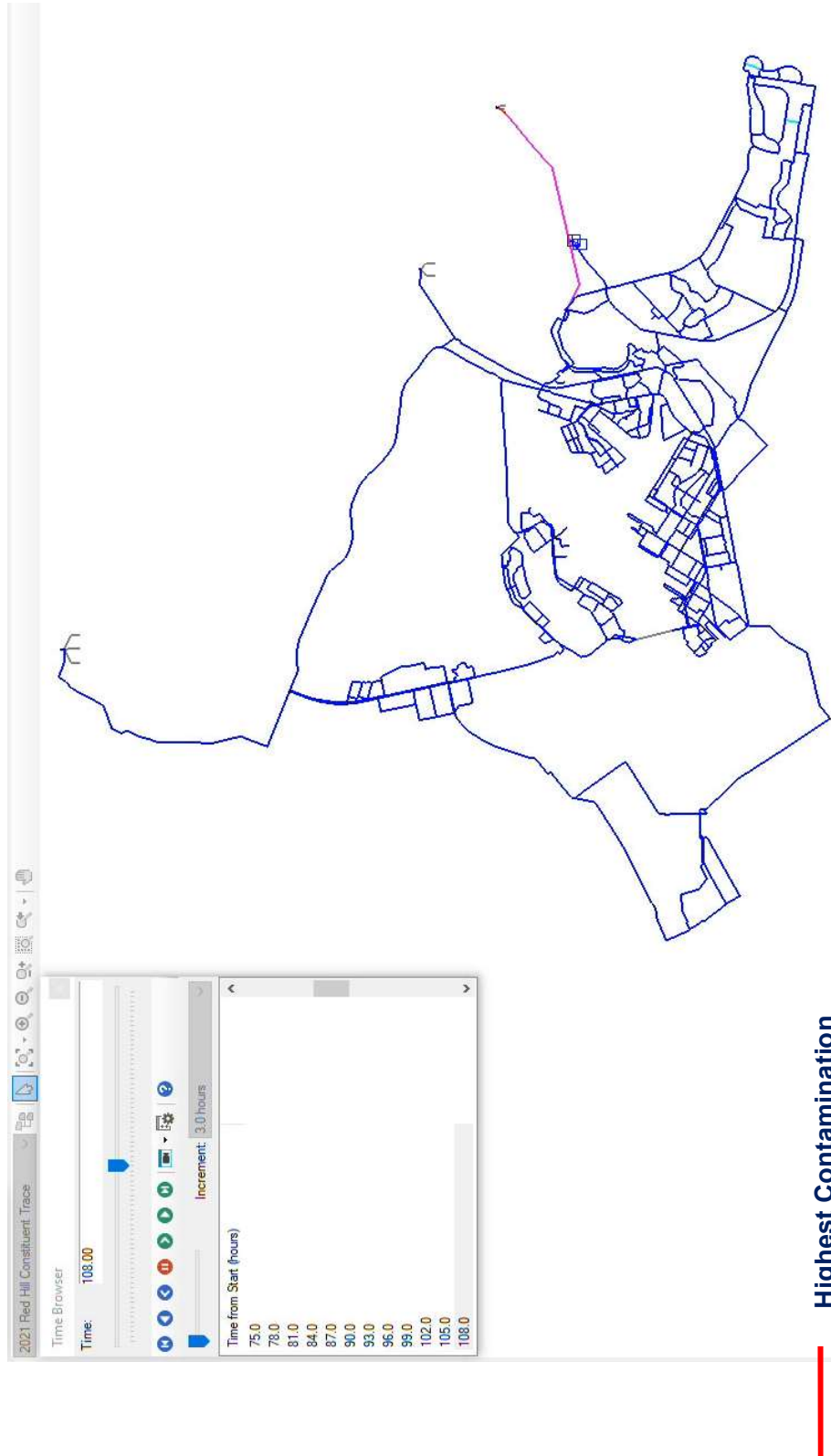


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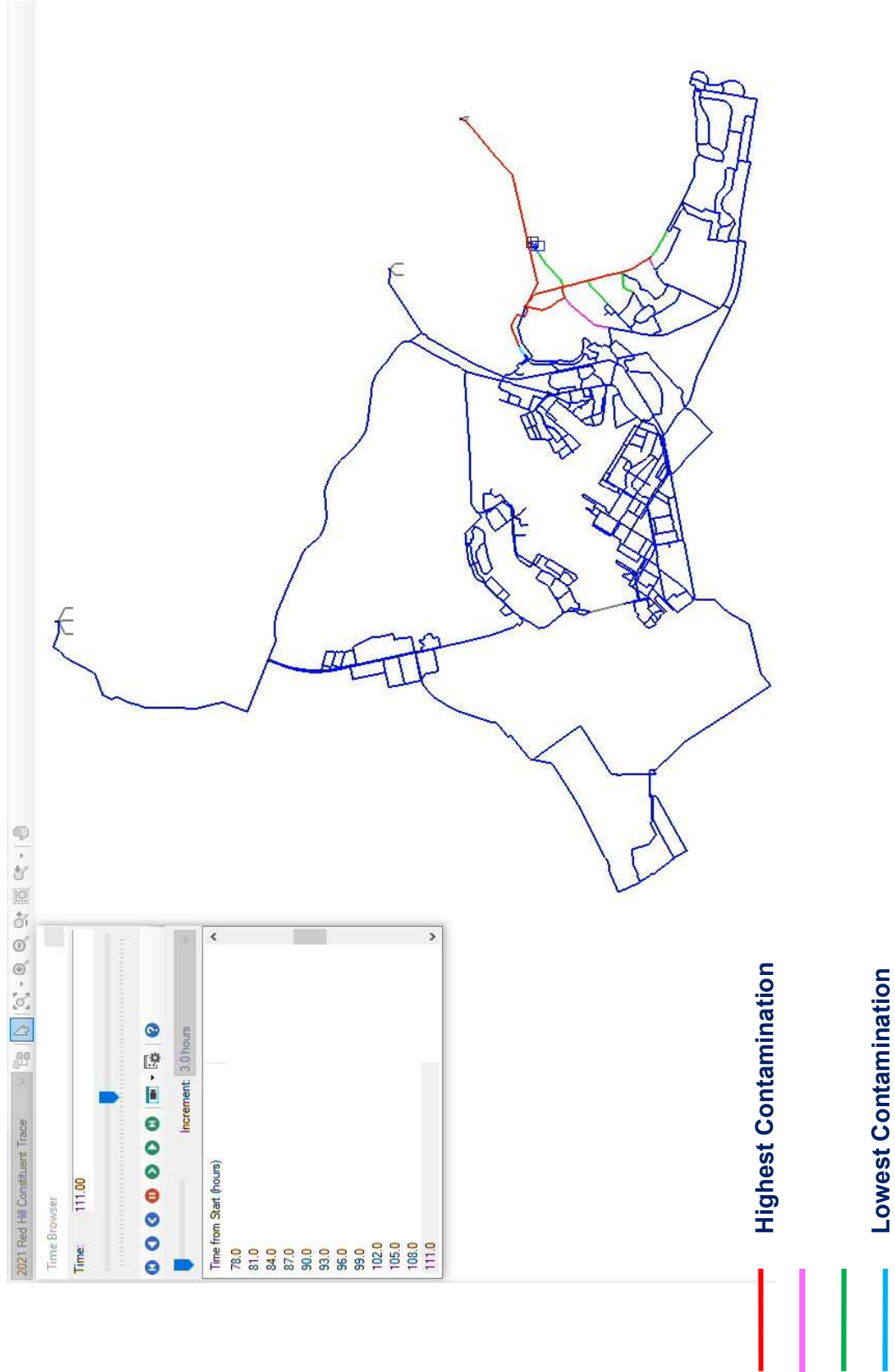




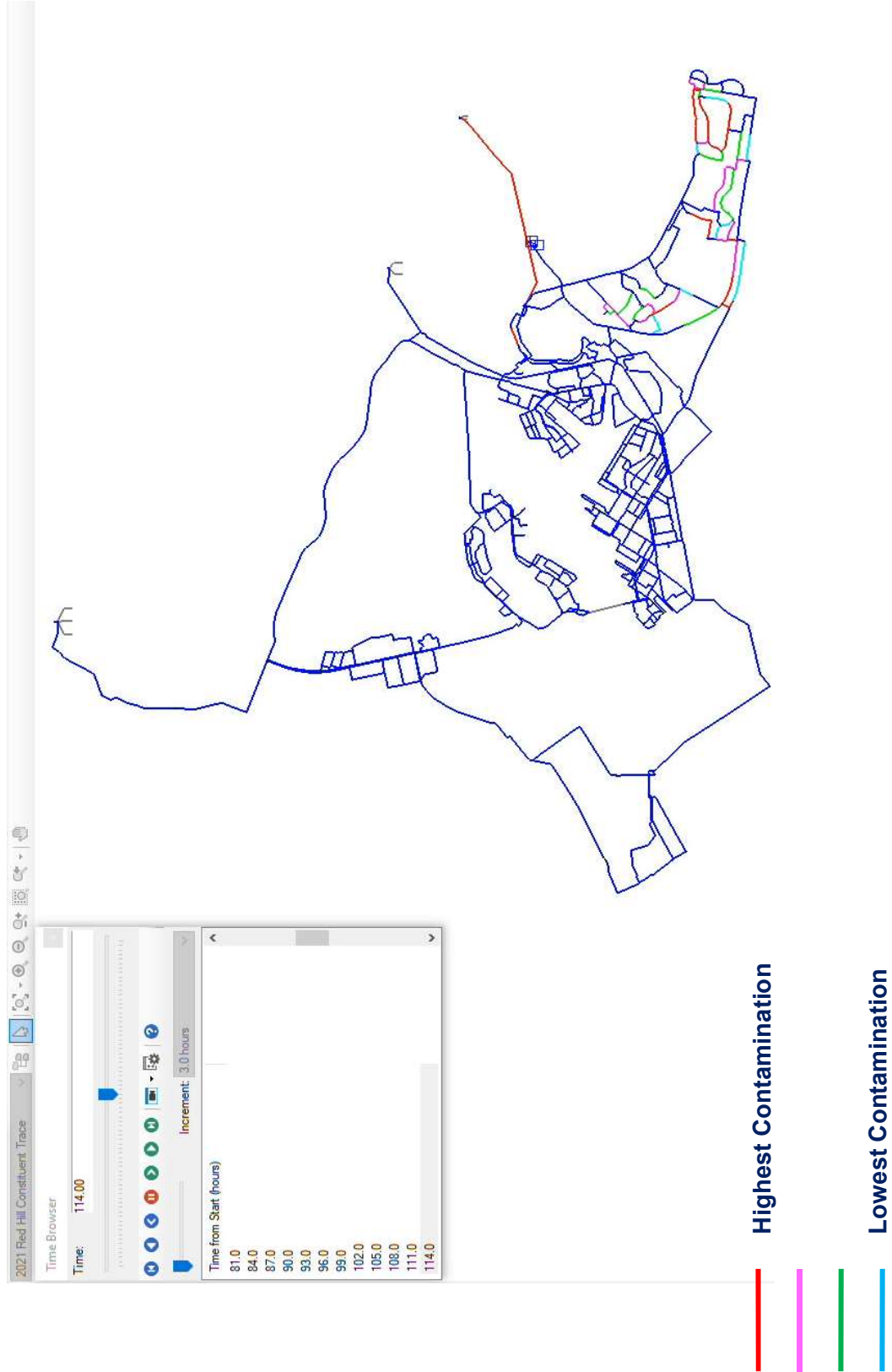
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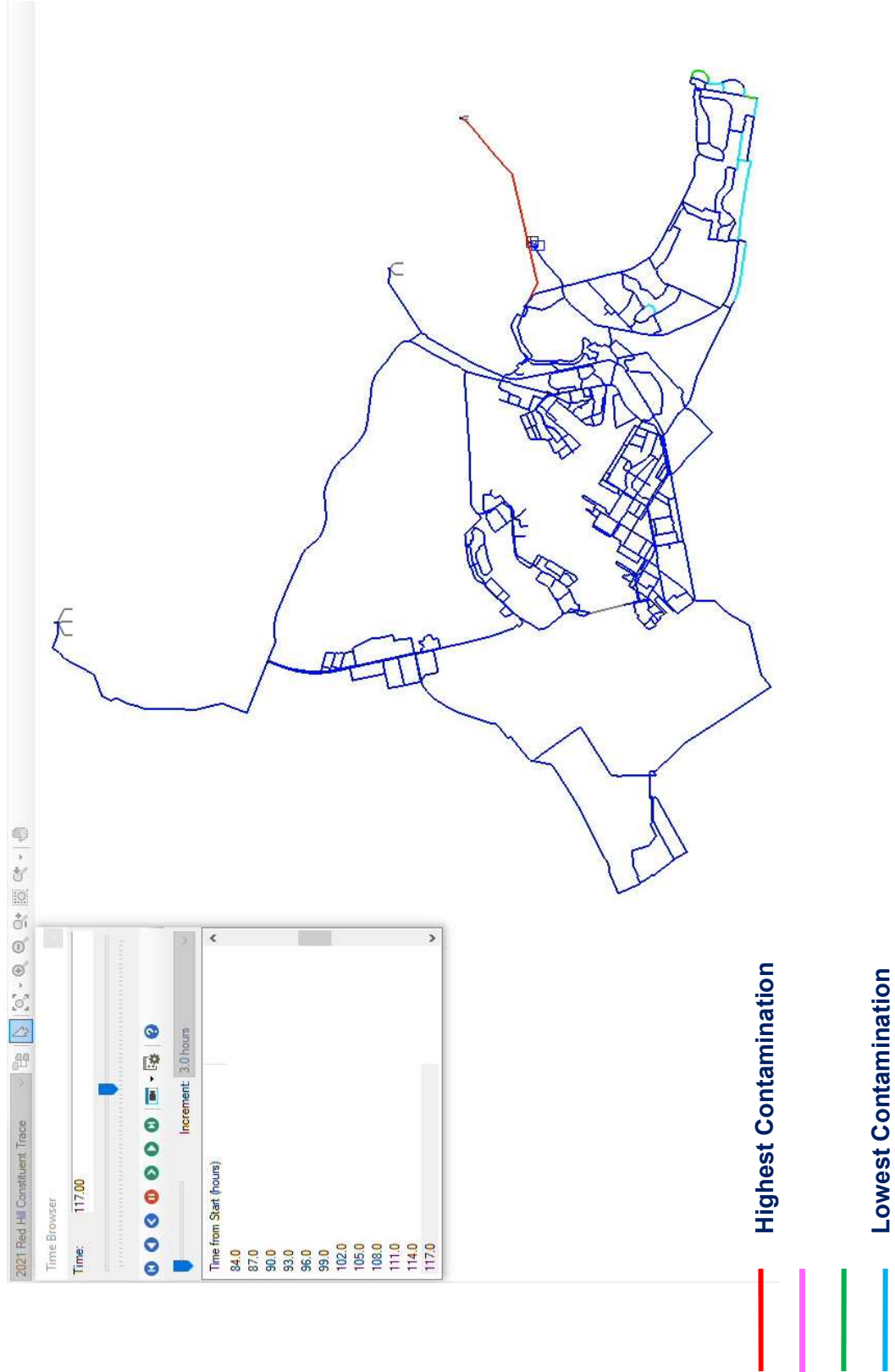


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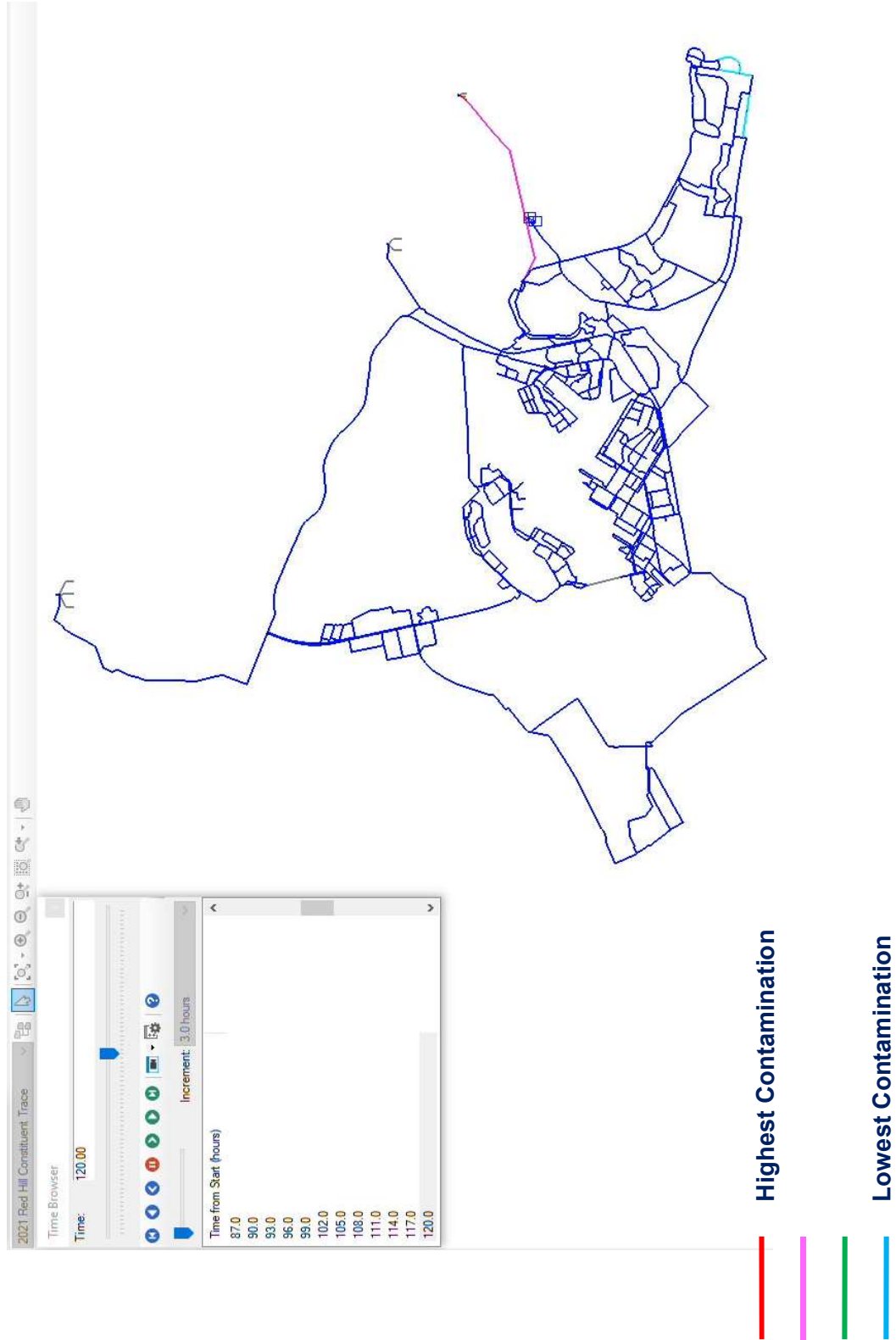


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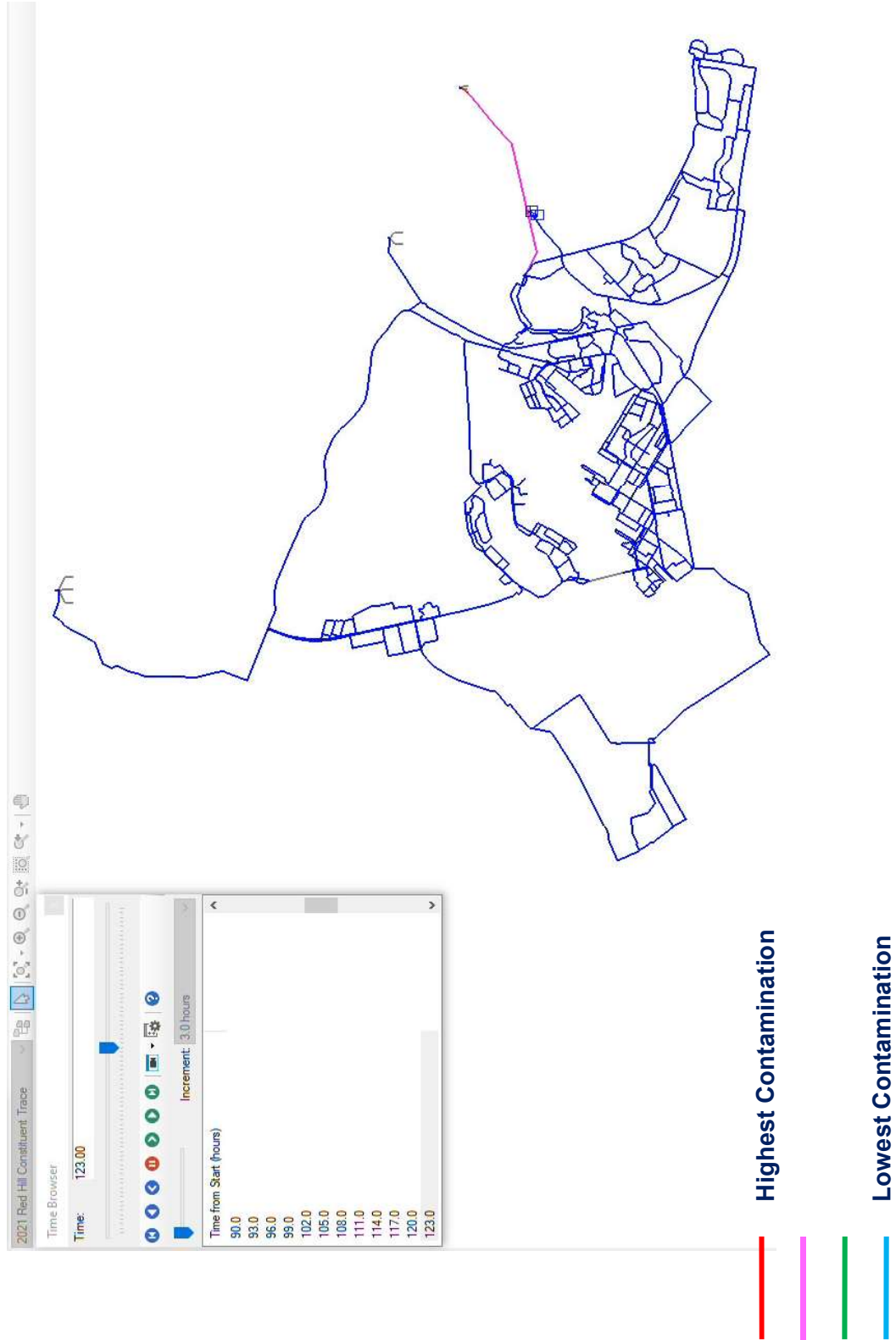


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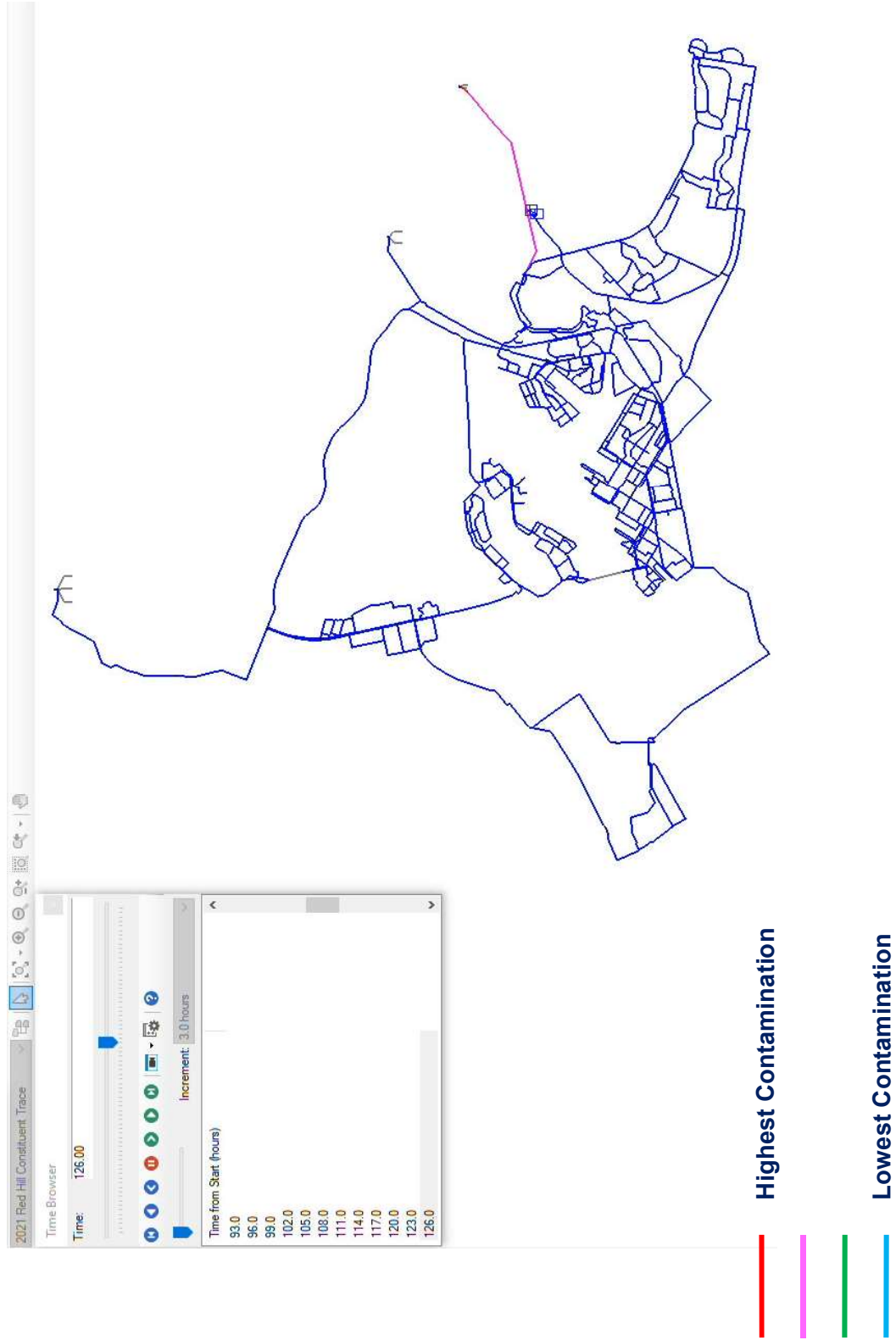




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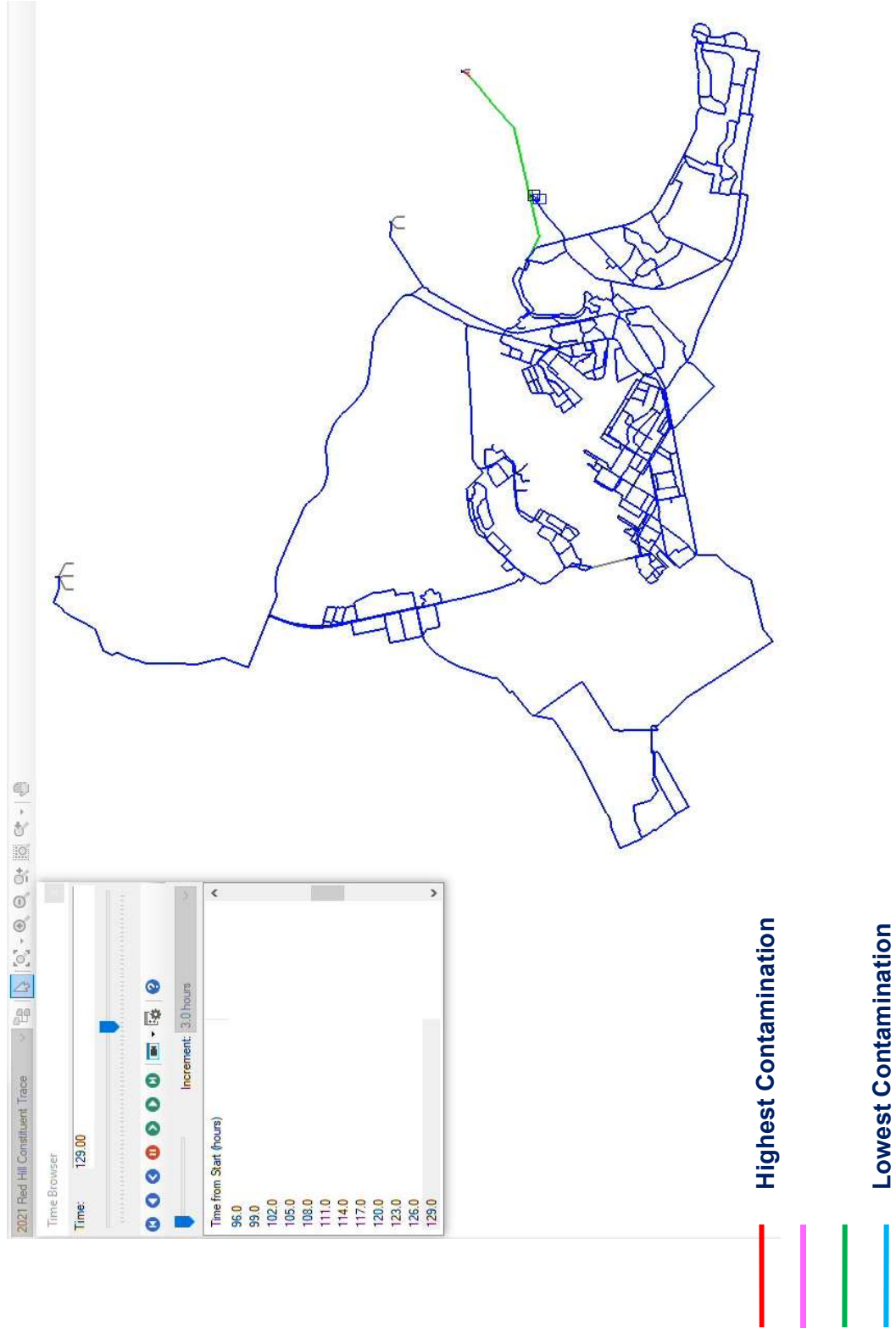


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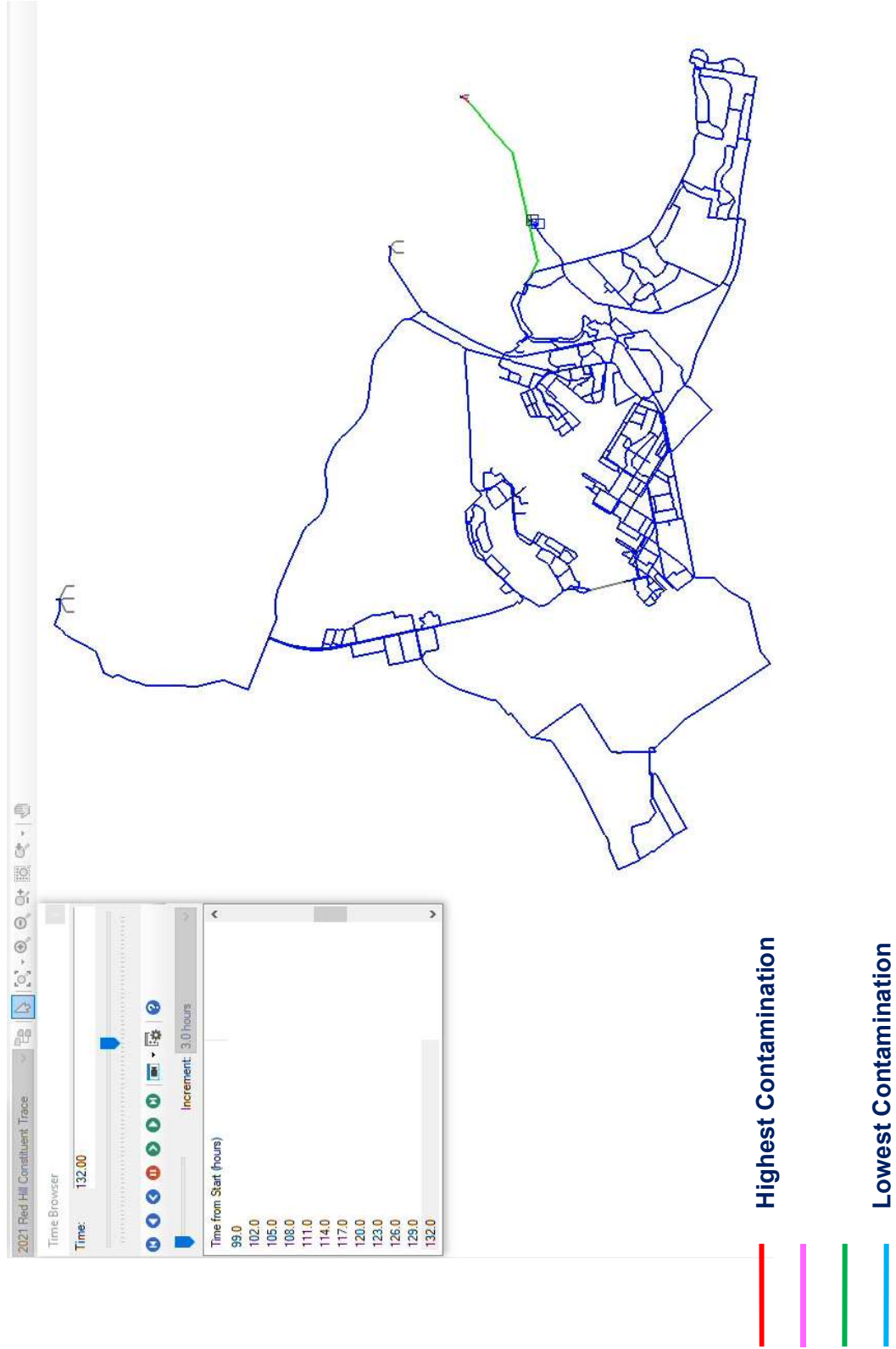




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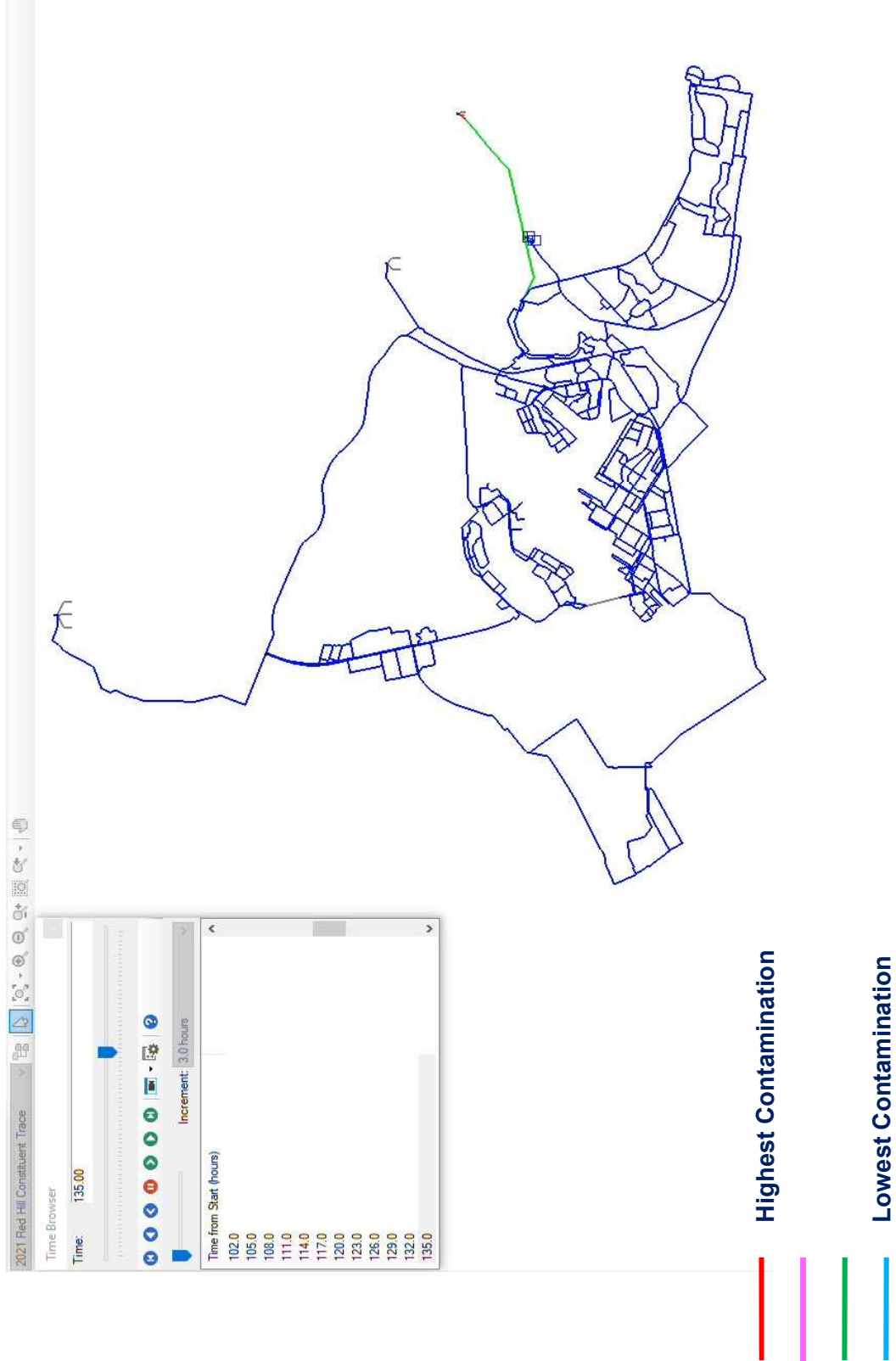


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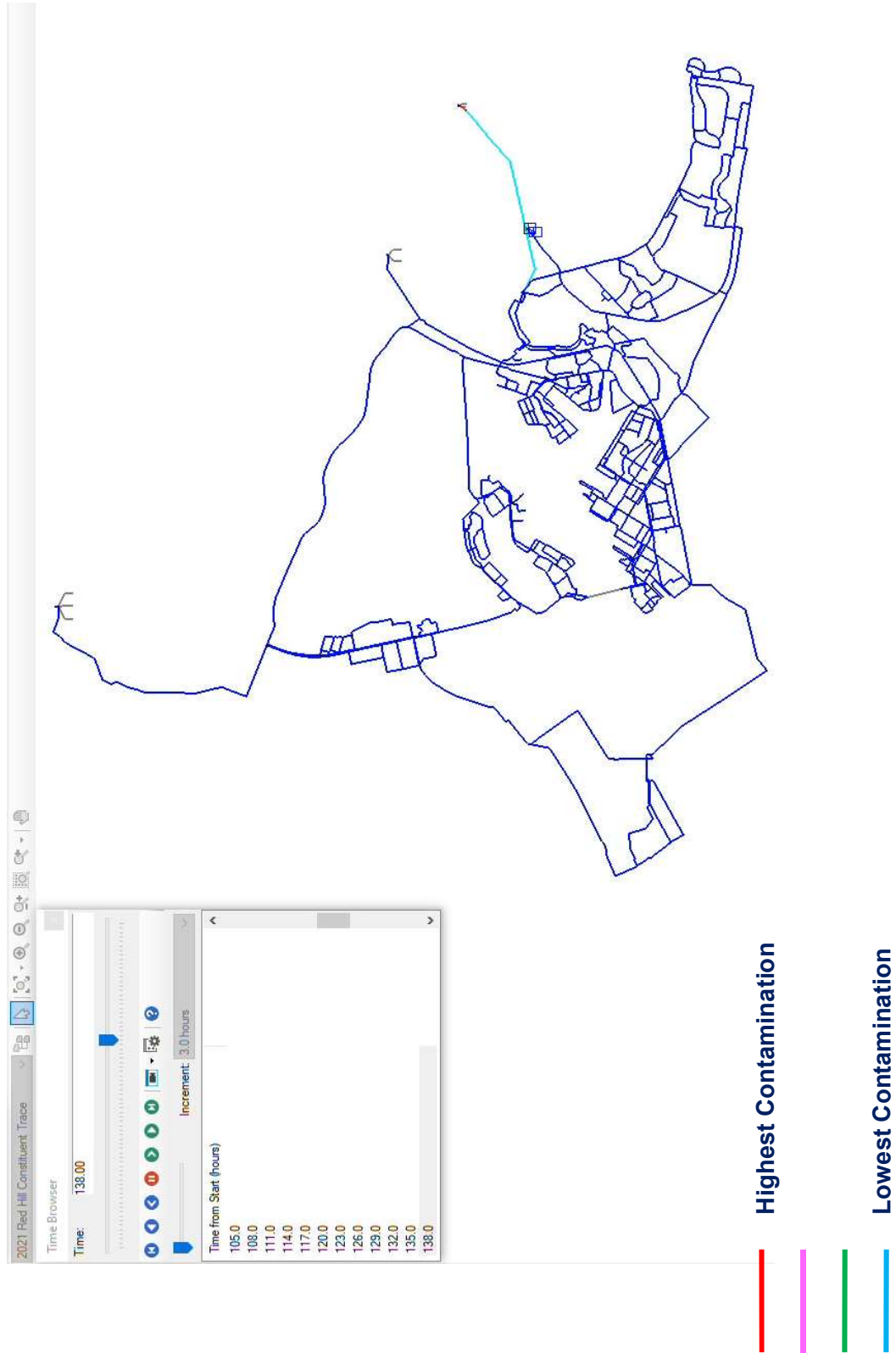


JBP HH Hydraulic Model





JBP HH Hydraulic Model



1 March 2022

MEMORANDUM

From: Naval Facilities Engineering Systems Command Representative, EWG Team
To: Interagency Drinking Water System Team

Subj: RECORDS OF COMPLETED DISTRIBUTION SYSTEM FLUSHING ZONE C2

Ref: (a) Drinking Water Distribution System Recovery Plan, December 2021

Encl: (1) Distribution System Flushing Records Zone C2

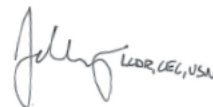
1. The completed records as shown in Enclosure (1), document the flushing of 8 hydrants in Zone C2 in accordance with Reference (a).
2. Field logs documenting the completion of the distribution flushing are summarized below demonstrate fulfillment of the criterion established in Reference (a):

Hydrant Location ID	Discharge Location Type	Flushed Volume (gallons)
123	Storm Drain	199,400
214	Storm Drain	269,200
225	Land Application	155,600
243	Land Application	63,200
300	Storm Drain	254,600
315	Storm Drain	249,400
318	Storm Drain	242,600
337	Storm Drain	228,200

Total: 1,662,200 gallons

3. Zone C2 was required to flush 500,000 gallons per Reference (a), para 2.5.3.2, which was exceeded.

Very respectfully,



DALY,JOHN.FRANCIS.III.136
5462468
2022.03.01 11:06:28 -10'00'

J. F. DALY III
LCDR, CEC, USN

TABLE OF CONTENTS

Section A - Utilitiesmen Flushing Log Roll-up

Section A contains a summary of the information from the Utilitiesmen log books and a calculation of the volume of water flushed based on actual times.

Section B - Utilitiesmen Log During Volumetric Exchange

Section B contains the scanned Navy log books that recorded location and time of flushing during distribution system flushing.

Section C – Officer in Charge of Flushing Daily Report

Section C contains the Officer in Charge of Flushing's daily report to his chain of command summarizing information received from the field.

123	Shift		Flush Time		Documentation	
	Date	Begin	End	Start	RunTime	UT Log
	4-Jan	8:00	20:00	16:40	3:20 20220104 0800-2000	Y
	4-Jan	20:00	8:00		12:00 20220104 2000-0800	N/A
	5-Jan	8:00	20:00	9:17	1:17 20220105 0800-2000	Y
<div> TOTAL RUN @ FLOW of 200 TIME 16:37 VOLUME 199400 Gallons </div>						

214	Shift		Flush Time		Documentation	
	Date	Begin	End	Start	RunTime	UT Log
	6-Jan	8:00	20:00	10:04	9:56 20220106 0800-2000	Y
	6-Jan	20:00	8:00		12:00 20220106 2000-0800	N/A
	7-Jan	8:00	20:00	8:30	0:30 20220107 0800-2000	Y
<div> TOTAL RUN @ FLOW of 200 TIME 22:26 VOLUME 269200 Gallons </div>						

225	Shift		Flush Time		Documentation	
	Date	Begin	End	Start	RunTime	UT Log
	6-Jan	20:00	8:00	20:06	11:54 20220106 2000-0800	Y
	7-Jan	8:00	20:00		1:04 20220107 0800-2000	Y
<div> TOTAL RUN @ FLOW of 200 TIME 12:58 VOLUME 155600 Gallons </div>						

243	Shift		Flush Time		Documentation	
	Date	Begin	End	Start	RunTime	UT Log
	6-Jan	8:00	20:00	12:50	5:16 20220106 0800-2000	Y
<div> TOTAL RUN @ FLOW of 200 TIME 5:16 VOLUME 63200 Gallons </div>						

300	Shift		Flush Time		Documentation	
	Date	Begin	End	Start	RunTime	UT Log
	5-Jan	8:00	20:00	13:47	6:13 20220105 0800-2000	Y
	5-Jan	20:00	8:00		12:00 20220105 2000-0800	N/A
	6-Jan	8:00	20:00	11:00	3:00 20220106 0800-2000	N
<div> TOTAL RUN @ FLOW of 200 TIME 21:13 VOLUME 254600 Gallons </div>						

315	Shift		Flush Time		Documentation	
	Date	Begin	End	Start	RunTime	UT Log
	5-Jan	8:00	20:00	13:46	6:14 20220105 0800-2000	N
	5-Jan	20:00	8:00		12:00 20220105 2000-0800	N/A
	6-Jan	8:00	20:00	10:33	2:33 20220106 0800-2000	Y
<div> TOTAL RUN @ FLOW of 200 TIME 20:47 VOLUME 249400 Gallons </div>						

318		Shift		Flush Time		Documentation	
Date	Begin	End	Start	Stop	RunTime	Email Summary	UT Log
5-Jan	8:00	20:00		13:47		6:13 20220105 0800-2000	Y
5-Jan	20:00	8:00				12:00 20220105 2000-0800	N/A
6-Jan	8:00	20:00		10:00		2:00 20220106 0800-2000	Y
TOTAL RUN @ FLOW of 200							
		TIME	20:13				
		VOLUME	242600	Gallons			

TOTAL RUN @ FLOW of 200	
TIME	20:13
VOLUME	242600
Gallons	

337		Shift		Flush Time		Documentation	
Date	Begin	End	Start	Stop	RunTime	Email Summary	UT Log
6-Jan	8:00	20:00		14:00		6:00 20220106 0800-2000	Y
6-Jan	20:00	8:00				12:00 20220106 2000-0800	N/A
7-Jan	8:00	20:00		9:01		1:01 20220107 0800-2000	Y
TOTAL RUN @ FLOW of 200							
		TIME	19:01				
		VOLUME	228200	Gallons			

TOTAL RUN @ FLOW of 200	
TIME	19:01
VOLUME	228200
Gallons	

Hydrant	Volume
123	199,400
214	269,200
225	155,600
243	63,200
300	254,600
315	249,400
318	242,600
337	228,200
TOTAL	1,662,200

3 JAN 32

04 JAN 2022

1306	13	- OPENED	0001	START @ FNEW DAY.
1317	606	- OPENED	0211	FH-542 OPENED.
1325	21	- OPENED	0334	FH G1 18 CLOSED DUE TO FLOODING.
1346	ARMY	WATCH ON SITE.	0345	FH G1 26 CLOSED DUE TO FLOODING
1351	11A	- OPENED	0450	WATER LEVEL 34.1
1405	26	(C.S.) OPENED.	0530	SUBMITTED LOGBOOK ENTRIES TO EOC
1500	51	ACTIVATED	0630	UT RHINE NEGATED DATES ASSUMED
1431	191	ACTIVATED	0915	F/H 26 (C.S.) OPENED
1530	UT RHINE	RELIEVED AS DUTY UT. VIZ DOMANSKI ASSUMED	0900	TESTED AECOM W/ TESTING ON
1642	FH-36A	OPEN.	445-442	
1700	FH-191	CLOSED DUE TO FLOODING STREET.	0935	ASSISTED AECOM W/ TESTING ON
1750	WATER	LEVEL 29.9'	465	
1919	WATER	LEVEL 27.8'	0950	ASSISTED W/ TESTING ON-410
1940	FH-410	OPEN.	1033	RECEIVED WORD TO SHUT ALL SITES
2000	FH-465	OPEN.	1040	DOWN DUE TO FLOODING.
2100	FH-800		1040	SHUT DOWN 606g
2100	FH-191	OPEN.	1015	SHUT DOWN 410
2245	UT DOMANSKI	RELIEVED BY UT 3TIVFERMANN	1215	SHUT OFF FH18(FI)
2334	FH-442	OPENED BY CONTRACTORS.	1315	RECEIVED WORD TO START HYDRANTS
2359	END	OF DAY.	1400	STARTED 476.
			1425	STARTED FLOODING SHUT OFF-476
			1450	STARTED 48
			1456	STARTED 13
			1540	STARTED 26 (C.S.)
			1500-1505	STARTED TESTING ON 78.13
			1622	UT DOMANSKI ASSUMES DUTY UT. VIZ RHINE PROPERLY RELIEVED
			1640	FH-123 OPEN.
			1700	FH-1705 OPEN. FH-542 OPEN.

NETED
UT (C.S.)
STIVFERMANN

045AN22

05 JAN 2022

1746	WATER LEVEL 28"	0046	START OF NEW DAY,
1750	FH-535 OPEN.	0030	START RAVE,
1805	FH-143 OPEN.	0150	OPEN FH 812, VCC/EOC NOTIFIED.
1837	FH-535 OPEN. FH-542	0251	CLOSED FH 812. WATER AT TOP
1853	FH-50 OPEN.		OF SEWER, VCC/EOC NOTIFIED.
1910	FH-26 "G" CLOSED, DUE TO FLOODING.	0427	CLOSED FH 143 DUE TO FLOODING.
2019	FH-8103 OPEN.		VCC/EOC NOTIFIED.
2019	FH-812 OPEN. CHANGED FROM 23.	0507	HYDRANT 26 OPENED, VCC/EOC NOTIFIED.
2039	FH-801 MOVED TO 803 OPEN.	0522	WATER LEVEL 53.8'
2040	FH-804 MOVED TO 805 OPEN.	0530	LOGBOOK ENTRIES SUBMITTED TO EOC
2043	BACK LOG TO 1543. - FH-503 OPEN	0640	UT1 RHINE ASSUMES DUTIES AS ADJUT.
2057	1700 "BACK LOG" - FH-476 OPEN	0700	CHECKS IN AT VCC
2126	FH-302 OPEN	0730	RESERVED CALL 542 FLOODING OUT.
2212	FH-512 MOVED TO FH-511. OPEN.	0740	ARRIVED AT SITE, CLOSED 542, SENT WARNING
2250	FH-812 CLOSED, DUE TO FLOODING. WASTE WATER		TO VCC,
	WILL COME TO CLEAR LINE IN MORNING.	0817	503 SHUT DOWN
2300	UT2 DOMANSKY RELIEVED BY UT1 STILL FERRAR	0936	535 SHUT DOWN
2359	END OF DAY.	0917	123 SHUT DOWN
		1917	476 SHUT DOWN
		1024	143 SHUT DOWN
		1035	FH 14 (EZ) OPEN
		1042	FH 14 (EZ) OPEN
		1124	FH 13 SHUT DOWN
		1131	FH 504 SHUT DOWN
		1142	FH 8103 SHUT DOWN
		1151	FH 805 SHUT DOWN
		1206	FH 803 SHUT DOWN

NOTED
 41 (FERRAR)
 STEVEN FERRAR

5 JAN 22

05 JAN 2022

1210	CAUSED TO OPEN FH7.	1245	UT DOMANSKI RELIEVED BY UT STIEFFERMAN
1215	AT FUEL HYDRANT 7, NO HOSE ON SITE, ASLON, DEPT SAN STATION ON SITE.	2350	END OF DAY.
1305	NAVFA BRUNG HOSES, TESTING BELOP 100 G.P.M.		
1334	FH17 OPENED.		
1345	ARRIVE AT FH25, NO ASLON ON SITE FOR TESTING.		
1420	ASLON ARRIVES, CONDUCTS TESTING.		
1347	300# 318 OPERATIONAL.		
1425	FH25 OPERATIONAL.		
1442	FH38 IS OPERATIONAL.		
1443	FH382 CLOSED.		
1444	FH812 CLOSED.		
1505	FH511 CLOSED.		
1530	UTZ DOMANSKI ASSUMES DUTIES AS UT.		
1542	UT DOMANSKI ASSUMES DUTY UT. UTILITINE RELIEVED IN DUTY UT.		
1622	WATER LEVEL 28'.		
1652	FH-457 OPEN.		
1715	FH-7 CLOSED DUE TO FLOOD ADVISORY.		
1722	FH-25 CLOSED DUE TO FLOOD ADVISORY.		
1746	FH-926, START UP ATTEMPTED, LEAKING CAN LOCK AS WELL AS CLOGGED STORM DRAIN.		
1840	FH-926 OPEN, SITE TESTED.		
1921	FH-7 OPEN.		
1940	FH-25 OPEN.		

NFETP
UT (Gen/Ext) STIEFFERMAN

06 JAN 2022

08001	START OF NEW DAY.	06 JAN 2022	
0145	START RIVE.	1146	TURNED OFF 179 FOR FLOODING.
0317	WATER LEVEL 34'	1147	TRACED NEW STORM DRAIN, PERMANENT DISCHARGE.
03			
0450	FH 168 CLOSED DUE TO LACK OF PERSONNEL WITH FLIGHTLINE ACCESS.	1204	TURNED ON 179.
	UCC NOTIFIED, LT CARZ NOTIFIED.	1201	931 REPORTED FLOODING.
0530	LOGBOOK SUBMITTED TO EOC.	1202	TURNED OFF 931.
0645	UT STIEFFERMANN RELIEVED BY UT RHINE.	1152 LL	457 SHUT DOWN
0700	CHECKED IN AT UCC	1215	TURNED ON 4 FOR TESTING.
0729	931 OPENED	1238	TURNED ON 4 FOR 2000 GPM.
0805	924 SHUT DOWN	1240	TURNED OFF 4 DUE TO WATER FLOOD FROM TOP OF GAL.
0807	APPROVED AT 931 TO WAIT FOR WATCH STANDARDS.	1250	243 ON.
0840	ARMY ARRIVED AT 931	1400	TURNED ON 337. NO WATCHES ON SITE.
0840	14 SHUT DOWN	1420	WATCHES ARRIVE; DUTY UT DEPARTS.
0854	5 SHUT DOWN	1500	UT/DOMANSHI ASSUMES DUTY UT. TURBINE REVIEWED AT DUTY UT.
0857	924 SHUT DOWN	1540	FH-931 CLOSED. DUE TO FLOODING.
0900	19 SHUT DOWN	1600	FH-7 CLOSED.
0932	33 SHUT DOWN	1640	FH-25 CLOSED.
1000	318 SHUT DOWN	1712	FH-942 OPEN.
UCC 0931	927 OPEN	1725	FH-488 CONTACT INFO: MIKE-(789) 289-4118
1004	214 OPENED. CALL 220-2746 FOR ACCESS	1802	FH-230 OPEN.
		1806	FH-243 CLOSED, DUE TO FLOODING.
1033	1315 SHUT DOWN	1840	FH-3 OPEN.
1104	TURNED ON 179 FOR TESTING	1920	FH-111 OPEN.
1145	TURNED ON 179 2000 GPM.	1950	FH-488 OPEN.
		2006	FH-725 OPEN.
		2245	FH-18 A2 OPEN.

06 JAN 2022

07 JAN 2022

1900	UT DOMANSKI RELIEVED BY UT STIEFERMANN	0641	START OF NEW DAY,
2359	END OF DAY.	0628	HYDRANT 26 CLOSED DUE TO FLOODING
		0303	WATCH STANDER AT HYDRANT 26 REPORTS
			STILL FLOODING,
		0315	WATER LEVEL 36'
		0440	WATCH STANDER REPORTED FLOODING
			STOPPED AT FH-26.
		0445	HYDRANT 488 CLOSED, SCHEDULED CLOSE,
		0522	FH-26 OPEN, ULL NOTIFIED.
		0530	LOGBOOK ENTRIES SUBMITTED TO
			BOC,
		0645	UT STIEFERMANN RELIEVED BY UT RUINE,
		0700	CHECKS IN AT ULL
		0830	214 SHUT DOWN
		0833	243 SHUT DOWN
		0901	337 SHUT DOWN
		0904	225 SHUT DOWN
		0910	111 SHUT DOWN
		0948	637 OPEN
		0956	933 SHUT DOWN
		0959	ARMY OPSITE 637 FOR WORK
		1015	236 SHUT DOWN
		1015	567 OPEN
		1021	230 SHUT DOWN
		1042	942 SHUT DOWN
		1043	637 OFF DUE TO TOO HIGH PH
		LE 759	26 SHUT DOWN

UT STIEFERMANN
UT RUINE
UT DOMANSKI

7 JAN 22

1109	✓ 3 SHUT DOWN
1132	✓ 4 SHUT DOWN
1142	✓ 18 SHUT DOWN
1207	✓ 179 SHUT DOWN
1400	✓ 946 OPEN
1530	✓ 8 OPEN
1613	✓ WATCH ON
1634	✓ 86 OPEN
1617	✓ 5 OPEN
1704	✓ 34 OPEN
1715	✓ 56 CLOSED
1644	✓ 2 OPENED
1700	✓ 950 OPENED
N/A	✓ BETWEEN 1700-1830 129, 135, 128
1847	✓ AND 119 ON
1847	✓ 2 CLOSED REOPEN WHEN 2086
1900	✓ WATCH GETS ON 2087#
2015	✓ UTZ DORANGEH ASSUMES DUTY UT. UT. ALINE RELIEVED AS DUTY UT.
2015	✓ FH-11 OPEN, (PM-2)
2100	✓ FH-11 CLOSE (PM-2)
2224	✓ FH-129, FH-109, FH-135, FH-108, FH-11
2224	✓ FH-945 CLOSED
2245	✓ FH-5 CLOSED
2255	✓ FH-8 CLOSED
2308	✓ FH-950 CLOSED
2308	✓ FH-567 CLOSED
2345	✓ FH-637 CLOSED
2350	✓ UTZ ZIEHLING, K1 ASSUMES DUTY UT. UT. DORANGEH RELIEVED

2359

END OF DAY.

N.F.E.T.P.
UTZ ZIEHLING

06 JAN 2022

08001	START OF NEW DAY.	06 JAN 2022
0145	START RQVE.	✓ TURNED OFF 179 FOR FLOODING.
0317	WATER LEVEL 34'	✓ TRACED NEW STORM DRAIN, PERMANENT DISCHARGE.
03		✓ TURNED ON 179.
0450	FH 168 CLOSED DUE TO LACK OF PERSONNEL WITH FLIGHTLINE ACCESS.	✓ 931 REPORTED FLOODING.
0530	UCC NOTIFIED, LT CAPZ NOTIFIED.	✓ TURNED OFF 931.
0645	LOGBOOK SUBMITTED TO EOC.	✓ 457 SHUT DOWN
0700	UT STIEFFERMANN RELIEVED BY UT RHINE	✓ TURNED ON 4 FOR TESTING.
0725	CHECKED IN AT UCC	✓ TURNED ON 4 FOR 2000 GPM.
0805	931 OPENED	✓ TURNED OFF 4 DUE TO WATER FLOOD FROM TOP OF GAL.
0840	924 SHUT DOWN	✓ 243 ON.
0845	PERMITS AT 931 TO WAIT FOR WATCH STANDARDS.	✓ TURNED ON 337. NO WATCHES ON SITE.
0848	ARMY ARRIVED AT 931	✓ WATCHES ARRIVE; DUTY UT DEPARTS.
0840	14 SHUT DOWN	✓ UT-DOMANSHI ASSUMES DUTY UT. TURBINE REVIEWED AT DUTY UT.
0854	5 SHUT DOWN	✓ FH-931 CLOSED. DUE TO FLOODING.
0857	924 SHUT DOWN	✓ FH-7 CLOSED.
0900	19 SHUT DOWN	✓ FH-25 CLOSED.
0932	33 SHUT DOWN	✓ FH-942 OPEN.
1000	318 SHUT DOWN	✓ FH-488 CONTACT INFO: MIKE-(789) 289-4118
1001	927 OPEN	✓ FH-230 OPEN.
1004	214 OPENED. CALL 220-2746 FOR ACCESS	✓ FH-243 CLOSED, DUE TO FLOODING.
1033	1315 SHUT DOWN	✓ FH-3 OPEN.
1104	TURNED ON 179 FOR TESTING	✓ FH-111 OPEN.
1105	TURNED ON 179 2000 GPM.	✓ FH-488 OPEN.
		✓ FH-725 OPEN.
		✓ FH-18 A2 OPEN.

3 JAN 32

1306 18 - OPENED
 1317 606 - OPENED
 1325 21 - OPENED NO WATCH ON SITE
 1346 ARMY WATCH ON SITE.
 1351 11A - OPENED
 1405 26 (C.S.) OPENED.
 1500 81 ACTIVATED
 1431 191 ACTIVATED
 1530 VTI RHINE RELIEVED AS DUTY UT. VTI DOMANSKI ASSUMES DUTY
 1642 FH-36A OPEN.
 1700 FH-191 CLOSED DUE TO FLOODING STREET.
 1750 WATER LEVEL 27.9'.
 1919 WATER LEVEL 27.8'.
 1940 FH-410 OPEN.
 2000 FH-465 OPEN.
 2100 FH-800
 2100 FH-191 OPEN.
 2245 UT² DOMANSKI RELIEVED BY UT¹ STIEFERMANN
 2334 FH-442 OPENED BY CONTRACTORS.
 2359 END OF DAY.

NETED

UT¹ (GENT) STIEFERMANN
 STIEFERMANN

04 JAN 2022

0001 START @ FNEW DAY.
 0211 FH-540 OPENED.
 0334 FH G1 18 CLOSED DUE TO FLOODING.
 0345 FH G1 26 CLOSED DUE TO FLOODING
 0450 WATER LEVEL 34.1'
 0530 SUBMITTED LOGBOOK ENTRIES TO EOC
 0630 VTI RHINE NEGOTIATES AGREEMENT
 0645 FH 26 (C.S.) OPENED
 0900 FLOODING AS COM W/ TESTING ON
 0945 442
 0935 ASSIGNED AS COM W/ TESTING ON
 0950 465
 0950 ASSIGNED W/ TESTING ON 410
 1033 RECEIVED WORD TO SHUT ALL SITES
 1040 DOWN DUE TO FLOODING.
 1040 SHUT DOWN 606;
 1015 L2. SHUT DOWN 410
 1215 SHUT OFF FH 18 (FI)
 1315 RECEIVED WORD TO START HYDRAULIC
 1400 STARTED 476.
 1425 STARTED FLOODING SHUT OFF 476
 1450 STARTED 48
 1456 STARTED 13
 1540 STARTED 26 (C.S.)
 1500-1505 STARTED TESTING ON 78.13
 1622 VTI DOMANSKI ASSUMES DUTY UT. VTI RHINE PROPERLY RELIEVED
 1640 FH-123 OPEN.
 1700 FH-1705 OPEN.
 1705 FH-542 OPEN.

045AN22

05 JAN 2022

1746	WATER LEVEL 28"	0046	START OF NEW DAY,
1750	FH-535 OPEN.	0030	START RONE,
1805	FH-143 OPEN.	0150	OPEN FH 812, VCC/EOC NOTIFIED.
1837	FH-535 OPEN. FH-542	0251	CLOSED FH 812. WATER AT TOP
1853	FH-50 OPEN.		OF SEWER, VCC/EOC NOTIFIED.
1910	FH-26 "G" CLOSED, DUE TO FLOODING.	0427	CLOSED FH 143 DUE TO FLOODING.
2019	FH-8103 OPEN.		VCC/EOC NOTIFIED.
2019	FH-812 OPEN. CHANGED FROM 23.	0507	HYDRANT 26 OPENED, VCC/EOC NOTIFIED.
2039	FH-801 MOVED TO 803 OPEN.	0522	WATER LEVEL 53.8'
2040	FH-804 MOVED TO 805 OPEN.	0530	LOGBOOK ENTRIES SUBMITTED TO EOC
2043	BACK LOG TO 1543. - FH-503 OPEN	0640	UT1 RHINE ASSUMES DUTIES AS ADJUT.
2057	1700 "BACK LOG" - FH-476 OPEN	0700	CHECKS IN AT VCC
2126	FH-302 OPEN	0730	RESERVED CALL 542 FLOODING OUT.
2212	FH-512 MOVED TO FH-511. OPEN.	0740	ARRIVED AT SITE, CLOSED 542, SENT WARNING
2250	FH-812 CLOSED, DUE TO FLOODING. WASTE WATER		TO VCC,
	WILL COME TO CLEAR LINE IN MORNING.	0817	503 SHUT DOWN
2300	UT2 DOMANSKY RELIEVED BY UT1 STILL FERRARON	0936	535 SHUT DOWN
2359	END OF DAY.	0917	123 SHUT DOWN
		1917	476 SHUT DOWN
		1024	143 SHUT DOWN
		1035	FH 14 (EZ) OPEN
		1042	FH 14 (EZ) OPEN
		1124	FH 13 SHUT DOWN
		1131	FH 504 SHUT DOWN
		1142	FH 8103 SHUT DOWN
		1151	FH 805 SHUT DOWN
		1206	FH 803 SHUT DOWN

NOTED
 (Signature)
 STEVEN HAN

5 JAN 22

05 JAN 2022

1210	CAUSED TO OPEN FH7.	1245	UT DOMANSKI RELIEVED BY UT STIEFFERMAN
1215	AT FUEL HYDRANT 7, NO HOSE ON SITE, ASLON, DEPT SANITATION ON SITE.	2350	END OF DAY.
1305	NAVFA BRUNG HOSES, TESTING BEHUB 100 G.P.M.		
1334	FH17 OPENED.		
1345	ARRIVE AT FH25, NO ASLON ON SITE FOR TESTING.		
1420	ASLON ARRIVES, COMBUST TESTING 3000 318 OPERATIONAL.		
1425	FH25 OPERATIONAL		
1442	FH38 IS OPERATIONAL		
1443	FH382 CLOSED		
1444	FH812 CLOSED		
1505	FH511 CLOSED		
1530	UTZ DOMANSKI ASSUMES DUTIES ASUT, UT.		
1542	UT DOMANSKI ASSUMES DUTY UT. UTILITINE RELIEVED IN DUTY UT.		
1622	WATER LEVEL 28'.		
1652	FH-457 OPEN.		
1715	FH-7 CLOSED DUE TO FLOOD ADVISORY.		
1722	FH-25 CLOSED DUE TO FLOOD ADVISORY.		
1746	FH-926, START UP ATTEMPTED, LEAKING CAN LOCK AS WELL AS CLOGGED STORM DRAIN.		
1840	FH-926 OPEN, SITE TESTED.		
1921	FH-7 OPEN.		
1940	FH-25 OPEN.		

NFETP
UT (Gen/Ext) STIEFFERMAN

06 JAN 2022

08001	START OF NEW DAY.	06 JAN 2022
0145	START RQVE.	✓ TURNED OFF 179 FOR FLOODING.
0317	WATER LEVEL 34'	✓ TRACED NEW STORM DRAIN, PERMANENT DISCHARGE.
03		✓ TURNED ON 179.
0450	FH 168 CLOSED DUE TO LACK OF PERSONNEL WITH FLIGHTLINE ACCESS.	✓ 931 REPORTED FLOODING.
0530	UCC NOTIFIED, LT CAPZ NOTIFIED.	✓ TURNED OFF 931.
0645	LOGBOOK SUBMITTED TO EOC.	✓ 457 SHUT DOWN
0700	UT STIEFFERMANN RELIEVED BY UT RHINE	✓ TURNED ON 4 FOR TESTING.
0725	CHECKED IN AT UCC	✓ TURNED ON 4 FOR 2000 GPM.
0805	931 OPENED	✓ TURNED OFF 4 DUE TO WATER FLOOD FROM TOP OF GAL.
0840	924 SHUT DOWN	✓ 243 ON.
0845	APPROVED AT 931 TO WAIT FOR WATCH STANDARDS.	✓ TURNED ON 337. NO WATCHES ON SITE.
0848	ARMY ARRIVED AT 931	✓ WATCHES ARRIVE; DUTY UT DEPARTS.
0840	14 SHUT DOWN	✓ UT-DOMANSHI ASSUMES DUTY UT. TURBINE REVIEWED AT DUTY UT.
0854	5 SHUT DOWN	✓ FH-931 CLOSED. DUE TO FLOODING.
0857	924 SHUT DOWN	✓ FH-7 CLOSED.
0900	19 SHUT DOWN	✓ FH-25 CLOSED.
0932	33 SHUT DOWN	✓ FH-942 OPEN.
1000	318 SHUT DOWN	✓ FH-488 CONTACT INFO: MIKE-(789) 289-4118
1001	927 OPEN	✓ FH-230 OPEN.
1004	214 OPENED. CALL 220-2746 FOR ACCESS	✓ FH-243 CLOSED, DUE TO FLOODING.
1033	1315 SHUT DOWN	✓ FH-3 OPEN.
1104	TURNED ON 179 FOR TESTING	✓ FH-111 OPEN.
1105	TURNED ON 179 2000 GPM.	✓ FH-488 OPEN.
		✓ FH-725 OPEN.
		✓ FH-18 A2 OPEN.

06 JAN 2022

07 JAN 2022

1900	VP DOMANSKI RELIEVED BY UT STIEFERMANN	0641	START OF NEW DAY,
2359	END OF DAY.	0628	HYDRANT 26 CLOSED DUE TO FLOODING
		0303	WATCH STANDER AT HYDRANT 26 REPORTS
			STILL FLOODING,
		0315	WATER LEVEL 36'
		0440	WATCH STANDER REPORTED FLOODING
			STOPPED AT FH-26.
		0445	HYDRANT 488 CLOSED, SCHEDULED CLOSE,
		0522	FH-26 OPEN, ULL NOTIFIED.
		0530	LOGBOOK ENTRIES SUBMITTED TO
			BOC,
		0645	UT STIEFERMANN RELIEVED BY UT RUINE,
		0700	CHECKS IN AT ULL
		0830	214 SHUT DOWN
		0833	243 SHUT DOWN
		0901	337 SHUT DOWN
		0904	225 SHUT DOWN
		0910	111 SHUT DOWN
		0948	637 OPEN
		0956	933 SHUT DOWN
		0959	ARMY OPSITE 637 FOR WORK
		1015	236 SHUT DOWN
		1015	567 OPEN
		1021	230 SHUT DOWN
		1042	942 SHUT DOWN
		1043	637 OFF DUE TO TOO HIGH PH
		LE 759	26 SHUT DOWN

NF EST
 UT
 (SIGNED) STIEFERMANN

7 JAN 22

1109	✓ 3 SHUT DOWN
1132	✓ 4 SHUT DOWN
1142	✓ 18 SHUT DOWN
1207	✓ 179 SHUT DOWN
1400	✓ 946 OPEN
1530	✓ 8 OPEN
1613	✓ WATCH ON
1634	✓ 86 OPEN
1617	✓ 5 OPEN
1715	✓ 34 OPEN
1715	✓ 56 CLOSED
1644	✓ 2 OPEN
1700	✓ 950 OPEN
NIA	✓ BETWEEN 1700-1830 129, 135, 128
1847	✓ AND 119 ON
1847	✓ 2 CLOSED REOPEN WHEN 2087#
1900	✓ WATCH GETS ON 2087#
2015	✓ UTZ DANGKHAL ASSUMES DUTY UT. UT. LINE RELIEVED AS DUTY UT.
2015	✓ FH-11 OPEN, (PM-2)
2100	✓ FH-11 CLOSE (PM-2)
2224	✓ FH-129, FH-109, FH-135, FH-108, FH-117
2224	✓ FH-945 CLOSED
2245	✓ FH-5 CLOSED
2255	✓ FH-8 CLOSED
2308	✓ FH-950 CLOSED
2308	✓ FH-567 CLOSED
2345	✓ FH-637 CLOSED
2350	✓ UTZ ZIEHLING, K1 ASSUMES DUTY UT. UT. DANGKHAL RELIEVED

2359

END OF DAY.

N.F.E.T.P.
UTZ ZIEHLING

06 JAN 2022

08001	START OF NEW DAY.	06 JAN 2022
0145	START RQVE.	✓ TURNED OFF 179 FOR FLOODING.
0317	WATER LEVEL 34'	✓ TRACED NEW STORM DRAIN, PERMANENT DISCHARGE.
03		✓ TURNED ON 179.
0450	FH 168 CLOSED DUE TO LACK OF PERSONNEL WITH FLIGHTLINE ACCESS.	✓ 931 REPORTED FLOODING.
0530	UCC NOTIFIED, LT CAPZ NOTIFIED.	✓ TURNED OFF 931.
0645	LOGBOOK SUBMITTED TO EOC.	✓ 457 SHUT DOWN
0700	UT STIEFFERMANN RELIEVED BY UT RHINE	✓ TURNED ON 4 FOR TESTING.
0725	CHECKED IN AT UCC	✓ TURNED ON 4 FOR 2000 GPM.
0805	931 OPENED	✓ TURNED OFF 4 DUE TO WATER FLOOD FROM TOP OF GAL.
0840	924 SHUT DOWN	✓ 243 ON.
0840	APPROVED AT 931 TO WAIT FOR WATCH STANDARDS.	✓ TURNED ON 337. NO WATCHES ON SITE.
0840	ARMY ARRIVED AT 931	✓ WATCHES ARRIVE; DUTY UT DEPARTS.
0840	14 SHUT DOWN	✓ UT DOMANSHI ASSUMES DUTY UT. TURBINE REVIEWED AT DUTY UT.
0854	5 SHUT DOWN	✓ FH-931 CLOSED. DUE TO FLOODING.
0857	924 SHUT DOWN	✓ FH-7 CLOSED.
0900	19 SHUT DOWN	✓ FH-25 CLOSED.
0932	33 SHUT DOWN	✓ FH-942 OPEN.
1000	318 SHUT DOWN	✓ FH-488 CONTACT INFO: MIKE-(789) 289-4118
1000	927 OPEN	✓ FH-230 OPEN.
1001	214 OPENED. CALL VSE 220-2746 FOR ACCESS	✓ FH-243 CLOSED, DUE TO FLOODING.
1033	1315 SHUT DOWN	✓ FH-3 OPEN.
1104	TURNED ON 179 FOR TESTING	✓ FH-111 OPEN.
1105	TURNED ON 179 2000 GPM.	✓ FH-488 OPEN.
		✓ FH-725 OPEN.
		✓ FH-18 A2 OPEN.

06 JAN 2022

07 JAN 2022

1900	VP DOMANSKI RELIEVED BY UT STIEFERMANN	0641	START OF NEW DAY,
2359	END OF DAY.	0628	HYDRANT 26 CLOSED DUE TO FLOODING
		0303	WATCH STANDER AT HYDRANT 26 REPORTS
			STILL FLOODING,
		0315	WATER LEVEL 36'
		0440	WATCH STANDER REPORTED FLOODING
			STOPPED AT FH-26.
		0445	HYDRANT 488 CLOSED, SCHEDULED CLOSE,
		0522	FH-26 OPEN, ULL NOTIFIED.
		0530	LOGBOOK ENTRIES SUBMITTED TO
			BOC,
		0645	UT STIEFERMANN RELIEVED BY UT RUINE,
		0700	CHECKS IN AT ULL
		0830	214 SHUT DOWN
		0833	243 SHUT DOWN
		0901	337 SHUT DOWN
		0904	225 SHUT DOWN
		0910	111 SHUT DOWN
		0948	637 OPEN
		0956	933 SHUT DOWN
		0959	ARMY OPSITE 637 FOR WORK
		1015	236 SHUT DOWN
		1015	567 OPEN
		1021	230 SHUT DOWN
		1042	942 SHUT DOWN
		1043	637 OFF DUE TO TOO HIGH PH
		LE 759	26 SHUT DOWN

VF EST D
UT STIEFERMANN

7 JAN 22

1109	✓ 3 SHUT DOWN
1132	✓ 4 SHUT DOWN
1142	✓ 18 SHUT DOWN
1207	✓ 179 SHUT DOWN
1400	✓ 946 OPEN
1530	✓ 8 OPEN
1613	✓ WATCH ON
1634	✓ 86 OPEN
1617	✓ 5 OPEN
1704	✓ 34 OPEN
1715	✓ 56 CLOSED
1644	✓ 2 OPEN
1700	✓ 950 OPEN
N/A	BETWEEN 1700-1830 129, 135, 128
1847	AND 119 ON
1900	✓ 2 CLOSED REOPEN WHEN 2000
2015	WATCH GETS ON 2087#
2100	UTZ DANGHAI ASSUMES DUTY UT. UT. ALINE RELIEVED AS DUTY UT.
2115	FH-11 OPEN, (PM-2)
2100	FH-11 CLOSE (PM-2)
2224	✓ FH-129, FH-109, FH-135, FH-108, FH-117
2224	✓ FH-945 CLOSED
2225	✓ FH-5 CLOSED
2255	✓ FH-8 CLOSED
2308	✓ FH-950 CLOSED
2300	✓ FH-567 CLOSED
2345	✓ FH-637 CLOSED
2350	UTZ ZIELEIN, K1 ASSUMES DUTY UT. UT. DANGHAI RELIEVED

2359 END OF DAY.

N.F.E.T.P.
UTZ ZIELEIN

06 JAN 2022

07 JAN 2022

1900	UT DOMANSKI RELIEVED BY UT STIEFERMANN	0641	START OF NEW DAY,
2359	END OF DAY.	0628	HYDRANT 26 CLOSED DUE TO FLOODING
		0303	WATCH STANDER AT HYDRANT 26 REPORTS
			STILL FLOODING,
		0315	WATER LEVEL 36'
		0440	WATCH STANDER REPORTED FLOODING
			STOPPED AT FH-26.
		0445	HYDRANT 488 CLOSED, SCHEDULED CLOSE,
		0522	FH-26 OPEN, ULL NOTIFIED.
		0530	LOGBOOK ENTRIES SUBMITTED TO
			BOC,
		0645	UT STIEFERMANN RELIEVED BY UT RUINE,
		0700	CHECKS IN AT ULL
		0830	214 SHUT DOWN
		0833	243 SHUT DOWN
		0901	337 SHUT DOWN
		0904	225 SHUT DOWN
		0910	111 SHUT DOWN
		0948	637 OPEN
		0956	933 SHUT DOWN
		0959	ARMY OPSITE 637 FOR WORK
		1015	236 SHUT DOWN
		1015	567 OPEN
		1021	230 SHUT DOWN
		1042	942 SHUT DOWN
		1043	637 OFF DUE TO TOO HIGH PH
		LE 759	26 SHUT DOWN

UT STIEFERMANN
UT RUINE
UT DOMANSKI

7 JAN 22

1109	✓ 3 SHUT DOWN
1132	✓ 4 SHUT DOWN
1142	✓ 18 SHUT DOWN
1207	✓ 179 SHUT DOWN
1400	✓ 946 OPEN
1530	✓ 8 OPEN
1613	✓ WATCH ON
1634	✓ 86 OPEN
1617	✓ 5 OPEN
1715	✓ 34 OPEN
1715	✓ 56 CLOSED
1644	✓ 2 OPEN
1700	✓ 950 OPEN
NIA	✓ BETWEEN 1700-1830 129, 135, 128
1847	✓ AND 119 ON
1847	✓ 2 CLOSED REOPEN WHEN 2087#
1900	✓ WATCH GETS ON 2087#
2015	✓ UTZ DANGHAI ASSUMES DUTY UT. UT. ALINE RELIEVED AS DUTY UT.
2015	✓ FH-11 OPEN, (PM-2)
2100	✓ FH-11 CLOSE (PM-2)
2224	✓ FH-129, FH-109, FH-135, FH-108, FH-117
2224	✓ FH-945 CLOSED
2245	✓ FH-5 CLOSED
2255	✓ FH-8 CLOSED
2308	✓ FH-950 CLOSED
2308	✓ FH-567 CLOSED
2345	✓ FH-637 CLOSED
2350	✓ UTZ ZIELEIN, K1 ASSUMES DUTY UT. UT. DANGHAI RELIEVED

2359

END OF DAY.

N.F.E.T.P.
UTZ ZIELEIN

Cruz, Nicholas D LT USN NAVFAC SE JAX FL (USA)

From: Asistio, Maria Angela Grace L 2d LT USAF USN NAVFAC HAWAII PEARL (USA) <[REDACTED]>
Sent: Tuesday, January 4, 2022 9:53 PM
To: Kelly, Austin A 1st Lt USAF 647 ABG (USA); Joseph, Craig M MSgt USAF (USA); Duarte, Israel A MSgt USAF (USA); AhLeong, Peter A MSgt USAF 647 ABG (USA); Collins, Jason A CMSgt USAF USN NAVFAC HAWAII PEARL (USA); Williams, Malcolm J Capt USAF 647 ABG (USA); [REDACTED]; Gruber, Marjorie J LCDR USN CBMU 303 (USA); [REDACTED]; Huang, Andy D CIV USN NAVFAC HAWAII PEARL (USA); Spencer, Matthew A CIV USN COMNAVREG SW SAN CA (USA); Poche, Brennan W LT USN NAVFAC HAWAII PEARL (USA); Williams, Malcolm J Capt USAF 647 ABG (USA); Donovan, Luke T Lt Col USAF 49 MSG (USA); Beattie, Aaron J MAJ USARMY USARPAC (USA); 647 CES/UCC; Howard, Spencer L LT USN CBMU 303 (USA); Natsuhara, Brent T LT USN NAVFAC MARIANAS GU (USA); Cope, Jimmy Lee CPO USN COMEXSTRKGRU TWO (USA); Baranowski, Phillip J CPO USN NAVFAC SE JAX FL (USA); [REDACTED]; Hawkins, Brian A PO1 USN NAS KEY WEST FL (USA); Barr, Justin A PO2 USN (USA); Harris, Jamel W PO2 USN (USA); Johnson, Jamaría T PO2 USN (USA); Credle, Gregory E III PO2 USN (USA); Lett, Julius J SMSgt USAF (USA); [REDACTED]; Asistio, Maria Angela Grace L 2d LT USAF USN NAVFAC HAWAII PEARL (USA); EDWARDS, PHYLYSHA C SSgt USAF PACAF 647 CES/CEOER; Pendleton, Cole R SrA USAF 647 ABG (USA); Mchenry, Kevin G MSgt USAF 647 ABG (USA); Corum, Michael L II MSgt USAF 647 ABG (USA); CORUM, MICHAEL L II MSgt USAF PACAF 647 CES/CEN
Subject: RE: INFO: 04 Jan 22 0800L - 2000L JBPHH DWDSRP Flush Report
Attachments: SKM_C36822010420490.pdf
Signed By: [REDACTED]

Attached is the flush report for Tuesday, 04 Jan 22, 0800L – 2000L. Also below is a summary on distribution flushing below.

Current Location Summary:

Zone / FH# / GAC # / Flushing Status

C1 / 535 / 6 / Flushing started (First time 1910)
 C2 / 123 / 11 / Flushing started (First time 1647)
 D3 / 143 / 18 / Flushing started 1801
 D3 / 382 / NO GAC / Flushing started (First time 2134)
 D3 / 476 / 16 / Flushing started 1753
 D3 / 803 / NO GAC / Flushing started (First time 2108)
 D3 / 805 / NO GAC / Flushing started (First time 2054)
 D3 / 812 / NO GAC / Flushing started (First time 2032)
 D3 / 8103 / NO GAC / Flushing started (First time 2029)
 G1 / 26 / 4 / Flushing resumed 2020
 F2 / 13 / 19 / Flushing started 1613
 F2 / 48 / 5 / Flushing started (First time 1513)
 F2 / 50 / 20 / Flushing started 1920
 C1 / 503 / 8 / Offline (projected to start in current shift)
 C1 / 512 / NO GAC / Offline (projected to start in current shift)
 C1 / 542 / 7 / Offline (projected to start in current shift)

Cruz, Nicholas D LT USN NAVFAC SE JAX FL (USA)

From: Wiley, Scottie R Maj USAF 647 ABG (USA) <[REDACTED]>
Sent: Wednesday, January 5, 2022 2:28 PM
To: Kelly, Austin A 1st Lt USAF 647 ABG (USA); Joseph, Craig M MSgt USAF (USA); Duarte, Israel A MSgt USAF (USA); AhLeong, Peter A MSgt USAF 647 ABG (USA); Collins, Jason A CMSgt USAF USN NAVFAC HAWAII PEARL (USA); Williams, Malcolm J Capt USAF 647 ABG (USA); [REDACTED]; Gruber, Marjorie J LCDR USN CBMU 303 (USA); [REDACTED]; Asistio, Maria Angela Grace L 2d LT USAF USN NAVFAC HAWAII PEARL (USA); Huang, Andy D CIV USN NAVFAC HAWAII PEARL (USA); Spencer, Matthew A CIV USN COMNAVREG SW SAN CA (USA); Poche, Brennan W LT USN NAVFAC HAWAII PEARL (USA); Williams, Malcolm J Capt USAF 647 ABG (USA); Donovan, Luke T Lt Col USAF 49 MSG (USA); Beattie, Aaron J MAJ USARMY USARPAC (USA); 647 CES/UCC; Howard, Spencer L LT USN CBMU 303 (USA); Natsuhara, Brent T LT USN NAVFAC MARIANAS GU (USA); Cope, Jimmy Lee CPO USN COMEXSTRKGRU TWO (USA); Baranowski, Phillip J CPO USN NAVFAC SE JAX FL (USA); [REDACTED]; Hawkins, Brian A PO1 USN NAS KEY WEST FL (USA); Barr, Justin A PO2 USN (USA); Harris, Jamel W PO2 USN (USA); Johnson, Jamaría T PO2 USN (USA); Credle, Gregory E III PO2 USN (USA); Lett, Julius J SMSgt USAF (USA); [REDACTED]; Asistio, Maria Angela Grace L 2d LT USAF USN NAVFAC HAWAII PEARL (USA); Cc: EDWARDS, PHYLYSHA C SSgt USAF PACAF 647 CES/CEOER; Pendleton, Cole R SrA USAF 647 ABG (USA); Mchenry, Kevin G MSgt USAF 647 ABG (USA); Corum, Michael L II MSgt USAF 647 ABG (USA); CORUM, MICHAEL L II MSgt USAF PACAF 647 CES/CEN; Szczepanik, Brittany A 2d LT USAF (USA)
Cc: 647 CES/UCC
Subject: INFO: 20220105 2000L - 0800L JBPHH DWDSRP Flush Report
Attachments: 20220105 2000L - 0800L JBPHH DWDSRP Flush Report.pdf

Ladies & Gentlemen,

Attached is the flush report for Monday/Tuesday, 04/05 Jan 22, 2000L – 0800L. Also below is a summary on distribution flushing below.

Current Location Summary:

Zone / FH# / GAC # / Flushing Status

C1 / 535 / 6 / No change
 C2 / 123 / 11 / No change
 D3 / 143 / 18 / No change
 D3 / 382 / NO GAC / No change
 D3 / 476 / 16 / No change
 D3 / 803 / NO GAC / No change
 D3 / 805 / NO GAC / No change
 D3 / 812 / NO GAC / No change
 D3 / 8103 / NO GAC / No change
 G1 / 26 / 4 / No change
 F2 / 13 / 19 / No change
 F2 / 48 / 5 / No change
 F2 / 50 / 20 / No change
 C1 / 503 / 8 / Flushing began
 C1 / 512 / NO GAC / Flushing began
 C1 / 542 / 7 / Flushing began

Cruz, Nicholas D LT USN NAVFAC SE JAX FL (USA)

From: SZCZEPANIK, BRITTANY A 2d Lt USAF AETC 71 STUS/STU <[REDACTED]>
Sent: Wednesday, January 5, 2022 10:13 PM
To: Wiley, Scottie R Maj USAF 647 ABG (USA); Kelly, Austin A 1st Lt USAF 647 ABG (USA); [REDACTED]; Duarte, Israel A MSgt USAF (USA); [REDACTED]; Williams, Malcolm J Capt USAF 647 ABG (USA); [REDACTED]; Gruber, Marjorie J LCDR USN CBMU 303 (USA); [REDACTED]; Asistio, Maria Angela Grace L 2d LT USAF USN NAVFAC HAWAII PEARL (USA); Huang, Andy D CIV USN NAVFAC HAWAII PEARL (USA); Spencer, Matthew A CIV USN COMNAVREG SW SAN CA (USA); Poche, Brennan W LT USN NAVFAC HAWAII PEARL (USA); [REDACTED]; Donovan, Luke T Lt Col USAF 49 MSG (USA); Beattie, Aaron J MAJ USARMY USARPAC (USA); 647 CES/UCC; Howard, Spencer L LT USN CBMU 303 (USA); [REDACTED]; Baranowski, Phillip J CPO USN NAVFAC SE JAX FL (USA); [REDACTED]; Hawkins, Brian A PO1 USN NAS KEY WEST FL (USA); Barr, Justin A PO2 USN (USA); Harris, Jamel W PO2 USN (USA); Johnson, Jamaría T PO2 USN (USA); [REDACTED]; Lett, Julius J SMSgt USAF (USA); [REDACTED]; Asistio, Maria Angela Grace L 2d LT USAF USN NAVFAC HAWAII PEARL (USA); EDWARDS, PHYLYSHA C SSgt USAF PACAF 647 CES/CEOER; Pendleton, Cole R SrA USAF 647 ABG (USA); Mchenry, Kevin G MSgt USAF 647 ABG (USA); Corum, Michael L II MSgt USAF 647 ABG (USA); CORUM, MICHAEL L II MSgt USAF PACAF 647 CES/CEN 647 CES/UCC
Cc:
Subject: INFO: 20220105 0800L - 2000L JBPHH DWDSRP Flush Report
Attachments: 20220105 0800L - 2000L JBPHH DWDSRP Flush Report.pdf
Signed By: [REDACTED]

Ladies & Gentlemen,

Attached is the flush report for Wednesday, 05 Jan 22, 0800L – 2000L. Below is a summary of current distribution flushing.

Current Location Summary:

Zone	Hydrant / GAC	Latest Status	
F2	FH 5 / 20	Flushing Started	on at 16:53 UT Watch
C2	FH 318 / 25	Flushing Started	on at 13:47 UT LOG
C2	FH 300 / 23	Flushing Started	on at 13:47 UT LOG
C2	FH 315 / 10	Flushing Started	on at 13:46 UT Watch
F2	FH 19 / 12	Flushing Started (First Time)	on at 10:35 Flush LOG
F2	FH 33	Flushing Started (First Time)	on at 14:42 UT LOG
F2	FH 14 / 17	Flushing Started	on at 09:53 Flush LOG
F2	FH 7	Flushing Resumed	on at 13:34 closed at 17:15 on at 19:21 UT LOG
F2	FH 25	Flushing Resumed	on at 14:25 closed at 17:22 on at 19:38 UT LOG
D4	FH 168 / 14	Flushing Started	on at 12:00 Flush LOG
D4	FH 457	Flushing Started (First Time)	on at 16:52 UT LOG
E1	FH 924	Flushing Resumed	on at 18:40 UT LOG

Section C Officer-in-Charge of Flushing Daily Report

G1	FH 26 / 4	Flushing Started	closed at 08:20	Flush LOG
C1	FH 535	Flushing stopped 09:35	Flush LOG	
C2	FH 123	Flushing stopped 0917	UT Log	

BRITTANY A. SZCZEPANIK, 2d Lt, USAF

Project Programmer/ ICAP Engineer

NAVFAC HI, FMD JBPHH

647 CES/CEN

DSN: [REDACTED]

Parada, John J LT USN NCG 1 (USA)

From: SZCZEPANIK, BRITTANY A 2d Lt USAF AETC 71 STUS/STU <[REDACTED]>
Sent: Thursday, January 6, 2022 10:36 PM
To: Wiley, Scottie R Maj USAF 647 ABG (USA); Kelly, Austin A 1st Lt USAF 647 ABG (USA); [REDACTED]; Duarte, Israel A MSgt USAF (USA); [REDACTED]; Williams, Malcolm J Capt USAF 647 ABG (USA); [REDACTED]; Gruber, Marjorie J LCDR USN CBMU 303 (USA); [REDACTED]; Asistio, Maria Angela Grace L 2d LT USAF USN NAVFAC HAWAII PEARL (USA); Huang, Andy D CIV USN NAVFAC HAWAII PEARL (USA); Spencer, Matthew A CIV USN COMNAVREG SW SAN CA (USA); Poche, Brennan W LT USN NAVFAC HAWAII PEARL (USA); [REDACTED]; Donovan, Luke T Lt Col USAF 49 MSG (USA); Beattie, Aaron J MAJ USARMY USARPAC (USA); 647 CES/UCC; Howard, Spencer L LT USN CBMU 303 (USA); [REDACTED]; Baranowski, Phillip J CPO USN NAVFAC SE JAX FL (USA); [REDACTED]; Hawkins, Brian A PO1 USN NAS KEY WEST FL (USA); Barr, Justin A PO2 USN (USA); Harris, Jamel W PO2 USN (USA); Johnson, Jamarita T PO2 USN (USA); [REDACTED]; Lett, Julius J SMSgt USAF (USA); [REDACTED]; Asistio, Maria Angela Grace L 2d LT USAF USN NAVFAC HAWAII PEARL (USA); EDWARDS, PHYLYSHA C SSgt USAF PACAF 647 CES/CEOER; Pendleton, Cole R SrA USAF 647 ABG (USA); Mchenry, Kevin G MSgt USAF 647 ABG (USA); Corum, Michael L II MSgt USAF 647 ABG (USA); CORUM, MICHAEL L II MSgt USAF PACAF 647 CES/CEN 647 CES/UCC
Cc:
Subject: INFO: 20220106 0800L - 2000L JBPHH DWDSRP Flush Report
Attachments: 20220106 0800L - 2000L JBPHH DWDSRP Flush Report.pdf
Signed By: [REDACTED]

Ladies & Gentlemen,

Attached is the flush report for Thursday, 06 Jan 22, 0800L – 2000L. Below is a summary of current distribution flushing.

Current Location Summary:

Zone	Hydrant / GAC	Latest Status	Time	Source
F2	FH 5 / 20	Flushing Complete	0854	UT Log
C2	FH 318 / 25	Flushing Complete	1000	UT Log
C2	FH 300 / 23	Flushing Complete		
C2	FH 315 / 10	Flushing Complete	1033	UT Log
F2	FH 19 / 12	Flushing Complete	0900	UT Log
F2	FH 33	Flushing Complete	0932	UT Log
F2	FH 14 / 17	Flushing Complete	0840	UT Log
F2	FH 7	Flushing Complete	1600	UT Log
F2	FH 25	Flushing Complete	1630	UT Log
D4	FH 457	Flushing Complete	1152	UT Log
E1	FH 926	Flushing Complete		
G1	FH 26 / 4	Flushing		

E1	FH ID 927 / 19	Flushing	Time 0921	Source UT Log
E1	FH ID 931 / 18	Flushing	On 0729-Off 1202	UT Log
C3	FH 179 / 7	Flushing	1200	UT Log
B1	FH 4 / 22	Flushing	1033	UT Log
E1	FH 933 / 11	Flushing		
C2	FH 337 / 17	Flushing	1400	UT Log
C2	FH 214 / 8	Flushing	1004	UT Log
C2	FH 225 / 5	Flushing	2006	UT Log
A3	FH 18 / 14	Flushing	2245	UT Log
C2	FH 243 / 6	Flushing	On 1250-Off 1806	UT Log
D4	FH 488 / 16	Flushing	1950	UT Log
C3	FH 230 / 23	Flushing	1802	UT Log
E1	FH 942 / 20	Flushing	1719	UT Log
C3	FH 111 / 10	Flushing	1920	UT Log
B1	FH 3 / 12	Flushing	1830	UT Log
C3	FH 236 / 25	Flushing		
D4	FH 168	Flushing Complete	0450	UT Log
E1	FH 924	Flushing Complete	0805	UT Log

Project Programmer/ ICAP Engineer

NAVFAC HI, FMD JBPHH

647 CES/CEN

DSN: [REDACTED]

Parada, John J LT USN NCG 1 (USA)

From: SZCZEPANIK, BRITTANY A 2d Lt USAF AETC 71 STUS/STU <[REDACTED]>
Sent: Friday, January 7, 2022 10:18 PM
To: Wiley, Scottie R Maj USAF 647 ABG (USA); Kelly, Austin A 1st Lt USAF 647 ABG (USA);
 [REDACTED] Duarte, Israel A MSgt USAF (USA); [REDACTED]
 [REDACTED] Williams, Malcolm J Capt USAF 647 ABG (USA);
 [REDACTED] Gruber, Marjorie J LCDR
 USN CBMU 303 (USA); [REDACTED] Asistio, Maria Angela Grace L 2d LT
 USAF USN NAVFAC HAWAII PEARL (USA); Huang, Andy D CIV USN NAVFAC HAWAII
 PEARL (USA); Spencer, Matthew A CIV USN COMNAVREG SW SAN CA (USA); Poche,
 Brennan W LT USN NAVFAC HAWAII PEARL (USA); [REDACTED]
 Donovan, Luke T Lt Col USAF 49 MSG (USA); Beattie, Aaron J MAJ USARMY USARPAC
 (USA); 647 CES/UCC; Howard, Spencer L LT USN CBMU 303 (USA);
 [REDACTED]; Baranowski, Phillip J CPO USN
 NAVFAC SE JAX FL (USA); [REDACTED]; Hawkins, Brian A PO1 USN NAS KEY
 WEST FL (USA); Barr, Justin A PO2 USN (USA); Harris, Jamel W PO2 USN (USA);
 Johnson, Jamaría T PO2 USN (USA); [REDACTED]; Lett, Julius J SMSgt
 USAF (USA); [REDACTED] Asistio, Maria Angela
 Grace L 2d LT USAF USN NAVFAC HAWAII PEARL (USA); EDWARDS, PHYLYSHA C SSgt
 USAF PACAF 647 CES/CEOER; Pendleton, Cole R SrA USAF 647 ABG (USA); Mchenry,
 Kevin G MSgt USAF 647 ABG (USA); Corum, Michael L II MSgt USAF 647 ABG (USA);
 CORUM, MICHAEL L II MSgt USAF PACAF 647 CES/CEN
Cc: 647 CES/UCC
Subject: INFO: 20220106 2000L - 0800L JBPHH DWDSRP Flush Report
Signed By: [REDACTED]

Ladies & Gentlemen,

Attached is the flush report for Thursday/Friday, 06/07 Jan 22, 2000L – 0800L. Below is a summary of current distribution flushing.

Current Location Summary:

2000 - 0800 6/7 Jan 2022			Time	Source
E1	FH 926	Flushing Complete	On 0522-Off 0854	UT Log
G1	FH 26 / 4	Flushing Complete	On 0522-Off 0759	UT Log
E1	FH ID 927 / 19	Flushing Complete	0745	UT Log
E1	FH ID 931 / 18	Flushing Complete	0645	UT Log
C3	FH 179 / 7	Flushing Complete	1207	UT Log
B1	FH 4 / 22	Flushing Complete	1132	UT Log
E1	FH 933 / 11	Flushing Complete	0956	UT Log
C2	FH 337 / 17	Flushing Complete	0901	UT Log
C2	FH 214 / 8	Flushing	2000-0800	UT Log
C2	FH 225 / 5	Flushing Complete	0904	UT Log
A3	FH 18 / 14	Flushing Complete	1142	UT Log
C2	FH 243 / 6	Flushing Complete	0833	UT Log
D4	FH 488 / 16	Flushing Complete	0445	UT Log

			Time	Source
C3	FH 230 / 23	Flushing Complete	1021	UT Log
E1	FH 942 / 20	Flushing Complete	1042	UT Log
C3	FH 111 / 10	Flushing Complete	0910	UT Log
B1	FH 3 / 12	Flushing Complete	1140	KTR Log
C3	FH 236 / 25	Flushing Complete	1015	UT Log
D4	FH 637	Flushing	On 1814-Off 2345	UT & KTR Log
B1	FH 3	Flushing Complete	1109	UT Log
E1	FH 946	Flushing Complete	On 1400-Off 2224	UT Log
B1	FH 8	Flushing Complete	On 1530-Off 2255	UT Log
A3	FH 56	Flushing Complete	On 1434-Off 1715	UT Log
B1	FH 5	Flushing Complete	On 1617-Off 2235	UT Log
A3	FH 34	Flushing Complete	On 1409-Off 2124	KTR Log
A3	LFH 2	Flushing Complete	On 1644-Off 1847	UT Log
E1	FH 950	Flushing Complete	On 1700-Off 2308	UT Log
C3	FH 119	Flushing Complete	On 1615-Off 2100	EWG Log
C3	FH 128	Flushing Complete	On 1715-Off 2100	EWG Log
C3	FH 129	Flushing Complete	On 1620-Off 2100	EWG Log
C3	FH 135	Flushing Complete	On 1637-Off 2100	EWG Log
D4	FH 567	Flushing Complete	On 1015-Off 2330	UT Log

Cruz, Nicholas D LT USN NAVFAC SE JAX FL (USA)

From: SZCZEPANIK, BRITTANY A 2d Lt USAF AETC 71 STUS/STU <[REDACTED]>
Sent: Friday, January 7, 2022 10:16 PM
To: Wiley, Scottie R Maj USAF 647 ABG (USA); Kelly, Austin A 1st Lt USAF 647 ABG (USA); [REDACTED]; Duarte, Israel A MSgt USAF (USA); [REDACTED]; Williams, Malcolm J Capt USAF 647 ABG (USA); [REDACTED]; Gruber, Marjorie J LCDR USN CBMU 303 (USA); [REDACTED]; Asistio, Maria Angela Grace L 2d LT USAF USN NAVFAC HAWAII PEARL (USA); Huang, Andy D CIV USN NAVFAC HAWAII PEARL (USA); Spencer, Matthew A CIV USN COMNAVREG SW SAN CA (USA); Poche, Brennan W LT USN NAVFAC HAWAII PEARL (USA); [REDACTED]; Donovan, Luke T Lt Col USAF 49 MSG (USA); Beattie, Aaron J MAJ USARMY USARPAC (USA); 647 CES/UCC; Howard, Spencer L LT USN CBMU 303 (USA); [REDACTED]; Baranowski, Phillip J CPO USN NAVFAC SE JAX FL (USA); [REDACTED]; Hawkins, Brian A PO1 USN NAS KEY WEST FL (USA); Barr, Justin A PO2 USN (USA); Harris, Jamel W PO2 USN (USA); Johnson, Jamaría T PO2 USN (USA); [REDACTED]; Lett, Julius J SMSgt USAF (USA); [REDACTED]; Asistio, Maria Angela Grace L 2d LT USAF USN NAVFAC HAWAII PEARL (USA); EDWARDS, PHYLYSHA C SSgt USAF PACAF 647 CES/CEOER; Pendleton, Cole R SrA USAF 647 ABG (USA); Mchenry, Kevin G MSgt USAF 647 ABG (USA); Corum, Michael L II MSgt USAF 647 ABG (USA); CORUM, MICHAEL L II MSgt USAF PACAF 647 CES/CEN 647 CES/UCC
Cc:
Subject: INFO: 20220106 0800L - 2000L JBPHH DWDSRP Flush Report
Attachments: 20220107 0800L - 2000L JBPHH DWDSRP Flush Report.pdf
Signed By: [REDACTED]

Ladies & Gentlemen,

Attached is the flush report for Friday, 07 Jan 22, 0800L – 2000L. Below is a summary of current distribution flushing.

Current Location Summary:

0800-2000 7 Jan 2022				
A3	FH 2	Flushing	1644	UT LOG
A3	FH 34	Flushing Complete	1409	UT LOG
D4	FH 637	Flushing	on 0942 off 1043	UT LOG
D4	FH 567	Flushing	1015	UT LOG
A3	FH 56	Flushing Complete	on 1434, off 1715	UT LOG
A3	FH 59	Flushing Complete		
A3	SA LFH-2 / 17	Flushing Complete	1617	UT LOG
B1	FH 2 / 22	Flushing Complete		
B1	FH 5 / 7	Flushing	1617	UT LOG
B1	FH 8 / 5	Flushing	1530	UT LOG
E1	FH 950 / 19	Flushing	1700	UT LOG
E1	FH 946 / 11	Flushing	1400	UT LOG
C2	FH214	shut down	0830	UT LOG

Section C Officer-in-Charge of Flushing Daily Report

C3	FH 105	Flushing	1757	KTR LOG
C2	FH243	shut down	0833	UT LOG
C2	FH337	shut down	0901	UT LOG
C2	FH225	shut down	0904	UT LOG
C3	FH111	shut down	0910	UT LOG
E1	FH933	shut down	0956	UT LOG
C3	FH236	shut down	1015	UT LOG
C3	FH230	shut down	1021	UT LOG
E1	FH942	shut down	1042	UT LOG
G1	FH26	shut down	0759	UT LOG
B1	FH3	shut down	1109	UT LOG
B1	FH4	shut down	1132	UT LOG
A3	FH18	shut down	1142	UT LOG
C3	FH179	shut down	1207	UT LOG

Parada, John J LT USN NCG 1 (USA)

From: SZCZEPANIK, BRITTANY A 2d Lt USAF AETC 71 STUS/STU <[REDACTED]>
Sent: Thursday, January 6, 2022 10:36 PM
To: Wiley, Scottie R Maj USAF 647 ABG (USA); Kelly, Austin A 1st Lt USAF 647 ABG (USA); [REDACTED]; Duarte, Israel A MSgt USAF (USA); [REDACTED]; Williams, Malcolm J Capt USAF 647 ABG (USA); [REDACTED]; Gruber, Marjorie J LCDR USN CBMU 303 (USA); [REDACTED]; Asistio, Maria Angela Grace L 2d LT USAF USN NAVFAC HAWAII PEARL (USA); Huang, Andy D CIV USN NAVFAC HAWAII PEARL (USA); Spencer, Matthew A CIV USN COMNAVREG SW SAN CA (USA); Poche, Brennan W LT USN NAVFAC HAWAII PEARL (USA); [REDACTED]; Donovan, Luke T Lt Col USAF 49 MSG (USA); Beattie, Aaron J MAJ USARMY USARPAC (USA); 647 CES/UCC; Howard, Spencer L LT USN CBMU 303 (USA); [REDACTED]; Baranowski, Phillip J CPO USN NAVFAC SE JAX FL (USA); [REDACTED]; Hawkins, Brian A PO1 USN NAS KEY WEST FL (USA); Barr, Justin A PO2 USN (USA); Harris, Jamel W PO2 USN (USA); Johnson, Jamarita T PO2 USN (USA); [REDACTED]; Lett, Julius J SMSgt USAF (USA); [REDACTED]; Asistio, Maria Angela Grace L 2d LT USAF USN NAVFAC HAWAII PEARL (USA); EDWARDS, PHYLYSHA C SSgt USAF PACAF 647 CES/CEOER; Pendleton, Cole R SrA USAF 647 ABG (USA); Mchenry, Kevin G MSgt USAF 647 ABG (USA); Corum, Michael L II MSgt USAF 647 ABG (USA); CORUM, MICHAEL L II MSgt USAF PACAF 647 CES/CEN 647 CES/UCC
Cc:
Subject: INFO: 20220106 0800L - 2000L JBPHH DWDSRP Flush Report
Attachments: 20220106 0800L - 2000L JBPHH DWDSRP Flush Report.pdf
Signed By: [REDACTED]

Ladies & Gentlemen,

Attached is the flush report for Thursday, 06 Jan 22, 0800L – 2000L. Below is a summary of current distribution flushing.

Current Location Summary:

Zone	Hydrant / GAC	Latest Status	Time	Source
F2	FH 5 / 20	Flushing Complete	0854	UT Log
C2	FH 318 / 25	Flushing Complete	1000	UT Log
C2	FH 300 / 23	Flushing Complete		
C2	FH 315 / 10	Flushing Complete	1033	UT Log
F2	FH 19 / 12	Flushing Complete	0900	UT Log
F2	FH 33	Flushing Complete	0932	UT Log
F2	FH 14 / 17	Flushing Complete	0840	UT Log
F2	FH 7	Flushing Complete	1600	UT Log
F2	FH 25	Flushing Complete	1630	UT Log
D4	FH 457	Flushing Complete	1152	UT Log
E1	FH 926	Flushing Complete		
G1	FH 26 / 4	Flushing		

E1	FH ID 927 / 19	Flushing	Time 0921	Source UT Log
E1	FH ID 931 / 18	Flushing	On 0729-Off 1202	UT Log
C3	FH 179 / 7	Flushing	1200	UT Log
B1	FH 4 / 22	Flushing	1033	UT Log
E1	FH 933 / 11	Flushing		
C2	FH 337 / 17	Flushing	1400	UT Log
C2	FH 214 / 8	Flushing	1004	UT Log
C2	FH 225 / 5	Flushing	2006	UT Log
A3	FH 18 / 14	Flushing	2245	UT Log
C2	FH 243 / 6	Flushing	On 1250-Off 1806	UT Log
D4	FH 488 / 16	Flushing	1950	UT Log
C3	FH 230 / 23	Flushing	1802	UT Log
E1	FH 942 / 20	Flushing	1719	UT Log
C3	FH 111 / 10	Flushing	1920	UT Log
B1	FH 3 / 12	Flushing	1830	UT Log
C3	FH 236 / 25	Flushing		
D4	FH 168	Flushing Complete	0450	UT Log
E1	FH 924	Flushing Complete	0805	UT Log

Project Programmer/ ICAP Engineer

NAVFAC HI, FMD JBPHH

647 CES/CEN

DSN: [REDACTED]

Parada, John J LT USN NCG 1 (USA)

From: SZCZEPANIK, BRITTANY A 2d Lt USAF AETC 71 STUS/STU <[REDACTED]>
Sent: Friday, January 7, 2022 10:18 PM
To: Wiley, Scottie R Maj USAF 647 ABG (USA); Kelly, Austin A 1st Lt USAF 647 ABG (USA);
 [REDACTED]; Duarte, Israel A MSgt USAF (USA); [REDACTED]
 [REDACTED]; Williams, Malcolm J Capt USAF 647 ABG (USA);
 [REDACTED]; Gruber, Marjorie J LCDR
 USN CBMU 303 (USA); [REDACTED]; Asistio, Maria Angela Grace L 2d LT
 USAF USN NAVFAC HAWAII PEARL (USA); Huang, Andy D CIV USN NAVFAC HAWAII
 PEARL (USA); Spencer, Matthew A CIV USN COMNAVREG SW SAN CA (USA); Poche,
 Brennan W LT USN NAVFAC HAWAII PEARL (USA); [REDACTED]
 Donovan, Luke T Lt Col USAF 49 MSG (USA); Beattie, Aaron J MAJ USARMY USARPAC
 (USA); 647 CES/UCC; Howard, Spencer L LT USN CBMU 303 (USA);
 [REDACTED]; Baranowski, Phillip J CPO USN
 NAVFAC SE JAX FL (USA); [REDACTED]; Hawkins, Brian A PO1 USN NAS KEY
 WEST FL (USA); Barr, Justin A PO2 USN (USA); Harris, Jamel W PO2 USN (USA);
 Johnson, Jamaría T PO2 USN (USA); [REDACTED]; Lett, Julius J SMSgt
 USAF (USA); [REDACTED]; Asistio, Maria Angela
 Grace L 2d LT USAF USN NAVFAC HAWAII PEARL (USA); EDWARDS, PHYLYSHA C SSgt
 USAF PACAF 647 CES/CEOER; Pendleton, Cole R SrA USAF 647 ABG (USA); Mchenry,
 Kevin G MSgt USAF 647 ABG (USA); Corum, Michael L II MSgt USAF 647 ABG (USA);
 CORUM, MICHAEL L II MSgt USAF PACAF 647 CES/CEN
Cc: 647 CES/UCC
Subject: INFO: 20220106 2000L - 0800L JBPHH DWDSRP Flush Report
Signed By: [REDACTED]

Ladies & Gentlemen,

Attached is the flush report for Thursday/Friday, 06/07 Jan 22, 2000L – 0800L. Below is a summary of current distribution flushing.

Current Location Summary:

2000 - 0800 6/7 Jan 2022			Time	Source
E1	FH 926	Flushing Complete	On 0522-Off 0854	UT Log
G1	FH 26 / 4	Flushing Complete	On 0522-Off 0759	UT Log
E1	FH ID 927 / 19	Flushing Complete	0745	UT Log
E1	FH ID 931 / 18	Flushing Complete	0645	UT Log
C3	FH 179 / 7	Flushing Complete	1207	UT Log
B1	FH 4 / 22	Flushing Complete	1132	UT Log
E1	FH 933 / 11	Flushing Complete	0956	UT Log
C2	FH 337 / 17	Flushing Complete	0901	UT Log
C2	FH 214 / 8	Flushing	2000-0800	UT Log
C2	FH 225 / 5	Flushing Complete	0904	UT Log
A3	FH 18 / 14	Flushing Complete	1142	UT Log
C2	FH 243 / 6	Flushing Complete	0833	UT Log
D4	FH 488 / 16	Flushing Complete	0445	UT Log

			Time	Source
C3	FH 230 / 23	Flushing Complete	1021	UT Log
E1	FH 942 / 20	Flushing Complete	1042	UT Log
C3	FH 111 / 10	Flushing Complete	0910	UT Log
B1	FH 3 / 12	Flushing Complete	1140	KTR Log
C3	FH 236 / 25	Flushing Complete	1015	UT Log
D4	FH 637	Flushing	On 1814-Off 2345	UT & KTR Log
B1	FH 3	Flushing Complete	1109	UT Log
E1	FH 946	Flushing Complete	On 1400-Off 2224	UT Log
B1	FH 8	Flushing Complete	On 1530-Off 2255	UT Log
A3	FH 56	Flushing Complete	On 1434-Off 1715	UT Log
B1	FH 5	Flushing Complete	On 1617-Off 2235	UT Log
A3	FH 34	Flushing Complete	On 1409-Off 2124	KTR Log
A3	LFH 2	Flushing Complete	On 1644-Off 1847	UT Log
E1	FH 950	Flushing Complete	On 1700-Off 2308	UT Log
C3	FH 119	Flushing Complete	On 1615-Off 2100	EWG Log
C3	FH 128	Flushing Complete	On 1715-Off 2100	EWG Log
C3	FH 129	Flushing Complete	On 1620-Off 2100	EWG Log
C3	FH 135	Flushing Complete	On 1637-Off 2100	EWG Log
D4	FH 567	Flushing Complete	On 1015-Off 2330	UT Log

Cruz, Nicholas D LT USN NAVFAC SE JAX FL (USA)

From: SZCZEPANIK, BRITTANY A 2d Lt USAF AETC 71 STUS/STU <[REDACTED]>
Sent: Friday, January 7, 2022 10:16 PM
To: Wiley, Scottie R Maj USAF 647 ABG (USA); Kelly, Austin A 1st Lt USAF 647 ABG (USA);
 [REDACTED] Duarte, Israel A MSgt USAF (USA); [REDACTED]
 [REDACTED] Williams, Malcolm J Capt USAF 647 ABG (USA);
 [REDACTED] Gruber, Marjorie J LCDR
 USN CBMU 303 (USA); [REDACTED]; Asistio, Maria Angela Grace L 2d LT
 USAF USN NAVFAC HAWAII PEARL (USA); Huang, Andy D CIV USN NAVFAC HAWAII
 PEARL (USA); Spencer, Matthew A CIV USN COMNAVREG SW SAN CA (USA); Poche,
 Brennan W LT USN NAVFAC HAWAII PEARL (USA); [REDACTED]
 Donovan, Luke T Lt Col USAF 49 MSG (USA); Beattie, Aaron J MAJ USARMY USARPAC
 (USA); 647 CES/UCC; Howard, Spencer L LT USN CBMU 303 (USA);
 [REDACTED]; Baranowski, Phillip J CPO USN
 NAVFAC SE JAX FL (USA); [REDACTED]; Hawkins, Brian A PO1 USN NAS KEY
 WEST FL (USA); Barr, Justin A PO2 USN (USA); Harris, Jamel W PO2 USN (USA);
 Johnson, Jamarla T PO2 USN (USA); [REDACTED]; Lett, Julius J SMSgt
 USAF (USA); [REDACTED]; Asistio, Maria Angela
 Grace L 2d LT USAF USN NAVFAC HAWAII PEARL (USA); EDWARDS, PHYLYSHA C SSgt
 USAF PACAF 647 CES/CEOER; Pendleton, Cole R SrA USAF 647 ABG (USA); Mchenry,
 Kevin G MSgt USAF 647 ABG (USA); Corum, Michael L II MSgt USAF 647 ABG (USA);
 CORUM, MICHAEL L II MSgt USAF PACAF 647 CES/CEN
Cc: 647 CES/UCC
Subject: INFO: 20220106 0800L - 2000L JBPHH DWDSRP Flush Report
Attachments: 20220107 0800L - 2000L JBPHH DWDSRP Flush Report.pdf
Signed By: [REDACTED]

Ladies & Gentlemen,

Attached is the flush report for Friday, 07 Jan 22, 0800L – 2000L. Below is a summary of current distribution flushing.

Current Location Summary:

0800-2000 7 Jan 2022				
A3	FH 2	Flushing	1644	UT LOG
A3	FH 34	Flushing Complete	1409	UT LOG
D4	FH 637	Flushing	on 0942 off 1043	UT LOG
D4	FH 567	Flushing	1015	UT LOG
A3	FH 56	Flushing Complete	on 1434, off 1715	UT LOG
A3	FH 59	Flushing Complete		
A3	SA LFH-2 / 17	Flushing Complete	1617	UT LOG
B1	FH 2 / 22	Flushing Complete		
B1	FH 5 / 7	Flushing	1617	UT LOG
B1	FH 8 / 5	Flushing	1530	UT LOG
E1	FH 950 / 19	Flushing	1700	UT LOG
E1	FH 946 / 11	Flushing	1400	UT LOG
C2	FH214	shut down	0830	UT LOG

Section C Officer-in-Charge of Flushing Daily Report

C3	FH 105	Flushing	1757	KTR LOG
C2	FH243	shut down	0833	UT LOG
C2	FH337	shut down	0901	UT LOG
C2	FH225	shut down	0904	UT LOG
C3	FH111	shut down	0910	UT LOG
E1	FH933	shut down	0956	UT LOG
C3	FH236	shut down	1015	UT LOG
C3	FH230	shut down	1021	UT LOG
E1	FH942	shut down	1042	UT LOG
G1	FH26	shut down	0759	UT LOG
B1	FH3	shut down	1109	UT LOG
B1	FH4	shut down	1132	UT LOG
A3	FH18	shut down	1142	UT LOG
C3	FH179	shut down	1207	UT LOG

Parada, John J LT USN NCG 1 (USA)

From: SZCZEPANIK, BRITTANY A 2d Lt USAF AETC 71 STUS/STU <[REDACTED]>
Sent: Thursday, January 6, 2022 10:36 PM
To: Wiley, Scottie R Maj USAF 647 ABG (USA); Kelly, Austin A 1st Lt USAF 647 ABG (USA); [REDACTED]; Duarte, Israel A MSgt USAF (USA); [REDACTED]; Williams, Malcolm J Capt USAF 647 ABG (USA); [REDACTED]; Gruber, Marjorie J LCDR USN CBMU 303 (USA); [REDACTED]; Asistio, Maria Angela Grace L 2d LT USAF USN NAVFAC HAWAII PEARL (USA); Huang, Andy D CIV USN NAVFAC HAWAII PEARL (USA); Spencer, Matthew A CIV USN COMNAVREG SW SAN CA (USA); Poche, Brennan W LT USN NAVFAC HAWAII PEARL (USA); [REDACTED]; Donovan, Luke T Lt Col USAF 49 MSG (USA); Beattie, Aaron J MAJ USARMY USARPAC (USA); 647 CES/UCC; Howard, Spencer L LT USN CBMU 303 (USA); [REDACTED]; Baranowski, Phillip J CPO USN NAVFAC SE JAX FL (USA); [REDACTED]; Hawkins, Brian A PO1 USN NAS KEY WEST FL (USA); Barr, Justin A PO2 USN (USA); Harris, Jamel W PO2 USN (USA); Johnson, Jamarita T PO2 USN (USA); [REDACTED]; Lett, Julius J SMSgt USAF (USA); [REDACTED]; Asistio, Maria Angela Grace L 2d LT USAF USN NAVFAC HAWAII PEARL (USA); EDWARDS, PHYLYSHA C SSgt USAF PACAF 647 CES/CEOER; Pendleton, Cole R SrA USAF 647 ABG (USA); Mchenry, Kevin G MSgt USAF 647 ABG (USA); Corum, Michael L II MSgt USAF 647 ABG (USA); CORUM, MICHAEL L II MSgt USAF PACAF 647 CES/CEN 647 CES/UCC
Cc:
Subject: INFO: 20220106 0800L - 2000L JBPHH DWDSRP Flush Report
Attachments: 20220106 0800L - 2000L JBPHH DWDSRP Flush Report.pdf
Signed By: [REDACTED]

Ladies & Gentlemen,

Attached is the flush report for Thursday, 06 Jan 22, 0800L – 2000L. Below is a summary of current distribution flushing.

Current Location Summary:

Zone	Hydrant / GAC	Latest Status	Time	Source
F2	FH 5 / 20	Flushing Complete	0854	UT Log
C2	FH 318 / 25	Flushing Complete	1000	UT Log
C2	FH 300 / 23	Flushing Complete		
C2	FH 315 / 10	Flushing Complete	1033	UT Log
F2	FH 19 / 12	Flushing Complete	0900	UT Log
F2	FH 33	Flushing Complete	0932	UT Log
F2	FH 14 / 17	Flushing Complete	0840	UT Log
F2	FH 7	Flushing Complete	1600	UT Log
F2	FH 25	Flushing Complete	1630	UT Log
D4	FH 457	Flushing Complete	1152	UT Log
E1	FH 926	Flushing Complete		
G1	FH 26 / 4	Flushing		

E1	FH ID 927 / 19	Flushing
E1	FH ID 931 / 18	Flushing
C3	FH 179 / 7	Flushing
B1	FH 4 / 22	Flushing
E1	FH 933 / 11	Flushing
C2	FH 337 / 17	Flushing
C2	FH 214 / 8	Flushing
C2	FH 225 / 5	Flushing
A3	FH 18 / 14	Flushing
C2	FH 243 / 6	Flushing
D4	FH 488 / 16	Flushing
C3	FH 230 / 23	Flushing
E1	FH 942 / 20	Flushing
C3	FH 111 / 10	Flushing
B1	FH 3 / 12	Flushing
C3	FH 236 / 25	Flushing

Time	Source
0921	UT Log
On 0729-Off 1202	UT Log
1200	UT Log
1033	UT Log
1400	UT Log
1004	UT Log
2006	UT Log
2245	UT Log
On 1250-Of 1806	UT Log
1950	UT Log
1802	UT Log
1719	UT Log
1920	UT Log
1830	UT Log
0450	UT Log
0805	UT Log

D4 FH 168 Flushing Complete
E1 FH 924 Flushing Complete

Project Programmer/ ICAP Engineer

NAVFAC HI, FMD JBPHH

647 CES/CEN

DSN: [REDACTED]

Parada, John J LT USN NCG 1 (USA)

From: SZCZEPANIK, BRITTANY A 2d Lt USAF AETC 71 STUS/STU <[REDACTED]>
Sent: Friday, January 7, 2022 10:18 PM
To: Wiley, Scottie R Maj USAF 647 ABG (USA); Kelly, Austin A 1st Lt USAF 647 ABG (USA);
 [REDACTED] Duarte, Israel A MSgt USAF (USA); [REDACTED]
 [REDACTED]; Williams, Malcolm J Capt USAF 647 ABG (USA);
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 Brennan W LT USN NAVFAC HAWAII PEARL (USA); [REDACTED]
 Donovan, Luke T Lt Col USAF 49 MSG (USA); Beattie, Aaron J MAJ USARMY USARPAC
 (USA); 647 CES/UCC; Howard, Spencer L LT USN CBMU 303 (USA);
 [REDACTED] Baranowski, Phillip J CPO USN
 NAVFAC SE JAX FL (USA); [REDACTED]; Hawkins, Brian A PO1 USN NAS KEY
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 Johnson, Jamaría T PO2 USN (USA); [REDACTED]; Lett, Julius J SMSgt
 USAF (USA); [REDACTED]; Asistio, Maria Angela
 Grace L 2d LT USAF USN NAVFAC HAWAII PEARL (USA); EDWARDS, PHYLYSHA C SSgt
 USAF PACAF 647 CES/CEOER; Pendleton, Cole R SrA USAF 647 ABG (USA); Mchenry,
 Kevin G MSgt USAF 647 ABG (USA); Corum, Michael L II MSgt USAF 647 ABG (USA);
 CORUM, MICHAEL L II MSgt USAF PACAF 647 CES/CEN
Cc: 647 CES/UCC
Subject: INFO: 20220106 2000L - 0800L JBPHH DWDSRP Flush Report
Signed By: [REDACTED]

Ladies & Gentlemen,

Attached is the flush report for Thursday/Friday, 06/07 Jan 22, 2000L – 0800L. Below is a summary of current distribution flushing.

Current Location Summary:

2000 - 0800 6/7 Jan 2022			Time	Source
E1	FH 926	Flushing Complete	On 0522-Off 0854	UT Log
G1	FH 26 / 4	Flushing Complete	On 0522-Off 0759	UT Log
E1	FH ID 927 / 19	Flushing Complete	0745	UT Log
E1	FH ID 931 / 18	Flushing Complete	0645	UT Log
C3	FH 179 / 7	Flushing Complete	1207	UT Log
B1	FH 4 / 22	Flushing Complete	1132	UT Log
E1	FH 933 / 11	Flushing Complete	0956	UT Log
C2	FH 337 / 17	Flushing Complete	0901	UT Log
C2	FH 214 / 8	Flushing Complete	0830	UT Log
C2	FH 225 / 5	Flushing Complete	0904	UT Log
A3	FH 18 / 14	Flushing Complete	1142	UT Log
C2	FH 243 / 6	Flushing Complete	0833	UT Log
D4	FH 488 / 16	Flushing Complete	0445	UT Log

			Time	Source
C3	FH 230 / 23	Flushing Complete	1021	UT Log
E1	FH 942 / 20	Flushing Complete	1042	UT Log
C3	FH 111 / 10	Flushing Complete	0910	UT Log
B1	FH 3 / 12	Flushing Complete	1140	KTR Log
C3	FH 236 / 25	Flushing Complete	1015	UT Log
D4	FH 637	Flushing	On 1814-Off 2345	UT & KTR Log
B1	FH 3	Flushing Complete	1109	UT Log
E1	FH 946	Flushing Complete	On 1400-Off 2224	UT Log
B1	FH 8	Flushing Complete	On 1530-Off 2255	UT Log
A3	FH 56	Flushing Complete	On 1434-Off 1715	UT Log
B1	FH 5	Flushing Complete	On 1617-Off 2235	UT Log
A3	FH 34	Flushing Complete	On 1409-Off 2124	KTR Log
A3	LFH 2	Flushing Complete	On 1644-Off 1847	UT Log
E1	FH 950	Flushing Complete	On 1700-Off 2308	UT Log
C3	FH 119	Flushing Complete	On 1615-Off 2100	EWG Log
C3	FH 128	Flushing Complete	On 1715-Off 2100	EWG Log
C3	FH 129	Flushing Complete	On 1620-Off 2100	EWG Log
C3	FH 135	Flushing Complete	On 1637-Off 2100	EWG Log
D4	FH 567	Flushing Complete	On 1015-Off 2330	UT Log

Cruz, Nicholas D LT USN NAVFAC SE JAX FL (USA)

From: SZCZEPANIK, BRITTANY A 2d Lt USAF AETC 71 STUS/STU <[REDACTED]>
Sent: Friday, January 7, 2022 10:16 PM
To: Wiley, Scottie R Maj USAF 647 ABG (USA); Kelly, Austin A 1st Lt USAF 647 ABG (USA); [REDACTED]; Duarte, Israel A MSgt USAF (USA); [REDACTED]; Williams, Malcolm J Capt USAF 647 ABG (USA); [REDACTED]; Gruber, Marjorie J LCDR USN CBMU 303 (USA); [REDACTED]; Asistio, Maria Angela Grace L 2d LT USAF USN NAVFAC HAWAII PEARL (USA); Huang, Andy D CIV USN NAVFAC HAWAII PEARL (USA); Spencer, Matthew A CIV USN COMNAVREG SW SAN CA (USA); Poche, Brennan W LT USN NAVFAC HAWAII PEARL (USA); [REDACTED]; Donovan, Luke T Lt Col USAF 49 MSG (USA); Beattie, Aaron J MAJ USARMY USARPAC (USA); 647 CES/UCC; Howard, Spencer L LT USN CBMU 303 (USA); [REDACTED]; Baranowski, Phillip J CPO USN NAVFAC SE JAX FL (USA); [REDACTED]; Hawkins, Brian A PO1 USN NAS KEY WEST FL (USA); Barr, Justin A PO2 USN (USA); Harris, Jamel W PO2 USN (USA); Johnson, Jamaría T PO2 USN (USA); [REDACTED]; Lett, Julius J SMSgt USAF (USA); [REDACTED]; Asistio, Maria Angela Grace L 2d LT USAF USN NAVFAC HAWAII PEARL (USA); EDWARDS, PHYLYSHA C SSgt USAF PACAF 647 CES/CEOER; Pendleton, Cole R SrA USAF 647 ABG (USA); Mchenry, Kevin G MSgt USAF 647 ABG (USA); Corum, Michael L II MSgt USAF 647 ABG (USA); CORUM, MICHAEL L II MSgt USAF PACAF 647 CES/CEN 647 CES/UCC
Cc:
Subject: INFO: 20220106 0800L - 2000L JBPHH DWDSRP Flush Report
Attachments: 20220107 0800L - 2000L JBPHH DWDSRP Flush Report.pdf
Signed By: [REDACTED]

Ladies & Gentlemen,

Attached is the flush report for Friday, 07 Jan 22, 0800L – 2000L. Below is a summary of current distribution flushing.

Current Location Summary:

0800-2000 7 Jan 2022				
A3	FH 2	Flushing	1644	UT LOG
A3	FH 34	Flushing Complete	1409	UT LOG
D4	FH 637	Flushing	on 0942 off 1043	UT LOG
D4	FH 567	Flushing	1015	UT LOG
A3	FH 56	Flushing Complete	on 1434, off 1715	UT LOG
A3	FH 59	Flushing Complete		
A3	SA LFH-2 / 17	Flushing Complete	1617	UT LOG
B1	FH 2 / 22	Flushing Complete		
B1	FH 5 / 7	Flushing	1617	UT LOG
B1	FH 8 / 5	Flushing	1530	UT LOG
E1	FH 950 / 19	Flushing	1700	UT LOG
E1	FH 946 / 11	Flushing	1400	UT LOG
C2	FH214	shut down	0830	UT LOG

Section C Officer-in-Charge of Flushing Daily Report

C3	FH 105	Flushing	1757	KTR LOG
C2	FH243	shut down	0833	UT LOG
C2	FH337	shut down	0901	UT LOG
C2	FH225	shut down	0904	UT LOG
C3	FH111	shut down	0910	UT LOG
E1	FH933	shut down	0956	UT LOG
C3	FH236	shut down	1015	UT LOG
C3	FH230	shut down	1021	UT LOG
E1	FH942	shut down	1042	UT LOG
G1	FH26	shut down	0759	UT LOG
B1	FH3	shut down	1109	UT LOG
B1	FH4	shut down	1132	UT LOG
A3	FH18	shut down	1142	UT LOG
C3	FH179	shut down	1207	UT LOG

Cruz, Nicholas D LT USN NAVFAC SE JAX FL (USA)

From: SZCZEPANIK, BRITTANY A 2d Lt USAF AETC 71 STUS/STU <[REDACTED]>
Sent: Wednesday, January 5, 2022 10:13 PM
To: Wiley, Scottie R Maj USAF 647 ABG (USA); Kelly, Austin A 1st Lt USAF 647 ABG (USA); [REDACTED]; Duarte, Israel A MSgt USAF (USA); [REDACTED]; Williams, Malcolm J Capt USAF 647 ABG (USA); [REDACTED]; Gruber, Marjorie J LCDR USN CBMU 303 (USA); [REDACTED]; Asistio, Maria Angela Grace L 2d LT USAF USN NAVFAC HAWAII PEARL (USA); Huang, Andy D CIV USN NAVFAC HAWAII PEARL (USA); Spencer, Matthew A CIV USN COMNAVREG SW SAN CA (USA); Poche, Brennan W LT USN NAVFAC HAWAII PEARL (USA); [REDACTED]; Donovan, Luke T Lt Col USAF 49 MSG (USA); Beattie, Aaron J MAJ USARMY USARPAC (USA); 647 CES/UCC; Howard, Spencer L LT USN CBMU 303 (USA); [REDACTED] Baranowski, Phillip J CPO USN NAVFAC SE JAX FL (USA); [REDACTED] Hawkins, Brian A PO1 USN NAS KEY WEST FL (USA); Barr, Justin A PO2 USN (USA); Harris, Jamel W PO2 USN (USA); Johnson, Jamaría T PO2 USN (USA); [REDACTED]; Lett, Julius J SMSgt USAF (USA); [REDACTED]; Asistio, Maria Angela Grace L 2d LT USAF USN NAVFAC HAWAII PEARL (USA); EDWARDS, PHYLYSHA C SSgt USAF PACAF 647 CES/CEOER; Pendleton, Cole R SrA USAF 647 ABG (USA); Mchenry, Kevin G MSgt USAF 647 ABG (USA); Corum, Michael L II MSgt USAF 647 ABG (USA); CORUM, MICHAEL L II MSgt USAF PACAF 647 CES/CEN 647 CES/UCC
Cc:
Subject: INFO: 20220105 0800L - 2000L JBPHH DWDSRP Flush Report
Attachments: 20220105 0800L - 2000L JBPHH DWDSRP Flush Report.pdf
Signed By: [REDACTED]

Ladies & Gentlemen,

Attached is the flush report for Wednesday, 05 Jan 22, 0800L – 2000L. Below is a summary of current distribution flushing.

Current Location Summary:

Zone	Hydrant / GAC	Latest Status							
F2	FH 5 / 20	Flushing Started							
C2	FH 318 / 25	Flushing Started	on at 13:47	UT LOG					
C2	FH 300 / 23	Flushing Started	on at 13:47	UT LOG					
C2	FH 315 / 10	Flushing Started							
F2	FH 19 / 12	Flushing Started (First Time)	on at 10:35	Flush LOG					
F2	FH 33	Flushing Started (First Time)	on at 14:42	UT LOG					
F2	FH 14 / 17	Flushing Started	on at 09:53	Flush LOG					
F2	FH 7	Flushing Resumed	on at 13:34	closed at 17:15	on at 19:21	UT LOG			
F2	FH 25	Flushing Resumed	on at 14:25	closed at 17:22	on at 19:38	UT LOG			
D4	FH 168 / 14	Flushing Started	on at 12:00	Flush LOG					
D4	FH 457	Flushing Started (First Time)	on at 16:52	UT LOG					
E1	FH 924	Flushing Resumed	on at 18:40	UT LOG					

G1	FH 26 / 4	Flushing Started	closed at 08:20	Flush LOG
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Very Respectfully,

BRITTANY A. SZCZEPANIK, 2d Lt, USAF
Project Programmer/ ICAP Engineer
NAVFAC HI, FMD JBPHH
647 CES/CEN
DSN: [REDACTED]

Cruz, Nicholas D LT USN NAVFAC SE JAX FL (USA)

From: Wiley, Scottie R Maj USAF 647 ABG (USA) <[REDACTED]>
Sent: Thursday, January 6, 2022 2:10 PM
To: Szczepanik, Brittany A 2d LT USAF (USA); Kelly, Austin A 1st Lt USAF 647 ABG (USA); Joseph, Craig M MSgt USAF (USA); Duarte, Israel A MSgt USAF (USA); AhLeong, Peter A MSgt USAF 647 ABG (USA); Collins, Jason A CMSgt USAF USN NAVFAC HAWAII PEARL (USA); Williams, Malcolm J Capt USAF 647 ABG (USA); [REDACTED]; [REDACTED]; Gruber, Marjorie J LCDR USN CBMU 303 (USA); [REDACTED]; Asistio, Maria Angela Grace L 2d LT USAF USN NAVFAC HAWAII PEARL (USA); Huang, Andy D CIV USN NAVFAC HAWAII PEARL (USA); Spencer, Matthew A CIV USN COMNAVREG SW SAN CA (USA); Poche, Brennan W LT USN NAVFAC HAWAII PEARL (USA); Williams, Malcolm J Capt USAF 647 ABG (USA); Donovan, Luke T Lt Col USAF 49 MSG (USA); Beattie, Aaron J MAJ USARMY USARPAC (USA); 647 CES/UCC; Howard, Spencer L LT USN CBMU 303 (USA); Natsuhara, Brent T LT USN NAVFAC MARIANAS GU (USA); Cope, Jimmy Lee CPO USN COMEXSTRKGRU TWO (USA); Baranowski, Phillip J CPO USN NAVFAC SE JAX FL (USA); [REDACTED]; Hawkins, Brian A PO1 USN NAS KEY WEST FL (USA); Barr, Justin A PO2 USN (USA); Harris, Jamel W PO2 USN (USA); Johnson, Jamarita T PO2 USN (USA); Credle, Gregory E III PO2 USN (USA); Lett, Julius J SMSgt USAF (USA); [REDACTED] Asistio, Maria Angela Grace L 2d LT USAF USN NAVFAC HAWAII PEARL (USA); EDWARDS, PHYLYSHA C SSgt USAF PACAF 647 CES/CEOER; Pendleton, Cole R SrA USAF 647 ABG (USA); Mchenry, Kevin G MSgt USAF 647 ABG (USA); Corum, Michael L II MSgt USAF 647 ABG (USA); CORUM, MICHAEL L II MSgt USAF PACAF 647 CES/CEN 647 CES/UCC
Cc:
Subject: INFO: 20220106 0800L - 2000L JBPHH DWDSRP Flush Report
Attachments: 20220106 2000L - 0800L JBPHHH DWDSRP Flush Report.pdf
Signed By: [REDACTED]

Ladies & Gentlemen,

Attached is the flush report for Wednesday/Thursday, 05/06 Jan 22, 0800L – 2000L. Below is a summary of current distribution flushing.

Current Location Summary:

Zone	Hydrant / GAC	Latest Status
F2	FH 5 / 20	No Change
C2	FH 318 / 25	No Change
C2	FH 300 / 23	No Change
C2	FH 315 / 10	No Change
F2	FH 19 / 12	No Change
F2	FH 33	No Change
F2	FH 14 / 17	No Change
F2	FH 7	No Change
F2	FH 25	No Change
D4	FH 168 / 14	Flushing Complete (0450L)
D4	FH 457	No Change
E1	FH 924	No Change

G1	FH 26 / 4	No Change
E1	FH ID 927 / 19	Flushing Began (0730L)
E1	FH ID 931 / 18	Flushing Began (0730L)

r/

SCOTT R. WILEY, Major, USAF
Facilities Sustainment Division Deputy Director – PRJ3
Naval Facilities Engineering Systems Command, Hawaii
400 Marshall Road JBPHH HI 96860-3139
DSN [REDACTED]
Comm: [REDACTED]
Gov Cell: [REDACTED]

Parada, John J LT USN NCG 1 (USA)

From: SZCZEPANIK, BRITTANY A 2d Lt USAF AETC 71 STUS/STU <[REDACTED]>
Sent: Thursday, January 6, 2022 10:36 PM
To: Wiley, Scottie R Maj USAF 647 ABG (USA); Kelly, Austin A 1st Lt USAF 647 ABG (USA); [REDACTED]; Duarte, Israel A MSgt USAF (USA); [REDACTED]; Williams, Malcolm J Capt USAF 647 ABG (USA); [REDACTED]; Gruber, Marjorie J LCDR USN CBMU 303 (USA); [REDACTED]; Asistio, Maria Angela Grace L 2d LT USAF USN NAVFAC HAWAII PEARL (USA); Huang, Andy D CIV USN NAVFAC HAWAII PEARL (USA); Spencer, Matthew A CIV USN COMNAVREG SW SAN CA (USA); Poche, Brennan W LT USN NAVFAC HAWAII PEARL (USA); [REDACTED]; Donovan, Luke T Lt Col USAF 49 MSG (USA); Beattie, Aaron J MAJ USARMY USARPAC (USA); 647 CES/UCC; Howard, Spencer L LT USN CBMU 303 (USA); [REDACTED]; Baranowski, Phillip J CPO USN NAVFAC SE JAX FL (USA); [REDACTED]; Hawkins, Brian A PO1 USN NAS KEY WEST FL (USA); Barr, Justin A PO2 USN (USA); Harris, Jamel W PO2 USN (USA); Johnson, Jamarita T PO2 USN (USA); [REDACTED]; Lett, Julius J SMSgt USAF (USA); [REDACTED]; Asistio, Maria Angela Grace L 2d LT USAF USN NAVFAC HAWAII PEARL (USA); EDWARDS, PHYLYSHA C SSgt USAF PACAF 647 CES/CEOER; Pendleton, Cole R SrA USAF 647 ABG (USA); Mchenry, Kevin G MSgt USAF 647 ABG (USA); Corum, Michael L II MSgt USAF 647 ABG (USA); CORUM, MICHAEL L II MSgt USAF PACAF 647 CES/CEN 647 CES/UCC
Cc:
Subject: INFO: 20220106 0800L - 2000L JBPHH DWDSRP Flush Report
Attachments: 20220106 0800L - 2000L JBPHH DWDSRP Flush Report.pdf
Signed By: [REDACTED]

Ladies & Gentlemen,

Attached is the flush report for Thursday, 06 Jan 22, 0800L – 2000L. Below is a summary of current distribution flushing.

Current Location Summary:

Zone	Hydrant / GAC	Latest Status	Time	Source
F2	FH 5 / 20	Flushing Complete	0854	UT Log
C2	FH 318 / 25	Flushing Complete	1000	UT Log
C2	FH 300 / 23	Flushing Complete		
C2	FH 315 / 10	Flushing Complete	1033	UT Log
F2	FH 19 / 12	Flushing Complete	0900	UT Log
F2	FH 33	Flushing Complete	0932	UT Log
F2	FH 14 / 17	Flushing Complete	0840	UT Log
F2	FH 7	Flushing Complete	1600	UT Log
F2	FH 25	Flushing Complete	1630	UT Log
D4	FH 457	Flushing Complete	1152	UT Log
E1	FH 926	Flushing Complete		
G1	FH 26 / 4	Flushing		

E1	FH ID 927 / 19	Flushing
E1	FH ID 931 / 18	Flushing
C3	FH 179 / 7	Flushing
B1	FH 4 / 22	Flushing
E1	FH 933 / 11	Flushing
C2	FH 337 / 17	Flushing
C2	FH 214 / 8	Flushing
C2	FH 225 / 5	Flushing
A3	FH 18 / 14	Flushing
C2	FH 243 / 6	Flushing
D4	FH 488 / 16	Flushing
C3	FH 230 / 23	Flushing
E1	FH 942 / 20	Flushing
C3	FH 111 / 10	Flushing
B1	FH 3 / 12	Flushing
C3	FH 236 / 25	Flushing

Time	Source
0921	UT Log
On 0729-Off 1202	UT Log
1200	UT Log
1033	UT Log
1400	UT Log
1004	UT Log
2006	UT Log
2245	UT Log
On 1250-Of 1806	UT Log
1950	UT Log
1802	UT Log
1719	UT Log
1920	UT Log
1830	UT Log
0450	UT Log
0805	UT Log

D4 FH 168 Flushing Complete
E1 FH 924 Flushing Complete

Project Programmer/ ICAP Engineer

NAVFAC HI, FMD JBPHH

647 CES/CEN

DSN: [REDACTED]

Cruz, Nicholas D LT USN NAVFAC SE JAX FL (USA)

From: SZCZEPANIK, BRITTANY A 2d Lt USAF AETC 71 STUS/STU <[REDACTED]>
Sent: Wednesday, January 5, 2022 10:13 PM
To: Wiley, Scottie R Maj USAF 647 ABG (USA); Kelly, Austin A 1st Lt USAF 647 ABG (USA); [REDACTED]; Duarte, Israel A MSgt USAF (USA); [REDACTED]; Williams, Malcolm J Capt USAF 647 ABG (USA); [REDACTED]; Gruber, Marjorie J LCDR USN CBMU 303 (USA); [REDACTED]; Asistio, Maria Angela Grace L 2d LT USAF USN NAVFAC HAWAII PEARL (USA); Huang, Andy D CIV USN NAVFAC HAWAII PEARL (USA); Spencer, Matthew A CIV USN COMNAVREG SW SAN CA (USA); Poche, Brennan W LT USN NAVFAC HAWAII PEARL (USA); [REDACTED]; Donovan, Luke T Lt Col USAF 49 MSG (USA); Beattie, Aaron J MAJ USARMY USARPAC (USA); 647 CES/UCC; Howard, Spencer L LT USN CBMU 303 (USA); [REDACTED]; Baranowski, Phillip J CPO USN NAVFAC SE JAX FL (USA); [REDACTED]; Hawkins, Brian A PO1 USN NAS KEY WEST FL (USA); Barr, Justin A PO2 USN (USA); Harris, Jamel W PO2 USN (USA); Johnson, Jamaría T PO2 USN (USA); [REDACTED]; Lett, Julius J SMSgt USAF (USA); [REDACTED]; Asistio, Maria Angela Grace L 2d LT USAF USN NAVFAC HAWAII PEARL (USA); EDWARDS, PHYLYSHA C SSgt USAF PACAF 647 CES/CEOER; Pendleton, Cole R SrA USAF 647 ABG (USA); Mchenry, Kevin G MSgt USAF 647 ABG (USA); Corum, Michael L II MSgt USAF 647 ABG (USA); CORUM, MICHAEL L II MSgt USAF PACAF 647 CES/CEN 647 CES/UCC
Cc:
Subject: INFO: 20220105 0800L - 2000L JBPHH DWDSRP Flush Report
Attachments: 20220105 0800L - 2000L JBPHH DWDSRP Flush Report.pdf
Signed By: [REDACTED]

Ladies & Gentlemen,

Attached is the flush report for Wednesday, 05 Jan 22, 0800L – 2000L. Below is a summary of current distribution flushing.

Current Location Summary:

Zone	Hydrant / GAC	Latest Status	
F2	FH 5 / 20	Flushing Started	on at 16:53 UT Watch
C2	FH 318 / 25	Flushing Started	on at 13:47 UT LOG
C2	FH 300 / 23	Flushing Started	on at 13:47 UT LOG
C2	FH 315 / 10	Flushing Started	on at 13:46 UT Watch
F2	FH 19 / 12	Flushing Started (First Time)	on at 10:35 Flush LOG
F2	FH 33	Flushing Started (First Time)	on at 14:42 UT LOG
F2	FH 14 / 17	Flushing Started	on at 09:53 Flush LOG
F2	FH 7	Flushing Resumed	on at 13:34 closed at 17:15 on at 19:21 UT LOG
F2	FH 25	Flushing Resumed	on at 14:25 closed at 17:22 on at 19:38 UT LOG
D4	FH 168 / 14	Flushing Started	on at 12:00 Flush LOG
D4	FH 457	Flushing Started (First Time)	on at 16:52 UT LOG
E1	FH 924	Flushing Resumed	on at 18:40 UT LOG

G1	FH 26 / 4	Flushing Started	closed at 08:20	Flush LOG
----	-----------	------------------	-----------------	-----------

Very Respectfully,

BRITTANY A. SZCZEPANIK, 2d Lt, USAF
Project Programmer/ ICAP Engineer
NAVFAC HI, FMD JBPHH
647 CES/CEN
DSN: [REDACTED]

Cruz, Nicholas D LT USN NAVFAC SE JAX FL (USA)

From: Wiley, Scottie R Maj USAF 647 ABG (USA) <[REDACTED]>
Sent: Thursday, January 6, 2022 2:10 PM
To: Szczepanik, Brittany A 2d LT USAF (USA); Kelly, Austin A 1st Lt USAF 647 ABG (USA); Joseph, Craig M MSgt USAF (USA); Duarte, Israel A MSgt USAF (USA); AhLeong, Peter A MSgt USAF 647 ABG (USA); Collins, Jason A CMSgt USAF USN NAVFAC HAWAII PEARL (USA); Williams, Malcolm J Capt USAF 647 ABG (USA); [REDACTED]; [REDACTED]; Gruber, Marjorie J LCDR USN CBMU 303 (USA); [REDACTED]; Asistio, Maria Angela Grace L 2d LT USAF USN NAVFAC HAWAII PEARL (USA); Huang, Andy D CIV USN NAVFAC HAWAII PEARL (USA); Spencer, Matthew A CIV USN COMNAVREG SW SAN CA (USA); Poche, Brennan W LT USN NAVFAC HAWAII PEARL (USA); Williams, Malcolm J Capt USAF 647 ABG (USA); Donovan, Luke T Lt Col USAF 49 MSG (USA); Beattie, Aaron J MAJ USARMY USARPAC (USA); 647 CES/UCC; Howard, Spencer L LT USN CBMU 303 (USA); Natsuhara, Brent T LT USN NAVFAC MARIANAS GU (USA); Cope, Jimmy Lee CPO USN COMEXSTRKGRU TWO (USA); Baranowski, Phillip J CPO USN NAVFAC SE JAX FL (USA); [REDACTED] Hawkins, Brian A PO1 USN NAS KEY WEST FL (USA); Barr, Justin A PO2 USN (USA); Harris, Jamel W PO2 USN (USA); Johnson, Jamaría T PO2 USN (USA); Credle, Gregory E III PO2 USN (USA); Lett, Julius J SMSgt USAF (USA); [REDACTED]; Asistio, Maria Angela Grace L 2d LT USAF USN NAVFAC HAWAII PEARL (USA); EDWARDS, PHYLYSHA C SSgt USAF PACAF 647 CES/CEOER; Pendleton, Cole R SrA USAF 647 ABG (USA); Mchenry, Kevin G MSgt USAF 647 ABG (USA); Corum, Michael L II MSgt USAF 647 ABG (USA); CORUM, MICHAEL L II MSgt USAF PACAF 647 CES/CEN 647 CES/UCC
Cc:
Subject: INFO: 20220106 0800L - 2000L JBPHH DWDSRP Flush Report
Attachments: 20220106 2000L - 0800L JBPHHH DWDSRP Flush Report.pdf
Signed By: [REDACTED]

Ladies & Gentlemen,

Attached is the flush report for Wednesday/Thursday, 05/06 Jan 22, 0800L – 2000L. Below is a summary of current distribution flushing.

Current Location Summary:

Zone	Hydrant / GAC	Latest Status
F2	FH 5 / 20	No Change
C2	FH 318 / 25	No Change
C2	FH 300 / 23	No Change
C2	FH 315 / 10	No Change
F2	FH 19 / 12	No Change
F2	FH 33	No Change
F2	FH 14 / 17	No Change
F2	FH 7	No Change
F2	FH 25	No Change
D4	FH 168 / 14	Flushing Complete (0450L)
D4	FH 457	No Change
E1	FH 924	No Change

G1	FH 26 / 4	No Change
E1	FH ID 927 / 19	Flushing Began (0730L)
E1	FH ID 931 / 18	Flushing Began (0730L)

r/

SCOTT R. WILEY, Major, USAF
Facilities Sustainment Division Deputy Director – PRJ3
Naval Facilities Engineering Systems Command, Hawaii
400 Marshall Road JBPHH HI 96860-3139
DSN [REDACTED]
Comm: [REDACTED]
Gov Cell: [REDACTED]

Parada, John J LT USN NCG 1 (USA)

From: SZCZEPANIK, BRITTANY A 2d Lt USAF AETC 71 STUS/STU <[REDACTED]>
Sent: Thursday, January 6, 2022 10:36 PM
To: Wiley, Scottie R Maj USAF 647 ABG (USA); Kelly, Austin A 1st Lt USAF 647 ABG (USA);
 [REDACTED]; Duarte, Israel A MSgt USAF (USA); [REDACTED]
 [REDACTED]; Williams, Malcolm J Capt USAF 647 ABG (USA);
 [REDACTED]; Gruber, Marjorie J LCDR
 USN CBMU 303 (USA); [REDACTED]; Asistio, Maria Angela Grace L 2d LT
 USAF USN NAVFAC HAWAII PEARL (USA); Huang, Andy D CIV USN NAVFAC HAWAII
 PEARL (USA); Spencer, Matthew A CIV USN COMNAVREG SW SAN CA (USA); Poche,
 Brennan W LT USN NAVFAC HAWAII PEARL (USA); [REDACTED]
 Donovan, Luke T Lt Col USAF 49 MSG (USA); Beattie, Aaron J MAJ USARMY USARPAC
 (USA); 647 CES/UCC; Howard, Spencer L LT USN CBMU 303 (USA);
 [REDACTED] Baranowski, Phillip J CPO USN
 NAVFAC SE JAX FL (USA); [REDACTED] Hawkins, Brian A PO1 USN NAS KEY
 WEST FL (USA); Barr, Justin A PO2 USN (USA); Harris, Jamel W PO2 USN (USA);
 Johnson, Jamarita T PO2 USN (USA); [REDACTED]; Lett, Julius J SMSgt
 USAF (USA); [REDACTED]; Asistio, Maria Angela
 Grace L 2d LT USAF USN NAVFAC HAWAII PEARL (USA); EDWARDS, PHYLYSHA C SSgt
 USAF PACAF 647 CES/CEOER; Pendleton, Cole R SrA USAF 647 ABG (USA); Mchenry,
 Kevin G MSgt USAF 647 ABG (USA); Corum, Michael L II MSgt USAF 647 ABG (USA);
 CORUM, MICHAEL L II MSgt USAF PACAF 647 CES/CEN
Cc: 647 CES/UCC
Subject: INFO: 20220106 0800L - 2000L JBPHH DWDSRP Flush Report
Attachments: 20220106 0800L - 2000L JBPHH DWDSRP Flush Report.pdf
Signed By: [REDACTED]

Ladies & Gentlemen,

Attached is the flush report for Thursday, 06 Jan 22, 0800L – 2000L. Below is a summary of current distribution flushing.

Current Location Summary:

Zone	Hydrant / GAC	Latest Status	Time	Source
F2	FH 5 / 20	Flushing Complete	0854	UT Log
C2	FH 318 / 25	Flushing Complete	1000	UT Log
C2	FH 300 / 23	Flushing Complete		
C2	FH 315 / 10	Flushing Complete	1033	UT Log
F2	FH 19 / 12	Flushing Complete	0900	UT Log
F2	FH 33	Flushing Complete	0932	UT Log
F2	FH 14 / 17	Flushing Complete	0840	UT Log
F2	FH 7	Flushing Complete	1600	UT Log
F2	FH 25	Flushing Complete	1630	UT Log
D4	FH 457	Flushing Complete	1152	UT Log
E1	FH 926	Flushing Complete		
G1	FH 26 / 4	Flushing		

E1	FH ID 927 / 19	Flushing	Time 0921	Source UT Log
E1	FH ID 931 / 18	Flushing	On 0729-Off 1202	UT Log
C3	FH 179 / 7	Flushing	1200	UT Log
B1	FH 4 / 22	Flushing	1033	UT Log
E1	FH 933 / 11	Flushing		
C2	FH 337 / 17	Flushing	1400	UT Log
F2	FH 214 / 8	Flushing Complete	1004	UT Log
C2	FH 225 / 5	Flushing	2006	UT Log
A3	FH 18 / 14	Flushing	2245	UT Log
C2	FH 243 / 6	Flushing	On 1250-Off 1806	UT Log
D4	FH 488 / 16	Flushing	1950	UT Log
C3	FH 230 / 23	Flushing	1802	UT Log
E1	FH 942 / 20	Flushing	1719	UT Log
C3	FH 111 / 10	Flushing	1920	UT Log
B1	FH 3 / 12	Flushing	1830	UT Log
C3	FH 236 / 25	Flushing		
D4	FH 168	Flushing Complete	0450	UT Log
E1	FH 924	Flushing Complete	0805	UT Log

Project Programmer/ ICAP Engineer

NAVFAC HI, FMD JBPHH

647 CES/CEN

DSN: [REDACTED]

Cruz, Nicholas D LT USN NAVFAC SE JAX FL (USA)

From: SZCZEPANIK, BRITTANY A 2d Lt USAF AETC 71 STUS/STU <[REDACTED]>
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Cc:
Subject: INFO: 20220105 0800L - 2000L JBPHH DWDSRP Flush Report
Attachments: 20220105 0800L - 2000L JBPHH DWDSRP Flush Report.pdf
Signed By: [REDACTED]

Ladies & Gentlemen,

Attached is the flush report for Wednesday, 05 Jan 22, 0800L – 2000L. Below is a summary of current distribution flushing.

Current Location Summary:

Zone	Hydrant / GAC	Latest Status				
F2	FH 5 / 20	Flushing Started				
C2	FH 318 / 25	Flushing Started	on at 13:47	UT LOG		
C2	FH 300 / 23	Flushing Started	on at 13:47	UT LOG		
C2	FH 315 / 10	Flushing Started				
F2	FH 19 / 12	Flushing Started (First Time)	on at 10:35	Flush LOG		
F2	FH 33	Flushing Started (First Time)	on at 14:42	UT LOG		
F2	FH 14 / 17	Flushing Started	on at 09:53	Flush LOG		
F2	FH 7	Flushing Resumed	on at 13:34	closed at 17:15	on at 19:21	UT LOG
F2	FH 25	Flushing Resumed	on at 14:25	closed at 17:22	on at 19:38	UT LOG
D4	FH 168 / 14	Flushing Started	on at 12:00	Flush LOG		
D4	FH 457	Flushing Started (First Time)	on at 16:52	UT LOG		
E1	FH 924	Flushing Resumed	on at 18:40	UT LOG		

G1	FH 26 / 4	Flushing Started	closed at 08:20	Flush LOG
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Very Respectfully,

BRITTANY A. SZCZEPANIK, 2d Lt, USAF
Project Programmer/ ICAP Engineer
NAVFAC HI, FMD JBPHH
647 CES/CEN
DSN [REDACTED]

Cruz, Nicholas D LT USN NAVFAC SE JAX FL (USA)

From: Wiley, Scottie R Maj USAF 647 ABG (USA) <[REDACTED]>
Sent: Thursday, January 6, 2022 2:10 PM
To: Szczepanik, Brittany A 2d LT USAF (USA); Kelly, Austin A 1st Lt USAF 647 ABG (USA); Joseph, Craig M MSgt USAF (USA); Duarte, Israel A MSgt USAF (USA); AhLeong, Peter A MSgt USAF 647 ABG (USA); Collins, Jason A CMSgt USAF USN NAVFAC HAWAII PEARL (USA); Williams, Malcolm J Capt USAF 647 ABG (USA); [REDACTED]; [REDACTED]; Gruber, Marjorie J LCDR USN CBMU 303 (USA); [REDACTED]; Asistio, Maria Angela Grace L 2d LT USAF USN NAVFAC HAWAII PEARL (USA); Huang, Andy D CIV USN NAVFAC HAWAII PEARL (USA); Spencer, Matthew A CIV USN COMNAVREG SW SAN CA (USA); Poche, Brennan W LT USN NAVFAC HAWAII PEARL (USA); Williams, Malcolm J Capt USAF 647 ABG (USA); Donovan, Luke T Lt Col USAF 49 MSG (USA); Beattie, Aaron J MAJ USARMY USARPAC (USA); 647 CES/UCC; Howard, Spencer L LT USN CBMU 303 (USA); Natsuhara, Brent T LT USN NAVFAC MARIANAS GU (USA); Cope, Jimmy Lee CPO USN COMEXSTRKGRU TWO (USA); Baranowski, Phillip J CPO USN NAVFAC SE JAX FL (USA); [REDACTED]; Hawkins, Brian A PO1 USN NAS KEY WEST FL (USA); Barr, Justin A PO2 USN (USA); Harris, Jamel W PO2 USN (USA); Johnson, Jamarita T PO2 USN (USA); Credle, Gregory E III PO2 USN (USA); Lett, Julius J SMSgt USAF (USA); [REDACTED]; Asistio, Maria Angela Grace L 2d LT USAF USN NAVFAC HAWAII PEARL (USA); EDWARDS, PHYLYSHA C SSgt USAF PACAF 647 CES/CEOER; Pendleton, Cole R SrA USAF 647 ABG (USA); Mchenry, Kevin G MSgt USAF 647 ABG (USA); Corum, Michael L II MSgt USAF 647 ABG (USA); CORUM, MICHAEL L II MSgt USAF PACAF 647 CES/CEN 647 CES/UCC
Cc:
Subject: INFO: 20220106 0800L - 2000L JBPHH DWDSRP Flush Report
Attachments: 20220106 2000L - 0800L JBPHHH DWDSRP Flush Report.pdf
Signed By: [REDACTED]

Ladies & Gentlemen,

Attached is the flush report for Wednesday/Thursday, 05/06 Jan 22, 0800L – 2000L. Below is a summary of current distribution flushing.

Current Location Summary:

Zone	Hydrant / GAC	Latest Status
F2	FH 5 / 20	No Change
C2	FH 318 / 25	No Change
C2	FH 300 / 23	No Change
C2	FH 315 / 10	No Change
F2	FH 19 / 12	No Change
F2	FH 33	No Change
F2	FH 14 / 17	No Change
F2	FH 7	No Change
F2	FH 25	No Change
D4	FH 168 / 14	Flushing Complete (0450L)
D4	FH 457	No Change
E1	FH 924	No Change

G1	FH 26 / 4	No Change
E1	FH ID 927 / 19	Flushing Began (0730L)
E1	FH ID 931 / 18	Flushing Began (0730L)

r/

SCOTT R. WILEY, Major, USAF
Facilities Sustainment Division Deputy Director – PRJ3
Naval Facilities Engineering Systems Command, Hawaii
400 Marshall Road JBPHH HI 96860-3139
DSN [REDACTED]
Comm: [REDACTED]
Gov Cell: [REDACTED]

Parada, John J LT USN NCG 1 (USA)

From: SZCZEPANIK, BRITTANY A 2d Lt USAF AETC 71 STUS/STU <[REDACTED]>
Sent: Thursday, January 6, 2022 10:36 PM
To: Wiley, Scottie R Maj USAF 647 ABG (USA); Kelly, Austin A 1st Lt USAF 647 ABG (USA);
 [REDACTED] Duarte, Israel A MSgt USAF (USA); [REDACTED]
 [REDACTED] Williams, Malcolm J Capt USAF 647 ABG (USA);
 [REDACTED] Gruber, Marjorie J LCDR
 USN CBMU 303 (USA); [REDACTED]; Asistio, Maria Angela Grace L 2d LT
 USAF USN NAVFAC HAWAII PEARL (USA); Huang, Andy D CIV USN NAVFAC HAWAII
 PEARL (USA); Spencer, Matthew A CIV USN COMNAVREG SW SAN CA (USA); Poche,
 Brennan W LT USN NAVFAC HAWAII PEARL (USA); [REDACTED]
 Donovan, Luke T Lt Col USAF 49 MSG (USA); Beattie, Aaron J MAJ USARMY USARPAC
 (USA); 647 CES/UCC; Howard, Spencer L LT USN CBMU 303 (USA);
 [REDACTED]; Baranowski, Phillip J CPO USN
 NAVFAC SE JAX FL (USA); [REDACTED]; Hawkins, Brian A PO1 USN NAS KEY
 WEST FL (USA); Barr, Justin A PO2 USN (USA); Harris, Jamel W PO2 USN (USA);
 Johnson, Jamaría T PO2 USN (USA); [REDACTED]; Lett, Julius J SMSgt
 USAF (USA); [REDACTED]; Asistio, Maria Angela
 Grace L 2d LT USAF USN NAVFAC HAWAII PEARL (USA); EDWARDS, PHYLYSHA C SSgt
 USAF PACAF 647 CES/CEOER; Pendleton, Cole R SrA USAF 647 ABG (USA); Mchenry,
 Kevin G MSgt USAF 647 ABG (USA); Corum, Michael L II MSgt USAF 647 ABG (USA);
 CORUM, MICHAEL L II MSgt USAF PACAF 647 CES/CEN
Cc: 647 CES/UCC
Subject: INFO: 20220106 0800L - 2000L JBPHH DWDSRP Flush Report
Attachments: 20220106 0800L - 2000L JBPHH DWDSRP Flush Report.pdf
Signed By: [REDACTED]

Ladies & Gentlemen,

Attached is the flush report for Thursday, 06 Jan 22, 0800L – 2000L. Below is a summary of current distribution flushing.

Current Location Summary:

Zone	Hydrant / GAC	Latest Status	Time	Source
F2	FH 5 / 20	Flushing Complete	0854	UT Log
C2	FH 318 / 25	Flushing Complete	1000	UT Log
C2	FH 300 / 23	Flushing Complete		
C2	FH 315 / 10	Flushing Complete	1033	UT Log
F2	FH 19 / 12	Flushing Complete	0900	UT Log
F2	FH 33	Flushing Complete	0932	UT Log
F2	FH 14 / 17	Flushing Complete	0840	UT Log
F2	FH 7	Flushing Complete	1600	UT Log
F2	FH 25	Flushing Complete	1630	UT Log
D4	FH 457	Flushing Complete	1152	UT Log
E1	FH 926	Flushing Complete		
G1	FH 26 / 4	Flushing		

E1	FH ID 927 / 19	Flushing	Time 0921	Source UT Log
E1	FH ID 931 / 18	Flushing	On 0729-Off 1202	UT Log
C3	FH 179 / 7	Flushing	1200	UT Log
B1	FH 4 / 22	Flushing	1033	UT Log
E1	FH 933 / 11	Flushing		
C2	FH 337 / 17	Flushing	1400	UT Log
F2	FH 214 / 8	Flushing Complete	1004	UT Log
C2	FH 225 / 5	Flushing	2006	UT Log
A3	FH 18 / 14	Flushing	2245	UT Log
C2	FH 243 / 6	Flushing	On 1250-Off 1806	UT Log
D4	FH 488 / 16	Flushing	1950	UT Log
C3	FH 230 / 23	Flushing	1802	UT Log
E1	FH 942 / 20	Flushing	1719	UT Log
C3	FH 111 / 10	Flushing	1920	UT Log
B1	FH 3 / 12	Flushing	1830	UT Log
C3	FH 236 / 25	Flushing		
D4	FH 168	Flushing Complete	0450	UT Log
E1	FH 924	Flushing Complete	0805	UT Log

Project Programmer/ ICAP Engineer

NAVFAC HI, FMD JBPHH

647 CES/CEN

DSN: [REDACTED]

Parada, John J LT USN NCG 1 (USA)

From: SZCZEPANIK, BRITTANY A 2d Lt USAF AETC 71 STUS/STU <[REDACTED]>
Sent: Thursday, January 6, 2022 10:36 PM
To: Wiley, Scottie R Maj USAF 647 ABG (USA); Kelly, Austin A 1st Lt USAF 647 ABG (USA); [REDACTED]; Duarte, Israel A MSgt USAF (USA); [REDACTED]; Williams, Malcolm J Capt USAF 647 ABG (USA); [REDACTED]; Gruber, Marjorie J LCDR USN CBMU 303 (USA); [REDACTED]; Asistio, Maria Angela Grace L 2d LT USAF USN NAVFAC HAWAII PEARL (USA); Huang, Andy D CIV USN NAVFAC HAWAII PEARL (USA); Spencer, Matthew A CIV USN COMNAVREG SW SAN CA (USA); Poche, Brennan W LT USN NAVFAC HAWAII PEARL (USA); [REDACTED]; Donovan, Luke T Lt Col USAF 49 MSG (USA); Beattie, Aaron J MAJ USARMY USARPAC (USA); 647 CES/UCC; Howard, Spencer L LT USN CBMU 303 (USA); [REDACTED]; Baranowski, Phillip J CPO USN NAVFAC SE JAX FL (USA); [REDACTED]; Hawkins, Brian A PO1 USN NAS KEY WEST FL (USA); Barr, Justin A PO2 USN (USA); Harris, Jamel W PO2 USN (USA); Johnson, Jamarita T PO2 USN (USA); [REDACTED]; Lett, Julius J SMSgt USAF (USA); [REDACTED]; Asistio, Maria Angela Grace L 2d LT USAF USN NAVFAC HAWAII PEARL (USA); EDWARDS, PHYLYSHA C SSgt USAF PACAF 647 CES/CEOER; Pendleton, Cole R SrA USAF 647 ABG (USA); Mchenry, Kevin G MSgt USAF 647 ABG (USA); Corum, Michael L II MSgt USAF 647 ABG (USA); CORUM, MICHAEL L II MSgt USAF PACAF 647 CES/CEN 647 CES/UCC
Cc:
Subject: INFO: 20220106 0800L - 2000L JBPHH DWDSRP Flush Report
Attachments: 20220106 0800L - 2000L JBPHH DWDSRP Flush Report.pdf
Signed By: [REDACTED]

Ladies & Gentlemen,

Attached is the flush report for Thursday, 06 Jan 22, 0800L – 2000L. Below is a summary of current distribution flushing.

Current Location Summary:

Zone	Hydrant / GAC	Latest Status	Time	Source
F2	FH 5 / 20	Flushing Complete	0854	UT Log
C2	FH 318 / 25	Flushing Complete	1000	UT Log
C2	FH 300 / 23	Flushing Complete		
C2	FH 315 / 10	Flushing Complete	1033	UT Log
F2	FH 19 / 12	Flushing Complete	0900	UT Log
F2	FH 33	Flushing Complete	0932	UT Log
F2	FH 14 / 17	Flushing Complete	0840	UT Log
F2	FH 7	Flushing Complete	1600	UT Log
F2	FH 25	Flushing Complete	1630	UT Log
D4	FH 457	Flushing Complete	1152	UT Log
E1	FH 926	Flushing Complete		
G1	FH 26 / 4	Flushing		

E1	FH ID 927 / 19	Flushing	Time 0921	Source UT Log
E1	FH ID 931 / 18	Flushing	On 0729-Off 1202	UT Log
C3	FH 179 / 7	Flushing	1200	UT Log
B1	FH 4 / 22	Flushing	1033	UT Log
E1	FH 933 / 11	Flushing		
C2	FH 337 / 17	Flushing	1400	UT Log
F2	FH 214 / 8	Flushing Complete	1004	UT Log
C2	FH 225 / 5	Flushing	2006	UT Log
A3	FH 18 / 14	Flushing	2245	UT Log
C2	FH 243 / 6	Flushing	On 1250-Off 1806	UT Log
D4	FH 488 / 16	Flushing	1950	UT Log
C3	FH 230 / 23	Flushing	1802	UT Log
E1	FH 942 / 20	Flushing	1719	UT Log
C3	FH 111 / 10	Flushing	1920	UT Log
B1	FH 3 / 12	Flushing	1830	UT Log
C3	FH 236 / 25	Flushing		
D4	FH 168	Flushing Complete	0450	UT Log
E1	FH 924	Flushing Complete	0805	UT Log

Project Programmer/ ICAP Engineer

NAVFAC HI, FMD JBPHH

647 CES/CEN

DSN: [REDACTED]

Parada, John J LT USN NCG 1 (USA)

From: SZCZEPANIK, BRITTANY A 2d Lt USAF AETC 71 STUS/STU [REDACTED]
Sent: Friday, January 7, 2022 10:18 PM
To: Wiley, Scottie R Maj USAF 647 ABG (USA); Kelly, Austin A 1st Lt USAF 647 ABG (USA); [REDACTED]; Duarte, Israel A MSgt USAF (USA); [REDACTED]; Williams, Malcolm J Capt USAF 647 ABG (USA); [REDACTED] Gruber, Marjorie J LCDR USN CBMU 303 (USA); [REDACTED]; Asistio, Maria Angela Grace L 2d LT USAF USN NAVFAC HAWAII PEARL (USA); Huang, Andy D CIV USN NAVFAC HAWAII PEARL (USA); Spencer, Matthew A CIV USN COMNAVREG SW SAN CA (USA); Poche, Brennan W LT USN NAVFAC HAWAII PEARL (USA); [REDACTED]; Donovan, Luke T Lt Col USAF 49 MSG (USA); Beattie, Aaron J MAJ USARMY USARPAC (USA); 647 CES/UCC; Howard, Spencer L LT USN CBMU 303 (USA); [REDACTED]; Baranowski, Phillip J CPO USN NAVFAC SE JAX FL (USA); [REDACTED] Hawkins, Brian A PO1 USN NAS KEY WEST FL (USA); Barr, Justin A PO2 USN (USA); Harris, Jamel W PO2 USN (USA); Johnson, Jamaría T PO2 USN (USA); [REDACTED]; Lett, Julius J SMSgt USAF (USA); [REDACTED] Asistio, Maria Angela Grace L 2d LT USAF USN NAVFAC HAWAII PEARL (USA); EDWARDS, PHYLYSHA C SSgt USAF PACAF 647 CES/CEOER; Pendleton, Cole R SrA USAF 647 ABG (USA); Mchenry, Kevin G MSgt USAF 647 ABG (USA); Corum, Michael L II MSgt USAF 647 ABG (USA); CORUM, MICHAEL L II MSgt USAF PACAF 647 CES/CEN 647 CES/UCC
Cc:
Subject: INFO: 20220106 2000L - 0800L JBPHH DWDSRP Flush Report
Signed By: [REDACTED]

Ladies & Gentlemen,

Attached is the flush report for Thursday/Friday, 06/07 Jan 22, 2000L – 0800L. Below is a summary of current distribution flushing.

Current Location Summary:

2000 - 0800 6/7 Jan 2022			Time	Source
E1	FH 926	Flushing Complete	On 0522-Off 0854	UT Log
G1	FH 26 / 4	Flushing Complete	On 0522-Off 0759	UT Log
E1	FH ID 927 / 19	Flushing Complete	0745	UT Log
E1	FH ID 931 / 18	Flushing Complete	0645	UT Log
C3	FH 179 / 7	Flushing Complete	1207	UT Log
B1	FH 4 / 22	Flushing Complete	1132	UT Log
E1	FH 933 / 11	Flushing Complete	0956	UT Log
C2	FH 337 / 17	Flushing Complete	0901	UT Log
F2	FH 214 / 8	Flushing Complete	0830	UT Log
C2	FH 225 / 5	Flushing Complete	0904	UT Log
A3	FH 18 / 14	Flushing Complete	1142	UT Log
C2	FH 243 / 6	Flushing Complete	0833	UT Log
D4	FH 488 / 16	Flushing Complete	0445	UT Log

			Time	Source
C3	FH 230 / 23	Flushing Complete	1021	UT Log
E1	FH 942 / 20	Flushing Complete	1042	UT Log
C3	FH 111 / 10	Flushing Complete	0910	UT Log
B1	FH 3 / 12	Flushing Complete	1140	KTR Log
C3	FH 236 / 25	Flushing Complete	1015	UT Log
D4	FH 637	Flushing	On 1814-Off 2345	UT & KTR Log
B1	FH 3	Flushing Complete	1109	UT Log
E1	FH 946	Flushing Complete	On 1400-Off 2224	UT Log
B1	FH 8	Flushing Complete	On 1530-Off 2255	UT Log
A3	FH 56	Flushing Complete	On 1434-Off 1715	UT Log
B1	FH 5	Flushing Complete	On 1617-Off 2235	UT Log
A3	FH 34	Flushing Complete	On 1409-Off 2124	KTR Log
A3	LFH 2	Flushing Complete	On 1644-Off 1847	UT Log
E1	FH 950	Flushing Complete	On 1700-Off 2308	UT Log
C3	FH 119	Flushing Complete	On 1615-Off 2100	EWG Log
C3	FH 128	Flushing Complete	On 1715-Off 2100	EWG Log
C3	FH 129	Flushing Complete	On 1620-Off 2100	EWG Log
C3	FH 135	Flushing Complete	On 1637-Off 2100	EWG Log
D4	FH 567	Flushing Complete	On 1015-Off 2330	UT Log

Cruz, Nicholas D LT USN NAVFAC SE JAX FL (USA)

From: SZCZEPANIK, BRITTANY A 2d Lt USAF AETC 71 STUS/STU <[REDACTED]>
Sent: Friday, January 7, 2022 10:16 PM
To: Wiley, Scottie R Maj USAF 647 ABG (USA); Kelly, Austin A 1st Lt USAF 647 ABG (USA); [REDACTED]; Duarte, Israel A MSgt USAF (USA); [REDACTED]; Williams, Malcolm J Capt USAF 647 ABG (USA); [REDACTED]; Gruber, Marjorie J LCDR USN CBMU 303 (USA); [REDACTED]; Asistio, Maria Angela Grace L 2d LT USAF USN NAVFAC HAWAII PEARL (USA); Huang, Andy D CIV USN NAVFAC HAWAII PEARL (USA); Spencer, Matthew A CIV USN COMNAVREG SW SAN CA (USA); Poche, Brennan W LT USN NAVFAC HAWAII PEARL (USA); [REDACTED]; Donovan, Luke T Lt Col USAF 49 MSG (USA); Beattie, Aaron J MAJ USARMY USARPAC (USA); 647 CES/UCC; Howard, Spencer L LT USN CBMU 303 (USA); [REDACTED]; Baranowski, Phillip J CPO USN NAVFAC SE JAX FL (USA); [REDACTED]; Hawkins, Brian A PO1 USN NAS KEY WEST FL (USA); Barr, Justin A PO2 USN (USA); Harris, Jamel W PO2 USN (USA); Johnson, Jamaría T PO2 USN (USA); [REDACTED]; Lett, Julius J SMSgt USAF (USA); [REDACTED]; Asistio, Maria Angela Grace L 2d LT USAF USN NAVFAC HAWAII PEARL (USA); EDWARDS, PHYLYSHA C SSgt USAF PACAF 647 CES/CEOER; Pendleton, Cole R SrA USAF 647 ABG (USA); Mchenry, Kevin G MSgt USAF 647 ABG (USA); Corum, Michael L II MSgt USAF 647 ABG (USA); CORUM, MICHAEL L II MSgt USAF PACAF 647 CES/CEN 647 CES/UCC
Cc:
Subject: INFO: 20220106 0800L - 2000L JBPHH DWDSRP Flush Report
Attachments: 20220107 0800L - 2000L JBPHH DWDSRP Flush Report.pdf
Signed By: [REDACTED]

Ladies & Gentlemen,

Attached is the flush report for Friday, 07 Jan 22, 0800L – 2000L. Below is a summary of current distribution flushing.

Current Location Summary:

0800-2000 7 Jan 2022				
A3	FH 2	Flushing	1644	UT LOG
A3	FH 34	Flushing Complete	1409	UT LOG
D4	FH 637	Flushing	on 0942 off 1043	UT LOG
D4	FH 567	Flushing	1015	UT LOG
A3	FH 56	Flushing Complete	on 1434, off 1715	UT LOG
A3	FH 59	Flushing Complete		
A3	SA LFH-2 / 17	Flushing Complete	1617	UT LOG
B1	FH 2 / 22	Flushing Complete		
B1	FH 5 / 7	Flushing	1617	UT LOG
B1	FH 8 / 5	Flushing	1530	UT LOG
E1	FH 950 / 19	Flushing	1700	UT LOG
E1	FH 946 / 11	Flushing	1400	UT LOG
C2	FH214	shut down	0830	UT LOG

Section C Officer-in-Charge of Flushing Daily Report

C3	FH 105	Flushing	1757	KTR LOG
C2	FH243	shut down	0833	UT LOG
C2	FH337	shut down	0901	UT LOG
C2	FH225	shut down	0904	UT LOG
C3	FH111	shut down	0910	UT LOG
E1	FH933	shut down	0956	UT LOG
C3	FH236	shut down	1015	UT LOG
C3	FH230	shut down	1021	UT LOG
E1	FH942	shut down	1042	UT LOG
G1	FH26	shut down	0759	UT LOG
B1	FH3	shut down	1109	UT LOG
B1	FH4	shut down	1132	UT LOG
A3	FH18	shut down	1142	UT LOG
C3	FH179	shut down	1207	UT LOG

February 26, 2022

From: Naval Facilities Engineering Systems Command Representative, IDWS Team
To: Interagency Drinking Water System Team

SUBJ: WATER STORAGE FACILITIES AND WATER SOURCE FOR ZONES A1, A2, A3, B1, C1, C2, C3, D1, D2, D3, D4, G1, E1, F1, F2, H1, H2, H3, AND I1

Ref: (a) Drinking Water Sampling Plan, December 2021
(b) Drinking Water Distribution System Recovery Plan, December 2021

Encl: (1) Joint Base Pearl Harbor Hickam Potable Water System Description
(2) S1 and S2 Water Storage Tank Flushing Report Memo
(3) Inspection, Maintenance, and Cleaning of Potable Water Tanks Memo
(4) Ford Island/Shipyard Water Transmission Line Status
(5) JBPHH/Iroquois Point Water Transmission Line Status
(6) Board of Water Supply Interconnection Status

1. This letter and associated enclosures describes and documents the flushing of the water storage facilities that serve the Joint Base Pearl Harbor Hickam (JBPHH) public water system (PWS No. 360). The flushing of the JBPHH water storage facilities and distribution system was completed in accordance with reference (a) and (b). Enclosure (1) describes the JBPHH public water system and storage tanks associated with the system. Page 8 of reference (a) has the flushing zones and water storage facilities located in each zone. The flushing of each zone identified in phase 1 of reference (a) included five volumetric turnovers. The volumetric turnover requirement included the water tank storage and distribution system volume for each zone. The water testing of the distribution system after flushing a zone's water storage tank and distribution system was the confirmation that contamination was removed from the system and that the water tanks was not a source of contamination. Enclosure (2) documents the Hawaii Department of Health's approved change from reference (a) for the flushing of Halawa S-1 and Halawa S-2.

2. Zones A1, A2, A3, B1, C1, C2, C3, D1, D2, D3, D4, G1, E1, F1, F2, H1, H2, H3 and I1 are currently fed by the Waiawa Shaft water supply source. The pumps from the shafts generally run continuous and range from 6,000 to 14,000 gallons per minute based on the demand of the JBPHH potable water system. The pressure throughout the JBPHH distribution system is aided by the two Halawa water storage tanks. The Halawa S-1 tank is currently in service and the Halawa S-2 tank has been taken offline for maintenance as documented in enclosure (2). Enclosure (3) documents the planned timeline associated with the inspection, maintenance and cleaning of the Navy owned water storage tanks. The planned work is scheduled to be completed before the end of this calendar year. The inspection of the water storage tanks will be conducted in accordance with American Water Works Association (AWWA) Standard for Inspecting and Repairing Steel Water Tanks, Standpipes, Reservoirs, and Elevated Tanks by personnel with the requisite qualifications outlined in this AWWA standard. Zone I1 (Red Hill) is served by Navy owned water storage tanks. The Army operates the consecutive Aliamanu public water system (PWS No. 337) which receives its water from the JBPHH public water

SUBJ: WATER STORAGE FACILITIES AND WATER SOURCE FOR ZONES A1, A2, A3, B1, C1, C2, C3, D1, D2, D3, D4, G1, E1, F1, F2, H1, H2, H3, AND I1

system. The Army's public water system serves the Aliamanu Military Reservation (AMR). The AMR area was subdivided into three flushing zones which included Zones H1, H2, and H3. The planned timeline associated with the inspection, maintenance, and cleaning of the Army owned water storage tanks will be submitted as part of the removal action reports for Zones H1, H2, H3.

3. At this time, there are two water transmission lines that are not in operation. The water transmission line between Ford Island and the Shipyard was offline at the time of the incident as described in Enclosure (3) and is currently going through repairs. The valves at each end of the underwater water transmission line between JBPHH and Iroquois Point were closed on December 5, 2021 and the valves have remained closed since that date as documented in Enclosure (4). Enclosure (5) documents the method for reopening the underwater water transmission line between JBPHH and Iroquois Point to prevent potential contamination and adverse water quality issues. The Navy will notify the Hawaii Department of Health prior to reopening the underwater water transmission line the between JBPHH and Iroquois Point. Additional interconnections with Board of Water Supply (BWS) are described in Enclosure (6). Water being distributed in the system and being stored in water storage tanks that maintain pressure in Zones A1, A2, A3, B1, C1, C2, C3, D1, D2, D3, D4, G1, E1, F1, and F2 have been flushed in accordance with reference (b) and the distribution system tested in accordance with reference (a). The removal action reports for Zones H1, H2, H3, and I1 document the flushing of the water storage tanks that specifically serve those zones.

4. I certify under penalty of law that I have personally examined and I am familiar with the information submitted and the submitted information is true, accurate, and complete.

MENO.MICHAEL | Digitally signed by
.WAYNE.JR.1088 | MENO.MICHAEL.WAYNE.JR
310035 | -1088310035
Date: 2022.02.26 17:41:31
-10'00'

M. W. Meno
CAPT, CEC, USN

Joint Base Pearl Harbor Hickam (JBPHH) Potable Water Description

Major components of the JBPHH potable water system include:

- Supply sources
 - Waiawa Shaft/Pumping Station
 - Red Hill Shaft/Pumping Station
 - Halawa Shaft/Pumping Station
 - Emergency Interconnections (2 locations)
- Water storage facilities
- 2-6,000,000 gallon steel storage tanks at Halawa
 - 2-200,000 gallon concrete storage tanks at Camp Smith
 - 1-250,000 gallon glass-fused steel storage tank at Camp Smith with a usable storage capacity of 140,000 gallons
 - 2-250,000 gallon glass-fused steel storage tank at Red Hill
- Distribution system
 - Camp Smith Booster Pump (to convey water to the Camp Smith water system)
 - Red Hill Booster Pumps (to convey water to the storage tank)
 - Moanalua Terrace Booster Pumps (to pressurize the water system serving the Moanalua Terrace Housing area)
 - Boneyard Booster Pumps (to pressurize the water system serving the upper elevation of Moanalua Terrace Housing area)
 - Manana Booster Pumps (to pressurize the water system serving the Manana Housing area)
 - A network of pipes, meters, valves, and hydrants for distribution and fire protection

Water Storage Facilities:

Fresh water storage facilities store water for normal, fire, and maximum demand use, and serve to maintain relatively constant pressure in the water system. The JBPHH water system is equipped with two welded steel tanks, each with a storage capacity of six million gallons. These tanks are identified as the Halawa storage tanks S-1 and S-2. Both of these tanks are located adjacent to the Aliamanu Military Reservation at a ground elevation of 140 feet. The diameter of the tanks are 164 feet each, with a nominal height of 48 feet. The spillway elevations of the S-1 and S-2 tanks are 178.5 feet. The tanks are interconnected by a 10-inch line. Water from each of the tanks discharges through separate 24-inch mains and combines to a single 30-inch transmission main.

Other water storage tanks in the JBPHH system include the three tanks at Camp Smith, a storage tank serving the Red Hill Housing area, and three storage tanks serving the Army's Aliamanu Housing area. The Red Hill and Aliamanu tanks are supplied by separate booster pump stations located at the Red Hill Water Pumping Station and the Halawa Storage Tanks, respectively. These tanks are dedicated to serving these two non-Navy housing areas.

February 11, 2022

From: Naval Facilities Engineering Systems Command Representative, IDWS Team
To: Interagency Drinking Water System Team

SUBJ: S1 AND S2 WATER STORAGE TANK FLUSHING REPORT

Ref: (a) Drinking Water Distribution System Recovery Plan, December 2021

1. This letter documents the current status of the S1 and S2 water storage tanks. In accordance with reference (a), the S1 and S2 water storage tanks were part of the Zone F1 flushing plan. The flushing plan for Zone F1 included both water storage tanks in the five volumetric turnover calculations. The calculated turnover volume was 61.35 million gallons of water. The S1 tank was flushed by cycling the water tank for five volumetric flushes. In order to conserve the amount of water being used in the flushing of Zone F1, the S2 water storage tank was taken out of service and remains out of service to date. This decision resulted in the conservation of approximately 25 million gallons of water. The Hawaii Department of Health (HDOH) was notified of the Navy's modified flushing plan and provided concurrence. The S2 water storage tank is being scheduled for cleaning and maintenance. The Navy will provide details to HDOH on the method and procedures for cleaning and maintenance of the S2 water storage tank prior to the start of work. The Navy will notify the HDOH upon completion of the work and the tank being placed back into service.

2. I certify under penalty of law that I have personally examined and I am familiar with the information submitted and the submitted information is true, accurate, and complete.

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M. W. Meno
Captain, U.S. Navy Civil Engineer Corps

ENCL(2)

25 February 2022

MEMORANDUM FOR RECORD

SUBJECT: Inspection, Maintenance, and Cleaning of Potable Water Tanks

1. This Memorandum for Record (MFR) is to document the summary processes for inspection, maintaining, and cleaning storage tanks within the Joint Base Pearl Harbor-Hickam potable water system. There are seven potable water storage tanks. Each tank holds water that is consistently in flux – rising and falling according to the dynamic demands for water under certain pressures at specific times. As such, the tanks are continually cycling fresh water recently pumped from the well and chlorinated at the treatment plant. JBPH-H does not drain and clean the tanks per a schedule, however the following records indicate recent cleaning. Tank cleaning follows AWWA M42 - Steel Water Storage Tanks.
 - a. S1 tank inspected and cleaned in 2010, cleaned by in-house EV remediation shop, mainly to remove sediment from the tank floor.
 - b. S2 tank inspected and cleaned 2007, cleaned by in-house remediation shop, mainly to remove sediment from the tank floor.
 - c. Red Hill tank No. 685 was inspected in 2013, via remote camera vehicle
 - d. Red Hill tank No. 316 was installed in 2017 and has not yet been inspected
 - e. Camp Smith tanks (3) were inspected and cleaned in 2013.
2. As the seven tanks have not been inspected a group for several years, the Public Works Department shall funds and contract a complete inspection and cleaning for all tanks in accordance with AWWA standards by then end CY 2022.
3. Tanks are monitored and operated using a Supervisory Control and Data Acquisition (SCADA) system to ensure that they are at the right levels and pumps and valves are operating at prescribed times and speeds, overseen by Utilities staff 24/7. Our field team is regularly physically engaged with these tanks to ensure functionality, condition, and security of the tanks. There are frequent field actions near and connected to the tanks – they are routinely inspected per the requirements to manage the system.
4. As the tank hardware ages and requires repair and replacement, a tank may be isolated, drained and taken out of service to conduct this work. At these times, when work involved the interior of the tank, a full cleaning and refilling is conducted. This is typically done with a contract.
5. The S2 tank, a 6 MG tank that, with the S1 tank, provides the ability to keep pressurized water in the system for firefighting while serving the domestic demand, has been secured from the rest of the system since December 22, 2021. The water in the tank has been sampled and the results have shown a non-detect for TPH. Public work will make repairs and clean this tank within the next 90 days. The process to flush, clean and return the tank to the system is as follows:
 - a. Repair S1/S2 overflow 24" drain line with Cured-in-Place Pipe
 - b. Drain S2 tank via existing drain line, leading to the city storm drainage system
 - c. Clean and Disinfect S2 tank (Following ANSI/AWWA C652-02: Disinfection of Water-Storage Facilities)
 - d. Perform bacteriological and TPH sampling and testing
 - e. Return S2 tank to service

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Public Works Officer
Joint Base Pearl Harbor Hickam

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22 February 2022

MEMORANDUM FOR RECORD

SUBJECT: Ford Island/Shipyard Water Transmission Line Status

1. This Memorandum for Record (MFR) is to document the status of the underwater crossing water transmission line (pipe) that connects the Ford Island and Shipyard areas of the Joint Base Pearl Harbor-Hickam Potable Water System.
2. As part of the P-209 Dry Dock 3 Replacement design effort, a contractor was performing soil borings at Hospital Point near the Shipyard. The contractor damaged the 24-inch underwater crossing during one of their borings on 15 June 21, by drilling through the casing and pipe.
3. JBPHH has begun plans for repairing or replacing this damaged line. A Design consultant is scheduled to start the design on the repairs in March of 2022. Construction funds for the repair are allocated for Fiscal Year 2023.
4. The water transmission line was secured from the JBPHH system via an isolation valve on the Ford Island side, and physical pipe removal on the Shipyard side. Enclosure [1] is a picture taken on 22 January 2022 of the physical pipe removal at Hospital Point.
5. The Ford Island isolation valve is less than 5 years old, and PWD personnel have verified in the field that there are no indications of leak-by, via audible tests and noting the lack of vibrations.
6. a pitot-style flow meter that has been sending false readings is located in the currently isolated section is, as there is no water flow in this not-in-service piping. Isolation was performed with in-house NAVFAC forces on 5 Dec 2021. PWD has not explored the root cause of the false reading, as the piping is isolated, and the meter is not used for any other purposes. Possible cause of the flow readings may be air trapped in the lines that shows pressure differentials as tide changes.

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CAPT R. Harmeyer
Public Works Officer
Joint Base Pearl Harbor Hickam



25 February 2022

MEMORANDUM FOR RECORD

SUBJECT: Joint Base Pearl Harbor-Hickam – Iroquois Point Water Connection

ENCL.: (1) Interconnection line drainage schematic

1. This Memorandum for Record (MFR) is to document the process to reopen and flush the 24" potable water system interconnection line between Iroquois Point and Bishop Point on Joint Base Pearl Harbor-Hickam.
2. Like most looped systems, the water in this interconnection flows in both directions depending on demand. On work days, when residents are typically not on Iroquois Point and the Joint Base is operating, water typically flows from west to east. On nights and weekends, the water may flow from east to west, depending on if the Kapilina Homes in Iroquois Point is operating the irrigation system, and similarly, what the demand is on the Joint Base proper from housing communities near Bishop Point. The long-term closure of the line is possible because each zone has multiple feeds. The presence of these looped interconnections allows redundancy – if one feed goes off-line for maintenance or unexpectedly, the area has a redundant feed to continue service.
3. The interconnection was secured on 05 Dec. 2021 by closing the gate valve on each end (shore) of the interconnection. The water between these valves has not moved since then. When we bring this section back online, the process will be as follows, and according to the diagram in Enclosure (1).
 - a. Secure two additional valves (126 and 130 at West Loch). See Enclosure (1).
 - b. Open valve 128 (currently shut) at West Loch
 - c. Open valve at Hickam that is currently shut
 - d. Open and flush from hydrant no. 64 at West Loch, located between valves 126 and 128.
 - e. Flush transmission line for 6-8 hours to the sanitary sewer.
 - f. Flushing, chlorination and testing of the transmission main will follow ANSI/AWWA C651-05: Disinfecting Water Mains.
 - g. Collect first sample for bacteriological testing after flushing.
 - h. Collect second sample (at least 24 hours after first sample) for bacteriological testing.
 - i. Open valves 126 and 130 and valves on Bishop Point, completing the loop.

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CAPT R. Harmeyer
Public Works Officer
Joint Base Pearl Harbor Hickam

ENCL(5)

22 February 2022

MEMORANDUM FOR RECORD

SUBJECT: Board of Water Supply Interconnection Status

Ref: [1] Management Inquiry Into Manana Booster/BWS dtd 29 Dec 2021

1. This Memorandum for Record (MFR) is to document the status of the Board of Water Supply (BWS) interconnections with the Joint Base Pearl Harbor Hickam Potable Water System. The JBPHH system has four interconnection points with BWS: (1) Puuloa Road, (2) Halawa Heights Road, (3) Manana Housing, and (4) Red Hill.
2. BWS physically removed the meters from two of the interconnections, creating an “air gap” between the BWS system and the Navy system at both the Puuloa Road location and the Halawa Heights Road location. BWS performed that work on or around 10 December 2021. PWD personnel confirmed that the meters were removed on 14 December 2021.
3. Red Hill and Manana Housing BWS interconnections are still physically connected. The Red Hill interconnection is isolated on both the BWS side and Navy side of the connection. Manana interconnection was opened on 16 November 2021, and is feeding Manana housing. Isolation valves have been secured from the Navy supply to Manana, to isolate Manana Housing from the JBPHH System (Reference [1]).
4. Prior to December 2017, there was a fifth BWS interconnection with the JBPHH system, located at Geiger Road. The Kalaeloa area of the JBPHH water system was transferred from Navy to the Kalaeloa Water Company in December 2017. The BWS interconnection was included in the transfer. Shortly after the transfer, PWD Utilities personnel physically removed the connection from West Loch to Geiger Road piping, “air gapping” the KWC system and the JBPHH system.

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CAPT R. Harmeyer
Public Works Officer
Joint Base Pearl Harbor Hickam

ENCL(6)

March 8, 2022

From: Naval Facilities Engineering Systems Command Representative, IDWS Team

To: Interagency Drinking Water System Team

SUBJ: ZONE C2 DISTRIBUTION SYSTEM SAMPLE AND EXCEEDANCE RESAMPLE REPORT

- Encl:
- (1) Zone C2 Stage 2 Distribution Sampling Report
 - (2) Zone C2 ISP or MCL Exceedance Resample Report
 - (3) Laboratory Report, SDG 580-109117-4, Level 2, Revision 2, Eurofins FGS, Seattle, 2022-02-21
 - (4) AECOM Technical Review of BCEE in sample results dtd 05 MAR 2022
 - (5) Eurofins Corrective Action Memo for AECOM bis (2-Chloroethyl) ether false positives
 - (6) DoH's Guidance on the Approach to Amending the Public Health Advisory, Addendum 1 dtd 12 FEB 2022
 - (7) DoH SVOC Sample Results for Zone C2
 - (8) DoH TPH Sample Results for Zone C2

1. The Zone C2 Distribution System sampling results are listed in enclosures (1) and (2). Enclosure (1) contains the initial distribution system sample results for Zone C2. Enclosure (2) documents additional distribution samples that were taken in Zone C2. The samples of the distribution system were taken at the hydrants. The categories of the results are broken down into non-detect, detect below limit levels, and exceedance. A non-detect occurs when the laboratory does not detect a measurable amount of an analyte. A detect below limit levels occurs when the laboratory detects a measurable amount of an analyte below Incident Specific Parameters (ISPs), Department of Health (DoH) Environmental Action Levels (EALs) or Maximum Contaminant Levels (MCLs), or Environmental Protection Agency (EPA) MCLs. An exceedance occurs when the laboratory detects a chemical and the amount detected is higher than established acceptable thresholds. All chemical and metal detections are shown in enclosures (1) and (2). The various agency limits are listed for reference and the result along with the location of the exceedance sample is listed in tabular form. Results highlighted in yellow exceed the ISP. Results in purple font also exceed the EAL. Results in green font also exceed the DOH MCL. Results in blue font also exceed the EPA MCL.

2. Bis (2-chloroethyl) ether (BCEE) was detected in the Zone C2 screening samples taken on January 7, 2022 as shown in enclosure (1). The detection of this compound seemed to be an anomaly. As a result of this possibility, AECOM conducted a technical review of the lab procedure and found an error that resulted in a false detect. AECOM notified the laboratory of their technical review. On page 3 of enclosure (3), the laboratory report states that:

“02/07/2022: The report has been revised to report the 8270E analyte Bis (2-chloroethyl) ether as ND after further review of the data. Samples were initially reported to contain Bis (2-chloroethyl) ether above the reporting limit. Upon further review, these results do contain

SUBJ: ZONE C2 DISTRIBUTION SYSTEM SAMPLE AND EXCEEDANCE RESAMPLE
REPORT

ions 93 and 95 in adequate ratios and at a satisfactory retention time; however, the results do not contain ion 63 at an adequate ratio, nor does the overall fragmentation pattern match that of Bis (2-chloroethyl) ether. Therefore, these detections have been identified as false positives and the status of Bis (2-chloroethyl) ether has been revised as non-detect.”

As a precaution, the Navy resampled the original hydrant that was previously taken and the result was non-detect for BCEE. This is fully documented in enclosure (2) which reflects the corrected BCEE sample results for the screening sample taken on January 7, 2022. Enclosure (2) shows the resample taken on February 3, 2022 which was non-detect for BCEE. Enclosure (4) documents the technical review conducted by AECOM. The EPA stated in IDWST deliberations their concurrence with the conclusion of a false detect after independent review from the Region 9 laboratory and contractor resources. Enclosure (5) provides amplifying information from Eurofins Laboratory regarding the false detection of BCEE. Based upon the amplifying information from Eurofins Laboratory and discussion among the IDWST, it was concluded that neither BCEE nor the misidentified by-products of chlorine and the stabilizer of the lab's extraction agent, 2-methyl-2-butene (amylene), were in the sampled water. A reaction of normal chlorination in the water and the stabilizer of the lab's extraction agent caused the formation of a polychlorinated amylene that was misidentified as BCEE. This compound could not form in the distribution system in the presence of chlorine because the stabilizer in the lab's extraction agent would not be present to cause that reaction.

3. Enclosure (6) sets the DOH project screening level for copper at the action level of 1,300 parts per billion (ppb). Enclosure (7) and enclosure (8) are the test results for samples taken by DoH. There were no exceedances above the MCL and no exceedances of ISPs that required further action. Based on all of the information presented above, no further action was required regarding the distribution system for Zone C2. The laboratory reports will be made publicly available at <https://jbphh-safewaters.org/> upon amendment of the health advisory for Zone C2.

4. I certify under penalty of law that I have personally examined and I am familiar with the information submitted and the submitted information is true, accurate, and complete.

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CAPT, CEC, USN



Interagency Drinking Water System Team

Drinking Water Distribution System Recovery Plan: *Stage 2 Sampling* *Results for Zone C2*

Joint Base Pearl Harbor-Hickam (JBPHH)
29 January 2022



Neighborhoods included in Zone C2: Hale Point, Hospital Point (see also C3), and Marine Barracks

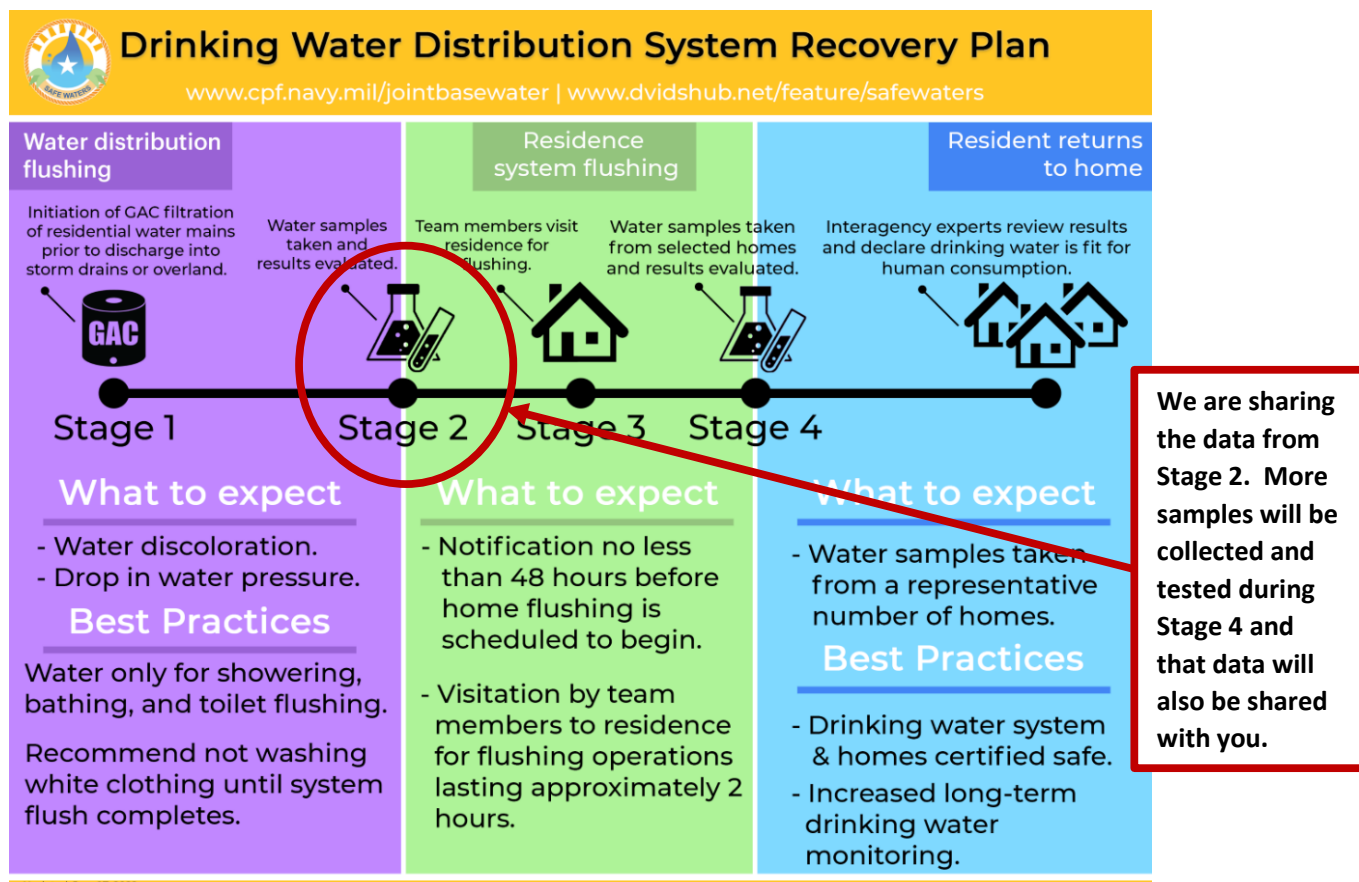


EXECUTIVE SUMMARY FOR ZONE C2

The State of Hawaii Department of Health's (DOH) November 29, 2021 [Public Health Advisory for the JPBHH Public Water System](#) for Zone C2 remains in effect. DOH recommends all Navy water system users should avoid using the water for drinking, cooking, or oral hygiene. This includes consumption by pets. Navy water system users who detect a fuel-like odor from their water should also avoid using the water for bathing, dishwashing or laundry.

We have thoroughly flushed, sampled, and tested the water distribution system lines (Water Mains) in Zone C2. This Zone has moved to Stage 3–Building Flushing/Stage 4–Building Sampling, in the Drinking Water Distribution System Recovery Plan (see the Figure below). Based on the samples collected and tested, to date, this water meets all U.S. Environmental Protection Agency (EPA) and State of Hawaii Department of Health (DOH) standards that are applicable to the Navy Water System Incident.

No final conclusions or recommendations can be made at this time for the drinking water in your zone because more drinking water samples are being collected and tested from Water Mains, residences, buildings, schools, and child development centers (after they have been flushed). We are sharing this information to keep you updated on our progress towards restoring the water supply being provided to your community.



Updated: Jan. 07, 2022

For additional information, please visit: <https://www.cpf.navy.mil/JBPHH-Water-Updates/>.



Table 1. Contaminants Detected in Drinking Water Samples Collected from Water Mains in Zone C2

Contaminant	Sampling Date	Units	DOH Project Screening Level	Basis of DOH Screening Level ²	Highest Level Detected	Meets DOH Screening Level? (Yes / No)	Typical Source of Contaminant
Contaminants of Concern¹							
Benzene	01/08/2022	ppb	5	MCL	ND	Yes	Discharge from factories; Leaching from gas storage tanks and landfills
Ethylbenzene	01/08/2022	ppb	700	MCL	ND	Yes	Discharge from petroleum refineries
Toluene	01/08/2022	ppb	1000	MCL	ND	Yes	Discharge from petroleum factories
m,p-Xylenes	01/08/2022	ppb	10000	MCL	ND	Yes	Discharge from petroleum factories; Discharge from chemical factories
o-Xylenes	01/08/2022	ppb	10000	MCL	ND	Yes	Discharge from petroleum factories; Discharge from chemical factories
1-Methylnaphthalene	01/08/2022	ppb	2.1	ISP	0.113	Yes	Used to make other chemicals such as dyes, and resins; also, present in cigarette smoke, wood smoke, tar, asphalt, and at some hazardous waste sites
2-Methylnaphthalene	01/08/2022	ppb	4.7	ISP	ND	Yes	Used to make other chemicals such as dyes, and resins; also used to make vitamin K; and is present in cigarette smoke, wood smoke, tar, asphalt, and at some hazardous waste sites
Naphthalene	01/08/2022	ppb	12	ISP	ND	Yes	Naphthalene is found in coal tar or crude oil and is used in the manufacture of plastics, resins, fuels, and dyes, and as a fumigant
Lead	01/08/2022	ppb	15	ISP	2.53	Yes	Corrosion of household plumbing systems; Erosion of natural deposits
Total Petroleum Hydrocarbons (TPH)-Gasoline (C6-C12)	01/08/2022	ppb	200	ISP	ND	Yes	Gasoline is a petroleum product that can contaminate drinking water through spills and other releases into the environment
TPH-Diesel (C9-C25)	01/08/2022	ppb	200	ISP	61	Yes	Diesel is a petroleum product that can contaminate drinking water through spills and other releases into the environment
TPH-Oil (C24-C40)	01/08/2022	ppb	200	ISP	ND	Yes	Oil is a petroleum product that can contaminate drinking water through spills and other releases into the environment
Total Organic Carbon (TOC)	01/08/2022	ppb	2000	ISP	246	Yes	Naturally present in the environment, but also can be an indicator of contamination, including petroleum or other sources

JBPHH – Interagency Drinking Water System Team



Contaminant	Sampling Date	Units	DOH Project Screening Level	Basis of DOH Screening Level ²	Highest Level Detected	Meets DOH Screening Level? (Yes / No)	Typical Source of Contaminant
Metals							
Arsenic	01/08/2022	ppb	10	MCL	0.0868	Yes	Erosion of natural deposits; Runoff from orchards; Runoff from glass and electronics production wastes
Barium	01/08/2022	ppb	2000	MCL	1.8	Yes	Discharge of drilling wastes; Discharge from metal refineries; Erosion of natural deposits
Chromium	01/08/2022	ppb	100	MCL	1.18	Yes	Corrosion of galvanized pipes; Erosion of natural deposits; Discharge from metal refineries; Runoff from waste batteries and paints
Copper	01/08/2022	ppb	1300	AL	17.8	Yes	Corrosion of household plumbing systems; Erosion of natural deposits
Selenium	01/08/2022	ppb	50	MCL	0.222	Yes	Discharge from petroleum and metal refineries; Erosion of natural deposits; Discharge from mines
Volatile Organic Compounds - ND							
Synthetic Organic Compounds (SOCs) or Semi-Volatile Organic Compounds (SVOCs)							
Bis(2-Chloroethyl)ether	01/07/2022	ppb	0.014	EAL	0.76	No ⁵	Man-made intermediate chemical used in other compounds or pesticides; It can also be used as a solvent, cleaner, component of paint and varnish, and rust inhibitor; Enters the environment as the result of manufacture and use
Di-n-butyl Phthalate (DBP)	01/07/2022	ppb	–	–	10	Yes	Makes plastics more flexible and is also in carpet backings, paints, glue, insect repellents, hair spray, nail polish, and rocket fuel; Enters the environment as the result of manufacture and use

Notes:

1. These contaminants are listed whether detected or non-detected (ND) because these are incident specific. All other contaminants are only listed if detected.
2. DOH uses multiple criteria to assess the safety of the drinking water including maximum contaminant levels (MCLs) previously established environmental action levels (EALs) and incident specific parameters (ISPs).
3. Acronyms and explanation of terms used in this table are presented on the following pages. For assistance in understanding and interpreting information in this table, refer to FACT SHEET, Understanding You Water Quality Summary Table, available online at: <https://www.cpf.navy.mil/JBPHH-Water-Updates/>.
4. For more information regarding Total Petroleum Hydrocarbons, refer to the FACT SHEET What Are Petroleum Hydrocarbons?, available online at: https://health.hawaii.gov/about/files/2021/12/21.12.16_What-Are-Petroleum-Hydrocarbons.pdf.
5. In addition to testing drinking water for contaminants regulated under the Safe Drinking Water Act, we also tested for some contaminants that are not regulated. Unregulated contaminants do not have legal limits for drinking water (i.e., they do not have MCLs) but may have a screening level (e.g., Tier 1 EAL). Tier 1 EALs are concentrations of contaminants in drinking water and other media (e.g., soil, soil gas, and groundwater) below which the contaminants are assumed to not pose a

JBPHH – Interagency Drinking Water System Team



significant threat to human health or the environment. Exceeding the Tier 1 EAL does not necessarily indicate that contamination at the site poses environmental hazards and may be set at levels that are impossible for water systems to meet (for example, large-scale treatment technology may not exist for a given contaminant). Per DOH's 12/30/2021 DOH's Guidance on the Approach to Amending the Drinking Water Health Advisory, if the Tier 1 EAL is exceeded, the Navy shall investigate the source(s) of the contamination under direction of the DOH. The DOH EAL is based on the EPA tapwater Regional Screening Level for Bis(2-Chloroethyl)ether (<https://semspub.epa.gov/src/document/HQ/401655>). Bis(2-Chloroethyl)ether (BCEE) was not detected in JP-5 product samples from the Red Hill Shaft. "In the past, BCEE has been used as a solvent for fats, waxes, greases, and esters (Schrenk et al. 1933). It has also been used as a constituent of paints and varnishes, as a cleaning fluid for textiles, in the purification of oils and gasoline, in the manufacture of medicines and pharmaceuticals, as an intermediate in the synthesis of other chemicals, and as an insecticide and a soil fumigant (Browning 1965; Hake and Rowe 1963; HSDB 1988; Verschuere 1977; Windholz 1983)." See the following link for more information: <https://www.atsdr.cdc.gov/toxprofiles/tp127.pdf>.



Drinking Water Distribution System Recovery Plan: Stage 2 Sampling Results for Zone C2

What is the purpose of this Stage 2 Sampling Results Report?

This is a progress report and presents the testing results from drinking water distribution system samples that have been collected, to date, from the water distribution system lines (Water Mains) in your Zone. These samples were collected after extensive flushing of the distribution system was performed using clean water from the Navy Waiawa Shaft. This is Stage 2 of the 4-Stage process described in the [Drinking Water Distribution System Recovery Plan](#).

No final conclusions or recommendations can be made at this time for the drinking water in your zone because more drinking water samples are being collected and tested from Water Mains, residences, buildings, schools, and child development centers. We are sharing this information to keep you updated on our progress towards restoring the water supply being provided to your community.

What was found?

The table presented above (Table 1) presents all contaminants that were detected in drinking water samples that have been collected, to date, from the Water Mains in your Zone during Stage 2. Hawaii DOH used multiple standards/criteria (called DOH Project Screening Levels) to assess the safety of the drinking water to include:

- EPA and Hawaii DOH Maximum Contaminant Levels (MCLs) standards for drinking water,
- Previously established Environmental Action Levels (EALs); and
- Incident Specific Parameters (ISPs).

Based on these data, this Zone moved to Stage 3–Building/Home Flushing, in the [Drinking Water Distribution System Recovery Plan](#).

What contaminants were tested?

Drinking water, including bottled water, can contain at least small amounts of some contaminants. The presence of contaminants does not necessarily indicate that water poses a health risk. More information about contaminants tested can be obtained by calling the Hawaii DOH Safe Drinking Water Branch at 808-586-4258.

In order to ensure that drinking water is safe to drink, EPA and Hawaii DOH regulate the amount of certain contaminants in water provided by public water systems. The primary categories of monitored contaminants include volatile organic compounds (VOCs), synthetic organic chemicals (SOCs)/semi-volatile organic compounds (SVOCs), metals, Total Petroleum Hydrocarbons (TPH), Total Organic Carbon (TOC) chlorine and pH. A description of these contaminant categories can be found under Explanation of Terms located at the end of this report. The full list of contaminants that were tested for are



presented in the laboratory reports are located at: <https://www.cpf.navy.mil/JBPHH-Water-Updates/>.

What happened leading up to Public Health Advisory being issued?

After receiving reports of a fuel-like smell or visual sheen in the drinking water from residents of Joint Base Pearl Harbor – Hickam (JBPHH) on November 28, 2021, the Navy immediately stopped using water from the Red Hill Shaft. Out of abundance of caution, the Navy also stopped using water from the Navy Aiea Halawa Shaft. The Navy's water system provides drinking water to JBPHH, including the Army, Air Force, Marine Corps, and Hawaii residents in some neighborhoods close to JBPHH. The Hawaii DOH issued a [Public Health Advisory on November 29, 2021](#). The Hawaii DOH, the United States Environmental Protection Agency (EPA), Navy, and Marine Corps Public Health Center, and Army formed the Interagency Drinking Water System Team (IDWST) to work on a coordinated effort to restore safe drinking water to all Navy Water System users.

Has the Public Health Advisory been amended or lifted?

No. Please continue to follow the Public Health Advisory for Navy Water System users and only use your drinking water for non-consumptive purposes as long as your water does not have a visible sheen and remains odor free. Your service may have provided more restrictive guidance. As stated above, we are at Stage 2 of the 4-Stage process described in the Drinking Water System Recovery Plan and the Public Health Advisory will be re-evaluated by Hawaii DOH after Stage 4 in the process.

Where does our water come from?

The source of all water for all Navy Water System users now comes only from the Navy Waiawa Shaft, which was not impacted by the release of Jet Fuel (JP-5) that occurred at Red Hill in late November 2021. The Waiawa Shaft has been sampled and EPA and DOH confirmed that it meets all federal and state drinking water standards and it will continue to be sampled in accordance with EPHA and DOH requirements.

What is the IDWST doing to clean the drinking water distribution system?

The IDWST evaluated multiple options for cleaning the Navy drinking water distribution system and determined that high-volume flushing of the Navy drinking water distribution system (all water mains/laterals/buildings) with 3 to 5 volumes of clean water from the Waiawa Shaft, followed by extensive testing to confirm that flushing worked, would restore safe drinking water to all Navy Water System users.

When was Water Main flushing conducted in Zone C2?

The final round of distribution water main flushing in Zone C2 was completed on January 06, 2022.



How much water was flushed through the water distribution system in Zone C2?

From January 04 – 06, 2022, a total of 0.5 million gallons was flushed through Zone C2.

Where can I get more information about the potential health effects associated with these contaminants?

Hawaii Department of Health (DOH)

<https://health.hawaii.gov/about/navy-water-system-quality-updates/>.

Call the DOH Safe Drinking Water Branch at 808-586-4258

US Environmental Protection Agency (EPA)

<https://www.epa.gov/ground-water-and-drinking-water/forms/online-form-epas-office-ground-water-and-drinking-water>.

Call EPA Region 9's Environmental Information Center at 1-866-372-9378

See the FACT SHEET, Understanding Your Water Quality Summary Table, available online at: <https://www.cpf.navy.mil/JBPHH-Water-Updates/>.

Acronyms used in the Table

AL	Action Level (for Lead and Copper)
DOH	Hawaii Department of Health
EAL	Environmental Action Level
EPA	U.S. Environmental Protection Agency
ISP	Incident Specific Parameter
MCL	Maximum Contaminant Level
ND	Non-Detect
ppb	parts per billion (or ug/L)
SDWA	Safe Drinking Water Act
SOCs	Synthetic Organic Compounds (also known as SVOCs)
SVOCs	Semi-Volatile Organic Compounds (same as SOCs)
TPH	Total Petroleum Hydrocarbons
TOC	Total Organic Carbon
ug/L	micrograms per liter (or ppb)
VOCs	Volatile Organic Compounds

Explanation of Terms used in this Report

Action Level (AL). This AL is for Lead and Copper. The AL is a measure of the effectiveness of the corrosion control treatment in water systems. The AL is not a standard for establishing a safe level of lead or copper. The AL is the point at which certain provisions of the proposed standards must be initiated.

Contaminant. Contaminant is any physical, chemical, biological, or radiological substance or matter in water, and can be either healthy or unhealthy, depending on the particular substance and concentration. It could also be a physical parameter monitored like pH or temperature.



Incident Specific Parameters (ISP). To more comprehensively monitor and respond to this specific petroleum contamination of drinking water, the DOH identified contaminants that require additional action prior to amending the Health Advisory. The ISP is used as a line of evidence to evaluate the data generated in each Zone during the investigation conducted by the IDWST.

Maximum Contaminant Level (MCL). An MCL is the maximum permissible level of a contaminant in water which is delivered to any user of a public water system. The MCL is set to protect the public from acute and chronic health risks associated with consuming water containing these contaminants.

Metals. Metals are chemicals that are not derived from living sources and in general do not contain carbon. Metals include antimony, arsenic, asbestos, barium, beryllium, cadmium, chromium, copper, cyanide, fluoride, lead, mercury, nitrate, nitrite, selenium, and thallium. These contaminants get into drinking water supplies through industrial discharge or spills, erosion of natural deposits, corrosion, sewage discharge, fertilizer runoff, and other sources.

Project Specific Screening Level. DOH uses multiple criteria to assess the safety of the drinking water including maximum contaminant levels (MCLs), previously established environmental action levels (EALs) and incident specific parameters (ISPs).

Synthetic Organic Compounds (SOCs)/Semi-Volatile Organic Compounds (SVOCs). SOCs and SVOCs may be used interchangeably and are man-made, organic (carbon-based) chemicals that are less volatile than Volatile Organic Contaminants (VOCs). They are used as pesticides, defoliants, fuel additives, and as ingredients for other organic chemicals.

Tier 1 Environmental Action Level (EAL). Tier 1 Environmental Action Levels (Tier 1 EALs) are concentrations of contaminants in drinking water and other media (e.g., soil, soil gas, and groundwater) below which the contaminants are assumed to not pose a significant threat to human health or the environment. Exceeding the Tier 1 EAL does not necessarily indicate that contamination at the site poses environmental hazards but generally warrants additional investigation.

Total Petroleum Hydrocarbons (TPH). TPH is a term used to describe a large family of several hundred chemical compounds that come from crude oil. Crude oil is used to make petroleum products, which can contaminate the environment. TPH is grouped by TPH-Gasoline, TPH-Diesel, and TPH-Oil.

Total Organic Carbon (TOC). TOC is naturally present in the environment, but also can be an indicator of contamination, including petroleum or other sources.

Units. A unit is the concentration of contaminant found in the water. For this report, the units are expressed in U.S. Standard Units.

U.S. Standard Unit (Name)	Acronym	Equivalent International System of Units (Name)	Acronym
parts per million	ppm*	milligrams per Liter	mg/L
parts per billion	ppb*	micrograms per Liter	ug/L

*One (1) part per million (ppm) is 1,000 parts per billion (ppb).

Volatile Organic Compounds (VOCs). VOCs are a class of chemicals that contain carbon and evaporate, or volatilize, easily into air at room temperature. VOCs are found in a variety of commercial, industrial, and residential products, including gasoline, solvents, cleaners and degreasers, paints, inks and dyes, and pesticides.

C2 Zone Distribution Sampling
Chemistry Results
Drinking Water Sampling, JBPHH, Oahu Hawaii

Location ID:	C2-HYD1230									
Location Type:	Hydrant									
Residence:	C2-FH209B									
Field Sample ID:	220116-C2-WT03									
Sample Date:	2022-01-16									
Sample Type:	N									
	C2-HYD2089	C2-HYD421	C2-HYD424	C2-HYD424	C2-HYD424	C2-HYD424	C2-HYD424	C2-HYD650	C2-HYD656	
	Hydrant	Hydrant	Hydrant	Hydrant	Hydrant	Hydrant	Hydrant	Hydrant	Hydrant	
	C2-FH204	C2-FH246	C2-FH246	C2-FH246	C2-FH246	C2-FH246	C2-FH246	C2-FH246	C2-FH246	
	220116-C2-WT02	220116-C2-WT01	220107-C2-YT02	220107-C2-YT02	220107-C2-YT02	220107-C2-YT02	220107-C2-YT02	220116-C2-VT02	220116-C2-VT03	
	2022-01-16	2022-01-16	2022-01-16	2022-01-16	2022-01-16	2022-01-16	2022-01-16	2022-01-16	2022-01-16	
	N	N	N	N	N	N	N	N	N	

Total Organic Carbon	2	None	None	None	1.69	0.200 U	--	0.246 J	--	0.190 U	2.08
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HC (µg/L)	Incident Specific Parameters	Environmental Action Levels Table D-1A Groundwater	DOH Safe Drinking Water Branch (SDWB) Regulatory Constituents	Environmental Protection Agency Maximum Contaminant Levels						
Petroleum Hydrocarbons (as Diesel)	200	400	None	None	SDG: 5801093571	SDG: 5801093571	SDG: 5801091174_Rev1	SDG: 5801093572	SDG: 5801093572	SDG: 5801093572
	Petroleum Hydrocarbons (as Gasoline)	300	None	None	92.0 U	31.0 U	--	90.0 U	91.0 U	91.0 U
	Petroleum Hydrocarbons (as Motor Oil)	500	None	None	180 U	190 U	--	180 U	180 U	180 U

HG (µg/L)	Incident Specific Parameters	Environmental Action Levels Table D-1A Groundwater	DOH Safe Drinking Water Branch (SDWB) Regulatory Constituents	Environmental Protection Agency Maximum Contaminant Levels						
Mercury	0.025	0.025	2	2	0.0170 U	0.0170 U	--	0.0170 U	0.0170 U	0.0170 U

METAL (µg/L)	Incident Specific Parameters	Environmental Action Levels Table D-1A Groundwater	DOH Safe Drinking Water Branch (SDWB) Regulatory Constituents	Environmental Protection Agency Maximum Contaminant Levels						
Antimony	6	6	6	6	0.0889 U	0.0889 U	--	0.0889 U	0.0889 U	0.0889 U
	10	10	10	10	0.217 J	0.212 J	--	0.0868 J	0.231 J	0.254 J
	220	220	2000	2000	3.41	1.84	--	1.80	2.26	1.33
Barium	0.66	0.66	4	4	0.0624 U	0.0624 U	--	0.0624 U	0.0624 U	0.0624 U
	3	3	5	5	0.0416 U	0.0416 U	--	0.0416 U	0.0416 U	0.0416 U
	11	11	100	100	1.47	1.52	--	1.18	1.49	0.964
Copper	2.9	2.9	1300	1300	2.23	9.75	--	17.8	5.83	3.36
	15	5.6	15	15	0.263	0.0827 U	--	2.53	0.609	0.299
	5	5	50	50	0.472	1.20	--	0.222 J	1.19	1.17
Selenium	2	2	2	2	0.0210 U	0.0210 U	--	0.0210 U	0.0210 U	0.0210 U

SVOC (µg/L)	Incident Specific Parameters	Environmental Action Levels Table D-1A Groundwater	DOH Safe Drinking Water Branch (SDWB) Regulatory Constituents	Environmental Protection Agency Maximum Contaminant Levels						
1,2,4-Trichlorobenzene	70	70	70	70	--	--	0.0930 U	SDG: 5801091174_Rev1	SDG: 5801100341	SDG: 2A17046
	10	10	600	600	--	--	0.0520 U	--	--	--
	None	None	None	None	--	--	0.0410 U	--	0.0380 U	--

C2 Zone Distribution Sampling
Chemistry Results
Drinking Water Sampling, JBPHH, Oahu Hawaii

Location ID:	C2-HYD660
Location Type:	Hydrant
Residence:	Hydrant 303
Field Sample ID:	220116-C2-VT04
Sample Date:	2022-01-16
Sample Type:	N

GENCHEM (mg/L)		Incident Specific Parameters	DOH Environmental Action Levels Table D-1A Groundwater	DOH Safe Drinking Water Branch (SDWB) Regulatory Constituents	Environmental Protection Agency Maximum Contaminant Levels	SDG: C22A030
Total Organic Carbon	2		None	None	None	3.07

HC (µg/L)		Incident Specific Parameters	DOH Environmental Action Levels Table D-1A Groundwater	DOH Safe Drinking Water Branch (SDWB) Regulatory Constituents	Environmental Protection Agency Maximum Contaminant Levels	SDG: 5801093572
Petroleum Hydrocarbons (as Diesel)	200		400	None	None	90.0 U
Petroleum Hydrocarbons (as Gasoline)	200		300	None	None	31.0 U
Petroleum Hydrocarbons (as Motor Oil)	200		500	None	None	180 U

HG (µg/L)		Incident Specific Parameters	DOH Environmental Action Levels Table D-1A Groundwater	DOH Safe Drinking Water Branch (SDWB) Regulatory Constituents	Environmental Protection Agency Maximum Contaminant Levels	SDG: 2A17046
Mercury	0.025		0.025	2	2	0.0170 U

METAL (µg/L)		Incident Specific Parameters	DOH Environmental Action Levels Table D-1A Groundwater	DOH Safe Drinking Water Branch (SDWB) Regulatory Constituents	Environmental Protection Agency Maximum Contaminant Levels	SDG: 2A17046
Antimony	6		6	6	6	0.0889 U
Arsenic	10		10	10	10	0.232 J
Barium	220		220	2000	2000	1.89
Beryllium	0.66		0.66	4	4	0.0624 U
Cadmium	3		3	5	5	0.0416 U
Chromium	11		11	100	100	1.46
Copper	2.9		2.9	1300	1300	2.89
Lead	15		5.6	15	15	0.175 J
Selenium	5		5	50	50	1.16
Thallium	2		2	2	2	0.0210 U

SVOC (µg/L)		Incident Specific Parameters	DOH Environmental Action Levels Table D-1A Groundwater	DOH Safe Drinking Water Branch (SDWB) Regulatory Constituents	Environmental Protection Agency Maximum Contaminant Levels	SDG: 2A17046
1,2,4-Trichlorobenzene	70		70	70	70	--
1,2-Dichlorobenzene	10		10	600	600	--
1,3-Dichlorobenzene	None		None	None	None	--

C2 Zone Distribution Sampling
Chemistry Results
Drinking Water Sampling, JBPHH, Oahu Hawaii

Location ID:	C2-HYD1230	C2-HYD2089	C2-HYD421	C2-HYD424	C2-HYD424	C2-HYD424	C2-HYD650	C2-HYD656
Location Type:	Hydrant	Hydrant	Hydrant	Hydrant	Hydrant	Hydrant	Hydrant	Hydrant
Residence:	C2-FH209B	C2-FH204	C2-FH246	FH ID: 315	FH ID: 315	FH ID: 315	Hydrant 268	Hydrant 301
Field Sample ID:	220116-C2-WT03	220116-C2-WT02	220116-C2-WT01	220107-C2-YT02	20220108-C2-TY03	220203C2ZT02	220116-C2-VT02	220116-C2-VT03
Sample Date:	2022-01-16	2022-01-16	2022-01-16	2022-01-07	2022-01-08	2022-02-03	2022-01-16	2022-01-16
Sample Type:	N	N	N	N	N	N	N	N

Incident Specific Parameters		DOH Environmental Action Levels Table D-1A Groundwater	DOH Safe Drinking Water Branch (SDWB) Regulatory Constituents	Environmental Protection Agency Maximum Contaminant Levels						
SVOC (µg/L)	5	5	75	SDG: 2A17046	SDG: 2A17046	SDG: 5801091174_Rev1	SDG: 2A10042	SDG: 5801100341	SDG: 2A17046	SDG: 2A17046
1,4-Dichlorobenzene	2.1	None	None	0.00801 U	0.00801 U	--	0.0410 U	0.0380 U	--	--
1-Methylnaphthalene	None	None	None	--	--	0.100 U	--	0.0950 U	--	0.00962 J
2,4-Dinitrotoluene	None	None	None	--	--	0.100 U	--	0.0950 U	--	--
2,6-Dinitrotoluene	None	None	None	--	--	0.0720 U	--	0.0670 U	--	--
2-Chloronaphthalene	None	None	None	5.00 U	0.00962 U	5.00 U	0.00962 U	--	5.00 U	5.00 U
2-Ethylhexyl adipate	4.7	10	None	0.0500 U	0.0500 U	0.00904 U	0.0500 U	--	0.0500 U	0.0500 U
2-Methylnaphthalene	None	None	None	--	--	0.100 U	--	0.0950 U	--	--
2-Nitroaniline	None	None	None	--	--	0.270 U	--	0.250 U	--	--
3,3'-Dichlorobenzidine	None	None	None	--	--	0.160 U	--	0.150 U	--	--
3-Nitroaniline	None	None	None	--	--	0.0620 U	--	0.0570 U	--	--
4-Bromophenyl phenyl ether	None	None	None	--	--	0.610 U	--	0.560 U	--	--
4-Chloroaniline	None	None	None	--	--	0.0520 U	--	0.0480 U	--	--
4-Chlorophenyl phenyl ether	None	None	None	--	--	0.220 U	--	0.200 U	--	--
4-Nitroaniline	None	None	None	--	--	0.0520 U	--	0.0480 U	--	--
Acenaphthene	None	None	None	--	--	0.0620 U	--	0.0570 U	--	--
Acenaphthylene	None	None	None	0.0110 U	0.0110 U	0.0110 U	0.0110 U	--	0.0110 U	0.0110 U
Alachlor	None	None	None	--	--	0.0520 U	--	0.0480 U	--	--
Anthracene	None	None	None	0.00734 U	0.00734 U	--	0.00734 U	--	0.00734 U	0.00734 U
Atrazine	None	None	None	--	--	0.0410 U	0.0117 UJ	0.0380 U	0.0117 UJ	0.0117 UJ
Benzo(a)anthracene	0.06	0.06	0.2	0.0117 UJ	0.0117 UJ	0.0410 U	0.0117 UJ	0.0380 U	0.0117 UJ	0.0117 UJ
Benzo(a)pyrene	None	None	None	--	--	0.0410 U	--	0.0380 U	--	--
Benzo(b)fluoranthene	None	None	None	--	--	0.0410 U	--	0.0380 U	--	--
Benzo(g,h,i)perylene	None	None	None	--	--	0.0410 U	--	0.0380 U	--	--
Benzo(k)fluoranthene	None	None	None	--	--	0.280 U	--	0.260 U	--	--
Benzyl butyl phthalate	None	None	None	--	--	0.0520 U	--	0.0480 U	--	--
Bis(2-chloroethoxy)methane	None	None	None	--	--	0.0310 U	--	0.0290 U	--	--
Bis(2-chloroethyl) ether (2-Chloroethyl ether)	None	None	None	0.437 U	0.437 U	0.760 U	0.437 U	0.710 U	0.437 U	0.437 U
Bis(2-ethylhexyl)phthalate	3	3	6	0.437 U	0.437 U	0.100 U	--	0.0950 U	--	--
Carbazole	None	None	None	0.0669 U	0.0669 U	--	0.0669 U	--	0.0669 U	0.0669 U
Chlordane	None	None	None	--	--	0.0410 U	--	0.0380 U	--	--
Chrysene	None	None	None	--	--	0.0720 U	--	0.0670 U	--	--
Dibenz(a,h)anthracene	None	None	None	--	--	0.100 U	--	0.0950 U	--	--
Dibenzofuran	None	None	None	--	--	0.150 U	--	0.150 J	--	--
Diethyl phthalate	None	None	None	--	--	0.150 U	--	0.150 J	--	--

C2 Zone Distribution Sampling
Chemistry Results
Drinking Water Sampling, JBPHH, Oahu Hawaii

Location ID:
C2-HYD660

Location Type:
Hydrant

Residence:
Hydrant 303

Field Sample ID:
220116-C2-VT04

Sample Date:
2022-01-16

Sample Type:
N

SVOC (ug/L)		Incident Specific Parameters	DOH Environmental Action Levels Table D-1A Groundwater	DOH Safe Drinking Water Branch (SDWB) Regulatory Constituents	Environmental Protection Agency Maximum Contaminant Levels	SDG: 2A17046
1,4-Dichlorobenzene	5	5	5	75	None	--
1-Methylnaphthalene	2.1	10	None	None	None	0.00997 J
2,4-Dinitrotoluene	None	None	None	None	None	--
2,6-Dinitrotoluene	None	None	None	None	None	--
2-Chloronaphthalene	None	None	None	None	None	--
2-Ethylhexyl adipate	None	None	None	None	None	5.00 U
2-Methylnaphthalene	4.7	10	None	None	None	0.0500 U
2-Nitroaniline	None	None	None	None	None	--
3,3'-Dichlorobenzidine	None	None	None	None	None	--
3-Nitroaniline	None	None	None	None	None	--
4-Bromophenyl phenyl ether	None	None	None	None	None	--
4-Chloroaniline	None	None	None	None	None	--
4-Chlorophenyl phenyl ether	None	None	None	None	None	--
4-Nitroaniline	None	None	None	None	None	--
Acenaphthene	None	None	None	None	None	--
Acenaphthylene	None	None	None	None	None	--
Alachlor	None	None	None	None	None	0.0110 U
Anthracene	None	None	None	None	None	--
Atrazine	None	None	None	None	None	0.00734 U
Benzo(a)anthracene	None	None	None	None	None	--
Benzo(a)pyrene	0.06	0.06	0.2	0.2	0.2	0.0117 UJ
Benzo(b)fluoranthene	None	None	None	None	None	--
Benzo(g,h,i)perylene	None	None	None	None	None	--
Benzo(k)fluoranthene	None	None	None	None	None	--
Benzyl butyl phthalate	None	None	None	None	None	--
Bis(2-chloroethoxy)methane	None	None	None	None	None	--
Bis(2-chloroethyl) ether (2-Chloroethyl ether)	None	None	None	None	None	--
Bis(2-ethylhexyl)phthalate	3	3	6	6	6	0.437 U
Carbazole	None	None	None	None	None	--
Chlordane	None	None	None	None	None	0.0669 U
Chrysene	None	None	None	None	None	--
Dibenz(a,h)anthracene	None	None	None	None	None	--
Dibenzofuran	None	None	None	None	None	--
Diethyl phthalate	None	None	None	None	None	--

C2 Zone Distribution Sampling Chemistry Results

Location ID:	C2-HYD1230	C2-HYD2089	C2-HYD421	C2-HYD424	C2-HYD424	C2-HYD424	C2-HYD650	C2-HYD656
Location Type:	Hydrant	Hydrant	Hydrant	Hydrant	Hydrant	Hydrant	Hydrant	Hydrant
Residence:	C2-FH209B	C2-FH204	C2-FH246	FH ID: 315	FH ID: 315	FH ID: 315	Hydrant 268	Hydrant 301
Field Sample ID:	220116-C2-WT03	220116-C2-WT02	220116-C2-WT01	220107-C2-YT02	20220108-C2-TY03	220203C2ZT02	220116-C2-VT02	220116-C2-VT03
Sample Date:	2022-01-16	2022-01-16	2022-01-16	2022-01-07	2022-01-08	2022-02-03	2022-01-16	2022-01-16
Sample Type:	N	N	N	N	N	N	N	N

DOH		Environmental Action Levels	DOH Safe Drinking Water Branch (SDWB) Regulatory Constituents	Environmental Protection Agency Maximum Contaminant Levels	SDG: 2A17046	SDG: 2A17046	SDG: 5801091174_Rev1	SDG: 2A10042	SDG: 5801091174_Rev1	SDG: 2A17046	SDG: 5801100341	SDG: 2A17046	SDG: 2A17046
Incident Specific Parameters	SVOC (µg/L)	Environmental Action Levels	DOH Safe Drinking Water Branch (SDWB) Regulatory Constituents	Environmental Protection Agency Maximum Contaminant Levels	SDG: 2A17046	SDG: 2A17046	SDG: 5801091174_Rev1	SDG: 2A10042	SDG: 5801091174_Rev1	SDG: 2A17046	SDG: 5801100341	SDG: 2A17046	SDG: 2A17046
None		None	None	None	--	--	0.0620 U	--	0.0620 U	--	0.0570 U	--	--
None		None	None	None	--	--	10.0	--	10.0	--	0.790 J	--	--
None		None	None	None	--	--	0.130 U	--	0.130 U	--	0.120 U	--	--
None		None	None	None	0.00991 U	0.00991 U	--	0.00991 U	--	0.00991 U	--	0.00991 U	0.00991 U
None		None	None	None	--	--	0.0620 U	--	0.0620 U	--	0.0570 U	--	--
None		None	None	None	--	--	0.0520 U	--	0.0520 U	--	0.0480 U	--	--
None		None	None	None	0.00633 U	0.00633 U	--	0.00633 U	--	0.00633 U	--	0.00633 U	0.00633 U
None		None	None	None	0.00965 U	0.00965 U	--	0.00965 U	--	0.00965 U	--	0.00965 U	0.00965 U
None		None	None	None	0.0122 U	0.0122 U	--	0.0122 U	--	0.0122 U	--	0.0122 U	0.0122 U
0.0003		0.0003	1	1	0.0980 U	0.0980 U	0.0410 U	0.0980 U	0.0410 U	0.0980 U	0.0380 U	0.0980 U	0.0980 U
None		None	None	None	--	--	0.0620 U	--	0.0620 U	--	0.0570 U	--	--
50		None	50	50	0.00594 U	0.00594 U	--	0.00594 U	--	0.00594 U	0.130 U	0.00594 U	0.00594 U
None		None	None	None	--	--	0.0520 U	--	0.0520 U	--	0.0480 U	--	--
None		None	None	None	--	--	0.130 U	--	0.130 U	--	0.120 U	--	--
None		None	None	None	--	--	0.100 U	--	0.100 U	--	0.0950 U	--	--
None		None	None	None	0.00863 U	0.00863 U	--	0.00863 U	--	0.00863 U	--	0.00863 U	0.00863 U
12		17	None	None	0.0103 U	0.0103 U	0.160 U	0.0103 U	0.160 U	0.0183 J	0.150 U	0.0183 J	0.0122 J
None		None	None	None	--	--	0.0410 U	--	0.0410 U	--	0.0380 U	--	--
None		None	None	None	--	--	0.0620 U	--	0.0620 U	--	0.0570 U	--	--
None		None	None	None	--	--	0.0720 U	--	0.0720 U	--	0.0670 U	--	--
None		None	None	None	0.0940 U	0.0940 U	--	0.100 U	--	0.0940 U	--	0.0940 U	0.0940 U
None		None	None	None	0.0157 U	0.0157 U	--	0.100 U	--	0.100 U	--	0.100 U	0.100 U
None		None	None	None	0.0436 U	0.0436 U	--	0.100 U	--	0.100 U	--	0.100 U	0.100 U
None		None	None	None	0.0102 U	0.0102 U	--	0.100 U	--	0.100 U	--	0.100 U	0.100 U
None		None	None	None	0.0737 U	0.0737 U	--	0.100 U	--	0.100 U	--	0.100 U	0.100 U
None		None	None	None	0.0941 U	0.0941 U	--	0.100 U	--	0.100 U	--	0.100 U	0.100 U
None		None	None	None	0.0869 U	0.0869 U	--	0.100 U	--	0.100 U	--	0.100 U	0.100 U
None		None	None	None	0.0379 U	0.0379 U	--	0.100 U	--	0.100 U	--	0.100 U	0.100 U
None		None	None	None	0.0242 U	0.0242 U	--	0.0242 U	--	0.0242 U	--	0.0242 U	0.0242 U
None		None	None	None	--	--	0.120 U	--	0.120 U	--	0.110 U	--	--
None		None	None	None	--	--	0.0410 U	--	0.0410 U	--	0.0380 U	--	--
None		None	None	None	0.00734 U	0.00734 U	--	0.00734 U	--	0.00734 U	--	0.00734 U	0.00734 U

C2 Zone Distribution Sampling
Chemistry Results
Drinking Water Sampling, JBPHH, Oahu Hawaii

Location ID:
C2-HYD660

Location Type:
Hydrant

Residence:
Hydrant 303

Field Sample ID:
220116-C2-VT04

Sample Date:
2022-01-16

Sample Type:
N

SVOC (µg/L)		Incident Specific Parameters	DOH Environmental Action Levels Table D-1A Groundwater	DOH Safe Drinking Water Branch (SDWB) Regulatory Constituents	Environmental Protection Agency Maximum Contaminant Levels	SDG: 2A17046
Dimethyl phthalate	None	None	None	None	None	--
Di-n-butyl phthalate	None	None	None	None	None	--
di-n-Octyl phthalate	None	None	None	None	None	--
Endrin	None	None	None	None	None	0.00991 U
Fluoranthene	None	None	None	None	None	--
Fluorene	None	None	None	None	None	--
gamma-BHC (Lindane)	None	None	None	None	None	0.00633 U
Heptachlor	None	None	None	None	None	0.00965 U
Heptachlor epoxide	None	None	None	None	None	0.0122 U
Hexachlorobenzene	0.0003	0.0003	0.0003	1	1	0.0980 U
Hexachlorobutadiene	None	None	None	None	None	--
Hexachlorocyclopentadiene	50	None	None	50	50	0.00594 U
Hexachloroethane	None	None	None	None	None	--
Indeno(1,2,3-c,d)pyrene	None	None	None	None	None	--
Isophorone	None	None	None	None	None	--
Methoxychlor	None	None	None	None	None	0.00863 U
Naphthalene	12	17	None	None	None	0.0174 J
Nitrobenzene	None	None	None	None	None	--
N-Nitrosodi-n-propylamine	None	None	None	None	None	--
N-Nitrosodiphenylamine	None	None	None	None	None	--
PCB, Total	None	None	None	None	None	0.0940 U
PCB-1016 (Aroclor 1016)	None	None	None	None	None	0.100 U
PCB-1221 (Aroclor 1221)	None	None	None	None	None	0.100 U
PCB-1232 (Aroclor 1232)	None	None	None	None	None	0.100 U
PCB-1242 (Aroclor 1242)	None	None	None	None	None	0.100 U
PCB-1248 (Aroclor 1248)	None	None	None	None	None	0.100 U
PCB-1254 (Aroclor 1254)	None	None	None	None	None	0.100 U
PCB-1260 (Aroclor 1260)	None	None	None	None	None	0.100 U
Pentachlorophenol	None	None	None	None	None	0.0242 U
Phenanthrene	None	None	None	None	None	--
Pyrene	None	None	None	None	None	--
Simazine	None	None	None	None	None	0.00734 U

C2 Zone Distribution Sampling
Chemistry Results
Drinking Water Sampling, JBPHH, Oahu Hawaii

Location ID:	C2-HYD1230	C2-HYD2089	C2-HYD421	C2-HYD424	C2-HYD424	C2-HYD424	C2-HYD650	C2-HYD656
Location Type:	Hydrant	Hydrant	Hydrant	Hydrant	Hydrant	Hydrant	Hydrant	Hydrant
Residence:	C2-FH209B	C2-FH204	C2-FH246	C2-FH246	FH ID: 315	FH ID: 315	Hydrant 268	Hydrant 301
Field Sample ID:	220116-C2-WT03	220116-C2-WT02	220116-C2-WT01	220107-C2-YT02	20220108-C2-TY03	220203C2ZT02	220116-C2-VT02	220116-C2-VT03
Sample Date:	2022-01-16	2022-01-16	2022-01-16	2022-01-07	2022-01-08	2022-02-03	2022-01-16	2022-01-16
Sample Type:	N	N	N	N	N	N	N	N

VOC (µg/L)	Incident Specific Parameters	DOH		Environmental		Environmental		SDG:		SDG:		SDG:	
		Environmental Action Levels Table D-1A	Groundwater Action Levels	DOH Safe Drinking Water Branch (SDWB) Regulatory Constituents	Agency Maximum Contaminant Levels	SDG: 2A17046	SDG: 2A17046	SDG: 2A17046	SDG: 2A17046	SDG: 2A10042	SDG: 2A17046	SDG: 2A17046	SDG: 2A17046
1,1,1-Trichloroethane	11	11	11	200	200	0.256 U	--	0.256 U	--	0.256 U	--	0.256 U	0.256 U
1,1,2-Trichloroethane	5	5	5	3	5	0.190 U	--	0.190 U	--	0.190 U	--	0.190 U	0.190 U
1,1-Dichloroethene	7	7	7	7	7	0.160 U	--	0.160 U	--	0.160 U	--	0.160 U	0.160 U
1,2,4-Trichlorobenzene	70	70	70	70	70	0.170 U	--	0.170 U	--	0.170 U	--	0.170 U	0.170 U
1,2-Dichlorobenzene	10	10	10	600	600	0.190 U	--	0.190 U	--	0.190 U	--	0.190 U	0.190 U
1,2-Dichloroethane	5	5	5	5	5	0.243 U	--	0.243 U	--	0.243 U	--	0.243 U	0.243 U
1,2-Dichloropropane	5	5	5	5	5	0.130 U	--	0.130 U	--	0.130 U	--	0.130 U	0.130 U
1,4-Dichlorobenzene	5	5	5	75	None	0.180 U	--	0.180 U	--	0.180 U	--	0.180 U	0.180 U
Benzene	5	5	5	5	5	0.150 U	--	0.150 U	--	0.150 U	--	0.150 U	0.150 U
Carbon Tetrachloride	5	5	5	5	5	0.270 U	--	0.270 U	--	0.270 U	--	0.270 U	0.270 U
Chlorobenzene	25	25	25	100	100	0.150 U	--	0.150 U	--	0.150 U	--	0.150 U	0.150 U
cis-1,2-Dichloroethene	70	70	70	70	70	0.250 U	--	0.250 U	--	0.250 U	--	0.250 U	0.250 U
Ethylbenzene	700	7.3	700	700	700	0.210 U	--	0.210 U	--	0.210 U	--	0.210 U	0.210 U
m,p-Xylene	10000	13	None	None	None	0.330 U	--	0.330 U	--	0.330 U	--	0.330 U	0.330 U
Methylene chloride	5	5	5	5	5	0.303 U	--	0.303 U	--	0.303 U	--	0.303 U	0.303 U
o-Xylene	10000	13	None	None	None	0.200 U	--	0.200 U	--	0.200 U	--	0.200 U	0.200 U
Styrene	10	10	100	100	100	0.190 U	--	0.190 U	--	0.190 U	--	0.190 U	0.190 U
Tetrachloroethene (PCE)	5	5	5	5	5	0.180 U	--	0.180 U	--	0.180 U	--	0.180 U	0.180 U
Toluene	1000	9.8	1000	1000	1000	0.294 U	--	0.294 U	--	0.294 U	--	0.294 U	0.294 U
trans-1,2-Dichloroethene	100	100	100	100	100	0.259 U	--	0.259 U	--	0.259 U	--	0.259 U	0.259 U
Trichloroethene (TCE)	5	5	5	5	5	0.180 U	--	0.180 U	--	0.180 U	--	0.180 U	0.180 U
Vinyl chloride	2	2	2	2	2	0.180 U	--	0.180 U	--	0.180 U	--	0.180 U	0.180 U

Notes:

-- indicates that the sample was Not Analyzed for the analyte

Results highlighted yellow exceed the ISP
Results in purple font also exceed the EALs
Results in green font also exceed the DOH MCL
Results in blue font also exceed the EPA MCL

µg/L = Micrograms per Liter

C2 Zone Distribution Sampling
Chemistry Results
Drinking Water Sampling, JBPHH, Oahu Hawaii

Location ID:
C2-HYD660

Location Type:
Hydrant

Residence:
Hydrant 303

Field Sample ID:
220116-C2-VT04

Sample Date:
2022-01-16

Sample Type:
N

VOC (ug/L)	Incident Specific Parameters	DOH		DOH Safe Drinking Water Branch (SDWB) Regulatory Constituents	Environmental Protection Agency Maximum Contaminant Levels	SDG: 2A17046
		Environmental Action Levels Table D-1A Groundwater	Environmental Protection Agency			
1,1,1-Trichloroethane	11	11	200	200	200	0.256 U
1,1,2-Trichloroethane	5	5	3	5	5	0.190 U
1,1-Dichloroethene	7	7	7	7	7	0.160 U
1,2,4-Trichlorobenzene	70	70	70	70	70	0.170 U
1,2-Dichlorobenzene	10	10	600	600	600	0.190 U
1,2-Dichloroethane	5	5	5	5	5	0.243 U
1,2-Dichloropropane	5	5	5	5	5	0.130 U
1,4-Dichlorobenzene	5	5	75	None	None	0.180 U
Benzene	5	5	5	5	5	0.150 U
Carbon Tetrachloride	5	5	5	5	5	0.270 U
Chlorobenzene	25	25	100	100	100	0.150 U
cis-1,2-Dichloroethene	70	70	70	70	70	0.250 U
Ethylbenzene	700	7.3	700	700	700	0.210 U
m,p-Xylene	10000	13	None	None	None	0.330 U
Methylene chloride	5	5	5	5	5	0.303 U
o-Xylene	10000	13	None	None	None	0.200 U
Styrene	10	10	100	100	100	0.190 U
Tetrachloroethene (PCE)	5	5	5	5	5	0.180 U
Toluene	1000	9.8	1000	1000	1000	0.294 U
trans-1,2-Dichloroethene	100	100	100	100	100	0.259 U
Trichloroethene (TCE)	5	5	5	5	5	0.180 U
Vinyl chloride	2	2	2	2	2	0.180 U

Section 2a.6 Distribution System Sample and Exceedance Resample Report



Environment Testing
America

ANALYTICAL REPORT

Eurofins Seattle
5755 8th Street East
Tacoma, WA 98424
Tel: (253)922-2310

Laboratory Job ID: 580-109117-4

Client Project/Site: Red Hill Drinking Water
Revision: 2

For:

AECOM
1001 Bishop Street
Honolulu, Hawaii 96813

Attn: Margie F Pascua

M. Elaine Walker

Authorized for release by:
2/21/2022 2:31:48 PM

Elaine Walker, Project Manager II
(253)248-4972
m.elaine.walker@eurofinset.com

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This report has been electronically signed and authorized by the signatory. Electronic signature is intended to be the legally binding equivalent of a traditionally handwritten signature.

Results relate only to the items tested and the sample(s) as received by the laboratory.

ENCL (3)



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Case Narrative

Client: AECOM
Project/Site: Red Hill Drinking Water

Job ID: 580-109117-4

Job ID: 580-109117-4

Laboratory: Eurofins Seattle

Narrative

2/21/2022: Report revised to correct the sample ID from 20220107-C2-YT02 to 220107-C2-YT02. Note that the sample chromatograms and quantitation reports cannot be updated but all other forms and the narrative are updated.

02/07/2022: The report has been revised to report the 8270E analyte Bis(2-chloroethyl)ether as ND after further review of the data. Samples were initially reported to contain Bis(2-chloroethyl)ether above the reporting limit. Upon further review, these results do contain ions 93 and 95 in adequate ratios and at a satisfactory retention time; however, the results do not contain ion 63 at an adequate ratio, nor does the overall fragmentation pattern match that of Bis(2-chloroethyl)ether. Therefore, these detections have been identified as false positives and the status of Bis(2-chloroethyl)ether has been revised as non-detect.

Job Narrative 580-109117-4

Comments

No additional comments.

Receipt

The samples were received on 1/10/2022 9:15 AM. Unless otherwise noted below, the samples arrived in good condition, and where required, properly preserved and on ice. The temperature of the cooler at receipt was 2.9° C.

GC/MS VOA

Method 8260D: Surrogate recovery for the following samples was outside control limits for Toluene-d8: 20220107-C2-YT02 (580-109117-8). Evidence of matrix interference is present; therefore, re-analysis was not performed.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

GC/MS Semi VOA

Method 8270E: The following analytes have been identified, in the reference method and/or via historical data, to be poor and/or erratic performers: Hexachlorocyclopentadiene. These analytes may have a %D >60%.

Method 8270E: The laboratory control sample and/or the laboratory control sample duplicate (LCS/LCSD) for preparation batch 580-377974 and analytical batch 580-377989 recovered outside control limits for the following analytes: Hexachlorocyclopentadiene. Hexachlorocyclopentadiene has been identified as a poor performing analyte when analyzed using this method; therefore, re-extraction/re-analysis was not performed. These results have been reported and qualified.

Method 8270E: The laboratory control sample (LCS) and / or laboratory control sample duplicate (LCSD) for preparation batch 580-377974 and analytical batch 580-377989 recovered outside control limits for the following analytes: Diethyl phthalate, Fluoranthene, Benzo[b]fluoranthene and Pyrene. These analytes were biased high in the LCS and were not detected in the associated samples; therefore, the data have been reported.

Method 8270E: Surrogate 2-Fluorophenol (Surr) and Phenol-d5 (Surr) recovery for the following samples was outside control limits: 220107-C2-YT02 (580-109117-8). Evidence of matrix interference is present; therefore, re-extraction and/or re-analysis was not performed.

Method 8270E: The minimum response factor (RF) criteria for the continuing calibration verification (CCV) analyzed in batch 580-377989 was outside criteria for the following analytes: N-Nitrosodi-n-propylamine. As indicated in the reference method, sample analysis may proceed; however, any detection or non-detection for the affected analytes is considered estimated.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

GC Semi VOA

Method 8015D: The following sample contained a hydrocarbon pattern in the diesel range; however, the elution pattern was earlier than the typical diesel fuel pattern used by the laboratory for quantitative purposes: 220107-C2-YT02 (580-109117-8).

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

Eurofins Seattle



Case Narrative

Client: AECOM
Project/Site: Red Hill Drinking Water

Job ID: 580-109117-4

Job ID: 580-109117-4 (Continued)

Laboratory: Eurofins Seattle (Continued)

Organic Prep

Methods 3510C, CWA_Prep: Insufficient sample volume was available to perform a matrix spike/matrix spike duplicate/sample duplicate (MS/MSD/DUP) associated with preparation batch 580-377974. Laboratory control sample/laboratory control sample duplicate were created and substituted for MS/MSD/DUP.

Method 3510C: Insufficient sample volume was available to perform a matrix spike/matrix spike duplicate/sample duplicate (MS/MSD/DUP) associated with preparation batch 580-377984. Laboratory control sample/laboratory control sample duplicate were created and substituted for MS/MSD/DUP.

No additional analytical or quality issues were noted, other than those described above or in the Definitions/Glossary page.

VOA Prep

No analytical or quality issues were noted, other than those described in the Definitions/Glossary page.

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Eurofins Seattle

ENCL (3)
2/21/2022 (Rev. 2)

Definitions/Glossary

Client: AECOM
Project/Site: Red Hill Drinking Water

Job ID: 580-109117-4

Qualifiers

GC/MS VOA

Qualifier	Qualifier Description
S1-	Surrogate recovery exceeds control limits, low biased.
U	Indicates the analyte was analyzed for but not detected.

GC/MS Semi VOA

Qualifier	Qualifier Description
*-	LCS and/or LCSD is outside acceptance limits, low biased.
*+	LCS and/or LCSD is outside acceptance limits, high biased.
J	Result is less than the RL but greater than or equal to the MDL and the concentration is an approximate value.
S1-	Surrogate recovery exceeds control limits, low biased.
U	Indicates the analyte was analyzed for but not detected.

GC Semi VOA

Qualifier	Qualifier Description
U	Indicates the analyte was analyzed for but not detected.

Glossary

Abbreviation	These commonly used abbreviations may or may not be present in this report.
□	Listed under the "D" column to designate that the result is reported on a dry weight basis
%R	Percent Recovery
CFL	Contains Free Liquid
CFU	Colony Forming Unit
CNF	Contains No Free Liquid
DER	Duplicate Error Ratio (normalized absolute difference)
Dil Fac	Dilution Factor
DL	Detection Limit (DoD/DOE)
DL, RA, RE, IN	Indicates a Dilution, Re-analysis, Re-extraction, or additional Initial metals/anion analysis of the sample
DLC	Decision Level Concentration (Radiochemistry)
EDL	Estimated Detection Limit (Dioxin)
LOD	Limit of Detection (DoD/DOE)
LOQ	Limit of Quantitation (DoD/DOE)
MCL	EPA recommended "Maximum Contaminant Level"
MDA	Minimum Detectable Activity (Radiochemistry)
MDC	Minimum Detectable Concentration (Radiochemistry)
MDL	Method Detection Limit
ML	Minimum Level (Dioxin)
MPN	Most Probable Number
MQL	Method Quantitation Limit
NC	Not Calculated
ND	Not Detected at the reporting limit (or MDL or EDL if shown)
NEG	Negative / Absent
POS	Positive / Present
PQL	Practical Quantitation Limit
PRES	Presumptive
QC	Quality Control
RER	Relative Error Ratio (Radiochemistry)
RL	Reporting Limit or Requested Limit (Radiochemistry)
RPD	Relative Percent Difference, a measure of the relative difference between two points
TEF	Toxicity Equivalent Factor (Dioxin)
TEQ	Toxicity Equivalent Quotient (Dioxin)
TNTC	Too Numerous To Count

Eurofins Seattle

ENCL (3)
2/21/2022 (Rev. 2)

Client Sample Results

Client: AECOM
Project/Site: Red Hill Drinking Water

Job ID: 580-109117-4

Client Sample ID: 220107-C2-YT02

Lab Sample ID: 580-109117-8

Date Collected: 01/07/22 15:55

Matrix: Water

Date Received: 01/10/22 09:15

Method: 8260B/CA_LUFTMS - Volatile Organic Compounds by GC/MS

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics (C6-C12)	31	U	100	31	ug/L			01/11/22 17:33	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	94		78 - 120					01/11/22 17:33	1

Method: 8260D - Volatile Organic Compounds by GC/MS

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Acetone	3.2	U	15	3.2	ug/L			01/11/22 17:33	1
Benzene	0.24	U	1.0	0.24	ug/L			01/11/22 17:33	1
Bromodichloromethane	0.29	U	1.0	0.29	ug/L			01/11/22 17:33	1
Bromoform	0.51	U	1.0	0.51	ug/L			01/11/22 17:33	1
Bromomethane	0.21	U	1.0	0.21	ug/L			01/11/22 17:33	1
Carbon disulfide	0.53	U	1.0	0.53	ug/L			01/11/22 17:33	1
Carbon tetrachloride	0.30	U	1.0	0.30	ug/L			01/11/22 17:33	1
Chlorobenzene	0.44	U	1.0	0.44	ug/L			01/11/22 17:33	1
Chloroform	0.26	U	1.0	0.26	ug/L			01/11/22 17:33	1
Chloromethane	0.28	U	1.0	0.28	ug/L			01/11/22 17:33	1
cis-1,2-Dichloroethene	0.35	U	1.0	0.35	ug/L			01/11/22 17:33	1
cis-1,3-Dichloropropene	0.20	U	1.0	0.20	ug/L			01/11/22 17:33	1
Dibromochloromethane	0.43	U	1.0	0.43	ug/L			01/11/22 17:33	1
1,1-Dichloroethane	0.22	U	1.0	0.22	ug/L			01/11/22 17:33	1
1,2-Dichloroethane	0.42	U	1.0	0.42	ug/L			01/11/22 17:33	1
1,1-Dichloroethene	0.28	U	1.0	0.28	ug/L			01/11/22 17:33	1
1,2-Dichloroethene, Total	0.39	U	1.0	0.39	ug/L			01/11/22 17:33	1
Dichloromethane	1.4	U	3.0	1.4	ug/L			01/11/22 17:33	1
1,2-Dichloropropane	0.18	U	1.0	0.18	ug/L			01/11/22 17:33	1
Ethylbenzene	0.50	U	1.0	0.50	ug/L			01/11/22 17:33	1
Ethyl Chloride	0.35	U	1.0	0.35	ug/L			01/11/22 17:33	1
2-Hexanone	4.0	U	15	4.0	ug/L			01/11/22 17:33	1
Methyl Ethyl Ketone	4.7	U	15	4.7	ug/L			01/11/22 17:33	1
Methyl isobutyl ketone (MIBK)	2.5	U	5.0	2.5	ug/L			01/11/22 17:33	1
m-Xylene & p-Xylene	0.53	U	2.0	0.53	ug/L			01/11/22 17:33	1
o-Xylene	0.39	U	1.0	0.39	ug/L			01/11/22 17:33	1
Styrene	0.53	U	1.0	0.53	ug/L			01/11/22 17:33	1
1,1,2,2-Tetrachloroethane	0.52	U	1.0	0.52	ug/L			01/11/22 17:33	1
Tetrachloroethene	0.41	U	1.0	0.41	ug/L			01/11/22 17:33	1
Toluene	0.39	U	1.0	0.39	ug/L			01/11/22 17:33	1
trans-1,2-Dichloroethene	0.39	U	1.0	0.39	ug/L			01/11/22 17:33	1
trans-1,3-Dichloropropene	0.41	U	1.0	0.41	ug/L			01/11/22 17:33	1
1,1,1-Trichloroethane	0.39	U	1.0	0.39	ug/L			01/11/22 17:33	1
1,1,2-Trichloroethane	0.24	U	1.0	0.24	ug/L			01/11/22 17:33	1
Trichloroethene	0.26	U	1.0	0.26	ug/L			01/11/22 17:33	1
Vinyl chloride	0.22	U	1.0	0.22	ug/L			01/11/22 17:33	1
Xylenes, Total	0.53	U	2.0	0.53	ug/L			01/11/22 17:33	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	94		80 - 120					01/11/22 17:33	1
Dibromofluoromethane (Surr)	105		80 - 120					01/11/22 17:33	1
1,2-Dichloroethane-d4 (Surr)	104		80 - 120					01/11/22 17:33	1
Toluene-d8 (Surr)	0.3	S1-	80 - 120					01/11/22 17:33	1

Eurofins Seattle

Client Sample Results

Client: AECOM
Project/Site: Red Hill Drinking Water

Job ID: 580-109117-4

Client Sample ID: 220107-C2-YT02

Lab Sample ID: 580-109117-8

Date Collected: 01/07/22 15:55

Matrix: Water

Date Received: 01/10/22 09:15

Method: 8270E - Semivolatile Organic Compounds (GC/MS)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Acenaphthene	0.052	U	0.41	0.052	ug/L		01/10/22 19:30	01/11/22 19:36	1
Acenaphthylene	0.062	U	1.0	0.062	ug/L		01/10/22 19:30	01/11/22 19:36	1
Anthracene	0.052	U	1.0	0.052	ug/L		01/10/22 19:30	01/11/22 19:36	1
Benzo[a]anthracene	0.052	U	0.26	0.052	ug/L		01/10/22 19:30	01/11/22 19:36	1
Benzo[a]pyrene	0.041	U	0.26	0.041	ug/L		01/10/22 19:30	01/11/22 19:36	1
Benzo[b]fluoranthene	0.041	U **	0.26	0.041	ug/L		01/10/22 19:30	01/11/22 19:36	1
Benzo[g,h,i]perylene	0.041	U	0.26	0.041	ug/L		01/10/22 19:30	01/11/22 19:36	1
Benzo[k]fluoranthene	0.052	U	0.26	0.052	ug/L		01/10/22 19:30	01/11/22 19:36	1
Bis(2-chloroethoxy)methane	0.052	U	0.62	0.052	ug/L		01/10/22 19:30	01/11/22 19:36	1
Bis(2-chloroethyl)ether	0.031	U	0.10	0.031	ug/L		01/10/22 19:30	01/11/22 19:36	1
Bis(2-ethylhexyl) phthalate	0.76	U	3.1	0.76	ug/L		01/10/22 19:30	01/11/22 19:36	1
4-Bromophenyl phenyl ether	0.062	U	0.62	0.062	ug/L		01/10/22 19:30	01/11/22 19:36	1
Butyl benzyl phthalate	0.28	U	4.1	0.28	ug/L		01/10/22 19:30	01/11/22 19:36	1
Carbazole	0.10	U	0.62	0.10	ug/L		01/10/22 19:30	01/11/22 19:36	1
4-Chloroaniline	0.61	U	2.1	0.61	ug/L		01/10/22 19:30	01/11/22 19:36	1
4-Chloro-3-methylphenol	0.13	U	0.62	0.13	ug/L		01/10/22 19:30	01/11/22 19:36	1
2-Chloronaphthalene	0.072	U	1.0	0.072	ug/L		01/10/22 19:30	01/11/22 19:36	1
2-Chlorophenol	0.052	U	1.0	0.052	ug/L		01/10/22 19:30	01/11/22 19:36	1
4-Chlorophenyl phenyl ether	0.052	U	0.62	0.052	ug/L		01/10/22 19:30	01/11/22 19:36	1
Chrysene	0.041	U	0.26	0.041	ug/L		01/10/22 19:30	01/11/22 19:36	1
Dibenz(a,h)anthracene	0.072	U	0.26	0.072	ug/L		01/10/22 19:30	01/11/22 19:36	1
Dibenzofuran	0.10	U	0.41	0.10	ug/L		01/10/22 19:30	01/11/22 19:36	1
1,2-Dichlorobenzene	0.052	U	0.41	0.052	ug/L		01/10/22 19:30	01/11/22 19:36	1
1,3-Dichlorobenzene	0.041	U	0.41	0.041	ug/L		01/10/22 19:30	01/11/22 19:36	1
1,4-Dichlorobenzene	0.041	U	0.41	0.041	ug/L		01/10/22 19:30	01/11/22 19:36	1
3,3'-Dichlorobenzidine	0.27	U	1.0	0.27	ug/L		01/10/22 19:30	01/11/22 19:36	1
2,4-Dichlorophenol	0.21	U	1.0	0.21	ug/L		01/10/22 19:30	01/11/22 19:36	1
Diethyl phthalate	0.15	U **	1.0	0.15	ug/L		01/10/22 19:30	01/11/22 19:36	1
2,4-Dimethylphenol	0.16	U	4.1	0.16	ug/L		01/10/22 19:30	01/11/22 19:36	1
Dimethyl phthalate	0.062	U	0.62	0.062	ug/L		01/10/22 19:30	01/11/22 19:36	1
Di-n-butyl phthalate	10		3.1	0.20	ug/L		01/10/22 19:30	01/11/22 19:36	1
4,6-Dinitro-2-methylphenol	0.57	U	2.1	0.57	ug/L		01/10/22 19:30	01/11/22 19:36	1
2,4-Dinitrophenol	1.6	U	5.2	1.6	ug/L		01/10/22 19:30	01/11/22 19:36	1
2,4-Dinitrotoluene	0.10	U	1.0	0.10	ug/L		01/10/22 19:30	01/11/22 19:36	1
2,6-Dinitrotoluene	0.10	U	0.41	0.10	ug/L		01/10/22 19:30	01/11/22 19:36	1
Di-n-octyl phthalate	0.13	U	1.0	0.13	ug/L		01/10/22 19:30	01/11/22 19:36	1
Fluoranthene	0.062	U **	0.26	0.062	ug/L		01/10/22 19:30	01/11/22 19:36	1
Fluorene	0.052	U	0.26	0.052	ug/L		01/10/22 19:30	01/11/22 19:36	1
Hexachlorobenzene	0.041	U	0.62	0.041	ug/L		01/10/22 19:30	01/11/22 19:36	1
Hexachlorobutadiene	0.062	U	1.0	0.062	ug/L		01/10/22 19:30	01/11/22 19:36	1
Hexachlorocyclopentadiene	0.14	U *	1.0	0.14	ug/L		01/10/22 19:30	01/11/22 19:36	1
Hexachloroethane	0.052	U	1.0	0.052	ug/L		01/10/22 19:30	01/11/22 19:36	1
Indeno[1,2,3-cd]pyrene	0.13	U	0.41	0.13	ug/L		01/10/22 19:30	01/11/22 19:36	1
Isophorone	0.10	U	0.41	0.10	ug/L		01/10/22 19:30	01/11/22 19:36	1
2-Methylphenol	0.052	U	0.62	0.052	ug/L		01/10/22 19:30	01/11/22 19:36	1
3 & 4 Methylphenol	0.10	U	0.62	0.10	ug/L		01/10/22 19:30	01/11/22 19:36	1
Naphthalene	0.16	U	0.41	0.16	ug/L		01/10/22 19:30	01/11/22 19:36	1
2-Nitroaniline	0.10	U	1.0	0.10	ug/L		01/10/22 19:30	01/11/22 19:36	1
3-Nitroaniline	0.16	U	3.1	0.16	ug/L		01/10/22 19:30	01/11/22 19:36	1

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Client Sample Results

Client: AECOM
Project/Site: Red Hill Drinking Water

Job ID: 580-109117-4

Client Sample ID: 220107-C2-YT02

Lab Sample ID: 580-109117-8

Date Collected: 01/07/22 15:55

Matrix: Water

Date Received: 01/10/22 09:15

Method: 8270E - Semivolatile Organic Compounds (GC/MS) (Continued)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
4-Nitroaniline	0.22	U	2.1	0.22	ug/L		01/10/22 19:30	01/11/22 19:36	1
Nitrobenzene	0.041	U	1.0	0.041	ug/L		01/10/22 19:30	01/11/22 19:36	1
4-Nitrophenol	1.8	U	10	1.8	ug/L		01/10/22 19:30	01/11/22 19:36	1
N-Nitrosodi-n-propylamine	0.062	U	0.41	0.062	ug/L		01/10/22 19:30	01/11/22 19:36	1
N-Nitrosodiphenylamine	0.072	U	1.0	0.072	ug/L		01/10/22 19:30	01/11/22 19:36	1
Pentachlorophenol	0.53	U	10	0.53	ug/L		01/10/22 19:30	01/11/22 19:36	1
Phenanthrene	0.12	U	1.0	0.12	ug/L		01/10/22 19:30	01/11/22 19:36	1
Phenol	0.37	U	1.0	0.37	ug/L		01/10/22 19:30	01/11/22 19:36	1
Pyrene	0.041	U *	1.0	0.041	ug/L		01/10/22 19:30	01/11/22 19:36	1
1,2,4-Trichlorobenzene	0.093	U	0.41	0.093	ug/L		01/10/22 19:30	01/11/22 19:36	1
2,4,5-Trichlorophenol	0.10	U	0.41	0.10	ug/L		01/10/22 19:30	01/11/22 19:36	1
2,4,6-Trichlorophenol	0.10	U	0.62	0.10	ug/L		01/10/22 19:30	01/11/22 19:36	1

Surrogate	%Recovery	Qualifier	Limits	Prepared	Analyzed	Dil Fac
2-Fluorobiphenyl	60		35 - 120	01/10/22 19:30	01/11/22 19:36	1
2-Fluorophenol (Surr)	6	S1-	21 - 120	01/10/22 19:30	01/11/22 19:36	1
Nitrobenzene-d5 (Surr)	60		39 - 120	01/10/22 19:30	01/11/22 19:36	1
Phenol-d5 (Surr)	0	S1-	10 - 120	01/10/22 19:30	01/11/22 19:36	1
Terphenyl-d14	108		63 - 137	01/10/22 19:30	01/11/22 19:36	1
2,4,6-Tribromophenol	75		50 - 130	01/10/22 19:30	01/11/22 19:36	1

Method: 8015D - Diesel Range Organics (DRO) (GC)

Analyte	Result	Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
C9-C25	61		59	48	ug/L		01/11/22 09:52	01/11/22 21:20	1
C24-C40	96	U	190	96	ug/L		01/11/22 09:52	01/11/22 21:20	1
Surrogate	%Recovery	Qualifier	Limits				Prepared	Analyzed	Dil Fac
o-Terphenyl	84		53 - 120				01/11/22 09:52	01/11/22 21:20	1

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QC Sample Results

Client: AECOM
Project/Site: Red Hill Drinking Water

Job ID: 580-109117-4

Method: 8260B/CA_LUFTMS - Volatile Organic Compounds by GC/MS

Lab Sample ID: MB 580-378017/5

Matrix: Water

Analysis Batch: 378017

Client Sample ID: Method Blank

Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Gasoline Range Organics (C6-C12)	31	U	100	31	ug/L			01/11/22 08:00	1
Surrogate	MB %Recovery	MB Qualifier	Limits				Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	97		78 - 120					01/11/22 08:00	1

Lab Sample ID: LCS 580-378017/8

Matrix: Water

Analysis Batch: 378017

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits		
Gasoline Range Organics (C6-C12)	1000	1020		ug/L		102	75 - 127		
Surrogate	LCS %Recovery	LCS Qualifier	Limits						
4-Bromofluorobenzene (Surr)	102		78 - 120						

Lab Sample ID: LCSD 580-378017/9

Matrix: Water

Analysis Batch: 378017

Client Sample ID: Lab Control Sample Dup

Prep Type: Total/NA

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Gasoline Range Organics (C6-C12)	1000	1030		ug/L		103	75 - 127	0	13
Surrogate	LCSD %Recovery	LCSD Qualifier	Limits						
4-Bromofluorobenzene (Surr)	100		78 - 120						

Method: 8260D - Volatile Organic Compounds by GC/MS

Lab Sample ID: MB 580-378016/5

Matrix: Water

Analysis Batch: 378016

Client Sample ID: Method Blank

Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Acetone	3.2	U	15	3.2	ug/L			01/11/22 08:00	1
Benzene	0.24	U	1.0	0.24	ug/L			01/11/22 08:00	1
Bromodichloromethane	0.29	U	1.0	0.29	ug/L			01/11/22 08:00	1
Bromoform	0.51	U	1.0	0.51	ug/L			01/11/22 08:00	1
Bromomethane	0.21	U	1.0	0.21	ug/L			01/11/22 08:00	1
Carbon disulfide	0.53	U	1.0	0.53	ug/L			01/11/22 08:00	1
Carbon tetrachloride	0.30	U	1.0	0.30	ug/L			01/11/22 08:00	1
Chlorobenzene	0.44	U	1.0	0.44	ug/L			01/11/22 08:00	1
Chloroform	0.26	U	1.0	0.26	ug/L			01/11/22 08:00	1
Chloromethane	0.28	U	1.0	0.28	ug/L			01/11/22 08:00	1
cis-1,2-Dichloroethene	0.35	U	1.0	0.35	ug/L			01/11/22 08:00	1
cis-1,3-Dichloropropene	0.20	U	1.0	0.20	ug/L			01/11/22 08:00	1
Dibromochloromethane	0.43	U	1.0	0.43	ug/L			01/11/22 08:00	1
1,1-Dichloroethane	0.22	U	1.0	0.22	ug/L			01/11/22 08:00	1

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QC Sample Results

Client: AECOM
Project/Site: Red Hill Drinking Water

Job ID: 580-109117-4

Method: 8260D - Volatile Organic Compounds by GC/MS (Continued)

Lab Sample ID: MB 580-378016/5
Matrix: Water
Analysis Batch: 378016

Client Sample ID: Method Blank
Prep Type: Total/NA

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
1,2-Dichloroethane	0.42	U	1.0	0.42	ug/L			01/11/22 08:00	1
1,1-Dichloroethene	0.28	U	1.0	0.28	ug/L			01/11/22 08:00	1
1,2-Dichloroethene, Total	0.39	U	1.0	0.39	ug/L			01/11/22 08:00	1
Dichloromethane	1.4	U	3.0	1.4	ug/L			01/11/22 08:00	1
1,2-Dichloropropane	0.18	U	1.0	0.18	ug/L			01/11/22 08:00	1
Ethylbenzene	0.50	U	1.0	0.50	ug/L			01/11/22 08:00	1
Ethyl Chloride	0.35	U	1.0	0.35	ug/L			01/11/22 08:00	1
2-Hexanone	4.0	U	15	4.0	ug/L			01/11/22 08:00	1
Methyl Ethyl Ketone	4.7	U	15	4.7	ug/L			01/11/22 08:00	1
Methyl isobutyl ketone (MIBK)	2.5	U	5.0	2.5	ug/L			01/11/22 08:00	1
m-Xylene & p-Xylene	0.53	U	2.0	0.53	ug/L			01/11/22 08:00	1
o-Xylene	0.39	U	1.0	0.39	ug/L			01/11/22 08:00	1
Styrene	0.53	U	1.0	0.53	ug/L			01/11/22 08:00	1
1,1,2,2-Tetrachloroethane	0.52	U	1.0	0.52	ug/L			01/11/22 08:00	1
Tetrachloroethene	0.41	U	1.0	0.41	ug/L			01/11/22 08:00	1
Toluene	0.39	U	1.0	0.39	ug/L			01/11/22 08:00	1
trans-1,2-Dichloroethene	0.39	U	1.0	0.39	ug/L			01/11/22 08:00	1
trans-1,3-Dichloropropene	0.41	U	1.0	0.41	ug/L			01/11/22 08:00	1
1,1,1-Trichloroethane	0.39	U	1.0	0.39	ug/L			01/11/22 08:00	1
1,1,2-Trichloroethane	0.24	U	1.0	0.24	ug/L			01/11/22 08:00	1
Trichloroethene	0.26	U	1.0	0.26	ug/L			01/11/22 08:00	1
Vinyl chloride	0.22	U	1.0	0.22	ug/L			01/11/22 08:00	1
Xylenes, Total	0.53	U	2.0	0.53	ug/L			01/11/22 08:00	1

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
4-Bromofluorobenzene (Surr)	97		80 - 120		01/11/22 08:00	1
Dibromofluoromethane (Surr)	100		80 - 120		01/11/22 08:00	1
1,2-Dichloroethane-d4 (Surr)	100		80 - 120		01/11/22 08:00	1
Toluene-d8 (Surr)	98		80 - 120		01/11/22 08:00	1

Lab Sample ID: LCS 580-378016/6
Matrix: Water
Analysis Batch: 378016

Client Sample ID: Lab Control Sample
Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
Acetone	50.0	44.4		ug/L		89	44 - 150
Benzene	10.0	10.5		ug/L		105	80 - 122
Bromodichloromethane	10.0	9.89		ug/L		99	75 - 124
Bromoform	10.0	9.15		ug/L		92	56 - 139
Bromomethane	10.0	8.89		ug/L		89	36 - 150
Carbon disulfide	10.0	9.71		ug/L		97	63 - 134
Carbon tetrachloride	10.0	10.2		ug/L		102	72 - 129
Chlorobenzene	10.0	9.93		ug/L		99	80 - 120
Chloroform	10.0	10.6		ug/L		106	78 - 127
Chloromethane	10.0	8.23		ug/L		82	25 - 150
cis-1,2-Dichloroethene	10.0	10.3		ug/L		103	76 - 120
cis-1,3-Dichloropropene	10.0	9.56		ug/L		96	77 - 120
Dibromochloromethane	10.0	9.35		ug/L		93	73 - 125

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QC Sample Results

Client: AECOM
Project/Site: Red Hill Drinking Water

Job ID: 580-109117-4

Method: 8260D - Volatile Organic Compounds by GC/MS (Continued)

Lab Sample ID: LCS 580-378016/6

Matrix: Water

Analysis Batch: 378016

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
1,1-Dichloroethane	10.0	10.7		ug/L		107	80 - 120
1,2-Dichloroethane	10.0	10.3		ug/L		103	69 - 126
1,1-Dichloroethene	10.0	10.7		ug/L		107	70 - 129
1,2-Dichloroethene, Total	20.0	20.7		ug/L		104	76 - 129
Dichloromethane	10.0	10.5		ug/L		105	77 - 125
1,2-Dichloropropane	10.0	10.0		ug/L		100	80 - 120
Ethylbenzene	10.0	9.88		ug/L		99	80 - 120
Ethyl Chloride	10.0	8.55		ug/L		86	38 - 150
2-Hexanone	50.0	44.9		ug/L		90	65 - 144
Methyl Ethyl Ketone	50.0	47.3		ug/L		95	65 - 137
Methyl isobutyl ketone (MIBK)	50.0	44.4		ug/L		89	59 - 141
m-Xylene & p-Xylene	10.0	9.85		ug/L		98	80 - 120
o-Xylene	10.0	9.76		ug/L		98	80 - 120
Styrene	10.0	9.77		ug/L		98	76 - 122
1,1,2,2-Tetrachloroethane	10.0	8.25		ug/L		83	74 - 124
Tetrachloroethene	10.0	10.2		ug/L		102	76 - 125
Toluene	10.0	9.94		ug/L		99	80 - 120
trans-1,2-Dichloroethene	10.0	10.4		ug/L		104	75 - 120
trans-1,3-Dichloropropene	10.0	9.10		ug/L		91	76 - 122
1,1,1-Trichloroethane	10.0	10.6		ug/L		106	74 - 130
1,1,2-Trichloroethane	10.0	9.41		ug/L		94	80 - 121
Trichloroethene	10.0	11.1		ug/L		111	80 - 125
Vinyl chloride	10.0	8.65		ug/L		87	31 - 150
Xylenes, Total	20.0	19.6		ug/L		98	80 - 120

Surrogate	LCS %Recovery	LCS Qualifier	Limits
4-Bromofluorobenzene (Surr)	102		80 - 120
Dibromofluoromethane (Surr)	99		80 - 120
1,2-Dichloroethane-d4 (Surr)	100		80 - 120
Toluene-d8 (Surr)	99		80 - 120

Lab Sample ID: LCSD 580-378016/7

Matrix: Water

Analysis Batch: 378016

Client Sample ID: Lab Control Sample Dup

Prep Type: Total/NA

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Acetone	50.0	46.6		ug/L		93	44 - 150	5	33
Benzene	10.0	10.1		ug/L		101	80 - 122	4	14
Bromodichloromethane	10.0	9.76		ug/L		98	75 - 124	1	13
Bromoform	10.0	9.28		ug/L		93	56 - 139	1	21
Bromomethane	10.0	10.7		ug/L		107	36 - 150	18	33
Carbon disulfide	10.0	8.90		ug/L		89	63 - 134	9	24
Carbon tetrachloride	10.0	9.77		ug/L		98	72 - 129	4	19
Chlorobenzene	10.0	9.91		ug/L		99	80 - 120	0	10
Chloroform	10.0	10.6		ug/L		106	78 - 127	0	14
Chloromethane	10.0	8.62		ug/L		86	25 - 150	5	26
cis-1,2-Dichloroethene	10.0	10.1		ug/L		101	76 - 120	2	20
cis-1,3-Dichloropropene	10.0	8.99		ug/L		90	77 - 120	6	35

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QC Sample Results

Client: AECOM
Project/Site: Red Hill Drinking Water

Job ID: 580-109117-4

Method: 8260D - Volatile Organic Compounds by GC/MS (Continued)

Lab Sample ID: LCSD 580-378016/7

Matrix: Water

Analysis Batch: 378016

Client Sample ID: Lab Control Sample Dup

Prep Type: Total/NA

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Dibromochloromethane	10.0	9.63		ug/L		96	73 - 125	3	13
1,1-Dichloroethane	10.0	10.4		ug/L		104	80 - 120	2	15
1,2-Dichloroethane	10.0	10.2		ug/L		102	69 - 126	0	11
1,1-Dichloroethene	10.0	10.2		ug/L		102	70 - 129	5	23
1,2-Dichloroethene, Total	20.0	20.1		ug/L		100	76 - 129	3	21
Dichloromethane	10.0	11.2		ug/L		112	77 - 125	6	18
1,2-Dichloropropane	10.0	9.95		ug/L		100	80 - 120	1	14
Ethylbenzene	10.0	9.60		ug/L		96	80 - 120	3	14
Ethyl Chloride	10.0	8.90		ug/L		89	38 - 150	4	28
2-Hexanone	50.0	43.6		ug/L		87	65 - 144	3	26
Methyl Ethyl Ketone	50.0	48.6		ug/L		97	65 - 137	3	34
Methyl isobutyl ketone (MIBK)	50.0	44.2		ug/L		88	59 - 141	1	22
m-Xylene & p-Xylene	10.0	9.77		ug/L		98	80 - 120	1	14
o-Xylene	10.0	9.59		ug/L		96	80 - 120	2	16
Styrene	10.0	9.72		ug/L		97	76 - 122	0	16
1,1,2,2-Tetrachloroethane	10.0	8.33		ug/L		83	74 - 124	1	25
Tetrachloroethene	10.0	9.43		ug/L		94	76 - 125	8	13
Toluene	10.0	9.71		ug/L		97	80 - 120	2	13
trans-1,2-Dichloroethene	10.0	9.97		ug/L		100	75 - 120	4	21
trans-1,3-Dichloropropene	10.0	8.72		ug/L		87	76 - 122	4	20
1,1,1-Trichloroethane	10.0	9.53		ug/L		95	74 - 130	11	19
1,1,2-Trichloroethane	10.0	9.65		ug/L		97	80 - 121	3	14
Trichloroethene	10.0	10.9		ug/L		109	80 - 125	2	13
Vinyl chloride	10.0	10.1		ug/L		101	31 - 150	16	26
Xylenes, Total	20.0	19.4		ug/L		97	80 - 120	1	16

Surrogate	LCSD %Recovery	LCSD Qualifier	Limits
4-Bromofluorobenzene (Surr)	105		80 - 120
Dibromofluoromethane (Surr)	100		80 - 120
1,2-Dichloroethane-d4 (Surr)	98		80 - 120
Toluene-d8 (Surr)	96		80 - 120

Method: 8270E - Semivolatile Organic Compounds (GC/MS)

Lab Sample ID: MB 580-377974/1-A

Matrix: Water

Analysis Batch: 377989

Client Sample ID: Method Blank

Prep Type: Total/NA

Prep Batch: 377974

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Acenaphthene	0.050	U	0.40	0.050	ug/L		01/10/22 19:30	01/11/22 16:31	1
Acenaphthylene	0.060	U	1.0	0.060	ug/L		01/10/22 19:30	01/11/22 16:31	1
Anthracene	0.050	U	1.0	0.050	ug/L		01/10/22 19:30	01/11/22 16:31	1
Benzo[a]anthracene	0.050	U	0.25	0.050	ug/L		01/10/22 19:30	01/11/22 16:31	1
Benzo[a]pyrene	0.040	U	0.25	0.040	ug/L		01/10/22 19:30	01/11/22 16:31	1
Benzo[b]fluoranthene	0.040	U	0.25	0.040	ug/L		01/10/22 19:30	01/11/22 16:31	1
Benzo[g,h,i]perylene	0.040	U	0.25	0.040	ug/L		01/10/22 19:30	01/11/22 16:31	1
Benzo[k]fluoranthene	0.050	U	0.25	0.050	ug/L		01/10/22 19:30	01/11/22 16:31	1
Bis(2-chloroethoxy)methane	0.050	U	0.60	0.050	ug/L		01/10/22 19:30	01/11/22 16:31	1
Bis(2-chloroethyl)ether	0.030	U	0.10	0.030	ug/L		01/10/22 19:30	01/11/22 16:31	1

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QC Sample Results

Client: AECOM
Project/Site: Red Hill Drinking Water

Job ID: 580-109117-4

Method: 8270E - Semivolatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: MB 580-377974/1-A

Matrix: Water

Analysis Batch: 377989

Client Sample ID: Method Blank

Prep Type: Total/NA

Prep Batch: 377974

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
Bis(2-ethylhexyl) phthalate	0.74	U	3.0	0.74	ug/L		01/10/22 19:30	01/11/22 16:31	1
4-Bromophenyl phenyl ether	0.060	U	0.60	0.060	ug/L		01/10/22 19:30	01/11/22 16:31	1
Butyl benzyl phthalate	0.27	U	4.0	0.27	ug/L		01/10/22 19:30	01/11/22 16:31	1
Carbazole	0.10	U	0.60	0.10	ug/L		01/10/22 19:30	01/11/22 16:31	1
4-Chloroaniline	0.59	U	2.0	0.59	ug/L		01/10/22 19:30	01/11/22 16:31	1
4-Chloro-3-methylphenol	0.13	U	0.60	0.13	ug/L		01/10/22 19:30	01/11/22 16:31	1
2-Chloronaphthalene	0.070	U	1.0	0.070	ug/L		01/10/22 19:30	01/11/22 16:31	1
2-Chlorophenol	0.050	U	1.0	0.050	ug/L		01/10/22 19:30	01/11/22 16:31	1
4-Chlorophenyl phenyl ether	0.050	U	0.60	0.050	ug/L		01/10/22 19:30	01/11/22 16:31	1
Chrysene	0.040	U	0.25	0.040	ug/L		01/10/22 19:30	01/11/22 16:31	1
Dibenz(a,h)anthracene	0.070	U	0.25	0.070	ug/L		01/10/22 19:30	01/11/22 16:31	1
Dibenzofuran	0.10	U	0.40	0.10	ug/L		01/10/22 19:30	01/11/22 16:31	1
1,2-Dichlorobenzene	0.050	U	0.40	0.050	ug/L		01/10/22 19:30	01/11/22 16:31	1
1,3-Dichlorobenzene	0.040	U	0.40	0.040	ug/L		01/10/22 19:30	01/11/22 16:31	1
1,4-Dichlorobenzene	0.040	U	0.40	0.040	ug/L		01/10/22 19:30	01/11/22 16:31	1
3,3'-Dichlorobenzidine	0.26	U	1.0	0.26	ug/L		01/10/22 19:30	01/11/22 16:31	1
2,4-Dichlorophenol	0.20	U	1.0	0.20	ug/L		01/10/22 19:30	01/11/22 16:31	1
Diethyl phthalate	0.15	U	1.0	0.15	ug/L		01/10/22 19:30	01/11/22 16:31	1
2,4-Dimethylphenol	0.16	U	4.0	0.16	ug/L		01/10/22 19:30	01/11/22 16:31	1
Dimethyl phthalate	0.060	U	0.60	0.060	ug/L		01/10/22 19:30	01/11/22 16:31	1
Di-n-butyl phthalate	0.19	U	3.0	0.19	ug/L		01/10/22 19:30	01/11/22 16:31	1
4,6-Dinitro-2-methylphenol	0.55	U	2.0	0.55	ug/L		01/10/22 19:30	01/11/22 16:31	1
2,4-Dinitrophenol	1.6	U	5.0	1.6	ug/L		01/10/22 19:30	01/11/22 16:31	1
2,4-Dinitrotoluene	0.10	U	1.0	0.10	ug/L		01/10/22 19:30	01/11/22 16:31	1
2,6-Dinitrotoluene	0.10	U	0.40	0.10	ug/L		01/10/22 19:30	01/11/22 16:31	1
Di-n-octyl phthalate	0.13	U	1.0	0.13	ug/L		01/10/22 19:30	01/11/22 16:31	1
Fluoranthene	0.060	U	0.25	0.060	ug/L		01/10/22 19:30	01/11/22 16:31	1
Fluorene	0.050	U	0.25	0.050	ug/L		01/10/22 19:30	01/11/22 16:31	1
Hexachlorobenzene	0.040	U	0.60	0.040	ug/L		01/10/22 19:30	01/11/22 16:31	1
Hexachlorobutadiene	0.060	U	1.0	0.060	ug/L		01/10/22 19:30	01/11/22 16:31	1
Hexachlorocyclopentadiene	0.14	U	1.0	0.14	ug/L		01/10/22 19:30	01/11/22 16:31	1
Hexachloroethane	0.050	U	1.0	0.050	ug/L		01/10/22 19:30	01/11/22 16:31	1
Indeno[1,2,3-cd]pyrene	0.13	U	0.40	0.13	ug/L		01/10/22 19:30	01/11/22 16:31	1
Isophorone	0.10	U	0.40	0.10	ug/L		01/10/22 19:30	01/11/22 16:31	1
2-Methylphenol	0.050	U	0.60	0.050	ug/L		01/10/22 19:30	01/11/22 16:31	1
3 & 4 Methylphenol	0.10	U	0.60	0.10	ug/L		01/10/22 19:30	01/11/22 16:31	1
Naphthalene	0.16	U	0.40	0.16	ug/L		01/10/22 19:30	01/11/22 16:31	1
2-Nitroaniline	0.10	U	1.0	0.10	ug/L		01/10/22 19:30	01/11/22 16:31	1
3-Nitroaniline	0.16	U	3.0	0.16	ug/L		01/10/22 19:30	01/11/22 16:31	1
4-Nitroaniline	0.21	U	2.0	0.21	ug/L		01/10/22 19:30	01/11/22 16:31	1
Nitrobenzene	0.040	U	1.0	0.040	ug/L		01/10/22 19:30	01/11/22 16:31	1
4-Nitrophenol	1.7	U	10	1.7	ug/L		01/10/22 19:30	01/11/22 16:31	1
N-Nitrosodi-n-propylamine	0.060	U	0.40	0.060	ug/L		01/10/22 19:30	01/11/22 16:31	1
N-Nitrosodiphenylamine	0.070	U	1.0	0.070	ug/L		01/10/22 19:30	01/11/22 16:31	1
Pentachlorophenol	0.51	U	10	0.51	ug/L		01/10/22 19:30	01/11/22 16:31	1
Phenanthrene	0.12	U	1.0	0.12	ug/L		01/10/22 19:30	01/11/22 16:31	1
Phenol	0.36	U	1.0	0.36	ug/L		01/10/22 19:30	01/11/22 16:31	1
Pyrene	0.040	U	1.0	0.040	ug/L		01/10/22 19:30	01/11/22 16:31	1
1,2,4-Trichlorobenzene	0.090	U	0.40	0.090	ug/L		01/10/22 19:30	01/11/22 16:31	1

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QC Sample Results

Client: AECOM
Project/Site: Red Hill Drinking Water

Job ID: 580-109117-4

Method: 8270E - Semivolatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: MB 580-377974/1-A

Matrix: Water

Analysis Batch: 377989

Client Sample ID: Method Blank

Prep Type: Total/NA

Prep Batch: 377974

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
2,4,5-Trichlorophenol	0.10	U	0.40	0.10	ug/L		01/10/22 19:30	01/11/22 16:31	1
2,4,6-Trichlorophenol	0.10	U	0.60	0.10	ug/L		01/10/22 19:30	01/11/22 16:31	1

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
2-Fluorobiphenyl	92		35 - 120	01/10/22 19:30	01/11/22 16:31	1
2-Fluorophenol (Surr)	56		21 - 120	01/10/22 19:30	01/11/22 16:31	1
Nitrobenzene-d5 (Surr)	98		39 - 120	01/10/22 19:30	01/11/22 16:31	1
Phenol-d5 (Surr)	30		10 - 120	01/10/22 19:30	01/11/22 16:31	1
Terphenyl-d14	125		63 - 137	01/10/22 19:30	01/11/22 16:31	1
2,4,6-Tribromophenol	103		50 - 130	01/10/22 19:30	01/11/22 16:31	1

Lab Sample ID: LCS 580-377974/2-A

Matrix: Water

Analysis Batch: 377989

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Prep Batch: 377974

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	Limits
Acenaphthene	2.00	1.68		ug/L		84	41 - 120
Acenaphthylene	2.00	1.74		ug/L		87	43 - 120
Anthracene	2.00	1.99		ug/L		100	58 - 120
Benzo[a]anthracene	2.00	2.38		ug/L		119	48 - 131
Benzo[a]pyrene	2.00	2.22		ug/L		111	55 - 125
Benzo[b]fluoranthene	2.00	2.39		ug/L		120	54 - 124
Benzo[g,h,i]perylene	2.00	1.50		ug/L		75	46 - 124
Benzo[k]fluoranthene	2.00	2.10		ug/L		105	52 - 132
Bis(2-chloroethoxy)methane	2.00	1.89		ug/L		94	38 - 120
Bis(2-ethylhexyl) phthalate	2.00	2.54	J	ug/L		127	41 - 150
4-Bromophenyl phenyl ether	2.00	1.98		ug/L		99	53 - 120
Butyl benzyl phthalate	2.00	2.48	J	ug/L		124	40 - 150
Carbazole	2.00	2.28		ug/L		114	61 - 150
4-Chloroaniline	2.00	0.814	J	ug/L		41	10 - 150
4-Chloro-3-methylphenol	2.00	1.88		ug/L		94	36 - 120
2-Chloronaphthalene	2.00	1.77		ug/L		89	35 - 120
2-Chlorophenol	2.00	1.65		ug/L		82	44 - 120
4-Chlorophenyl phenyl ether	2.00	1.80		ug/L		90	41 - 120
Chrysene	2.00	2.22		ug/L		111	57 - 125
Dibenz(a,h)anthracene	2.00	1.54		ug/L		77	48 - 126
Dibenzofuran	2.00	1.75		ug/L		88	45 - 120
1,2-Dichlorobenzene	2.00	1.64		ug/L		82	20 - 120
1,3-Dichlorobenzene	2.00	1.68		ug/L		84	20 - 120
1,4-Dichlorobenzene	2.00	1.66		ug/L		83	20 - 120
3,3'-Dichlorobenzidine	4.00	4.08		ug/L		102	33 - 150
2,4-Dichlorophenol	2.00	1.76		ug/L		88	45 - 120
Diethyl phthalate	2.00	2.39		ug/L		119	60 - 121
2,4-Dimethylphenol	2.00	1.98	J	ug/L		99	37 - 120
Dimethyl phthalate	2.00	2.18		ug/L		109	54 - 120
Di-n-butyl phthalate	2.00	2.45	J	ug/L		123	55 - 150
4,6-Dinitro-2-methylphenol	4.00	2.58		ug/L		64	29 - 136
2,4-Dinitrophenol	4.00	1.91	J	ug/L		48	10 - 146

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QC Sample Results

Client: AECOM
Project/Site: Red Hill Drinking Water

Job ID: 580-109117-4

Method: 8270E - Semivolatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: LCS 580-377974/2-A

Matrix: Water

Analysis Batch: 377989

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Prep Batch: 377974

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
2,4-Dinitrotoluene	2.00	2.14		ug/L		107	51 - 120
2,6-Dinitrotoluene	2.00	1.89		ug/L		95	52 - 120
Di-n-octyl phthalate	2.00	2.60		ug/L		130	48 - 140
Fluoranthene	2.00	2.30		ug/L		115	60 - 121
Fluorene	2.00	1.83		ug/L		91	20 - 120
Hexachlorobenzene	2.00	1.95		ug/L		98	49 - 120
Hexachlorobutadiene	2.00	1.68		ug/L		84	10 - 130
Hexachlorocyclopentadiene	2.00	0.164	J *	ug/L		8	10 - 125
Hexachloroethane	2.00	1.12		ug/L		56	10 - 130
Indeno[1,2,3-cd]pyrene	2.00	1.70		ug/L		85	39 - 124
Isophorone	2.00	1.85		ug/L		93	41 - 120
2-Methylphenol	2.00	1.49		ug/L		75	30 - 120
3 & 4 Methylphenol	2.00	1.44		ug/L		72	29 - 120
Naphthalene	2.00	1.68		ug/L		84	42 - 120
2-Nitroaniline	2.00	2.06		ug/L		103	43 - 120
3-Nitroaniline	2.00	1.61	J	ug/L		81	10 - 138
4-Nitroaniline	2.00	1.76	J	ug/L		88	38 - 133
Nitrobenzene	2.00	1.84		ug/L		92	38 - 120
4-Nitrophenol	4.00	2.01	J	ug/L		50	10 - 120
N-Nitrosodi-n-propylamine	2.00	2.12		ug/L		106	39 - 120
N-Nitrosodiphenylamine	2.00	1.95		ug/L		97	52 - 120
Pentachlorophenol	4.00	2.31	J	ug/L		58	18 - 135
Phenanthrene	2.00	2.07		ug/L		103	54 - 120
Phenol	2.00	0.758	J	ug/L		38	13 - 120
Pyrene	2.00	2.35		ug/L		118	57 - 120
1,2,4-Trichlorobenzene	2.00	1.76		ug/L		88	21 - 120
2,4,5-Trichlorophenol	2.00	1.96		ug/L		98	45 - 120
2,4,6-Trichlorophenol	2.00	1.85		ug/L		92	43 - 120

Surrogate	LCS %Recovery	LCS Qualifier	Limits
2-Fluorobiphenyl	76		35 - 120
2-Fluorophenol (Surr)	50		21 - 120
Nitrobenzene-d5 (Surr)	87		39 - 120
Phenol-d5 (Surr)	32		10 - 120
Terphenyl-d14	120		63 - 137
2,4,6-Tribromophenol	101		50 - 130

Lab Sample ID: LCSD 580-377974/3-A

Matrix: Water

Analysis Batch: 377989

Client Sample ID: Lab Control Sample Dup

Prep Type: Total/NA

Prep Batch: 377974

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	Limit
Acenaphthene	2.00	1.70		ug/L		85	41 - 120	1	35
Acenaphthylene	2.00	1.76		ug/L		88	43 - 120	1	35
Anthracene	2.00	2.16		ug/L		108	58 - 120	8	35
Benzo[a]anthracene	2.00	2.51		ug/L		125	48 - 131	5	35
Benzo[a]pyrene	2.00	2.33		ug/L		117	55 - 125	5	35
Benzo[b]fluoranthene	2.00	2.54	+	ug/L		127	54 - 124	6	35

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QC Sample Results

Client: AECOM
Project/Site: Red Hill Drinking Water

Job ID: 580-109117-4

Method: 8270E - Semivolatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: LCSD 580-377974/3-A

Matrix: Water

Analysis Batch: 377989

Client Sample ID: Lab Control Sample Dup

Prep Type: Total/NA

Prep Batch: 377974

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Benzo[g,h,i]perylene	2.00	1.59		ug/L		79	46 - 124	6	35
Benzo[k]fluoranthene	2.00	2.22		ug/L		111	52 - 132	5	35
Bis(2-chloroethoxy)methane	2.00	1.88		ug/L		94	38 - 120	0	35
Bis(2-ethylhexyl) phthalate	2.00	2.67	J	ug/L		134	41 - 150	5	35
4-Bromophenyl phenyl ether	2.00	1.98		ug/L		99	53 - 120	0	35
Butyl benzyl phthalate	2.00	2.61	J	ug/L		131	40 - 150	5	35
Carbazole	2.00	2.47		ug/L		124	61 - 150	8	35
4-Chloroaniline	2.00	1.12	J	ug/L		56	10 - 150	31	35
4-Chloro-3-methylphenol	2.00	1.85		ug/L		93	36 - 120	2	35
2-Chloronaphthalene	2.00	1.76		ug/L		88	35 - 120	0	35
2-Chlorophenol	2.00	1.65		ug/L		83	44 - 120	0	35
4-Chlorophenyl phenyl ether	2.00	1.85		ug/L		92	41 - 120	2	35
Chrysene	2.00	2.35		ug/L		118	57 - 125	6	35
Dibenz(a,h)anthracene	2.00	1.67		ug/L		84	48 - 126	8	35
Dibenzofuran	2.00	1.89		ug/L		95	45 - 120	8	35
1,2-Dichlorobenzene	2.00	1.73		ug/L		86	20 - 120	5	35
1,3-Dichlorobenzene	2.00	1.70		ug/L		85	20 - 120	2	35
1,4-Dichlorobenzene	2.00	1.67		ug/L		84	20 - 120	1	35
3,3'-Dichlorobenzidine	4.00	4.59		ug/L		115	33 - 150	12	35
2,4-Dichlorophenol	2.00	1.78		ug/L		89	45 - 120	1	35
Diethyl phthalate	2.00	2.47	*+	ug/L		123	60 - 121	3	35
2,4-Dimethylphenol	2.00	1.97	J	ug/L		99	37 - 120	1	35
Dimethyl phthalate	2.00	2.25		ug/L		112	54 - 120	3	35
Di-n-butyl phthalate	2.00	2.60	J	ug/L		130	55 - 150	6	35
4,6-Dinitro-2-methylphenol	4.00	2.62		ug/L		65	29 - 136	1	35
2,4-Dinitrophenol	4.00	2.05	J	ug/L		51	10 - 146	7	35
2,4-Dinitrotoluene	2.00	2.30		ug/L		115	51 - 120	7	35
2,6-Dinitrotoluene	2.00	2.02		ug/L		101	52 - 120	6	35
Di-n-octyl phthalate	2.00	2.70		ug/L		135	48 - 140	4	35
Fluoranthene	2.00	2.54	*+	ug/L		127	60 - 121	10	35
Fluorene	2.00	1.95		ug/L		98	20 - 120	7	35
Hexachlorobenzene	2.00	2.05		ug/L		103	49 - 120	5	35
Hexachlorobutadiene	2.00	1.66		ug/L		83	10 - 130	1	35
Hexachlorocyclopentadiene	2.00	0.182	J *	ug/L		9	10 - 125	10	35
Hexachloroethane	2.00	1.14		ug/L		57	10 - 130	2	35
Indeno[1,2,3-cd]pyrene	2.00	1.73		ug/L		86	39 - 124	1	35
Isophorone	2.00	1.98		ug/L		99	41 - 120	7	35
2-Methylphenol	2.00	1.51		ug/L		76	30 - 120	1	35
3 & 4 Methylphenol	2.00	1.42		ug/L		71	29 - 120	2	35
Naphthalene	2.00	1.64		ug/L		82	42 - 120	2	35
2-Nitroaniline	2.00	2.06		ug/L		103	43 - 120	0	35
3-Nitroaniline	2.00	1.68	J	ug/L		84	10 - 138	4	35
4-Nitroaniline	2.00	2.13		ug/L		106	38 - 133	19	35
Nitrobenzene	2.00	1.80		ug/L		90	38 - 120	2	35
4-Nitrophenol	4.00	2.05	J	ug/L		51	10 - 120	2	35
N-Nitrosodi-n-propylamine	2.00	2.02		ug/L		101	39 - 120	5	35
N-Nitrosodiphenylamine	2.00	2.12		ug/L		106	52 - 120	8	35
Pentachlorophenol	4.00	2.04	J	ug/L		51	18 - 135	13	35
Phenanthrene	2.00	2.24		ug/L		112	54 - 120	8	35

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QC Sample Results

Client: AECOM
Project/Site: Red Hill Drinking Water

Job ID: 580-109117-4

Method: 8270E - Semivolatile Organic Compounds (GC/MS) (Continued)

Lab Sample ID: LCSD 580-377974/3-A

Matrix: Water

Analysis Batch: 377989

Client Sample ID: Lab Control Sample Dup

Prep Type: Total/NA

Prep Batch: 377974

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
Phenol	2.00	0.762	J	ug/L		38	13 - 120	1	35
Pyrene	2.00	2.54	*+	ug/L		127	57 - 120	8	35
1,2,4-Trichlorobenzene	2.00	1.73		ug/L		87	21 - 120	2	35
2,4,5-Trichlorophenol	2.00	1.96		ug/L		98	45 - 120	0	35
2,4,6-Trichlorophenol	2.00	1.84		ug/L		92	43 - 120	1	35

Surrogate	LCSD %Recovery	LCSD Qualifier	Limits
2-Fluorobiphenyl	77		35 - 120
2-Fluorophenol (Surr)	50		21 - 120
Nitrobenzene-d5 (Surr)	82		39 - 120
Phenol-d5 (Surr)	29		10 - 120
Terphenyl-d14	128		63 - 137
2,4,6-Tribromophenol	110		50 - 130

Method: 8015D - Diesel Range Organics (DRO) (GC)

Lab Sample ID: MB 580-377984/1-A

Matrix: Water

Analysis Batch: 378039

Client Sample ID: Method Blank

Prep Type: Total/NA

Prep Batch: 377984

Analyte	MB Result	MB Qualifier	RL	MDL	Unit	D	Prepared	Analyzed	Dil Fac
C9-C25	45	U	55	45	ug/L		01/11/22 09:52	01/11/22 20:20	1
C24-C40	90	U	180	90	ug/L		01/11/22 09:52	01/11/22 20:20	1

Surrogate	MB %Recovery	MB Qualifier	Limits	Prepared	Analyzed	Dil Fac
o-Terphenyl	73		53 - 120	01/11/22 09:52	01/11/22 20:20	1

Lab Sample ID: LCS 580-377984/2-A

Matrix: Water

Analysis Batch: 378039

Client Sample ID: Lab Control Sample

Prep Type: Total/NA

Prep Batch: 377984

Analyte	Spike Added	LCS Result	LCS Qualifier	Unit	D	%Rec	%Rec. Limits
C9-C25	4000	3240		ug/L		81	55 - 134
C24-C40	4000	3950		ug/L		99	36 - 143

Surrogate	LCS %Recovery	LCS Qualifier	Limits
o-Terphenyl	72		53 - 120

Lab Sample ID: LCSD 580-377984/3-A

Matrix: Water

Analysis Batch: 378039

Client Sample ID: Lab Control Sample Dup

Prep Type: Total/NA

Prep Batch: 377984

Analyte	Spike Added	LCSD Result	LCSD Qualifier	Unit	D	%Rec	%Rec. Limits	RPD	RPD Limit
C9-C25	4000	3240		ug/L		81	55 - 134	0	26
C24-C40	4000	3850		ug/L		96	36 - 143	3	24

Surrogate	LCSD %Recovery	LCSD Qualifier	Limits
o-Terphenyl	78		53 - 120

Eurofins Seattle

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Lab Chronicle

Client: AECOM
Project/Site: Red Hill Drinking Water

Job ID: 580-109117-4

Client Sample ID: 220107-C2-YT02

Lab Sample ID: 580-109117-8

Date Collected: 01/07/22 15:55

Matrix: Water

Date Received: 01/10/22 09:15

Prep Type	Batch Type	Batch Method	Run	Dilution Factor	Batch Number	Prepared or Analyzed	Analyst	Lab
Total/NA	Analysis	8260B/CA_LUFTMS		1	378017	01/11/22 17:33	JSM	FGS SEA
Total/NA	Analysis	8260D		1	378016	01/11/22 17:33	JSM	FGS SEA
Total/NA	Prep	3510C			377974	01/10/22 19:30	JHR	FGS SEA
Total/NA	Analysis	8270E		1	377989	01/11/22 19:36	T1L	FGS SEA
Total/NA	Prep	3510C			377984	01/11/22 09:52	M1E	FGS SEA
Total/NA	Analysis	8015D		1	378039	01/11/22 21:20	JAE	FGS SEA

Laboratory References:

FGS SEA = Eurofins Seattle, 5755 8th Street East, Tacoma, WA 98424, TEL (253)922-2310

Eurofins Seattle

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Accreditation/Certification Summary

Client: AECOM
Project/Site: Red Hill Drinking Water

Job ID: 580-109117-4

Laboratory: Eurofins Seattle

Unless otherwise noted, all analytes for this laboratory were covered under each accreditation/certification below.

Authority	Program	Identification Number	Expiration Date
ANAB	Dept. of Defense ELAP	L2236	01-18-22

The following analytes are included in this report, but the laboratory is not certified by the governing authority. This list may include analytes for which the agency does not offer certification.

Analysis Method	Prep Method	Matrix	Analyte
8260D		Water	1,2-Dichloroethene, Total

1

2

3

4

5

6

7

8

9

10

11

Eurofins Seattle

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2/21/2022 (Rev. 2)

Sample Summary

Client: AECOM
Project/Site: Red Hill Drinking Water

Job ID: 580-109117-4

Lab Sample ID	Client Sample ID	Matrix	Collected	Received
580-109117-8	220107-C2-YT02	Water	01/07/22 15:55	01/10/22 09:15

- 1
- 2
- 3
- 4
- 5
- 6
- 7
- 8
- 9
- 10
- 11

Chain of Custody Record

Client Information Client Contact: Alethea Ramos (alternate: Margie Pascua) Company: AECOM Address: 1001 Bishop St. Suite 1600 City: Honolulu State: HI Zip: 96813 Phone: 808-521-3051 (direct: 808-529-7283) (alternate: 808-356-5373) Email: alethea.ramos@aecom.com (alternate: margie.pascua@aecom.com) Project Name: CV22F0106 Site: RHSF		Lab PM: Elaine Walker E-Mail: M.Elaine.Walker@EurofinsET.com Carrier Tracking No(s): FedEx State of Origin: Hawaii Page: 1 of 1 Job #:	
Due Date Requested: see subcontract TAT Requested (days): 48 hrs Compliance Project: <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No PO #: WO #: Project #: 60674414 SSOW#:		Analysis Requested Preservation Codes: A - HCL B - NaOH C - Zn Acetate D - Nitric Acid E - NaHSO4 F - MeOH G - Amchlor H - Ascorbic Acid I - Ice J - DI Water K - EDTA L - EDA Other: M - Hexane N - None O - AsNaO2 P - Na2O4S Q - Na2SO3 R - Na2S2O3 S - H2SO4 T - TSP Dodecahydrate U - Acetone V - MCAA W - pH 4-5 Z - other (specify)	
Sample Identification Sample ID: 220107-C2-YT02 Sample Date: 3/7/22 Sample Time: 1555 Sample Type: G Matrix: W Preservation Code:		EPA 8260 TPH-g (HCl) <input checked="" type="checkbox"/> A <input type="checkbox"/> I EPA 8270 SVOCs (none) <input checked="" type="checkbox"/> I <input type="checkbox"/> I EPA 8015 TPH-d/o <input checked="" type="checkbox"/> I <input type="checkbox"/> I Perform MS/MSD (Yes or No) <input checked="" type="checkbox"/> A <input type="checkbox"/> I Field Filtered Sample (Yes or No) <input checked="" type="checkbox"/> A <input type="checkbox"/> I Total Number of Containers: 7 Special Instructions/Note:	
Possible Hazard Identification <input type="checkbox"/> Non-Hazard <input type="checkbox"/> Flammable <input type="checkbox"/> Skin Irritant <input type="checkbox"/> Poison B <input type="checkbox"/> Unknown <input type="checkbox"/> Radiological Deliverable Requested: I, II, III, IV, Other (specify) Prelim data (Level 1 or 2) - see TAT above. DoD Stage 4 report standard IAT. AECOM EQUIS EDD.			
Empty Kit Relinquished by: Relinquished by: Anthony Dind Relinquished by: Camille Rottler Relinquished by: David Bowers Date/Time: 3/7/22 Date/Time: 01/08/2022 1100 Date/Time: 01/10/2022 0915 Company: AECOM Company: AECOM Company: AECOM			
Therm. ID: 42.0 Cor: 1.7 Unc: 2.4 Cooler Desc: 1 Quiver Packing: 25 Cust. Seal: Yes No Lab Cour: Blue Ice, Wet, Dry, None Other: Clues Date/Time: 01/08/2022 Date/Time: 01/10/2022 0840 Date/Time: 1/12/22 0915 Company: AECOM Company: AECOM Company: AECOM			
Relinquished by: Anthony Dind Relinquished by: Camille Rottler Relinquished by: David Bowers Date/Time: 3/7/22 Date/Time: 01/08/2022 1100 Date/Time: 01/10/2022 0915 Company: AECOM Company: AECOM Company: AECOM			
Custody Seals Intact: <input checked="" type="checkbox"/> Yes <input type="checkbox"/> No Custody Seal No.: Cooler Temperature(s) °C and Other Remarks: ENCL (3)			

Login Sample Receipt Checklist

Client: AECOM

Job Number: 580-109117-4

Login Number: 109117

List Number: 1

Creator: Presley, Kim A

List Source: Eurofins Seattle

Question	Answer	Comment
Radioactivity wasn't checked or is \leq background as measured by a survey meter.	N/A	
The cooler's custody seal, if present, is intact.	True	
Sample custody seals, if present, are intact.	True	
The cooler or samples do not appear to have been compromised or tampered with.	True	
Samples were received on ice.	True	
Cooler Temperature is acceptable.	True	
Cooler Temperature is recorded.	True	
COC is present.	True	
COC is filled out in ink and legible.	True	
COC is filled out with all pertinent information.	True	
Is the Field Sampler's name present on COC?	True	
There are no discrepancies between the containers received and the COC.	False	Refer to Job Narrative for details.
Samples are received within Holding Time (excluding tests with immediate HTs)	True	
Sample containers have legible labels.	True	
Containers are not broken or leaking.	True	
Sample collection date/times are provided.	True	
Appropriate sample containers are used.	True	
Sample bottles are completely filled.	True	
Sample Preservation Verified.	True	
There is sufficient vol. for all requested analyses, incl. any requested MS/MSDs	True	
Containers requiring zero headspace have no headspace or bubble is $<6\text{mm}$ (1/4").	True	
Multiphasic samples are not present.	True	
Samples do not require splitting or compositing.	True	
Residual Chlorine Checked.	N/A	

5 March 2022

NAVFAC Hawaii
400 Marshall Road
JBPHH HI 96860-3139

Subject: Red Hill Bulk Fuel Storage Facility
AECOM Follow-up Technical Review of Bis(2-chloroethyl)ether in Hydrant Flushing Samples
Sample ID: Multiple
Zone: A3, B1, C1, C2, F2, H1, H2 and H3
Address: Multiple
Collection Date: Multiple

Attention Engineering Working Group:

Bis(2-chloroethyl)ether (BC2EE) is primarily used as a chemical intermediate for the manufacture of pesticides and as a solvent for fats, waxes, greases, and esters. It has also been used as a constituent in paints and varnishes, as a cleaning fluid for textiles, and in the purification of oils and gasoline. This analyte is not regulated under the Safe Drinking Water Act and for that reason does not have an associated Maximum Contamination Level.

BC2EE properties and Chemical Abstracts Service (CAS):

- CAS number: 111-44-4.
- BC2EE is a colorless, nonflammable liquid with a strong unpleasant odor.
- The odor threshold for BC2EE is 0.049 part per million.
- The chemical formula for BC2EE is $C_4H_8Cl_2O$, and the molecular weight is 143.01-gram moles.
- The vapor pressure for BC2EE is 0.71 millimeter of mercury at 20 degrees Celsius, and it has a log octanol/water partition coefficient of 1.58.

The initial evaluation of this issue involved the review of the Eurofins Seattle's SOP for Semi-volatile Organic Compounds (Base Neutrals and Acids) Analysis by GC/MS [Method 8270E]. The standard operating procedure (SOP) was used in conjunction with the extracted ion current profile (ECIP) for the referenced sample to derive the following conclusions.

A review of the laboratory analytical data packages indicates the associated method blanks and reagent/bottle blanks were all no-detect for BC2EE. In addition, the samples with detections of BC2EE were scattered throughout several preparation and analytical batches with passing quality control, thereby eliminating most types of laboratory contributed artifacts because of carryover or cross contamination. Based on a review of the analytical data, a laboratory contribution resulting in the detection of BC2EE is unlikely.

After discussion with the laboratory, they are not 100% confident that detection of BC2EE in the referenced sample is a true detection and could possibly be a false-positive based on the mass spectra. In addition, all samples that displayed detections for BC2EE coincide with low recovery of phenol-d5 surrogate in Method 8270 and low recovery of toluene-d8 surrogate in Method 8260. The detection of BC2EE could potentially be an isomer of BC2EE. Chromatograms show hits for dichlorinated alkanes and alcohols/ethers. The detections of the dichlorinated alkanes, alcohols, and ethers could be a by-product of reactions with the chlorination/bromination agent used to disinfect potable water. It is possible the chlorination/bromination agents are reacting with the 50 μ L of acetone from the 1:1 methylene chloride/acetone solution used to contain the surrogate for the Method 8270

ENCL (4)

analysis. Acetone, under acidic or basic conditions, can form an intermediate that can react with chlorinating/brominating agents just as aromatic/BTEX compounds, as indicated by the low surrogate recovery of toluene-d8 and phenol-d5.

A closer evaluation of the mass spectra provided by the laboratory, (**Figure 1**, middle spectra in red font) reveals the secondary ion, mass 63, is virtually absent. EPA Method 8270E requires three specific quantitation ions to be present at specific abundances for qualitative identification of analytes of interest. For BC2EE (Figure 1, bottom spectra in green font), mass (m/z) 93 is the parent ion and should be present at 100%, m/z 63 is the secondary ion and should be present at approximately 60% abundance of mass 93, and m/z 95 is the tertiary ion and should be present at approximately 20% of mass 93. According to the Quality Fit Evaluation provided by the laboratory (**Figure 2**), the ECIP passed the ion ratio test, (reference the spectral test and retention time test in **Figure 1** [chromatogram on the right]); however, the “Q” or quality fit test failed because the percent match to the reference spectra is 71%. This analysis has a lower control limit of 80% to be considered a valid spectra match for the identification of the analyte(s) of interest. Based on the passing of the ion ratio test, the spectral test and almost complete absence of m/z 63, it is suspected the ion abundance ratio window was not set up in the calibration quantitation file. A review of the laboratory’s SOP sections 16.1.1.2 through 16.1.1.4 confirmed an ion abundance window should be set for each quantitation ion. The referenced sections of the laboratory SOP provide the acceptance criteria for ion abundance and qualitative identification of analyte(s) of interest.

On February 7, 2022 at 0830 HST in a conversation with the laboratory’s analyst that performed the method, the section supervisor, the QAM, and the laboratory director, they confirmed the abundance windows were not defined, resulting in the reporting of BC2EE. Based on the absence of m/z 63 and adherence with the laboratory’s SOP, the laboratory will retract the impacted sample delivery groups (SDGs) and the detection of BC2EE and re-issue the reports with BC2EE reported as non-detect. In addition, the laboratory confirmed the other seven detections of BC2EE were also absent of m/z 63 and these reports would also be reissued with a discussion of the events provided in the case narrative. A National Institute of Standards and Technology mass spectra of BC2EE (**Figure 3**) was provided to the laboratory in addition to the spectra provided by the GCMS system for reference.

Based on the information obtained from the laboratory and re-evaluation of the associated data, AECOM re-collected the sample locations in question for EPA Method 8270. AECOM also collected a Method 8270 sample using a 525.2 pre-preserved sample bottle with 45 mg sodium sulfite preservative to mitigate the disinfect agents used with potable water suppliers. An empty 1-L amber bottle with the 45 mg sodium sulfite was also sent to the laboratory. The laboratory will fill the empty bottle with laboratory grade deionized water to assist in ascertaining any possible contributions from the sample containers and/or preservation. It is recommended AECOM continue with the re-analysis of the re-collected samples to confirm the absence of BC2EE and evaluate the effects that the disinfectant process has on the samples in question, if any.

Table 1 below summarizes the sample delivery groups (SDGs) initially issued reporting of bis(2-chloroethyl)ether (BC2EE) from fire hydrant zone screening samples in error. On February 12, 2022, AECOM issued a *Technical Review of Bis(2-chloroethyl)ether Hydrant Flushing Samples* memo which detailed the findings of an in-depth review of the analytical data and supporting documents, the contents of which are contained in this memo. As a result of the findings, Eurofins Seattle concurred with the finding conclusions and implemented the required corrective action in accordance with the laboratories SOP for EPA Method SW-846 8270E

The corrective action also determined the qualitative identification of BC2EE did not meet the analytical method or laboratories SOP requirements and the detections for BC2EE were retracted and the laboratory certificates of analysis reissued indicating the referenced analytes were non-detect. **Table 2** provides a list of the SDGs re-issued and the revised results.

Table 1

Laboratory Sample ID	Sampling Date	Field Sample ID	LOC ID	Analyte	Result	Unit
580-109090-4	01/06/22	20220106-F2-ZT08	FH17	BC2EE	1.6	µg/L
580-109117-5	01/08/22	20220108-B1-ZT04	FH8	BC2EE	2.6	µg/L
580-109117-6	01/08/22	20220108-A3-ZT01	SA-LFH2	BC2EE	3	µg/L
580-109117-8	01/07/22	220107-C2-YT02	FH315	BC2EE	0.76	µg/L
580-109054-1	01/05/22	20220105-C1-ZT03	FH512	BC2EE	0.1	µg/L
580-109239-2	01/11/22	20220111-H1-YT12	FH1396	BC2EE	3.3	µg/L
580-109243-1	01/11/22	20220111-H2-YT02	FH377	BC2EE	1.2 F1	µg/L
580-109243-3	01/11/22	20220111-H2-YT04	FH1331	BC2EE	1.7	µg/L
580-109243-4	01/11/22	20220111-H2-YT06	FH1646	BC2EE	2.3	µg/L
580-109289-1	01/12/22	220112-H3-ZT13	FH1651	BC2EE	1.7	µg/L
580-109289-3	01/12/22	220112-H3-ZT09	FH1641	BC2EE	2.4	µg/L
580-109289-5	01/12/22	220112-H3-ZT05	FH1676	BC2EE	1.7	µg/L

F1- MS and/or MSD recovery exceeds the control limit

Table 2

Laboratory Sample ID	Sampling Date	Field Sample ID	LOC ID	Analyte	Result	Unit
580-109090-4	01/06/22	20220106-F2-ZT08	FH17	BC2EE	0.031 U	µg/L
580-109117-5	01/08/22	20220108-B1-ZT04	FH8	BC2EE	0.031 U	µg/L
580-109117-6	01/08/22	20220108-A3-ZT01	SA-LFH2	BC2EE	0.030 U	µg/L
580-109117-8	01/07/22	220107-C2-YT02	FH315	BC2EE	0.031 U	µg/L
580-109054-1	01/05/22	20220105-C1-ZT03	FH512	BC2EE	0.031 U	µg/L
580-109239-2	01/11/22	20220111-H1-YT12	FH1396	BC2EE	0.032 U	µg/L
580-109243-1	01/11/22	20220111-H2-YT02	FH377	BC2EE	0.032 U	µg/L

Laboratory Sample ID	Sampling Date	Field Sample ID	LOC ID	Analyte	Result	Unit
580-109243-3	01/11/22	20220111-H2-YT04	FH1331	BC2EE	0.032 U	µg/L
580-109243-4	01/11/22	20220111-H2-YT06	FH1646	BC2EE	0.030 U	µg/L
580-109289-1	01/12/22	220112-H3-ZT13	FH1651	BC2EE	0.031 U	µg/L
580-109289-3	01/12/22	220112-H3-ZT09	FH1641	BC2EE	0.031 U	µg/L
580-109289-5	01/12/22	220112-H3-ZT05	FH1676	BC2EE	0.031 U	µg/L

F1- MS and/or MSD recovery exceeds the control limit

U Indicates the analyte was analyzed for but not detected

It was suspected the disinfection process (residual chlorine) was having an adverse effect on the recovery of the acid surrogates used in EPA Method 8270E for samples collected from January 6, 2022 through January 11, 2022. The failing acid surrogate recoveries could result in the rejection of the associated data. As a result, when AECOM re-collected the samples from the locations where the initial laboratory results indicated the presence of BC2EE, both unpreserved and preserved samples were collected. With the exception of location IDs FH512, FH17, FH315 and B1-8, only unpreserved samples were collected because these samples were collected before the decision to collect an additional preserved sample was made.

Sample location FH512 exhibited low but passing surrogate recoveries whereas locations FH17, FH315 and B1-8 all had failing acid surrogate recoveries. All four of the referenced samples were also non-detect for BC2EE. Two empty bottles were also sent to the lab as reagent/bottle blanks to eliminate both a bottle or a preservative contribution to the detection of BC2EE by having the lab fill the bottles with laboratory reagent grade laboratory ASTM Type II water and then analyzed. Both the reagent and bottle blank were non-detect for BC2EE. The 525.2 preservative, 45 milligrams (mg) sodium sulfite was used as the preservation method.

The results from the unpreserved samples collected from February 2, 2022 through February 4, 2022 exhibited a suppression of the acid surrogate recoveries as suspected, however the samples preserved with the 525.2 preservative exhibited passing acid surrogate recoveries for all samples analyzed. In addition, BC2EE was non-detect for all samples analyzed, both unpreserved and preserved, confirming the absence of BC2EE at the sampling locations in question.

Table 3 provides a list of the SDGs for the zone locations that were re-sampled, extracted and analyzed to confirm the absence of BC2EE for the referenced sampling locations. A complete listing of all the samples discussed is provided in **Attachment 1, Bis(2-chloroethyl)ether Fire Hydrant Zone Screening Sample Resolution Cross Walk**. This attachment provides the original sample results and SDGs, prior to the lab restating the results as well as the resample results with notes as to whether they were unpreserved or preserved.

Table 3

Laboratory Sample ID	Sampling Date	Field Sample ID	LOC ID	Analyte	Result	Unit
580-110026-1	02/04/22	220204H2HT02	FH377	BC2EE	0.029 U	µg/L
580-110026-2	02/04/22	220204H2HT02-1	FH377	BC2EE	0.029 U	µg/L
580-110026-3	02/04/22	220204H2HT03	FH1331	BC2EE	0.029 U	µg/L
580-110026-4	02/04/22	220204H2HT04	FH1646	BC2EE	0.029 U	µg/L
580-110026-5	02/04/22	220204H2HT03-1	FH1331	BC2EE	0.029 U	µg/L
580-110026-6	02/04/22	220204H2HT04-1	FH1646	BC2EE	0.029 U	µg/L
580-110026-7	02/04/22	A3-TW-HYDLFH2-22035-N	SA-LFH2	BC2EE	0.029 U	µg/L
580-110026-8	02/04/22	A3-TW-HYDLFH2-22035-N-1	SA-LFH2	BC2EE	0.031 U	µg/L
580-110029-1	02/04/22	220204H3IT01	FH1641	BC2EE	0.028 U	µg/L
580-110029-2	02/04/22	220204H3IT02	FH1641	BC2EE	0.028 U	µg/L
580-110029-3	02/04/22	220204H3IT01-1	FH1641	BC2EE	0.028 U	µg/L
580-110029-4	02/04/22	220204H3IT02-1	FH1641	BC2EE	0.028 U	µg/L
580-110029-5	02/04/22	220204H3IT03	FH1651	BC2EE	0.028 U	µg/L
580-110029-6	02/04/22	220204H3IT04	FH1676	BC2EE	0.028 U	µg/L
580-110029-7	02/04/22	220204H3IT03-1	FH1651	BC2EE	0.028 U	µg/L
580-110029-8	02/04/22	220204H3IT04-1	FH1676	BC2EE	0.028 U	µg/L
580-110034-1	02/03/22	220203C2ZT02	FH315	BC2EE	0.029 U	µg/L
580-110035-1	02/04/22	220204H1HT01	FH1396	BC2EE	0.029 U	µg/L
580-110035-2	02/04/22	220204H1HT01-1	FH1396	BC2EE	0.029 U	µg/L
580-110036-1	02/03/22	220203C1ZT03	FH512	BC2EE	0.029 U	µg/L
580-110037-1	02/03/22	220203F2ZT01	FH17	BC2EE	0.029 U	µg/L
580-110038-1	02/03/22	220203B1ZT04	FH8	BC2EE	0.029 U	µg/L

U Indicates the analyte was analyzed for but not detected

Therefore, based on a thorough re-evaluation of the referenced analytical data and professional judgment, the results of these twelve indicated samples were preliminarily reported in error and have been amended in the final results to be non-detect for bis(2-chloroethyl)ether.

Questions regarding this memo should be addressed to the Red Hill Drinking Water Task Manager, Bill Craig.

Yours sincerely,



Jim Reformat
Senior Program Chemist
jim.reformat@aecom.com



Robin Cababa
CLEAN Program Manager
robin.cababa@aecom.com

Attachments

Attachment 1: *Bis(2-chloroethyl)ether Fire Hydrant Zone Screening Sample Resolution Cross Walk.*

cc:

Bill Craig, AECOM Drinking Water Task Manager
Ken Vinson, AECOM Senior VP Program Manager
Jim Reformat, AECOM Senior Program Chemist
Contracting Officer
Victor Gonzalez, NAVFAC

Figure 1. Sample 580-109090-F-4-A Mass Spectra and EICP

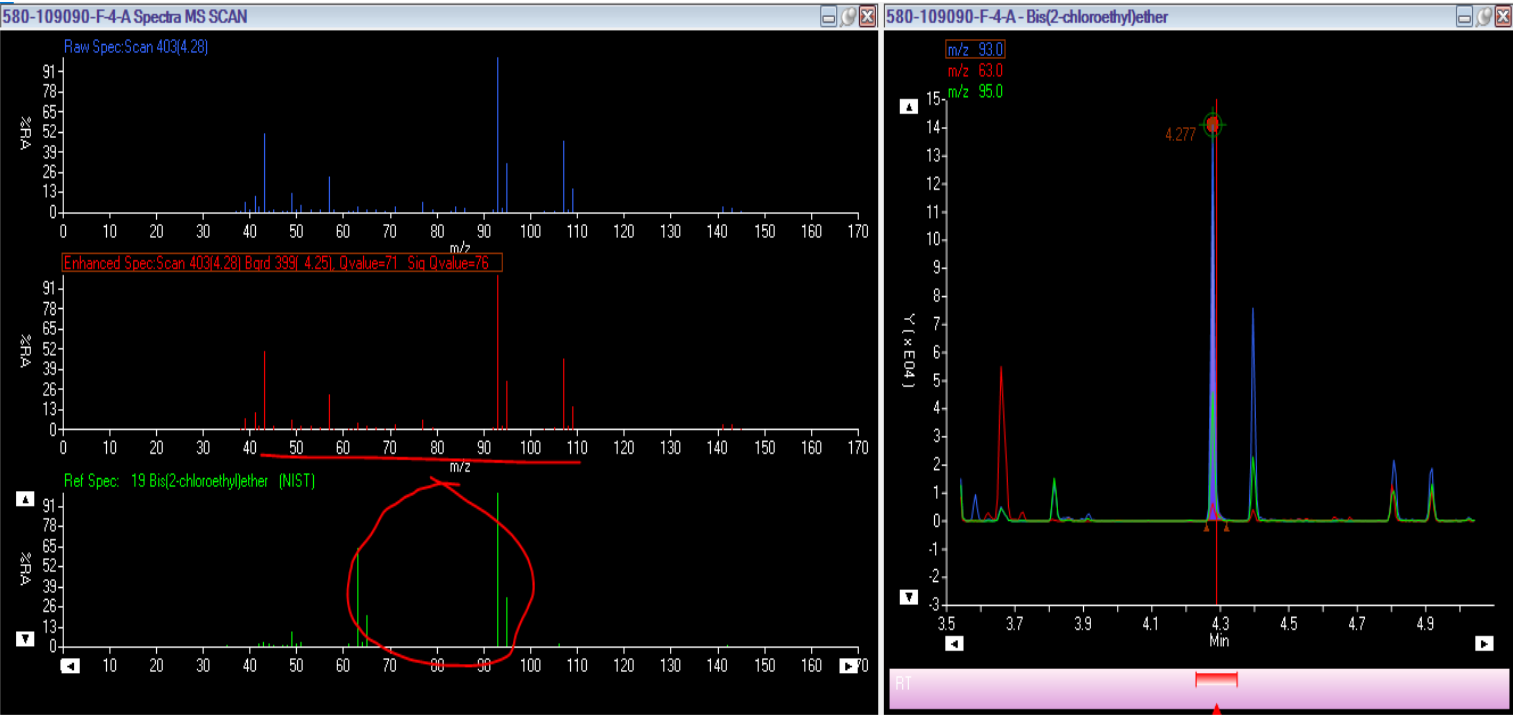
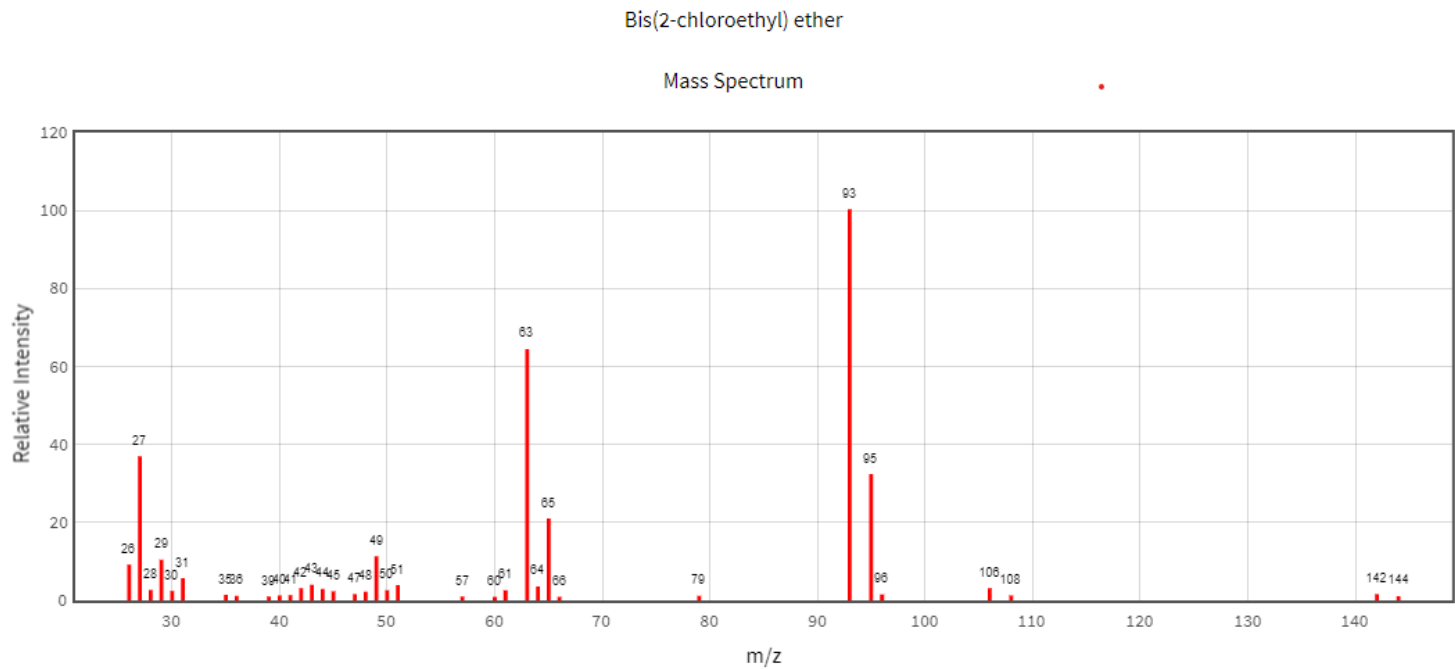


Figure 2. Quality Fit Evaluation Provided by the Laboratory

Hits / Signals for Bis(2-chloroethyl)ether

	RT	RRT	Amt	Q	Ratios	RTs	Spec	Flags
1	4.277	0.954	762.691	71	PASS	PASS	PASS	

Figure 3. Reference Mass Spectra for Bis(2-chloroethyl)ether



Bis(2-chloroethyl)ether Fire Hydrant Zone Screening Sample Resolution Cross Walk

Field Sample ID	Sampling Date	Zone	Lab Sample ID	Analyte	Result	Unit	Loc Id	Field Sample ID	Sampling Date	Zone	Lab Sample ID	Analyte	Result	Unit	Loc Id
20220108-A3-ZT01	01/08/22	A3	580-109117-6	BC2EE	0.030 U	µg/L	SA-LFH2	A3-TW-HYDLFH2-22035	02/04/22	A3	580-110026-7 580-110026-8	BC2EE	0.029 U	µg/L	SA-LFH2
								A3-TW-HYDLFH2-22035-1	02/04/22				0.029 U	µg/L	
20220111-H2-YT02	01/11/22	H2	580-109243-1	BC2EE	0.032 F1	µg/L	FH377	220204H2HT02	02/04/22	H2	580-110026-1 580-110026-2	BC2EE	0.029 U	µg/L	FH377
								220204H2HT02-1	02/04/22				0.029 U	µg/L	
20220111-H2-YT04	01/11/22	H2	580-109243-3	BC2EE	0.032 U	µg/L	FH1331	220204H2HT03	02/04/22	H2	580-110026-3 580-110026-5	BC2EE	0.029 U	µg/L	FH1331
								220204H2HT03-1	02/04/22				0.029 U	µg/L	
20220111-H2-YT06	01/11/22	H2	580-109243-4	BC2EE	0.030 U	µg/L	FH1646	220204H2HT04	02/04/22	H2	580-110026-4 580-110026-6	BC2EE	0.029 U	µg/L	FH1646
								220204H2HT04-1	02/04/22				0.029 U	µg/L	
20220111-H1-YT12	01/11/22	H1	580-109239-2	BC2EE	0.031 U	µg/L	FH1396	220204H1HT01	02/04/22	H1	580-110035-1 580-110035-2	BC2EE	0.029 U	µg/L	FH1396
								220204H1HT01-1	02/04/22				0.029 U	µg/L	
220112-H3-ZT09	01/12/22	H3	580-109289-3	BC2EE	0.031 U	µg/L	FH1641	220204H3IT01	02/04/22	H3	580-110029-1 580-110029-3 580-110029-2 580-110029-4	BC2EE	0.028 U	µg/L	FH1641
								220204H3IT01-1	02/04/22				0.028 U	µg/L	
								220204H3IT02	02/04/22				0.028 U	µg/L	
								220204H3IT02-1	02/04/22				0.028 U	µg/L	
220112-H3-ZT13	01/12/22	H3	580-109289-1	BC2EE	0.031	µg/L	FH1651	220204H3IT03	02/04/22	H3	580-110029-7 580-110029-8	BC2EE	0.028 U	µg/L	FH1651
								220204H3IT03-1	02/04/22				0.028 U	µg/L	
220112-H3-ZT05	01/12/22	H3	580-109289-5	BC2EE	0.031 U	µg/L	FH1676	220204H3IT04-1	02/04/22	H3	580-110029-5 580-110029-6	BC2EE	0.028 U	µg/L	FH1676
								220204H3IT04	02/04/22				0.028 U	µg/L	
20220105-C1-ZT03	01/05/22	C1	580-109054-1	BC2EE	0.031 U	µg/L	FH512	220203C1ZT03	02/03/22	C1	580-110036-1	BC2EE	0.029 U	µg/L	FH512
20220106-F2-ZT08	01/06/22	F2	580-109090-4	BC2EE	0.031 U	µg/L	FH17	220203F2ZT01	02/03/22	F2	580-110037-1	BC2EE	0.029 U	µg/L	FH17
220107-C2-YT02	01/07/22	C2	580-109117-8	BC2EE	0.031 U	µg/L	FH315	220203C2ZT02	02/03/22	C2	580-110034-1	BC2EE	0.029 U	µg/L	FH315
20220108-B1-ZT04	01/08/22	B1	580-109117-5	BC2EE	0.031 U	µg/L	FH8	220203B1ZT04	02/03/22	B1	580-110038-1	BC2EE	0.029 U	µg/L	FH8

CORRECTIVE ACTION – SEATTLE LABORATORY

Date Initiated: 2/7/2022



Terri Torres, Quality Assurance Manager

Subject: bis(2-Chloroethyl)ether false positive results

Client: AECOM

3/1/2022
Date Approved

Samples Affected: 580-109090-4 (20220106-F2-ZT08), 580-109117-5 (20220208-B1-ZT04), 580-109117-6 (20220108-A3-ZT01), 580-109117-8 (20220107-C2-YT02), 580-109054-1 (20220105-C1-ZT03), 580-109239-2 (20220111-H1-YT12), 580-109243-1 (2022011-H2-YT02), 580-109243-3 (2022011-H2-YT04), 580-109243-4 (2022011-H2-YT06), 580-109289-1 (2022112-H3-ZT13), 580-109289-3 (2022112-H3-ZT09) and 580-109289-5 (2022112-H3-ZT05)

Method: 8270E

Problem

The detections of the 8270E analyte bis(2-Chloroethyl)ether was determined to be due to false positive detections in several samples.

Assessment/Investigation

Bis(2-chloroethyl)ether is a relatively uncommon environmental contaminant and hits reported by Eurofins Seattle prompted confirmation by the client. Upon further review, it was determined that though a compound similar to Bis(2-chloroethyl)ether was detected, the compound lacked qualifying features: 1) overall mass spectral breakdown was inconsistent with that of Bis(2-chloroethyl)ether, 2) the ion ratio for m/z 95 was inconsistent with that of Bis(2-chloroethyl)ether. It was known to the lab that samples from this project occasionally contained a brominating or chlorinating agent, such as elemental bromine, elemental chlorine, or hypobromous or hypochlorous acid formed in situ from the addition of sodium hypochlorite or sodium hypobromite. These compounds, commonly added to drinking water to treat or disinfect, caused reactive halogenation of 2-methyl-2-butene (amylene), a stabilizer for methylene chloride used at the laboratory. By mass spectral interpretation, it was determined that a polychlorinated amylene was the cause of the false positive.

Final Assessment/Corrective Action

There were two main root causes for the miss-identification, overall mass spectral breakdown and ion ratio inconsistency. The overall mass spectral breakdown pattern was overlooked by analysts because the analyte eluted at the correct retention time, contained all quantifier and qualifier ions, and the ions appeared to present at the correct ratios. However there was a discrepancy of the mass spectral breakdown pattern that may have been caused by a coelution of another unknown analyte. Additionally there was an ion ratio inconsistency. After looking through settings in the quantitation software, it was determined that a setting which would flag false positives for inaccurate ion ratios was turned off. The analyst, unaware of any qualitative flags to the data as they had been turned off, would see a "PASS" for ions whose ratios were not necessarily consistent with the ratios obtained in the analyte ICAL.

To improve the data quality of the project, the samples were re-sampled using sodium sulfite, which quenches halogenated species, as a preservative. Use of this preservative was found to eliminate presence of the false positive amylene derivative. Additionally the setting in the software to flag analytes with inconsistent ion ratio results has been turned on with an ion ratio acceptance criteria of +/-30% as specified by EPA 8270E. Analysts were instructed to contact additional resources or reviewers in the case of any doubt with regards to the qualitative identification of analytes.



Kathleen Ho

02/12/2022

KATHLEEN S. HO
Deputy Director of Environmental Health

**DOH's Guidance on the Approach to Amending the Public Health Advisory, Addendum 1
Public Health Advisory initiated November 29, 2021
Joint Base Pearl Harbor-Hickam Public Water System No. 360
HEER Incident Case No.: 20211128-1848**

Purpose: This guidance provides the criteria that the Hawaii Department of Health (DOH) will be using to **amend** the Public Health Advisory (Advisory) issued on November 29, 2021.

DOH's priority is to protect the public health of the people of Hawaii. The guidance is based on "lines of evidence" (Table 1) that must be met before DOH will amend the health advisory and issue notices that the water can be used for drinking. The Navy must also commit to following the long-term monitoring (LTM) of system water quality for this incident under the IDWST Drinking Water Sampling Plan, as amended.

Background: A chemical release of petroleum, which is a hazardous substance, entered the Joint Base Pearl Harbor-Hickam (JBPHH) drinking water distribution system and the Red Hill Shaft. This release triggered an emergency response and DOH issuance of an Advisory on November 29, 2021. State and Federal Drinking Water (DW) Maximum Contaminant Levels (MCLs) under the Safe Drinking Water Act do not adequately address petroleum contamination of drinking water. DOH has established Environmental Action Levels (EALs) and Incident Specific Parameters (ISPs) to more comprehensively monitor and respond to petroleum contaminated drinking water. Any contaminants that exceed the State and Federal DW MCLs, EALs, or ISPs require additional action prior to amending the Advisory. Lines of evidence will be achieved by evaluating the data generated during the investigation conducted by the Interagency Drinking Water System Team (IDWST). The data will be assessed for each Flushing Zone of the Drinking Water Distribution System Recovery Plan. All lines of evidence will require documentation.

DOH Project Screening Levels: State and Federal Drinking Water MCLs, specified State EALs, and ISPs are considered in development of Project Screening Levels. The actions for the thresholds for each contaminant are listed in Tables 2 and 3.

Table 1: Lines of Evidence Under Evaluation

1. Ensure no contamination is entering the water system.		
Objective	Lines of Evidence	Incident Specific Criteria
1a	All reported sources of contamination are isolated and contained.	Contamination from Red Hill Shaft is isolated from Navy's water distribution system.
1b	The regulated public water system's water quality data is compliant.	Data meets Federal DW MCLs, specified State EALs, and ISPs.
1c	No additional contamination through the distribution system is occurring.	Cross Connection Control investigation shows distribution system is protected, resulting in no additional sources of contamination.

2. Ensure no contamination remains in the system and water chemistry concerns are addressed.		
Objective	Lines of Evidence	Incident Specific Criteria
2a	Water within the distribution system meets State and Federal DW MCLs, specified State EALs, and ISPs.	<ul style="list-style-type: none"> • Zone flushing plan demonstrates entire distribution system is flushed. • Certification of Water Storage Tank(s) Flushing. • Sample results show the water in distribution system meets State and Federal DW MCLs, specified State EALs, and ISPs. • Drinking water does not show sheen, olfactory evidence, or other qualitative methods of petroleum.
2b	Water in premise plumbing of homes/buildings meets State and Federal DW MCLs, specified State EALs, and ISPs.	<ul style="list-style-type: none"> • Flushing Plan includes procedures to ensure no service connections will re-contaminate the distribution system. • Certification of Completed Irrigation Line Flushing. • Sample Plan includes 72-hour stagnation to account for leaching of contaminants from premise plumbing. • Sample results show water in homes/buildings meets State and Federal DW MCLs, specified State EALs, and ISPs.

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)	DOH Project Screening Level (ug/L)	Basis	Notes
Benzene	5	5	DOH MCL ¹	
Toluene	1,000	1,000		
Ethylbenzene	700	700		
Xylenes (total)	10,000	10,000		
JP-5 as Combined Total Petroleum Hydrocarbons (TPH)-Gasoline, Diesel, and Oil Ranges [Incident Specific Parameter]	Not Applicable	211	Release of fresh fuel and potential direct release.	The 211 ug/L screening level is based on risk-based action levels for TPH associated with JP-5 jet fuel described in a HIDOH Technical Memorandum dated January 27, 2022, revised February 12, 2022 (HIDOH 2022). The action (screening) level conservatively assumes that TPH detected in the water is associated with non-degraded, dissolved-phase, fuel in the drinking water system. The memorandum serves as an addendum to the <i>HIDOH 2017 EAL Guidance</i> ² .
1,1,1-Trichloroethane	200	200	DOH MCL ¹	
1,1,2-Trichloroethane	5	5		
1,1-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		

Table 2 Contaminant	DOH MCL (ug/L)	DOH Project Screening Level (ug/L)	Basis	Notes
Barium	2000	2000	DOH MCL ¹	
Beryllium	4	4		
Cadmium	5	5		
Chromium	100	100		
Copper ³	1300	1300	DOH AL ¹	
Lead ³	15	15		
Mercury	2	2	DOH MCL ¹	
Selenium	50	50		
Thallium	2	2		
Dichloroethylene, 1,2- (Mixed Isomers)	70	70		
Total trihalomethanes (TTHM) (sum of chloroform, bromoform, bromodichloromethane, and dibromochloromethane).	80	80		
Total Haloacetic acids (five) (HAA5) (sum of mono-, di-, trichloroacetic acids and mono- and dibromoacetic acids).	60	60		
Bromate	10	10		
Chlorite	1000	1000		
Notes:				
¹ CONTAMINANTS REGULATED BY THE SAFE DRINKING WATER BRANCH (updated 7/10/14) at https://health.hawaii.gov/sdwb/files/2014/07/MCL-Fct-2014-07-10.pdf				
² HDOH, 2017, Evaluation of Environmental Hazards at Sites with Contaminated Soil and Groundwater – Hawaii Edition (Fall 2017): Hawai'i Department of Health, Office of Hazard Evaluation and Emergency Response. https://health.hawaii.gov/heer/guidance/ehe-and-eals/ . HDOH, 2022, Recommended Risk-Based Drinking Water Action Levels for Total Petroleum Hydrocarbons (TPH) Associated with Releases of JP-5 Jet Fuel: Hawai'i Department of Health, Hazard Evaluation and Emergency Response Office, January 27, 2022, revised February 12, 2022.				
³ Action Levels				

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-methylnaphthalene	None	10	HIDOH EALs Table D-1a ¹	<p>HIDOH 2017² (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:</p> <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 <i>DOH Technical Guidance Manual</i>³; 3. Submit a draft Corrective Action Plan to the DOH for approval within 72 hours of receipt of the preliminary analytical results; and 4. Comply with interim actions as identified by DOH.
2-methylnaphthalene	None	10		
Naphthalene	None	17		
Total Organic Carbon (TOC) [Incident Specific Parameter]	None	2000	Additional surrogate for TPH	<p>TOC used as an additional surrogate for TPH to increase confidence in representativeness of sample data.</p> <ul style="list-style-type: none"> • While most Oahu ground water sources are closer to 1000 ug/l or below, the proposed EAL acknowledges that distribution system conditions and operational changes may cause a temporary increase in baseline TOC fluctuations. • The proposed EAL can be supported by all current EPA approved drinking water methods utilized for compliance with 40 CFR 141.132(d)(3) as revised: https://nepis.epa.gov/Exe/ZyPDF.cgi?Dockey=P100WD1L.txt <p>Results with Detection Limits up to 1500 ug/L may be used to meet the criteria for amending the health advisory.</p>
Fuel-like Odor in the Water or Obvious Petroleum Sheen, or Dermal Irritation due to water [Incident Specific Parameter]	N/A	Present	Public Health Advisory	<p>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 <i>JBPHH Water Response Resident Resources</i> or the Water Rapid Response Team process and notify DOH of the status of the response.</p> <p>This continues to be a trigger under the Long Term Monitoring Plan.</p>

¹ HIDOH EALs Table D-1a. Groundwater Action Levels. <https://health.hawaii.gov/heer/files/2019/11/HDOH-EAL-Surfer-Fall-2017.xlsx>

² HIDOH, 2017, Evaluation of Environmental Hazards at Sites with Contaminated Soil and Groundwater – Hawaii Edition (Fall 2017): Hawai'i Department of Health, Office of Hazard Evaluation and Emergency Response. <https://health.hawaii.gov/heer/guidance/ehe-and-eals/>

³ HIDOH, 2017, DOH Technical Guidance Manual, <https://health.hawaii.gov/heer/tgm/>.

Date Collected	Location Name	Street Name	Closest Cross Street	Analyte	Results	Lab Qualifier	Validator Qualifier	Results Unit	Results Category	Zone	Feature Type
1/8/2022	010822-21-02	Pearl Harbor Blvd	Frederick Street	2,4-DDD	ND	U	UJ	ug/L	Not Detected	C2	Distribution
1/8/2022	010822-21-02	Pearl Harbor Blvd	Frederick Street	2,4-DDE	ND	U	UJ	ug/L	Not Detected	C2	Distribution
1/8/2022	010822-21-02	Pearl Harbor Blvd	Frederick Street	2,4-DDT	ND	U	UJ	ug/L	Not Detected	C2	Distribution
1/8/2022	010822-21-02	Pearl Harbor Blvd	Frederick Street	2,4-Dinitrotoluene	ND	U	UJ	ug/L	Not Detected	C2	Distribution
1/8/2022	010822-21-02	Pearl Harbor Blvd	Frederick Street	2,6-Dinitrotoluene	ND	U	UJ	ug/L	Not Detected	C2	Distribution
1/8/2022	010822-21-02	Pearl Harbor Blvd	Frederick Street	4,4-DDD	ND	U	UJ	ug/L	Not Detected	C2	Distribution
1/8/2022	010822-21-02	Pearl Harbor Blvd	Frederick Street	4,4-DDE	ND	U	UJ	ug/L	Not Detected	C2	Distribution
1/8/2022	010822-21-02	Pearl Harbor Blvd	Frederick Street	4,4-DDT	ND	U	UJ	ug/L	Not Detected	C2	Distribution
1/8/2022	010822-21-02	Pearl Harbor Blvd	Frederick Street	Acenaphthene	ND	U	UJ	ug/L	Not Detected	C2	Distribution
1/8/2022	010822-21-02	Pearl Harbor Blvd	Frederick Street	Acenaphthylene	ND	U	UJ	ug/L	Not Detected	C2	Distribution
1/8/2022	010822-21-02	Pearl Harbor Blvd	Frederick Street	Acetochlor	ND	U	UJ	ug/L	Not Detected	C2	Distribution
1/8/2022	010822-21-02	Pearl Harbor Blvd	Frederick Street	Alachlor	ND	U	UJ	ug/L	Not Detected	C2	Distribution
1/8/2022	010822-21-02	Pearl Harbor Blvd	Frederick Street	Alpha-BHC	ND	U	UJ	ug/L	Not Detected	C2	Distribution
1/8/2022	010822-21-02	Pearl Harbor Blvd	Frederick Street	alpha-Chlordane	ND	U	UJ	ug/L	Not Detected	C2	Distribution
1/8/2022	010822-21-02	Pearl Harbor Blvd	Frederick Street	Anthracene	ND	U	UJ	ug/L	Not Detected	C2	Distribution
1/8/2022	010822-21-02	Pearl Harbor Blvd	Frederick Street	Atrazine	ND	U	UJ	ug/L	Not Detected	C2	Distribution
1/8/2022	010822-21-02	Pearl Harbor Blvd	Frederick Street	Benz(a)Anthracene	ND	U	UJ	ug/L	Not Detected	C2	Distribution
1/8/2022	010822-21-02	Pearl Harbor Blvd	Frederick Street	Benzo(a)pyrene	ND	U	UJ	ug/L	Not Detected	C2	Distribution
1/8/2022	010822-21-02	Pearl Harbor Blvd	Frederick Street	Benzo(b)Fluoranthene	ND	U	UJ	ug/L	Not Detected	C2	Distribution
1/8/2022	010822-21-02	Pearl Harbor Blvd	Frederick Street	Benzo(g,h,i)Perylene	ND	U	UJ	ug/L	Not Detected	C2	Distribution
1/8/2022	010822-21-02	Pearl Harbor Blvd	Frederick Street	Benzo(k)Fluoranthene	ND	U	UJ	ug/L	Not Detected	C2	Distribution
1/8/2022	010822-21-02	Pearl Harbor Blvd	Frederick Street	Beta-BHC	ND	U	UJ	ug/L	Not Detected	C2	Distribution
1/8/2022	010822-21-02	Pearl Harbor Blvd	Frederick Street	Bromacil	ND	U	UJ	ug/L	Not Detected	C2	Distribution
1/8/2022	010822-21-02	Pearl Harbor Blvd	Frederick Street	Butachlor	ND	U	UJ	ug/L	Not Detected	C2	Distribution
1/8/2022	010822-21-02	Pearl Harbor Blvd	Frederick Street	Butylbenzylphthalate	ND	U	UJ	ug/L	Not Detected	C2	Distribution
1/8/2022	010822-21-02	Pearl Harbor Blvd	Frederick Street	Caffeine by method 525mod	ND	U	UJ	ug/L	Not Detected	C2	Distribution
1/8/2022	010822-21-02	Pearl Harbor Blvd	Frederick Street	Chlorobenzilate	ND	U	UJ	ug/L	Not Detected	C2	Distribution
1/8/2022	010822-21-02	Pearl Harbor Blvd	Frederick Street	Chloroneb	ND	U	UJ	ug/L	Not Detected	C2	Distribution
1/8/2022	010822-21-02	Pearl Harbor Blvd	Frederick Street	Chlorothalonil(Draconil, Bravo)	ND	U	UJ	ug/L	Not Detected	C2	Distribution
1/8/2022	010822-21-02	Pearl Harbor Blvd	Frederick Street	Chlorpyrifos (Dursban)	ND	U	UJ	ug/L	Not Detected	C2	Distribution
1/8/2022	010822-21-02	Pearl Harbor Blvd	Frederick Street	Chrysene	ND	U	UJ	ug/L	Not Detected	C2	Distribution
1/8/2022	010822-21-02	Pearl Harbor Blvd	Frederick Street	Delta-BHC	ND	U	UJ	ug/L	Not Detected	C2	Distribution
1/8/2022	010822-21-02	Pearl Harbor Blvd	Frederick Street	Di-(2-Ethylhexyl)adipate	ND	U	UJ	ug/L	Not Detected	C2	Distribution
1/8/2022	010822-21-02	Pearl Harbor Blvd	Frederick Street	Di(2-Ethylhexyl)phthalate	ND	U	UJ	ug/L	Not Detected	C2	Distribution
1/8/2022	010822-21-02	Pearl Harbor Blvd	Frederick Street	Diazinon (Qualitative)	ND	U	UJ	ug/L	Not Detected	C2	Distribution
1/8/2022	010822-21-02	Pearl Harbor Blvd	Frederick Street	Dibenz(a,h)Anthracene	ND	U	UJ	ug/L	Not Detected	C2	Distribution
1/8/2022	010822-21-02	Pearl Harbor Blvd	Frederick Street	Dichlorvos (DDVP)	ND	U	UJ	ug/L	Not Detected	C2	Distribution
1/8/2022	010822-21-02	Pearl Harbor Blvd	Frederick Street	Dieldrin	ND	U	UJ	ug/L	Not Detected	C2	Distribution
1/8/2022	010822-21-02	Pearl Harbor Blvd	Frederick Street	Diethylphthalate	ND	U	UJ	ug/L	Not Detected	C2	Distribution
1/8/2022	010822-21-02	Pearl Harbor Blvd	Frederick Street	Dimethoate	ND	U	UJ	ug/L	Not Detected	C2	Distribution
1/8/2022	010822-21-02	Pearl Harbor Blvd	Frederick Street	Dimethylphthalate	ND	U	UJ	ug/L	Not Detected	C2	Distribution
1/8/2022	010822-21-02	Pearl Harbor Blvd	Frederick Street	Di-n-Butylphthalate	19	U	J	ug/L	Detected	C2	Distribution
1/8/2022	010822-21-02	Pearl Harbor Blvd	Frederick Street	Di-N-octylphthalate	ND	U	UJ	ug/L	Not Detected	C2	Distribution
1/8/2022	010822-21-02	Pearl Harbor Blvd	Frederick Street	Endosulfan I (Alpha)	ND	U	UJ	ug/L	Not Detected	C2	Distribution
1/8/2022	010822-21-02	Pearl Harbor Blvd	Frederick Street	Endosulfan II (Beta)	ND	U	UJ	ug/L	Not Detected	C2	Distribution
1/8/2022	010822-21-02	Pearl Harbor Blvd	Frederick Street	Endosulfan Sulfate	ND	U	UJ	ug/L	Not Detected	C2	Distribution
1/8/2022	010822-21-02	Pearl Harbor Blvd	Frederick Street	Endrin	ND	U	UJ	ug/L	Not Detected	C2	Distribution
1/8/2022	010822-21-02	Pearl Harbor Blvd	Frederick Street	Endrin Aldehyde	ND	U	UJ	ug/L	Not Detected	C2	Distribution
1/8/2022	010822-21-02	Pearl Harbor Blvd	Frederick Street	EPTC	ND	U	UJ	ug/L	Not Detected	C2	Distribution
1/8/2022	010822-21-02	Pearl Harbor Blvd	Frederick Street	Fluoranthene	ND	U	UJ	ug/L	Not Detected	C2	Distribution

DOH SVOCs-Results
Navy Water System Incident
Red Hill, Post-Flushing, Flushing Area C2

Date Collected	Location Name	Street Name	Closest Cross Street	Analyte	Results	Lab Qualifier	Validator Qualifier	Results Unit	Results Category	Zone	Feature Type
1/8/2022	010822-21-02	Pearl Harbor Blvd	Frederick Street	Fluorene	ND	U	UJ	ug/L	Not Detected	C2	Distribution
1/8/2022	010822-21-02	Pearl Harbor Blvd	Frederick Street	gamma-Chlordane	ND	U	UJ	ug/L	Not Detected	C2	Distribution
1/8/2022	010822-21-02	Pearl Harbor Blvd	Frederick Street	Heptachlor	ND	U	UJ	ug/L	Not Detected	C2	Distribution
1/8/2022	010822-21-02	Pearl Harbor Blvd	Frederick Street	Heptachlor Epoxide (isomer B)	ND	U	UJ	ug/L	Not Detected	C2	Distribution
1/8/2022	010822-21-02	Pearl Harbor Blvd	Frederick Street	Hexachlorobenzene	ND	U	UJ	ug/L	Not Detected	C2	Distribution
1/8/2022	010822-21-02	Pearl Harbor Blvd	Frederick Street	Hexachlorocyclopentadiene	ND	U	UJ	ug/L	Not Detected	C2	Distribution
1/8/2022	010822-21-02	Pearl Harbor Blvd	Frederick Street	Indeno(1,2,3-c,d)Pyrene	ND	U	UJ	ug/L	Not Detected	C2	Distribution
1/8/2022	010822-21-02	Pearl Harbor Blvd	Frederick Street	Isophorone	ND	U	UJ	ug/L	Not Detected	C2	Distribution
1/8/2022	010822-21-02	Pearl Harbor Blvd	Frederick Street	Lindane	ND	U	UJ	ug/L	Not Detected	C2	Distribution
1/8/2022	010822-21-02	Pearl Harbor Blvd	Frederick Street	Malathion	ND	U	UJ	ug/L	Not Detected	C2	Distribution
1/8/2022	010822-21-02	Pearl Harbor Blvd	Frederick Street	Methoxychlor	ND	U	UJ	ug/L	Not Detected	C2	Distribution
1/8/2022	010822-21-02	Pearl Harbor Blvd	Frederick Street	Metolachlor	ND	U	UJ	ug/L	Not Detected	C2	Distribution
1/8/2022	010822-21-02	Pearl Harbor Blvd	Frederick Street	Metribuzin	ND	U	UJ	ug/L	Not Detected	C2	Distribution
1/8/2022	010822-21-02	Pearl Harbor Blvd	Frederick Street	Molinate	ND	U	UJ	ug/L	Not Detected	C2	Distribution
1/8/2022	010822-21-02	Pearl Harbor Blvd	Frederick Street	Naphthalene	ND	U	UJ	ug/L	Not Detected	C2	Distribution
1/8/2022	010822-21-02	Pearl Harbor Blvd	Frederick Street	Parathion	ND	U	UJ	ug/L	Not Detected	C2	Distribution
1/8/2022	010822-21-02	Pearl Harbor Blvd	Frederick Street	Pendimethalin	ND	U	UJ	ug/L	Not Detected	C2	Distribution
1/8/2022	010822-21-02	Pearl Harbor Blvd	Frederick Street	Permethrin (mixed isomers)	ND	U	UJ	ug/L	Not Detected	C2	Distribution
1/8/2022	010822-21-02	Pearl Harbor Blvd	Frederick Street	Phenanthrene	0.033	J	J	ug/L	Detected	C2	Distribution
1/8/2022	010822-21-02	Pearl Harbor Blvd	Frederick Street	Propachlor	ND	U	UJ	ug/L	Not Detected	C2	Distribution
1/8/2022	010822-21-02	Pearl Harbor Blvd	Frederick Street	Pyrene	ND	U	UJ	ug/L	Not Detected	C2	Distribution
1/8/2022	010822-21-02	Pearl Harbor Blvd	Frederick Street	Simazine	ND	U	UJ	ug/L	Not Detected	C2	Distribution
1/8/2022	010822-21-02	Pearl Harbor Blvd	Frederick Street	Terbacil	ND	U	UJ	ug/L	Not Detected	C2	Distribution
1/8/2022	010822-21-02	Pearl Harbor Blvd	Frederick Street	Terbutylazine	ND	U	UJ	ug/L	Not Detected	C2	Distribution
1/8/2022	010822-21-02	Pearl Harbor Blvd	Frederick Street	Thiobencarb (ELAP)	ND	U	UJ	ug/L	Not Detected	C2	Distribution
1/8/2022	010822-21-02	Pearl Harbor Blvd	Frederick Street	trans-Nonachlor	ND	U	UJ	ug/L	Not Detected	C2	Distribution
1/8/2022	010822-21-02	Pearl Harbor Blvd	Frederick Street	Trifluralin	ND	U	UJ	ug/L	Not Detected	C2	Distribution
1/8/2022	010822-21-02	Pearl Harbor Blvd	Frederick Street	1-Methylnaphthalene	0.027		NJ	ug/L	Detected	C2	Distribution
1/8/2022	010822-21-02	Pearl Harbor Blvd	Frederick Street	2-Methylnaphthalene	0.027		NJ	ug/L	Detected	C2	Distribution
1/16/2022	011622-20-02	Victor Wharf Access Rd	Ashley Pl	2,4-DDD	ND	U	U	ug/L	Not Detected	C2	Distribution
1/16/2022	011622-20-02	Victor Wharf Access Rd	Ashley Pl	2,4-DDE	ND	U	U	ug/L	Not Detected	C2	Distribution
1/16/2022	011622-20-02	Victor Wharf Access Rd	Ashley Pl	2,4-DDT	ND	U	U	ug/L	Not Detected	C2	Distribution
1/16/2022	011622-20-02	Victor Wharf Access Rd	Ashley Pl	2,4-Dinitrotoluene	ND	U	U	ug/L	Not Detected	C2	Distribution
1/16/2022	011622-20-02	Victor Wharf Access Rd	Ashley Pl	2,6-Dinitrotoluene	ND	U	U	ug/L	Not Detected	C2	Distribution
1/16/2022	011622-20-02	Victor Wharf Access Rd	Ashley Pl	4,4-DDD	ND	U	U	ug/L	Not Detected	C2	Distribution
1/16/2022	011622-20-02	Victor Wharf Access Rd	Ashley Pl	4,4-DDE	ND	U	U	ug/L	Not Detected	C2	Distribution
1/16/2022	011622-20-02	Victor Wharf Access Rd	Ashley Pl	4,4-DDT	ND	U	U	ug/L	Not Detected	C2	Distribution
1/16/2022	011622-20-02	Victor Wharf Access Rd	Ashley Pl	Acenaphthene	ND	U	U	ug/L	Not Detected	C2	Distribution
1/16/2022	011622-20-02	Victor Wharf Access Rd	Ashley Pl	Acenaphthylene	ND	U	U	ug/L	Not Detected	C2	Distribution
1/16/2022	011622-20-02	Victor Wharf Access Rd	Ashley Pl	Acetochlor	ND	U	U	ug/L	Not Detected	C2	Distribution
1/16/2022	011622-20-02	Victor Wharf Access Rd	Ashley Pl	Alachlor	ND	U	U	ug/L	Not Detected	C2	Distribution
1/16/2022	011622-20-02	Victor Wharf Access Rd	Ashley Pl	Alpha-BHC	ND	U	U	ug/L	Not Detected	C2	Distribution
1/16/2022	011622-20-02	Victor Wharf Access Rd	Ashley Pl	alpha-Chlordane	ND	U	U	ug/L	Not Detected	C2	Distribution
1/16/2022	011622-20-02	Victor Wharf Access Rd	Ashley Pl	Anthracene	ND	U	U	ug/L	Not Detected	C2	Distribution
1/16/2022	011622-20-02	Victor Wharf Access Rd	Ashley Pl	Atrazine	ND	U	U	ug/L	Not Detected	C2	Distribution
1/16/2022	011622-20-02	Victor Wharf Access Rd	Ashley Pl	Benz(a)Anthracene	ND	U	U	ug/L	Not Detected	C2	Distribution
1/16/2022	011622-20-02	Victor Wharf Access Rd	Ashley Pl	Benz(a)pyrene	ND	U	U	ug/L	Not Detected	C2	Distribution
1/16/2022	011622-20-02	Victor Wharf Access Rd	Ashley Pl	Benz(b)Fluoranthene	ND	U	U	ug/L	Not Detected	C2	Distribution
1/16/2022	011622-20-02	Victor Wharf Access Rd	Ashley Pl	Benz(g,h,i)Perylene	ND	U	U	ug/L	Not Detected	C2	Distribution
1/16/2022	011622-20-02	Victor Wharf Access Rd	Ashley Pl	Benz(k)Fluoranthene	ND	U	U	ug/L	Not Detected	C2	Distribution

Date Collected	Location Name	Street Name	Closest Cross Street	Analyte	Results	Lab Qualifier	Validator Qualifier	Results Unit	Results Category	Zone	Feature Type
1/16/2022	011622-20-02	Victor Wharf Access Rd	Ashley Pl	Beta-BHC	ND	U	U	ug/L	Not Detected	C2	Distribution
1/16/2022	011622-20-02	Victor Wharf Access Rd	Ashley Pl	Bromacil	ND	U	U	ug/L	Not Detected	C2	Distribution
1/16/2022	011622-20-02	Victor Wharf Access Rd	Ashley Pl	Butachlor	ND	U	U	ug/L	Not Detected	C2	Distribution
1/16/2022	011622-20-02	Victor Wharf Access Rd	Ashley Pl	Butylbenzylphthalate	ND	U	U	ug/L	Not Detected	C2	Distribution
1/16/2022	011622-20-02	Victor Wharf Access Rd	Ashley Pl	Caffeine by method 525mod	ND	U	U	ug/L	Not Detected	C2	Distribution
1/16/2022	011622-20-02	Victor Wharf Access Rd	Ashley Pl	Chlorobenzilate	ND	U	U	ug/L	Not Detected	C2	Distribution
1/16/2022	011622-20-02	Victor Wharf Access Rd	Ashley Pl	Chloroneb	ND	U	U	ug/L	Not Detected	C2	Distribution
1/16/2022	011622-20-02	Victor Wharf Access Rd	Ashley Pl	Chlorothalonil(Draconil Bravo)	ND	U	U	ug/L	Not Detected	C2	Distribution
1/16/2022	011622-20-02	Victor Wharf Access Rd	Ashley Pl	Chlorpyrifos (Dursban)	ND	U	U	ug/L	Not Detected	C2	Distribution
1/16/2022	011622-20-02	Victor Wharf Access Rd	Ashley Pl	Chrysene	ND	U	U	ug/L	Not Detected	C2	Distribution
1/16/2022	011622-20-02	Victor Wharf Access Rd	Ashley Pl	Delta-BHC	ND	U	U	ug/L	Not Detected	C2	Distribution
1/16/2022	011622-20-02	Victor Wharf Access Rd	Ashley Pl	Di-(2-Ethylhexyl)adipate	ND	U	U	ug/L	Not Detected	C2	Distribution
1/16/2022	011622-20-02	Victor Wharf Access Rd	Ashley Pl	Di-(2-Ethylhexyl)phthalate	ND	U	U	ug/L	Not Detected	C2	Distribution
1/16/2022	011622-20-02	Victor Wharf Access Rd	Ashley Pl	Diazinon (Qualitative)	ND	U	U	ug/L	Not Detected	C2	Distribution
1/16/2022	011622-20-02	Victor Wharf Access Rd	Ashley Pl	Dibenz(a,h)Anthracene	ND	U	U	ug/L	Not Detected	C2	Distribution
1/16/2022	011622-20-02	Victor Wharf Access Rd	Ashley Pl	Dichlorvos (DDVP)	ND	U	U	ug/L	Not Detected	C2	Distribution
1/16/2022	011622-20-02	Victor Wharf Access Rd	Ashley Pl	Dieldrin	ND	U	U	ug/L	Not Detected	C2	Distribution
1/16/2022	011622-20-02	Victor Wharf Access Rd	Ashley Pl	Diethylphthalate	ND	U	U	ug/L	Not Detected	C2	Distribution
1/16/2022	011622-20-02	Victor Wharf Access Rd	Ashley Pl	Dimethoate	ND	U	U	ug/L	Not Detected	C2	Distribution
1/16/2022	011622-20-02	Victor Wharf Access Rd	Ashley Pl	Dimethylphthalate	ND	U	U	ug/L	Not Detected	C2	Distribution
1/16/2022	011622-20-02	Victor Wharf Access Rd	Ashley Pl	Di-n-Butylphthalate	11	U	U	ug/L	Detected	C2	Distribution
1/16/2022	011622-20-02	Victor Wharf Access Rd	Ashley Pl	Di-N-octylphthalate	ND	U	U	ug/L	Not Detected	C2	Distribution
1/16/2022	011622-20-02	Victor Wharf Access Rd	Ashley Pl	Endosulfan I (Alpha)	ND	U	U	ug/L	Not Detected	C2	Distribution
1/16/2022	011622-20-02	Victor Wharf Access Rd	Ashley Pl	Endosulfan II (Beta)	ND	U	U	ug/L	Not Detected	C2	Distribution
1/16/2022	011622-20-02	Victor Wharf Access Rd	Ashley Pl	Endosulfan Sulfate	ND	U	U	ug/L	Not Detected	C2	Distribution
1/16/2022	011622-20-02	Victor Wharf Access Rd	Ashley Pl	Endrin	ND	U	U	ug/L	Not Detected	C2	Distribution
1/16/2022	011622-20-02	Victor Wharf Access Rd	Ashley Pl	Endrin Aldehyde	ND	U	U	ug/L	Not Detected	C2	Distribution
1/16/2022	011622-20-02	Victor Wharf Access Rd	Ashley Pl	EPTC	ND	U	U	ug/L	Not Detected	C2	Distribution
1/16/2022	011622-20-02	Victor Wharf Access Rd	Ashley Pl	Fluoranthene	ND	U	U	ug/L	Not Detected	C2	Distribution
1/16/2022	011622-20-02	Victor Wharf Access Rd	Ashley Pl	Fluorene	0.011	J	U	ug/L	Not Detected	C2	Distribution
1/16/2022	011622-20-02	Victor Wharf Access Rd	Ashley Pl	gamma-Chlordane	ND	U	U	ug/L	Not Detected	C2	Distribution
1/16/2022	011622-20-02	Victor Wharf Access Rd	Ashley Pl	Heptachlor	ND	U	U	ug/L	Not Detected	C2	Distribution
1/16/2022	011622-20-02	Victor Wharf Access Rd	Ashley Pl	Heptachlor Epoxide (isomer B)	ND	U	U	ug/L	Not Detected	C2	Distribution
1/16/2022	011622-20-02	Victor Wharf Access Rd	Ashley Pl	Hexachlorobenzene	ND	U	U	ug/L	Not Detected	C2	Distribution
1/16/2022	011622-20-02	Victor Wharf Access Rd	Ashley Pl	Hexachlorocyclopentadiene	ND	U	U	ug/L	Not Detected	C2	Distribution
1/16/2022	011622-20-02	Victor Wharf Access Rd	Ashley Pl	Indeno(1,2,3,c,d)Pyrene	ND	U	U	ug/L	Not Detected	C2	Distribution
1/16/2022	011622-20-02	Victor Wharf Access Rd	Ashley Pl	Isophorone	ND	U	U	ug/L	Not Detected	C2	Distribution
1/16/2022	011622-20-02	Victor Wharf Access Rd	Ashley Pl	Lindane	ND	U	U	ug/L	Not Detected	C2	Distribution
1/16/2022	011622-20-02	Victor Wharf Access Rd	Ashley Pl	Malathion	ND	U	U	ug/L	Not Detected	C2	Distribution
1/16/2022	011622-20-02	Victor Wharf Access Rd	Ashley Pl	Methoxychlor	ND	U	U	ug/L	Not Detected	C2	Distribution
1/16/2022	011622-20-02	Victor Wharf Access Rd	Ashley Pl	Metolachlor	ND	U	U	ug/L	Not Detected	C2	Distribution
1/16/2022	011622-20-02	Victor Wharf Access Rd	Ashley Pl	Metribuzin	ND	U	U	ug/L	Not Detected	C2	Distribution
1/16/2022	011622-20-02	Victor Wharf Access Rd	Ashley Pl	Molinate	ND	U	U	ug/L	Not Detected	C2	Distribution
1/16/2022	011622-20-02	Victor Wharf Access Rd	Ashley Pl	Naphthalene	ND	U	U	ug/L	Not Detected	C2	Distribution
1/16/2022	011622-20-02	Victor Wharf Access Rd	Ashley Pl	Parathion	ND	U	U	ug/L	Not Detected	C2	Distribution
1/16/2022	011622-20-02	Victor Wharf Access Rd	Ashley Pl	Pendimethalin	ND	U	U	ug/L	Not Detected	C2	Distribution
1/16/2022	011622-20-02	Victor Wharf Access Rd	Ashley Pl	Permethrin (mixed isomers)	ND	U	U	ug/L	Not Detected	C2	Distribution
1/16/2022	011622-20-02	Victor Wharf Access Rd	Ashley Pl	Phenanthrene	0.011	J	U	ug/L	Not Detected	C2	Distribution
1/16/2022	011622-20-02	Victor Wharf Access Rd	Ashley Pl	Propachlor	ND	U	U	ug/L	Not Detected	C2	Distribution
1/16/2022	011622-20-02	Victor Wharf Access Rd	Ashley Pl	Pyrene	ND	U	U	ug/L	Not Detected	C2	Distribution

Date Collected	Location Name	Street Name	Closest Cross Street	Analyte	Results	Lab Qualifier	Validator Qualifier	Results Unit	Results Category	Zone	Feature Type
1/16/2022	011622-20-02	Victor Wharf Access Rd	Ashley Pl	Simazine	ND	U	U	ug/L	Not Detected	C2	Distribution
1/16/2022	011622-20-02	Victor Wharf Access Rd	Ashley Pl	Terbacil	ND	U	U	ug/L	Not Detected	C2	Distribution
1/16/2022	011622-20-02	Victor Wharf Access Rd	Ashley Pl	Terbutylazine	ND	U	U	ug/L	Not Detected	C2	Distribution
1/16/2022	011622-20-02	Victor Wharf Access Rd	Ashley Pl	Thiobencarb (ELAP)	ND	U	U	ug/L	Not Detected	C2	Distribution
1/16/2022	011622-20-02	Victor Wharf Access Rd	Ashley Pl	trans-Nonachlor	ND	U	U	ug/L	Not Detected	C2	Distribution
1/16/2022	011622-20-02	Victor Wharf Access Rd	Ashley Pl	Trifluralin	ND	U	U	ug/L	Not Detected	C2	Distribution
1/16/2022	011622-20-02	Victor Wharf Access Rd	Ashley Pl	1-Methylnaphthalene	0.07		NI	ug/L	Detected	C2	Distribution
1/16/2022	011622-20-02	Victor Wharf Access Rd	Ashley Pl	2-Methylnaphthalene	NI			ug/L	Not Identified	C2	Distribution
1/16/2022	011622-20-03	Central Ave	Russell Ave	2,4-DDD	ND	U	U	ug/L	Not Detected	C2	Distribution
1/16/2022	011622-20-03	Central Ave	Russell Ave	2,4-DDE	ND	U	U	ug/L	Not Detected	C2	Distribution
1/16/2022	011622-20-03	Central Ave	Russell Ave	2,4-DDT	ND	U	U	ug/L	Not Detected	C2	Distribution
1/16/2022	011622-20-03	Central Ave	Russell Ave	2,4-Dinitrotoluene	ND	U	U	ug/L	Not Detected	C2	Distribution
1/16/2022	011622-20-03	Central Ave	Russell Ave	2,6-Dinitrotoluene	ND	U	U	ug/L	Not Detected	C2	Distribution
1/16/2022	011622-20-03	Central Ave	Russell Ave	4,4-DDD	ND	U	U	ug/L	Not Detected	C2	Distribution
1/16/2022	011622-20-03	Central Ave	Russell Ave	4,4-DDE	ND	U	U	ug/L	Not Detected	C2	Distribution
1/16/2022	011622-20-03	Central Ave	Russell Ave	4,4-DDT	ND	U	U	ug/L	Not Detected	C2	Distribution
1/16/2022	011622-20-03	Central Ave	Russell Ave	Acenaphthene	ND	U	U	ug/L	Not Detected	C2	Distribution
1/16/2022	011622-20-03	Central Ave	Russell Ave	Acenaphthylene	ND	U	U	ug/L	Not Detected	C2	Distribution
1/16/2022	011622-20-03	Central Ave	Russell Ave	Acetochlor	ND	U	U	ug/L	Not Detected	C2	Distribution
1/16/2022	011622-20-03	Central Ave	Russell Ave	Alachlor	ND	U	U	ug/L	Not Detected	C2	Distribution
1/16/2022	011622-20-03	Central Ave	Russell Ave	Alpha-BHC	ND	U	U	ug/L	Not Detected	C2	Distribution
1/16/2022	011622-20-03	Central Ave	Russell Ave	alpha-Chlordane	ND	U	U	ug/L	Not Detected	C2	Distribution
1/16/2022	011622-20-03	Central Ave	Russell Ave	Anthracene	ND	U	U	ug/L	Not Detected	C2	Distribution
1/16/2022	011622-20-03	Central Ave	Russell Ave	Atrazine	ND	U	U	ug/L	Not Detected	C2	Distribution
1/16/2022	011622-20-03	Central Ave	Russell Ave	Benz(a)Anthracene	ND	U	U	ug/L	Not Detected	C2	Distribution
1/16/2022	011622-20-03	Central Ave	Russell Ave	Benzo(a)pyrene	ND	U	U	ug/L	Not Detected	C2	Distribution
1/16/2022	011622-20-03	Central Ave	Russell Ave	Benzo(b)Fluoranthene	ND	U	U	ug/L	Not Detected	C2	Distribution
1/16/2022	011622-20-03	Central Ave	Russell Ave	Benzo(g,h,i)Perylene	ND	U	U	ug/L	Not Detected	C2	Distribution
1/16/2022	011622-20-03	Central Ave	Russell Ave	Benzo(k)Fluoranthene	ND	U	U	ug/L	Not Detected	C2	Distribution
1/16/2022	011622-20-03	Central Ave	Russell Ave	Beta-BHC	ND	U	U	ug/L	Not Detected	C2	Distribution
1/16/2022	011622-20-03	Central Ave	Russell Ave	Bromacil	ND	U	U	ug/L	Not Detected	C2	Distribution
1/16/2022	011622-20-03	Central Ave	Russell Ave	Butachlor	ND	U	U	ug/L	Not Detected	C2	Distribution
1/16/2022	011622-20-03	Central Ave	Russell Ave	Butylbenzylphthalate	ND	U	U	ug/L	Not Detected	C2	Distribution
1/16/2022	011622-20-03	Central Ave	Russell Ave	Caffeine by method 525mod	ND	U	U	ug/L	Not Detected	C2	Distribution
1/16/2022	011622-20-03	Central Ave	Russell Ave	Chlorobenzilate	ND	U	U	ug/L	Not Detected	C2	Distribution
1/16/2022	011622-20-03	Central Ave	Russell Ave	Chloroneb	ND	U	U	ug/L	Not Detected	C2	Distribution
1/16/2022	011622-20-03	Central Ave	Russell Ave	Chlorothalonil(Draconil,Bravo)	ND	U	U	ug/L	Not Detected	C2	Distribution
1/16/2022	011622-20-03	Central Ave	Russell Ave	Chlorpyrifos (Dursban)	ND	U	U	ug/L	Not Detected	C2	Distribution
1/16/2022	011622-20-03	Central Ave	Russell Ave	Chrysene	ND	U	U	ug/L	Not Detected	C2	Distribution
1/16/2022	011622-20-03	Central Ave	Russell Ave	Delta-BHC	ND	U	U	ug/L	Not Detected	C2	Distribution
1/16/2022	011622-20-03	Central Ave	Russell Ave	Di-(2-Ethylhexyl)adipate	ND	U	U	ug/L	Not Detected	C2	Distribution
1/16/2022	011622-20-03	Central Ave	Russell Ave	Di-(2-Ethylhexyl)phthalate	ND	U	U	ug/L	Not Detected	C2	Distribution
1/16/2022	011622-20-03	Central Ave	Russell Ave	Diazinon (Qualitative)	ND	U	U	ug/L	Not Detected	C2	Distribution
1/16/2022	011622-20-03	Central Ave	Russell Ave	Dibenz(a,h)Anthracene	ND	U	U	ug/L	Not Detected	C2	Distribution
1/16/2022	011622-20-03	Central Ave	Russell Ave	Dichlorvos (DDVP)	ND	U	U	ug/L	Not Detected	C2	Distribution
1/16/2022	011622-20-03	Central Ave	Russell Ave	Dieldrin	ND	U	U	ug/L	Not Detected	C2	Distribution
1/16/2022	011622-20-03	Central Ave	Russell Ave	Diethylphthalate	ND	U	U	ug/L	Not Detected	C2	Distribution
1/16/2022	011622-20-03	Central Ave	Russell Ave	Dimethoate	ND	U	U	ug/L	Not Detected	C2	Distribution
1/16/2022	011622-20-03	Central Ave	Russell Ave	Dimethylphthalate	ND	U	U	ug/L	Not Detected	C2	Distribution
1/16/2022	011622-20-03	Central Ave	Russell Ave	Di-n-Butylphthalate	8.0			ug/L	Detected	C2	Distribution

DOH SVOCs-Results
Navy Water System Incident
Red Hill, Post-Flushing, Flushing Area C2

Date Collected	Location Name	Street Name	Closest Cross Street	Analyte	Results	Lab Qualifier	Validator Qualifier	Results Unit	Results Category	Zone	Feature Type
1/16/2022	011622-20-03	Central Ave	Russell Ave	Di-N-octylphthalate	ND	U	U	ug/L	Not Detected	C2	Distribution
1/16/2022	011622-20-03	Central Ave	Russell Ave	Endosulfan I (Alpha)	ND	U	U	ug/L	Not Detected	C2	Distribution
1/16/2022	011622-20-03	Central Ave	Russell Ave	Endosulfan II (Beta)	ND	U	U	ug/L	Not Detected	C2	Distribution
1/16/2022	011622-20-03	Central Ave	Russell Ave	Endosulfan Sulfate	ND	U	U	ug/L	Not Detected	C2	Distribution
1/16/2022	011622-20-03	Central Ave	Russell Ave	Endrin	ND	U	U	ug/L	Not Detected	C2	Distribution
1/16/2022	011622-20-03	Central Ave	Russell Ave	Endrin Aldehyde	ND	U	U	ug/L	Not Detected	C2	Distribution
1/16/2022	011622-20-03	Central Ave	Russell Ave	EPTC	ND	U	U	ug/L	Not Detected	C2	Distribution
1/16/2022	011622-20-03	Central Ave	Russell Ave	Fluoranthene	ND	U	U	ug/L	Not Detected	C2	Distribution
1/16/2022	011622-20-03	Central Ave	Russell Ave	Fluorene	0.015	J	J	ug/L	Detected	C2	Distribution
1/16/2022	011622-20-03	Central Ave	Russell Ave	gamma-Chlordane	ND	U	U	ug/L	Not Detected	C2	Distribution
1/16/2022	011622-20-03	Central Ave	Russell Ave	Heptachlor	ND	U	U	ug/L	Not Detected	C2	Distribution
1/16/2022	011622-20-03	Central Ave	Russell Ave	Heptachlor Epoxide (isomer B)	ND	U	U	ug/L	Not Detected	C2	Distribution
1/16/2022	011622-20-03	Central Ave	Russell Ave	Hexachlorobenzene	ND	U	U	ug/L	Not Detected	C2	Distribution
1/16/2022	011622-20-03	Central Ave	Russell Ave	Hexachlorocyclopentadiene	ND	U	U	ug/L	Not Detected	C2	Distribution
1/16/2022	011622-20-03	Central Ave	Russell Ave	Indeno(1,2,3-c,d)Pyrene	ND	U	U	ug/L	Not Detected	C2	Distribution
1/16/2022	011622-20-03	Central Ave	Russell Ave	Isophorone	ND	U	U	ug/L	Not Detected	C2	Distribution
1/16/2022	011622-20-03	Central Ave	Russell Ave	Lindane	ND	U	U	ug/L	Not Detected	C2	Distribution
1/16/2022	011622-20-03	Central Ave	Russell Ave	Malathion	ND	U	U	ug/L	Not Detected	C2	Distribution
1/16/2022	011622-20-03	Central Ave	Russell Ave	Methoxychlor	ND	U	U	ug/L	Not Detected	C2	Distribution
1/16/2022	011622-20-03	Central Ave	Russell Ave	Metolachlor	ND	U	U	ug/L	Not Detected	C2	Distribution
1/16/2022	011622-20-03	Central Ave	Russell Ave	Metribuzin	ND	U	U	ug/L	Not Detected	C2	Distribution
1/16/2022	011622-20-03	Central Ave	Russell Ave	Molinate	ND	U	U	ug/L	Not Detected	C2	Distribution
1/16/2022	011622-20-03	Central Ave	Russell Ave	Naphthalene	ND	U	U	ug/L	Not Detected	C2	Distribution
1/16/2022	011622-20-03	Central Ave	Russell Ave	Parathion	ND	U	U	ug/L	Not Detected	C2	Distribution
1/16/2022	011622-20-03	Central Ave	Russell Ave	Pendimethalin	ND	U	U	ug/L	Not Detected	C2	Distribution
1/16/2022	011622-20-03	Central Ave	Russell Ave	Permethrin (mixed isomers)	ND	U	U	ug/L	Not Detected	C2	Distribution
1/16/2022	011622-20-03	Central Ave	Russell Ave	Phenanthrene	0.017	J	J	ug/L	Detected	C2	Distribution
1/16/2022	011622-20-03	Central Ave	Russell Ave	Propachlor	ND	U	U	ug/L	Not Detected	C2	Distribution
1/16/2022	011622-20-03	Central Ave	Russell Ave	Pyrene	ND	U	U	ug/L	Not Detected	C2	Distribution
1/16/2022	011622-20-03	Central Ave	Russell Ave	Simazine	ND	U	U	ug/L	Not Detected	C2	Distribution
1/16/2022	011622-20-03	Central Ave	Russell Ave	Terbacil	ND	U	U	ug/L	Not Detected	C2	Distribution
1/16/2022	011622-20-03	Central Ave	Russell Ave	Terbutylazine	ND	U	U	ug/L	Not Detected	C2	Distribution
1/16/2022	011622-20-03	Central Ave	Russell Ave	Thiobencarb (ELAP)	ND	U	U	ug/L	Not Detected	C2	Distribution
1/16/2022	011622-20-03	Central Ave	Russell Ave	trans-Nonachlor	ND	U	U	ug/L	Not Detected	C2	Distribution
1/16/2022	011622-20-03	Central Ave	Russell Ave	Trifluralin	ND	U	U	ug/L	Not Detected	C2	Distribution
1/16/2022	011622-20-03	Central Ave	Russell Ave	1-Methylnaphthalene	NI			ug/L	Not Identified	C2	Distribution
1/16/2022	011622-20-03	Central Ave	Russell Ave	2-Methylnaphthalene	NI			ug/L	Not Identified	C2	Distribution
1/28/2022	012822-08-01	Marin Barracks Way	Salvor St	2,4-DDD	ND	U	U	ug/L	Not Detected	C2	Residential
1/28/2022	012822-08-01	Marin Barracks Way	Salvor St	2,4-DDE	ND	U	U	ug/L	Not Detected	C2	Residential
1/28/2022	012822-08-01	Marin Barracks Way	Salvor St	2,4-DDT	ND	U	U	ug/L	Not Detected	C2	Residential
1/28/2022	012822-08-01	Marin Barracks Way	Salvor St	2,4-Dinitrotoluene	ND	U	U	ug/L	Not Detected	C2	Residential
1/28/2022	012822-08-01	Marin Barracks Way	Salvor St	2,6-Dinitrotoluene	ND	U	U	ug/L	Not Detected	C2	Residential
1/28/2022	012822-08-01	Marin Barracks Way	Salvor St	4,4-DDD	ND	U	U	ug/L	Not Detected	C2	Residential
1/28/2022	012822-08-01	Marin Barracks Way	Salvor St	4,4-DDE	ND	U	U	ug/L	Not Detected	C2	Residential
1/28/2022	012822-08-01	Marin Barracks Way	Salvor St	4,4-DDT	ND	U	U	ug/L	Not Detected	C2	Residential
1/28/2022	012822-08-01	Marin Barracks Way	Salvor St	Acenaphthene	ND	U	U	ug/L	Not Detected	C2	Residential
1/28/2022	012822-08-01	Marin Barracks Way	Salvor St	Acenaphthylene	ND	U	U	ug/L	Not Detected	C2	Residential
1/28/2022	012822-08-01	Marin Barracks Way	Salvor St	Acetochlor	ND	U	U	ug/L	Not Detected	C2	Residential
1/28/2022	012822-08-01	Marin Barracks Way	Salvor St	Alachlor	ND	U	U	ug/L	Not Detected	C2	Residential
1/28/2022	012822-08-01	Marin Barracks Way	Salvor St	Alpha-BHC	ND	U	U	ug/L	Not Detected	C2	Residential

DOH SVOCs-Results
Navy Water System Incident
Red Hill, Post-Flushing, Flushing Area C2

Date Collected	Location Name	Street Name	Closest Cross Street	Analyte	Results	Lab Qualifier	Validator Qualifier	Results Unit	Results Category	Zone	Feature Type
1/28/2022	012822-08-01	Marin Barracks Way	Salvor St	alpha-Chlordane	ND	U	U	ug/L	Not Detected	C2	Residential
1/28/2022	012822-08-01	Marin Barracks Way	Salvor St	Anthracene	ND	U	U	ug/L	Not Detected	C2	Residential
1/28/2022	012822-08-01	Marin Barracks Way	Salvor St	Atrazine	ND	U	U	ug/L	Not Detected	C2	Residential
1/28/2022	012822-08-01	Marin Barracks Way	Salvor St	Benz(a)Anthracene	ND	U	U	ug/L	Not Detected	C2	Residential
1/28/2022	012822-08-01	Marin Barracks Way	Salvor St	Benz(a)pyrene	ND	U	U	ug/L	Not Detected	C2	Residential
1/28/2022	012822-08-01	Marin Barracks Way	Salvor St	Benz(b)Fluoranthene	ND	U	U	ug/L	Not Detected	C2	Residential
1/28/2022	012822-08-01	Marin Barracks Way	Salvor St	Benzo(g,h,i)Perylene	ND	U	U	ug/L	Not Detected	C2	Residential
1/28/2022	012822-08-01	Marin Barracks Way	Salvor St	Benzo(k)Fluoranthene	ND	U	U	ug/L	Not Detected	C2	Residential
1/28/2022	012822-08-01	Marin Barracks Way	Salvor St	Beta-BHC	ND	U	U	ug/L	Not Detected	C2	Residential
1/28/2022	012822-08-01	Marin Barracks Way	Salvor St	Bromacil	ND	U	U	ug/L	Not Detected	C2	Residential
1/28/2022	012822-08-01	Marin Barracks Way	Salvor St	Butachlor	ND	U	U	ug/L	Not Detected	C2	Residential
1/28/2022	012822-08-01	Marin Barracks Way	Salvor St	Butylbenzylphthalate	ND	U	U	ug/L	Not Detected	C2	Residential
1/28/2022	012822-08-01	Marin Barracks Way	Salvor St	Caffeine by method 525mod	ND	U	U	ug/L	Not Detected	C2	Residential
1/28/2022	012822-08-01	Marin Barracks Way	Salvor St	Chlorobenzilate	ND	U	U	ug/L	Not Detected	C2	Residential
1/28/2022	012822-08-01	Marin Barracks Way	Salvor St	Chloroneb	ND	U	U	ug/L	Not Detected	C2	Residential
1/28/2022	012822-08-01	Marin Barracks Way	Salvor St	Chlorothalonil(Draconil Bravo)	ND	U	U	ug/L	Not Detected	C2	Residential
1/28/2022	012822-08-01	Marin Barracks Way	Salvor St	Chlorpyrifos (Dursban)	ND	U	U	ug/L	Not Detected	C2	Residential
1/28/2022	012822-08-01	Marin Barracks Way	Salvor St	Chrysene	ND	U	U	ug/L	Not Detected	C2	Residential
1/28/2022	012822-08-01	Marin Barracks Way	Salvor St	Delta-BHC	ND	U	U	ug/L	Not Detected	C2	Residential
1/28/2022	012822-08-01	Marin Barracks Way	Salvor St	Di(2-Ethylhexyl)adipate	ND	U	U	ug/L	Not Detected	C2	Residential
1/28/2022	012822-08-01	Marin Barracks Way	Salvor St	Diazinon (Qualitative)	ND	U	U	ug/L	Not Detected	C2	Residential
1/28/2022	012822-08-01	Marin Barracks Way	Salvor St	Dibenz(a,h)Anthracene	ND	U	U	ug/L	Not Detected	C2	Residential
1/28/2022	012822-08-01	Marin Barracks Way	Salvor St	Dichlorvos (DDVP)	ND	U	U	ug/L	Not Detected	C2	Residential
1/28/2022	012822-08-01	Marin Barracks Way	Salvor St	Diethrin	ND	U	U	ug/L	Not Detected	C2	Residential
1/28/2022	012822-08-01	Marin Barracks Way	Salvor St	Diethylphthalate	ND	U	U	ug/L	Not Detected	C2	Residential
1/28/2022	012822-08-01	Marin Barracks Way	Salvor St	Dimethoate	ND	U(R7)	U	ug/L	Not Detected	C2	Residential
1/28/2022	012822-08-01	Marin Barracks Way	Salvor St	Dimethylphthalate	ND	U	U	ug/L	Not Detected	C2	Residential
1/28/2022	012822-08-01	Marin Barracks Way	Salvor St	Di-n-Butylphthalate	ND	U	U	ug/L	Not Detected	C2	Residential
1/28/2022	012822-08-01	Marin Barracks Way	Salvor St	Di-N-octylphthalate	ND	U	U	ug/L	Not Detected	C2	Residential
1/28/2022	012822-08-01	Marin Barracks Way	Salvor St	Endosulfan I (Alpha)	ND	U	U	ug/L	Not Detected	C2	Residential
1/28/2022	012822-08-01	Marin Barracks Way	Salvor St	Endosulfan II (Beta)	ND	U	U	ug/L	Not Detected	C2	Residential
1/28/2022	012822-08-01	Marin Barracks Way	Salvor St	Endosulfan Sulfate	ND	U	U	ug/L	Not Detected	C2	Residential
1/28/2022	012822-08-01	Marin Barracks Way	Salvor St	Endrin	ND	U	U	ug/L	Not Detected	C2	Residential
1/28/2022	012822-08-01	Marin Barracks Way	Salvor St	Endrin Aldehyde	ND	U	U	ug/L	Not Detected	C2	Residential
1/28/2022	012822-08-01	Marin Barracks Way	Salvor St	EPTC	ND	U	U	ug/L	Not Detected	C2	Residential
1/28/2022	012822-08-01	Marin Barracks Way	Salvor St	Fluoranthene	ND	U	U	ug/L	Not Detected	C2	Residential
1/28/2022	012822-08-01	Marin Barracks Way	Salvor St	Fluorene	ND	U	U	ug/L	Not Detected	C2	Residential
1/28/2022	012822-08-01	Marin Barracks Way	Salvor St	gamma-Chlordane	ND	U	U	ug/L	Not Detected	C2	Residential
1/28/2022	012822-08-01	Marin Barracks Way	Salvor St	Heptachlor	ND	U	U	ug/L	Not Detected	C2	Residential
1/28/2022	012822-08-01	Marin Barracks Way	Salvor St	Heptachlor Epoxide (isomer B)	ND	U	U	ug/L	Not Detected	C2	Residential
1/28/2022	012822-08-01	Marin Barracks Way	Salvor St	Hexachlorobenzene	ND	U	U	ug/L	Not Detected	C2	Residential
1/28/2022	012822-08-01	Marin Barracks Way	Salvor St	Hexachlorocyclopentadiene	ND	U	U	ug/L	Not Detected	C2	Residential
1/28/2022	012822-08-01	Marin Barracks Way	Salvor St	Indeno(1,2,3,c,d)Pyrene	ND	U	U	ug/L	Not Detected	C2	Residential
1/28/2022	012822-08-01	Marin Barracks Way	Salvor St	Isophorone	ND	U	U	ug/L	Not Detected	C2	Residential
1/28/2022	012822-08-01	Marin Barracks Way	Salvor St	Lindane	ND	U	U	ug/L	Not Detected	C2	Residential
1/28/2022	012822-08-01	Marin Barracks Way	Salvor St	Malathion	ND	U	U	ug/L	Not Detected	C2	Residential
1/28/2022	012822-08-01	Marin Barracks Way	Salvor St	Methoxychlor	ND	U	U	ug/L	Not Detected	C2	Residential
1/28/2022	012822-08-01	Marin Barracks Way	Salvor St	Metolachlor	ND	U	U	ug/L	Not Detected	C2	Residential
1/28/2022	012822-08-01	Marin Barracks Way	Salvor St	Metribuzin	ND	U(R7)	U	ug/L	Not Detected	C2	Residential

DOH SVOCs-Results
Navy Water System Incident
Red Hill, Post-Flushing, Flushing Area C2

Date Collected	Location Name	Street Name	Closest Cross Street	Analyte	Results	Lab Qualifier	Validator Qualifier	Results Unit	Results Category	Zone	Feature Type
1/28/2022	012822-08-01	Marin Barracks Way	Salvor St	Molinate	ND	U	U	ug/L	Not Detected	C2	Residential
1/28/2022	012822-08-01	Marin Barracks Way	Salvor St	Naphthalene	ND	U	U	ug/L	Not Detected	C2	Residential
1/28/2022	012822-08-01	Marin Barracks Way	Salvor St	Parathion	ND	U	U	ug/L	Not Detected	C2	Residential
1/28/2022	012822-08-01	Marin Barracks Way	Salvor St	Pendimethalin	ND	U	U	ug/L	Not Detected	C2	Residential
1/28/2022	012822-08-01	Marin Barracks Way	Salvor St	Permethrin (mixed isomers)	ND	U	U	ug/L	Not Detected	C2	Residential
1/28/2022	012822-08-01	Marin Barracks Way	Salvor St	Phenanthrene	0.011	J	J	ug/L	Detected	C2	Residential
1/28/2022	012822-08-01	Marin Barracks Way	Salvor St	Propachlor	ND	U	U	ug/L	Not Detected	C2	Residential
1/28/2022	012822-08-01	Marin Barracks Way	Salvor St	Pyrene	ND	U	U	ug/L	Not Detected	C2	Residential
1/28/2022	012822-08-01	Marin Barracks Way	Salvor St	Simazine	ND	U	U	ug/L	Not Detected	C2	Residential
1/28/2022	012822-08-01	Marin Barracks Way	Salvor St	Terbacil	ND	U	U	ug/L	Not Detected	C2	Residential
1/28/2022	012822-08-01	Marin Barracks Way	Salvor St	Terbutylazine	ND	U	U	ug/L	Not Detected	C2	Residential
1/28/2022	012822-08-01	Marin Barracks Way	Salvor St	Thiobencarb (ELAP)	ND	U	U	ug/L	Not Detected	C2	Residential
1/28/2022	012822-08-01	Marin Barracks Way	Salvor St	trans-Nonachlor	ND	U	U	ug/L	Not Detected	C2	Residential
1/28/2022	012822-08-01	Marin Barracks Way	Salvor St	Trifluralin	ND	U	U	ug/L	Not Detected	C2	Residential
1/28/2022	012822-08-01	Marin Barracks Way	Salvor St	1-Methylnaphthalene	ND	U		ug/L	Non Detect	C2	Residential
1/28/2022	012822-08-01	Marin Barracks Way	Salvor St	2-Methylnaphthalene	ND	U		ug/L	Non Detect	C2	Residential

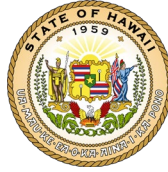
Exceeds the ISP

Bold= Detected

Date Collected	Location Name	Street Name	Closest Cross Street	Analyte	Results	Lab Qualifier	Validator Qualifier	Results Unit	Results Category	Zone	Feature Type	Sheen Present	Odor
1/8/2022	010822-21-02	Pearl Harbor Blvd	Frederick Street	C8-C44	58			ug/L	Detected	C2	Distribution	No	NO ODOR
1/8/2022	010822-21-02	Pearl Harbor Blvd	Frederick Street	Diesel Range Organics (DRO)-C10-C28	ND	U	U	ug/L	Not Detected	C2	Distribution	No	NO ODOR
1/8/2022	010822-21-02	Pearl Harbor Blvd	Frederick Street	Gas Range Organics C8-C10	ND	U	U	ug/L	Not Detected	C2	Distribution	No	NO ODOR
1/8/2022	010822-21-02	Pearl Harbor Blvd	Frederick Street	Oil Range Organics (C28-C40)	ND	U	U	ug/L	Not Detected	C2	Distribution	No	NO ODOR
1/8/2022	010822-21-02	Pearl Harbor Blvd	Frederick Street	TPH-g	ND	U	U	ug/L	Not Detected	C2	Distribution	No	NO ODOR
1/16/2022	011622-20-02	Victor Wharf Access Rd	Ashley Pl	TPH-g	ND	U	U	ug/L	Not Detected	C2	Distribution	none noted	none noted
1/16/2022	011622-20-02	Victor Wharf Access Rd	Ashley Pl	C8-C44	47	J	U	ug/L	Not Detected	C2	Distribution	none noted	none noted
1/16/2022	011622-20-02	Victor Wharf Access Rd	Ashley Pl	Diesel Range Organics (DRO)-C10-C28	ND	U	U	ug/L	Not Detected	C2	Distribution	none noted	none noted
1/16/2022	011622-20-02	Victor Wharf Access Rd	Ashley Pl	Gas Range Organics C8-C10	ND	U	U	ug/L	Not Detected	C2	Distribution	none noted	none noted
1/16/2022	011622-20-02	Victor Wharf Access Rd	Ashley Pl	Oil Range Organics (C28-C40)	ND	U	U	ug/L	Not Detected	C2	Distribution	none noted	none noted
1/16/2022	011622-20-03	Central Ave	Russell Ave	TPH-g	ND	U	U	ug/L	Not Detected	C2	Distribution	none noted	none noted
1/16/2022	011622-20-03	Central Ave	Russell Ave	C8-C44	56		J+	ug/L	Detected	C2	Distribution	none noted	none noted
1/16/2022	011622-20-03	Central Ave	Russell Ave	Diesel Range Organics (DRO)-C10-C28	ND	U	U	ug/L	Not Detected	C2	Distribution	none noted	none noted
1/16/2022	011622-20-03	Central Ave	Russell Ave	Gas Range Organics C8-C10	ND	U	U	ug/L	Not Detected	C2	Distribution	none noted	none noted
1/16/2022	011622-20-03	Central Ave	Russell Ave	Oil Range Organics (C28-C40)	ND	U	U	ug/L	Not Detected	C2	Distribution	none noted	none noted
1/28/2022	012822-08-01	Marin Barracks Way	Salvor St	TPH as Gas	ND	U	U	ug/L	Not Detected	C2	Residential	No	none noted
1/28/2022	012822-08-01	Marin Barracks Way	Salvor St	Diesel Range Organic C9-C25	ND	U	U	ug/L	Not Detected	C2	Residential	No	none noted
1/28/2022	012822-08-01	Marin Barracks Way	Salvor St	Oil Range Organic C24-C40	ND	U	U	ug/L	Not Detected	C2	Residential	No	none noted

Exceeds the ISP

Bold= Detected



Interagency Drinking Water System Team
Zone C2 Removal Action Report
March 2022

Line of Evidence 2b

Water in Premise Plumbing of Homes/Buildings does not exceed State and Federal Drinking Water MCLs, specified State EALs, and ISPs

Table 1: Lines of Evidence Under Evaluation – Ensure no contamination remains in the system and water chemistry concerns are addressed.

Objective 2b - Water in premise plumbing of homes/buildings does not exceed State and Federal DW MCLs, specified State EALs, and ISPs.

Incident Specific Criteria –

- Flushing Plan includes procedures to ensure no service connections will re-contaminate the distribution system.
- Sample Plan includes 72-hour stagnation to account for leaching of contaminants from premise plumbing.
- Sample results show water in homes/buildings does not exceed State and Federal DW MCLs, specified State EALs, and ISPs.

Lines of Evidence	Completion Status	Outstanding Items
Flushing Plan includes procedures to ensure no service connections will re-contaminate the distribution system.	Complete	<ul style="list-style-type: none"> • None.

February 20, 2022

From: Naval Facilities Engineering Systems Command Representative, IDWS Team
To: Interagency Drinking Water System Team

SUBJ: SUMMARY OF LINE OF EVIDENCE OBJECTIVE 2B – WATER IN PREMISE OF PLUMBING OF HOMES/BUILDINGS DOES NOT EXCEED STATE AND FEDERAL DW MCLs, SPECIFIED STATE EALs, AND ISPs

Encl: (1) 2b.1 Flushing Records and Distribution System Pressure Logs During Residential Flushing
(2) 2b.2 Residential Sampling Report for Flushing Zone
(3) 2b.3 Exceedance Investigation Summary and Resample Results
(4) 2b.4 Certification of Completed Irrigation Flushing
(5) 2b.5 DOH Guidance for Active Irrigation Line Purging and Flushing

1. Enclosures (1) through (5) document completion of Line of Evidence 2b, that water in premise of plumbing of homes/buildings does not exceed State of Hawaii and Federal Drinking Water standards, Maximum Contaminate Levels, Environmental Action Levels and Incident Specific Parameters. On the evening of November 28, 2021, the Red Hill Shaft was secured from operation and all pumping operations ceased. The Aiea/Halawa shaft briefly served as the secondary source starting on November 28, 2021, but it was shut down on December 3, 2021 to prevent potential westward contaminant migration in the aquifer and because there were concerns over high chloride concentrations caused by saltwater intrusion. Since December 3, 2021, the Waiawa Shaft has been the sole water source providing potable water to the Joint Base Pearl Harbor-Hickam (JBPHH) distribution network. Zone C2 is part of the JBPHH Drinking Water system that is operated and maintained by the United States Navy. Flushing operations are summarized in Enclosure (1), signed by CDR Trevor Bingham, team lead for the Drinking Water Residential and Non-residential Recovery Team.

2. Enclosure (1) documents the flushing records for all facilities within Zone C2, as well as pressure logs for the distribution system during facility flushing operations. The completion of irrigation flushing in Zone C2, described in Enclosure (5), is documented in Enclosure (4). Sampling data collected after flushing is summarized in Enclosure (2).

3. Sample results with analyte detections exceeding the prescribed Maximum Contaminant Level (MCL), Environmental Action Level (EAL), or Incident Specific Parameter (ISP) are documented in Enclosure (3). The follow-on investigation summary and additional sampling results are also documented in Enclosure (3).

4. This information documents completion of Line of Evidence 2b, that water in premise of plumbing of homes/buildings does not exceed State of Hawaii and Federal Drinking Water standards, MCLs, EALs, or ISPs.

5. I certify under penalty of law that I have personally examined and I am familiar with the information submitted and I believe the submitted information is true, accurate, and complete.

WETZEL.CHRISTOPHE
R.JAMES.1540194862
C. J. Wetzel
LT, CEC, USN

Digitally signed by
WETZEL.CHRISTOPHER.JAMES.1
540194862
Date: 2022.02.20 13:54:53 -08'00'

1 March 2022

MEMORANDUM

From: Naval Facilities Engineering Systems Command Representative, EWG Team
To: Interagency Drinking Water System Team

Subj: RECORDS OF COMPLETED RESIDENTIAL AND NON-RESIDENTIAL FLUSHING
ZONE C2

Ref: (a) Single Family Home Flushing Plan Checklist and Standard Operating Procedures,
December 2021
(b) Non-Residential Flushing Plan, January 2022

Encl: (1) EDMS Residential Flushing Records Zone C2
(2) EDMS Non-Residential Flushing Records Zone C2
(3) JBPHH System Pressure SCADA Data

1. This memo documents the completion of residential and non-residential flushing in Zone C2. The completed records of residential flushing, as shown in Enclosure (1), document the flushing of 30/32 homes in EDMS. Two homes were undergoing construction that disconnected water systems. The completed records of non-residential flushing, as shown in Enclosure (2), document the flushing of all 125 facilities in EDMS.

2. Meter 6780, located on Porter Avenue, is the nearest meter to Zone C2. Meter readings for this meter document that the distribution system maintained a pressure of at least 30 pounds per square inch (psi) for the duration of residential and non-residential flushing, as shown in Enclosure (3).

4. I certify under penalty of law that I have personally examined and I am familiar with the information submitted, and the submitted information is true, accurate, and complete.

Very respectfully,

BINGHAM.TREVOR.A
MMON.1131940048

Digitally signed by
BINGHAM.TREVOR.AMMON.1131
940048
Date: 2022.03.01 15:59:34 -10'00'

T. A. BINGHAM
CDR, CEC, USN

Flushing Zone C2

2022-01-22 - 2022-01-23

Total Homes	Percent Complete	No Access	Flushed on Selected Dates
32	100.0 %	2	30

Zone	Address	Arrive Date	Start Time	Finish Time	Certified	Summary General Notes	Unable To Access	Access Reason
Flushing Zone C2	4953 Crommelin Street (C2-CROM4953)	22-Jan-22	08:25	09:39	<input checked="" type="checkbox"/>		<input type="checkbox"/>	
Flushing Zone C2	4955 Crommelin Street (C2-CROM4955)	22-Jan-22	08:42	11:06	<input checked="" type="checkbox"/>		<input type="checkbox"/>	
Flushing Zone C2	4969 Crommelin Street (C2-CROM4969)	22-Jan-22	08:00	12:19	<input checked="" type="checkbox"/>		<input type="checkbox"/>	
Flushing Zone C2	4971 Crommelin Street (C2-CROM4971)	22-Jan-22	10:00	12:21	<input checked="" type="checkbox"/>		<input checked="" type="checkbox"/>	Reason(s) Selected: Maintenance Issues under construction, water turned off for this home
Flushing Zone C2	4973 Crommelin Street (C2-CROM4973)	22-Jan-22	10:00	12:23	<input checked="" type="checkbox"/>		<input type="checkbox"/>	
Flushing Zone C2	4997 Crommelin Street (C2-CROM4997)	22-Jan-22	08:35	10:45	<input checked="" type="checkbox"/>		<input type="checkbox"/>	
Flushing Zone C2	4999 Crommelin Street (C2-CROM4999)	22-Jan-22	08:10	09:59	<input checked="" type="checkbox"/>		<input type="checkbox"/>	
Flushing Zone C2	5004 Crommelin Street (C2-CROM5004)	22-Jan-22	10:39	12:51	<input checked="" type="checkbox"/>		<input type="checkbox"/>	
Flushing Zone C2	5012 Crommelin Street (C2-CROM5012)	22-Jan-22	12:51	14:12	<input checked="" type="checkbox"/>		<input type="checkbox"/>	
Flushing Zone C2	5022 Crommelin Street (C2-CROM5022)	22-Jan-22	12:01	14:19	<input checked="" type="checkbox"/>		<input type="checkbox"/>	
Flushing Zone C2	5032 Crommelin Street (C2-CROM5032)	22-Jan-22	10:32	13:24	<input checked="" type="checkbox"/>		<input type="checkbox"/>	
Flushing Zone C2	5038 Crommelin Street (C2-CROM5038)	22-Jan-22	09:49	12:12	<input checked="" type="checkbox"/>		<input type="checkbox"/>	
Flushing Zone C2	5044 Crommelin Street (C2-CROM5044)	22-Jan-22	08:22	10:33	<input checked="" type="checkbox"/>		<input type="checkbox"/>	
Flushing Zone C2	4509 Hale Alii Avenue (C2-HALE4509)	22-Jan-22	08:00	12:24	<input checked="" type="checkbox"/>		<input type="checkbox"/>	
Flushing Zone C2	4519 Hale Alii Avenue (C2-HALE4519)	22-Jan-22	13:00	14:21	<input checked="" type="checkbox"/>		<input type="checkbox"/>	
Flushing Zone C2	4531 Hale Alii Avenue (C2-HALE4531)	23-Jan-22	11:15	16:28	<input checked="" type="checkbox"/>		<input type="checkbox"/>	
Flushing Zone C2	4545 Hale Alii Avenue (C2-HALE4545)	22-Jan-22	08:00	11:36	<input checked="" type="checkbox"/>		<input type="checkbox"/>	
Flushing Zone C2	4559 Hale Alii Avenue (C2-HALE4559)	22-Jan-22	08:00	11:29	<input checked="" type="checkbox"/>		<input type="checkbox"/>	
Flushing Zone C2	4583 Hale Alii Avenue (C2-HALE4583)	22-Jan-22	08:31	12:10	<input checked="" type="checkbox"/>		<input type="checkbox"/>	
Flushing Zone C2	4609 Hale Alii Avenue (C2-HALE4609)	22-Jan-22	13:00	14:19	<input checked="" type="checkbox"/>		<input type="checkbox"/>	
Flushing Zone C2	4625 Hale Alii Avenue (C2-HALE4625)	22-Jan-22	08:00	11:28	<input checked="" type="checkbox"/>		<input type="checkbox"/>	
Flushing Zone C2	4639 Hale Alii Avenue (C2-HALE4639)	22-Jan-22	14:14	15:00	<input checked="" type="checkbox"/>		<input type="checkbox"/>	
Flushing Zone C2	4651 Hale Alii Avenue (C2-HALE4651)	22-Jan-22	12:42	13:24	<input checked="" type="checkbox"/>		<input type="checkbox"/>	
Flushing Zone C2	201 Marine Barracks Way (C2-MARI0201)	22-Jan-22	11:34	14:36	<input checked="" type="checkbox"/>		<input type="checkbox"/>	
Flushing Zone C2	202 Marine Barracks Way (C2-MARI0202)	22-Jan-22	08:30	14:44	<input checked="" type="checkbox"/>		<input type="checkbox"/>	
Flushing Zone C2	203 Marine Barracks Way (C2-MARI0203)	22-Jan-22	09:42	14:32	<input checked="" type="checkbox"/>		<input type="checkbox"/>	
Flushing Zone C2	204A Marine Barracks Way (C2-	22-Jan-22	13:20	16:57	<input checked="" type="checkbox"/>		<input type="checkbox"/>	
Flushing Zone C2	204B Marine Barracks Way (C2-	22-Jan-22	13:00	16:27	<input checked="" type="checkbox"/>		<input type="checkbox"/>	
Flushing Zone C2	4576 Paul Hamilton Avenue (C2-	22-Jan-22	13:50	15:45	<input checked="" type="checkbox"/>		<input type="checkbox"/>	
Flushing Zone C2	4578 Paul Hamilton Avenue (C2-PAUL4578)	22-Jan-22	01:50	17:10	<input checked="" type="checkbox"/>	plumbing drained and water heater disconnected, nor getting flushes maintenance verified	<input checked="" type="checkbox"/>	Reason(s) Selected: Maintenance Issues
Flushing Zone C2	2124 Safeguard Street (C2-SAFE2124)	22-Jan-22	13:19	14:44	<input checked="" type="checkbox"/>		<input type="checkbox"/>	
Flushing Zone C2	2136 Safeguard Street (C2-SAFE2136)	22-Jan-22	11:27	12:26	<input checked="" type="checkbox"/>		<input type="checkbox"/>	

Key
<input type="checkbox"/> Not Started
<input type="checkbox"/> No Access
<input type="checkbox"/> In Progress
<input checked="" type="checkbox"/> Complete

Section 2b.1 Flushing Records and Distribution System Pressure Logs During Residential Flushing

Flushing Zone C2

2022-01-17 - 2022-01-27

Total Facilities	Total	Percent Complete	No	Flushed on Selected Dates
125	125	100.0 %	0	125

Zone	Address	Arrive Date	Start Time	Finish Time	Certified	Summary General Notes	Unable To Access	Access Reason
Flushing Zone C2	Building 119,LATRINE/HALE ALJI (C2-	24-Jan-22	10:00	11:01	<input checked="" type="checkbox"/>		<input type="checkbox"/>	
Flushing Zone C2	Building 125,TOILET FACILITY (TEA	20-Jan-22	09:00	10:07	<input checked="" type="checkbox"/>		<input type="checkbox"/>	
Flushing Zone C2	Building 1282,LATRINE/QUICK FIELD/-	21-Jan-22	07:00	14:12	<input checked="" type="checkbox"/>		<input type="checkbox"/>	
Flushing Zone C2	Building 1315,NGIS - NAVY TDY HALE	20-Jan-22	08:00	10:35	<input checked="" type="checkbox"/>		<input type="checkbox"/>	
Flushing Zone C2	Building 1377,FLEET TECH SUPPORT	20-Jan-22	13:00	10:22	<input checked="" type="checkbox"/>		<input type="checkbox"/>	
Flushing Zone C2	Building 1395,SEWAGE PMP BLDG	20-Jan-22	15:00	10:16	<input checked="" type="checkbox"/>		<input type="checkbox"/>	
Flushing Zone C2	Building 1422,OBA TREATMENT BLDG-	21-Jan-22	13:00	09:42	<input checked="" type="checkbox"/>		<input type="checkbox"/>	
Flushing Zone C2	Building 1423,ADMIN BUILDING (C2-	21-Jan-22	11:00	09:42	<input checked="" type="checkbox"/>		<input type="checkbox"/>	
Flushing Zone C2	Building 1424,TREATMENT BLDG-IWTC	21-Jan-22	13:00	09:46	<input checked="" type="checkbox"/>		<input type="checkbox"/>	
Flushing Zone C2	Building 1424S,IWTC STORAGE (C2-	21-Jan-22	13:00	09:50	<input checked="" type="checkbox"/>		<input type="checkbox"/>	
Flushing Zone C2	Building 1426,CNE TRAINING MOCK-UP	20-Jan-22	09:00	10:47	<input checked="" type="checkbox"/>		<input type="checkbox"/>	
Flushing Zone C2	Building 1427,CNE LOCKER (C2-	20-Jan-22	09:00	10:49	<input checked="" type="checkbox"/>		<input type="checkbox"/>	
Flushing Zone C2	Building 1428,CNE TRAINING MOCK-UP	20-Jan-22	09:00	10:07	<input checked="" type="checkbox"/>		<input type="checkbox"/>	
Flushing Zone C2	Building 1429,OPERATIONAL TRAINER	20-Jan-22	09:00	10:04	<input checked="" type="checkbox"/>		<input type="checkbox"/>	
Flushing Zone C2	Building 1430,SWOS ELS FACILITY, 1107	19-Jan-22	09:00	13:02	<input checked="" type="checkbox"/>		<input type="checkbox"/>	
Flushing Zone C2	Building 1431,SWOS ELS, 1107 South Ave	20-Jan-22	09:00	10:02	<input checked="" type="checkbox"/>		<input type="checkbox"/>	
Flushing Zone C2	Building 1432,CNE TRAINING MOCK-UP	21-Jan-22	00:00	14:11	<input checked="" type="checkbox"/>		<input type="checkbox"/>	
Flushing Zone C2	Building 1433,CNE TRAINING MOCK-UP	20-Jan-22	08:00	10:18	<input checked="" type="checkbox"/>		<input type="checkbox"/>	
Flushing Zone C2	Building 1436,CNE TRAINING MOCK-UP	20-Jan-22	09:00	10:20	<input checked="" type="checkbox"/>		<input type="checkbox"/>	
Flushing Zone C2	Building 1444,DRYDOCK 4 PROJECT	20-Jan-22	09:00	09:43	<input checked="" type="checkbox"/>		<input type="checkbox"/>	
Flushing Zone C2	Building 1452,PUBLIC TOILET (C2-	21-Jan-22	10:00	09:36	<input checked="" type="checkbox"/>		<input type="checkbox"/>	
Flushing Zone C2	Building 1473,DEGAUSSING BUILDING-	20-Jan-22	12:00	10:59	<input checked="" type="checkbox"/>		<input type="checkbox"/>	
Flushing Zone C2	Building 1474,LUNCH/LOCKER ROOM	24-Jan-22	10:00	11:19	<input checked="" type="checkbox"/>		<input type="checkbox"/>	
Flushing Zone C2	Building 1484,BASE MAINTENANCE	24-Jan-22	09:00	10:05	<input checked="" type="checkbox"/>		<input type="checkbox"/>	
Flushing Zone C2	Building 150,ADMINISTRATIVE OFFICE,	24-Jan-22	11:00	08:35	<input checked="" type="checkbox"/>		<input type="checkbox"/>	
Flushing Zone C2	Building 1502,SUBSTATION G-21	20-Jan-22	09:00	09:25	<input checked="" type="checkbox"/>		<input type="checkbox"/>	
Flushing Zone C2	Building 1511,POOL BATHHOUSE/PUMP,	20-Jan-22	10:00	13:09	<input checked="" type="checkbox"/>		<input type="checkbox"/>	
Flushing Zone C2	Building 1534,OIL COLLECTION WELL	21-Jan-22	08:00	10:43	<input checked="" type="checkbox"/>		<input type="checkbox"/>	
Flushing Zone C2	Building 1568,SUBSTA BLDG G24 BRAVO	20-Jan-22	14:00	10:11	<input checked="" type="checkbox"/>		<input type="checkbox"/>	
Flushing Zone C2	Building 1569,SUBSTA BLDG G25 BRAVO	20-Jan-22	14:00	10:10	<input checked="" type="checkbox"/>		<input type="checkbox"/>	
Flushing Zone C2	Building 1570,SUBSTA G26 4000 KV	20-Jan-22	12:00	09:13	<input checked="" type="checkbox"/>		<input type="checkbox"/>	
Flushing Zone C2	Building 158,GENERAL WAREHOUSE	19-Jan-22	11:00	13:38	<input checked="" type="checkbox"/>		<input type="checkbox"/>	
Flushing Zone C2	Building 159,GENERAL WAREHOUSE	19-Jan-22	11:00	13:41	<input checked="" type="checkbox"/>		<input type="checkbox"/>	
Flushing Zone C2	Building 1598,WENTWORTH TENNIS PRO	24-Jan-22	09:00	10:58	<input checked="" type="checkbox"/>		<input type="checkbox"/>	
Flushing Zone C2	Building 1600,CHAPEL (C2-BLDG1600)	20-Jan-22	12:00	09:55	<input checked="" type="checkbox"/>		<input type="checkbox"/>	
Flushing Zone C2	Building 1601,CHAPEL OFC/FELLOWSHIP	20-Jan-22	00:00	09:59	<input checked="" type="checkbox"/>		<input type="checkbox"/>	
Flushing Zone C2	Building 1602,CHAPEL CLASSRMS 1-4	27-Jan-22	10:00	15:25	<input checked="" type="checkbox"/>		<input type="checkbox"/>	
Flushing Zone C2	Building 1603,CHAPEL CLASSRMS 6-10	27-Jan-22	10:00	15:26	<input checked="" type="checkbox"/>		<input type="checkbox"/>	
Flushing Zone C2	Building 1609,SUBSTA BLDG G23 BRAVO	20-Jan-22	09:00	10:12	<input checked="" type="checkbox"/>		<input type="checkbox"/>	
Flushing Zone C2	Building 1622,FLEET TECH SUPPORT	20-Jan-22	13:00	10:26	<input checked="" type="checkbox"/>		<input type="checkbox"/>	
Flushing Zone C2	Building 164,GENERAL WAREHOUSE	20-Jan-22	13:00	10:06	<input checked="" type="checkbox"/>		<input type="checkbox"/>	
Flushing Zone C2	Building 165,GENERAL WAREHOUSE (C2-	20-Jan-22	13:00	10:37	<input checked="" type="checkbox"/>		<input type="checkbox"/>	
Flushing Zone C2	Building 166,UTILITY SHOP (C2-	21-Jan-22	15:00	14:03	<input checked="" type="checkbox"/>		<input type="checkbox"/>	
Flushing Zone C2	Building 1662,CHLORINATOR BLDG	21-Jan-22	09:00	13:12	<input checked="" type="checkbox"/>		<input type="checkbox"/>	
Flushing Zone C2	Building 1664,OIL SPILL CLEANUP EQT	21-Jan-22	11:00	09:46	<input checked="" type="checkbox"/>		<input type="checkbox"/>	
Flushing Zone C2	Building 1665,HAZARDOUS/FLAMMABLE	19-Jan-22	11:00	13:38	<input checked="" type="checkbox"/>		<input type="checkbox"/>	
Flushing Zone C2	Building 1673,TRANSPORTATION	20-Jan-22	14:00	10:06	<input checked="" type="checkbox"/>		<input type="checkbox"/>	
Flushing Zone C2	Building 1674,PARKING & STRGE SHOP	20-Jan-22	14:00	09:55	<input checked="" type="checkbox"/>		<input type="checkbox"/>	
Flushing Zone C2	Building 1675,STORAGE, CODE 1100 (C2-	20-Jan-22	14:00	09:00	<input checked="" type="checkbox"/>		<input type="checkbox"/>	
Flushing Zone C2	Building 1709,NEX BRAVO 25 LAUNDRY	20-Jan-22	10:00	10:11	<input checked="" type="checkbox"/>		<input type="checkbox"/>	
Flushing Zone C2	Building 1719,MCDONALDS (C2-	20-Jan-22	09:00	09:52	<input checked="" type="checkbox"/>		<input type="checkbox"/>	
Flushing Zone C2	Building 1746,REGION LEGAL SERVICE	20-Jan-22	11:00	13:12	<input checked="" type="checkbox"/>		<input type="checkbox"/>	
Flushing Zone C2	Building 1750,SHIPYARD MEDICAL	20-Jan-22	13:00	10:30	<input checked="" type="checkbox"/>		<input type="checkbox"/>	
Flushing Zone C2	Building 1752,BEO TRANSIENT (C2-	20-Jan-22	10:00	11:09	<input checked="" type="checkbox"/>		<input type="checkbox"/>	
Flushing Zone C2	Building 1753,TEMP PERSONNEL UNIT -	20-Jan-22	10:00	16:04	<input checked="" type="checkbox"/>		<input type="checkbox"/>	
Flushing Zone C2	Building 1754,MAINTENANCE SHOP	17-Jan-22	08:00	13:57	<input checked="" type="checkbox"/>		<input type="checkbox"/>	
Flushing Zone C2	Building 1771,POWER PLANT NO	20-Jan-22	09:00	10:31	<input checked="" type="checkbox"/>		<input type="checkbox"/>	
Flushing Zone C2	Building 1786,EXCHANGE SERV OUTLET	20-Jan-22	12:00	10:29	<input checked="" type="checkbox"/>		<input type="checkbox"/>	

Section 2b.1 Flushing Records and Distribution System Pressure Logs During Residential Flushing

Flushing Zone C2

2022-01-17 - 2022-01-27

Flushing Zone C2	Building 179 PUBLIC TOILET (C2-	20-Jan-22	09:00	10:10	<input checked="" type="checkbox"/>
Flushing Zone C2	Building 1871 S/B GEN BLDG SEWER	21-Jan-22	14:00	09:49	<input checked="" type="checkbox"/>
Flushing Zone C2	Building 1873 SHORE POWER CABLE	24-Jan-22	08:00	11:11	<input checked="" type="checkbox"/>
Flushing Zone C2	Building 1910 BILGE OILY WASTE TRMT	21-Jan-22	10:00	09:44	<input checked="" type="checkbox"/>
Flushing Zone C2	Building 1914 GUARD SHACK BRAVO	24-Jan-22	07:00	15:41	<input checked="" type="checkbox"/>
Flushing Zone C2	Building 197 HOLDING SHED (C2-	20-Jan-22	14:00	10:43	<input checked="" type="checkbox"/>
Flushing Zone C2	Building 206 FIRE STATION (C2-	21-Jan-22	00:00	09:31	<input checked="" type="checkbox"/>
Flushing Zone C2	Building 210 BOUTIKI SHOP, 640 Club Rd	24-Jan-22	09:00	11:07	<input checked="" type="checkbox"/>
Flushing Zone C2	Building 212, REMEDIATION SHOP (C2-	25-Jan-22	10:00	16:11	<input checked="" type="checkbox"/>
Flushing Zone C2	Building 216, AEGIS (C2-BLDG0216)	20-Jan-22	11:00	10:33	<input checked="" type="checkbox"/>
Flushing Zone C2	Building 220 JOINT POW/MIA ACCTG	21-Jan-22	10:00	09:34	<input checked="" type="checkbox"/>
Flushing Zone C2	Building 221 PULLER HALL, MARINE	21-Jan-22	14:00	09:39	<input checked="" type="checkbox"/>
Flushing Zone C2	Building 222 EVENT CENTER, B223 South	20-Jan-22	12:00	14:50	<input checked="" type="checkbox"/>
Flushing Zone C2	Building 224 COMNAV SURGRP MIDPAC	20-Jan-22	09:00	10:53	<input checked="" type="checkbox"/>
Flushing Zone C2	Building 226 CBMU 303/SELF HELP OPS	20-Jan-22	12:00	10:36	<input checked="" type="checkbox"/>
Flushing Zone C2	Building 268 POLICE STATION &	20-Jan-22	16:00	10:18	<input checked="" type="checkbox"/>
Flushing Zone C2	Building 273 CHINFO-NPASE CENTER (C2-24-Jan-22	20-Jan-22	09:00	10:57	<input checked="" type="checkbox"/>
Flushing Zone C2	Building 277 BARRACKS/BAND PRACTICE	20-Jan-22	12:00	10:40	<input checked="" type="checkbox"/>
Flushing Zone C2	Building 278 POLICE STATION (C2-	19-Jan-22	15:00	10:39	<input checked="" type="checkbox"/>
Flushing Zone C2	Building 279 NAVAL RESERVE CENTER	22-Jan-22	08:00	10:37	<input checked="" type="checkbox"/>
Flushing Zone C2	Building 280 ADMIN BLDG-MAR BKS PH	20-Jan-22	07:00	10:41	<input checked="" type="checkbox"/>
Flushing Zone C2	Building 281 MIL ENTRANCE PROCESS	20-Jan-22	11:00	10:43	<input checked="" type="checkbox"/>
Flushing Zone C2	Building 283 CBMU 303 TOOL	20-Jan-22	10:00	10:25	<input checked="" type="checkbox"/>
Flushing Zone C2	Building 284 CBMU SHOP - MARINE BKS	20-Jan-22	11:00	10:23	<input checked="" type="checkbox"/>
Flushing Zone C2	Building 285 MARINE BARRACKS PH (C2-	20-Jan-22	06:00	10:36	<input checked="" type="checkbox"/>
Flushing Zone C2	Building 286 TRAINING BLDG-MARINE	24-Jan-22	00:00	15:45	<input checked="" type="checkbox"/>
Flushing Zone C2	Building 287 ADMIN BLDG, 560 Central	21-Jan-22	12:00	13:24	<input checked="" type="checkbox"/>
Flushing Zone C2	Building 292 GENERAL WAREHOUSE-	20-Jan-22	12:00	09:02	<input checked="" type="checkbox"/>
Flushing Zone C2	Building 324 ELECTRONIC/COMM SHOP	24-Jan-22	10:00	09:11	<input checked="" type="checkbox"/>
Flushing Zone C2	Building 326 NAVAL CRIM INVES SERVICE	20-Jan-22	09:00	10:39	<input checked="" type="checkbox"/>
Flushing Zone C2	Building 327 TRANSPORTATION OFFICE	21-Jan-22	07:00	10:42	<input checked="" type="checkbox"/>
Flushing Zone C2	Building 35 GARAGE/PWC TRANS, 1675	21-Jan-22	09:00	15:36	<input checked="" type="checkbox"/>
Flushing Zone C2	Building 367 NAVSTA/FLT RES ASSN (C2-	20-Jan-22	12:00	09:18	<input checked="" type="checkbox"/>
Flushing Zone C2	Building 368 NAVSTA/FLT RES ASSN (C2-	20-Jan-22	12:00	09:19	<input checked="" type="checkbox"/>
Flushing Zone C2	Building 370 SHIP FORCE TEMP SHOP	20-Jan-22	12:00	09:23	<input checked="" type="checkbox"/>
Flushing Zone C2	Building 371 A, NIOC INDOCTRINATION	20-Jan-22	09:00	10:44	<input checked="" type="checkbox"/>
Flushing Zone C2	Building 371 B JEM SHOP /	20-Jan-22	09:00	10:31	<input checked="" type="checkbox"/>
Flushing Zone C2	Building 38 PWC TRANS DISPATCH	20-Jan-22	13:00	10:19	<input checked="" type="checkbox"/>
Flushing Zone C2	Building 387 PUBLIC TOILET (C2-	20-Jan-22	09:00	09:40	<input checked="" type="checkbox"/>
Flushing Zone C2	Building 388 PROJECT SUPPORT FACILITY	20-Jan-22	12:00	09:21	<input checked="" type="checkbox"/>
Flushing Zone C2	Building 393 GENERAL WAREHOUSE	20-Jan-22	09:00	10:47	<input checked="" type="checkbox"/>
Flushing Zone C2	Building 394 BATTERY SHOP (X51) (C2-	20-Jan-22	09:00	10:48	<input checked="" type="checkbox"/>
Flushing Zone C2	Building 397 TELEPHONE EXCHANGE (C2-	20-Jan-22	09:00	09:33	<input checked="" type="checkbox"/>
Flushing Zone C2	Building 398 B DRYDOCK NO 4	20-Jan-22	09:00	09:36	<input checked="" type="checkbox"/>
Flushing Zone C2	Building 399 B DRYDOCK NO 4	21-Jan-22	09:00	15:50	<input checked="" type="checkbox"/>
Flushing Zone C2	Building 39A STORAGE BUILDING (C2-	24-Jan-22	09:00	11:04	<input checked="" type="checkbox"/>
Flushing Zone C2	Building 39B, COMSUBPAC STORAGE (C2-24-Jan-22	24-Jan-22	09:00	16:07	<input checked="" type="checkbox"/>
Flushing Zone C2	Building 41 SWITCH STATION	21-Jan-22	10:00	09:32	<input checked="" type="checkbox"/>
Flushing Zone C2	Building 546, NGIS - NAVY TDY (HALE	20-Jan-22	11:00	13:30	<input checked="" type="checkbox"/>
Flushing Zone C2	Building 617 NEPMU-6 PESTICIDE	26-Jan-22	06:00	09:45	<input checked="" type="checkbox"/>
Flushing Zone C2	Building 618 NEPMU-6 LAB-PEARL	21-Jan-22	14:00	10:48	<input checked="" type="checkbox"/>
Flushing Zone C2	Building 68 CENTRAL MAINTENANCE	20-Jan-22	13:00	10:23	<input checked="" type="checkbox"/>
Flushing Zone C2	Building 6891 ELECTRICAL SERVICES	24-Jan-22	09:00	11:15	<input checked="" type="checkbox"/>
Flushing Zone C2	Building 899 CRANE AND RIGGER OPS	21-Jan-22	14:00	14:15	<input checked="" type="checkbox"/>
Flushing Zone C2	Building S1071 TRANSF STATION C-4	20-Jan-22	13:00	09:25	<input checked="" type="checkbox"/>
Flushing Zone C2	Building S1072 XFMR STA D-10	20-Jan-22	00:00	09:10	<input checked="" type="checkbox"/>
Flushing Zone C2	Building S1075 TRANSF STATION G-	21-Jan-22	09:00	13:27	<input checked="" type="checkbox"/>
Flushing Zone C2	Building S217 TRANSF STATION D-3	20-Jan-22	12:00	09:07	<input checked="" type="checkbox"/>
Flushing Zone C2	Building S218 TRANSF STATION D9	20-Jan-22	11:00	10:13	<input checked="" type="checkbox"/>
Flushing Zone C2	Building S246 TRANSFORMER BLDG C-1	21-Jan-22	12:00	09:39	<input checked="" type="checkbox"/>
Flushing Zone C2	Building S46 SWSTA L & STA H14A BLDG	20-Jan-22	16:00	10:19	<input checked="" type="checkbox"/>
Flushing Zone C2	Building S54 SWITCHG STA G12 BLDG	20-Jan-22	12:00	09:27	<input checked="" type="checkbox"/>
Flushing Zone C2	Building S549 CABLE VAULT N-	20-Jan-22	13:00	10:21	<input checked="" type="checkbox"/>

Section 2b.1 Flushing Records and Distribution System Pressure Logs During Residential Flushing

Flushing Zone C2

2022-01-17 - 2022-01-27

Flushing Zone C2	Building S826,COMPR HSE/SUBSTA H15	20-Jan-22	00:00	09:24	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Flushing Zone C2	Building S986,TRANSF STATION D11	20-Jan-22	12:00	09:29	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Flushing Zone C2	Building S99,SWITCH STA J BLDG (C2-	20-Jan-22	12:00	11:05	<input checked="" type="checkbox"/>	<input type="checkbox"/>
Flushing Zone C2	Building T15,MAINT STORAGE C700 (C2-	20-Jan-22	12:00	10:14	<input checked="" type="checkbox"/>	<input type="checkbox"/>

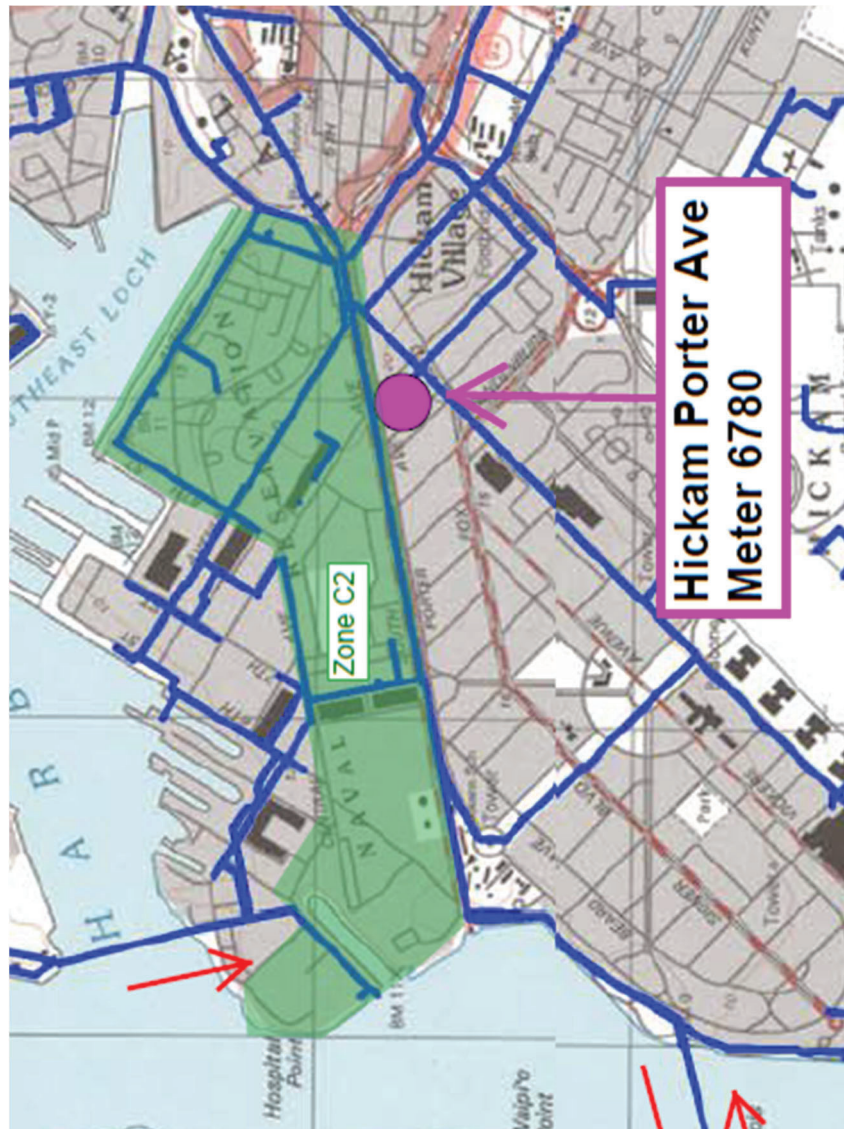
Key

Not Started

No Access

In Progress

Complete



Date	Time	Date/Time	4787	4127	4710	5004	5002	9050	7158	6780	2550	1846	1485
17-Jan-22	0:00:00	17-Jan-2200:00	69.2	32.5	79.0	76.0	76.0	71.3	74.0	65.0	37.0	63.0	65.0
17-Jan-22	0:30:00	17-Jan-2200:30	69.2	33.3	79.3	76.3	76.3	71.9	74.4	65.5	37.0	63.0	65.4
17-Jan-22	1:00:00	17-Jan-2201:00	69.2	33.1	79.3	76.0	76.3	72.0	74.5	66.0	37.2	63.4	65.7
17-Jan-22	1:30:00	17-Jan-2201:30	68.3	32.6	79.3	76.2	76.6	72.2	74.2	65.7	37.6	64.0	65.9
17-Jan-22	2:00:00	17-Jan-2202:00	61.1	32.2	75.3	70.3	70.2	71.0	71.6	63.8	36.0	62.2	64.2
17-Jan-22	2:30:00	17-Jan-2202:30	61.1	31.6	73.0	70.0	70.0	70.0	71.0	64.0	36.0	62.0	64.0
17-Jan-22	3:00:00	17-Jan-2203:00	61.1	31.8	73.0	70.0	71.0	70.0	71.0	63.7	36.0	61.4	64.0
17-Jan-22	3:30:00	17-Jan-2203:30	61.1	33.5	73.0	69.8	70.2	69.8	70.8	63.1	36.0	60.9	64.0
17-Jan-22	4:00:00	17-Jan-2204:00	61.1	33.5	72.1	69.0	69.4	68.4	70.0	62.3	34.7	59.8	62.0
17-Jan-22	4:30:00	17-Jan-2204:30	61.1	33.5	72.0	68.9	69.0	68.0	70.0	62.0	34.0	59.6	62.0
17-Jan-22	5:00:00	17-Jan-2205:00	61.1	35.0	71.4	68.0	68.7	68.0	69.7	61.6	34.0	59.0	62.0
17-Jan-22	5:30:00	17-Jan-2205:30	61.1	35.5	71.0	68.0	69.0	68.0	69.0	61.0	33.8	59.0	61.4
17-Jan-22	6:00:00	17-Jan-2206:00	63.4	35.5	71.0	69.5	70.1	68.4	69.0	61.5	33.3	59.3	62.7
17-Jan-22	6:30:00	17-Jan-2206:30	68.5	35.1	77.8	75.0	75.9	70.0	73.0	64.0	35.0	61.0	64.0
17-Jan-22	7:00:00	17-Jan-2207:00	68.9	34.5	78.2	75.0	75.4	70.2	73.0	64.0	35.0	61.1	64.0
17-Jan-22	7:30:00	17-Jan-2207:30	70.5	34.5	79.0	75.9	76.7	71.0	73.3	65.0	36.1	62.2	65.0
17-Jan-22	8:00:00	17-Jan-2208:00	70.5	33.8	79.0	76.0	75.5	71.0	73.0	65.0	36.5	63.0	65.0
17-Jan-22	8:30:00	17-Jan-2208:30	70.5	33.5	79.0	76.0	75.6	71.3	73.6	65.0	36.6	63.0	65.0
17-Jan-22	9:00:00	17-Jan-2209:00	70.5	33.6	79.0	76.0	76.0	71.4	74.0	65.0	37.0	63.0	65.0
17-Jan-22	9:30:00	17-Jan-2209:30	70.5	34.8	79.0	76.0	76.0	72.0	74.0	65.1	37.0	63.0	65.0
17-Jan-22	10:00:00	17-Jan-2210:00	70.5	35.4	79.1	76.0	76.1	72.0	74.0	65.7	37.0	63.0	65.0
17-Jan-22	10:30:00	17-Jan-2210:30	70.5	33.9	80.0	76.0	76.2	72.0	74.0	65.7	37.0	63.0	65.3
17-Jan-22	11:00:00	17-Jan-2211:00	64.9	33.6	77.8	74.1	74.4	71.4	72.9	65.0	36.9	61.9	65.0
17-Jan-22	11:30:00	17-Jan-2211:30	61.3	34.5	72.9	69.3	69.6	69.6	71.0	63.0	35.5	61.1	63.0
17-Jan-22	12:00:00	17-Jan-2212:00	61.3	34.5	72.9	69.0	69.0	69.0	71.0	63.0	35.0	61.0	63.0
17-Jan-22	12:30:00	17-Jan-2212:30	61.3	34.5	72.0	69.0	69.0	69.0	70.8	63.0	35.0	61.0	63.0
17-Jan-22	13:00:00	17-Jan-2213:00	61.3	32.2	72.0	69.0	69.0	69.0	70.3	63.0	35.0	60.8	63.0
17-Jan-22	13:30:00	17-Jan-2213:30	61.3	31.6	72.0	69.0	69.0	69.0	70.0	62.5	35.0	60.6	63.0
17-Jan-22	14:00:00	17-Jan-2214:00	62.7	31.6	72.0	69.0	68.5	68.8	70.0	62.1	34.1	60.0	62.8
17-Jan-22	14:30:00	17-Jan-2214:30	69.7	31.6	78.4	74.8	75.1	69.8	73.3	65.0	36.0	61.7	65.0
17-Jan-22	15:00:00	17-Jan-2215:00	69.7	32.3	79.0	75.8	76.0	71.0	74.0	65.0	36.2	62.3	65.0
17-Jan-22	15:30:00	17-Jan-2215:30	69.7	32.5	79.0	75.9	76.0	71.0	74.0	65.0	37.0	62.8	65.0
17-Jan-22	16:00:00	17-Jan-2216:00	69.7	32.5	79.0	76.0	76.0	71.4	74.0	65.0	37.0	63.0	65.0
17-Jan-22	16:30:00	17-Jan-2216:30	69.7	32.5	79.3	76.0	76.3	72.0	74.0	65.1	37.0	63.0	65.0
17-Jan-22	17:00:00	17-Jan-2217:00	69.7	32.5	79.0	76.0	76.4	72.0	74.0	66.0	37.0	63.0	65.0
17-Jan-22	17:30:00	17-Jan-2217:30	69.7	32.5	79.0	76.0	76.2	71.7	74.0	66.0	37.0	63.0	65.3

17-Jan-22	18:00:00	17-Jan-22	18:00:00	68.7	32.5	79.0	75.3	75.3	71.6	74.0	65.2	37.0	62.9	65.0
17-Jan-22	18:30:00	17-Jan-22	18:30:00	60.6	32.1	74.0	70.5	70.4	69.4	72.0	63.7	35.2	59.7	63.2
17-Jan-22	19:00:00	17-Jan-22	19:00:00	60.6	31.6	71.9	68.7	68.6	68.1	70.0	62.0	34.6	60.0	62.3
17-Jan-22	19:30:00	17-Jan-22	19:30:00	60.4	31.6	71.0	68.0	68.0	68.0	70.0	62.0	34.0	59.9	62.0
17-Jan-22	20:00:00	17-Jan-22	20:00:00	58.6	31.7	71.0	68.0	68.0	67.7	69.0	61.0	34.0	59.3	61.6
17-Jan-22	20:30:00	17-Jan-22	20:30:00	58.6	32.5	70.4	67.0	67.7	67.0	69.0	61.0	33.2	59.0	61.0
17-Jan-22	21:00:00	17-Jan-22	21:00:00	58.6	32.5	71.0	67.3	67.4	67.0	69.0	61.0	33.0	59.0	61.0
17-Jan-22	21:30:00	17-Jan-22	21:30:00	68.7	32.5	75.5	71.9	72.3	70.4	71.7	62.9	34.5	60.8	63.1
17-Jan-22	22:00:00	17-Jan-22	22:00:00	68.6	32.5	78.0	75.0	74.9	70.0	73.0	64.0	35.6	61.7	64.0
17-Jan-22	22:30:00	17-Jan-22	22:30:00	68.6	32.5	78.1	75.1	75.4	70.6	73.0	64.0	36.0	62.0	64.0
17-Jan-22	23:00:00	17-Jan-22	23:00:00	68.6	32.6	79.0	75.7	75.5	71.0	73.0	64.3	36.0	62.0	64.3
17-Jan-22	23:30:00	17-Jan-22	23:30:00	68.6	33.5	79.0	75.4	75.9	71.0	74.0	65.0	36.3	62.6	65.0
18-Jan-22	0:00:00	18-Jan-22	0:00:00	68.6	33.5	79.0	76.0	76.0	71.0	73.7	65.0	36.8	63.0	65.0
18-Jan-22	0:30:00	18-Jan-22	0:30:00	69.5	34.4	79.4	76.3	76.4	71.6	74.0	65.2	37.0	63.0	65.2
18-Jan-22	1:00:00	18-Jan-22	1:00:00	70.6	34.5	79.4	76.2	76.7	72.0	74.0	66.0	37.0	63.1	66.0
18-Jan-22	1:30:00	18-Jan-22	1:30:00	70.6	34.5	80.0	76.9	76.7	72.3	74.7	66.0	38.0	63.7	66.0
18-Jan-22	2:00:00	18-Jan-22	2:00:00	69.3	34.5	80.0	77.0	77.8	72.7	75.0	66.0	38.0	64.0	66.0
18-Jan-22	2:30:00	18-Jan-22	2:30:00	62.3	34.5	73.7	70.8	71.4	70.4	72.1	64.0	36.6	62.4	64.0
18-Jan-22	3:00:00	18-Jan-22	3:00:00	62.3	34.5	73.0	70.0	71.0	70.0	71.2	64.0	36.0	62.0	64.0
18-Jan-22	3:30:00	18-Jan-22	3:30:00	62.3	34.5	73.0	70.0	70.7	70.0	71.0	64.0	36.0	62.0	64.0
18-Jan-22	4:00:00	18-Jan-22	4:00:00	62.3	34.5	73.0	69.8	70.0	70.0	71.0	63.2	35.5	61.7	63.2
18-Jan-22	4:30:00	18-Jan-22	4:30:00	61.3	34.5	73.0	69.9	70.0	69.8	71.0	63.0	35.0	61.0	63.0
18-Jan-22	5:00:00	18-Jan-22	5:00:00	60.3	34.5	72.3	69.0	70.0	69.0	70.5	63.0	35.0	60.7	63.0
18-Jan-22	5:30:00	18-Jan-22	5:30:00	60.3	34.2	72.0	69.0	69.2	69.0	70.0	62.1	35.0	61.0	62.4
18-Jan-22	6:00:00	18-Jan-22	6:00:00	60.3	33.0	72.0	69.0	69.0	69.0	70.0	62.0	35.0	61.0	62.0
18-Jan-22	6:30:00	18-Jan-22	6:30:00	60.3	33.3	72.0	69.0	69.0	69.0	70.0	62.0	35.0	61.0	62.0
18-Jan-22	7:00:00	18-Jan-22	7:00:00	66.7	34.7	75.4	69.0	69.0	69.0	70.0	62.0	35.0	61.0	62.0
18-Jan-22	7:30:00	18-Jan-22	7:30:00	68.8	35.5	78.0	69.0	69.0	69.0	70.0	62.0	35.0	61.0	62.0
18-Jan-22	8:00:00	18-Jan-22	8:00:00	68.8	35.5	78.0	69.0	69.0	69.0	70.0	62.0	35.0	61.0	62.0
18-Jan-22	8:30:00	18-Jan-22	8:30:00	68.2	35.5	78.0	70.9	71.0	69.3	71.2	62.2	35.4	61.2	62.9
18-Jan-22	9:00:00	18-Jan-22	9:00:00	68.7	35.5	78.0	75.0	74.7	69.6	72.4	63.3	34.9	60.7	62.9
18-Jan-22	9:30:00	18-Jan-22	9:30:00	68.7	35.5	77.7	74.4	74.4	69.6	72.7	63.4	35.0	60.4	63.4
18-Jan-22	10:00:00	18-Jan-22	10:00:00	68.7	35.8	78.0	74.7	75.0	70.0	73.0	64.0	35.0	61.0	63.5
18-Jan-22	10:30:00	18-Jan-22	10:30:00	68.7	35.5	78.0	75.0	75.6	70.0	73.0	64.0	35.0	60.7	63.1
18-Jan-22	11:00:00	18-Jan-22	11:00:00	68.7	35.5	78.0	75.0	75.2	70.0	73.0	63.7	35.0	61.0	64.3
18-Jan-22	11:30:00	18-Jan-22	11:30:00	68.7	35.5	78.5	75.3	75.4	70.0	73.0	64.0	35.3	61.0	64.0
18-Jan-22	12:00:00	18-Jan-22	12:00:00	68.7	35.9	78.0	75.0	75.6	70.0	73.0	64.0	35.7	61.3	64.0
18-Jan-22	12:30:00	18-Jan-22	12:30:00	68.7	36.4	78.2	75.0	75.2	70.3	73.0	64.9	36.0	61.6	64.0

18-Jan-22	13:00:00	18-Jan-2213:00	68.7	35.2	78.7	75.0	75.4	70.6	73.0	64.7	36.0	61.3	64.0
18-Jan-22	13:30:00	18-Jan-2213:30	69.9	32.3	79.0	76.0	75.7	71.2	73.5	65.3	36.2	62.4	64.5
18-Jan-22	14:00:00	18-Jan-2214:00	70.4	32.7	79.3	76.0	76.0	72.0	74.0	65.3	37.0	63.0	65.4
18-Jan-22	14:30:00	18-Jan-2214:30	70.4	34.5	80.0	76.1	76.1	72.0	74.0	65.5	37.0	63.0	65.8
18-Jan-22	15:00:00	18-Jan-2215:00	67.6	34.5	78.7	75.2	76.5	72.0	74.3	65.9	37.3	63.0	65.9
18-Jan-22	15:30:00	18-Jan-2215:30	61.3	34.2	72.8	68.8	72.3	70.2	70.3	63.2	35.0	61.3	63.8
18-Jan-22	16:00:00	18-Jan-2216:00	61.1	33.5	72.0	68.7	69.3	69.0	70.5	63.0	35.0	61.0	63.0
18-Jan-22	16:30:00	18-Jan-2216:30	61.4	33.2	72.0	68.7	68.9	69.0	70.6	63.0	35.0	61.0	63.0
18-Jan-22	17:00:00	18-Jan-2217:00	61.4	32.5	72.0	68.9	68.6	68.6	70.0	63.0	35.0	60.6	63.0
18-Jan-22	17:30:00	18-Jan-2217:30	60.4	33.3	71.7	68.0	68.8	68.0	70.0	62.0	34.1	60.0	62.1
18-Jan-22	18:00:00	18-Jan-2218:00	59.4	33.5	71.0	68.0	67.7	68.0	69.3	61.7	34.0	59.7	62.0
18-Jan-22	18:30:00	18-Jan-2218:30	59.4	33.5	70.5	67.5	67.5	67.2	69.0	61.1	34.0	59.3	61.4
18-Jan-22	19:00:00	18-Jan-2219:00	66.8	33.5	74.9	71.4	71.5	68.9	71.1	64.3	34.4	60.1	63.0
18-Jan-22	19:30:00	18-Jan-2219:30	68.0	14.6	78.0	74.0	74.5	70.0	72.2	63.6	35.3	61.4	63.7
18-Jan-22	20:00:00	18-Jan-2220:00	68.0	30.6	78.0	74.6	74.1	70.0	72.7	64.0	36.0	61.5	63.7
18-Jan-22	20:30:00	18-Jan-2220:30	68.0	33.9	78.0	75.0	75.0	70.0	73.0	64.0	36.0	61.6	64.0
18-Jan-22	21:00:00	18-Jan-2221:00	68.0	33.9	78.0	75.0	75.0	70.3	73.0	64.0	36.0	62.0	64.4
18-Jan-22	21:30:00	18-Jan-2221:30	69.0	33.9	78.7	75.1	75.1	71.0	73.2	64.5	36.0	62.3	65.0
18-Jan-22	22:00:00	18-Jan-2222:00	70.0	33.1	79.0	76.0	75.7	71.0	73.4	65.0	36.6	62.5	64.7
18-Jan-22	22:30:00	18-Jan-2222:30	70.0	32.9	79.0	76.0	76.3	71.4	74.0	65.0	37.0	62.7	65.0
18-Jan-22	23:00:00	18-Jan-2223:00	70.0	33.9	79.0	76.0	76.0	72.0	74.0	65.3	37.0	63.0	65.0
18-Jan-22	23:30:00	18-Jan-2223:30	70.0	33.9	79.7	76.4	76.7	72.0	74.2	65.8	37.0	63.0	65.8
19-Jan-22	0:00:00	19-Jan-2200:00	70.0	33.9	79.7	76.2	76.7	72.0	74.1	66.0	37.0	63.2	66.0
19-Jan-22	0:30:00	19-Jan-2200:30	69.0	33.9	80.0	77.0	77.3	72.1	75.0	66.0	37.5	64.0	66.0
19-Jan-22	1:00:00	19-Jan-2201:00	61.9	33.9	76.4	71.4	71.3	70.6	71.8	64.1	36.2	62.0	64.2
19-Jan-22	1:30:00	19-Jan-2201:30	61.9	34.9	73.0	70.0	70.0	70.0	71.0	64.0	36.0	61.7	64.0
19-Jan-22	2:00:00	19-Jan-2202:00	61.9	34.9	73.0	70.0	70.0	70.0	71.0	63.1	36.0	61.4	64.0
19-Jan-22	2:30:00	19-Jan-2202:30	61.9	35.3	73.0	70.0	70.0	70.0	71.0	63.0	36.0	61.5	64.0
19-Jan-22	3:00:00	19-Jan-2203:00	61.9	35.1	73.0	70.0	70.0	69.9	71.0	63.0	35.8	61.0	63.1
19-Jan-22	3:30:00	19-Jan-2203:30	61.9	32.9	73.0	69.5	69.7	69.3	71.0	63.0	35.0	61.0	63.0
19-Jan-22	4:00:00	19-Jan-2204:00	61.9	33.7	72.0	69.0	70.0	69.0	70.8	63.0	35.0	61.0	63.0
19-Jan-22	4:30:00	19-Jan-2204:30	61.3	36.8	72.0	69.0	69.7	69.0	70.0	62.9	35.0	60.8	63.0
19-Jan-22	5:00:00	19-Jan-2205:00	59.8	36.8	72.0	68.6	69.0	68.3	70.0	62.0	34.2	60.0	62.2
19-Jan-22	5:30:00	19-Jan-2205:30	64.9	36.8	73.5	71.7	70.7	70.0	70.9	62.7	34.6	60.9	62.7
19-Jan-22	6:00:00	19-Jan-2206:00	68.9	35.9	78.2	75.4	76.0	70.7	73.0	64.0	36.0	62.0	64.0
19-Jan-22	6:30:00	19-Jan-2206:30	68.9	35.4	78.2	75.0	75.2	70.7	73.0	64.0	36.0	62.1	64.0
19-Jan-22	7:00:00	19-Jan-2207:00	68.9	34.9	78.0	75.0	75.0	70.6	72.7	63.5	35.6	61.8	64.1
19-Jan-22	7:30:00	19-Jan-2207:30	68.9	34.9	78.0	75.0	75.0	69.8	72.7	63.9	34.7	61.0	63.6

Enclosure (3)

19-Jan-22	8:00:00	19-Jan-2208:00	68.9	34.1	78.0	75.0	74.4	69.6	72.9	63.0	35.0	61.0	63.6
19-Jan-22	8:30:00	19-Jan-2208:30	68.9	32.8	78.0	74.7	74.5	69.2	72.0	63.0	34.7	60.6	63.3
19-Jan-22	9:00:00	19-Jan-2209:00	68.9	32.8	77.7	74.7	74.6	69.7	72.0	63.4	34.9	60.5	63.0
19-Jan-22	9:30:00	19-Jan-2209:30	68.9	33.8	78.0	74.8	75.0	69.0	72.3	63.1	34.5	60.3	62.5
19-Jan-22	10:00:00	19-Jan-2210:00	68.9	35.1	78.0	74.6	74.2	69.3	72.4	63.2	35.0	60.8	63.0
19-Jan-22	10:30:00	19-Jan-2210:30	68.9	35.7	78.0	75.0	75.0	70.0	73.0	63.7	35.0	61.0	63.6
19-Jan-22	11:00:00	19-Jan-2211:00	68.9	33.4	78.4	74.9	75.4	70.0	73.0	64.0	35.0	61.0	63.5
19-Jan-22	11:30:00	19-Jan-2211:30	68.9	32.8	78.2	74.8	75.2	70.0	73.0	64.0	35.3	61.0	63.9
19-Jan-22	12:00:00	19-Jan-2212:00	68.9	33.3	78.3	75.0	75.3	70.0	73.0	64.0	35.0	61.0	64.0
19-Jan-22	12:30:00	19-Jan-2212:30	68.9	36.5	78.3	75.0	75.3	70.0	73.0	64.0	35.0	61.0	63.7
19-Jan-22	13:00:00	19-Jan-2213:00	68.9	36.7	78.0	75.0	75.0	70.0	73.0	63.4	35.4	60.7	63.3
19-Jan-22	13:30:00	19-Jan-2213:30	68.9	36.4	78.2	75.4	75.2	70.0	73.0	64.0	35.4	61.0	63.6
19-Jan-22	14:00:00	19-Jan-2214:00	68.9	36.5	79.0	75.7	76.0	70.3	73.0	64.0	35.9	61.0	64.0
19-Jan-22	14:30:00	19-Jan-2214:30	68.9	35.6	78.4	75.0	75.4	70.0	73.0	64.0	35.8	61.0	64.0
19-Jan-22	15:00:00	19-Jan-2215:00	68.9	32.2	79.0	75.3	75.7	70.5	73.0	64.1	36.0	61.6	64.0
19-Jan-22	15:30:00	19-Jan-2215:30	71.0	32.7	79.0	76.2	76.3	71.9	73.7	65.0	36.7	62.8	64.8
19-Jan-22	16:00:00	19-Jan-2216:00	71.0	34.3	79.3	76.0	76.5	72.0	74.0	65.6	37.0	63.0	65.3
19-Jan-22	16:30:00	19-Jan-2216:30	64.7	34.8	77.1	74.3	74.4	71.0	72.7	64.6	36.7	62.4	64.4
19-Jan-22	17:00:00	19-Jan-2217:00	60.6	34.8	72.2	69.0	70.0	69.0	71.0	63.0	35.0	60.9	63.0
19-Jan-22	17:30:00	19-Jan-2217:30	60.6	34.8	72.0	69.0	69.1	69.0	70.0	63.0	35.0	60.9	63.0
19-Jan-22	18:00:00	19-Jan-2218:00	60.6	34.0	71.2	68.2	67.9	68.4	70.0	62.1	35.0	60.0	62.4
19-Jan-22	18:30:00	19-Jan-2218:30	60.6	33.8	71.3	68.0	68.3	68.1	70.0	62.0	34.0	60.0	62.0
19-Jan-22	19:00:00	19-Jan-2219:00	60.6	33.8	71.0	68.0	68.0	68.0	69.2	62.0	34.0	59.6	62.0
19-Jan-22	19:30:00	19-Jan-2219:30	61.5	33.8	71.2	67.6	68.0	67.5	69.3	61.3	34.2	59.0	62.0
19-Jan-22	20:00:00	19-Jan-2220:00	68.5	33.8	78.0	74.0	74.6	70.0	72.0	63.4	35.2	61.2	64.0
19-Jan-22	20:30:00	19-Jan-2220:30	68.5	33.8	78.0	74.6	74.9	70.0	73.0	64.0	36.0	61.8	64.0
19-Jan-22	21:00:00	19-Jan-2221:00	68.5	33.8	78.5	75.0	75.2	70.7	73.0	64.0	36.0	62.0	64.3
19-Jan-22	21:30:00	19-Jan-2221:30	68.5	33.8	79.0	75.4	76.0	70.7	73.4	65.0	36.0	62.3	64.5
19-Jan-22	22:00:00	19-Jan-2222:00	68.5	33.8	79.0	76.0	76.0	71.0	74.0	65.0	36.3	62.7	65.0
19-Jan-22	22:30:00	19-Jan-2222:30	70.3	33.8	79.0	76.0	76.3	71.4	74.0	65.2	37.0	63.0	65.0
19-Jan-22	23:00:00	19-Jan-2223:00	70.5	33.8	79.6	76.0	76.8	72.0	74.0	66.0	37.0	63.0	65.0
19-Jan-22	23:30:00	19-Jan-2223:30	70.5	33.8	79.9	76.9	77.0	72.0	74.4	66.0	37.4	63.5	66.0
20-Jan-22	0:00:00	20-Jan-2200:00	70.5	33.8	80.0	77.0	77.0	72.0	74.7	66.0	37.7	63.3	66.0
20-Jan-22	0:30:00	20-Jan-2200:30	67.8	33.8	79.8	77.0	77.6	72.6	75.0	65.7	37.8	63.1	65.7
20-Jan-22	1:00:00	20-Jan-2201:00	62.4	34.2	73.0	71.9	74.2	70.0	72.6	64.0	36.0	61.9	64.0
20-Jan-22	1:30:00	20-Jan-2201:30	62.4	33.6	73.0	70.0	70.6	70.0	71.9	64.0	36.0	62.0	64.0
20-Jan-22	2:00:00	20-Jan-2202:00	62.4	31.9	73.0	70.0	70.0	70.0	71.0	64.0	36.0	61.6	64.0
20-Jan-22	2:30:00	20-Jan-2202:30	62.4	31.9	73.0	70.0	70.0	70.0	71.0	63.4	36.0	61.8	64.0

20-Jan-22	3:00:00	20-Jan-2203:00	62.4	33.7	73.0	70.0	70.0	70.0	71.0	63.3	36.0	61.3	63.7
20-Jan-22	3:30:00	20-Jan-2203:30	60.6	33.9	73.0	69.7	70.1	69.7	71.0	63.5	35.7	61.0	63.6
20-Jan-22	4:00:00	20-Jan-2204:00	60.4	34.8	72.8	70.0	70.2	69.2	71.0	63.0	35.1	61.0	63.0
20-Jan-22	4:30:00	20-Jan-2204:30	60.4	34.8	72.3	69.3	69.9	69.0	70.5	63.0	35.0	61.0	63.0
20-Jan-22	5:00:00	20-Jan-2205:00	60.4	34.8	72.0	69.0	69.3	68.4	70.0	62.1	34.7	60.3	62.7
20-Jan-22	5:30:00	20-Jan-2205:30	60.4	35.7	72.0	69.0	69.0	68.3	70.0	62.0	34.5	60.0	62.5
20-Jan-22	6:00:00	20-Jan-2206:00	69.1	34.9	77.6	74.6	74.3	70.2	71.8	63.4	35.3	61.5	63.3
20-Jan-22	6:30:00	20-Jan-2206:30	69.7	34.8	78.0	75.0	75.4	70.3	73.0	64.0	36.0	62.0	64.0
20-Jan-22	7:00:00	20-Jan-2207:00	69.7	35.4	78.3	75.3	75.5	70.6	73.0	64.3	36.0	62.0	64.0
20-Jan-22	7:30:00	20-Jan-2207:30	69.7	36.1	78.8	75.3	76.3	70.7	73.0	64.0	36.0	62.0	64.0
20-Jan-22	8:00:00	20-Jan-2208:00	69.6	36.0	79.0	75.3	75.7	71.0	73.3	64.0	36.0	62.0	64.0
20-Jan-22	8:30:00	20-Jan-2208:30	69.5	35.7	78.5	75.4	75.3	70.9	73.2	64.0	36.0	61.2	64.3
20-Jan-22	9:00:00	20-Jan-2209:00	69.6	34.8	79.3	75.7	75.6	70.5	73.1	64.4	36.3	63.4	63.5
20-Jan-22	9:30:00	20-Jan-2209:30	70.0	34.8	79.3	75.4	75.7	70.7	73.3	64.7	36.0	62.0	65.0
20-Jan-22	10:00:00	20-Jan-2210:00	70.0	34.1	79.0	75.4	75.7	71.0	73.3	65.0	36.9	62.7	65.0
20-Jan-22	10:30:00	20-Jan-2210:30	70.0	34.2	79.0	76.0	75.7	71.1	73.7	65.0	37.0	63.0	65.0
20-Jan-22	11:00:00	20-Jan-2211:00	70.0	35.4	79.6	76.3	76.3	72.0	74.0	65.0	37.0	63.0	65.1
20-Jan-22	11:30:00	20-Jan-2211:30	60.8	35.3	75.0	71.4	72.0	70.1	71.8	63.4	35.8	61.8	63.7
20-Jan-22	12:00:00	20-Jan-2212:00	60.5	35.7	73.0	69.5	70.0	69.0	71.0	63.0	35.3	61.0	63.3
20-Jan-22	12:30:00	20-Jan-2212:30	60.5	35.7	72.4	69.1	69.6	69.0	71.0	63.0	35.0	61.0	63.0
20-Jan-22	13:00:00	20-Jan-2213:00	60.5	35.7	72.5	69.6	69.8	69.0	70.4	63.0	34.7	61.0	63.0
20-Jan-22	13:30:00	20-Jan-2213:30	68.8	35.7	74.4	73.3	73.2	69.8	72.7	64.2	35.7	62.1	64.4
20-Jan-22	14:00:00	20-Jan-2214:00	70.2	35.7	79.0	76.0	76.0	70.5	74.0	65.0	36.6	62.7	65.0
20-Jan-22	14:30:00	20-Jan-2214:30	70.1	35.6	79.0	76.0	75.7	71.0	73.7	65.1	37.0	63.2	65.0
20-Jan-22	15:00:00	20-Jan-2215:00	70.3	33.4	79.0	76.0	76.0	71.0	74.0	65.2	37.0	62.9	65.0
20-Jan-22	15:30:00	20-Jan-2215:30	70.3	32.8	79.3	76.3	76.3	71.8	74.0	65.7	37.0	63.0	65.1
20-Jan-22	16:00:00	20-Jan-2216:00	70.3	32.8	79.7	76.0	76.3	72.0	74.0	66.0	37.0	63.0	65.7
20-Jan-22	16:30:00	20-Jan-2216:30	65.4	33.5	77.2	73.9	74.2	71.2	73.2	65.5	36.5	62.4	63.6
20-Jan-22	17:00:00	20-Jan-2217:00	61.7	33.8	73.0	69.7	70.0	69.5	71.0	63.4	36.0	61.3	63.4
20-Jan-22	17:30:00	20-Jan-2217:30	61.7	33.8	72.7	69.4	69.7	69.3	71.0	63.0	35.0	61.0	63.0
20-Jan-22	18:00:00	20-Jan-2218:00	61.7	33.8	72.0	68.9	69.1	69.0	70.5	63.0	35.0	61.0	63.0
20-Jan-22	18:30:00	20-Jan-2218:30	61.7	33.8	72.0	68.8	68.5	68.7	70.0	62.7	35.0	60.6	63.0
20-Jan-22	19:00:00	20-Jan-2219:00	60.1	33.8	71.9	68.4	68.3	68.1	70.0	62.0	34.0	60.0	62.3
20-Jan-22	19:30:00	20-Jan-2219:30	59.7	33.8	71.0	68.0	68.2	68.0	69.2	61.7	34.0	59.7	62.0
20-Jan-22	20:00:00	20-Jan-2220:00	59.7	33.8	71.0	68.0	68.1	68.0	69.3	61.6	34.0	60.0	62.0
20-Jan-22	20:30:00	20-Jan-2220:30	61.8	34.5	71.8	68.8	68.7	68.2	69.0	61.3	34.0	59.5	62.0
20-Jan-22	21:00:00	20-Jan-2221:00	68.4	31.9	77.8	74.5	75.0	70.0	72.6	63.0	35.8	62.0	63.9
20-Jan-22	21:30:00	20-Jan-2221:30	68.4	31.8	78.6	75.6	75.7	70.6	73.0	64.0	36.0	62.0	64.0

20-Jan-22	22:00:00	20-Jan-2222:00	68.4	32.3	78.7	75.3	76.0	71.0	73.0	64.9	36.0	62.0	64.6
20-Jan-22	22:30:00	20-Jan-2222:30	68.8	33.4	79.0	75.7	76.4	71.0	73.7	65.0	36.4	62.6	65.0
20-Jan-22	23:00:00	20-Jan-2223:00	70.4	33.8	79.0	76.0	76.2	71.2	73.7	65.0	37.0	63.0	65.0
20-Jan-22	23:30:00	20-Jan-2223:30	70.4	34.7	79.0	76.0	76.3	71.7	74.0	65.0	37.0	63.0	65.0
21-Jan-22	0:00:00	21-Jan-2200:00	70.4	33.8	79.0	76.0	76.0	71.4	74.0	65.0	37.0	63.0	65.0
21-Jan-22	0:30:00	21-Jan-2200:30	70.4	33.8	79.9	76.9	76.9	72.0	74.4	65.7	37.4	63.2	65.4
21-Jan-22	1:00:00	21-Jan-2201:00	70.4	34.7	80.0	77.0	77.0	72.3	74.4	66.0	37.7	63.1	66.0
21-Jan-22	1:30:00	21-Jan-2201:30	68.5	35.7	80.3	77.0	77.3	72.5	75.0	66.4	37.9	63.0	65.9
21-Jan-22	2:00:00	21-Jan-2202:00	62.4	34.7	76.3	70.7	70.9	70.2	72.0	64.0	36.0	61.5	64.0
21-Jan-22	2:30:00	21-Jan-2202:30	62.4	33.8	73.2	70.0	70.8	70.0	72.0	64.0	36.0	62.0	64.0
21-Jan-22	3:00:00	21-Jan-2203:00	62.4	34.8	73.0	70.0	70.4	70.0	71.3	64.0	36.0	62.0	64.0
21-Jan-22	3:30:00	21-Jan-2203:30	62.4	35.7	73.0	70.0	70.5	70.0	71.0	64.0	36.0	62.0	64.0
21-Jan-22	4:00:00	21-Jan-2204:00	62.0	35.7	73.0	69.7	70.0	69.7	71.0	63.3	35.9	61.2	63.6
21-Jan-22	4:30:00	21-Jan-2204:30	60.4	35.7	73.0	70.0	70.3	69.0	71.0	63.0	35.0	61.0	63.0
21-Jan-22	5:00:00	21-Jan-2205:00	60.4	35.7	72.2	68.9	69.7	68.2	70.4	62.3	34.7	60.1	62.3
21-Jan-22	5:30:00	21-Jan-2205:30	60.4	35.7	71.0	68.0	68.3	67.7	69.3	61.0	33.3	58.4	61.0
21-Jan-22	6:00:00	21-Jan-2206:00	64.7	34.8	72.4	74.5	70.9	69.3	70.1	61.1	33.6	59.1	61.6
21-Jan-22	6:30:00	21-Jan-2206:30	68.2	34.7	77.7	74.1	74.4	69.3	72.0	63.0	35.0	60.0	63.0
21-Jan-22	7:00:00	21-Jan-2207:00	68.2	34.7	77.0	74.0	74.6	69.3	72.0	63.0	35.0	60.0	63.0
21-Jan-22	7:30:00	21-Jan-2207:30	68.2	34.7	77.1	74.4	74.1	69.8	72.5	63.0	35.0	60.0	63.0
21-Jan-22	8:00:00	21-Jan-2208:00	68.2	34.3	77.4	74.2	74.5	69.8	72.0	63.0	34.7	60.0	63.0
21-Jan-22	8:30:00	21-Jan-2208:30	68.2	34.7	77.7	74.4	74.1	69.6	72.0	63.0	34.7	60.0	63.0
21-Jan-22	9:00:00	21-Jan-2209:00	68.2	34.7	78.0	74.3	74.8	69.3	72.0	63.0	34.7	60.0	63.0
21-Jan-22	9:30:00	21-Jan-2209:30	68.1	34.6	77.9	74.6	74.6	69.9	72.0	63.5	35.0	60.0	63.0
21-Jan-22	10:00:00	21-Jan-2210:00	67.9	33.8	77.8	74.5	74.5	70.0	72.3	63.3	34.4	60.0	63.0
21-Jan-22	10:30:00	21-Jan-2210:30	67.9	33.8	78.0	74.1	74.7	69.7	72.0	63.4	34.6	60.0	63.0
21-Jan-22	11:00:00	21-Jan-2211:00	68.7	34.2	77.4	74.7	73.8	69.4	72.8	64.0	34.8	60.0	63.0
21-Jan-22	11:30:00	21-Jan-2211:30	70.1	35.7	78.0	75.0	75.0	69.7	73.0	64.0	35.0	60.0	63.0
21-Jan-22	12:00:00	21-Jan-2212:00	70.1	35.7	78.0	74.7	74.6	70.0	73.0	64.0	35.0	60.0	63.5
21-Jan-22	12:30:00	21-Jan-2212:30	70.1	35.7	78.5	75.8	75.6	70.8	73.0	64.7	35.6	61.5	64.3
21-Jan-22	13:00:00	21-Jan-2213:00	70.1	35.7	79.0	76.0	75.7	71.0	73.7	65.0	36.0	62.0	65.0
21-Jan-22	13:30:00	21-Jan-2213:30	70.1	35.7	79.0	76.0	76.2	71.0	74.0	65.0	36.6	62.4	65.0
21-Jan-22	14:00:00	21-Jan-2214:00	70.1	35.7	78.9	75.9	76.4	71.0	74.0	65.0	37.0	63.0	65.0
21-Jan-22	14:30:00	21-Jan-2214:30	70.1	35.7	78.8	75.3	75.7	71.3	73.4	65.0	37.0	62.4	65.0
21-Jan-22	15:00:00	21-Jan-2215:00	70.1	35.7	79.0	75.8	76.0	71.8	73.9	66.0	37.0	63.0	65.0
21-Jan-22	15:30:00	21-Jan-2215:30	65.3	36.5	77.5	74.5	74.8	71.4	73.2	65.3	36.3	62.6	64.8
21-Jan-22	16:00:00	21-Jan-2216:00	61.1	36.5	73.0	69.3	69.6	69.3	71.0	63.0	35.0	61.0	63.0
21-Jan-22	16:30:00	21-Jan-2216:30	61.1	33.8	72.4	69.6	69.6	69.0	71.0	63.0	35.0	61.0	63.0

21-Jan-22	17:00:00	21-Jan-2217:00	61.1	33.8	72.0	69.0	69.1	69.0	70.7	63.0	35.0	60.7	63.0
21-Jan-22	17:30:00	21-Jan-2217:30	61.1	32.8	72.0	69.0	69.2	69.0	70.1	63.0	35.0	60.6	62.9
21-Jan-22	18:00:00	21-Jan-2218:00	59.5	32.8	71.9	68.3	68.3	68.1	70.0	62.2	34.6	60.0	62.0
21-Jan-22	18:30:00	21-Jan-2218:30	59.2	33.4	71.0	67.7	67.8	68.0	69.5	62.0	34.0	60.0	62.0
21-Jan-22	19:00:00	21-Jan-2219:00	59.2	35.0	71.0	67.7	68.0	67.4	69.0	61.3	33.6	59.5	61.3
21-Jan-22	19:30:00	21-Jan-2219:30	68.0	35.7	74.2	72.1	72.8	69.2	71.4	64.7	34.6	60.3	63.5
21-Jan-22	20:00:00	21-Jan-2220:00	68.6	35.7	78.0	74.9	74.9	70.0	72.9	64.0	35.7	61.2	64.0
21-Jan-22	20:30:00	21-Jan-2220:30	68.6	35.9	78.0	75.0	75.0	70.0	73.0	64.0	36.0	61.7	64.0
21-Jan-22	21:00:00	21-Jan-2221:00	68.6	35.8	78.0	75.0	75.3	70.3	73.0	64.0	36.0	62.0	64.1
21-Jan-22	21:30:00	21-Jan-2221:30	68.6	35.7	78.7	75.4	75.7	71.0	73.0	64.5	36.2	62.1	64.7
21-Jan-22	22:00:00	21-Jan-2222:00	68.7	34.9	79.0	76.0	76.0	71.0	73.9	65.0	36.7	62.7	65.0
21-Jan-22	22:30:00	21-Jan-2222:30	70.5	34.7	79.3	76.0	76.4	71.9	74.0	65.0	37.0	63.0	65.0
21-Jan-22	23:00:00	21-Jan-2223:00	70.5	34.7	79.2	76.0	76.8	71.4	74.0	65.6	37.0	63.0	65.3
21-Jan-22	23:30:00	21-Jan-2223:30	70.5	34.7	80.0	76.6	76.7	72.0	74.1	66.0	37.1	63.0	66.0
22-Jan-22	0:00:00	22-Jan-2200:00	70.5	34.7	80.0	77.0	76.8	72.0	74.1	66.0	37.4	63.3	66.0
22-Jan-22	0:30:00	22-Jan-2200:30	69.6	34.6	80.0	77.0	76.9	72.6	75.0	66.0	38.0	63.5	66.0
22-Jan-22	1:00:00	22-Jan-2201:00	61.1	33.7	74.7	71.4	71.6	70.7	72.1	64.2	36.3	61.7	64.2
22-Jan-22	1:30:00	22-Jan-2201:30	61.0	35.7	73.0	70.0	70.3	70.0	72.0	64.0	36.0	62.0	64.0
22-Jan-22	2:00:00	22-Jan-2202:00	61.0	35.7	73.0	70.0	70.0	70.0	71.8	64.0	36.0	62.0	64.0
22-Jan-22	2:30:00	22-Jan-2202:30	61.0	35.7	73.0	70.0	70.0	70.0	71.0	64.0	36.0	62.0	64.0
22-Jan-22	3:00:00	22-Jan-2203:00	61.0	35.7	73.0	70.0	70.0	70.0	71.0	64.0	36.0	61.9	64.0
22-Jan-22	3:30:00	22-Jan-2203:30	61.0	35.7	72.1	69.1	69.7	69.4	70.6	62.8	35.6	60.5	63.4
22-Jan-22	4:00:00	22-Jan-2204:00	61.0	35.7	72.0	69.0	69.0	68.3	70.0	62.0	34.2	60.0	62.0
22-Jan-22	4:30:00	22-Jan-2204:30	61.0	35.7	72.0	69.0	69.0	68.0	70.0	62.0	34.0	59.5	62.0
22-Jan-22	5:00:00	22-Jan-2205:00	62.6	36.5	72.7	69.6	69.8	68.2	69.5	61.5	34.0	59.1	61.7
22-Jan-22	5:30:00	22-Jan-2205:30	69.1	36.7	78.5	75.4	75.8	70.2	72.6	63.0	35.2	61.0	63.9
22-Jan-22	6:00:00	22-Jan-2206:00	69.1	36.7	78.7	75.7	76.0	71.0	73.0	64.0	36.0	61.0	64.0
22-Jan-22	6:30:00	22-Jan-2206:30	69.1	36.7	78.2	75.4	76.0	70.4	73.3	64.4	36.0	61.9	64.4
22-Jan-22	7:00:00	22-Jan-2207:00	69.1	35.8	78.7	76.0	76.0	71.3	74.0	65.0	37.0	62.7	65.0
22-Jan-22	7:30:00	22-Jan-2207:30	69.1	35.7	79.0	76.0	76.0	71.0	73.4	65.0	36.7	62.6	65.0
22-Jan-22	8:00:00	22-Jan-2208:00	69.1	35.3	79.0	75.4	75.4	71.0	74.0	65.0	36.0	62.0	65.0
22-Jan-22	8:30:00	22-Jan-2208:30	69.1	34.7	79.0	75.7	75.7	71.0	74.0	65.0	36.3	62.6	65.0
22-Jan-22	9:00:00	22-Jan-2209:00	69.1	26.6	79.0	76.0	75.7	71.0	74.0	65.0	36.4	62.6	65.0
22-Jan-22	9:30:00	22-Jan-2209:30	69.1	29.9	79.0	76.0	76.0	71.0	74.0	65.3	37.0	63.0	65.0
22-Jan-22	10:00:00	22-Jan-2210:00	69.1	27.0	79.3	76.0	76.0	71.6	74.0	65.0	37.0	63.0	65.0
22-Jan-22	10:30:00	22-Jan-2210:30	60.8	25.6	74.2	70.9	70.9	69.9	71.4	63.0	34.9	60.5	62.8
22-Jan-22	11:00:00	22-Jan-2211:00	60.1	30.4	71.7	68.4	69.0	68.2	70.0	62.4	33.9	60.0	62.5
22-Jan-22	11:30:00	22-Jan-2211:30	59.9	32.7	72.0	68.7	69.0	68.6	70.0	62.5	34.0	60.0	62.0

22-Jan-22	12:00:00	22-Jan-2212:00	63.2	34.4	73.5	70.2	68.2	68.5	70.1	62.2	34.1	60.4	62.2
22-Jan-22	12:30:00	22-Jan-2212:30	69.0	34.9	79.0	75.4	75.9	70.1	73.0	64.6	36.0	62.0	64.3
22-Jan-22	13:00:00	22-Jan-2213:00	69.0	29.0	79.0	75.4	75.8	71.0	73.0	64.6	36.0	61.7	64.0
22-Jan-22	13:30:00	22-Jan-2213:30	69.0	32.7	78.7	75.1	75.9	71.0	73.0	65.0	36.0	62.0	64.1
22-Jan-22	14:00:00	22-Jan-2214:00	69.0	35.8	79.0	75.7	76.0	71.0	73.2	65.0	36.0	62.1	65.0
22-Jan-22	14:30:00	22-Jan-2214:30	69.0	36.1	79.0	76.0	76.0	71.9	74.0	65.7	37.0	63.0	65.0
22-Jan-22	15:00:00	22-Jan-2215:00	69.0	35.3	79.0	76.4	76.0	71.7	74.0	66.0	37.0	63.0	65.0
22-Jan-22	15:30:00	22-Jan-2215:30	69.3	35.1	79.6	76.2	76.3	72.0	74.0	66.0	37.0	63.0	66.0
22-Jan-22	16:00:00	22-Jan-2216:00	67.7	35.1	79.2	75.6	75.8	71.8	74.0	66.0	36.8	63.3	65.3
22-Jan-22	16:30:00	22-Jan-2216:30	61.4	35.1	73.0	70.0	69.5	69.5	71.0	63.4	36.0	62.1	63.4
22-Jan-22	17:00:00	22-Jan-2217:00	61.4	35.1	72.1	69.7	69.1	69.3	71.0	63.0	35.0	61.0	63.3
22-Jan-22	17:30:00	22-Jan-2217:30	61.4	35.1	72.5	69.0	69.7	69.0	71.0	63.0	35.0	61.0	63.0
22-Jan-22	18:00:00	22-Jan-2218:00	61.4	35.1	72.0	68.9	69.4	69.0	70.0	62.8	35.0	60.4	63.0
22-Jan-22	18:30:00	22-Jan-2218:30	61.4	35.1	72.0	68.3	68.7	68.8	70.0	62.0	34.7	60.0	63.0
22-Jan-22	19:00:00	22-Jan-2219:00	62.2	35.1	71.7	68.3	68.5	68.0	70.4	62.0	34.0	60.0	62.0
22-Jan-22	19:30:00	22-Jan-2219:30	68.8	35.1	78.0	75.0	75.1	70.7	73.6	63.7	35.6	61.9	63.9
22-Jan-22	20:00:00	22-Jan-2220:00	68.8	35.1	78.0	75.0	75.7	70.4	73.0	64.0	36.0	62.0	64.0
22-Jan-22	20:30:00	22-Jan-2220:30	68.8	35.1	78.3	75.1	75.1	71.0	73.0	64.2	36.0	62.0	64.5
22-Jan-22	21:00:00	22-Jan-2221:00	68.8	35.1	78.8	75.2	76.0	71.0	73.0	65.0	36.0	62.0	65.0
22-Jan-22	21:30:00	22-Jan-2221:30	68.8	35.1	79.0	76.0	76.6	71.0	73.4	65.0	36.4	62.6	65.0
22-Jan-22	22:00:00	22-Jan-2222:00	70.7	35.1	79.0	76.0	76.3	71.8	74.0	65.0	37.0	63.0	65.3
22-Jan-22	22:30:00	22-Jan-2222:30	70.8	35.1	80.0	76.3	77.0	72.0	74.0	65.8	37.0	63.0	65.0
22-Jan-22	23:00:00	22-Jan-2223:00	70.8	35.1	80.0	76.3	77.0	72.0	74.0	66.0	37.0	63.1	65.9
22-Jan-22	23:30:00	22-Jan-2223:30	70.8	35.1	80.0	76.9	77.0	72.6	74.7	66.0	38.0	64.0	66.0
23-Jan-22	0:00:00	23-Jan-2200:00	64.6	33.6	76.6	73.7	73.3	71.9	73.1	64.8	36.9	63.2	64.8
23-Jan-22	0:30:00	23-Jan-2200:30	62.4	32.2	73.0	70.0	70.0	70.0	71.3	64.0	36.0	62.0	64.0
23-Jan-22	1:00:00	23-Jan-2201:00	62.4	32.2	73.0	70.0	70.0	70.0	71.0	63.7	36.0	61.9	64.0
23-Jan-22	1:30:00	23-Jan-2201:30	62.4	33.7	73.0	70.0	70.0	70.0	71.0	63.0	36.0	61.5	64.0
23-Jan-22	2:00:00	23-Jan-2202:00	62.4	34.2	73.0	69.4	70.0	69.7	71.0	63.0	35.7	61.6	63.4
23-Jan-22	2:30:00	23-Jan-2202:30	62.4	34.2	73.0	70.0	70.0	69.7	71.0	63.0	35.6	61.0	63.0
23-Jan-22	3:00:00	23-Jan-2203:00	60.3	34.2	73.0	69.7	70.0	69.3	71.0	63.0	35.0	61.0	63.0
23-Jan-22	3:30:00	23-Jan-2203:30	60.3	34.6	72.2	69.2	69.7	69.0	70.7	63.0	35.0	61.0	63.0
23-Jan-22	4:00:00	23-Jan-2204:00	60.3	35.1	72.0	69.0	69.1	69.0	70.0	62.8	34.8	60.9	62.8
23-Jan-22	4:30:00	23-Jan-2204:30	60.3	36.0	71.7	68.5	69.2	68.2	70.0	62.0	34.0	59.0	62.0
23-Jan-22	5:00:00	23-Jan-2205:00	61.2	37.1	71.0	68.3	68.6	67.6	69.2	61.2	33.2	59.0	61.2
23-Jan-22	5:30:00	23-Jan-2205:30	68.8	37.1	77.2	74.1	74.2	69.5	72.6	63.9	34.8	60.8	63.8
23-Jan-22	6:00:00	23-Jan-2206:00	68.8	36.5	79.0	75.7	76.0	70.7	73.0	64.0	35.0	61.0	64.0
23-Jan-22	6:30:00	23-Jan-2206:30	68.8	35.0	79.0	76.0	76.0	70.7	73.3	64.3	35.6	61.0	64.0

23-Jan-22	7:00:00	23-Jan-2207:00	69.8	34.2	79.0	75.7	71.1	74.0	64.2	36.2	61.6	64.2
23-Jan-22	7:30:00	23-Jan-2207:30	70.8	34.2	79.0	76.0	71.4	74.0	65.0	36.7	63.0	65.0
23-Jan-22	8:00:00	23-Jan-2208:00	70.8	32.5	79.0	76.0	72.0	74.0	65.0	37.0	62.7	65.0
23-Jan-22	8:30:00	23-Jan-2208:30	70.8	33.7	79.0	75.7	71.2	74.0	65.0	37.0	63.0	65.0
23-Jan-22	9:00:00	23-Jan-2209:00	70.8	34.2	79.0	75.9	71.3	74.0	65.0	37.0	63.0	65.0
23-Jan-22	9:30:00	23-Jan-2209:30	70.8	35.1	79.0	75.8	71.0	74.0	65.0	37.0	62.8	65.0
23-Jan-22	10:00:00	23-Jan-2210:00	70.8	35.5	79.0	75.7	71.0	74.0	65.0	36.2	62.0	65.0
23-Jan-22	10:30:00	23-Jan-2210:30	68.6	36.1	79.0	76.0	71.6	74.0	64.9	37.0	62.6	64.9
23-Jan-22	11:00:00	23-Jan-2211:00	61.5	36.1	72.5	69.5	69.2	71.0	62.8	35.0	60.3	62.8
23-Jan-22	11:30:00	23-Jan-2211:30	60.2	36.1	71.8	68.2	68.1	69.6	61.7	33.6	59.2	61.4
23-Jan-22	12:00:00	23-Jan-2212:00	59.5	36.1	71.0	68.0	67.0	69.0	61.0	33.0	58.0	61.0
23-Jan-22	12:30:00	23-Jan-2212:30	62.9	36.4	71.0	69.3	67.5	70.0	61.4	33.3	58.2	61.0
23-Jan-22	13:00:00	23-Jan-2213:00	68.3	37.1	77.3	75.0	70.0	73.0	64.0	35.0	60.5	63.7
23-Jan-22	13:30:00	23-Jan-2213:30	68.3	37.1	78.0	75.0	70.0	73.0	64.0	35.0	61.0	64.0
23-Jan-22	14:00:00	23-Jan-2214:00	69.7	34.6	78.6	75.3	70.5	73.3	65.0	35.7	61.5	64.7
23-Jan-22	14:30:00	23-Jan-2214:30	70.3	34.2	79.0	76.0	71.0	74.0	65.0	37.0	62.9	65.0
23-Jan-22	15:00:00	23-Jan-2215:00	70.3	33.3	79.0	76.0	71.2	74.0	65.0	37.0	63.0	65.0
23-Jan-22	15:30:00	23-Jan-2215:30	70.3	33.0	79.0	76.0	71.7	74.0	65.8	37.0	63.0	65.0
23-Jan-22	16:00:00	23-Jan-2216:00	70.3	33.2	79.2	76.0	72.0	74.0	66.0	37.0	63.0	65.0
23-Jan-22	16:30:00	23-Jan-2216:30	70.3	33.2	79.7	76.3	72.0	74.0	66.0	37.1	63.3	66.0
23-Jan-22	17:00:00	23-Jan-2217:00	65.2	33.2	76.8	73.5	71.0	72.7	65.1	36.7	63.0	65.4
23-Jan-22	17:30:00	23-Jan-2217:30	61.5	33.2	73.0	69.1	69.0	71.0	63.0	35.0	61.4	63.3
23-Jan-22	18:00:00	23-Jan-2218:00	61.5	33.2	72.0	68.6	69.0	70.5	62.7	35.0	60.6	63.0
23-Jan-22	18:30:00	23-Jan-2218:30	61.5	33.2	72.0	68.3	68.5	70.0	62.6	34.9	60.3	62.6
23-Jan-22	19:00:00	23-Jan-2219:00	60.1	33.2	71.6	68.0	68.0	70.0	62.0	34.0	60.0	62.0
23-Jan-22	19:30:00	23-Jan-2219:30	59.5	33.2	71.0	68.0	68.0	69.4	61.9	34.0	59.5	62.0
23-Jan-22	20:00:00	23-Jan-2220:00	59.5	33.2	71.0	68.0	67.7	69.2	61.0	34.0	59.6	62.0
23-Jan-22	20:30:00	23-Jan-2220:30	65.6	33.2	74.8	71.7	69.1	72.0	62.2	34.4	60.3	62.4
23-Jan-22	21:00:00	23-Jan-2221:00	68.6	33.2	78.0	74.7	70.0	72.5	64.0	35.7	61.1	64.0
23-Jan-22	21:30:00	23-Jan-2221:30	68.6	33.2	78.2	75.2	70.2	73.0	64.0	36.0	62.0	64.0
23-Jan-22	22:00:00	23-Jan-2222:00	68.6	33.2	79.0	75.1	71.0	73.0	64.0	36.0	62.0	64.0
23-Jan-22	22:30:00	23-Jan-2222:30	68.6	33.2	79.0	75.7	71.0	73.3	64.1	36.0	62.0	64.6
23-Jan-22	23:00:00	23-Jan-2223:00	69.1	33.2	79.0	76.0	71.0	73.7	65.0	36.2	62.0	65.0
23-Jan-22	23:30:00	23-Jan-2223:30	70.6	33.2	79.2	76.0	71.8	74.0	65.0	37.0	63.0	65.3
24-Jan-22	0:00:00	24-Jan-2200:00	70.6	33.2	79.1	76.0	71.4	74.0	65.0	37.0	63.0	65.2
24-Jan-22	0:30:00	24-Jan-2200:30	70.6	33.7	79.8	76.5	72.0	74.0	65.9	37.0	63.4	65.9
24-Jan-22	1:00:00	24-Jan-2201:00	70.6	34.0	79.4	76.7	72.0	74.7	66.0	37.6	63.1	66.0
24-Jan-22	1:30:00	24-Jan-2201:30	65.0	31.4	78.5	73.6	71.1	72.5	65.3	35.6	62.9	65.4

24-Jan-22	2:00:00	24-Jan-2202:00	62.0	31.2	73.0	69.7	70.1	69.4	71.3	63.4	36.0	61.2	63.4
24-Jan-22	2:30:00	24-Jan-2202:30	62.0	33.4	73.0	70.0	70.0	70.0	71.0	64.0	36.0	61.9	64.0
24-Jan-22	3:00:00	24-Jan-2203:00	62.0	34.2	73.0	70.0	70.6	70.0	71.0	63.3	36.0	61.2	64.0
24-Jan-22	3:30:00	24-Jan-2203:30	62.0	34.2	73.0	70.0	70.0	69.7	71.0	63.0	35.4	61.3	63.4
24-Jan-22	4:00:00	24-Jan-2204:00	61.0	35.1	72.7	69.4	70.0	69.4	71.0	63.0	35.0	61.0	63.0
24-Jan-22	4:30:00	24-Jan-2204:30	60.0	34.4	72.2	69.3	69.5	68.8	70.2	62.7	35.0	60.9	63.0
24-Jan-22	5:00:00	24-Jan-2205:00	60.0	34.6	71.9	68.7	69.0	68.0	70.0	62.0	34.0	60.0	62.0
24-Jan-22	5:30:00	24-Jan-2205:30	62.6	35.1	72.2	69.2	69.7	67.9	70.3	61.2	33.7	59.4	62.9
24-Jan-22	6:00:00	24-Jan-2206:00	67.9	34.4	78.0	74.9	74.7	69.0	72.0	63.0	34.7	60.0	63.0
24-Jan-22	6:30:00	24-Jan-2206:30	67.9	34.0	78.0	74.8	74.5	69.3	72.0	63.0	35.0	60.0	63.0
24-Jan-22	7:00:00	24-Jan-2207:00	67.9	33.2	78.0	74.7	74.3	69.3	72.0	63.5	35.0	60.8	63.0
24-Jan-22	7:30:00	24-Jan-2207:30	67.9	33.2	78.0	74.7	75.3	70.0	72.8	64.0	35.0	60.4	63.6
24-Jan-22	8:00:00	24-Jan-2208:00	67.9	33.4	78.0	74.7	75.0	70.0	72.6	63.7	35.0	61.0	63.6
24-Jan-22	8:30:00	24-Jan-2208:30	67.9	34.8	78.0	74.5	75.0	70.0	72.8	64.0	35.0	61.0	63.3
24-Jan-22	9:00:00	24-Jan-2209:00	67.9	36.8	78.0	75.0	74.7	70.0	72.7	64.0	35.0	61.0	64.0
24-Jan-22	9:30:00	24-Jan-2209:30	69.8	37.1	78.0	74.7	75.0	70.6	73.0	64.0	35.2	61.0	64.0
24-Jan-22	10:00:00	24-Jan-2210:00	70.1	35.8	78.0	75.0	75.5	70.0	73.0	64.0	35.1	61.0	64.0
24-Jan-22	10:30:00	24-Jan-2210:30	70.2	35.1	78.3	75.0	75.0	70.0	73.0	64.0	35.0	61.0	64.0
24-Jan-22	11:00:00	24-Jan-2211:00	70.2	34.1	78.0	75.0	74.7	70.0	73.0	64.0	35.0	61.0	64.0
24-Jan-22	11:30:00	24-Jan-2211:30	70.2	32.2	78.3	75.0	75.3	70.0	73.0	64.0	35.3	61.0	64.0
24-Jan-22	12:00:00	24-Jan-2212:00	69.6	31.9	78.0	74.8	74.2	70.0	73.0	64.0	35.0	61.0	64.0
24-Jan-22	12:30:00	24-Jan-2212:30	68.7	32.6	78.1	74.6	74.9	70.0	73.0	64.0	35.7	61.0	64.0
24-Jan-22	13:00:00	24-Jan-2213:00	68.8	33.3	78.5	75.5	74.7	70.3	73.0	64.6	36.0	61.0	64.0
24-Jan-22	13:30:00	24-Jan-2213:30	68.8	33.8	78.0	74.9	74.7	70.6	73.0	64.5	36.0	61.0	64.0
24-Jan-22	14:00:00	24-Jan-2214:00	68.7	35.0	78.5	75.6	74.9	71.0	73.0	64.6	36.0	61.4	64.0
24-Jan-22	14:30:00	24-Jan-2214:30	68.5	35.1	79.0	76.0	75.7	71.0	73.0	65.0	36.0	62.0	64.5
24-Jan-22	15:00:00	24-Jan-2215:00	68.5	34.6	79.0	75.2	75.7	71.0	73.0	65.0	36.0	62.0	64.7
24-Jan-22	15:30:00	24-Jan-2215:30	68.5	34.2	79.0	75.3	75.4	71.0	73.0	65.0	36.0	61.7	64.7
24-Jan-22	16:00:00	24-Jan-2216:00	68.5	34.2	78.7	75.0	75.0	71.0	73.2	65.0	36.0	62.0	64.7
24-Jan-22	16:30:00	24-Jan-2216:30	68.5	34.2	78.4	75.0	75.6	71.0	74.0	65.0	36.0	62.0	65.0
24-Jan-22	17:00:00	24-Jan-2217:00	68.5	34.2	78.6	75.3	75.0	71.0	73.7	65.0	36.0	62.0	64.7
24-Jan-22	17:30:00	24-Jan-2217:30	68.5	34.2	78.9	75.0	75.0	71.0	73.4	65.0	36.0	62.0	64.7
24-Jan-22	18:00:00	24-Jan-2218:00	68.5	34.2	78.3	74.9	74.6	71.0	73.0	65.0	36.0	62.0	64.5
24-Jan-22	18:30:00	24-Jan-2218:30	63.2	34.2	76.3	71.2	71.1	69.5	70.3	63.2	33.6	60.4	63.2
24-Jan-22	19:00:00	24-Jan-2219:00	60.1	34.2	71.0	67.7	67.6	67.1	69.0	61.0	33.0	58.4	60.7
24-Jan-22	19:30:00	24-Jan-2219:30	60.4	34.2	71.0	67.0	67.5	67.0	69.0	61.0	33.0	58.0	61.0
24-Jan-22	20:00:00	24-Jan-2220:00	59.1	33.9	70.9	67.0	67.3	67.0	69.0	60.5	33.0	58.0	60.3
24-Jan-22	20:30:00	24-Jan-2220:30	58.4	33.2	70.0	66.7	67.0	66.5	68.4	60.0	32.2	58.0	60.3

24-Jan-22	21:00:00	24-Jan-2221:00	63.7	33.2	72.5	69.5	69.6	67.3	70.3	63.4	33.2	58.6	61.6
24-Jan-22	21:30:00	24-Jan-2221:30	67.8	33.6	77.8	74.5	74.0	69.8	72.0	63.4	34.9	60.0	63.0
24-Jan-22	22:00:00	24-Jan-2222:00	67.8	34.2	78.0	75.0	74.9	70.0	72.1	63.8	35.0	60.0	63.0
24-Jan-22	22:30:00	24-Jan-2222:30	67.8	34.1	78.0	75.0	75.0	70.0	73.0	63.9	35.0	61.0	63.6
24-Jan-22	23:00:00	24-Jan-2223:00	67.8	32.3	78.0	75.0	75.0	70.0	72.4	64.0	35.0	61.0	64.0
24-Jan-22	23:30:00	24-Jan-2223:30	67.8	32.2	78.0	75.0	75.0	70.5	73.0	64.0	35.6	61.0	64.0
25-Jan-22	0:00:00	25-Jan-2200:00	67.8	32.4	78.0	75.0	75.4	70.1	73.0	64.0	35.1	61.0	64.0
25-Jan-22	0:30:00	25-Jan-2200:30	69.4	34.1	78.5	75.5	76.0	71.0	73.0	64.3	36.0	61.1	64.0
25-Jan-22	1:00:00	25-Jan-2201:00	69.9	34.2	78.7	75.7	76.0	71.0	73.0	65.0	36.0	61.7	64.0
25-Jan-22	1:30:00	25-Jan-2201:30	69.9	34.7	79.0	76.0	76.0	71.0	73.3	65.0	36.0	62.0	64.9
25-Jan-22	2:00:00	25-Jan-2202:00	69.9	34.3	79.0	76.0	76.0	71.0	74.0	65.0	36.0	62.0	65.0
25-Jan-22	2:30:00	25-Jan-2202:30	69.9	34.2	79.0	76.0	76.0	71.0	74.0	65.0	36.0	62.0	65.0
25-Jan-22	3:00:00	25-Jan-2203:00	69.9	34.2	79.0	76.0	76.6	71.9	73.7	65.0	36.0	62.0	65.0
25-Jan-22	3:30:00	25-Jan-2203:30	69.9	34.2	80.0	76.6	77.0	72.0	74.0	65.0	36.8	62.0	65.0
25-Jan-22	4:00:00	25-Jan-2204:00	69.9	34.2	79.4	76.0	76.1	71.2	74.0	65.0	36.7	62.0	65.0
25-Jan-22	4:30:00	25-Jan-2204:30	64.1	34.2	76.5	73.3	73.7	70.2	72.3	63.6	35.8	59.6	63.7
25-Jan-22	5:00:00	25-Jan-2205:00	60.3	34.2	72.0	69.0	69.0	68.2	70.1	62.1	34.1	60.0	62.1
25-Jan-22	5:30:00	25-Jan-2205:30	60.9	34.2	72.0	69.0	69.4	69.0	70.2	62.1	35.0	61.0	63.0
25-Jan-22	6:00:00	25-Jan-2206:00	59.9	33.4	72.0	68.7	68.5	68.1	70.0	62.3	34.3	60.2	62.3
25-Jan-22	6:30:00	25-Jan-2206:30	59.9	34.2	71.5	68.3	68.8	68.0	70.0	61.7	34.0	60.0	62.0
25-Jan-22	7:00:00	25-Jan-2207:00	59.9	34.2	71.0	68.0	68.3	68.0	70.0	62.0	34.0	60.0	62.0
25-Jan-22	7:30:00	25-Jan-2207:30	59.9	34.2	71.0	68.0	68.3	67.9	69.8	62.0	34.0	60.0	62.0
25-Jan-22	8:00:00	25-Jan-2208:00	59.9	34.2	71.0	67.7	68.0	67.6	69.0	61.6	33.9	59.5	61.9
25-Jan-22	8:30:00	25-Jan-2208:30	59.9	33.3	70.3	67.0	67.0	67.0	69.0	61.0	33.3	59.0	61.0
25-Jan-22	9:00:00	25-Jan-2209:00	63.6	33.5	70.9	69.4	69.5	67.6	70.4	61.3	34.7	59.5	61.2
25-Jan-22	9:30:00	25-Jan-2209:30	67.5	34.2	77.0	74.0	73.3	69.4	72.0	63.3	35.0	61.0	63.0
25-Jan-22	10:00:00	25-Jan-2210:00	68.4	34.2	77.0	73.2	74.7	69.7	72.3	63.0	35.0	61.0	63.3
25-Jan-22	10:30:00	25-Jan-2210:30	69.4	34.2	77.3	74.2	74.3	70.0	72.0	64.0	35.0	61.0	63.7
25-Jan-22	11:00:00	25-Jan-2211:00	69.3	34.5	78.0	74.6	74.1	70.0	72.6	64.0	35.8	61.7	63.4
25-Jan-22	11:30:00	25-Jan-2211:30	69.3	33.9	77.9	74.8	74.7	70.2	72.6	64.0	35.7	62.0	64.3
25-Jan-22	12:00:00	25-Jan-2212:00	69.3	31.5	78.1	74.8	74.8	70.7	73.0	64.6	36.0	62.0	64.0
25-Jan-22	12:30:00	25-Jan-2212:30	69.3	31.4	78.8	75.3	75.0	71.0	73.0	64.9	36.0	62.0	64.9
25-Jan-22	13:00:00	25-Jan-2213:00	69.3	33.2	78.9	75.9	75.5	71.0	73.9	65.0	37.0	62.3	65.0
25-Jan-22	13:30:00	25-Jan-2213:30	69.3	33.2	79.0	76.0	76.0	71.3	73.3	65.0	36.4	62.7	65.0
25-Jan-22	14:00:00	25-Jan-2214:00	69.3	33.2	79.0	76.0	76.0	71.6	74.0	65.3	37.0	63.0	65.0
25-Jan-22	14:30:00	25-Jan-2214:30	69.3	32.3	79.2	76.0	76.2	72.0	74.0	65.9	37.0	63.1	65.0
25-Jan-22	15:00:00	25-Jan-2215:00	69.3	32.4	80.0	76.0	76.1	72.0	74.3	66.0	37.0	63.2	66.0
25-Jan-22	15:30:00	25-Jan-2215:30	69.3	32.2	79.3	76.0	76.0	72.0	74.0	65.7	37.0	63.0	65.5

25-Jan-22	16:00:00	25-Jan-2216:00	63.6	32.8	75.8	72.3	72.2	70.6	72.3	65.6	36.6	62.0	62.9
25-Jan-22	16:30:00	25-Jan-2216:30	61.9	33.2	72.8	69.0	69.6	69.6	71.0	63.3	35.5	61.0	63.7
25-Jan-22	17:00:00	25-Jan-2217:00	61.9	33.2	72.0	69.0	69.0	69.0	71.0	63.0	35.0	61.0	63.0
25-Jan-22	17:30:00	25-Jan-2217:30	61.0	33.2	72.0	68.6	69.0	68.9	70.2	63.0	35.0	60.7	63.0
25-Jan-22	18:00:00	25-Jan-2218:00	59.9	33.2	72.0	68.0	68.2	68.0	70.0	62.0	34.4	60.0	62.4
25-Jan-22	18:30:00	25-Jan-2218:30	59.9	33.2	71.1	68.0	68.0	68.0	69.3	62.0	34.0	60.0	62.0
25-Jan-22	19:00:00	25-Jan-2219:00	59.9	33.2	71.0	67.5	67.2	68.0	69.0	61.1	33.7	59.6	61.7
25-Jan-22	19:30:00	25-Jan-2219:30	64.9	33.2	73.0	69.3	69.3	68.0	70.2	62.4	33.8	59.8	62.0
25-Jan-22	20:00:00	25-Jan-2220:00	68.3	33.6	78.0	74.0	74.3	70.0	72.0	64.0	35.3	61.0	64.0
25-Jan-22	20:30:00	25-Jan-2220:30	68.3	34.2	78.0	74.6	74.9	70.0	72.6	64.0	36.0	61.8	64.0
25-Jan-22	21:00:00	25-Jan-2221:00	68.3	33.3	78.0	75.0	75.0	70.9	73.0	64.0	36.0	62.0	64.0
25-Jan-22	21:30:00	25-Jan-2221:30	68.3	33.2	78.4	75.1	75.1	71.0	73.2	64.6	36.0	62.0	64.8
25-Jan-22	22:00:00	25-Jan-2222:00	68.5	33.5	79.0	75.4	76.0	71.0	73.7	65.0	36.6	63.0	65.0
25-Jan-22	22:30:00	25-Jan-2222:30	70.3	33.2	79.0	76.0	76.1	71.4	74.0	65.0	37.0	63.0	65.0
25-Jan-22	23:00:00	25-Jan-2223:00	70.3	33.2	79.0	76.0	76.7	72.0	74.0	65.3	37.0	63.0	65.0
25-Jan-22	23:30:00	25-Jan-2223:30	70.3	33.6	79.9	76.3	77.0	72.0	74.1	65.8	37.0	63.0	66.0
26-Jan-22	0:00:00	26-Jan-2200:00	70.3	34.2	80.0	76.3	76.4	72.0	74.2	66.0	37.0	63.0	66.0
26-Jan-22	0:30:00	26-Jan-2200:30	70.3	34.2	80.0	76.9	77.0	72.3	74.9	66.0	37.7	63.5	66.0
26-Jan-22	1:00:00	26-Jan-2201:00	66.7	33.3	79.0	76.0	76.0	72.0	74.4	65.4	37.6	61.8	65.5
26-Jan-22	1:30:00	26-Jan-2201:30	62.2	33.4	73.3	70.3	70.6	70.0	71.7	64.0	36.0	62.0	64.0
26-Jan-22	2:00:00	26-Jan-2202:00	62.2	34.7	73.0	70.0	70.6	70.0	71.2	64.0	36.0	62.0	64.0
26-Jan-22	2:30:00	26-Jan-2202:30	62.2	36.1	73.0	70.0	70.0	70.0	71.0	64.0	36.0	62.0	64.0
26-Jan-22	3:00:00	26-Jan-2203:00	62.2	36.1	73.0	70.0	70.3	70.0	71.0	64.0	36.0	61.7	64.0
26-Jan-22	3:30:00	26-Jan-2203:30	61.5	36.0	73.0	70.0	70.0	70.0	71.0	63.7	35.7	61.2	64.0
26-Jan-22	4:00:00	26-Jan-2204:00	60.2	33.3	72.7	69.7	70.0	69.3	71.0	63.2	35.2	61.1	63.2
26-Jan-22	4:30:00	26-Jan-2204:30	60.2	33.2	72.5	69.5	70.0	69.0	70.7	63.0	35.0	60.8	63.0
26-Jan-22	5:00:00	26-Jan-2205:00	60.2	33.6	71.6	68.6	68.6	68.3	69.5	61.6	34.3	59.9	61.7
26-Jan-22	5:30:00	26-Jan-2205:30	60.2	36.1	71.0	67.4	67.7	67.2	69.0	61.0	33.0	58.3	61.0
26-Jan-22	6:00:00	26-Jan-2206:00	66.6	35.1	74.5	69.1	65.9	68.4	70.8	62.1	33.8	59.2	62.6
26-Jan-22	6:30:00	26-Jan-2206:30	67.2	34.1	75.5	69.5	64.7	69.0	71.0	63.0	34.3	60.3	62.7
26-Jan-22	7:00:00	26-Jan-2207:00	67.2	33.5	75.4	69.1	64.4	69.0	71.5	63.0	34.0	60.0	63.0
26-Jan-22	7:30:00	26-Jan-2207:30	67.2	34.2	76.0	70.0	65.0	69.0	71.1	63.0	34.3	60.0	63.0
26-Jan-22	8:00:00	26-Jan-2208:00	67.2	33.3	75.6	69.6	65.0	69.0	71.3	63.0	34.6	60.0	63.0
26-Jan-22	8:30:00	26-Jan-2208:30	68.5	33.2	76.5	70.8	70.3	69.5	72.1	63.3	34.9	60.3	63.0
26-Jan-22	9:00:00	26-Jan-2209:00	69.4	32.6	78.0	75.0	75.1	70.0	72.9	64.0	35.0	60.9	63.3
26-Jan-22	9:30:00	26-Jan-2209:30	69.4	33.2	78.0	74.4	74.7	69.4	72.5	63.7	35.0	61.0	63.0
26-Jan-22	10:00:00	26-Jan-2210:00	69.4	33.8	78.0	74.4	75.0	70.0	73.0	64.0	35.0	61.0	63.7
26-Jan-22	10:30:00	26-Jan-2210:30	69.4	34.2	78.1	75.1	75.0	70.0	73.0	64.0	35.0	61.0	64.0

26-Jan-22	11:00:00	26-Jan-2211:00	69.4	34.8	77.9	74.7	74.0	69.8	73.0	64.0	35.4	61.0	64.0
26-Jan-22	11:30:00	26-Jan-2211:30	69.4	35.1	78.4	74.7	72.6	70.3	73.0	64.0	35.7	61.6	64.0
26-Jan-22	12:00:00	26-Jan-2212:00	69.4	32.7	79.0	76.2	75.6	71.2	73.9	64.0	36.9	62.4	64.9
26-Jan-22	12:30:00	26-Jan-2212:30	69.5	32.2	79.0	76.4	76.3	71.4	74.0	64.0	37.0	63.0	65.0
26-Jan-22	13:00:00	26-Jan-2213:00	71.5	33.1	79.7	76.4	77.0	72.0	74.0	64.0	37.0	63.0	65.4
26-Jan-22	13:30:00	26-Jan-2213:30	71.5	34.2	80.0	76.9	77.0	71.7	74.1	64.0	37.0	63.0	65.5
26-Jan-22	14:00:00	26-Jan-2214:00	70.1	34.2	80.0	77.0	77.0	72.0	74.8	64.0	37.2	63.9	66.0
26-Jan-22	14:30:00	26-Jan-2214:30	60.5	34.2	74.2	71.3	71.2	70.4	71.3	64.0	35.9	62.3	64.1
26-Jan-22	15:00:00	26-Jan-2215:00	60.5	34.2	72.7	69.7	69.7	69.4	71.0	64.0	35.0	61.2	63.2
26-Jan-22	15:30:00	26-Jan-2215:30	60.5	34.2	72.0	69.0	69.7	69.0	71.0	64.0	35.0	61.0	63.2
26-Jan-22	16:00:00	26-Jan-2216:00	60.5	34.2	72.0	69.0	69.2	69.0	70.1	64.0	35.0	61.0	63.0
26-Jan-22	16:30:00	26-Jan-2216:30	60.5	34.2	72.0	68.7	69.0	69.0	70.0	64.0	35.0	60.4	63.0
26-Jan-22	17:00:00	26-Jan-2217:00	60.5	34.2	71.2	68.2	68.7	68.5	70.0	64.0	34.4	60.0	62.4
26-Jan-22	17:30:00	26-Jan-2217:30	60.5	34.2	71.6	68.0	68.6	68.0	69.9	64.0	34.0	60.0	62.0
26-Jan-22	18:00:00	26-Jan-2218:00	68.1	34.2	76.1	72.5	72.6	69.6	72.4	64.0	35.8	61.5	63.8
26-Jan-22	18:30:00	26-Jan-2218:30	69.4	34.2	77.6	74.6	74.6	70.0	72.6	64.0	36.0	62.0	64.0
26-Jan-22	19:00:00	26-Jan-2219:00	69.8	34.2	78.0	74.4	74.7	70.0	72.3	64.0	36.0	61.7	63.7
26-Jan-22	19:30:00	26-Jan-2219:30	69.8	34.2	78.0	75.3	75.1	70.6	72.7	64.0	36.0	62.0	64.0
26-Jan-22	20:00:00	26-Jan-2220:00	69.8	34.2	78.0	75.0	75.5	70.3	73.0	64.0	36.0	62.0	64.0
26-Jan-22	20:30:00	26-Jan-2220:30	69.8	34.2	78.3	75.0	75.6	70.6	73.0	64.0	36.0	62.0	64.2
26-Jan-22	21:00:00	26-Jan-2221:00	69.8	33.4	79.0	75.7	76.0	71.0	73.0	64.0	36.3	62.0	65.0
26-Jan-22	21:30:00	26-Jan-2221:30	69.8	33.2	79.0	76.0	76.0	71.3	74.0	64.0	36.1	62.5	65.0
26-Jan-22	22:00:00	26-Jan-2222:00	69.8	32.0	80.0	76.5	77.0	72.0	74.0	64.0	37.0	63.0	65.3
26-Jan-22	22:30:00	26-Jan-2222:30	69.8	31.9	80.0	76.7	77.0	72.0	74.1	64.0	37.1	63.5	66.0
26-Jan-22	23:00:00	26-Jan-2223:00	69.8	32.9	80.0	77.3	77.2	72.4	75.0	64.0	38.0	64.0	66.0
26-Jan-22	23:30:00	26-Jan-2223:30	69.8	33.7	80.0	77.0	77.3	73.0	75.0	64.0	38.0	64.0	66.0
27-Jan-22	0:00:00	27-Jan-2200:00	61.1	34.2	74.9	71.9	72.4	70.9	72.6	64.0	36.4	60.7	64.3
27-Jan-22	0:30:00	27-Jan-2200:30	61.1	34.6	73.0	70.0	70.9	70.0	71.4	64.0	36.0	62.0	64.0
27-Jan-22	1:00:00	27-Jan-2201:00	61.1	35.1	73.0	70.0	70.5	70.0	71.0	64.0	36.0	62.0	64.0
27-Jan-22	1:30:00	27-Jan-2201:30	61.1	34.7	73.0	70.0	70.6	70.0	71.0	64.0	36.0	61.7	64.0
27-Jan-22	2:00:00	27-Jan-2202:00	61.1	33.2	73.0	70.0	70.0	70.0	71.0	64.0	36.0	61.1	63.8
27-Jan-22	2:30:00	27-Jan-2202:30	61.1	33.2	73.0	69.7	70.0	70.0	71.0	64.0	36.0	61.0	63.9
27-Jan-22	3:00:00	27-Jan-2203:00	61.1	33.9	73.0	70.0	70.6	69.7	71.0	64.0	35.0	61.0	63.0
27-Jan-22	3:30:00	27-Jan-2203:30	61.1	35.6	73.0	70.0	70.0	69.6	71.0	64.0	35.0	61.0	63.0
27-Jan-22	4:00:00	27-Jan-2204:00	61.1	35.1	72.4	69.4	70.0	69.0	70.6	64.0	35.0	60.8	63.0
27-Jan-22	4:30:00	27-Jan-2204:30	61.1	35.1	72.0	69.3	69.7	69.0	70.0	64.0	35.0	60.6	62.7
27-Jan-22	5:00:00	27-Jan-2205:00	60.0	35.1	72.0	68.7	68.8	67.8	69.6	64.0	33.9	58.9	61.6
27-Jan-22	5:30:00	27-Jan-2205:30	62.4	35.1	72.1	68.8	69.2	67.4	69.7	64.0	33.2	58.2	62.3

27-Jan-22	6:00:00	27-Jan-2206:00	69.1	34.2	77.7	75.0	74.7	69.7	72.0	64.0	35.0	60.0	63.1
27-Jan-22	6:30:00	27-Jan-2206:30	69.1	34.2	77.6	74.8	69.7	72.0	64.0	35.0	60.0	63.0	63.0
27-Jan-22	7:00:00	27-Jan-2207:00	69.1	34.3	77.0	74.6	70.0	72.0	64.0	35.0	60.5	63.1	63.1
27-Jan-22	7:30:00	27-Jan-2207:30	69.1	35.1	78.0	75.0	70.0	72.3	64.0	35.0	60.7	63.5	63.5
27-Jan-22	8:00:00	27-Jan-2208:00	69.1	35.1	78.0	75.0	70.0	72.6	64.0	35.0	61.0	64.0	64.0
27-Jan-22	8:30:00	27-Jan-2208:30	69.1	34.5	78.0	75.0	70.0	73.0	64.0	35.0	61.0	64.0	64.0
27-Jan-22	9:00:00	27-Jan-2209:00	69.1	34.2	78.0	75.0	70.3	73.0	64.0	35.0	61.0	64.0	64.0
27-Jan-22	9:30:00	27-Jan-2209:30	69.1	34.2	78.0	74.4	70.0	72.6	64.0	35.2	61.0	63.8	63.8
27-Jan-22	10:00:00	27-Jan-2210:00	69.2	34.4	79.0	75.4	70.9	73.6	64.0	35.9	62.0	64.4	64.4
27-Jan-22	10:30:00	27-Jan-2210:30	69.2	35.1	79.0	76.0	70.3	73.7	64.0	36.9	63.0	65.0	65.0
27-Jan-22	11:00:00	27-Jan-2211:00	70.1	35.1	79.6	76.0	71.3	73.4	64.0	36.4	62.7	65.0	65.0
27-Jan-22	11:30:00	27-Jan-2211:30	71.3	35.1	79.3	76.0	71.5	74.0	64.0	37.0	63.0	65.0	65.0
27-Jan-22	12:00:00	27-Jan-2212:00	71.3	34.6	79.9	76.3	71.6	74.0	64.0	37.0	63.0	65.8	65.8
27-Jan-22	12:30:00	27-Jan-2212:30	71.3	32.3	79.8	76.8	71.8	74.0	64.0	37.0	63.3	66.0	66.0
27-Jan-22	13:00:00	27-Jan-2213:00	68.9	33.2	79.6	76.6	71.9	74.3	64.0	37.3	63.5	65.0	65.0
27-Jan-22	13:30:00	27-Jan-2213:30	61.7	35.1	73.0	70.0	69.7	71.6	64.0	36.2	61.1	63.4	63.4
27-Jan-22	14:00:00	27-Jan-2214:00	61.7	35.1	72.7	69.4	69.4	70.9	64.0	35.6	61.0	63.8	63.8
27-Jan-22	14:30:00	27-Jan-2214:30	61.6	35.1	72.6	69.9	68.7	70.6	64.0	35.0	60.7	62.8	62.8
27-Jan-22	15:00:00	27-Jan-2215:00	61.7	34.4	72.0	69.0	69.0	70.0	64.0	35.0	60.7	63.0	63.0
27-Jan-22	15:30:00	27-Jan-2215:30	63.4	34.2	72.8	69.4	69.2	70.7	64.0	35.4	62.5	63.5	63.5
27-Jan-22	16:00:00	27-Jan-2216:00	68.7	34.2	78.7	75.6	71.0	73.1	64.0	36.1	62.5	65.0	65.0
27-Jan-22	16:30:00	27-Jan-2216:30	68.7	34.2	78.4	75.3	71.0	73.0	64.0	36.2	62.0	65.0	65.0
27-Jan-22	17:00:00	27-Jan-2217:00	68.7	34.2	78.2	75.0	71.0	73.0	64.0	36.1	62.2	65.0	65.0
27-Jan-22	17:30:00	27-Jan-2217:30	68.7	34.2	79.0	75.6	71.0	73.0	64.0	37.0	62.9	65.0	65.0
27-Jan-22	18:00:00	27-Jan-2218:00	68.7	34.2	78.7	75.2	71.0	73.3	64.0	37.0	62.0	65.0	65.0
27-Jan-22	18:30:00	27-Jan-2218:30	68.7	34.2	78.7	75.6	71.0	73.9	64.0	37.0	62.8	65.0	65.0
27-Jan-22	19:00:00	27-Jan-2219:00	68.7	34.2	79.0	75.4	71.0	74.0	64.0	37.0	63.0	65.0	65.0
27-Jan-22	19:30:00	27-Jan-2219:30	68.7	34.2	79.0	76.0	71.2	74.0	64.0	37.0	63.0	65.0	65.0
27-Jan-22	20:00:00	27-Jan-2220:00	64.0	34.2	76.8	73.5	70.7	72.7	64.0	36.7	61.5	64.4	64.4
27-Jan-22	20:30:00	27-Jan-2220:30	61.0	34.2	73.0	69.0	69.0	71.0	64.0	35.0	61.0	63.0	63.0
27-Jan-22	21:00:00	27-Jan-2221:00	61.0	34.2	72.7	69.0	69.7	71.0	64.0	35.0	61.0	63.0	63.0
27-Jan-22	21:30:00	27-Jan-2221:30	61.0	34.2	72.4	69.0	69.4	71.0	64.0	35.0	61.0	63.0	63.0
27-Jan-22	22:00:00	27-Jan-2222:00	61.0	31.9	72.4	69.0	70.0	69.0	64.0	35.0	61.0	63.0	63.0
27-Jan-22	22:30:00	27-Jan-2222:30	61.0	32.2	72.0	69.0	69.8	69.0	64.0	35.0	61.0	63.0	63.0
27-Jan-22	23:00:00	27-Jan-2223:00	61.0	32.6	72.0	68.7	69.3	69.0	64.0	35.0	61.0	63.0	63.0
27-Jan-22	23:30:00	27-Jan-2223:30	61.0	33.7	72.0	69.0	69.2	69.0	64.0	35.0	60.6	62.7	62.7

Residential Sampling Report for Flushing Zone
C2 Zone Residential DW Sampling
Chemistry Results
Drinking Water Sampling, JBPHH, Oahu Hawaii

Location ID:		C2-BLDG0035	C2-BLDG0150	C2-BLDG0222	C2-BLDG0226	C2-BLDG0287	C2-BLDG0617	C2-BLDG1315	C2-BLDG1430
Location Type:		Non-Residence	Non-Residence	Non-Residence	Non-Residence	Non-Residence	Medical Building	Non-Residence	Non-Residence
Residence:		Building 35;GARAGE/PWC TRANS, 1675 South Ave	Building 150;ADMINISTRATIV E OFFICE, 850 Ticonderoga St	Building 222;EVENT CENTER, B223 South Ave and 8th St	Building 226;CBMU 303;SELF HELP OPS BLDG	Building 287;ADMIN BLDG, 560 Central Ave	Building 617;NEPMU- 6 PESTICIDE STORAGE-PEARL HARBOR	Building 1315;NGIS - NAVY TDY (HALE ALII), 78 Hale Alii Ave South Ave	Building 1430;SWOS ELS FACILITY, 1107 South Ave
Field Sample ID:		220127C2JT03	220127C2ET03	220127C2ET01	220126C2ET03	220126C2ET04	220126C2ET02	220127C2ET02	220126C2ET05
Sample Date:		2022-01-27	2022-01-27	2022-01-27	2022-01-26	2022-01-26	2022-01-26	2022-01-27	2022-01-26
Sample Type:		N	N	N	N	N	N	N	N

		DOH Environmental Action Levels Table D-1A	DOH Safe Drinking Water Branch (SDWB) Regulatory Constituents	Environmental Protection Agency Maximum Contaminant Levels					
GENCHEM (mg/L)	Incident Specific Parameters	Action Levels	None	SDG: DA41347	SDG: C22A055	SDG: 810132941_REV	SDG: 810132941_REV	SDG: C22A055	SDG: 810132941_REV
Total Organic Carbon		2	None	0.440 J	1.94 J	0.250 U	0.250 U	2.96 J	0.250 U
		DOH Environmental Action Levels Table D-1A	DOH Safe Drinking Water Branch (SDWB) Regulatory Constituents	Environmental Protection Agency Maximum Contaminant Levels					
HC (µg/L)	Incident Specific Parameters	Action Levels	None	SDG: DA41361	SDG: DA41361	SDG: 5801097321	SDG: 5801097321	SDG: DA41361	SDG: 5801097321
Petroleum Hydrocarbons (as Diesel)		200	400	92.0 U	190 U	130	94.0 U	190 U	92.0 U
Petroleum Hydrocarbons (as Gasoline)		200	300	100 U	40.0 U	100 U	100 U	40.0 UJ	100 U
Petroleum Hydrocarbons (as Motor Oil)		200	500	180 U	190 U	180 U	190 U	190 U	180 U
Total Petroleum Hydrocarbons		211		--	--	130	--	--	--
		DOH Environmental Action Levels Table D-1A	DOH Safe Drinking Water Branch (SDWB) Regulatory Constituents	Environmental Protection Agency Maximum Contaminant Levels					
HG (µg/L)	Incident Specific Parameters	Action Levels	2	SDG: DA41347	SDG: DA41361	SDG: 810132941_REV	SDG: 810132941_REV	SDG: DA41361	SDG: 810132941_REV
Mercury		0.025	0.025	--	0.0250 U	0.0560 U	0.0560 U	0.0250 U	0.0560 U
		DOH Environmental Action Levels Table D-1A	DOH Safe Drinking Water Branch (SDWB) Regulatory Constituents	Environmental Protection Agency Maximum Contaminant Levels					
METAL (µg/L)	Incident Specific Parameters	Action Levels	6	SDG: 983697_REV	SDG: DA41361	SDG: 810132941_REV	SDG: 810132941_REV	SDG: DA41361	SDG: 810132941_REV
Antimony		6	6	0.110 U	0.100 U	0.0570 U	0.0570 U	0.100 U	0.0570 U
Arsenic		10	10	0.210 U	0.500 U	0.890 U	0.890 U	0.500 U	0.890 U
Barium		220	2000	2.50	1.90 J	3.80	2.10	2.10	5.70
Beryllium		0.66	4	0.0910 U	0.150 U	0.0830 U	0.0830 U	0.150 U	0.0830 U
Cadmium		3	5	0.0290 U	0.0500 U	0.140 U	0.140 U	0.0500 U	0.140 U
Chromium		11	100	1.40	1.50 J	1.50	1.30	2.20	1.40
Copper		2.9	1300	58.0	30.3	12.0	120	15.3	46.0
Lead		15	15	0.240 J	0.320 J	0.360 J	0.830	3.00	0.730
Mercury		0.025	2	0.0200 U	--	--	--	--	--
Selenium		5	50	0.430 J	0.300 U	1.60 U	1.60 U	0.300 U	1.60 U
Thallium		2	2	0.0410 U	0.0500 U	0.160 U	0.160 U	0.0500 U	0.160 U

Residential Sampling Report for Flushing Zone
C2 Zone Residential DW Sampling
Chemistry Results
Drinking Water Sampling, JBPHH, Oahu Hawaii

Location ID:		C2-BLDG1511	C2-BLDG1746	C2-BLDG1750	C2-BLDG1753	C2-BLDG1786	C2-CROM4955	C2-CROM4969
Location Type:		Non-Residence	Non-Residence	Medical Building	Non-Residence	Non-Residence	Residence	Residence
Residence:		Building 1511, POOL BATHHOUSE/PUMP, 4571 Club Rd	Building 1746, REGION LEGAL SERVICE OFFICE, 850 Willamette St	Building 1750, SHIPYARD MEDICAL CLINIC- PEARL HARBOR, 490 Central Ave	Building 1753, TEMP PERSONNEL UNIT- ADMIN, 866 Hale Alii Ave	Building 1786, EXCHANGE SERV OUTLET (FLEET STORE & MWR FAC)	4955 Crommelin Street	4969 Crommelin Street
Field Sample ID:		220127C2ET06	220127C2ET05	220126C2ET01	220127C2ET04	220127C2JT01	220126C3GT09	220126C3KT01
Sample Date:		2022-01-27	2022-01-27	2022-01-26	2022-01-27	2022-01-27	2022-01-26	2022-01-26
Sample Type:		N	N	N	N	FD	N	N

		DOH Environmental Action Levels Table D-1A	DOH Safe Drinking Water Branch (SDWB) Regulatory Constituents	Environmental Protection Agency Maximum Contaminant Levels				
GENCHEM (mg/L)	Incident Specific Parameters	Action Levels	Regulatory Constituents	SDG: C22A055	SDG: C22A055	SDG: 810132941_REV	SDG: C22A055	SDG: 810132911
Total Organic Carbon		None	None	0.200 UJ	0.200 UJ	0.250 U	0.540	0.633
		DOH Environmental Action Levels Table D-1A	DOH Safe Drinking Water Branch (SDWB) Regulatory Constituents	Environmental Protection Agency Maximum Contaminant Levels				
HC (µg/L)	Incident Specific Parameters	Action Levels	Regulatory Constituents	SDG: DA41361	SDG: DA41361	SDG: 5801097321	SDG: 5801097321	SDG: 5801097271
Petroleum Hydrocarbons (as Diesel)	200	400	None	190 U	190 U	91.0 U	260	92.0 U
Petroleum Hydrocarbons (as Gasoline)	200	300	None	40.0 UJ	40.0 UJ	100 U	100 U	100 U
Petroleum Hydrocarbons (as Motor Oil)	200	500	None	190 U	190 U	190 U	190 U	180 U
Total Petroleum Hydrocarbons		211		--	--	--	260	--
		DOH Environmental Action Levels Table D-1A	DOH Safe Drinking Water Branch (SDWB) Regulatory Constituents	Environmental Protection Agency Maximum Contaminant Levels				
HG (µg/L)	Incident Specific Parameters	Action Levels	Regulatory Constituents	SDG: DA41361	SDG: DA41361	SDG: 810132941_REV	SDG: DA41347	SDG: 810132911
Mercury	0.025	0.025	2	0.0250 U	0.0250 U	0.0560 U	--	0.0560 UJ
		DOH Environmental Action Levels Table D-1A	DOH Safe Drinking Water Branch (SDWB) Regulatory Constituents	Environmental Protection Agency Maximum Contaminant Levels				
METAL (µg/L)	Incident Specific Parameters	Action Levels	Regulatory Constituents	SDG: DA41361	SDG: DA41361	SDG: 810132941_REV	SDG: 983692_REV	SDG: 810132911
Antimony	6	6	6	0.100 U	0.100 U	0.0570 U	0.110 U	0.0570 U
Arsenic	10	10	10	0.500 U	0.500 U	0.890 U	0.210 J	0.890 U
Barium	220	220	2000	2.00	1.90 J	2.10	2.60	2.10
Beryllium	0.66	0.66	4	0.150 U	0.150 U	0.0830 U	0.0910 U	0.0830 U
Cadmium	3	3	5	0.0500 U	0.0500 U	0.140 U	0.0290 U	0.140 U
Chromium	11	11	100	1.10 J	1.50 J	1.60	1.50	1.60
Copper	2.9	2.9	1300	67.0	34.5	150	54.0	27.0
Lead	15	5.6	15	0.290 J	0.130 U	0.470 J	0.360 J	0.490 J
Mercury	0.025	0.025	2	--	--	--	0.0200 U	--
Selenium	5	5	50	0.300 U	0.300 U	1.60 U	0.970 J	1.60 U
Thallium	2	2	2	0.0500 U	0.0500 U	0.160 U	0.0430 J	0.160 U

Residential Sampling Report for Flushing Zone
C2 Zone Residential DW Sampling
Chemistry Results
Drinking Water Sampling, JBPHH, Oahu Hawaii

Location ID: C2-CROM4969 C2-CROM4997 C2-CROM5004 C2-CROM5022 C2-CROM5032 C2-CROM5038
Location Type: Residence Residence Residence Residence Residence Residence
Residence: 4969 Crommelin Street 4997 Crommelin Street 5004 Crommelin Street 5022 Crommelin Street 5032 Crommelin Street 5038 Crommelin Street

Field Sample ID: 220126C3KT02 220126C2BT06 220126C2BT05 220126C2CT03 220126C2CT01 220126C2CT02 220126C2BT04 220126C2BT01
Sample Date: 2022-01-26 2022-01-26 2022-01-26 2022-01-26 2022-01-26 2022-01-26 2022-01-26 2022-01-26
Sample Type: FD N N N FD N N N

DOH		Environmental		DOH Safe		Environmental	
Incident Specific Parameters		Table D-1A Groundwater Action Levels	Table D-1A Groundwater Action Levels	Drinking Water Regulatory Constituents		Agency Maximum Contaminant Levels	
GENCHEM (mg/L)	2	None	None	None		SDG: DA41308	SDG: DA41308
Total Organic Carbon						0.250 U	0.560

DOH		Environmental		DOH Safe		Environmental	
Incident Specific Parameters		Table D-1A Groundwater Action Levels	Table D-1A Groundwater Action Levels	Drinking Water Regulatory Constituents		Agency Maximum Contaminant Levels	
HC (µg/L)	200	400	None	None		SDG: DA41308	SDG: DA41308
Petroleum Hydrocarbons (as Diesel)						93.0 U	190 UJ
Petroleum Hydrocarbons (as Gasoline)	200	300	None	None		40.0 U	40.0 U
Petroleum Hydrocarbons (as Motor Oil)	200	500	None	None		190 U	190 U
Total Petroleum Hydrocarbons		211				--	--

DOH		Environmental		DOH Safe		Environmental	
Incident Specific Parameters		Table D-1A Groundwater Action Levels	Table D-1A Groundwater Action Levels	Drinking Water Regulatory Constituents		Agency Maximum Contaminant Levels	
HG (µg/L)	0.025	0.025	2	2		SDG: DA41308	SDG: DA41308
Mercury						0.0560 UJ	0.0250 U

DOH		Environmental		DOH Safe		Environmental	
Incident Specific Parameters		Table D-1A Groundwater Action Levels	Table D-1A Groundwater Action Levels	Drinking Water Regulatory Constituents		Agency Maximum Contaminant Levels	
METAL (µg/L)	6	6	6	6		SDG: DA41308	SDG: DA41308
Antimony						0.0570 U	0.100 U
Arsenic	10	10	10	10		0.500 U	0.500 U
Barium	220	220	2000	2000		2.30	2.10
Beryllium	0.66	0.66	4	4		0.0830 U	0.150 U
Cadmium	3	3	5	5		0.140 U	0.0500 U
Chromium	11	11	100	100		1.30 J	1.30 J
Copper	2.9	2.9	1300	1300		22.0	21.4
Lead	15	5.6	15	15		0.410 J	0.260 J
Mercury	0.025	0.025	2	2		--	--
Selenium	5	5	50	50		1.60 U	0.300 U
Thallium	2	2	2	2		0.160 U	0.0500 U

Residential Sampling Report for Flushing Zone
C2 Zone Residential DW Sampling
Chemistry Results
Drinking Water Sampling, JBPHH, Oahu Hawaii

Location ID:	C2-CROM5038	C2-CROM5044	C2-HALE4509	C2-HALE4559	C2-HALE4639	C2-HALE4639	C2-HALE4651	C2-MARI0202
Location Type:	Residence	Residence	Residence	Residence	Residence	Residence	Residence	Residence
Residence:	5038 Crommelin Street	5044 Crommelin Street	4509 Hale Alii Avenue	4559 Hale Alii Avenue	4639 Hale Alii Avenue	4639 Hale Alii Avenue	4651 Hale Alii Avenue	202 Marine Barracks Way
Field Sample ID:	220126C2BT02	220126C2BT03	220127C2HT08	220127C2HT09	220126C2DT01	220126C2DT02	220126C2CT04	220126C2DT03
Sample Date:	2022-01-26	2022-01-26	2022-01-27	2022-01-27	2022-01-26	2022-01-26	2022-01-26	2022-01-26
Sample Type:	FD	N	N	N	N	FD	N	N

		DOH Environmental Action Levels Table D-1A	DOH Safe Drinking Water Branch (SDWB) Regulatory Constituents	Environmental Protection Agency Maximum Contaminant Levels					
GENCHEM (mg/L)	Incident Specific Parameters	Action Levels			SDG:	SDG:	SDG:	SDG:	SDG:
Total Organic Carbon	2	None	None	None	0.550	1.55 J	0.200 UJ	0.270 J	0.530

		DOH Environmental Action Levels Table D-1A	DOH Safe Drinking Water Branch (SDWB) Regulatory Constituents	Environmental Protection Agency Maximum Contaminant Levels					
HC (µg/L)	Incident Specific Parameters	Action Levels			SDG:	SDG:	SDG:	SDG:	SDG:
Petroleum Hydrocarbons (as Diesel)	200	400	None	None	190 UJ	92.0 U	190 UJ	190 U	190 U
Petroleum Hydrocarbons (as Gasoline)	200	300	None	None	40.0 U	31.0 U	40.0 U	40.0 U	40.0 U
Petroleum Hydrocarbons (as Motor Oil)	200	500	None	None	190 UJ	180 U	190 U	190 U	190 U
Total Petroleum Hydrocarbons	211				--	--	--	--	--

		DOH Environmental Action Levels Table D-1A	DOH Safe Drinking Water Branch (SDWB) Regulatory Constituents	Environmental Protection Agency Maximum Contaminant Levels					
HG (µg/L)	Incident Specific Parameters	Action Levels			SDG:	SDG:	SDG:	SDG:	SDG:
Mercury	0.025	0.025	2	2	0.0250 U	0.0560 U	0.0250 U	0.0250 U	0.0250 U

		DOH Environmental Action Levels Table D-1A	DOH Safe Drinking Water Branch (SDWB) Regulatory Constituents	Environmental Protection Agency Maximum Contaminant Levels					
METAL (µg/L)	Incident Specific Parameters	Action Levels			SDG:	SDG:	SDG:	SDG:	SDG:
Antimony	6	6	6	6	0.100 U	0.0570 U	0.100 U	0.100 U	0.100 U
Arsenic	10	10	10	10	0.500 U	0.890 U	0.500 U	0.500 U	0.500 U
Barium	220	220	2000	2000	2.10	1.90 J	2.20	2.10	2.20
Beryllium	0.66	0.66	4	4	0.150 U	0.0830 U	0.150 U	0.150 U	0.150 U
Cadmium	3	3	5	5	0.0500 U	0.140 U	0.0500 U	0.0500 U	0.0500 U
Chromium	11	11	100	100	1.40 J	1.80	1.30 J	1.50 J	1.40 J
Copper	2.9	2.9	1300	1300	18.4	35.0	77.0	70.1	42.0
Lead	15	5.6	15	15	0.130 U	0.670	0.380 J	1.10	0.170 J
Mercury	0.025	0.025	2	2	--	--	--	--	--
Selenium	5	5	50	50	0.300 U	1.60 U	0.300 U	0.300 U	0.300 U
Thallium	2	2	2	2	0.0500 U	0.160 U	0.0500 U	0.0500 U	0.0500 U

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C2 Zone Residential DW Sampling
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Location ID:		C2-BLDG0035		C2-BLDG0150		C2-BLDG0222		C2-BLDG0226		C2-BLDG0287		C2-BLDG0617		C2-BLDG1315		C2-BLDG1430	
Location Type:		Non-Residence		Non-Residence		Non-Residence		Non-Residence		Non-Residence		Medical Building		Non-Residence		Non-Residence	
Residence:		Building 35,GARAGE/PWC TRANS, 1675 South Ave		Building 150,ADMINISTRATIV E OFFICE, 850 Ticonderoga St		Building 222,EVENT CENTER, B223 South Ave and 8th St		Building 226,CBMU 303/SELF HELP OPS BLDG		Building 287,ADMIN BLDG, 560 Central Ave		Building 617,NEPMU- 6 PESTICIDE STORAGE-PEARL HARBOR		Building 1315,NGIS - NAVY TDY (HALE ALI), 78 Hale Alii Ave South Ave		Building 1430,SWOS ELS FACILITY, 1107 South Ave	
Field Sample ID:		220127C2JT03		220127C2ET03		220127C2ET01		220126C2ET03		220126C2ET04		220126C2ET02		220127C2ET02		220126C2ET05	
Sample Date:		2022-01-27		2022-01-27		2022-01-27		2022-01-26		2022-01-26		2022-01-26		2022-01-27		2022-01-26	
Sample Type:		N		N		N		N		N		N		N		N	

		DOH Environmental Action Levels Table D-1A		DOH Safe Drinking Water Branch (SDWB) Regulatory Constituents		Environmental Protection Agency Maximum Contaminant Levels		SDG:		SDG:		SDG:		SDG:		SDG:	
Incident Specific Parameters	Action Levels	DOH Environmental Action Levels	DOH Safe Drinking Water Branch (SDWB) Regulatory Constituents	Environmental Protection Agency Maximum Contaminant Levels	SDG:	SDG:	SDG:	SDG:	SDG:	SDG:	SDG:	SDG:	SDG:	SDG:	SDG:	SDG:	SDG:
SVOC (µg/L)	2.1	10	None	None	810133841	DA41361	DA41361	810132941_REV	810132941_REV	810132941_REV	DA41361	810132941_REV	810132941_REV	810132941_REV	810132941_REV	810132941_REV	810132941_REV
1-Methylnaphthalene		10	None	None	0.0200 U	0.240 U	0.240 U	0.0190 U	0.0190 U	0.0190 U	0.240 U	0.0190 U	0.0190 U	0.240 U	0.0190 U	0.0190 U	0.0190 U
2-Methylnaphthalene		10	None	None	0.0200 U	0.240 U	0.240 U	0.0190 U	0.0190 U	0.0190 U	0.240 U	0.0190 U	0.0190 U	0.240 U	0.0190 U	0.0190 U	0.0190 U
Benzo(a)pyrene		0.06	0.2	0.2	0.00980 U	0.00950 U	0.00950 U	0.00960 U	0.00970 U	0.00970 U	0.00950 U	0.00970 U	0.00970 U	0.00950 U	0.00970 U	0.00970 U	0.00970 U
Bis(2-ethylhexyl)phthalate		3	6	6	0.590 U	0.380 U	0.380 U	0.580 U	0.580 U	0.580 U	0.380 U	0.580 U	0.580 U	0.380 U	0.580 U	0.580 U	0.580 U
Naphthalene		12	None	None	0.0200 U	0.240 U	0.240 U	0.0190 U	0.0190 U	0.0190 U	0.240 U	0.0190 U	0.0190 U	0.240 U	0.0190 U	0.0190 U	0.0190 U

		DOH Environmental Action Levels Table D-1A		DOH Safe Drinking Water Branch (SDWB) Regulatory Constituents		Environmental Protection Agency Maximum Contaminant Levels		SDG:		SDG:		SDG:		SDG:		SDG:	
Incident Specific Parameters	Action Levels	DOH Environmental Action Levels	DOH Safe Drinking Water Branch (SDWB) Regulatory Constituents	Environmental Protection Agency Maximum Contaminant Levels	SDG:	SDG:	SDG:	SDG:	SDG:	SDG:	SDG:	SDG:	SDG:	SDG:	SDG:	SDG:	SDG:
VOC (µg/L)					DA41347	C22A055	C22A055	810132941_REV	810132941_REV	810132941_REV	C22A055	810132941_REV	810132941_REV	C22A055	810132941_REV	810132941_REV	810132941_REV
1,1,1-Trichloroethane	11	11	200	200	0.500 U	0.119 U	0.119 U	0.200 U	0.200 U	0.200 U	0.119 U	0.200 U	0.200 U	0.119 U	0.200 U	0.200 U	0.200 U
1,1,2-Trichloroethane	5	5	3	5	0.500 U	0.288 U	0.288 U	0.200 U	0.200 U	0.200 U	0.288 U	0.200 U	0.200 U	0.288 U	0.200 U	0.200 U	0.200 U
1,1-Dichloroethene	7	7	7	7	0.500 U	0.128 U	0.128 U	0.200 U	0.200 U	0.200 U	0.128 U	0.200 U	0.200 U	0.128 U	0.200 U	0.200 U	0.200 U
1,2,4-Trichlorobenzene	70	70	70	70	0.500 U	0.318 U	0.318 U	0.200 U	0.200 U	0.200 U	0.318 U	0.200 U	0.200 U	0.318 U	0.200 U	0.200 U	0.200 U
1,2-Dichlorobenzene	10	10	600	600	0.500 U	0.272 U	0.272 U	0.200 U	0.200 U	0.200 U	0.272 U	0.200 U	0.200 U	0.272 U	0.200 U	0.200 U	0.200 U
1,2-Dichloroethane	5	5	5	5	0.500 U	0.0884 U	0.0884 U	0.200 U	0.200 U	0.200 U	0.0884 U	0.200 U	0.200 U	0.0884 U	0.200 U	0.200 U	0.200 U
1,2-Dichloropropane	5	5	5	5	0.500 U	0.129 U	0.129 U	0.200 U	0.200 U	0.200 U	0.129 U	0.200 U	0.200 U	0.129 U	0.200 U	0.200 U	0.200 U
1,4-Dichlorobenzene	5	5	75	None	0.500 U	0.245 U	0.245 U	0.200 U	0.200 U	0.200 U	0.245 U	0.200 U	0.200 U	0.245 U	0.200 U	0.200 U	0.200 U
Benzene	5	5	5	5	0.500 U	0.0846 U	0.0846 U	0.200 U	0.200 U	0.200 U	0.0846 U	0.200 U	0.200 U	0.0846 U	0.200 U	0.200 U	0.200 U
Carbon Tetrachloride	5	5	5	5	0.500 U	0.165 U	0.165 U	0.100 U	0.100 U	0.100 U	0.165 U	0.100 U	0.100 U	0.165 U	0.100 U	0.100 U	0.100 U
Chlorobenzene	25	25	100	100	0.500 U	0.146 U	0.146 U	0.200 U	0.200 U	0.200 U	0.146 U	0.200 U	0.200 U	0.146 U	0.200 U	0.200 U	0.200 U
cis-1,2-Dichloroethene	70	70	70	70	0.500 U	0.0570 U	0.0570 U	0.200 U	0.200 U	0.200 U	0.0570 U	0.200 U	0.200 U	0.0570 U	0.200 U	0.200 U	0.200 U
Ethylbenzene	700	7.3	700	700	0.500 U	0.141 U	0.141 U	0.200 U	0.200 U	0.200 U	0.141 U	0.200 U	0.200 U	0.141 U	0.200 U	0.200 U	0.200 U
m,p-Xylene	10000	13	None	None	0.500 U	0.317 U	0.317 U	0.500 U	0.500 U	0.500 U	0.317 U	0.500 U	0.500 U	0.317 U	0.500 U	0.500 U	0.500 U
Methylene chloride	5	5	5	5	0.500 U	2.15 U	2.15 U	0.400 U	0.400 U	0.400 U	2.15 U	0.400 U	0.400 U	2.15 U	0.400 U	0.400 U	0.400 U
o-Xylene	10000	13	None	None	0.500 U	0.157 U	0.157 U	0.200 U	0.200 U	0.200 U	0.157 U	0.200 U	0.200 U	0.157 U	0.200 U	0.200 U	0.200 U
Styrene	10	10	100	100	0.500 U	0.224 U	0.224 U	0.200 U	0.200 U	0.200 U	0.224 U	0.200 U	0.200 U	0.224 U	0.200 U	0.200 U	0.200 U
Tetrachloroethene (PCE)	5	5	5	5	0.500 U	0.125 U	0.125 U	0.200 U	0.200 U	0.200 U	0.125 U	0.200 U	0.200 U	0.125 U	0.200 U	0.200 U	0.200 U
Toluene	1000	9.8	1000	1000	0.500 U	0.120 U	0.120 U	0.200 U	0.200 U	0.200 U	0.120 U	0.200 U	0.200 U	0.120 U	0.200 U	0.200 U	0.200 U
trans-1,2-Dichloroethene	100	100	100	100	0.500 U	0.0958 U	0.0958 U	0.200 U	0.200 U	0.200 U	0.0958 U	0.200 U	0.200 U	0.0958 U	0.200 U	0.200 U	0.200 U
Trichloroethene (TCE)	5	5	5	5	0.500 U	0.0574 U	0.0574 U	0.200 U	0.200 U	0.200 U	0.0574 U	0.200 U	0.200 U	0.0574 U	0.200 U	0.200 U	0.200 U
Vinyl chloride	2	2	2	2	0.500 U	0.611 U	0.611 U	0.200 U	0.200 U	0.200 U	0.611 U	0.200 U	0.200 U	0.611 U	0.200 U	0.200 U	0.200 U
Xylenes, Total	10000	13	10000	10000	0.500 U	--	--	0.500 U	0.500 U	0.500 U	--	0.500 U	0.500 U	--	0.500 U	0.500 U	0.500 U

Residential Sampling Report for Flushing Zone
C2 Zone Residential DW Sampling
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Location ID:	C2-BLDG1511	C2-BLDG1746	C2-BLDG1750	C2-BLDG1753	C2-BLDG1786	C2-CROM4955	C2-CROM4969
Location Type:	Non-Residence	Non-Residence	Medical Building	Non-Residence	Non-Residence	Residence	Residence
Residence:	Building 1511, POOL BATHHOUSE/PUMP, 4571 Club Rd	Building 1746, REGION LEGAL SERVICE OFFICE, 850 Willamette St	Building 1750, SHIPYARD MEDICAL CLINIC- PEARL HARBOR, 490 Central Ave	Building 1753, TEMP PERSONNEL UNIT- ADMIN, 866 Hale Alii Ave	Building 1786, EXCHANGE SERV OUTLET (FLEET STORE & MWR FAC)	4955 Crommelin Street	4969 Crommelin Street
Field Sample ID:	220127C2ET06	220127C2ET05	220126C2ET01	220127C2ET04	220127C2JT01	220126C3GT09	220126C3KT01
Sample Date:	2022-01-27	2022-01-27	2022-01-26	2022-01-27	2022-01-27	2022-01-26	2022-01-26
Sample Type:	N	N	N	N	FD	N	N

DOH			Environmental Protection Agency		
Incident Specific Parameters	Environmental Action Levels Table D-1A	DOH Safe Drinking Water Branch (SDWB) Regulatory Constituents	Maximum Contaminant Levels		
SVOC (µg/L)	10	None	None	SDG: DA41361	SDG: 810132941_REV
1-Methylnaphthalene	2.1	None	None	0.240 U	0.0200 U
2-Methylnaphthalene	4.7	None	None	0.240 U	0.0200 U
Benzo(a)pyrene	0.06	0.2	0.00950 U	0.00980 U	0.00950 U
Bis(2-ethylhexyl)phthalate	3	6	0.380 U	0.590 U	0.380 U
Naphthalene	12	None	0.240 U	0.0200 U	0.0190 U

DOH			Environmental Protection Agency		
Incident Specific Parameters	Environmental Action Levels Table D-1A	DOH Safe Drinking Water Branch (SDWB) Regulatory Constituents	Maximum Contaminant Levels		
VOC (µg/L)	11	200	0.119 U	SDG: C22A055	SDG: 810132941_REV
1,1,1-Trichloroethane	11	200	0.119 U	0.500 U	0.200 U
1,1,2-Trichloroethane	5	3	0.288 U	0.500 U	0.200 U
1,1-Dichloroethene	7	7	0.128 U	0.500 U	0.200 U
1,2,4-Trichlorobenzene	70	70	0.318 U	0.500 U	0.200 U
1,2-Dichlorobenzene	10	600	0.272 U	0.500 U	0.200 U
1,2-Dichloroethane	5	5	0.0884 U	0.500 U	0.200 U
1,2-Dichloropropane	5	5	0.129 U	0.500 U	0.200 U
1,4-Dichlorobenzene	5	75	0.245 U	0.500 U	0.200 U
Benzene	5	5	0.0846 U	0.500 U	0.200 U
Carbon Tetrachloride	5	5	0.165 U	0.500 U	0.100 U
Chlorobenzene	25	100	0.146 U	0.500 U	0.200 U
cis-1,2-Dichloroethene	70	70	0.0570 U	0.500 U	0.200 U
Ethylbenzene	700	700	0.141 U	0.500 U	0.200 U
m,p-Xylene	10000	None	0.317 U	0.500 U	0.500 U
Methylene chloride	5	5	2.15 U	0.500 U	0.400 U
o-Xylene	10000	None	0.157 U	0.500 U	0.200 U
Styrene	10	100	0.224 U	0.500 U	0.200 U
Tetrachloroethene (PCE)	5	5	0.125 U	0.500 U	0.200 U
Toluene	1000	1000	0.120 U	0.500 U	0.200 U
trans-1,2-Dichloroethene	100	100	0.0958 U	0.500 U	0.200 U
Trichloroethene (TCE)	5	5	0.0574 U	0.500 U	0.200 U
Vinyl chloride	2	2	0.611 U	0.500 U	0.200 U
Xylenes, Total	10000	10000	--	0.500 U	0.500 U

Residential Sampling Report for Flushing Zone
C2 Zone Residential DW Sampling
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Location ID: C2-CROM4969 C2-CROM4997 C2-CROM5004 C2-CROM5022 C2-CROM5032 C2-CROM5038
Location Type: Residence Residence Residence Residence Residence Residence
Residence: 4969 Crommelin Street 4997 Crommelin Street 5004 Crommelin Street 5022 Crommelin Street 5032 Crommelin Street 5038 Crommelin Street

Field Sample ID: 220126C3KT02 220126C2BT06 220126C2BT05 220126C2CT03 220126C2CT01 220126C2CT02 220126C2BT04 220126C2BT01
Sample Date: 2022-01-26 2022-01-26 2022-01-26 2022-01-26 2022-01-26 2022-01-26 2022-01-26 2022-01-26
Sample Type: FD N N N N FD N N

DOH			Environmental Protection Agency		
Incident Specific Parameters		Environmental Action Levels Table D-1A Groundwater Action Levels	DOH Safe Drinking Water Branch (SDWB) Regulatory Constituents	Maximum Contaminant Levels	SDG: 810132911
SVOC (µg/L)	2.1	10	None	None	0.0190 U
1-Methylnaphthalene					0.0190 U
2-Methylnaphthalene	4.7	10	None	None	0.0190 U
Benzo(a)pyrene	0.06	0.06	0.2	0.2	0.00970 U
Bis(2-ethylhexyl)phthalate	3	3	6	6	0.580 U
Naphthalene	12	17	None	None	0.0190 U

DOH			Environmental Protection Agency		
Incident Specific Parameters		Environmental Action Levels Table D-1A Groundwater Action Levels	DOH Safe Drinking Water Branch (SDWB) Regulatory Constituents	Maximum Contaminant Levels	SDG: 810132911
VOC (µg/L)	11	11	200	200	0.200 U
1,1,1-Trichloroethane					0.500 U
1,1,2-Trichloroethane	5	5	3	5	0.200 U
1,1-Dichloroethene	7	7	7	7	0.200 U
1,2,4-Trichlorobenzene	70	70	70	70	0.200 U
1,2-Dichlorobenzene	10	10	600	600	0.200 U
1,2-Dichloroethane	5	5	5	5	0.200 U
1,2-Dichloropropane	5	5	5	5	0.200 U
1,4-Dichlorobenzene	5	5	75	None	0.200 U
Benzene	5	5	5	5	0.200 U
Carbon Tetrachloride	5	5	5	5	0.100 U
Chlorobenzene	25	25	100	100	0.200 U
cis-1,2-Dichloroethene	70	70	70	70	0.200 U
Ethylbenzene	700	7.3	700	700	0.200 U
m,p-Xylene	10000	13	None	None	0.500 U
Methylene chloride	5	5	5	5	0.400 U
o-Xylene	10000	13	None	None	0.200 U
Styrene	10	10	100	100	0.200 U
Tetrachloroethene (PCE)	5	5	5	5	0.200 U
Toluene	1000	9.8	1000	1000	0.200 U
trans-1,2-Dichloroethene	100	100	100	100	0.200 U
Trichloroethene (TCE)	5	5	5	5	0.200 U
Vinyl chloride	2	2	2	2	0.200 U
Xylenes, Total	10000	13	10000	10000	0.500 U

Residential Sampling Report for Flushing Zone
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Location ID: C2-CROM5038 C2-CROM5044 C2-HALE4509 C2-HALE4559 C2-HALE4639 C2-HALE4651 C2-MARI0202
Location Type: Residence Residence Residence Residence Residence Residence Residence
Residence: 5038 Crommelin Street 5044 Crommelin Street 4509 Hale Alii Avenue 4559 Hale Alii Avenue 4639 Hale Alii Avenue 4651 Hale Alii Avenue 202 Marine Barracks Way

Field Sample ID: 220126C2BT02 220126C2BT03 220127C2HT08 220127C2HT09 220126C2DT01 220126C2DT02 220126C2CT04 220126C2DT03
Sample Date: 2022-01-26 2022-01-26 2022-01-27 2022-01-27 2022-01-26 2022-01-26 2022-01-26 2022-01-26
Sample Type: FD N N N N FD N N

DOH			Environmental Protection Agency		
Incident Specific Parameters		Environmental Action Levels Table D-1A Groundwater	DOH Safe Drinking Water Branch (SDWB) Regulatory Constituents	Maximum Contaminant Levels	SDG:
SVOC (µg/L)	2.1	10	None	None	DA41308
1-Methylnaphthalene				None	0.240 U
2-Methylnaphthalene	4.7	10	None	None	0.240 U
Benzo(a)pyrene	0.06	0.06	0.2	0.00950 U	0.00950 U
Bis(2-ethylhexyl)phthalate	3	3	6	0.380 U	0.380 U
Naphthalene	12	17	None	0.240 U	0.240 U

DOH			Environmental Protection Agency		
Incident Specific Parameters		Environmental Action Levels Table D-1A Groundwater	DOH Safe Drinking Water Branch (SDWB) Regulatory Constituents	Maximum Contaminant Levels	SDG:
VOC (µg/L)	11	11	200	200	DA41308
1,1,1-Trichloroethane				0.500 U	0.500 U
1,1,2-Trichloroethane	5	5	3	0.500 U	0.500 U
1,1-Dichloroethene	7	7	7	0.500 U	0.500 U
1,2,4-Trichlorobenzene	70	70	70	0.500 U	0.500 U
1,2-Dichlorobenzene	10	10	600	0.500 U	0.500 U
1,2-Dichloroethane	5	5	5	0.500 U	0.500 U
1,2-Dichloropropane	5	5	5	0.500 U	0.500 U
1,4-Dichlorobenzene	5	5	75	0.500 U	0.500 U
Benzene	5	5	5	0.500 U	0.500 U
Carbon Tetrachloride	5	5	5	0.500 U	0.500 U
Chlorobenzene	25	25	100	0.500 U	0.500 U
cis-1,2-Dichloroethene	70	70	70	0.500 U	0.500 U
Ethylbenzene	700	7.3	700	0.500 U	0.500 U
m,p-Xylene	10000	13	None	0.500 U	0.500 U
Methylene chloride	5	5	5	0.500 U	0.500 U
o-Xylene	10000	13	None	0.500 U	0.500 U
Styrene	10	10	100	0.500 U	0.500 U
Tetrachloroethene (PCE)	5	5	5	0.500 U	0.500 U
Toluene	1000	9.8	1000	0.500 U	0.500 U
trans-1,2-Dichloroethene	100	100	100	0.500 U	0.500 U
Trichloroethene (TCE)	5	5	5	0.500 U	0.500 U
Vinyl chloride	2	2	2	0.500 U	0.500 U
Xylenes, Total	10000	13	10000	0.500 U	0.500 U

Residential Sampling Report for Flushing Zone
C2 Zone Residential DW Sampling
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Location ID: C2-MARIO203
Location Type: Residence
Residence: 203 Marine Barracks Way

C2-MARIO204A
Residence
204A Marine Barracks Way

C2-MARIO204B
Residence
204B Marine Barracks Way

C2-MARIO204A
Residence
204A Marine Barracks Way

C2-MARIO204A
Residence
204A Marine Barracks Way

C2-SAFE2124
Residence
2124 Safeguard Street

Field Sample ID: 220127C2HT11
Sample Date: 2022-01-27
Sample Type: N

220126C2DT04
2022-01-26
N

220128C2JT01
2022-01-28
N (72 Hour Stagnation)

220128C2JT02
2022-01-28
FD (72 Hour Stagnation)

220126C2ET06
2022-01-26
N

220127C2HT10
2022-01-27
N

DOH		Environmental		Environmental		DOH Safe		Environmental		Protection	
Incident Specific Parameters		Action Levels		Table D-1A		Drinking Water Regulatory Constituents		SDWB		Agency Maximum Contaminant Levels	
SVOC (µg/L)	2.1	10		None		None		SDG: 810133841		SDG: DA41308	
1-Methylnaphthalene											
2-Methylnaphthalene	4.7	10		None		None					
Benzo(a)pyrene	0.06	0.06		0.2		0.00970 U		0.00990 U		0.00980 U	
Bis(2-ethylhexyl)phthalate	3	3		6		0.580 U		0.400 U		0.590 U	
Naphthalene	12	17		None		0.0190 U		0.250 U		0.240 U	

DOH		Environmental		DOH Safe		Environmental		Protection	
Incident Specific Parameters		Action Levels		Table D-1A		Drinking Water Regulatory Constituents		Agency Maximum Contaminant Levels	
VOC (µg/L)	11	11		200		SDG: C22A055		SDG: DA41361	
1,1,1-Trichloroethane									
1,1,2-Trichloroethane	5	5		3		0.288 U		0.500 U	
1,1-Dichloroethene	7	7		7		0.128 U		0.500 U	
1,2,4-Trichlorobenzene	70	70		70		0.318 U		0.500 U	
1,2-Dichlorobenzene	10	10		600		0.272 U		0.500 U	
1,2-Dichloroethane	5	5		5		0.0884 U		0.500 U	
1,2-Dichloropropane	5	5		5		0.129 U		0.500 U	
1,4-Dichlorobenzene	5	5		75		0.245 U		0.500 U	
Benzene	5	5		5		0.0846 U		0.500 U	
Carbon Tetrachloride	5	5		5		0.165 U		0.500 U	
Chlorobenzene	25	25		100		0.146 U		0.500 U	
cis-1,2-Dichloroethene	70	70		70		0.0570 U		0.500 U	
Ethylbenzene	700	7.3		700		0.141 U		0.500 U	
m,p-Xylene	10000	13		None		0.317 U		0.500 U	
Methylene chloride	5	5		5		2.15 U		0.500 U	
o-Xylene	10000	13		None		0.157 U		0.500 U	
Styrene	10	10		100		0.224 U		0.500 U	
Tetrachloroethene (PCE)	5	5		5		0.125 U		0.500 U	
Toluene	1000	9.8		1000		0.120 U		0.500 U	
trans-1,2-Dichloroethene	100	100		100		0.0958 U		0.500 U	
Trichloroethene (TCE)	5	5		5		0.0574 U		0.500 U	
Vinyl chloride	2	2		2		0.611 U		0.500 U	
Xylenes, Total	10000	13		10000		--		0.500 U	

Residential Sampling Report for Flushing Zone
C2 Zone Residential DW Sampling
Chemistry Results
Drinking Water Sampling, JBPHH, Oahu Hawaii

Notes:

- indicates that the sample was Not Analyzed for the analyte
- Results highlighted yellow exceed the ISP
- Results in purple font also exceed the EALs
- Results in green font also exceed the DOH MCL
- Results in blue font also exceed the EPA MCL
- Results from G1/G3 sampling, where the G3 result is greater than the G1 result, have a red border and the associated G1/G3 result in parentheses for comparison

µg/L = Micrograms per Liter

March 8, 2022

From: Naval Facilities Engineering Systems Command Representative, IDWS Team
To: Interagency Drinking Water System Team

SUBJ: ZONE C2 EXCEEDANCE INVESTIGATION SUMMARY AND RESAMPLE RESULTS

Ref: (a) DoH's Guidance on the Approach to Amending the Public Health Advisory, Addendum 1 dtd 12 FEB 2022

Encl: (1) Zone C2 ISP or MCL Exceedance Report
(2) Zone C2 TPH Exceedance Map Area and Resampling Locations
(3) Zone C2 Bldg 1786 Resample Report with Detailed Sample Locations
(4) Zone C2 ISP or MCL Exceedance Resample Report
(5) DoH TPH Sample Results for Zone C2
(6) Hawaii State Department of Health Petroleum Hydrocarbons in Water Health Effects
(7) DoH SVOC Sample Results for Zone C2

1. This letter documents the investigation into exceedances of incident specific parameters (ISP) and Safe Drinking Water Act (SDWA) maximum contaminant levels (MCLs) in Zone C2. Enclosure (1) documents exceedances for building (residence and non-residences) sampling test results for the ISP total organic carbon (TOC) of 2 parts per million and the ISP for total petroleum hydrocarbons of 211 parts per billion (ppb) in a building. Reference (a) contains the specific ISP levels and MCLs for each analyte.

2. The IDWST reviewed the TOC distribution and building sample results in their entirety. The exceedances of the ISP in buildings ranged between 2 ppm and 3 ppm. In regards to TOC, the IDWST determined that no further action was required beyond the long term monitoring sampling for Zone C2.

3. TPH was detected at a value of 260 ppb at building 1786 (non-residence). Building 1786 serves as a multi-use facility. It includes the MWR ITT office, a NEX mini-mart, barber shop, and a food court. The IDWST reviewed the location of the TPH exceedance against the location of all other samples in Zone C2. Figure (1) of enclosure (2) shows the geographic dispersal of the initial sample results and the location of building 1786. Review of the geographic dispersal of the sampling test results seemed to indicate that the exceedance was a localized issue that was most likely attributable to premise plumbing. The exceedance occurred in the field duplicate sample taken at the Subway handwashing sink as documented in enclosure (3). The IDWST determined that further investigation was needed through sampling and flushing. Building 1786 was sampled again at the Subway handwashing sink, the entire building was flushed, and the Subway handwashing sink was resampled. Both samples taken at the Subway were below the ISP for TPH as documented in enclosures (3) and (4). As part of the plan of action and milestones (POAM) developed by the IDWST, the team decided to take an additional sample in building 1786 at the Steak Out restaurant and at building 1709 which is across the street from 1786 as shown in figure 2 of enclosure (2). The test results for these samples were below the ISP for TPH as documented

SUBJ: ZONE C2 EXCEEDANCE INVESTIGATION SUMMARY AND RESAMPLE RESULTS

in enclosures (3) and (4). In regards to TPH, the IDWST determined that no further action was required beyond the long term monitoring sampling for Zone C2. Enclosure (5) contains sample tests results for TPH taken by DoH. All sample results taken by DoH were below the ISP. Enclosure (6) contains information about the health effects of petroleum hydrocarbons in water.

4. Enclosures (5) and (7) are the test results for samples taken by DoH. There were no exceedances above the MCL or exceedances above the ISP that required further action. The Navy and DoH laboratory reports will be made publicly available at <https://jbphh-safewaters.org/> upon amendment of the health advisory for Zone C2.

5. I certify under penalty of law that I have personally examined and I am familiar with the information submitted and the submitted information is true, accurate, and complete.

MENO.MICHAEL.WAYNE.JR. Digitally signed by
MENO.MICHAEL.WAYNE.JR.
YNEJR.1088310035
Date: 2022.03.08
1088310035 13:42:20 -10'00'

M. W. Meno
Captain, U.S. Navy Civil Engineer Corps

Zone C2 ISP or MCL Exceedance Report
C2 Zone Residential DW Sampling
Chemistry Results
Drinking Water Sampling, JBPHH, Oahu Hawaii

Location ID:	C2-BLDG0150	C2-BLDG1315	C2-BLDG1511	C2-BLDG1786
Location Type:	Non-Residence	Non-Residence	Non-Residence	Non-Residence
Residence:	Building 150.ADMINISTRATIV E OFFICE, 850 Ticonderoga St	Building 1315,NGIS - NAVY TDY (HALE ALII), 78 Hale Alii Ave	Building 1511,POOL BATHHOUSE/PUMP, 4571 Club Rd	Building 1786,EXCHANGE SERV OUTLET (FLEET STORE & MWR FAC)
Field Sample ID:	220127C2ET03	220127C2ET02	220127C2ET06	220127C2JT02
Sample Date:	2022-01-27	2022-01-27	2022-01-27	2022-01-27
Sample Type:	N	N	N	FD

GENCHEM (mg/L)	Incident Specific Parameters	DOH Environmental Action Levels Table D-1A Groundwater Action Levels	DOH Safe Drinking Water Branch (SDWB) Regulatory Constituents	Environmental Protection Agency Maximum Contaminant Levels	SDG: C22A055	SDG: C22A055	SDG: C22A055	SDG: 5801097321
Total Organic Carbon	2	None	None	None	2.04 J	2.96 J	2.31 J	--
HC (µg/L)	Incident Specific Parameters	DOH Environmental Action Levels Table D-1A Groundwater Action Levels	DOH Safe Drinking Water Branch (SDWB) Regulatory Constituents	Environmental Protection Agency Maximum Contaminant Levels	SDG: C22A055	SDG: C22A055	SDG: C22A055	SDG: 5801097321
Petroleum Hydrocarbons (as Diesel)	200	400	None	None	--	--	--	260
Total Petroleum Hydrocarbons	211				--	--	--	260

Notes:

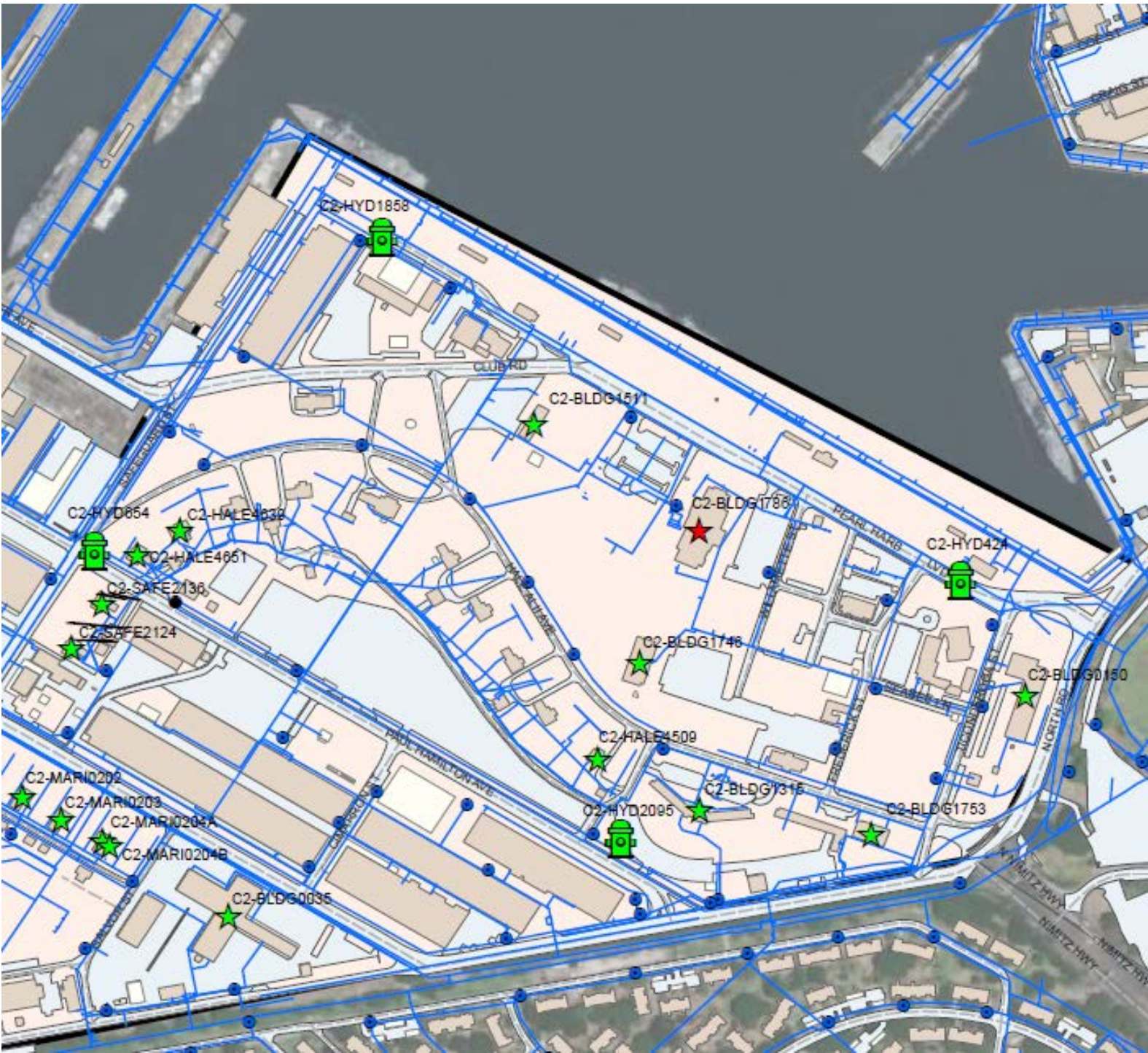
-- indicates that the sample was Not Analyzed for the analyte

Results highlighted yellow exceed the ISP
Results in purple font also exceed the EALS
Results in green font also exceed the DOH MCL
Results in blue font also exceed the EPA MCL
Results from G1/G3 sampling, where the G3 result is greater than the G1 result, have a red border and the associated G1/G3 result in parentheses for comparison

mg/L = Milligrams per Liter

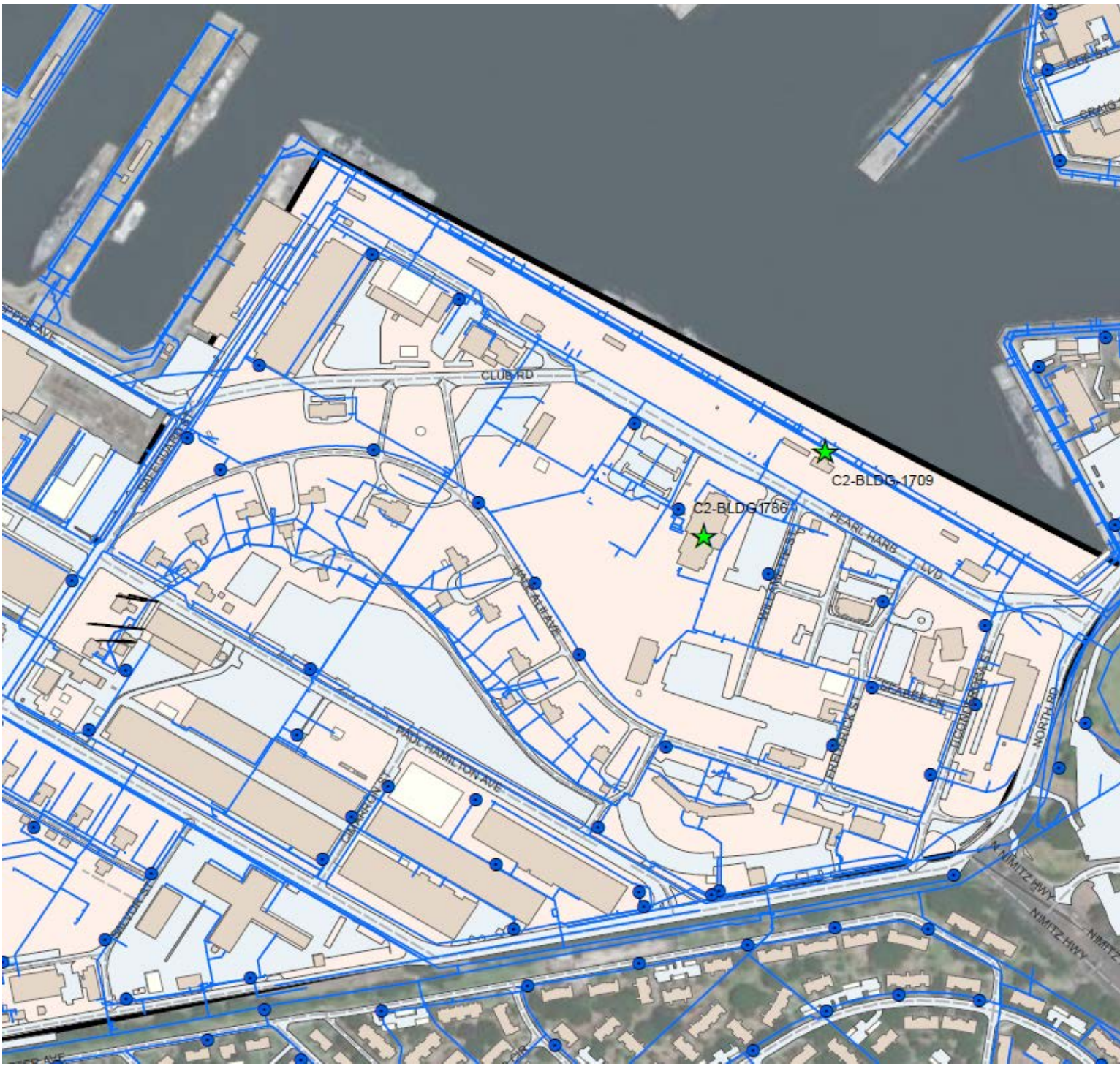
Zone C2 TPH Exceedance Map Area and Resampling Locations

Figure 1 Zone C2 TPH Exceedance Map Area



- ★ Clean Sample
- ★ Detect Sample
- 🚒 Clean Hydrant Sample

Figure 2 Zone C2 TPH Resampling Locations



- ★ Clean Sample
- ★ Detect Sample
- 🚒 Clean Hydrant Sample

Zone C2 ISP or MCL Exceedance Resample Report
C2 Zone Residential DW and Distribution Resampling
Chemistry Results
Drinking Water Sampling, JBPHH, Oahu Hawaii

Location ID:	C2-BLDG1709	C2-BLDG1786	C2-BLDG1786	C2-BLDG1786
Location Type:	Non-Residence	Non-Residence	Non-Residence	Non-Residence
Residence:	Building 1709,NEX BRAVO 25 LAUNDRY	Building 1786,EXCHANGE SERV OUTLET (FLEET STORE & MWR FAC)	Building 1786,EXCHANGE SERV OUTLET (FLEET STORE & MWR FAC)	Building 1786,EXCHANGE SERV OUTLET (FLEET STORE & MWR FAC)
Field Sample ID:	C2-TW-0014830- 22055-N	C2-TW-0014837- 22055-N	C2-TW-0014837- 22055-N-1	C2-TW-0014837- 22055-N-R1
Sample Date:	2022-02-25	2022-02-24	2022-02-26	2022-02-26
Sample Type:	N	N	N	N

		DOH Environmental Action Levels Table D-1A	DOH Safe Drinking Water Branch (SDWB) Regulatory Constituents	Environmental Protection Agency Maximum Contaminant Levels	
HC (µg/L)	Incident Specific Parameters	Groundwater Action Levels			SDG: DA42367
Petroleum Hydrocarbons (as Diesel)	200	400	None	None	52.0 U
Petroleum Hydrocarbons (as Gasoline)	200	300	None	None	40.0 U
Petroleum Hydrocarbons (as Motor Oil)	200	500	None	None	52.0 U
Total Petroleum Hydrocarbons	211				60.1
					--

Notes:

-- indicates that the sample was Not Analyzed for the analyte

Results highlighted yellow exceed the ISP
Results in purple font also exceed the EALs
Results in green font also exceed the DOH MCL
Results in blue font also exceed the EPA MCL
Results from G1/G3 sampling, where the G3 result is greater than the G1 result, have a red border and the associated G1/G3 result in parentheses for comparison

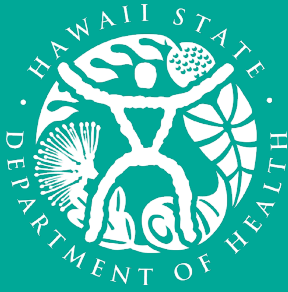
µg/L = Micrograms per Liter

Zone C2 ISP or MCL Exceedance Resample Report with Detailed Sample Location										
Chemistry Results										
Drinking Water Sampling, JBPHH, Oahu Hawaii										
Location ID:			C2-BLDG1786	C2-BLDG1786	C2-BLDG1786	C2-BLDG1786	C2-BLDG1786			
Location Type:			Non-Residence	Non-Residence	Non-Residence	Non-Residence	Non-Residence			
Residence:			Building	Building	Building	Building	Building			
			1786.EXCHANGE SERV	1786.EXCHANGE SERV	1786.EXCHANGE SERV	1786.EXCHANGE SERV	1786.EXCHANGE SERV			
			OUTLET (FLEET	OUTLET (FLEET	OUTLET (FLEET	OUTLET (FLEET	OUTLET (FLEET			
			STORE & MWR FAC)	STORE & MWR FAC)	STORE & MWR FAC)	STORE & MWR FAC)	STORE & MWR FAC)			
Field Sample ID:			220127C2JT01	220127C2JT02	C2-TW-0014837-22055-N	C2-TW-0014837-22055-N-1	C2-TW-0014837-22055-N-R1			
Sample Date:			2022-01-27	2022-01-27	2022-02-24	2022-02-26	2022-02-26			
Sample Type:			N	FD	N	N	N			
Specific Location			810 Williamette St - Subway - handwashing sink in kitchen, closest to storefront door	810 Williamette St - Subway - handwashing sink in kitchen, closest to storefront door	810 Williamette St - Subway - handwashing sink in kitchen, closest to storefront door	235 Pearl Harbor Blvd - Steak Out - Smaller sink closer to dishwasher, room 38	810 Williamette St - Subway - handwashing sink in kitchen, closest to storefront door			
GENCHEM (mg/L)	Incident Specific Parameters	DOH Environmental Action Levels Table D-1A Groundwater Action Levels	DOH Safe Drinking Water Branch (SDWB) Regulatory Constituents	Environmental Protection Agency Maximum Contaminant Levels	SDG: DA41347	SDG: DA41347	SDG: DA42357	SDG: DA42367	SDG: DA42367	SDG: DA42367
Total Organic Carbon	2	None	None	None	0.530	0.540	--	--	--	--
HC (µg/L)	Incident Specific Parameters	DOH Environmental Action Levels Table D-1A Groundwater Action Levels	DOH Safe Drinking Water Branch (SDWB) Regulatory Constituents	Environmental Protection Agency Maximum Contaminant Levels	SDG: 5601097321	SDG: 5601097321	SDG: DA42357	SDG: DA42367	SDG: DA42367	SDG: DA42367
Petroleum Hydrocarbons (as Diesel)	200	400	None	None	93.0 U	260	60.1 J	52.0 U	52.0 U	52.0 U
Petroleum Hydrocarbons (as Gasoline)	200	300	None	None	100 U	100 U	40.0 U	40.0 U	40.0 U	40.0 U
Petroleum Hydrocarbons (as Motor Oil)	200	500	None	None	190 U	190 U	52.0 U	52.0 U	52.0 U	52.0 U
Total Petroleum Hydrocarbons	211	--	--	--	260	60.1	--	--	--	--
HG (µg/L)	Incident Specific Parameters	DOH Environmental Action Levels Table D-1A Groundwater Action Levels	DOH Safe Drinking Water Branch (SDWB) Regulatory Constituents	Environmental Protection Agency Maximum Contaminant Levels	SDG: DA41347	SDG: DA41347	SDG: DA42357	SDG: DA42367	SDG: DA42367	SDG: DA42367
Mercury	2	0.025	2	2	--	--	--	--	--	--
METAL (µg/L)	Incident Specific Parameters	DOH Environmental Action Levels Table D-1A Groundwater Action Levels	DOH Safe Drinking Water Branch (SDWB) Regulatory Constituents	Environmental Protection Agency Maximum Contaminant Levels	SDG: 983692_REV	SDG: 983692_REV	SDG: DA42357	SDG: DA42367	SDG: DA42367	SDG: DA42367
Antimony	6	6	6	6	0.110 U	0.110 U	--	--	--	--
Arsenic	10	10	10	10	0.210 U	0.210 J	--	--	--	--
Barium	2000	220	2000	2000	2.60	2.60	--	--	--	--
Beryllium	4	0.66	4	4	0.0910 U	0.0910 U	--	--	--	--
Cadmium	5	3	5	5	0.120 J	0.0290 U	--	--	--	--
Chromium	100	11	100	100	1.40	1.50	--	--	--	--
Copper	1300	2.9	1300	1300	56.0	54.0	--	--	--	--
Lead	15	5.6	15	15	0.410 J	0.380 J	--	--	--	--
Mercury	2	0.025	2	2	0.0200 U	0.0200 U	--	--	--	--
Selenium	50	5	50	50	0.530 J	0.970 J	--	--	--	--
Thallium	2	2	2	2	0.0670 J	0.0430 J	--	--	--	--
SVOC (µg/L)	Incident Specific Parameters	DOH Environmental Action Levels Table D-1A Groundwater Action Levels	DOH Safe Drinking Water Branch (SDWB) Regulatory Constituents	Environmental Protection Agency Maximum Contaminant Levels	SDG: 810133841	SDG: 810133841	SDG: DA42357	SDG: DA42367	SDG: DA42367	SDG: DA42367
1-Methylnaphthalene	10	10	None	None	0.0200 U	0.0190 U	--	--	--	--
2-Methylnaphthalene	10	10	None	None	0.0200 U	0.0190 U	--	--	--	--
Benzo(a)pyrene	0.2	0.06	0.2	0.2	0.00980 U	0.00970 U	--	--	--	--
Bis(2-ethylhexyl)phthalate	6	3	6	6	0.590 U	0.580 U	--	--	--	--
Naphthalene	17	17	None	None	0.0200 U	0.0190 U	--	--	--	--
VOC (µg/L)	Incident Specific Parameters	DOH Environmental Action Levels Table D-1A Groundwater Action Levels	DOH Safe Drinking Water Branch (SDWB) Regulatory Constituents	Environmental Protection Agency Maximum Contaminant Levels	SDG: DA41347	SDG: DA41347	SDG: DA42357	SDG: DA42367	SDG: DA42367	SDG: DA42367
1,1,1-Trichloroethane	200	11	200	200	0.500 U	0.500 U	--	--	--	--
1,1,2-Trichloroethane	5	5	5	5	0.500 U	0.500 U	--	--	--	--
1,1-Dichloroethene	7	7	7	7	0.500 U	0.500 U	--	--	--	--
1,2,4-Trichlorobenzene	70	70	70	70	0.500 U	0.500 U	--	--	--	--
1,2-Dichlorobenzene	600	10	600	600	0.500 U	0.500 U	--	--	--	--
1,2-Dichloroethane	5	5	5	5	0.500 U	0.500 U	--	--	--	--
1,2-Dichloropropane	5	5	5	5	0.500 U	0.500 U	--	--	--	--
1,4-Dichlorobenzene	75	5	75	None	0.500 U	0.500 U	--	--	--	--
Benzene	5	5	5	5	0.500 U	0.500 U	--	--	--	--
Carbon Tetrachloride	5	5	5	5	0.500 U	0.500 U	--	--	--	--
Chlorobenzene	100	25	100	100	0.500 U	0.500 U	--	--	--	--
cis-1,2-Dichloroethene	70	70	70	70	0.500 U	0.500 U	--	--	--	--
Ethylbenzene	700	7.3	700	700	0.500 U	0.500 U	--	--	--	--
m,p-Xylene	10000	13	None	None	0.500 U	0.500 U	--	--	--	--
Methylene chloride	5	5	5	5	0.500 U	0.500 U	--	--	--	--
o-Xylene	10000	13	None	None	0.500 U	0.500 U	--	--	--	--
Styrene	100	10	100	100	0.500 U	0.500 U	--	--	--	--
Tetrachloroethene (PCE)	5	5	5	5	0.500 U	0.500 U	--	--	--	--
Toluene	1000	9.8	1000	1000	0.500 U	0.500 U	--	--	--	--
trans-1,2-Dichloroethene	100	100	100	100	0.500 U	0.500 U	--	--	--	--
Trichloroethene (TCE)	5	5	5	5	0.500 U	0.500 U	--	--	--	--
Vinyl chloride	2	2	2	2	0.500 U	0.500 U	--	--	--	--
Xylenes, Total	10000	13	10000	10000	0.500 U	0.500 U	--	--	--	--
Notes:										
-- Indicates that the sample was Not Analyzed for the analyte										
Results highlighted yellow exceed the ISP										
Results in purple font also exceed the EALs										
Results in green font also exceed the DOH MCL										
Results in blue font also exceed the EPA MCL										
Results from G1/G3 sampling, where the G3 result is greater than the G1 result, have a red border and the associated G1/G3 result in parentheses for comparison										
µg/L = Micrograms per Liter										

DOH TPH-Results
Navy Water System Incident
Red Hill, Post-Flushing, Flushing Area C2

Date Collected	Location Name	Street Name	Closest Cross Street	Analyte	Results	Lab Qualifier	Validator Qualifier	Results Unit	Results Category	Zone	Feature Type	Sheen Present	Odor
1/8/2022	010822-21-02	Pearl Harbor Blvd	Frederick Street	C8-C44	58			ug/L	Detected	C2	Distribution	No	NO ODOR
1/8/2022	010822-21-02	Pearl Harbor Blvd	Frederick Street	Diesel Range Organics (DRO)-C10-C28	ND	U	U	ug/L	Not Detected	C2	Distribution	No	NO ODOR
1/8/2022	010822-21-02	Pearl Harbor Blvd	Frederick Street	Gas Range Organics C8-C10	ND	U	U	ug/L	Not Detected	C2	Distribution	No	NO ODOR
1/8/2022	010822-21-02	Pearl Harbor Blvd	Frederick Street	Oil Range Organics (C28-C40)	ND	U	U	ug/L	Not Detected	C2	Distribution	No	NO ODOR
1/8/2022	010822-21-02	Pearl Harbor Blvd	Frederick Street	TPH-g	ND	U	U	ug/L	Not Detected	C2	Distribution	No	NO ODOR
1/16/2022	011622-20-02	Victor Wharf Access Rd	Ashley Pl	TPH-g	ND	U	U	ug/L	Not Detected	C2	Distribution	none noted	none noted
1/16/2022	011622-20-02	Victor Wharf Access Rd	Ashley Pl	C8-C44	47	J	U	ug/L	Not Detected	C2	Distribution	none noted	none noted
1/16/2022	011622-20-02	Victor Wharf Access Rd	Ashley Pl	Diesel Range Organics (DRO)-C10-C28	ND	U	U	ug/L	Not Detected	C2	Distribution	none noted	none noted
1/16/2022	011622-20-02	Victor Wharf Access Rd	Ashley Pl	Gas Range Organics C8-C10	ND	U	U	ug/L	Not Detected	C2	Distribution	none noted	none noted
1/16/2022	011622-20-02	Victor Wharf Access Rd	Ashley Pl	Oil Range Organics (C28-C40)	ND	U	U	ug/L	Not Detected	C2	Distribution	none noted	none noted
1/16/2022	011622-20-03	Central Ave	Russell Ave	TPH-g	ND	U	U	ug/L	Not Detected	C2	Distribution	none noted	none noted
1/16/2022	011622-20-03	Central Ave	Russell Ave	C8-C44	56		J+	ug/L	Detected	C2	Distribution	none noted	none noted
1/16/2022	011622-20-03	Central Ave	Russell Ave	Diesel Range Organics (DRO)-C10-C28	ND	U	U	ug/L	Not Detected	C2	Distribution	none noted	none noted
1/16/2022	011622-20-03	Central Ave	Russell Ave	Gas Range Organics C8-C10	ND	U	U	ug/L	Not Detected	C2	Distribution	none noted	none noted
1/16/2022	011622-20-03	Central Ave	Russell Ave	Oil Range Organics (C28-C40)	ND	U	U	ug/L	Not Detected	C2	Distribution	none noted	none noted
1/28/2022	012822-08-01	Marin Barracks Way	Salvor St	TPH as Gas	ND	U	U	ug/L	Not Detected	C2	Residential	No	none noted
1/28/2022	012822-08-01	Marin Barracks Way	Salvor St	Diesel Range Organic C9-C25	ND	U	U	ug/L	Not Detected	C2	Residential	No	none noted
1/28/2022	012822-08-01	Marin Barracks Way	Salvor St	Oil Range Organic C24-C40	ND	U	U	ug/L	Not Detected	C2	Residential	No	none noted

Exceeds the ISP
Bold= Detected



Petroleum Hydrocarbons in Water: Health Effects



What happens if I swallow water with petroleum?

Drinking water containing petroleum hydrocarbons can cause an upset stomach, stomach cramping, nausea, vomiting, and diarrhea. Your throat and mouth may also get irritated.



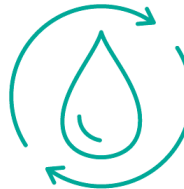
What happens if water with petroleum gets on my skin?

Petroleum hydrocarbons can irritate the skin (dermal exposure). Continuous exposure can cause itchy rash with red and peeling skin. After skin contact, always wash with soap and clean water.



What happens if I breathe air that smells like petroleum?

Breathing petroleum vapors (also called inhalational exposure) can cause headaches, dizziness, tiredness and respiratory problems like cough and difficulty breathing. Nosebleeds are possible.



How can this affect my future health?

Evaluation of the possibility of long-term health effects is ongoing. Based on current information, people exposed to contaminated drinking water from the Joint Base Pearl Harbor-Hickam Drinking Water System in this incident are not expected to experience long-term health effects.

What should I do if I have symptoms after exposure to contaminated water?

- If there is a strong petroleum smell, **leave the area and get fresh air.**
- If you develop respiratory problems or other severe symptoms, **seek urgent medical evaluation.**
- **Contact your primary care doctor** for an appointment.
- **Avoid exposure to the water.** Do not drink or use the water for cooking or brushing teeth. Do not bathe in the water. If skin contact, always wash with soap and clean water
- **Call the Hawaii Poison Center (800) 222-1222 for questions.**



- **Primary Care Doctor**
- **Hawaii Poison Center (800) 222-1222**

For more information, visit health.hawaii.gov/NavyWater

DOH SVOCs-Results
Navy Water System Incident
Red Hill, Post-Flushing, Flushing Area C2

Date Collected	Location Name	Street Name	Closest Cross Street	Analyte	Results	Lab Qualifier	Validator Qualifier	Results Unit	Results Category	Zone	Feature Type
1/8/2022	010822-21-02	Pearl Harbor Blvd	Frederick Street	2,4-DDE	ND	U	UJ	ug/L	Not Detected	C2	Distribution
1/8/2022	010822-21-02	Pearl Harbor Blvd	Frederick Street	2,4-DDD	ND	U	UJ	ug/L	Not Detected	C2	Distribution
1/8/2022	010822-21-02	Pearl Harbor Blvd	Frederick Street	2,4-DDT	ND	U	UJ	ug/L	Not Detected	C2	Distribution
1/8/2022	010822-21-02	Pearl Harbor Blvd	Frederick Street	2,4-Dinitrotoluene	ND	U	UJ	ug/L	Not Detected	C2	Distribution
1/8/2022	010822-21-02	Pearl Harbor Blvd	Frederick Street	2,6-Dinitrotoluene	ND	U	UJ	ug/L	Not Detected	C2	Distribution
1/8/2022	010822-21-02	Pearl Harbor Blvd	Frederick Street	4,4-DDD	ND	U	UJ	ug/L	Not Detected	C2	Distribution
1/8/2022	010822-21-02	Pearl Harbor Blvd	Frederick Street	4,4-DDE	ND	U	UJ	ug/L	Not Detected	C2	Distribution
1/8/2022	010822-21-02	Pearl Harbor Blvd	Frederick Street	4,4-DDT	ND	U	UJ	ug/L	Not Detected	C2	Distribution
1/8/2022	010822-21-02	Pearl Harbor Blvd	Frederick Street	Acenaphthene	ND	U	UJ	ug/L	Not Detected	C2	Distribution
1/8/2022	010822-21-02	Pearl Harbor Blvd	Frederick Street	Acenaphthylene	ND	U	UJ	ug/L	Not Detected	C2	Distribution
1/8/2022	010822-21-02	Pearl Harbor Blvd	Frederick Street	Acetochlor	ND	U	UJ	ug/L	Not Detected	C2	Distribution
1/8/2022	010822-21-02	Pearl Harbor Blvd	Frederick Street	Alpha-BHC	ND	U	UJ	ug/L	Not Detected	C2	Distribution
1/8/2022	010822-21-02	Pearl Harbor Blvd	Frederick Street	alpha-Chlordane	ND	U	UJ	ug/L	Not Detected	C2	Distribution
1/8/2022	010822-21-02	Pearl Harbor Blvd	Frederick Street	Anthracene	ND	U	UJ	ug/L	Not Detected	C2	Distribution
1/8/2022	010822-21-02	Pearl Harbor Blvd	Frederick Street	Atrazine	ND	U	UJ	ug/L	Not Detected	C2	Distribution
1/8/2022	010822-21-02	Pearl Harbor Blvd	Frederick Street	Benz(a)Anthracene	ND	U	UJ	ug/L	Not Detected	C2	Distribution
1/8/2022	010822-21-02	Pearl Harbor Blvd	Frederick Street	Benz(a)pyrene	ND	U	UJ	ug/L	Not Detected	C2	Distribution
1/8/2022	010822-21-02	Pearl Harbor Blvd	Frederick Street	Benz(b)Fluoranthene	ND	U	UJ	ug/L	Not Detected	C2	Distribution
1/8/2022	010822-21-02	Pearl Harbor Blvd	Frederick Street	Benz(g,h,i)Perylene	ND	U	UJ	ug/L	Not Detected	C2	Distribution
1/8/2022	010822-21-02	Pearl Harbor Blvd	Frederick Street	Benz(k)Fluoranthene	ND	U	UJ	ug/L	Not Detected	C2	Distribution
1/8/2022	010822-21-02	Pearl Harbor Blvd	Frederick Street	Beta-BHC	ND	U	UJ	ug/L	Not Detected	C2	Distribution
1/8/2022	010822-21-02	Pearl Harbor Blvd	Frederick Street	Bromacil	ND	U	UJ	ug/L	Not Detected	C2	Distribution
1/8/2022	010822-21-02	Pearl Harbor Blvd	Frederick Street	Butachlor	ND	U	UJ	ug/L	Not Detected	C2	Distribution
1/8/2022	010822-21-02	Pearl Harbor Blvd	Frederick Street	Butylbenzylphthalate	ND	U	UJ	ug/L	Not Detected	C2	Distribution
1/8/2022	010822-21-02	Pearl Harbor Blvd	Frederick Street	Caffeine by method 525mod	ND	U	UJ	ug/L	Not Detected	C2	Distribution
1/8/2022	010822-21-02	Pearl Harbor Blvd	Frederick Street	Chlorobenzilate	ND	U	UJ	ug/L	Not Detected	C2	Distribution
1/8/2022	010822-21-02	Pearl Harbor Blvd	Frederick Street	Chloroneb	ND	U	UJ	ug/L	Not Detected	C2	Distribution
1/8/2022	010822-21-02	Pearl Harbor Blvd	Frederick Street	Chlorothalonil(Draconil,Bravo)	ND	U	UJ	ug/L	Not Detected	C2	Distribution
1/8/2022	010822-21-02	Pearl Harbor Blvd	Frederick Street	Chlorpyrifos (Dursban)	ND	U	UJ	ug/L	Not Detected	C2	Distribution
1/8/2022	010822-21-02	Pearl Harbor Blvd	Frederick Street	Chrysene	ND	U	UJ	ug/L	Not Detected	C2	Distribution
1/8/2022	010822-21-02	Pearl Harbor Blvd	Frederick Street	Delta-BHC	ND	U	UJ	ug/L	Not Detected	C2	Distribution
1/8/2022	010822-21-02	Pearl Harbor Blvd	Frederick Street	Di-(2-Ethylhexyl)adipate	ND	U	UJ	ug/L	Not Detected	C2	Distribution
1/8/2022	010822-21-02	Pearl Harbor Blvd	Frederick Street	Di(2-Ethylhexyl)phthalate	ND	U	UJ	ug/L	Not Detected	C2	Distribution
1/8/2022	010822-21-02	Pearl Harbor Blvd	Frederick Street	Diazinon (Qualitative)	ND	U	UJ	ug/L	Not Detected	C2	Distribution
1/8/2022	010822-21-02	Pearl Harbor Blvd	Frederick Street	Dibenz(a,h)Anthracene	ND	U	UJ	ug/L	Not Detected	C2	Distribution
1/8/2022	010822-21-02	Pearl Harbor Blvd	Frederick Street	Dichlorvos (DDVP)	ND	U	UJ	ug/L	Not Detected	C2	Distribution
1/8/2022	010822-21-02	Pearl Harbor Blvd	Frederick Street	Dieldrin	ND	U	UJ	ug/L	Not Detected	C2	Distribution
1/8/2022	010822-21-02	Pearl Harbor Blvd	Frederick Street	Diethylphthalate	ND	U	UJ	ug/L	Not Detected	C2	Distribution
1/8/2022	010822-21-02	Pearl Harbor Blvd	Frederick Street	Dimethoate	ND	U	UJ	ug/L	Not Detected	C2	Distribution
1/8/2022	010822-21-02	Pearl Harbor Blvd	Frederick Street	Dimethylphthalate	ND	U	UJ	ug/L	Not Detected	C2	Distribution
1/8/2022	010822-21-02	Pearl Harbor Blvd	Frederick Street	Di-n-Butylphthalate	19	U	J	ug/L	Detected	C2	Distribution
1/8/2022	010822-21-02	Pearl Harbor Blvd	Frederick Street	Di-N-octylphthalate	ND	U	UJ	ug/L	Not Detected	C2	Distribution
1/8/2022	010822-21-02	Pearl Harbor Blvd	Frederick Street	Endosulfan I (Alpha)	ND	U	UJ	ug/L	Not Detected	C2	Distribution
1/8/2022	010822-21-02	Pearl Harbor Blvd	Frederick Street	Endosulfan II (Beta)	ND	U	UJ	ug/L	Not Detected	C2	Distribution
1/8/2022	010822-21-02	Pearl Harbor Blvd	Frederick Street	Endosulfan Sulfate	ND	U	UJ	ug/L	Not Detected	C2	Distribution
1/8/2022	010822-21-02	Pearl Harbor Blvd	Frederick Street	Endrin	ND	U	UJ	ug/L	Not Detected	C2	Distribution
1/8/2022	010822-21-02	Pearl Harbor Blvd	Frederick Street	Endrin Aldehyde	ND	U	UJ	ug/L	Not Detected	C2	Distribution
1/8/2022	010822-21-02	Pearl Harbor Blvd	Frederick Street	EPTC	ND	U	UJ	ug/L	Not Detected	C2	Distribution
1/8/2022	010822-21-02	Pearl Harbor Blvd	Frederick Street	Fluoranthene	ND	U	UJ	ug/L	Not Detected	C2	Distribution

DOH SVOCs-Results
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Date Collected	Location Name	Street Name	Closest Cross Street	Analyte	Results	Lab Qualifier	Validator Qualifier	Results Unit	Results Category	Zone	Feature Type
1/8/2022	010822-21-02	Pearl Harbor Blvd	Frederick Street	Fluorene	ND	U	UJ	ug/L	Not Detected	C2	Distribution
1/8/2022	010822-21-02	Pearl Harbor Blvd	Frederick Street	gamma-Chlordane	ND	U	UJ	ug/L	Not Detected	C2	Distribution
1/8/2022	010822-21-02	Pearl Harbor Blvd	Frederick Street	Heptachlor	ND	U	UJ	ug/L	Not Detected	C2	Distribution
1/8/2022	010822-21-02	Pearl Harbor Blvd	Frederick Street	Heptachlor Epoxide (isomer B)	ND	U	UJ	ug/L	Not Detected	C2	Distribution
1/8/2022	010822-21-02	Pearl Harbor Blvd	Frederick Street	Hexachlorobenzene	ND	U	UJ	ug/L	Not Detected	C2	Distribution
1/8/2022	010822-21-02	Pearl Harbor Blvd	Frederick Street	Hexachlorocyclopentadiene	ND	U	UJ	ug/L	Not Detected	C2	Distribution
1/8/2022	010822-21-02	Pearl Harbor Blvd	Frederick Street	Indeno(1,2,3-c,d)Pyrene	ND	U	UJ	ug/L	Not Detected	C2	Distribution
1/8/2022	010822-21-02	Pearl Harbor Blvd	Frederick Street	Isophorone	ND	U	UJ	ug/L	Not Detected	C2	Distribution
1/8/2022	010822-21-02	Pearl Harbor Blvd	Frederick Street	Lindane	ND	U	UJ	ug/L	Not Detected	C2	Distribution
1/8/2022	010822-21-02	Pearl Harbor Blvd	Frederick Street	Malathion	ND	U	UJ	ug/L	Not Detected	C2	Distribution
1/8/2022	010822-21-02	Pearl Harbor Blvd	Frederick Street	Methoxychlor	ND	U	UJ	ug/L	Not Detected	C2	Distribution
1/8/2022	010822-21-02	Pearl Harbor Blvd	Frederick Street	Metolachlor	ND	U	UJ	ug/L	Not Detected	C2	Distribution
1/8/2022	010822-21-02	Pearl Harbor Blvd	Frederick Street	Metribuzin	ND	U	UJ	ug/L	Not Detected	C2	Distribution
1/8/2022	010822-21-02	Pearl Harbor Blvd	Frederick Street	Molinate	ND	U	UJ	ug/L	Not Detected	C2	Distribution
1/8/2022	010822-21-02	Pearl Harbor Blvd	Frederick Street	Naphthalene	ND	U	UJ	ug/L	Not Detected	C2	Distribution
1/8/2022	010822-21-02	Pearl Harbor Blvd	Frederick Street	Parathion	ND	U	UJ	ug/L	Not Detected	C2	Distribution
1/8/2022	010822-21-02	Pearl Harbor Blvd	Frederick Street	Pendimethalin	ND	U	UJ	ug/L	Not Detected	C2	Distribution
1/8/2022	010822-21-02	Pearl Harbor Blvd	Frederick Street	Permethrin (mixed isomers)	ND	U	UJ	ug/L	Not Detected	C2	Distribution
1/8/2022	010822-21-02	Pearl Harbor Blvd	Frederick Street	Phenanthrene	0.033	J	J	ug/L	Detected	C2	Distribution
1/8/2022	010822-21-02	Pearl Harbor Blvd	Frederick Street	Propachlor	ND	U	UJ	ug/L	Not Detected	C2	Distribution
1/8/2022	010822-21-02	Pearl Harbor Blvd	Frederick Street	Pyrene	ND	U	UJ	ug/L	Not Detected	C2	Distribution
1/8/2022	010822-21-02	Pearl Harbor Blvd	Frederick Street	Simazine	ND	U	UJ	ug/L	Not Detected	C2	Distribution
1/8/2022	010822-21-02	Pearl Harbor Blvd	Frederick Street	Terbacil	ND	U	UJ	ug/L	Not Detected	C2	Distribution
1/8/2022	010822-21-02	Pearl Harbor Blvd	Frederick Street	Terbutylazine	ND	U	UJ	ug/L	Not Detected	C2	Distribution
1/8/2022	010822-21-02	Pearl Harbor Blvd	Frederick Street	Thiobencarb (ELAP)	ND	U	UJ	ug/L	Not Detected	C2	Distribution
1/8/2022	010822-21-02	Pearl Harbor Blvd	Frederick Street	trans-Nonachlor	ND	U	UJ	ug/L	Not Detected	C2	Distribution
1/8/2022	010822-21-02	Pearl Harbor Blvd	Frederick Street	Trifluralin	ND	U	UJ	ug/L	Not Detected	C2	Distribution
1/8/2022	010822-21-02	Pearl Harbor Blvd	Frederick Street	1-Methylnaphthalene	0.027		NJ	ug/L	Detected	C2	Distribution
1/8/2022	010822-21-02	Pearl Harbor Blvd	Frederick Street	2-Methylnaphthalene	0.027		NJ	ug/L	Detected	C2	Distribution
1/16/2022	011622-20-02	Victor Wharf Access Rd	Ashley Pl	2,4-DDD	ND	U	U	ug/L	Not Detected	C2	Distribution
1/16/2022	011622-20-02	Victor Wharf Access Rd	Ashley Pl	2,4-DDE	ND	U	U	ug/L	Not Detected	C2	Distribution
1/16/2022	011622-20-02	Victor Wharf Access Rd	Ashley Pl	2,4-DDT	ND	U	U	ug/L	Not Detected	C2	Distribution
1/16/2022	011622-20-02	Victor Wharf Access Rd	Ashley Pl	2,4-Dinitrotoluene	ND	U	U	ug/L	Not Detected	C2	Distribution
1/16/2022	011622-20-02	Victor Wharf Access Rd	Ashley Pl	2,6-Dinitrotoluene	ND	U	U	ug/L	Not Detected	C2	Distribution
1/16/2022	011622-20-02	Victor Wharf Access Rd	Ashley Pl	4,4-DDD	ND	U	U	ug/L	Not Detected	C2	Distribution
1/16/2022	011622-20-02	Victor Wharf Access Rd	Ashley Pl	4,4-DDE	ND	U	U	ug/L	Not Detected	C2	Distribution
1/16/2022	011622-20-02	Victor Wharf Access Rd	Ashley Pl	4,4-DDT	ND	U	U	ug/L	Not Detected	C2	Distribution
1/16/2022	011622-20-02	Victor Wharf Access Rd	Ashley Pl	Acenaphthene	ND	U	U	ug/L	Not Detected	C2	Distribution
1/16/2022	011622-20-02	Victor Wharf Access Rd	Ashley Pl	Acenaphthylene	ND	U	U	ug/L	Not Detected	C2	Distribution
1/16/2022	011622-20-02	Victor Wharf Access Rd	Ashley Pl	Acetochlor	ND	U	U	ug/L	Not Detected	C2	Distribution
1/16/2022	011622-20-02	Victor Wharf Access Rd	Ashley Pl	Alachlor	ND	U	U	ug/L	Not Detected	C2	Distribution
1/16/2022	011622-20-02	Victor Wharf Access Rd	Ashley Pl	Alpha-BHC	ND	U	U	ug/L	Not Detected	C2	Distribution
1/16/2022	011622-20-02	Victor Wharf Access Rd	Ashley Pl	alpha-Chlordane	ND	U	U	ug/L	Not Detected	C2	Distribution
1/16/2022	011622-20-02	Victor Wharf Access Rd	Ashley Pl	Anthracene	ND	U	U	ug/L	Not Detected	C2	Distribution
1/16/2022	011622-20-02	Victor Wharf Access Rd	Ashley Pl	Atrazine	ND	U	U	ug/L	Not Detected	C2	Distribution
1/16/2022	011622-20-02	Victor Wharf Access Rd	Ashley Pl	Benz(a)Anthracene	ND	U	U	ug/L	Not Detected	C2	Distribution
1/16/2022	011622-20-02	Victor Wharf Access Rd	Ashley Pl	Benzo(a)pyrene	ND	U	U	ug/L	Not Detected	C2	Distribution
1/16/2022	011622-20-02	Victor Wharf Access Rd	Ashley Pl	Benzo(b)Fluoranthene	ND	U	U	ug/L	Not Detected	C2	Distribution
1/16/2022	011622-20-02	Victor Wharf Access Rd	Ashley Pl	Benzo(g,h,i)Perylene	ND	U	U	ug/L	Not Detected	C2	Distribution
1/16/2022	011622-20-02	Victor Wharf Access Rd	Ashley Pl	Benzo(k)Fluoranthene	ND	U	U	ug/L	Not Detected	C2	Distribution

DOH SVOCs-Results
Navy Water System Incident
Red Hill, Post-Flushing, Flushing Area C2

Date Collected	Location Name	Street Name	Closest Cross Street	Analyte	Results	Lab Qualifier	Validator Qualifier	Results Unit	Results Category	Zone	Feature Type
1/16/2022	011622-20-02	Victor Wharf Access Rd	Ashley Pl	Beta-BHC	ND	U	U	ug/L	Not Detected	C2	Distribution
1/16/2022	011622-20-02	Victor Wharf Access Rd	Ashley Pl	Bromacil	ND	U	U	ug/L	Not Detected	C2	Distribution
1/16/2022	011622-20-02	Victor Wharf Access Rd	Ashley Pl	Butachlor	ND	U	U	ug/L	Not Detected	C2	Distribution
1/16/2022	011622-20-02	Victor Wharf Access Rd	Ashley Pl	Butylbenzylphthalate	ND	U	U	ug/L	Not Detected	C2	Distribution
1/16/2022	011622-20-02	Victor Wharf Access Rd	Ashley Pl	Caffeine by method 525mod	ND	U	U	ug/L	Not Detected	C2	Distribution
1/16/2022	011622-20-02	Victor Wharf Access Rd	Ashley Pl	Chlorobenzilate	ND	U	U	ug/L	Not Detected	C2	Distribution
1/16/2022	011622-20-02	Victor Wharf Access Rd	Ashley Pl	Chlorobenzil	ND	U	U	ug/L	Not Detected	C2	Distribution
1/16/2022	011622-20-02	Victor Wharf Access Rd	Ashley Pl	Chlorothalonil(Draconil, Bravo)	ND	U	U	ug/L	Not Detected	C2	Distribution
1/16/2022	011622-20-02	Victor Wharf Access Rd	Ashley Pl	Chlorpyrifos (Dursban)	ND	U	U	ug/L	Not Detected	C2	Distribution
1/16/2022	011622-20-02	Victor Wharf Access Rd	Ashley Pl	Chrysene	ND	U	U	ug/L	Not Detected	C2	Distribution
1/16/2022	011622-20-02	Victor Wharf Access Rd	Ashley Pl	Delta-BHC	ND	U	U	ug/L	Not Detected	C2	Distribution
1/16/2022	011622-20-02	Victor Wharf Access Rd	Ashley Pl	Di(2-Ethylhexyl)adipate	ND	U	U	ug/L	Not Detected	C2	Distribution
1/16/2022	011622-20-02	Victor Wharf Access Rd	Ashley Pl	Di(2-Ethylhexyl)phthalate	ND	U	U	ug/L	Not Detected	C2	Distribution
1/16/2022	011622-20-02	Victor Wharf Access Rd	Ashley Pl	Diazinon (Qualitative)	ND	U	U	ug/L	Not Detected	C2	Distribution
1/16/2022	011622-20-02	Victor Wharf Access Rd	Ashley Pl	Dibenz(a,h)Anthracene	ND	U	U	ug/L	Not Detected	C2	Distribution
1/16/2022	011622-20-02	Victor Wharf Access Rd	Ashley Pl	Dichlorvos (DDVP)	ND	U	U	ug/L	Not Detected	C2	Distribution
1/16/2022	011622-20-02	Victor Wharf Access Rd	Ashley Pl	Dieldrin	ND	U	U	ug/L	Not Detected	C2	Distribution
1/16/2022	011622-20-02	Victor Wharf Access Rd	Ashley Pl	Diethylphthalate	ND	U	U	ug/L	Not Detected	C2	Distribution
1/16/2022	011622-20-02	Victor Wharf Access Rd	Ashley Pl	Dimethoate	ND	U	U	ug/L	Not Detected	C2	Distribution
1/16/2022	011622-20-02	Victor Wharf Access Rd	Ashley Pl	Dimethylphthalate	ND	U	U	ug/L	Not Detected	C2	Distribution
1/16/2022	011622-20-02	Victor Wharf Access Rd	Ashley Pl	Di-n-Butylphthalate	11	U	U	ug/L	Detected	C2	Distribution
1/16/2022	011622-20-02	Victor Wharf Access Rd	Ashley Pl	Di-N-octylphthalate	ND	U	U	ug/L	Not Detected	C2	Distribution
1/16/2022	011622-20-02	Victor Wharf Access Rd	Ashley Pl	Endosulfan I (Alpha)	ND	U	U	ug/L	Not Detected	C2	Distribution
1/16/2022	011622-20-02	Victor Wharf Access Rd	Ashley Pl	Endosulfan II (Beta)	ND	U	U	ug/L	Not Detected	C2	Distribution
1/16/2022	011622-20-02	Victor Wharf Access Rd	Ashley Pl	Endosulfan Sulfate	ND	U	U	ug/L	Not Detected	C2	Distribution
1/16/2022	011622-20-02	Victor Wharf Access Rd	Ashley Pl	Endrin	ND	U	U	ug/L	Not Detected	C2	Distribution
1/16/2022	011622-20-02	Victor Wharf Access Rd	Ashley Pl	Endrin Aldehyde	ND	U	U	ug/L	Not Detected	C2	Distribution
1/16/2022	011622-20-02	Victor Wharf Access Rd	Ashley Pl	EPTC	ND	U	U	ug/L	Not Detected	C2	Distribution
1/16/2022	011622-20-02	Victor Wharf Access Rd	Ashley Pl	Fluoranthene	ND	U	U	ug/L	Not Detected	C2	Distribution
1/16/2022	011622-20-02	Victor Wharf Access Rd	Ashley Pl	Fluorene	0.011	J	U	ug/L	Not Detected	C2	Distribution
1/16/2022	011622-20-02	Victor Wharf Access Rd	Ashley Pl	gamma-Chlordane	ND	U	U	ug/L	Not Detected	C2	Distribution
1/16/2022	011622-20-02	Victor Wharf Access Rd	Ashley Pl	Heptachlor	ND	U	U	ug/L	Not Detected	C2	Distribution
1/16/2022	011622-20-02	Victor Wharf Access Rd	Ashley Pl	Heptachlor Epoxide (Isomer B)	ND	U	U	ug/L	Not Detected	C2	Distribution
1/16/2022	011622-20-02	Victor Wharf Access Rd	Ashley Pl	Hexachlorobenzene	ND	U	U	ug/L	Not Detected	C2	Distribution
1/16/2022	011622-20-02	Victor Wharf Access Rd	Ashley Pl	Hexachlorocyclopentadiene	ND	U	U	ug/L	Not Detected	C2	Distribution
1/16/2022	011622-20-02	Victor Wharf Access Rd	Ashley Pl	Indeno(1,2,3-c,d)Pyrene	ND	U	U	ug/L	Not Detected	C2	Distribution
1/16/2022	011622-20-02	Victor Wharf Access Rd	Ashley Pl	Isophorone	ND	U	U	ug/L	Not Detected	C2	Distribution
1/16/2022	011622-20-02	Victor Wharf Access Rd	Ashley Pl	Lindane	ND	U	U	ug/L	Not Detected	C2	Distribution
1/16/2022	011622-20-02	Victor Wharf Access Rd	Ashley Pl	Malathion	ND	U	U	ug/L	Not Detected	C2	Distribution
1/16/2022	011622-20-02	Victor Wharf Access Rd	Ashley Pl	Methoxychlor	ND	U	U	ug/L	Not Detected	C2	Distribution
1/16/2022	011622-20-02	Victor Wharf Access Rd	Ashley Pl	Metolachlor	ND	U	U	ug/L	Not Detected	C2	Distribution
1/16/2022	011622-20-02	Victor Wharf Access Rd	Ashley Pl	Metribuzin	ND	U	U	ug/L	Not Detected	C2	Distribution
1/16/2022	011622-20-02	Victor Wharf Access Rd	Ashley Pl	Molinate	ND	U	U	ug/L	Not Detected	C2	Distribution
1/16/2022	011622-20-02	Victor Wharf Access Rd	Ashley Pl	Naphthalene	ND	U	U	ug/L	Not Detected	C2	Distribution
1/16/2022	011622-20-02	Victor Wharf Access Rd	Ashley Pl	Parathion	ND	U	U	ug/L	Not Detected	C2	Distribution
1/16/2022	011622-20-02	Victor Wharf Access Rd	Ashley Pl	Pendimethalin	ND	U	U	ug/L	Not Detected	C2	Distribution
1/16/2022	011622-20-02	Victor Wharf Access Rd	Ashley Pl	Permethrin (mixed isomers)	ND	U	U	ug/L	Not Detected	C2	Distribution
1/16/2022	011622-20-02	Victor Wharf Access Rd	Ashley Pl	Phenanthrene	0.011	J	U	ug/L	Not Detected	C2	Distribution
1/16/2022	011622-20-02	Victor Wharf Access Rd	Ashley Pl	Propachlor	ND	U	U	ug/L	Not Detected	C2	Distribution
1/16/2022	011622-20-02	Victor Wharf Access Rd	Ashley Pl	Pyrene	ND	U	U	ug/L	Not Detected	C2	Distribution

Date Collected	Location Name	Street Name	Closest Cross Street	Analyte	Results	Lab Qualifier	Validator Qualifier	Results Unit	Results Category	Zone	Feature Type
1/16/2022	011622-20-02	Victor Wharf Access Rd	Ashley Pl	Simazine	ND	U	U	ug/L	Not Detected	C2	Distribution
1/16/2022	011622-20-02	Victor Wharf Access Rd	Ashley Pl	Terbacil	ND	U	U	ug/L	Not Detected	C2	Distribution
1/16/2022	011622-20-02	Victor Wharf Access Rd	Ashley Pl	Terbutylazine	ND	U	U	ug/L	Not Detected	C2	Distribution
1/16/2022	011622-20-02	Victor Wharf Access Rd	Ashley Pl	Thiobencarb (ELAP)	ND	U	U	ug/L	Not Detected	C2	Distribution
1/16/2022	011622-20-02	Victor Wharf Access Rd	Ashley Pl	trans-Nonachlor	ND	U	U	ug/L	Not Detected	C2	Distribution
1/16/2022	011622-20-02	Victor Wharf Access Rd	Ashley Pl	Trifluralin	ND	U	U	ug/L	Not Detected	C2	Distribution
1/16/2022	011622-20-02	Victor Wharf Access Rd	Ashley Pl	1-Methylnaphthalene	0.07		NJ	ug/L	Detected	C2	Distribution
1/16/2022	011622-20-02	Victor Wharf Access Rd	Ashley Pl	2-Methylnaphthalene	NI			ug/L	Not Identified	C2	Distribution
1/16/2022	011622-20-03	Central Ave	Russell Ave	2,4-DDD	ND	U	U	ug/L	Not Detected	C2	Distribution
1/16/2022	011622-20-03	Central Ave	Russell Ave	2,4-DDE	ND	U	U	ug/L	Not Detected	C2	Distribution
1/16/2022	011622-20-03	Central Ave	Russell Ave	2,4-DDT	ND	U	U	ug/L	Not Detected	C2	Distribution
1/16/2022	011622-20-03	Central Ave	Russell Ave	2,4-Dinitrotoluene	ND	U	U	ug/L	Not Detected	C2	Distribution
1/16/2022	011622-20-03	Central Ave	Russell Ave	2,6-Dinitrotoluene	ND	U	U	ug/L	Not Detected	C2	Distribution
1/16/2022	011622-20-03	Central Ave	Russell Ave	4,4-DDD	ND	U	U	ug/L	Not Detected	C2	Distribution
1/16/2022	011622-20-03	Central Ave	Russell Ave	4,4-DDE	ND	U	U	ug/L	Not Detected	C2	Distribution
1/16/2022	011622-20-03	Central Ave	Russell Ave	4,4-DDT	ND	U	U	ug/L	Not Detected	C2	Distribution
1/16/2022	011622-20-03	Central Ave	Russell Ave	Acenaphthene	ND	U	U	ug/L	Not Detected	C2	Distribution
1/16/2022	011622-20-03	Central Ave	Russell Ave	Acenaphthylene	ND	U	U	ug/L	Not Detected	C2	Distribution
1/16/2022	011622-20-03	Central Ave	Russell Ave	Acetochlor	ND	U	U	ug/L	Not Detected	C2	Distribution
1/16/2022	011622-20-03	Central Ave	Russell Ave	Alachlor	ND	U	U	ug/L	Not Detected	C2	Distribution
1/16/2022	011622-20-03	Central Ave	Russell Ave	Alpha-BHC	ND	U	U	ug/L	Not Detected	C2	Distribution
1/16/2022	011622-20-03	Central Ave	Russell Ave	alpha-Chlordane	ND	U	U	ug/L	Not Detected	C2	Distribution
1/16/2022	011622-20-03	Central Ave	Russell Ave	Anthracene	ND	U	U	ug/L	Not Detected	C2	Distribution
1/16/2022	011622-20-03	Central Ave	Russell Ave	Atrazine	ND	U	U	ug/L	Not Detected	C2	Distribution
1/16/2022	011622-20-03	Central Ave	Russell Ave	Benz(a)Anthracene	ND	U	U	ug/L	Not Detected	C2	Distribution
1/16/2022	011622-20-03	Central Ave	Russell Ave	Benz(a)pyrene	ND	U	U	ug/L	Not Detected	C2	Distribution
1/16/2022	011622-20-03	Central Ave	Russell Ave	Benzo(b)Fluoranthene	ND	U	U	ug/L	Not Detected	C2	Distribution
1/16/2022	011622-20-03	Central Ave	Russell Ave	Benzol(g,h,i)Perylene	ND	U	U	ug/L	Not Detected	C2	Distribution
1/16/2022	011622-20-03	Central Ave	Russell Ave	Benzol(k)Fluoranthene	ND	U	U	ug/L	Not Detected	C2	Distribution
1/16/2022	011622-20-03	Central Ave	Russell Ave	Beta-BHC	ND	U	U	ug/L	Not Detected	C2	Distribution
1/16/2022	011622-20-03	Central Ave	Russell Ave	Bromacil	ND	U	U	ug/L	Not Detected	C2	Distribution
1/16/2022	011622-20-03	Central Ave	Russell Ave	Butachlor	ND	U	U	ug/L	Not Detected	C2	Distribution
1/16/2022	011622-20-03	Central Ave	Russell Ave	Butylbenzylphthalate	ND	U	U	ug/L	Not Detected	C2	Distribution
1/16/2022	011622-20-03	Central Ave	Russell Ave	Caffeine by method 525mod	ND	U	U	ug/L	Not Detected	C2	Distribution
1/16/2022	011622-20-03	Central Ave	Russell Ave	Chlorobenzilate	ND	U	U	ug/L	Not Detected	C2	Distribution
1/16/2022	011622-20-03	Central Ave	Russell Ave	Chloroneb	ND	U	U	ug/L	Not Detected	C2	Distribution
1/16/2022	011622-20-03	Central Ave	Russell Ave	Chlorothalonil(Draconil, Bravo)	ND	U	U	ug/L	Not Detected	C2	Distribution
1/16/2022	011622-20-03	Central Ave	Russell Ave	Chlorpyrifos (Dursban)	ND	U	U	ug/L	Not Detected	C2	Distribution
1/16/2022	011622-20-03	Central Ave	Russell Ave	Chrysene	ND	U	U	ug/L	Not Detected	C2	Distribution
1/16/2022	011622-20-03	Central Ave	Russell Ave	Delta-BHC	ND	U	U	ug/L	Not Detected	C2	Distribution
1/16/2022	011622-20-03	Central Ave	Russell Ave	Di-(2-Ethylhexyl)adipate	ND	U	U	ug/L	Not Detected	C2	Distribution
1/16/2022	011622-20-03	Central Ave	Russell Ave	Di-(2-Ethylhexyl)phthalate	ND	U	U	ug/L	Not Detected	C2	Distribution
1/16/2022	011622-20-03	Central Ave	Russell Ave	Diazinon (Qualitative)	ND	U	U	ug/L	Not Detected	C2	Distribution
1/16/2022	011622-20-03	Central Ave	Russell Ave	Dibenz(a,h)Anthracene	ND	U	U	ug/L	Not Detected	C2	Distribution
1/16/2022	011622-20-03	Central Ave	Russell Ave	Dichlorvos (DDVP)	ND	U	U	ug/L	Not Detected	C2	Distribution
1/16/2022	011622-20-03	Central Ave	Russell Ave	Dieldrin	ND	U	U	ug/L	Not Detected	C2	Distribution
1/16/2022	011622-20-03	Central Ave	Russell Ave	Diethylphthalate	ND	U	U	ug/L	Not Detected	C2	Distribution
1/16/2022	011622-20-03	Central Ave	Russell Ave	Dimethoate	ND	U	U	ug/L	Not Detected	C2	Distribution
1/16/2022	011622-20-03	Central Ave	Russell Ave	Dimethylphthalate	ND	U	U	ug/L	Not Detected	C2	Distribution
1/16/2022	011622-20-03	Central Ave	Russell Ave	Di-n-Butylphthalate	8.0			ug/L	Detected	C2	Distribution

Date Collected	Location Name	Street Name	Closest Cross Street	Analyte	Results	Lab Qualifier	Validator Qualifier	Results Unit	Results Category	Zone	Feature Type
1/16/2022	011622-20-03	Central Ave	Russell Ave	Di-N-octylphthalate	ND	U	U	ug/L	Not Detected	C2	Distribution
1/16/2022	011622-20-03	Central Ave	Russell Ave	Endosulfan I (Alpha)	ND	U	U	ug/L	Not Detected	C2	Distribution
1/16/2022	011622-20-03	Central Ave	Russell Ave	Endosulfan II (Beta)	ND	U	U	ug/L	Not Detected	C2	Distribution
1/16/2022	011622-20-03	Central Ave	Russell Ave	Endosulfan Sulfate	ND	U	U	ug/L	Not Detected	C2	Distribution
1/16/2022	011622-20-03	Central Ave	Russell Ave	Endrin	ND	U	U	ug/L	Not Detected	C2	Distribution
1/16/2022	011622-20-03	Central Ave	Russell Ave	Endrin Aldehyde	ND	U	U	ug/L	Not Detected	C2	Distribution
1/16/2022	011622-20-03	Central Ave	Russell Ave	EPTC	ND	U	U	ug/L	Not Detected	C2	Distribution
1/16/2022	011622-20-03	Central Ave	Russell Ave	Fluoranthene	ND	U	U	ug/L	Not Detected	C2	Distribution
1/16/2022	011622-20-03	Central Ave	Russell Ave	Fluorene	0.015	J	J	ug/L	Detected	C2	Distribution
1/16/2022	011622-20-03	Central Ave	Russell Ave	gamma-Chlordane	ND	U	U	ug/L	Not Detected	C2	Distribution
1/16/2022	011622-20-03	Central Ave	Russell Ave	Heptachlor	ND	U	U	ug/L	Not Detected	C2	Distribution
1/16/2022	011622-20-03	Central Ave	Russell Ave	Heptachlor Epoxide (isomer B)	ND	U	U	ug/L	Not Detected	C2	Distribution
1/16/2022	011622-20-03	Central Ave	Russell Ave	Hexachlorobenzene	ND	U	U	ug/L	Not Detected	C2	Distribution
1/16/2022	011622-20-03	Central Ave	Russell Ave	Hexachlorocyclopentadiene	ND	U	U	ug/L	Not Detected	C2	Distribution
1/16/2022	011622-20-03	Central Ave	Russell Ave	Indeno(1,2,3,c,d)Pyrene	ND	U	U	ug/L	Not Detected	C2	Distribution
1/16/2022	011622-20-03	Central Ave	Russell Ave	Isophorone	ND	U	U	ug/L	Not Detected	C2	Distribution
1/16/2022	011622-20-03	Central Ave	Russell Ave	Lindane	ND	U	U	ug/L	Not Detected	C2	Distribution
1/16/2022	011622-20-03	Central Ave	Russell Ave	Malathion	ND	U	U	ug/L	Not Detected	C2	Distribution
1/16/2022	011622-20-03	Central Ave	Russell Ave	Methoxychlor	ND	U	U	ug/L	Not Detected	C2	Distribution
1/16/2022	011622-20-03	Central Ave	Russell Ave	Metolachlor	ND	U	U	ug/L	Not Detected	C2	Distribution
1/16/2022	011622-20-03	Central Ave	Russell Ave	Metribuzin	ND	U	U	ug/L	Not Detected	C2	Distribution
1/16/2022	011622-20-03	Central Ave	Russell Ave	Molinate	ND	U	U	ug/L	Not Detected	C2	Distribution
1/16/2022	011622-20-03	Central Ave	Russell Ave	Naphthalene	ND	U	U	ug/L	Not Detected	C2	Distribution
1/16/2022	011622-20-03	Central Ave	Russell Ave	Parathion	ND	U	U	ug/L	Not Detected	C2	Distribution
1/16/2022	011622-20-03	Central Ave	Russell Ave	Pendimethalin	ND	U	U	ug/L	Not Detected	C2	Distribution
1/16/2022	011622-20-03	Central Ave	Russell Ave	Permethrin (mixed isomers)	ND	U	U	ug/L	Not Detected	C2	Distribution
1/16/2022	011622-20-03	Central Ave	Russell Ave	Phenanthrene	0.017	J	J	ug/L	Detected	C2	Distribution
1/16/2022	011622-20-03	Central Ave	Russell Ave	Propachlor	ND	U	U	ug/L	Not Detected	C2	Distribution
1/16/2022	011622-20-03	Central Ave	Russell Ave	Pyrene	ND	U	U	ug/L	Not Detected	C2	Distribution
1/16/2022	011622-20-03	Central Ave	Russell Ave	Simazine	ND	U	U	ug/L	Not Detected	C2	Distribution
1/16/2022	011622-20-03	Central Ave	Russell Ave	Terbacil	ND	U	U	ug/L	Not Detected	C2	Distribution
1/16/2022	011622-20-03	Central Ave	Russell Ave	Terbutylazine	ND	U	U	ug/L	Not Detected	C2	Distribution
1/16/2022	011622-20-03	Central Ave	Russell Ave	Thiobencarb (ELAP)	ND	U	U	ug/L	Not Detected	C2	Distribution
1/16/2022	011622-20-03	Central Ave	Russell Ave	trans-Nonachlor	ND	U	U	ug/L	Not Detected	C2	Distribution
1/16/2022	011622-20-03	Central Ave	Russell Ave	Trifluralin	ND	U	U	ug/L	Not Detected	C2	Distribution
1/16/2022	011622-20-03	Central Ave	Russell Ave	1-Methylnaphthalene	NI			ug/L	Not Identified	C2	Distribution
1/16/2022	011622-20-03	Central Ave	Russell Ave	2-Methylnaphthalene	NI			ug/L	Not Identified	C2	Distribution
1/28/2022	012822-08-01	Marin Barracks Way	Salvor St	2,4-DDD	ND	U	U	ug/L	Not Detected	C2	Residential
1/28/2022	012822-08-01	Marin Barracks Way	Salvor St	2,4-DDE	ND	U	U	ug/L	Not Detected	C2	Residential
1/28/2022	012822-08-01	Marin Barracks Way	Salvor St	2,4-DDT	ND	U	U	ug/L	Not Detected	C2	Residential
1/28/2022	012822-08-01	Marin Barracks Way	Salvor St	2,4-Dinitrotoluene	ND	U	U	ug/L	Not Detected	C2	Residential
1/28/2022	012822-08-01	Marin Barracks Way	Salvor St	2,6-Dinitrotoluene	ND	U	U	ug/L	Not Detected	C2	Residential
1/28/2022	012822-08-01	Marin Barracks Way	Salvor St	4,4-DDD	ND	U	U	ug/L	Not Detected	C2	Residential
1/28/2022	012822-08-01	Marin Barracks Way	Salvor St	4,4-DDE	ND	U	U	ug/L	Not Detected	C2	Residential
1/28/2022	012822-08-01	Marin Barracks Way	Salvor St	4,4-DDT	ND	U	U	ug/L	Not Detected	C2	Residential
1/28/2022	012822-08-01	Marin Barracks Way	Salvor St	Acenaphthene	ND	U	U	ug/L	Not Detected	C2	Residential
1/28/2022	012822-08-01	Marin Barracks Way	Salvor St	Acenaphthylene	ND	U	U	ug/L	Not Detected	C2	Residential
1/28/2022	012822-08-01	Marin Barracks Way	Salvor St	Acetochlor	ND	U	U	ug/L	Not Detected	C2	Residential
1/28/2022	012822-08-01	Marin Barracks Way	Salvor St	Alachlor	ND	U	U	ug/L	Not Detected	C2	Residential
1/28/2022	012822-08-01	Marin Barracks Way	Salvor St	Alpha-BHC	ND	U	U	ug/L	Not Detected	C2	Residential

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Date Collected	Location Name	Street Name	Closest Cross Street	Analyte	Results	Lab Qualifier	Validator Qualifier	Results Unit	Results Category	Zone	Feature Type
1/28/2022	012822-08-01	Marin Barracks Way	Salvor St	alpha-Chlordane	ND	U	U	ug/L	Not Detected	C2	Residential
1/28/2022	012822-08-01	Marin Barracks Way	Salvor St	Anthrane	ND	U	U	ug/L	Not Detected	C2	Residential
1/28/2022	012822-08-01	Marin Barracks Way	Salvor St	Atrazine	ND	U	U	ug/L	Not Detected	C2	Residential
1/28/2022	012822-08-01	Marin Barracks Way	Salvor St	Benz(a)Anthracene	ND	U	U	ug/L	Not Detected	C2	Residential
1/28/2022	012822-08-01	Marin Barracks Way	Salvor St	Benz(a)pyrene	ND	U	U	ug/L	Not Detected	C2	Residential
1/28/2022	012822-08-01	Marin Barracks Way	Salvor St	Benz(b)Fluoranthene	ND	U	U	ug/L	Not Detected	C2	Residential
1/28/2022	012822-08-01	Marin Barracks Way	Salvor St	Benz(g,h,i)Perylene	ND	U	U	ug/L	Not Detected	C2	Residential
1/28/2022	012822-08-01	Marin Barracks Way	Salvor St	Benz(k)Fluoranthene	ND	U	U	ug/L	Not Detected	C2	Residential
1/28/2022	012822-08-01	Marin Barracks Way	Salvor St	Beta-BHC	ND	U	U	ug/L	Not Detected	C2	Residential
1/28/2022	012822-08-01	Marin Barracks Way	Salvor St	Bromacil	ND	U	U	ug/L	Not Detected	C2	Residential
1/28/2022	012822-08-01	Marin Barracks Way	Salvor St	Butachlor	ND	U	U	ug/L	Not Detected	C2	Residential
1/28/2022	012822-08-01	Marin Barracks Way	Salvor St	Butylbenzophthalate	ND	U	U	ug/L	Not Detected	C2	Residential
1/28/2022	012822-08-01	Marin Barracks Way	Salvor St	Caffeine by method 525mod	ND	U	U	ug/L	Not Detected	C2	Residential
1/28/2022	012822-08-01	Marin Barracks Way	Salvor St	Chlorobenzilate	ND	U	U	ug/L	Not Detected	C2	Residential
1/28/2022	012822-08-01	Marin Barracks Way	Salvor St	Chloroneb	ND	U	U	ug/L	Not Detected	C2	Residential
1/28/2022	012822-08-01	Marin Barracks Way	Salvor St	Chlorothalonil(Draconil,Bravo)	ND	U	U	ug/L	Not Detected	C2	Residential
1/28/2022	012822-08-01	Marin Barracks Way	Salvor St	Chlorpyrifos (Dursban)	ND	U	U	ug/L	Not Detected	C2	Residential
1/28/2022	012822-08-01	Marin Barracks Way	Salvor St	Chrysene	ND	U	U	ug/L	Not Detected	C2	Residential
1/28/2022	012822-08-01	Marin Barracks Way	Salvor St	Delta-BHC	ND	U	U	ug/L	Not Detected	C2	Residential
1/28/2022	012822-08-01	Marin Barracks Way	Salvor St	Di-(2-Ethylhexyl)adipate	ND	U	U	ug/L	Not Detected	C2	Residential
1/28/2022	012822-08-01	Marin Barracks Way	Salvor St	Di(2-Ethylhexyl)phthalate	ND	U	U	ug/L	Not Detected	C2	Residential
1/28/2022	012822-08-01	Marin Barracks Way	Salvor St	Diazinon (Qualitative)	ND	U	U	ug/L	Not Detected	C2	Residential
1/28/2022	012822-08-01	Marin Barracks Way	Salvor St	Dibenz(a,h)Anthracene	ND	U	U	ug/L	Not Detected	C2	Residential
1/28/2022	012822-08-01	Marin Barracks Way	Salvor St	Dichlorvos (DDVP)	ND	U	U	ug/L	Not Detected	C2	Residential
1/28/2022	012822-08-01	Marin Barracks Way	Salvor St	Dieldrin	ND	U	U	ug/L	Not Detected	C2	Residential
1/28/2022	012822-08-01	Marin Barracks Way	Salvor St	Dimethylphthalate	ND	U	U	ug/L	Not Detected	C2	Residential
1/28/2022	012822-08-01	Marin Barracks Way	Salvor St	Dimethoate	ND	U(R7)	U	ug/L	Not Detected	C2	Residential
1/28/2022	012822-08-01	Marin Barracks Way	Salvor St	Dimethylphthalate	ND	U	U	ug/L	Not Detected	C2	Residential
1/28/2022	012822-08-01	Marin Barracks Way	Salvor St	Di-n-Butylphthalate	ND	U	U	ug/L	Not Detected	C2	Residential
1/28/2022	012822-08-01	Marin Barracks Way	Salvor St	Di-N-octylphthalate	ND	U	U	ug/L	Not Detected	C2	Residential
1/28/2022	012822-08-01	Marin Barracks Way	Salvor St	Endosulfan I (Alpha)	ND	U	U	ug/L	Not Detected	C2	Residential
1/28/2022	012822-08-01	Marin Barracks Way	Salvor St	Endosulfan II (Beta)	ND	U	U	ug/L	Not Detected	C2	Residential
1/28/2022	012822-08-01	Marin Barracks Way	Salvor St	Endosulfan Sulfate	ND	U	U	ug/L	Not Detected	C2	Residential
1/28/2022	012822-08-01	Marin Barracks Way	Salvor St	Endrin	ND	U	U	ug/L	Not Detected	C2	Residential
1/28/2022	012822-08-01	Marin Barracks Way	Salvor St	Endrin Aldehyde	ND	U	U	ug/L	Not Detected	C2	Residential
1/28/2022	012822-08-01	Marin Barracks Way	Salvor St	EPTC	ND	U	U	ug/L	Not Detected	C2	Residential
1/28/2022	012822-08-01	Marin Barracks Way	Salvor St	Fluoranthene	ND	U	U	ug/L	Not Detected	C2	Residential
1/28/2022	012822-08-01	Marin Barracks Way	Salvor St	Fluorene	ND	U	U	ug/L	Not Detected	C2	Residential
1/28/2022	012822-08-01	Marin Barracks Way	Salvor St	gamma-Chlordane	ND	U	U	ug/L	Not Detected	C2	Residential
1/28/2022	012822-08-01	Marin Barracks Way	Salvor St	Heptachlor	ND	U	U	ug/L	Not Detected	C2	Residential
1/28/2022	012822-08-01	Marin Barracks Way	Salvor St	Heptachlor Epoxide (isomer B)	ND	U	U	ug/L	Not Detected	C2	Residential
1/28/2022	012822-08-01	Marin Barracks Way	Salvor St	Hexachlorobenzene	ND	U	U	ug/L	Not Detected	C2	Residential
1/28/2022	012822-08-01	Marin Barracks Way	Salvor St	Hexachlorocyclopentadiene	ND	U	U	ug/L	Not Detected	C2	Residential
1/28/2022	012822-08-01	Marin Barracks Way	Salvor St	Indeno(1,2,3,c,d)Pyrene	ND	U	U	ug/L	Not Detected	C2	Residential
1/28/2022	012822-08-01	Marin Barracks Way	Salvor St	Isophorone	ND	U	U	ug/L	Not Detected	C2	Residential
1/28/2022	012822-08-01	Marin Barracks Way	Salvor St	Lindane	ND	U	U	ug/L	Not Detected	C2	Residential
1/28/2022	012822-08-01	Marin Barracks Way	Salvor St	Malathion	ND	U	U	ug/L	Not Detected	C2	Residential
1/28/2022	012822-08-01	Marin Barracks Way	Salvor St	Methoxychlor	ND	U	U	ug/L	Not Detected	C2	Residential
1/28/2022	012822-08-01	Marin Barracks Way	Salvor St	Metolachlor	ND	U	U	ug/L	Not Detected	C2	Residential
1/28/2022	012822-08-01	Marin Barracks Way	Salvor St	Metribuzin	ND	U(R7)	U	ug/L	Not Detected	C2	Residential

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Date Collected	Location Name	Street Name	Closest Cross Street	Analyte	Results	Lab Qualifier	Validator Qualifier	Results Unit	Results Category	Zone	Feature Type
1/28/2022	012822-08-01	Marin Barracks Way	Salvor St	Molinate	ND	U	U	ug/L	Not Detected	C2	Residential
1/28/2022	012822-08-01	Marin Barracks Way	Salvor St	Naphthalene	ND	U	U	ug/L	Not Detected	C2	Residential
1/28/2022	012822-08-01	Marin Barracks Way	Salvor St	Parathion	ND	U	U	ug/L	Not Detected	C2	Residential
1/28/2022	012822-08-01	Marin Barracks Way	Salvor St	Pendimethalin	ND	U	U	ug/L	Not Detected	C2	Residential
1/28/2022	012822-08-01	Marin Barracks Way	Salvor St	Permethrin (mixed isomers)	ND	U	U	ug/L	Not Detected	C2	Residential
1/28/2022	012822-08-01	Marin Barracks Way	Salvor St	Phenanthrene	0.011	J	J	ug/L	Detected	C2	Residential
1/28/2022	012822-08-01	Marin Barracks Way	Salvor St	Propachlor	ND	U	U	ug/L	Not Detected	C2	Residential
1/28/2022	012822-08-01	Marin Barracks Way	Salvor St	Pyrene	ND	U	U	ug/L	Not Detected	C2	Residential
1/28/2022	012822-08-01	Marin Barracks Way	Salvor St	Simazine	ND	U	U	ug/L	Not Detected	C2	Residential
1/28/2022	012822-08-01	Marin Barracks Way	Salvor St	Terbacil	ND	U	U	ug/L	Not Detected	C2	Residential
1/28/2022	012822-08-01	Marin Barracks Way	Salvor St	Terbutylazine	ND	U	U	ug/L	Not Detected	C2	Residential
1/28/2022	012822-08-01	Marin Barracks Way	Salvor St	Thiobencarb (ELAP)	ND	U	U	ug/L	Not Detected	C2	Residential
1/28/2022	012822-08-01	Marin Barracks Way	Salvor St	trans-Nonachlor	ND	U	U	ug/L	Not Detected	C2	Residential
1/28/2022	012822-08-01	Marin Barracks Way	Salvor St	Trifluralin	ND	U	U	ug/L	Not Detected	C2	Residential
1/28/2022	012822-08-01	Marin Barracks Way	Salvor St	1-Methylnaphthalene	ND	U	U	ug/L	Non Detect	C2	Residential
1/28/2022	012822-08-01	Marin Barracks Way	Salvor St	2-Methylnaphthalene	ND	U	U	ug/L	Non Detect	C2	Residential

Exceeds the ISP

Bold= Detected



DEPARTMENT OF THE NAVY
NAVAL FACILITIES ENGINEERING SYSTEMS COMMAND, HAWAII
400 MARSHALL ROAD
JBPHH, HAWAII 96860-3139

11000
Ser PWO/00101
February 28, 2022

Interagency Drinking Water System Team

SUBJECT: CERTIFICATION OF IRRIGATION LINE FLUSHING – JOINT BASE
PEARL HARBOR-HICKAM - ZONE C2

ENCL: (1) Dept. of Health Irrigation System Flushing Guidance

On behalf of the United States Department of the Navy, operator of the Joint Base Pearl Harbor-Hickam Public Water System (PWS ID No. 360 Water System), and in connection with and pursuant to the removal action required by the DOH Hazard Evaluation and Emergency Response Office Incident Case No. 20211128-1848, the undersigned certifies that the Navy has made all necessary inquiry into their Water System and represents and warrants as set forth below.

Landscape irrigation systems in Zone C2, generally known as NAVSTA area, have been operated and flushed following Enclosure (1), and subsequent to the approved distribution line flushing conducted in December, 2021.

The undersigned has due authority to deliver this Certification on behalf of the Navy.

Sincerely,

HARMEYER.RANDALL
.ERNEST.1186692663

Digitally signed by
HARMEYER.RANDALL.ERNEST.11
86692663
Date: 2022.02.28 09:03:34 -10'00'

R. E. HARMEYER
Captain, CEC, U.S. Navy
Public Works Officer
By Direction
of the Commanding Officer

DOH guidance for active irrigation line purging/flushing

Given the minimal quantities and concentration of fuel contamination in the irrigation lines, along with the expected degradation due to time, the following guidance lines are being provided:

System operator responsibility:

- Determine what the irrigation system pipe size is (for volume calculations).
- Calculate the approximate amount of time needed to complete 3 volumetric turnovers of the subject line (est. duration per foot).
- Assess how long each line will need to be purged/flushed based on the above estimates.
- Notify community.
- Cover or otherwise minimize any spray from the system (traffic cone) in order to prevent contact.
- Purge irrigation system under supervision for the estimated duration.
- Allow ground to absorb and dry.
- Notify residents to avoid area for the next 24 hours.
- Prevent/minimize any runoff.
- Prevent contact with the irrigation water.

DOH Guidance for Active Irrigation Line Purging and Flushing

Given the minimal quantities and concentration of fuel contamination in the irrigation lines, along with the expected degradation due to time, the following guidance lines are being provided:

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- Purge irrigation system under supervision for the estimated duration.
- Allow ground to absorb and dry.
- Notify residents to avoid area for the next 24 hours.
- Prevent/minimize any runoff.
- Prevent contact with the irrigation water.

Navy/Army must develop a standard operating procedure incorporating the above guidance and provide training to personnel responsible for execution of the irrigation line purging/flushing.