



# A Guide to Reading Lab Results

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## How to Read your Lab Report

**Analyses:** List of the parameters that were tested.

**Result:** The amount of that parameter in your sample. The "<" symbol indicates that the amount is less than our Lab reporting limits.

**Units:** mg/L is milligrams per Liter and the same as ppm, parts per million. ug/L is micrograms per Liter, the same as ppb, parts per billion. For solids, the unit is mg/kg, milligrams per Kilogram.

**RL:** Reporting Limit is the lowest amount this Lab can reliably report for that parameter. These levels can change based on the dilutions we must make to samples, in order to produce that quality, reliable data. Other similar acronyms include PQL, MDL and RPT Limit.

**MCL:** EPA's Maximum Contaminant Level. Action Level is similar and referenced for lead. If there is an exceedance, the column right of the RL column will have the asterisk notation (\*), and you will be notified by the Lab. In drinking water, if the result exceeds the MCL, action must be taken before this water is consumed. If no results exceed an MCL, the sample meets the safe drinking water criteria established for the parameter listed. Not all parameters have an MCL.

**Analyst and Date:** The analyst who did the analyses and the date the sample was analyzed.

**Method number:** The EPA-approved, parameter-specific method used to analyze the sample.

**Trip/field blank:** If Volatile (VOC) or PFAS were analyzed, there may be results associated with the trip/field blank. The trip/field blank is a known blank sample that travels with the other samples to the sampling site and back. This tells us whether any parameters may have been picked up during transit or sampling.

**WO:** This is the Work Order that is assigned to your sample. It is a unique number that identifies your sample(s).

**Qual:** This stands for Qualifier. This is where any notations about your sample would be if your sample exceeds the MDL or is analyzed out of hold.

**\*:** This qualifier is used when the reported value exceeds the maximum contaminant level.

**H:** This qualifier is used when the holding time for that analyte is exceeded.

## Interpreting Drinking Water Test Results

Here are the general guidelines for interpreting results of the most common types of chemical testing. **Contact your local health department for a more detailed evaluation.**

All results are in mg/L (parts per million)

Test Type	Excellent	Satisfactory	May be Objectionable	EPA Max. Contaminant Level (MCL)
Fluoride	1.0 – 1.2	0.07 – 2.0	> 4.0	4
Chloride	< 0.01 – 20	20 – 250	> 250	[250]*
Nitrite	< 0.1	0.1 – 1	> 1	1
Nitrate	< 0.1	1 – 10	> 10	10
Nitrite + Nitrate	< 0.1	1 – 10	> 10	10
Sulfate	< 0.2 – 50	50 – 250	> 250	[250]
Iron	< 0.008 – 0.2	0.2 – 0.5	> 0.5	[0.3]
Sodium	< 0.020 – 20	20 – 160	> 160	[20]
Hardness	25 – 100	100 – 250	> 250	
Lead	<0.001	0.001-0.015	>0.015	0.015
Arsenic	<0.001	0.001-0.010	>0.010	0.01
PFAS Compounds	<2	N/A	N/A	Varies

### Helpful hints:

< means less than

> means greater than

\*Maximum Contaminant Levels (last column) listed with brackets [] are secondary limits for aesthetic qualities

Test	Related Problems
Fluoride	Fluoride is naturally present in some water. Community water fluoridation is the adjustment of the natural fluoride level in public water systems to an optimal level to prevent tooth decay. Mottling of teeth possible at high levels.
Chloride	Taste and Corrosion
Nitrite	May cause methemoglobinemia in infants.
Nitrate	The largest use of nitrates is in fertilizer. In the body, nitrates are converted to nitrites. Infants below six months of age who drink water containing nitrate in excess of the MCL could become seriously ill. Symptoms include shortness of breath and blue baby syndrome. The long-term effects of nitrate on adults is still being studied.
Sulfate	Higher levels may have a laxative effect, especially for new supply users.
Iron	Staining, turbidity, taste, color and odor.
Sodium	Taste and special diets may require water of low sodium content.
Hardness	Scaling of water fixtures, laundry problems, water spotting, discoloration at high levels. Corrosion at low levels.

The above information is given for informational purposes only. Prein&Newhof does not make any health-based decisions on water testing results. Contact the local Health Department regarding any potential health-based concerns.

### Units of Measurement

<b>mg/L</b> Milligrams per Liter	is equal to	<b>ppm</b> Parts per million
<b>ug/L</b> Micrograms per Liter	is equal to	<b>ppb</b> Parts per billion
<b>ng/L</b> Nanograms per Liter	is equal to	<b>ppt</b> Parts per trillion

## Laboratory Acronyms (A-F)

<b>A2LA</b>	American Association for Laboratory Accreditation
<b>ACS</b>	American Chemical Society
<b>ASTM</b>	American Society for Testing and Materials
<b>BNA</b>	Base Neutral Acid organic compounds (aka SOC or SVOC)
<b>BOD</b>	Biochemical Oxygen Demand
<b>BTEX</b>	Benzene, toluene, ethylbenzene, Xylenes
<b>CAS No.</b>	Chemical Abstract Service Registry Number
<b>CBOD</b>	Carbonaceous Biochemical Oxygen Demand
<b>CCV</b>	Continuing Calibration Verification sample
<b>CFC</b>	Chlorofluorocarbon
<b>CFR</b>	Code of Federal Regulations
<b>CFU</b>	Colony-Forming Unit
<b>COC</b>	Chain of Custody
<b>COD</b>	Chemical Oxygen Demand
<b>DBP</b>	Disinfection Bi-Products
<b>DCM</b>	Dichloromethane (aka Methylene Chloride)
<b>DMR</b>	Discharge Monitoring Report
<b>DMRQA</b>	Discharge Monitoring Report Quality Assurance Program
<b>DRO</b>	Diesel Range Organics
<b>DUP</b>	Duplicate
<b>DW</b>	Drinking Water
<b>EGLE</b>	Michigan Department of Environment, Great Lakes, and Energy
<b>ELAP</b>	Environmental Laboratory Accreditation Program
<b>FAA</b>	Flame Atomic Absorption Spectrophotometer
<b>FIA</b>	Flow Injection Analyses
<b>FID</b>	Flame Ionization Detector

## Laboratory Acronyms (G-P)

<b>GC</b>	Gas Chromatograph
<b>GC/MS</b>	Gas Chromatograph/Mass Spectrophotometer
<b>GRO</b>	Gasoline Range Organics
<b>HAA5</b>	Haloacetic Acids
<b>HPLC</b>	High Pressure Liquid Chromatography
<b>IC</b>	Ion Chromatography
<b>ICP-AES</b>	Inductively Coupled Plasma Atomic Emission Spectrometry
<b>ICP-MS</b>	Inductively Coupled Plasma- Mass Spectrometry
<b>LCS</b>	Laboratory Control Sample
<b>LIMS</b>	Laboratory Information Management System
<b>MB</b>	Method Blank
<b>MCL</b>	Maximum Contaminant Level
<b>MDL</b>	Method Detection Limit
<b>MPN</b>	Most Probably Number
<b>MRL</b>	Method Reporting Limit
<b>MS</b>	Matrix Spike
<b>MSD</b>	Matrix Spike Duplicate
<b>MUR</b>	Method Update Rule
<b>ND</b>	Non Detect
<b>NPDES</b>	National Pollutant Discharge Elimination System
<b>PAH/ PNA</b>	Polynuclear Aeromatic Hydrocarbons
<b>PCB</b>	Polychlorinated Biphenyl
<b>PE</b>	Performance Evaluations
<b>PID</b>	Photoionization Detector
<b>PQL</b>	Practical Quantification Limit

## Laboratory Acronyms (Q-Z)

<b>QA</b>	Quality Assurance
<b>QC</b>	Quality Control
<b>RPT</b>	Report
<b>SIE</b>	Selective Ion Electrode
<b>SOC</b>	Synthetic Organic Compounds
<b>SVOA/ SVOC</b>	Semi-Volatile Organic Analytes/ Analyses/Compounds
<b>SW-846</b>	Test methods for evaluating solid waste, physical and chemical methods
<b>TCLP</b>	Toxic Characteristics Leaching Procedure
<b>TKN</b>	Total Kjeldahl Nitrogen
<b>TOC</b>	Total Organic Carbon
<b>TOH</b>	Total Organic Halides
<b>TOX</b>	Toxicity Testing
<b>TPH</b>	Total Petroleum Hydrocarbons
<b>TSS</b>	Total Suspended Solids
<b>TTO</b>	Total Toxic Organics
<b>UST</b>	Underground Storage Tank
<b>TTHM/ THM</b>	Total Trihalomethane
<b>UV</b>	Ultra Violet Spectrophometer
<b>VOA/ VOC</b>	Volatile Organic Analyses/Compounds
<b>WET</b>	Whole Effluent Toxicity
<b>ZHE</b>	Zero Headspace Extraction