

Understanding Drinking Water Sample Laboratory Reports

After a drinking water sample is taken in the field, the sample is sent to a laboratory to be tested. When the test results are available, a laboratory report is created. DOH recognizes that laboratory reports can be confusing and difficult to understand. This fact sheet is designed to explain some of the terms and help you understand the reports.

Laboratory test results show the amount of a chemical in drinking water at the time the sample was taken. There are many factors that can cause laboratory results to be variable. Some of these factors

include differences in when the sample was collected, the way the sample was collected, differences in laboratory equipment and technicians, and specific characteristics of the chemical being tested.

Petroleum hydrocarbons in water are particularly difficult to test. As such, we expect that test results for petroleum hydrocarbons may vary between zones or between buildings within a zone. When determining if the water is safe to drink, the test results are looked at individually and as a whole.



Types of Drinking Water Sample Results:

Drinking Water Sample Results for Total Petroleum Hydrocarbons (TPH)

Petroleum hydrocarbons are measured in **three categories**:

- Total Petroleum Hydrocarbons – Gasoline Range (TPH-g)
- Total Petroleum Hydrocarbons – Diesel Range (TPH-d)
- Total Petroleum Hydrocarbons – Oil Range (TPH-o).

For more information about TPH, please see the **“What are Petroleum Hydrocarbons Fact Sheet”**.

Drinking Water Sample Results for Total Organic Carbon (TOC)

TOC are tested in the drinking water samples as a possible marker for increased petroleum hydrocarbons and other possible organic sources. TOC is a measurement of the total amount of organic carbon in the sample. There are no direct regulatory limits for TOC in drinking water.

Drinking Water Sample Results for Volatile Organic Compounds (VOCs), Synthetic Organic Chemicals and (SOCs), Semi-Volatile Compounds (SVOCs)

VOCs are carbon-based chemicals that evaporate easily into the air. Fuels and other petroleum products as well as many consumer products contain different amounts of VOCs. For more information on VOCs: <https://www.epa.gov/air-emissions-inventories/what-definition-voc>

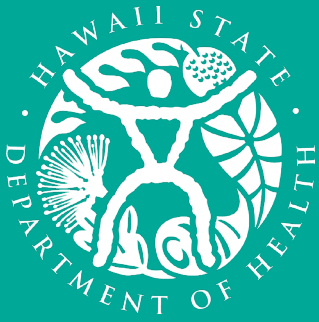
SOCs/SVOCs are synthetic organic chemicals (SOCs) also called semi-volatile compounds (SVOCs). SOC/SVOCs are part of petroleum products but were also used in the past as pesticides. Because these chemicals do not break down in the environment, they are still present in areas throughout Hawaii.

Drinking Water Sample Results for Heavy Metals and Bacteria

Heavy Metals include substances like lead, copper, and arsenic that can be found in nature and in many consumer products. Heavy metals were measured because they can be fuel additives.

Bacteria (measured as E. Coli, HPC and Total Coliform) are tested in the drinking water samples as a possible marker for increased petroleum hydrocarbons. Bacteria can feed on hydrocarbons, so an increase in bacteria levels may suggest increased petroleum in the water.

For more information, visit health.hawaii.gov/NavyWater



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Glossary of Terms:

Laboratory Method

This refers to a standardized laboratory test for a specific chemical or class of chemicals. It is usually represented by a four-digit number. Many laboratory methods are approved by the US Environmental Protection Agency (EPA).

Method Detection Limit (MDL)

The MDL only identifies the presence of a chemical in a sample. This is the lowest amount (minimum concentration) of a chemical that can be detected in a sample using a specific laboratory method. A test result above the MDL means the lab is 99% certain that the chemical is present in the sample. MDLs can vary by laboratory, equipment or by the person running the equipment.

Method Reporting Limit (MRL)

This is the lowest amount (minimum concentration) of a chemical detected in a sample that can be considered reliable. When a test result is above the MRL, the laboratory has acknowledged that it is confident in the accuracy of this result. MRLs vary by laboratory.

For more information on laboratory methods, see <https://www.epa.gov/dwanalyticalmethods>



What does it mean when there is a J next to the result number?

The report may include a “J” flag next to a test result. This means that the concentration is above the Method Detection Limit (MDL) but below the Method Reporting Limit (MRL). In this case, the chemical is present but the amount (or concentration) of the chemical is too low to have confidence in the reported test result.

What does it mean when there is a U next to the result number?

The report may include a “U” flag next to a test result. This means the laboratory tested the sample for this chemical but did not detect the chemical above the MDL. This is the same as a “not detected” or “ND” result.

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