National Testing Laboratories, Ltd.
Quality Water Analysis

Water Test Results

You sent your samples into the laboratory to have the water tested and now you have the results, but you are not quite sure how to read them. Laboratory reports can be intimidating with all the acronyms and abbreviations.

Laboratory reports will usually list the items that were tested for and these are typically listed first with the results and reference columns following. Laboratories use various headings for the list of items including: abstract, analysis performed, analyte, parameter and contaminant. There are several other columns that may or may not appear on your report, based the laboratory's reporting procedures; so I am going to talk about some of the common things you may see on a typical drinking water report.

When performing the testing for drinking water, laboratories will typically reference state or federal levels. The Federal standards for drinking water are called Maximum Contaminant Levels or MCL's. These MCL's have been established under the Safe Drinking Water Act and represent a level at which health effects may occur, so you do not want to exceed these levels.

Then there are columns which are intended to indicate the lowest level at which the laboratory can detect that specific parameter. This is where it can get confusing. There may be a column labeled as MDL or EDL, which stands for Method Detection Level or Estimated Detection Level. These are theoretical numbers that are calculated based upon analysis of replicate low-level samples or blanks. The MDL is defined as the minimum concentration of the contaminant that can be identified, measured and reported with a 99% confidence that the analyte concentration is greater than zero. When testing to meet certain state requirements, they may require the MDL's appear on the report. For example, Florida requires all MDL's appear on all tests done to meet the state's drinking water monitoring requirements.

Other columns will include LRL sometimes also called LLD, which are lower reporting limits or lower limit of detection. This level is usually 3-5 times lower than the established MDL's, because it takes into account sample matrix and sample preparation. Sample matrix refers to the make-up of the samples and can cause interferences in certain testing methods. The LRL is a much more realistic level for a laboratory to reach, given that all the samples are not the same and can contain various amounts of several contaminants.

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