



UNITED STATES ENVIRONMENTAL  
PROTECTION AGENCY  
REGION IX  
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STATE OF HAWAII  
DEPARTMENT OF HEALTH  
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SEP 12 2017

Mark Manfredi  
Red Hill Project Coordinator  
Naval Facilities Hawaii  
400 Marshall Road  
Joint Base Pearl Harbor Hickam, Hawaii 96860

**Subject: Split Sampling Results from First Quarter 2017**

Dear Mr. Manfredi:

As a part of the U.S. Environmental Protection Agency's (EPA) and Hawai'i Department of Health's ("Regulatory Agencies") oversight role, the Regulatory Agencies conducted a split sampling analysis of groundwater to assess the accuracy of data reported by the Navy's contracted laboratory. The split sampling was conducted over the course of three months, between January 2017 and March 2017. The Navy collected duplicates of all samples, and provided their duplicate samples to the Regulatory Agencies for shipment to EPA's regional laboratory. EPA's regional laboratory analyzed the samples for Total Petroleum Hydrocarbons for Diesel, Oil and Gasoline (TPH- d, TPH-o and TPH-g), Volatile Organic Compounds (VOC's) and Polycyclic Aromatic Hydrocarbons (PAH's) as well as several other compounds. EPA's laboratory results are available on the DOH website.

The Regulatory Agencies initially compared the two data sets by examining them side by side. The main objective of this analysis was to assess the overall agreement between the analytical results provided by the two laboratories.

#### **Polycyclic Aromatic Hydrocarbons (PAHs)**

PAHs were only detected in a few samples over the three-month period, which makes a comparison of the data sets challenging. However, we did see overall agreement when comparable data was present. During the three-month period, only eight pairs of data points were determined to be comparable.

#### **Sulfate, Nitrate and Iron**

While sulfate and iron concentrations from the split samples agreed, nitrate concentrations reported by the two laboratories did not agree, with most of the Navy results reporting higher concentrations compared to EPA. These analytes were not extensively examined as they are not contaminants of concern.

### Total Petroleum Hydrocarbon (TPH) Analysis

TPH consists of many different chemical compounds. The Regulatory Agencies did note a possible trend between the two data sets for this analytical method. The Regulatory Agencies further examined TPH-Diesel because the most pronounced differences in concentrations were within the diesel range. While these differences indicate the need for additional evaluation, the differences observed do not currently have an impact on any site-specific decisions. Even with these differences, the Regulatory Agencies found general agreement between the two data sets. The Regulatory Agencies believe that this difference may be due to analytical differences in the Standard Operating Procedures (SOPs). EPA's SOPs are publicly available and provide an acceptable baseline for further analysis by the Navy.

The Regulatory Agencies request the Navy take the following actions to determine the cause of the difference in laboratory results for TPH-diesel:

- Coordinate with EPA Region 9's Quality Assurance Office as well as the EPA Region 9 Laboratory to discuss any technical questions regarding specific laboratory procedures.
- Determine whether adjustments to SOPs might be necessary.
- Follow up any adjustments in SOPs with appropriate QA sampling.

The Regulatory Agencies request that the Navy provide an explanation for the cause of the laboratory differences within 60 days of the receipt of this letter. Please contact us if you would like to discuss this letter further or to discuss any findings you may make in investigating this matter.

Sincerely,

*Robert Pallarino*

Bob Pallarino  
Project Coordinator  
EPA Region 9 Land Division

*Steven Chang*

*on* Steven Chang  
Project Coordinator  
DOH Solid and Hazardous Waste Branch

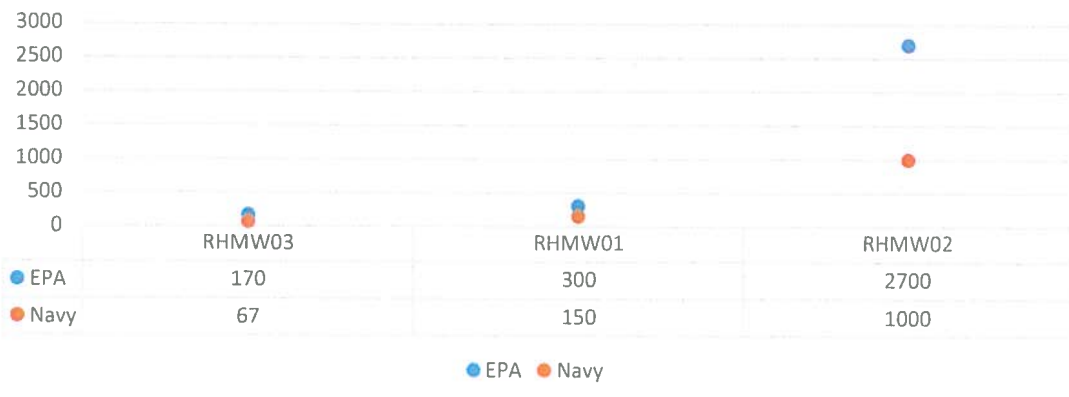
Attachments:

Total Petroleum Hydrocarbons, Diesel Range Charts

TPH-D in  $\mu\text{g/L}$   
January 2017



TPH-D in  $\mu\text{g/L}$   
February 2017



TPH-D in  $\mu\text{g/L}$   
March 2017

