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STATE OF HAWAI'I
DEPARTMENT OF HEALTH
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August 9, 2024

Ernest Y.W. Lau, P.E.
Manager and Chief Engineer
Honolulu Board of Water Supply
630 South Beretania Street
Honolulu, Hawai'i 96843
[via email only: elau@hbws.org]

Dear Manager and Chief Engineer Lau,

SUBJECT: **Request for Information Regarding Polycyclic Aromatic Hydrocarbons Detected at Board of Water Supply 'Aiea Wells**

Thank you for your July 8, 2024 letter[1] notifying us of polycyclic aromatic hydrocarbons (PAHs) detected in samples taken from Honolulu Board of Water Supply (BWS) 'Aiea Wells on May 13 and June 4, 2024. We appreciate BWS' efforts to uphold our shared commitment to protecting public health and the environment and want to work together to accurately identify the root cause of these detections. We understand BWS believes these detections may be related to the November 2021 fuel spill from the Red Hill Facility. To better understand and further investigate these detections, we are interested in receiving additional background and data from the BWS about these detections. Both DOH and EPA would like to receive the following information as soon as possible:

1. Specific locations in BWS 'Aiea Wells where the samples were taken.

2. Sample collection methodology used.

3. Sample type (pre-/post-treatment).

[1] https://www.boardofwatersupply.com/bws/media/redhill/bws%20letters/BWS-Letter-to-EPA-DOH-re-PAH-at-Aiea-Wells-Draft2-Rev3_Final_EL-with-enclosures.pdf

4. Results of any general chemistry sample results that may indicate natural attenuation of fuel hydrocarbons is occurring, as this would be expected in a contaminant plume persistent enough to have originated from the Red Hill Facility.

5. Analytical laboratory reports for samples collected from the ʻAiea Wells during and after June of 2024.

In addition, please let us know whether the BWS considered the following information that would seem to indicate the PAHs came from a different, closer source:

6. **BWS ʻAiea Wells have been shut off since 2021:** As mentioned in your July 8, 2024 letter, BWS Hālawa Shaft, Hālawa Wells, and ʻAiea Wells have been shut off since the November 2021 fuel release from the Red Hill Facility. This means, the aquifer has been relatively static for years, and contaminants that are not highly mobile (such as the PAHs detected) originating from further distances are likely not being drawn up into these wells. Therefore, it is more likely the PAHs detected originated from a source closer to the BWS ʻAiea Wells.

7. **Nearby sources of PAHs:** We are aware of the following potential nearby sources, although there are likely more. Has the BWS considered and ruled out the following?
    a. The former Honolulu Plantation (aka ʻAiea Sugar Mill) a quarter mile northeast of the BWS ʻAiea Wells. The plantation operated a series of siphons, dams, and reservoirs that moved water from ʻAiea and other nearby streams to irrigate sugar mills in the fields from 1901 to 1947. A concrete reservoir was in the ʻAiea Wells area in 1930.
    b. Surface runoff from roads and parking areas.
    c. BWS construction projects in the ʻAiea area around the time BWS detected PAHs in the ʻAiea Wells.

8. **Sustained rainfall before the detections:** There was sustained rainfall in April and May 2024 before the samples were taken on May 13 and June 4, 2024. Sustained rainfall can lead to locally elevated concentrations of PAHs, as well as pesticides, which were detected in BWS Hālawa Wells and Moanalua Wells on June 4 and 12, 2024. These results could indicate that contaminants from localized sources were mobilized by the sustained rains.

9. **Lack of detections between ʻAiea Wells and Red Hill:** The BWS Hālawa Wells are between the ʻAiea Wells and the Red Hill Facility. Thus, if a contaminant plume from the Red Hill Facility passed under the ʻAiea Wells, we would expect to see equivalent or greater PAH detections in BWS Hālawa Wells first. Did BWS see a similar or greater spike in PAH

detections in BWS Hālawa Wells before the detections in BWS 'Aiea Wells? We reviewed a subset of BWS' data and data from the Navy's Red Hill groundwater monitoring well network and did not find conclusive evidence of plume migration in the groundwater between 'Aiea Wells and the Red Hill Facility.

10. **Groundwater flow direction:** According to BWS' *Draft Source Water Protection Plan*, dated May 2024, the groundwater under BWS 'Aiea Wells flows to the Southeast. For contaminants to travel from the Red Hill Facility, groundwater would need to flow in the opposite direction. How did BWS reconcile these different flow directions?

11. **Source of PAH compounds:** The PAH compounds detected in BWS 'Aiea Wells are different than those expected from degraded fuel from the Red Hill Facility. The low concentrations of longer-chain PAHs detected in the absence of more mobile compounds associated with petroleum fuels suggests that the contamination is likely from a different source. A review of the chromatogram of the sample or future samples would help to determine the likely source. How did BWS conclude that the PAHs detected were from the Red Hill Facility and not a potential nearby source mentioned above?

After reviewing the lab reports provided with the July 8, 2024 letter, we have several concerns and recommendations regarding quality control in the lab.

12. **Potential matrix interference (aka false positives):**
    a. The chains of custody (COCs) for the samples are uncertain. For example, some analyses conducted do not have container numbers or the type of analysis listed – yet the analyses were still conducted. Others have different preservation methods (or no preservation method) listed for the same analysis on different COCs. Therefore, the impact of potential matrix interference is difficult to assess.
    b. No matrix spike/matrix spike duplicate (MS/MSD) samples were collected that could shed light on potential matrix interference at these low PAH levels.

13. **Potential cross contamination:** For the June 4, 2024 sample that had PAH detections, the lab report noted one bottle broke and 4 containers became empty in transit. We do not know if cross contamination occurred in transit because there was no accompanying trip blank.

14. **Recommendations:** To increase the certainty of sample results moving forward, we recommend the following for BWS' sampling protocol:
    - Add a field blank and trip blank for PAH samples.

- Add a low concentration spike close to the MRL (method reporting limit) for Method 625.
- Resample when containers are broken.
- Collect a MS/MSD sample for PAHs at locations suspected to have PAH detections.
- Double-check the accuracy of the chain of custody.

Lastly, we acknowledge your request to push the Navy to fully and expeditiously characterize the groundwater under the Red Hill Facility. We are carefully reviewing the Navy's site assessment work plan (*Draft Tank Closure Plan, Supplement 3: Phase 1 Site Assessment, Red Hill Bulk Fuel Storage Facility*, dated June 2024), which was also provided to the BWS for review and comment.

As you know, the Navy's past groundwater flow models were not approved by regulators. As noted in the November 2023 Red Hill Water Alliance Initiative (WAI) Report, the models contained specific errors in their assumptions identified by subject matter experts, who have little confidence that subsequent revisions will be satisfactory. Thus, the DOH looks forward to discussing the University of Hawai'i's findings from its ongoing independent modeling and field work with the BWS and other stakeholders. EPA will be providing direction to the Navy on the changes that will be needed to make the groundwater flow models approvable.

If you have any questions regarding this letter, please contact Matthew Cohen, EPA Red Hill Project Coordinator, at Cohen.Matthew@epa.gov or (415) 972-3691; or Kelly Ann Lee, DOH Red Hill Project Coordinator, at KellyAnn.Lee@doh.hawaii.gov or (808) 586-4226.

Sincerely,

CLAIRE TROMBADORE

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Date: 2024.08.09 10:46:03 -07'00'

Kathleen Ho

Claire Trombadore
Director, Land, Chem & Redevelop
U.S. Environmental Protection Agency, Region 9

Kathleen S. Ho
Deputy Director for Environmental Health
State of Hawai'i, Department of Health

cc: RADM Stephen Barnett, NCTF-RH [via email only]