2013 Ground Water Monitoring Network Sample Results

SiteID:[1] **Sample ID:**[2]

Site Name: **Date Sampled:**

Analyte	Result[3]	Exceeds Recommended Level?[4]	Analyte Description
Chemical Category: General Chemistry			
Chloride	6.8 MG/L	Does not exceed the SMCL of 250 mg/L	Chloride is a common ion found in ground water. Chloride tends to stay in solution and is commonly associated with sodium or calcium. Typical concentrations in Indiana ground water range from 10 to 50 mg/L and are generally not considered a health problem. A Secondary MCL exists for chloride at 250 mg/L and is based on taste. High levels of chloride in ground water (~ 500 mg/L) or greater will corrode pipes, water heaters, and plumbing fixtures.
Nitrogen, Nitrate-Nitrite	3.6 MG/L	Does not exceed the MCL of 10 mg/L	Nitrogen and nitrate-nitrite occurs naturally in ground water in Indiana at less than 2 mg/L. Concentrations greater than this are generally caused by human influence on the environment. Sources of nitrate are difficult to determine but may be caused by septic systems, confined feed lots, municipal and industrial wastewater or sludge, and fertilizer applied to agricultural land. The MCL for nitrates is 10 mg/L. Nitrates in excess of 10 mg/L can cause methemoglobinemia (blue baby syndrome) in infants. Water that exceeds 10 mg/L of nitrate should not be given to infants under the age of six months or to expectant mothers.
Sulfate	15 MG/L	Does not exceed the SMCL of 250 mg/L	Sulfate is a naturally-occurring salt that is commonly found in ground water in Indiana. Sulfate concentrations can range from 10 – 1200 mg/L. Sulfate occurs with calcium and magnesium, which can contribute to hardness of ground water. The EPA has set a Secondary MCL of 250 mg/L for sulfate, based on taste and odor. At levels greater than 500 mg/L, sulfate may exert a laxative effect on humans and animals. If your water has a rotten egg smell, this is likely the results of hydrogen sulfide produced by anaerobic bacteria.
Chemical Category: Metals and Minerals			
Antimony	0.39 UG/L	Does not exceed the MCL of 6 ug/L	Antimony is a metallic element that can occur in trace concentrations in the environment in Indiana. The MCL for antimony is 6 ug/L. Some people who drink water containing antimony in excess of the MCL for many years could experience increases in blood cholesterol and decreases in blood sugar.
Barium	21 UG/L	Does not exceed the MCL of 2000 ug/L	Barium is a metallic element that is sometimes found in soil and ground water as a salt. In ground water, barium has no taste, color, or odor. Wells completed in limestone or shale bedrock sometimes have high concentrations of barium. The MCL for barium is 2000 ug/L. In acute doses above the MCL, barium has the potential to produce muscular weakness of the smooth muscles of gastrointestinal, cardiac, and urinary tract. Long-term exposure can result in hypertension.
Calcium	12 MG/L	n/a	Calcium is a naturally-occurring element and is likely to be found in Indiana in carbonate rich rocks (such as limestone) or glacial till. Calcium is a major contributor to hardness in water, and although it may clog pipes, there are no known health effects. This ion is used in geochemical modeling of ground water to determine what minerals are forming and dissolving in the vicinity of your well.

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Analyte	Result [3]	Exceeds Recommended Level? [4]	Analyte Description
Copper	5.4 UG/L	Does not exceed the MCL of 1300 ug/L	Copper is a naturally-occurring metal. Copper compounds can be used in pesticides or to control algae in lakes or reservoirs. Copper can also occur in drinking water from corroded copper pipes. Copper is an essential nutrient, but at high doses, it has been shown to cause stomach and intestinal distress, liver and kidney damage, and anemia. The EPA Secondary MCL for copper is 1 mg/L. If the copper in your water is from plumbing, you can flush it from the system before using the water by running the water for 2 to 3 minutes.
Iron	0.022 MG/L	Does not exceed the SMCL of 0.3 mg/L	Iron is a naturally-occurring element that is abundant in the earth's crust. Iron is found in ground water under natural conditions (usually) at no more than a few parts per million. The Secondary MCL for iron is 0.3 mg/L. When iron is present in ground water it may also be associated with iron bacteria that can either fix iron to the plumbing or dissolve it, producing characteristic rust stains on the plumbing fixtures and toilet bowl and/or laundry.
Magnesium	4 MG/L	n/a	Magnesium is a naturally-occurring element that is essential to animal and plant nutrition. It contributes to the total hardness of water and is used for total cation/anion balance. It is a common component of most aquifer systems in Indiana. There is no MCL for magnesium.
Potassium	2.3 MG/L	n/a	Potassium is a naturally-occurring element that can leach out of bedrock over time. Most potassium levels in ground water are below 10 mg/L and are usually low compared to sodium levels. Potassium is an essential nutrient, and deficiency produces muscle weakness and digitalis toxicity. There is no MCL for potassium.
Silicon	5.5 MG/L	n/a	Silcon is one of the most common elements on earth . It can be found in water from the weathering of rocks and soil. There is no MCL for silicon.
Sodium	2.4 MG/L	Does not exceed the SMCL of 20 mg/L	Sodium is the most abundant alkaline-earth element. Once sodium is dissolved in ground water, it tends to remain that way. Because the potential for high blood pressure increase as sodium intake increases, the EPA guidelines suggest that a maximum of 20 mg/L be consumed in drinking water. Sodium levels are also used to determine if the sampled water was passed through a water softener.
Strontium	0.014 MG/L	Does not exceed the SMCL of 4000 ug/L	Strontium is a naturally-occurring element. Although there is no MCL for strontium, the EPA recommends that drinking water levels should not be more than 4,000 ug/L.
Zinc	52 UG/L	Does not exceed the SMCL of 5000 ug/L	Zinc is a naturally-occurring metallic element that can enter the environment as the result of industrial activity. Zinc is an essential nutrient. However, high doses can have an adverse effect on the taste of the water, so the EPA has set a Secondary MCL of 5000 ug/L in drinking water.

Chemical Category: Pesticide Degradate

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Analyte	Result [3]	Exceeds Recommended Level? [4]	Analyte Description
Metolachlor ESA	0.1 ug/L	n/a	Metolachlor ESA is a breakdown compound of metolachlor, which is used to control grassy and broadleaf weeds in corn and soybeans. There are no MCLs for metolachlor breakdown compounds, and little scientific information is available about the toxicity or carcinogenic effects of metolachlor ESA. However, US EPA studies of the metolachlor parent compound indicate that it is a possible carcinogen.

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SiteID:[1] **Sample ID:**[2]

Site Name: **Date Sampled:**

Analyte	Result [3]	Exceeds Recommended Level? [4]	Analyte Description
Chemical Category: General Chemistry			
Alkalinity	33.7 mg/L	n/a	Alkalinity is a measure of the presence of naturally-occurring bicarbonate, carbonate or hydroxide constituents. Concentrations less than 100 mg/L are desirable, but alkalinity is not detrimental to humans. High alkalinity (greater than 500 mg/L) can have adverse effects on plumbing systems.
Alkalinity	84.2 mg/L	n/a	Alkalinity is a measure of the presence of naturally-occurring bicarbonate, carbonate or hydroxide constituents. Concentrations less than 100 mg/L are desirable, but alkalinity is not detrimental to humans. High alkalinity (greater than 500 mg/L) can have adverse effects on plumbing systems.
Alkalinity	33.5 mg/L	n/a	Alkalinity is a measure of the presence of naturally-occurring bicarbonate, carbonate or hydroxide constituents. Concentrations less than 100 mg/L are desirable, but alkalinity is not detrimental to humans. High alkalinity (greater than 500 mg/L) can have adverse effects on plumbing systems.
Chloride	11 MG/L	Does not exceed the SMCL of 250 mg/L	Chloride is a common ion found in ground water. Chloride tends to stay in solution and is commonly associated with sodium or calcium. Typical concentrations in Indiana ground water range from 10 to 50 mg/L and are generally not considered a health problem. A Secondary MCL exists for chloride at 250 mg/L and is based on taste. High levels of chloride in ground water (~ 500 mg/L) or greater will corrode pipes, water heaters, and plumbing fixtures.
Nitrogen, Nitrate-Nitrite	3.2 MG/L	Does not exceed the MCL of 10 mg/L	Nitrogen and nitrate-nitrite occurs naturally in ground water in Indiana at less than 2 mg/L. Concentrations greater than this are generally caused by human influence on the environment. Sources of nitrate are difficult to determine but may be caused by septic systems, confined feed lots, municipal and industrial wastewater or sludge, and fertilizer applied to agricultural land. The MCL for nitrates is 10 mg/L. Nitrates in excess of 10 mg/L can cause methemoglobinemia (blue baby syndrome) in infants. Water that exceeds 10 mg/L of nitrate should not be given to infants under the age of six months or to expectant mothers.

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Analyte	Result [3]	Exceeds Recommended Level? [4]	Analyte Description
Sulfate	16 MG/L	Does not exceed the SMCL of 250 mg/L	Sulfate is a naturally-occurring salt that is commonly found in ground water in Indiana. Sulfate concentrations can range from 10 – 1200 mg/L. Sulfate occurs with calcium and magnesium, which can contribute to hardness of ground water. The EPA has set a Secondary MCL of 250 mg/L for sulfate, based on taste and odor. At levels greater than 500 mg/L, sulfate may exert a laxative effect on humans and animals. If your water has a rotten egg smell, this is likely the results of hydrogen sulfide produced by anaerobic bacteria.
Chemical Category: Metals and Minerals			
Antimony	0.41 UG/L	Does not exceed the MCL of 6 ug/L	Antimony is a metallic element that can occur in trace concentrations in the environment in Indiana. The MCL for antimony is 6 ug/L. Some people who drink water containing antimony in excess of the MCL for many years could experience increases in blood cholesterol and decreases in blood sugar.
Barium	22 UG/L	Does not exceed the MCL of 2000 ug/L	Barium is a metallic element that is sometimes found in soil and ground water as a salt. In ground water, barium has no taste, color, or odor. Wells completed in limestone or shale bedrock sometimes have high concentrations of barium. The MCL for barium is 2000 ug/L. In acute doses above the MCL, barium has the potential to produce muscular weakness of the smooth muscles of gastrointestinal, cardiac, and urinary tract. Long-term exposure can result in hypertension.
Calcium	14 MG/L	n/a	Calcium is a naturally-occurring element and is likely to be found in Indiana in carbonate rich rocks (such as limestone) or glacial till. Calcium is a major contributor to hardness in water, and although it may clog pipes, there are no known health effects. This ion is used in geochemical modeling of ground water to determine what minerals are forming and dissolving in the vicinity of your well.
Copper	5.5 UG/L	Does not exceed the MCL of 1300 ug/L	Copper is a naturally-occurring metal. Copper compounds can be used in pesticides or to control algae in lakes or reservoirs. Copper can also occur in drinking water from corroded copper pipes. Copper is an essential nutrient, but at high doses, it has been shown to cause stomach and intestinal distress, liver and kidney damage, and anemia. The EPA Secondary MCL for copper is 1 mg/L. If the copper in your water is from plumbing, you can flush it from the system before using the water by running the water for 2 to 3 minutes.
Iron	0.04 MG/L	Does not exceed the SMCL of 0.3 mg/L	Iron is a naturally-occurring element that is abundant in the earth's crust. Iron is found in ground water under natural conditions (usually) at no more than a few parts per million. The Secondary MCL for iron is 0.3 mg/L. When iron is present in ground water it may also be associated with iron bacteria that can either fix iron to the plumbing or dissolve it, producing characteristic rust stains on the plumbing fixtures and toilet bowl and/or laundry.
Magnesium	5.3 MG/L	n/a	Magnesium is a naturally-occurring element that is essential to animal and plant nutrition. It contributes to the total hardness of water and is used for total cation/anion balance. It is a common component of most aquifer systems in Indiana. There is no MCL for magnesium.

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Site Name: **Date Sampled:**

Analyte	Result [3]	Exceeds Recommended Level? [4]	Analyte Description
Nickel	1 UG/L	Does not exceed the SMCL of 100 ug/L	Nickel is a very abundant natural element. There is no MCL for nickel, but the EPA recommends that drinking water should contain less than 100 ug/L.
Potassium	2.6 MG/L	n/a	Potassium is a naturally-occurring element that can leach out of bedrock over time. Most potassium levels in ground water are below 10 mg/L and are usually low compared to sodium levels. Potassium is an essential nutrient, and deficiency produces muscle weakness and digitalis toxicity. There is no MCL for potassium.
Silicon	6 MG/L	n/a	Silcon is one of the most common elements on earth . It can be found in water from the weathering of rocks and soil. There is no MCL for silicon.
Sodium	3.1 MG/L	Does not exceed the SMCL of 20 mg/L	Sodium is the most abundant alkaline-earth element. Once sodium is dissolved in ground water, it tends to remain that way. Because the potential for high blood pressure increase as sodium intake increases, the EPA guidelines suggest that a maximum of 20 mg/L be consumed in drinking water. Sodium levels are also used to determine if the sampled water was passed through a water softener.
Strontium	0.019 MG/L	Does not exceed the SMCL of 4000 ug/L	Strontium is a naturally-occurring element. Although there is no MCL for strontium, the EPA recommends that drinking water levels should not be more than 4,000 ug/L.
Zinc	180 UG/L	Does not exceed the SMCL of 5000 ug/L	Zinc is a naturally-occurring metallic element that can enter the environment as the result of industrial activity. Zinc is an essential nutrient. However, high doses can have an adverse effect on the taste of the water, so the EPA has set a Secondary MCL of 5000 ug/L in drinking water.

[1] The Site ID is a unique number assigned to each site in the Ground Water Monitoring Network. It is not related to any other identification number.

[2] The Sample ID is a unique number used to identify the sample collected on the date indicated. If your well was sampled more than once there may be additional results under different Sample IDs.

[3] The results are reported in the units of milligrams per liter (mg/L) or micrograms per liter (ug/L). 1 mg/L is roughly the equivalent of a drop of water in a bathbtub. 1 ug/L is a much smaller unit. It is roughly the equilvalent of one drop of water in an Olympic-sized swimming pool.

[4] Maximum Contaminant Levels (MCLs) set by the US Environmental Protection Agency (EPA) are the level above which a contaminant will cause adverse health effects. Under the authority of the Safe Drinking Water Act, the EPA sets standards for approximately 90 contaminants in drinking water. Not all of the analytical parameters IDEM tested for have MCLs or SMCLs, but they are noted when possible. Secondary Maximum Contaminant Levels (SMCLs), also set by the EPA, are based on aesthetics such as color and odor, which do not pose a health risk. N/a indicates there is no standard for the compound.

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