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Well Status Report

- Seasonal wells are gradually being taken out of service. Wells 8, 27, and 28 were taken off-line in September while Well 6 was shut down last week.
- Wells 17 and 23 will continue to operate while maintenance work is completed at Wells 7 and 24. It is anticipated that both wells will be shut down by the end of December.
- Well 8 delivered 57 million gallons of water to the distribution system between July and early September. Due to concerns about iron and manganese levels, the well will operate as a seasonal well until an iron-manganese filter is installed, which is currently scheduled for 2013. More information, including water quality data, is available on our [website](#).

Water Quality Test Results – July through September

MICROBIOLOGY – Between July and September, Water Utility staff collected a total of 1178 water samples from Water Utility facilities and representative locations within the distribution system. One sample tested positive for coliform bacteria including *E. coli*; however, follow up samples did not confirm the presence of unsafe bacteria. Additional samples were collected at the original unsafe sample location, upstream and downstream locations, and each well in the pressure zone to confirm that drinking water safety had not been compromised.

IRON & MANGANESE – At least one sample was collected from each of fifteen wells in the period of July through September and tested for iron and manganese. At elevated levels, these minerals can stain laundry and plumbing fixtures. The accumulation and later re-suspension of iron and manganese in water mains can cause discolored water at the customer tap. Test results are in the table at the top of the next page.

Monthly samples are also collected from routine distribution sample locations and tested for iron and manganese. These locations, representing the distribution system as a whole and including at least one site from each pressure zone, are tested twice weekly for coliform bacteria. In the second table on the next page are statistics for samples collected between July and September.

Iron and Manganese Results – Well Samples

	Manganese, ppb			Iron, ppm		
	Jul	Aug	Sep	Jul	Aug	Sep
Well 6	n/s	n/s	0.6	n/s	n/s	0.01
Well 7	26	26	26	0.33	0.35	0.32
Well 8	50	47	n/s	0.66	0.57	n/s
Well 11	n/s	1.8	n/s	n/s	<0.01	n/s
Well 15	5.2	4.7	5.2	0.01	0.01	0.01
Well 17	28	26	37	0.09	0.11	0.15
Well 19	49	39	41	0.20	0.20	0.20
Well 20	1.1	n/s	n/s	<0.01	n/s	n/s
Well 23	31	22	30	0.07	0.06	0.10
Well 24	27	n/s	25	0.20	n/s	0.23
Well 25	n/s	n/s	4.2	n/s	n/s	0.06
Well 26	620	24	n/s	0.13	0.01	n/s
Well 27	27	21	32	0.13	0.07	0.12
Well 28	21	n/s	n/s	0.18	n/s	n/s
Well 30	14	13	15	0.19	0.20	0.22
Standard*	50			0.3		

* Secondary Maximum Contaminant Level (SMCL) - non-enforceable guideline for aesthetic effects (color, taste, or odor)
 ppb = parts per billion; ppm = parts per million; 1 ppm = 1000 ppb

Iron and Manganese Results – Distribution Sample Locations

	Iron, ppm			Manganese, ppb		
	Jul	Aug	Sep	Jul	Aug	Sep
Median	0.01	0.02	0.02	3.9	2.5	2.9
Average	0.05	0.05	0.03	7.6	5.9	5.6
95 th Percentile	0.23	0.24	0.12	31	19	19
Maximum	0.69	0.31	0.18	51	22	21
Standard	0.3			50		
Samples Above the Standard	2	1	0	1	0	0
Total Samples	29	28	27	29	28	27

VOLATILE ORGANIC COMPOUNDS – Water samples were collected from nine wells in July or August and each sample was screened for 50+ volatile organic compounds (VOC), man-made contaminants that include cleaning solvents and degreasing agents that can be present in drinking water. Complete test results are available on our [website](#).

SYNTHETIC ORGANICS MONITORING – In addition to VOC monitoring, the Water Utility periodically tests each well for 36 synthetic organic compounds (SOC). The list of contaminants includes a variety of pesticides and man-made chemicals. Three seasonal wells were screened in July for SOCs. None of the SOCs tested were detected in any Madison well. A complete list of SOCs, which includes atrazine, alachlor, and polychlorinated biphenyl (PCB), can be found on our [website](#).

DISINFECTION BY-PRODUCTS – Ten distribution sample locations were monitored in August for disinfection by-products, compounds that form when the chlorine interacts with impurities in groundwater. All ten locations were screened for trihalomethanes (TTHM) and haloacetic acids (HAA5). Drinking water regulations require that the combined amounts are below 80 ppb for TTHM and 60 ppb for HAA5; the maximum amounts observed were 9.9 ppb and 1.9 ppb, respectively. Complete results can be found on our [website](#).

Radionuclide Monitoring Update

All Madison wells are periodically tested for radionuclides – radium, uranium, and other gross measures of radioactivity. The frequency of testing is determined by the amount of combined radium (226 + 228) measured in the water. If radium was detected below one half the MCL, a well is tested every six years; otherwise, a well is monitored every three years. Six wells were monitored in July based on [2008/2009 test results](#) for combined radium.

Combined radium exceeded the MCL at Well 19 for the sample collected in July. The sample measured 5.8 pCi/L compared to the MCL of 5 pCi/L. [Test results](#) for five other wells showed combined radium below the MCL. Because the MCL was exceeded, federal and state drinking water regulations require quarterly monitoring to track radionuclide levels for a minimum of four quarters. Compliance with the MCL for combined radium is based on a running annual average of four quarterly samples.

Additional monitoring was conducted at Well 19 in September and October, and more is planned for December. **The September test result for combined radium was 4.1 pCi/L.** Results will be reported as they become available. Eight samples are planned for Well 19 in 2012.

Radionuclides are unstable forms of an atom that give off radiation as they decay into more stable atoms. Radium-226 and radium-228 form from the decay of uranium and thorium in the environment. In the natural environment, radium occurs at very low levels in almost all rock, soil, water, and plants. If high levels of thorium or uranium occur in the native rock (aquifer), radium may also be present at higher levels in groundwater. More information can be found on the websites of the [Water Utility](#), [Wisconsin DNR](#), and [US EPA](#).

Chromium 6 Monitoring Update

The Water Utility continues to monitor each well for chromium 6. All wells were sampled at least once in July or August and the seasonal wells were tested again in September or October. To date, all Madison wells have been tested at least twice. The results show that wells that are cased to the lower Mt. Simon aquifer have no detectable level of chromium 6 while most wells that are cased to the Wonnewoc or Tunnel City formations have 0.5-1.5 ppb. Two wells (Well 6 & Well 14) have about 2 ppb of chromium 6. Complete results are available on our [website](#).

Later this fall, the Water Utility will be expanding its investigation of chromium 6 occurrence to include monitoring wells. Water quality parameters (pH, conductivity, and oxidation-reduction potential [ORP]) will be collected from wells that terminate either above or below the Eau Claire shale formation and are located near the municipal wells. The Water Utility is also collaborating with scientists from the Wisconsin Geological Survey who will evaluate rock cuttings from four City wells for the presence of chromium. These investigations will help the Water Utility better understand sources and potential background levels of chromium 6 in the aquifer.

Lead & Copper Monitoring Update

LEAD & COPPER – The second round of this year’s lead and copper monitoring is coming to a close. As of October 25, the utility had collected 97 of the required 100 samples. We expect to complete the sample collection in early November. Earlier this year, samples were collected from the same 100 homes; the 90th percentile lead and copper levels were 2.6 ppb and 159 ppb, respectively. If similar results are obtained in round two, the Water Utility will have achieved compliance with the Federal Lead and Copper Rule and be placed on reduced monitoring – 50 homes tested once every three years.

As part of the monitoring, water samples are collected at household taps by the homeowner after a six-hour stagnation period. Water stagnation allows water to sit motionless in the pipe and it evaluates the tendency of the water to leach lead and copper from pipe materials, fittings, and plumbing fixtures. This standard procedure simulates lead and copper levels that are observed following periods of no water use in a home. More information on lead in drinking water can be found on our [website](#).

Water Main Flushing Update

Flushing of the water mains, an annual maintenance procedure to clear mineral sediment that can accumulate in water mains, is on-going and is expected to continue through November – weather permitting. Large parts of the city have already been flushed. Additional information including a map showing areas of the city yet to be flushed can be found on our [website](#). If you wish to be notified before flushing will occur in your area, please call Shayne Santi at 261-9128 or email water@madisonwater.org.

When the utility is flushing a hydrant near your home you may temporarily experience low water pressure or discolored water. In general, pressure is restored as soon as the hydrant is closed but the potential for orange, red, or brown colored water may persist for a short time after flushing is complete. If discoloration occurs, the utility recommends opening a coldwater tap nearest to the

water meter – usually a basement utility sink – to full flow until the water clears. Occasionally it may take 20-30 minutes to clear up; however, clear water is usually restored in a few minutes if the flushing operation is complete. It is advised that you make sure your water is running clear before doing laundry or other projects for which colored water could cause problems.

Well 15 CAP Update

Well 15 which primarily serves the East Washington Avenue corridor from the Yahara River to Interstate 90/94 has rising levels of a volatile organic compound (VOC) – tetrachloroethylene [PCE]. The Water Utility is evaluating treatment options to reduce or eliminate VOCs from the well and is asking for help from citizen volunteers to incorporate community preferences into the planning process. The next meeting of the Well 15 Citizen Advisory Panel (CAP) is scheduled to take place on Thursday, November 10.

More information about this project can be found on our [website](#) or by calling the Water Utility. If you would like to become a member of the CAP, please contact Principal Engineer Al Larson at 266-4653 or allarson@cityofmadison.com.

Pilot Study for Iron and Manganese Removal – Wells 7 & 8

As part of the East Side Water Supply Project, iron and manganese treatment was recommended for both Wells 7 & 8 – two wells that exceed the secondary drinking water standards (aesthetics) and the Water Utility Board-adopted policy goals for iron and manganese. Beginning the week of October 31, a filter pilot study will be conducted at each well to evaluate the feasibility of iron and manganese treatment and identify operational requirements of a full-scale plant. The pilot study will begin at Well 7 and, about a week later, move to Well 8. The study is expected to be completed by mid-November.

Groundwater Contamination – Madison Kipp Corporation

The Water Utility has been working with Public Health Madison Dane County and Wisconsin Department of Natural Resources to ensure that soil and groundwater contamination from the Madison Kipp site will not impact drinking water quality at Well 8. The Madison Kipp site is located outside the 50-year and 100-year capture zones for Well 8 based on current pumping rates at the well. However, planned increased pumping following the addition of an iron and manganese filter, currently budgeted for 2013, is likely to place the contamination site with the 50-year capture zone.

The Water Utility along with other city and agency representatives has asked for the installation of additional, deep monitoring wells to characterize the extent of the groundwater contamination and its lateral and/or vertical movements. The request was prompted by the vulnerability of Well 8 to surface contamination as evidenced by previous work by the Wisconsin Geological Survey and intermittent, low level detections of a single VOC – *cis* 1,2 dichloroethylene – at the well.

Contact the Water Utility

Do you have questions about your water? Do you have a water quality concern at your home or place of work? Is there other information you would like to see in future drinking water quality updates or on our website? For answers to these and other questions or to provide us feedback, please contact the Water Utility at 266-4654, water@cityofmadison.com, or through our website at <https://www.cityofmadison.com/water/askUs.cfm>.

Subscribe to the Drinking Water Quality Listserv

People who want to receive regular updates on Madison's drinking water quality can subscribe to this e-mail listserv at <https://my.cityofmadison.com/>.

Registration is simple and provides access to dozens of City of Madison e-mail lists including Drinking Water Quality (this one) and Water Main Flushing, as well as departmental messages from Metro Transit, City Parks, Public Health, and Police.

Once registered for “My Account”, click on the check box for “Drinking Water Quality” under the Water Utility heading.

Please contact me if you need assistance.

Sincerely,
Joseph Grande
Water Quality Manager
Madison Water Utility

Phone: (608) 266-4654
E-mail: jgrande@cityofmadison.com

Return to the [Water Utility](#) website