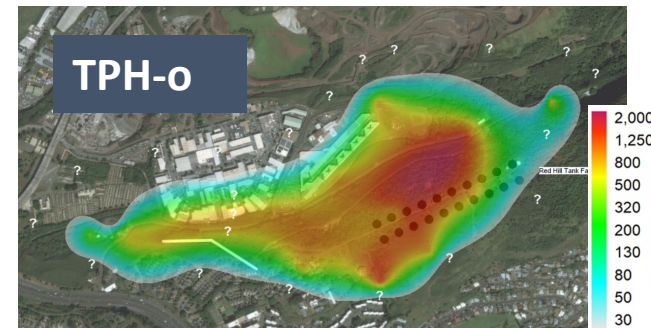
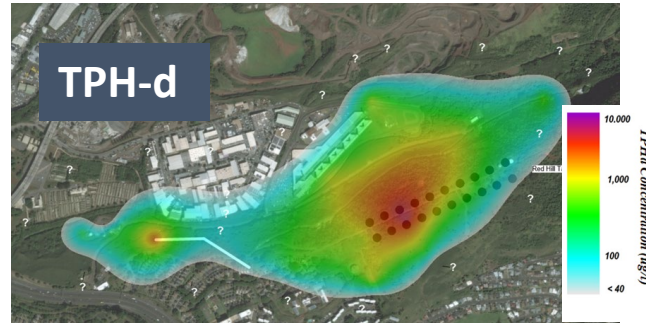


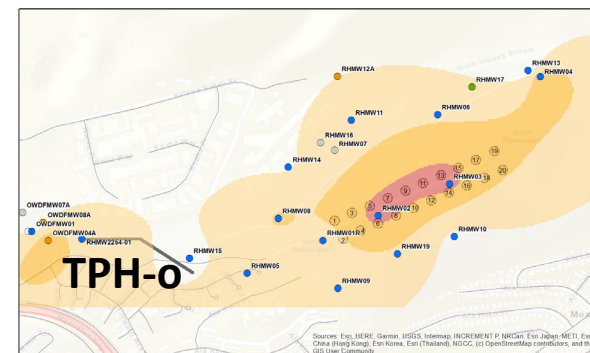
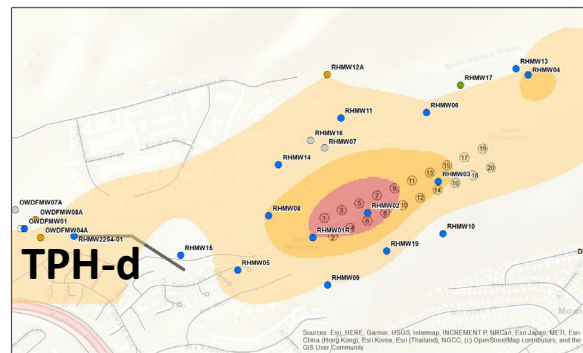
Evaluation of Aquifer Conditions - TPH

Two approaches to analyzing the same GW results

Maximum TPH concentrations
November-December 2021



Frequency of EAL exceedances *
May 2021 to January 2022



Fraction of
Samples
Exceeding
266 ug/l EAL

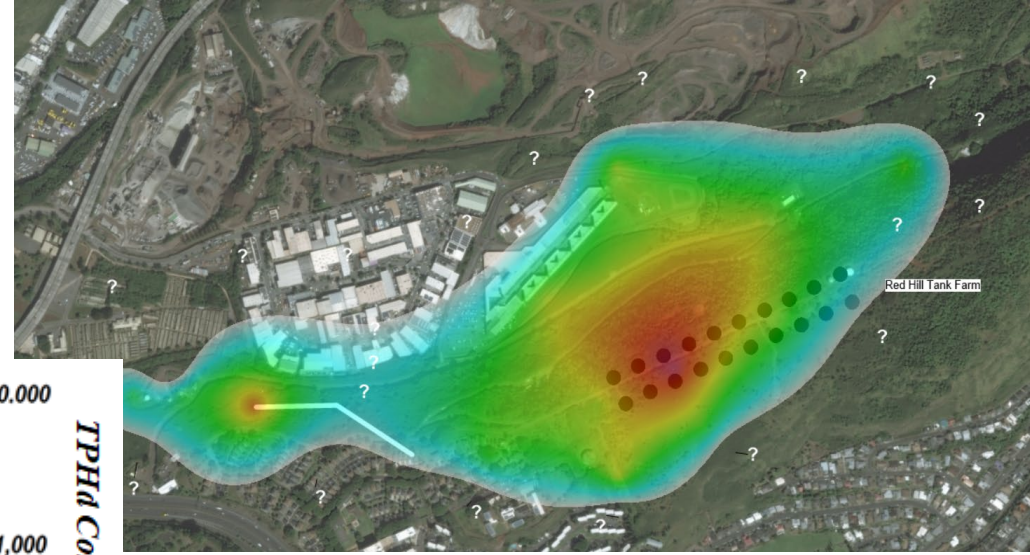
0

Frequency of EAL Exceedances in groundwater wells
compared to Maximum TPH Detections Heat Maps

Maximum Concentration Map: Total Petroleum Hydrocarbons – Diesel Range (TPHd)

Prior to 2021 Release

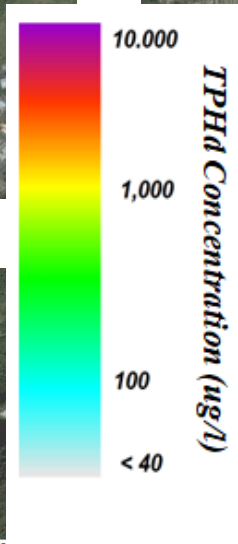
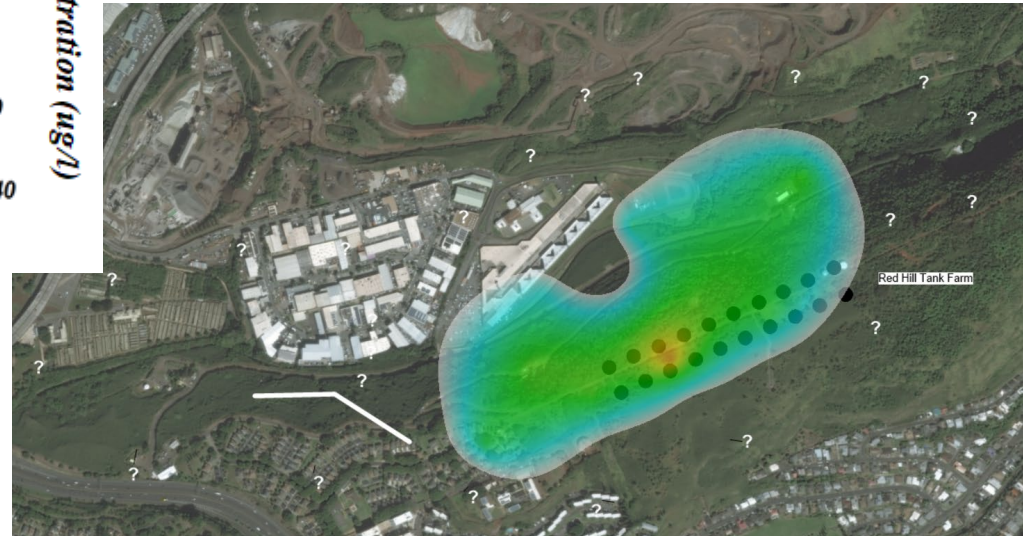
Late 2021 – after release



April 2022



Early 2023

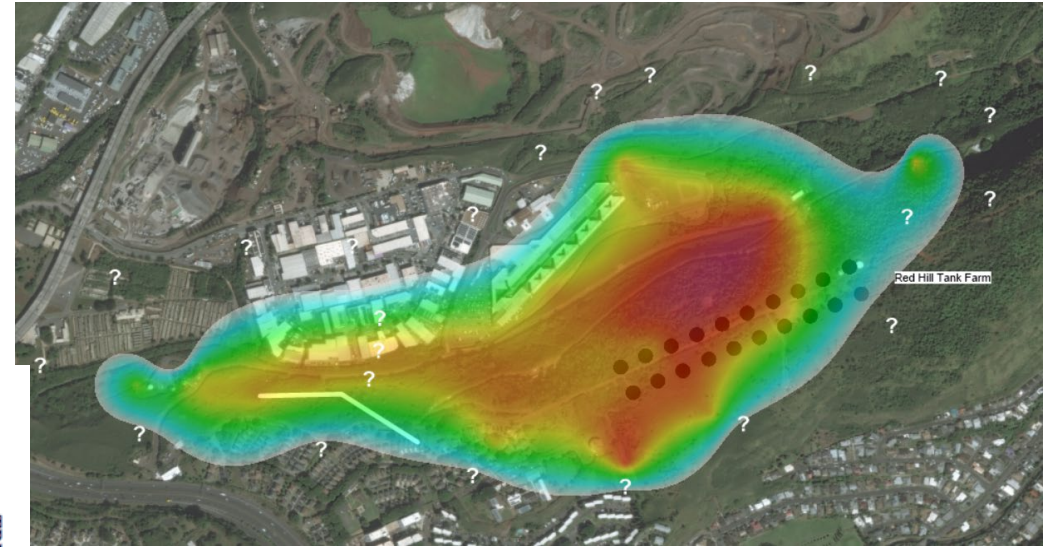


Maximum Concentration Map: Total Petroleum Hydrocarbons – Oil Range (TPHo)

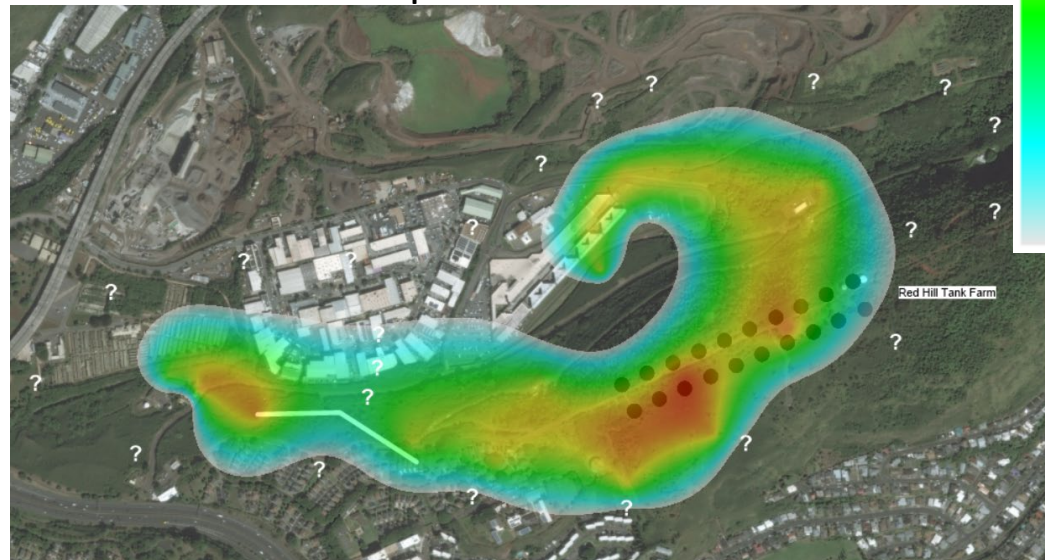
Prior to 2021 Release



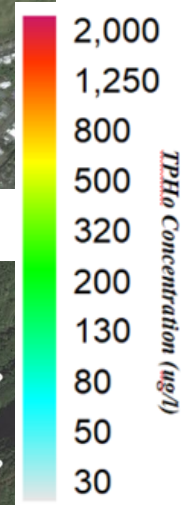
Late 2021 – after release



April 2022



Early 2023

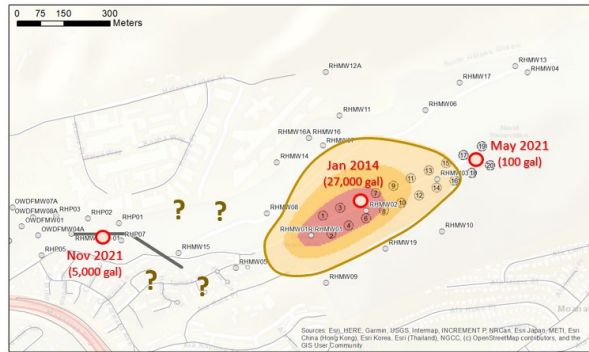


Evaluation of Aquifer Conditions – Mixed TPH

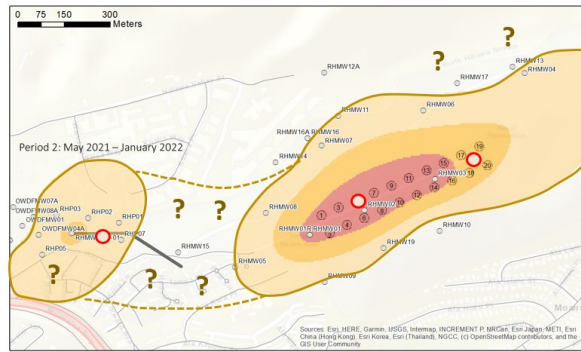
Frequency of EAL exceedances

May 2021 to March 2023

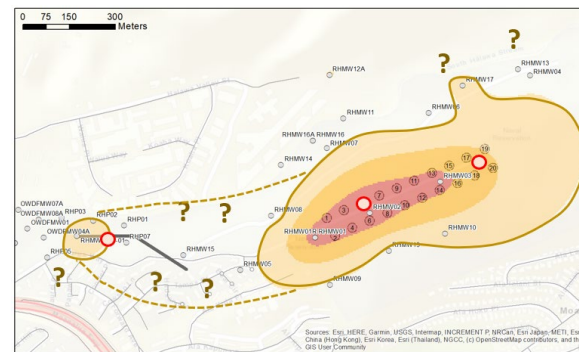
Prior to May 2021



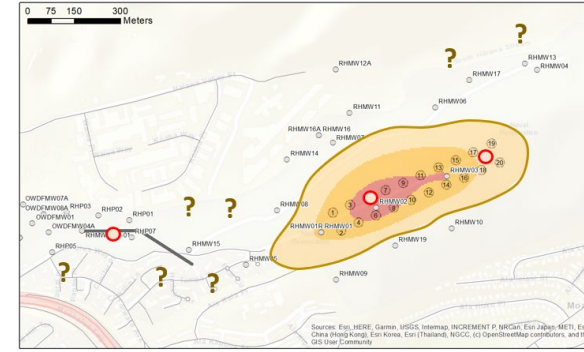
May 2021 – Jan 2021



Feb 2021 – Jul 2022



Aug 2022 – Mar 2023



Exceedances of the mixed EAL appear over a larger footprint after the May 2021 release. EAL exceedances have dropped and are approaching pre-2021 release levels.



Data sources: RA compiled Navy Groundwater Data

Recommended Risk-Based Drinking Water Action Levels for Total Petroleum Hydrocarbons (TPH) Associated with Releases of JP-5 Jet Fuel: Hawaii Department of Health, Hazard Evaluation and Emergency Response (HDOH-HEER), April 12, 2022 and revisions (Mixed EAL @346 µg/L)

Evaluation of Aquifer Conditions – PFAS

Maximum Concentration at Individual Locations (ng/L)

Location	Perfluorocarboxylic Acids (PFCAs)											Perfluorosulfonic acids (PFSA's)					6:2 FTS	PFOSA	HFPO-DA	ADONA
	PFBA	PFPeA	PFHxA	PFHpA	PFOA	PFNA	PFDA	PFUnA	PFDoA	PFTTrDA	PFTeDA	PFBS	PFHxS	PFHpS	PFOS	PFDS				
RHMW02	20	7	1.7	1.1	ND	ND	ND	ND	ND	ND	ND	ND	0.036	ND	0.21	ND	21	ND	ND	ND
RHMW03	2.9	5.4	2.7	1.8	0.58	0.17	0.16	0.18	0.12	ND	ND	ND	0.11	ND	0.37	ND	27	1.2	ND	ND
RHMW04	2.2	1.1	0.46	0.45	0.2	ND	ND	ND	ND	ND	ND	ND	ND	ND	1.3	ND	9.6	ND	ND	ND
RHMW06	1	2	0.73	4.9	0.41	0.23	0.17	0.42	0.16	ND	ND	0.53	ND	ND	0.68	ND	2.1	ND	ND	ND
RHMW10	48	43	7.1	2.9	1.6	2.2	0.79	0.99	0.47	0.48	ND	0.11	0.068	ND	0.41	ND	130	0.11	ND	ND
RHMW12A	19	34	7.7	1.5	0.4	0.14	ND	ND	ND	ND	ND	0.055	ND	ND	2.8	ND	18	0.89	ND	ND
RHMW16	15	25	4.4	1.7	0.4	0.15	0.1	ND	0.11	ND	ND	0.059	0.044	ND	0.38	ND	48	0.15	ND	ND
RHMW17	6.7	14	7.6	2.1	0.63	0.26	0.22	0.18	ND	ND	ND	0.23	0.44	ND	1.1	ND	269	0.72	ND	ND
RHMW17D	0.94	0.94	1.6	0.29	0.79	0.33	0.43	ND	0.27	ND	0.23	0.16	0.25	ND	1.1	ND	120	0.11	ND	ND
RHMW17S	4.7	1.4	3.1	1.6	1.6	0.74	0.23	ND	ND	ND	ND	0.76	0.53	ND	1.3	ND	17.1	0.25	ND	ND
RHMW225401	4.56	13.2	6.78	5.37	3.49	0.898	0.533	ND	ND	ND	ND	1.23	1.65	0.061	6.73	ND	0.47	ND	ND	ND
HDMW225303	ND	ND	0.088	0.097	1.7	ND	ND	ND	ND	ND	ND	ND	0.65	ND	0.53	ND	7.1	ND	ND	ND
HI EAL	24,021	2,529	3,161	126	19	19	13	32	42	42	421	1,896	126	63	13	63	2,465	76	23	1,896
EPA MCL/HBV					4	10						2,000	9		4				10	
EPA RSL HQ = 1	18,000		990		60	59						6,000	390		40				60	
EPA RSL HQ = 0.1	1,800		99		6	6						600	4		4				6	

Notes:

Data from December 2021 through April 2023.

HI EAL – Hawaii Environmental Action Level.

EPA – United States Environmental Protection Agency

MCL – Maximum Contaminant Level (proposed)

HBV – Health-Based Value for calculation of Hazard Index (proposed)

RSL – Regional Screening Level

HQ – Hazard Quotient

ng/L – nanograms per liter

ND – Not measured above laboratory reporting limits (non-detect)

Sample data from 12/2021 through 4/26/2023

6.73 – Exceedance of EPA MCL (proposed) Note: This sample was collected on 12/20/2021 prior to the November 2022 AFFF release at Adit 6. The average PFOS concentration at RHMW2254-01 after this event is 1.08 ng/L..

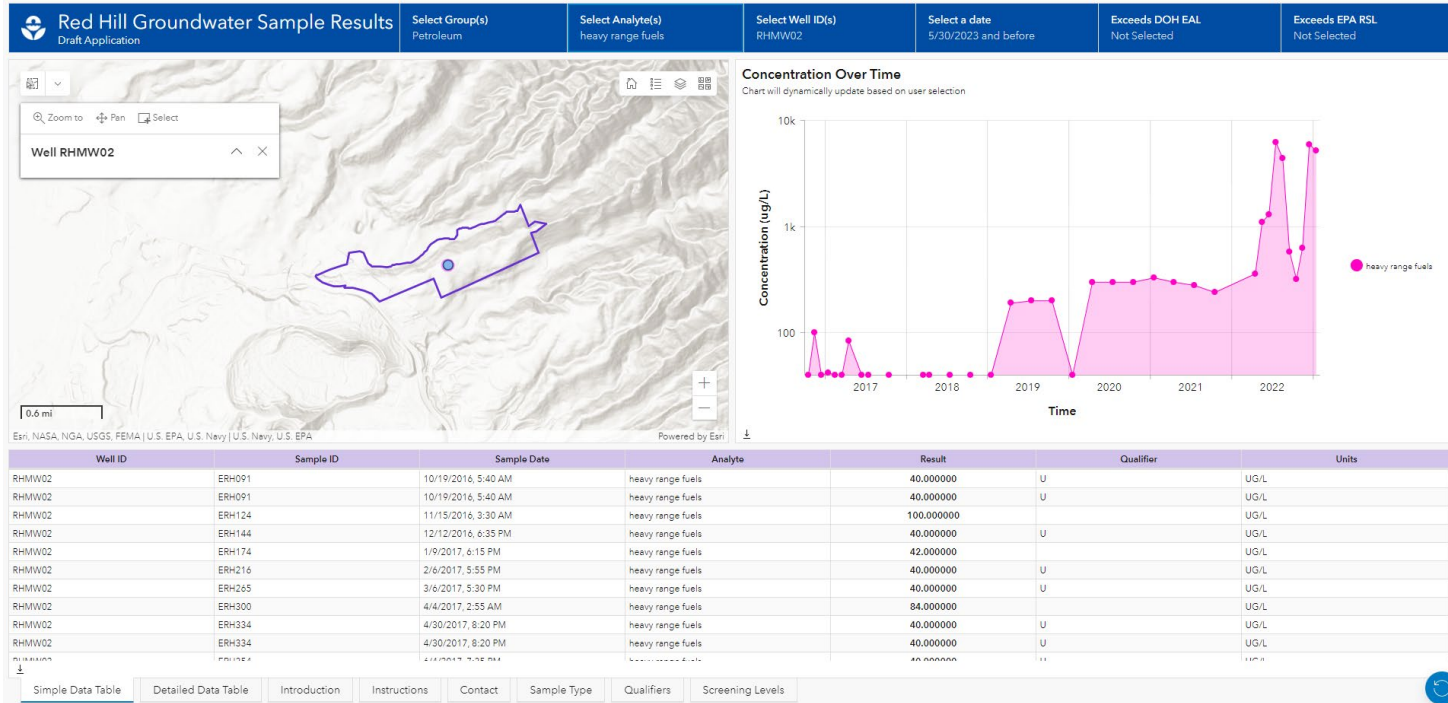
HI EAL Source: Table A. Interim Soil and Water Environmental Action Levels (EALs) for Perfluoroalkyl and Polyfluoroalkyl Substances (PFASs). April, 2023. Available at: <https://health.hawaii.gov/heer/guidance/ehe-and-eals/#ehe6>

EPA MCL Source: EPA Proposed PFAS National Primary Drinking Water Regulation (March 2023). Available at: <https://www.epa.gov/sdwa/and-polyfluoroalkyl-substances-pfas>

EPA HBV Source: EPA Factsheet, Understanding the PFAS National Primary Drinking Water Proposal Hazard Index Available at: https://www.epa.gov/system/files/documents/2023-03/How%20do%20%20calculate%20the%20Hazard%20Index._3.14.23.pdf

EPA RSL Source: EPA Regional Screening Levels (RSLs). May 2023. Available at: <https://www.epa.gov/risk/regional-screening-levels-rsls-generic-tables>

Making Groundwater Data Accessible



EPA rolled out a web-based mapping application to make data more accessible to the public. It can be found at the EPA QR link below.

Source: EPA Groundwater App

EPA website



DOH website



Navy website

