

In the December 18, 2007 issue of the Water Quality update:

- Water Quality Test Results – November 2007
- Iron and Manganese – Monthly Well Samples
- Well 29 Extended Period Deep Well Pump Test Update
- Larkin Street Test Well Update
- Subscribe to the Drinking Water Quality Listserv

Water Quality Test Results – November 2007

MICROBIOLOGY – In November, the Water Utility collected 367 water samples from Water Utility facilities and representative sampling locations in the water distribution system. These samples were tested for coliform bacteria – indicators of potential water contamination. None of the samples tested coliform-positive; all 367 samples collected in November were found to have no coliform bacteria present.

VOLATILE ORGANIC COMPOUNDS – The utility also collected samples from six wells and had the water tested for the presence of volatile organic compounds – man-made contaminants that may be present in ground water. Madison Water Utility currently tests the six wells (9, 15, 18, 28, 29, 30) during each three-month period for 42 volatile organic compounds including tetrachloroethylene and carbon tetrachloride. Samples were also collected and tested at two reservoirs (106 & 115) in an effort to better understand distribution system water quality. The table below shows the contaminants detected, maximum concentration found during this testing period, EPA’s maximum contaminant level (MCL), and the contaminant concentration at each facility.

VOLATILE ORGANIC COMPOUNDS	MAXIMUM	UNITS	MCL	9	15	18	28	29	30	115	106
Chloroform*	[0.68] ¹	ppb	80	ND	ND	ND	ND	ND	ND	[0.30]	[0.68]
Bromoform*	2.3	ppb	80	[0.41]	[0.20]	ND	ND	ND	ND	1.2	2.3
Bromodichloromethane*	1.1	ppb	80	[0.43]	ND	ND	ND	ND	ND	0.85	1.1
Dibromochloromethane*	2.2	ppb	80	[0.79]	ND	ND	ND	ND	ND	1.7	2.2
Total Trihalomethanes (TTHM)	6.28	ppb	80	1.63	0.20	ND	ND	ND	ND	4.05	6.28
1,1,1-Trichloroethane	[0.15]	ppb	200	[0.15]	ND	ND	ND	ND	ND	ND	ND
Trichloroethylene	[0.33]	ppb	5	ND	[0.33]	ND	ND	ND	ND	ND	[0.19]
Tetrachloroethylene	2.9	ppb	5	2.4	2.9	0.83	ND	ND	ND	1.2	0.53

* Disinfection By-Product (DBP)

¹ Bracketed numbers indicate that the contaminant was detected but measured below the Limit Of Quantitation (LOQ)

Bromodichloromethane, bromoform, chloroform, and dibromochloromethane are disinfection by-products – compounds that form when chlorine, added as a disinfectant, combines with impurities in ground water. Because ground water has very little organic matter and low levels of chlorine are needed to kill bacteria and deactivate viruses, the concentrations of disinfection by-products are fairly low.

Additional information on tetrachloroethylene can be found at http://www.epa.gov/safewater/contaminants/dw_contamfs/tetrachl.html

Iron and Manganese - Monthly Well Samples

Between February and November 2007, the Water Utility collected monthly water samples from the operating wells and tested the water for iron and manganese. A summary of the test results is presented in the data table below. Most wells showed no seasonal variation and produced similar levels of iron and manganese during each of the ten months. Four wells – 9, 12, 20, and 26 – had higher levels of manganese in July compared to the baseline level measured during the other nine months. One well – Well 26 – also showed a marked increase in iron for the July sample. None of the samples at these four wells exceeded the aesthetic levels described below.

Both iron and manganese are unregulated contaminants; there is not an enforceable, health-based standard for either naturally occurring mineral. However, the Environmental Protection Agency (EPA) has established a National Secondary Drinking Water Standard for manganese (50 parts per billion [ppb]) and iron (0.3 parts per million [ppm]) based on aesthetic considerations such as the staining of laundry and plumbing fixtures. In addition, EPA recently established a lifetime Health Advisory Level (HAL) for manganese at 300 ppb. Lifetime consumption of water below the HAL is not expected to cause adverse health problems for healthy individuals.

	Samples	MANGANESE (ppb)			IRON (ppm)		
		Mean	Median	St Dev	Mean	Median	St Dev
UW 6	5	1.5	1.5	0.9	0.023	0.022	0.009
UW 7	9	27	27	1.1	0.361	0.356	0.016
UW 8	7	49	49	1.8	0.561	0.572	0.026
UW 9	10	1.4	0.5	3.0	0.003	0.002	0.003
UW 11	9	7.7	6.8	3.2	0.003	0.004	0.001
UW 12	9	3.3	0.6	5.6	0.010	0.005	0.016
UW 13	8	11	10	1.0	0.053	0.054	0.003
UW 14	9	0.3	0.2	0.1	0.002	0.002	0.000
UW 15	10	6.1	6.3	0.8	0.015	0.015	0.001
UW 16	8	0.3	0.2	0.1	0.035	0.012	0.064
UW 17	7	29	29	3.1	0.097	0.100	0.013
UW 18	10	5.2	5.5	1.5	0.039	0.055	0.028
UW 19	10	40	41	4.5	0.208	0.207	0.009
UW 20	10	3.3	0.9	7.6	0.002	0.002	0.001
UW 23	6	28	27	5.8	0.073	0.070	0.015
UW 24	9	28	28	2.8	0.183	0.186	0.022
UW 25	10	7.6	7.6	1.2	0.067	0.068	0.006
UW 26	9	12	9.2	11	0.043	0.018	0.069
UW 27	2	33	33	2.1	0.138	0.138	0.006
UW 28	7	23	22	1.1	0.200	0.204	0.021
UW 29	2	187	187	18	0.372	0.372	0.018
UW 30	10	14	14	0.6	0.197	0.196	0.006

Well 29 Extended Period Deep Well Pump Test Update

On November 28, the Water Utility concluded a 21-day pump test at Unit Well 29. Montgomery Associates and RMT, Inc. will analyze the data and prepare a report for the Water Utility Board. Water quality samples were collected prior to shutting down the well and are being analyzed for potential inorganic, volatile organic, and synthetic organic compounds. Results are expected to be available for the next posting to this listserv.

Larkin Street Test Well Update

Test well pumping at the Larkin Street test well site began on October 16 and is ongoing. Water quality and well drawdown information is currently being gathered and analyzed by RMT, Inc. Test pumping will continue until a representative sample of lower aquifer water can be gathered.

Subscribe to the Drinking Water Quality Listserv

People who want to receive regular updates on Madison's drinking water quality can subscribe to this Listserv at:

<http://lavos.wiscnet.net/mailman/listinfo/drinkingwaterquality>

Sincerely,
Joseph Grande
Water Quality Manager
Madison Water Utility
266-4654