



# FACT SHEET

OFFICE OF DRINKING WATER & MUNICIPAL ASSISTANCE – ENVIRONMENTAL ASSISTANCE CENTER 800-662-9278

## UNDERSTANDING COMMON DRINKING WATER SAMPLE RESULTS

### Coliform Bacteriological Analysis:

Evaluation of the bacteriological quality of drinking water is done using coliform testing. Coliform bacteria are found in the intestinal tract of warm-blooded animals, surface water, some soils, and decaying vegetation. Coliform bacteria are used as indicator organisms, as they indicate a potential pathway for contamination but by themselves do not indicate a health threat. This method also detects *E. coli*. If *E. coli* is detected, it is likely that the water supply may contain disease-causing organisms resulting from fecal contamination.

### Results of coliform analysis:

ND = “Non detected” – No coliform organisms were detected in the water sample.

The sample met the state drinking water standard for bacteriological quality at the time of sampling. (Similar results may be reported as negative; not –detected; absent; or zero)

POS = “Positive” – Coliform organisms were present in the water sample.

Resampling is advised. If the second bacteria test is “positive”, the water supply should be inspected for sanitary defects by a qualified individual. “Newly drilled drinking water wells must be free of coliform bacteria at the pressure tank under the well construction code. (Similar results may be reported as present or any number from 1 to 200)

EC-POS = “E. coli detected” – *E. coli* organisms were detected in the water sample.

*E. coli* organisms are found in the intestines of warm-blooded animals, and as such, their presence in a water supply is considered an indication of sewage contamination. Do not drink or cook with this water. Well construction deficiencies and routes for sewage contamination into the water supply should be investigated. Contact your local health department. Samples should be recollected after corrective measures are taken.

COMMENTS: Comments may be added to your sample result for a variety of reasons, i.e. sample exceeds hold time, wrong sample bottle used, wrong test code, etc. For additional clarification on comments found and how your result can be affected please contact either your local health department or the drinking water lab.

### Partial Chemical Analysis:

The DEQ laboratory analyzes eight commonly requested parameters in the “partial chemical analysis”. Table I lists three parameters where the United States Environmental Protection Agency (USEPA) and the state of Michigan have established drinking water health advisory levels for public water supplies (PWS). The five parameters listed in Table II are associated with aesthetic water quality. Concentrations are reported in milligrams per liter (mg/L) unless otherwise indicated.

TABLE I				
Test	Good	Satisfactory	Caution	Problem
Nitrate as Nitrogen	ND	1 - 10	over 10 <sup>A</sup>	Methemoglobinemia (blue baby) in infants under six months, pregnant women and certain sensitive individuals.
Nitrite as Nitrogen	ND	0 - 1.0	over 1.0 <sup>A</sup>	Methemoglobinemia (blue baby) especially infants
Fluoride	0.7 <sup>C</sup>	0.7 - 2.0 <sup>B</sup>	over 4.0 <sup>A</sup>	Low levels are beneficial in preventing tooth decay. High levels may cause mottling of enamel, pitting of teeth, or skeletal fluorosis and increase in fractures in adults.

TABLE II				
Test	Good	Satisfactory	Caution	Problem
Chloride	ND - 20	20 - 250	Over 250 <sup>B</sup>	Taste, corrosion
Hardness	50 - 125	125 - 250	Over 250	Scaling of water fixtures, soap scum at high levels, corrosion at low levels
Iron	ND - 0.2	0.2 - 0.3	Over 0.3 <sup>D</sup> or Over 2.0 <sup>E</sup>	Taste, staining, turbidity, odor, health concerns for certain sensitive individuals D & E
Sodium	ND - 20 <sup>F</sup>	20 - 160	Over 160	Taste, special diets may require water of low sodium content. F
Sulfate	ND - 50	50 - 250	Over 250 <sup>G</sup> Over 500 <sup>H</sup>	Taste, odor, scaling in boilers & heat exchangers G May have laxative effect especially for new supply users (traveler's diarrhea)H

**FOOTNOTES:**

A USEPA primary maximum contaminant level for PWS

B USEPA secondary maximum contaminant level for PWS

C US Department of Health and Human Services optimal fluoride level for drinking water (2015)

D Staining of laundry, fixtures, sidewalks, etc.; darken some beverages, bitter taste, odor

E Persons who have been diagnosed with Hemochromatosis should consult their physician regarding the use of this water

F The drinking water advisory is 20 mg/day for persons on a dietary sodium intake restriction of up to 500 mg/day

G & H Special information for Sulfate concentrations effects on infants and travelers

**Water Sampling Tips**

- ✓ Use a clean, indoor faucet.
- ✓ Try to avoid threaded taps, leaky or swing-type faucets.
- ✓ Do not use a dirty or contaminated tap.
- ✓ Do not sample through a hose or treatment device.
- ✓ Always sample the cold water.
- ✓ Allow the water to run in a steady stream at least 5 minutes before collecting the sample or until the pump runs.
- ✓ Do not set the bottle cap down.
- ✓ Do not touch the inside of the cap or bottle.
- ✓ Do not allow the cap or bottle to touch the faucet.
- ✓ Do not rinse the bottle.
- ✓ Maintain a steady low-flow stream.
- ✓ Fill the container to the fill line. Do not overfill.
- ✓ Seal the container as soon as it is filled.
- ✓ Enclose submission slip and proper payment with sample.
- ✓ Send/transport samples to the lab the same day of collection and early in the week.

**A Word of Caution**

A water sample is a snapshot in time. A properly designed, located, constructed, and maintained water well is important. A compromised well may produce intermittent satisfactory bacteriological tests, but its continued safety cannot be assured.

While coliform bacteria and partial chemical testing are good screening tools, they do not detect petroleum products, industrial solvents, arsenic and heavy metals, herbicides and pesticides. More complex and expensive testing may be appropriate for your site. Your local health department can assist you in deciding what type of testing is needed.

*For information or assistance on this publication, please contact the Office of Drinking Water and Municipal Assistance, through the DEQ's Environmental Assistance Center at 800-662-9278. This publication is available in alternative formats upon request.*

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