

## WELL CONSTRUCTION

A summary of the basic characteristics of your well is presented in the testing results. This information originates from one or more of the following sources: 1) Well completion reports submitted by the well driller to the Pennsylvania Department of Conservation and Natural Resources and stored in the [Pennsylvania Groundwater Information System](#) (PaGWIS), 2) Records of field-located wells from a U.S. Geological Survey (USGS) database made available in the PaGWIS, 3) Water-well completion records provided by you or the previous land-owner, and(or) 4) Information collected by the USGS before or during the time of water-sample collection.

## WATER QUALITY RESULTS

### NON-DETECTIONS AND ESTIMATED VALUES

Values in your results preceded by a less than symbol (<) indicate the concentration for that compound is less than the lowest concentration that the analytical instruments can accurately measure. Essentially, these concentrations are so low that the less than values are considered non-detections of the respective constituent. Values preceded by “E” (estimated) indicate the measured result reported might have more quantitative error than we expect from routine performance of the laboratory analysis method, and these values can be above or below non-detections for the respective constituent.

### CONTAMINANT LEVELS

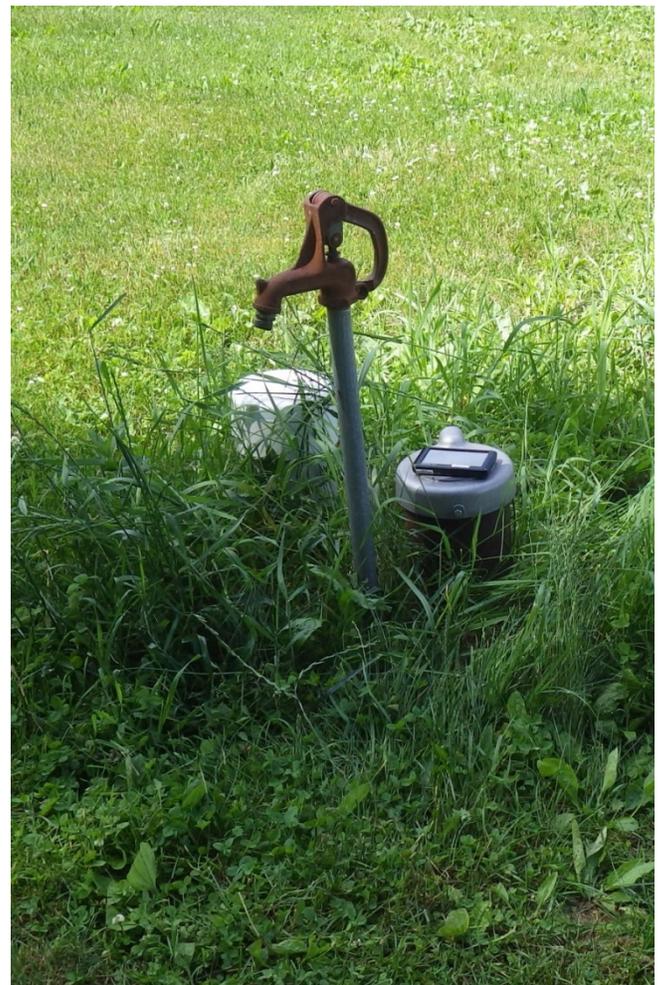
Maximum Contaminant Levels (MCLs), Lifetime Health Advisory Levels (HALs), and Secondary Maximum Contaminant Levels (SMCLs) established by the U.S. Environmental Protection Agency (EPA) are presented in the last three columns of your results table because these may be helpful for result interpretation.

EPA MCLs were developed to ensure safe water for public water supplies, and water with concentrations greater than the MCLs has specific implications related to human health. EPA HALs provide estimates of acceptable drinking water levels for a chemical substance based on health-effects information. If no EPA MCL or HAL has been developed for a particular constituent, this may indicate there are no known health effects or there has not been sufficient testing to determine health effects. If results for your well water have concentrations exceeding MCLs, proposed MCLs, or HALs you may want to confirm these results with additional testing.

EPA SMCLs are non-regulatory drinking-water guidelines established for aesthetic reasons because elevated concentrations of these constituents may impart an undesirable taste or odor to water.

### RESULTS TABLE

Results from laboratory analyses of your well-water samples are presented in a multi-page table format. All samples were analyzed at the [USGS National Water Quality Laboratory](#). **Gray shading** indicates a detected value or estimated value. **Red shading** indicates a detected value above the EPA’s MCL, proposed MCL, or HAL. The USGS recommends results exceeding EPA MCLs, proposed MCLs, or HALs be confirmed with additional testing. **Yellow shading** indicates a detected value above the EPA’s SMCL. EPA MCLs, HALs, and SMCLs are presented in the last three columns of your results table for easy comparison.



## WATER QUALITY RESULTS (CONTINUED)

### SCIENTIFIC UNITS

The units used to quantify your well-water characteristics and concentrations of analyzed constituents are briefly described below:

#### Field Measurements

- **Water temperature** is expressed in degrees Celsius ( $^{\circ}\text{C}$ ). The Celsius scale is divided into 100 equal parts (degrees) between the freezing point of water ( $0^{\circ}\text{C}$ ) and the boiling point of water ( $100^{\circ}\text{C}$ ).
- **pH** is a measure of how acidic or basic water is. The standard pH scale is 0—14, with 7 being neutral. A pH of less than 7 indicates acidity, whereas a pH of greater than 7 indicates a base.
- **Specific conductance** is a gross measure of the ability of ions in water to conduct an electrical current and is expressed in units of microsiemens per centimeter ( $\mu\text{S}/\text{cm}$ ). The higher the value for specific conductance, the more ions there are in the water.
- **Turbidity** is a measure of the amount of solid particles suspended in water. Turbidity is expressed in Nephelometric Turbidity Ratio Units (NTRU), which quantify the degree to which light is scattered by solid particles suspended in water. The higher the NTRU, the more turbid the water.

#### Nutrients, Pesticides, Trace Metals, and Selected Field Measurements

- **Nutrients, pesticides**, trace metals (**arsenic**), and selected field measurements (**alkalinity** and **dissolved oxygen**) are expressed in milligrams per liter ( $\text{mg}/\text{L}$ ), micrograms per liter ( $\mu\text{g}/\text{L}$ ), or nanograms per liter ( $\text{ng}/\text{L}$ ). For comparison purposes,  $1\text{ mg}/\text{L}$  is equivalent to  $1,000\ \mu\text{g}/\text{L}$  or  $1,000,000\ \text{ng}/\text{L}$ . For cross reference with units you may have seen in other literature,  $\text{mg}/\text{L}$  is the same as parts per million,  $\mu\text{g}/\text{L}$  is the same as parts per billion, and  $\text{ng}/\text{L}$  is the same as parts per trillion. As an example,  $0.00012\ \text{mg}/\text{L}$  is  $0.00012$  parts per million; this is also equivalent to  $0.12\ \mu\text{g}/\text{L}$ , which is  $0.12$  parts per billion; these are both equivalent to  $120\ \text{ng}/\text{L}$ , which is  $120$  parts per trillion.

#### Radiochemicals

- **Radon-222** is a naturally occurring radioactive gas that is soluble in water and produced by the radioactive decay of radium-226, which is itself produced from the decay of uranium-238. Radon-222 is expressed in picocuries per liter ( $\text{pCi}/\text{L}$ ), which quantifies the rate of radioactive decay per unit of time in a given volume of water.

### SPECIAL NOTES

#### Pesticides

- **Aldicarb, Aldicarb sulfone, Aldicarb sulfoxide**: According to the [EPA 2012 Edition of the Drinking Water Standards and Health Advisories](#), the MCL value for any combination of two or more of these three chemicals should not exceed  $7,000\ \text{ng}/\text{L}$  because of a similar mode of action.

#### Radiochemicals

- **Radon-222**: The EPA has proposed an MCL of  $300\ \text{pCi}/\text{L}$  and an alternative MCL of  $4,000\ \text{pCi}/\text{L}$  for radon-222 in public water supplies. States like Pennsylvania that have multimedia mitigation programs to address radon-222 risks in indoor air would be required to comply with the proposed alternative MCL of  $4,000\ \text{pCi}/\text{L}$ , which is higher and less stringent than the proposed MCL of  $300\ \text{pCi}/\text{L}$ .

#### For additional information about:

**WATER QUALITY**: Contact the Pennsylvania Department of Environmental Protection (PADEP) [regional office](#) that serves the county you live in.

**PESTICIDES**: Contact the [National Pesticide Information Center](#) at 1-800-858-7378 or [npic@ace.orst.edu](mailto:npic@ace.orst.edu).

**RADON-222**: Contact the PADEP's [Radon Division](#) at 717-783-3594 or [ra-epbrpenvprt@pa.gov](mailto:ra-epbrpenvprt@pa.gov) or call the PADEP Radon Hotline at 1-800-237-2366.