



January 6, 2014

Town of Hull residents take advantage of opportunity to test their well water

TOWN OF HULL - Safe drinking water is something that many people commonly take for granted. While community water systems are regulated to ensure that water quality meets drinking water standards, private well owners must assume the responsibility of testing their wells and interpreting results. This past November, 109 residents (approximately 5% of all Town of Hull households) participated in a Drinking Water Testing and Education Program arranged by the Town and the Portage County UW-Extension Office in conjunction with UW-Stevens Point. Participants had the opportunity to have their water tested for some of the more common water quality problems affecting private well owners and attend an educational program to learn more about the water quality in the Town of Hull.

One of the most important tests to perform regularly on a private water system is coliform bacteria. A properly constructed well should be able to provide bacteria free water continuously without the need for treatment. If detected in a water sample, coliform bacteria indicate a problem or potential defect with the well water system that is potentially allowing harmful pathogens entry into the water supply. Of those that had water tested, 6% of the wells detected coliform bacteria. One sample was also positive for E. coli bacteria, a specific type of bacteria associated with human or animal waste.

Nitrate, generally considered the second most important test to perform on a private well, was also tested through the program. The drinking water standard for nitrate-nitrogen is 10 milligrams per liter, water with nitrate levels above the standard should not be consumed by infants or women who are pregnant. Everyone is encouraged to avoid long-term consumption of water with nitrate above 10 milligrams per liter. Twenty percent of the testing participants detected levels above the nitrate-nitrogen standard; this is double the statewide average. Nitrate was the most common problem identified through this testing opportunity.

Levels above 2 milligrams per liter generally indicate that groundwater is being impacted by nearby land-use activities, 65% of the wells tested in the Town of Hull showed levels of nitrate above background or natural levels typically found in groundwater. The highest levels were generally found in the portions of Hull south of Highway 66, whereas the areas close to the Wisconsin River generally showed low levels of nitrate.

The source of elevated levels of nitrate in groundwater can be the result of nearby agricultural activity (i.e. nitrogen fertilizers, animal waste or other bio-solid applications), septic system drain fields or lawn fertilizers. While this test was not able to determine the source of the nitrate, future research being conducted in the Town of Hull by the University of Wisconsin – Stevens Point may provide insight into the actual sources of nitrate to private wells. This round of testing may also serve as a good baseline for future testing efforts to investigate how groundwater nitrate concentrations may be changing over time.

Because of the highly permeable sandy soils, the groundwater of Central Wisconsin tends to be more susceptible to contamination from land use activities compared to other parts of the state. Even though water may look clean and taste good, the only way to know that it is safe to drink is to have it tested. All private well users are encouraged to test for coliform bacteria and nitrate on a fairly regular basis, the Wisconsin Department of Natural Resources recommends annually or any time water changes taste, color or odor.

If you are interested in learning more about the result from the Town of Hull testing opportunity, including maps of the data and other information presented at the program, please visit the Town website at: <http://www.townofhull.us/water.html>

Summary

UWEX Private Well Project

Town of Hull

Portage County

11/6/2013

2:46 PM

Total Number Samples: 109

Sample Dates: 9/30/2013 to 10/9/2013

Arsenic (mg/L)

None Detected	6	40 %
... 0.010	9	60 %
0.011 - 0.050	0	0 %
0.051 - 0.100	0	0 %
0.101 - 0.150	0	0 %
0.151 ...	0	0 %
Avg: <0.005 for	15 Samples	

Calcium (mg/L)

None Detected	1	7 %
... 25	7	47 %
26 - 50	6	40 %
51 - 75	1	7 %
76 - 100	0	0 %
101 ...	0	0 %
Avg: 22.5 for	15 Samples	

Copper (mg/L)

None Detected	0	0 %
... 0.130	8	53 %
0.131 - 0.500	3	20 %
0.501 - 0.900	1	7 %
0.901 - 1.300	2	13 %
1.301 ...	1	7 %
Avg: 0.352 for	15 Samples	

Iron (mg/L)

None Detected	0	0 %
... 0.300	15	100 %
0.301 - 1.000	0	0 %
1.001 - 2.000	0	0 %
2.001 - 5.000	0	0 %
5.001 ...	0	0 %
Avg: 0.043 for	15 Samples	

Potassium (mg/L)

None Detected	0	0 %
... 20	15	100 %
21 - 40	0	0 %
41 - 60	0	0 %
61 - 80	0	0 %
81 ...	0	0 %
Avg: 1 for	15 Samples	

Magnesium (mg/L)

None Detected	2	13 %
... 20	9	60 %
21 - 40	4	27 %
41 - 60	0	0 %
61 - 80	0	0 %
81 ...	0	0 %
Avg: 10.1 for	15 Samples	

Manganese (mg/L)

None Detected	5	33 %
... 0.050	9	60 %
0.051 - 0.300	1	7 %
0.301 - 0.500	0	0 %
0.501 - 1.000	0	0 %
1.001 ...	0	0 %
Avg: 0.015 for	15 Samples	

Sodium (mg/L)

None Detected	0	0 %
... 25	7	47 %
26 - 50	3	20 %
51 - 75	1	7 %
76 - 100	1	7 %
101 ...	3	20 %
Avg: 49.5 for	15 Samples	

Lead (mg/L)

None Detected	8	53 %
... 0.015	5	33 %
0.016 - 0.025	2	13 %
0.026 - 0.050	0	0 %
0.051 - 0.100	0	0 %
0.101 ...	0	0 %
Avg: 0.005 for	15 Samples	

Sulfate (mg/L)

None Detected	0	0 %
...25	11	73 %
26 - 50	2	13 %
51 - 75	2	13 %
76 - 100	0	0 %
101 ...	0	0 %
Avg: 23.3 for	15 Samples	

Zinc (mg/L)

None Detected	1	7 %
... 0.100	5	33 %
0.101 - 0.500	5	33 %
0.501 - 1.000	1	7 %
1.001 - 5.000	2	13 %
5.001 ...	1	7 %
Avg: 1.152 for	15 Samples	

Summary

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11/6/2013

2:46 PM

Total Number Samples: 109

Sample Dates: 9/30/2013 to 10/9/2013

Reason for Test	Last Test (yr)		Problems	Treatment Sys	Depth (ft) Well	Casing	Water	Well Diam (in)			
Curious	86 %	Never	6 %	Color 14 %	Softener 34 %	... 25	4 %	6 %	19 %	... 3	22 %
Problems	3 %	< 1	3 %	Taste 6 %	R/O 6 %	26-50	28 %	24 %	10 %	4 - 9	32 %
Regular	8 %	1 - 2	6 %	Odor 6 %	Carb Filt 3 %	51-100	15 %	6 %	<1 %	10 - 18	0 %
Required	<1 %	2 - 5	24 %	Corr 4 %	Neutral 2 %	101-150	2 %	0 %	0 %	18 +	0 %
Bac Retest	0 %	5 - 10	22 %	Health 0 %	Part Filt 19 %	151-200	2 %	0 %	0 %		
Disinfect	0 %	10 +	26 %	Other 8 %	Iron Filt <1 %	201 ...	4 %	0 %	0 %		
Infant...	4 %	Unk	14 %	None 58 %	Other 6 %						
Other	10 %										

pH

... 5.00	0	0 %
5.01 - 6.00	0	0 %
6.01 - 7.00	6	6 %
7.01 - 8.00	26	24 %
8.01 - 9.00	77	71 %
9.01 ...	0	0 %
Avg: 7.63	for	109 Samples

Conductivity (umhos/cm)

... 100	6	6 %
101 - 250	18	17 %
251 - 500	59	54 %
501 - 750	17	16 %
751 - 1000	6	6 %
1001 ...	3	3 %
Avg: 428	for	109 Samples

Alkalinity (mg/L CaCO3)

... 50	11	10 %
51 - 100	21	19 %
101 - 200	72	66 %
201 - 300	5	5 %
301 - 400	0	0 %
401 ...	0	0 %
Avg: 122	for	109 Samples

Total Hardness (mg/L CaCO3)

... 50	17	16 %
51 - 100	15	14 %
101 - 200	53	49 %
201 - 300	20	18 %
301 - 400	2	2 %
401 ...	2	2 %
Avg: 148	for	109 Samples

Nitrate (mg/L as N)

None Detected	14	13 %
... 2.0	24	22 %
2.1 - 5.0	23	21 %
5.1 - 10.0	27	25 %
10.1 - 20.0	17	16 %
20.1 ...	4	4 %
Avg: 5.8	for	109 Samples

Chloride (mg/L)

None Detected	0	0 %
... 10	22	20 %
11 - 50	60	55 %
51 - 100	18	17 %
101 - 200	5	5 %
201 ...	4	4 %
Avg: 48.9	for	109 Samples

Saturation Index

... -3.0	2	2 %
-2.9 - -2.0	6	6 %
-1.9 - -1.0	13	12 %
-0.9 - 0.0	34	31 %
0.1 - 1.0	54	50 %
1.1 ...	0	0 %
Avg: -0.3	for	109 Samples

Coliform Bacteria

Bact Samples	109	
Pos Bacteria	6	6 %
E. coli Bacteria		
E. coli Samples	6	
Pos E. coli	1	17 %

Atrazine Screen* (ppb)

None Detected	14	100 %
... 0.3	0	0 %
0.4 - 1.0	0	0 %
1.1 - 2.0	0	0 %
2.1 - 3.0	0	0 %
3.1 ...	0	0 %
Avg: <0.1	for	14 Samples

*Triazine screen before June 2008, then Diaminochlorotriazine (DACT).