

CWERC GLOSSARY

Analyte – A substance in a water sample or an aspect of water quality that is the subject of investigation or laboratory analysis. Also commonly referred to as a “parameter” or a “constituent.”

Aquifer – A geologic layer composed of sediment or rock that stores water in interconnected pore spaces or fractures; repository for groundwater.

Baseline Data – an initial set of observations or data collected for the purpose of comparison with later samples.

Blank Spike – A quality control technique used by laboratories. The lab takes a clean (blank) sample and then “spikes” it by adding the compounds being tested. The lab then analyzes the blank spike to determine the quality of the process. For example, if a lab adds 50 ug/l of benzene and recovers 50 ug/l (or 100%), it shows that the process is clean and efficient.

Bottom Hole Fluids – Fluids found at the “bottom” of a natural gas well. They are often very old saltwater deposits, or brines, from ancient marine environments that hosted the organic matter that eventually decomposed into natural gas.

Casing – Steel or PVC tubing placed in the borehole of a water well to maintain the well’s structural integrity, as well as to provide space for a pump and water. Casing is also an important structural component of natural gas wells.

Cistern – A water tank used for storage or treatment of water before delivery to the pressure tank and home.

Coliform Bacteria – A type of bacteria that is found in the intestinal tract of all animals, including humans. Levels of these bacteria are used as an indicator of well cleanliness.

Constituent – See “Analyte.”

Depth-to-Water – See “Static Water Level.”

Duplicate Sample – A quality control technique used by laboratories. The laboratory siphons off a duplicate of the sample being tested, which is run against itself to see if there are any differences between the results. A Relative Percent Difference (RPD) is calculated to make sure that the analytical process is consistent.

Geologic Formation or Deposit – Any igneous, sedimentary or metamorphic rock represented as a unit.

Groundwater – Water stored beneath the surface of the earth and transmitted through small, interconnected pores and fractures between sediment and rock.

Hydrologist – A scientist who studies the properties, distribution, and circulation of water on and below the earth’s surface, as well as in the atmosphere.

Hydraulic Fracturing – A petroleum industry process used to boost oil and gas extraction. It involves forcing open fissures in subterranean geologic deposits by introducing fluid, chemicals, and proppants at high pressure.

National Primary Drinking Water Standards – Legally enforceable standards promulgated by the Environmental Protection Agency that apply to public water systems. These standards set limits on the concentrations of specific contaminants that can adversely affect public health and which are known or anticipated to occur in public water supplies.

National Secondary Drinking Water Standards – Guidelines promulgated by the Environmental Protection Agency that apply to public drinking water systems, but which are not legally enforceable. The guidelines apply to aesthetic and cosmetic properties of drinking water rather than public health aspects.

Matrix Spike – A quality control technique used by laboratories. The laboratory prepares an extra sample from the fluid sent in the actual samples, then adds compounds and calculates percent recovery. This tests the success of the procedure in recovering compounds from a particular matrix, such as well water. For example, if a lab adds 50 ug/l of benzene to a sample and recovers 49 ug/l, they know the process is 98% efficient.

Method Blank – A quality control technique used by laboratories. The lab prepares an extra sample from a clean (blank) matrix to prove that the analytical process isn’t contaminating samples when they are tested.

Method Detection Limit —A term used in laboratory quality control processes. It is a statistical estimate of how low a particular analytical method’s detection abilities can go. It is typically lower than the Reporting Limit, which is the level of detection certified by regulators.

Monitoring Program – A program of scientific study designed to characterize identified variables and track them over a given time period.

Operator – A term used to refer to a natural gas extraction company.

Parameter – “See Analyte.”

Production Fluids (or Produced Water) – Fluids drawn from a gas well before or during natural gas production; these fluids are typically deep “brines” from ancient marine environments.

Proppant – A contraction of the words “propping” and “agent,” proppants (often sand) are used to hold open cracks in a geologic formation that has been hydraulically fractured to provide a pathway for oil or gas to flow to a well.

Reporting Limit – A term used in laboratory quality control processes. It represents the lowest detectable level of an analyte certified by regulators. Regulators and labs set reporting limits at the lowest point to which the analytical equipment can be calibrated.

Seasonal Variation – Differences in a variable that occur because of changes in hydrologic conditions between wet and dry seasons of the year (i.e., spring and fall).

Static Water Level – Groundwater’s depth below the surface when the pump is not operating, also known as depth-to-water in a well or the top of the water table in an unconfined aquifer.

Surrogate Recoveries – A term used in laboratory quality control processes. Labs add surrogate compounds to monitor the efficiency of sample preparation. If they add 100 mg/L of a substance and recover 80 mg/L upon analysis, that would suggest 80% efficiency. Surrogates are added to all samples being tested for organic compounds, such as BTEX and methane.

Well Cap – A sealed cap on the top of a well casing that prevents surface contaminants from entering the inside of the well from runoff or infiltration.