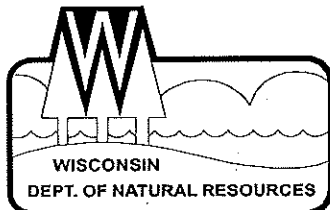


Item 19.



State of Wisconsin \ DEPARTMENT OF NATURAL RESOURCES

Jim Doyle, Governor  
Matthew J. Frank, Secretary  
Lloyd L. Eagan, Regional Director

South Central Region Headquarters  
3911 Fish Hatchery Road  
Fitchburg, Wisconsin 53711-5397  
Telephone 608-275-3266  
FAX 608-275-3338  
TTY Access via relay - 711

July 28, 2008

File Ref: 3310  
PWSID #:113022470

Mr. Larry Nelson, Interim Utility Manager  
Madison Water Utility  
119 E. Olin Avenue  
Madison, WI 53713

**Subject: 2008 DNR Sanitary Survey Report**

Dear Mr. Nelson:

The purpose of a sanitary survey is to evaluate the system's source, facilities, equipment, operation, maintenance, and management as they relate to providing safe drinking water. The sanitary survey is also an opportunity to update the Department's records, provide technical assistance, and identify potential risks that may adversely affect drinking water quality.

On 07/15/2008, Tom Stunkard conducted a sanitary survey of your water system, Madison Water Utility. During the sanitary survey Chuck Engelhart, Al Larson, Dan Rodefled, Joe Grande & Joe DeMorett were present. At the completion of the survey, they were briefed on the preliminary findings. This report outlines the final findings, discusses problems that need to be addressed, and timelines for corrective action where appropriate.

A plan for corrective action, including a work schedule or completion of corrective action for all deficiencies identified below, must be completed within 60 days of the receipt of this letter, or September 28, 2008. Failure to submit the corrective action plan or complete the corrective action within 60 days will result in enforcement action. Depending on the type of corrective action you employ, you may need to obtain prior approval and submit plans to the Department.

**System Summary**

The Madison water system consists of a complex network of wells, storage reservoirs, elevated tanks, boosted water pressure zones, chemical addition consisting of chlorine and fluoride addition and a large water distribution system. The Water Utility owns 23 municipal wells, of which 17 are operated routinely and the other 6 are seasonal wells (operated when water demands are high). Several of the Madison wells have detectable levels of volatile organic chemicals (VOCs) present in the water. Because of the presence of the VOCs in these wells, the Water Utility is required to sample the wells quarterly to monitor the contaminant levels.

In addition to serving water to Madison consumers, the Water Utility also sells water to the Village of Shorewood Hills, the Village of Maple Bluff, Waunona Sanitary District #2 and the Rimrock Road Neighborhood water system. A connection also exists between the City of Madison and Mendota Mental Health Institution. The connection serves as the backup system for the Institution.

Since the last survey was conducted in 2002, the Madison Water Utility has made many changes in the water system. The most notable ones are as follows:



**WELLS THAT HAVE BEEN ABANDONED:**

- ◆ Well no. 3, located at 212 N. First Street was abandoned on April 4, 2008.
- ◆ Well no. 5, located at 1522 Moorland road was abandoned on July 11, 2006.

**NEW FACILITIES ADDED TO THE SYSTEM SINCE THE LAST SURVEY:**

- ◆ Well no. 29 was constructed on October 30, 2003 and put into service in July of 2005. The well is located on the east side of the City at 829 N. Thompson Drive.
- ◆ Well no. 30 was constructed on March 1, 2003 and put into service in June of 2006. The well is located on the south side of the City at 1133 Moorland Road.
- ◆ The Felland Road Reservoir was constructed in 2007 and has the storage capacity of 6 MG. This tank is located on the east-northeast side of the City's main pressure zone and was put into service last fall.

**IMPROVEMENTS MADE IN THE SYSTEM SINCE LAST SURVEY**

- ◆ Security items have been installed at all of the wells, reservoirs and elevated storage tanks.
- ◆ Chlorine analyzers installed at all wells.
- ◆ Bunker Hill Reservoir (#115) was painted 2001
- ◆ Standpipe at well no. 9 was painted in 2002
- ◆ Fluoride Injection points have been relocated to the bottom portion of the discharge piping at wells 8, 9 & 19.
- ◆ Doors have been changed to open to the exterior at wells 8, 10 & 14.
- ◆ Utility has started to develop WHPPs of all of the municipal wells in City.
- ◆ The Utility does an excellent job of maintaining their pump houses in a neat and sanitary condition and they are encouraged to continue to maintain these facilities as they have done so in the past.

**WATER QUALITY ISSUES:**

- ◆ The Madison Water Utility continues to perform the required monitoring to comply with the Safe Drinking Water Act. All of the required samples have been collected to date and those results have been submitted to the DNR.
- ◆ As part of the Lead and Copper Rule promulgated by the Federal Environmental Protection Agency, the City of Madison is required to perform monitoring in the distribution system for lead and copper. Since the City exceeded the action limits for lead, a program to address the lead problem has been established and is being conducted to eliminate lead service line present in the distribution system. This program continues to be implemented to replace lead service lines owned by the Utility and also for those found at residential homes in the City of Madison. This program should be completed in January 2011.
- ◆ There are still a number of City wells where volatile organic compounds (VOC) have been detected and these wells are being monitored on a quarterly basis. To date, none of the samples collected at these wells have exceeded any of the VOC standards.
- ◆ The City as a result of numerous complaints about water quality throughout the system conducted a study at well no. 29. Well no. 29 has been found to have some of the highest manganese concentrations of all of the Madison wells. The study was done to investigate whether filtration equipment could adequately remove the manganese from the water prior to it being pumped into the distribution system. The study indicated that filtration will work and therefore the City is in the process of submitting plans and specifications to the DNR for the addition of a filtration plant at well no. 29.

**Deficiencies**

During the course of the sanitary survey, 6 deficiencies were identified. Deficiencies are problems in the drinking water system that has the potential to cause serious health risks or represent long-term health risks to consumers. These deficiencies may indicate noncompliance with one or more Wisconsin Administrative Codes. Corrective action should be completed for these deficiencies as soon as possible.

Deficiency	Compliance Due Date	Code Citation
1. The paint on the outside of tank #126 & #120 was found to be in poor condition and there were areas where corrosion was present.	1 year	811.58(15)
2. Buried suction lines from reservoirs are not under a continuous pressure head, which is higher than the elevation of the ground surface at all times.	When improvements are made at these wells	811.38
3. The Utility should continue to replace under sized mains.	Yearly	811.63(4)
4. Separate chlorine rooms, which are gas tight, should be installed at wells 6, 7, 8, 9, 10, 11, 12, 13, and 23, whenever major repairs are made at these facilities. This is required to prevent injury to personnel and to prevent costly repairs to the equipment housed in these pump house facilities.	When improvements are made at these wells	811.44(5)
5. Water storage facilities are not inspected at least once every 5 years.	Every 5 years	811.08(5)
6. Electrical equipment shall be installed above ground except in cases where determined unnecessary by the Department to meet the other requirements in this chapter.	When improvements are made at this well	811.73(5)

**Discussion and Schedule for Correction of Deficiencies:**

- I was informed that the elevated storage tank at well no. 26, referred to as #126, will be painted this coming fall and the elevated storage tank at well #20, referred to as #120, will be painted in the spring of 2009. In anticipation of this upcoming maintenance, please remember that in accordance with s. NR 811.07(3), Wis. Adm. Code, you are required to have two safe bacti samples, collected 24 hours apart prior to bringing any storage system back on line. In addition, Department approval is required prior to this work. Please send the name of the interior paint and disinfection method to: Larry Landsness, DNR - Bureau of Drinking Water and Groundwater, P.O. Box 7921, Madison, WI 53707-7921
- At well station no. 11 and 13, the pump discharge piping is buried between the respective well and reservoir. Plans for upgrading these facilities, to maintain a positive pressure at all times on the buried sections of piping, should be submitted to this Department for approval when major repairs are made at these well house facilities.
- It was noted that there is 195,760' of water main in the distribution system that is less than 6" in diameter. The Water Utility has done an excellent job replacing smaller diameter mains when work is done in areas of the distribution system where they exist. The Department encourages the Water Utility to continue to replace these small diameter main whenever practical in order to improve fire flows and overall system hydraulics. Please continue with the excellent program in the future.
- All water storage facilities must be drained and inspected at least once every five years and maintenance provided as necessary. The following elevated storage tanks, according to our records, are due to be inspected in 2008, Tanks #315, 126, 113, 120 & 225. Please make sure an inspection is conducted at this facility in the next 12 months.
- When major renovation are made at any of the wells where there is not a separate chemical room installed, the Water Utility should include in the plans a separate chemical room at those wells. The wells where these improvements are needed are at wells 6, 7, 8, 9, 10, 11, 12, 13 & 23.

6. The booster pump and the electrical equipment located in the basement of well no. 7 should be relocated to an above ground location.

During the course of the sanitary survey, 6 recommendations were identified. Recommendations are problems in the water system that hinder your public water system from consistently providing safe drinking water to consumers.

<b>Recommendation</b>
1. An adequate wellhead protection program has not been designed and implemented including a water conservation plan.
2. The Water Utility is encouraged to continue implementing a comprehensive Cross-Connection Control Program.
3. The Water Utility needs to continue to implementing a comprehensive Private Well Abandonment/Permitting Program.
4. The operators are encouraged to could to maintain their certification with the appropriate grade of certification
5. The operators should continue the hydrant and valve-exercising program.
6. The source capacity is not adequate to meet current and future demand.

**Discussion of Recommendations:**

1. The City is encouraged to continue to implement a wellhead protection program (WHPP) for all their existing municipal wells. A program of this nature can help protect the recharge areas of the municipals wells thereby protecting them against possible contamination. For all new municipal wells that are drilled in Wisconsin, it is required that all municipalities adopt a Wellhead Protection ordinance and implement a WHPP. Since it makes good sense to protect all municipal wells, I would strongly recommend this be done for those well, which have no WHPP to date.
2. The Water Utility has done an excellent job with the enforcement of the City's cross connection control program as it relates to commercial and industrial facilities. However, in addition to the existing program, the Water Utility needs to also start inspecting residential homes for cross connections. Inspections at residential homes should be conducted when water meters are replaced. Please see that such a program is started in the near future and that individual records are kept for each inspection conducted.
3. There are still a number of private wells that exist within the City's service area that must be addressed. Any unused, unsafe or improperly constructed well must be permanently abandoned unless the owner has applied for and received a well operational permit from the City. Please continue to enforce this important program to protect the groundwater aquifers against contamination.
4. The Water Utility is encouraged to continue to support their operators to ensure they have the proper training and certification to operate the water system. All operators must have the Groundwater and Distribution certification. Once the new filtration plant is installed at well no. 29, the operators will also need to be certified in Filtration (I subclass).
5. Hydrants are being flushed each year and valves located in the distribution system are exercised each year. A valve and hydrant maintenance program is required and helps guarantee that all valves and hydrants are in good working order when needed, especially during an emergency. In addition to the valve and hydrant maintenance program, records must be kept on each hydrant and valve listing pertinent information about the equipment and should also show when and what work was last done to this equipment. These records have been kept up-to-date and are available for Department review. The Water Utility has done an excellent job in the implementation of the valve and hydrant maintenance program and they are encouraged to keep up the good work.

- 6. The Water Utility is encouraged to continue to investigate the need for more source capacity. As the City continues to grow in population, it is strongly recommended to continue the planning process for additional wells for the City. Pumpage figures indicate an increase in well operating hours to a point where a new well(s) will be necessary to meet the daily demand of the system. Therefore, the addition of more wells to the water system should be pursued.

**Water Quality Monitoring and Reporting**

Overall, the Madison Water Utility has done an excellent job collecting water samples and reporting the results to the DNR to comply with the Safe Drinking Water Act (SDWA) monitoring requirements. All of the SDWA monitoring has been completed to date and concentrations detected in those water samples were all below the SDWA standards. However, it should be noted that wells no. 9, 11, 15, 18 & 28 have been tested quarterly for many years now due to several Volatile Organic Chemicals that have been detected at these wells.

**Required Reports, Records, and Utility Programs**

Utility employees continue to implement a yearly hydrant and valve maintenance program to ensure that all hydrants and valves in the distribution system are in good working order. Any work that is performed on a hydrant or a valve is recorded and kept in a record keeping maintenance file for future reference. A yearly cross connection control program is also being conducted by the waterworks operators, which consists of individual inspections at commercial and industrial facilities within the City to look for and eliminate potential cross connections. In addition to the existing program, the Water Utility needs to also start inspecting residential homes for cross connections. Inspections at residential homes should be conducted when water meters are replaced. Please see that such a program is started in the near future and that individual records are kept for each inspection conducted at residential homes.

**Certified Operator**

<u>Name</u>	<u>License #</u>	<u>Subclasses</u>	<u>License expires</u>	<u>Operator in charge</u>
Thomas Arneson	34383	T- G&D	5/1/2011	
Mark Ertel	32612	T- G&D	5/1/2010	
Joseph Grande	34375	T- G&D	5/1/2011	
Joel Guderyon	32547	G1 -G& D, T – IVZ	5/1/2010	
Alan Larson	34427	T - GI	5/1/2011	
David Lynch	34384	T- G&D	5/1/2011	
Theresa Peters	32122	T- G&D	5/1/2011	
Rene Puzach	31784	G1 – G&D	5/1/2010	
Karmjit Singh	32206	G1 – G&D, T – VIZ	11/1/2008	

**Key**

T – Operator in Training, G1 – Certified operator

G – Groundwater subclass, D – Distribution subclass, V – Air stripping subclass, I – Iron removal Subclass & Z - Zeolite softening subclass.

**Water System Security**

The operators are encouraged to take appropriate precautionary measures to insure that the integrity of each water system is not compromised. Operators should make daily security inspections at all waterworks facilities. Access to all wells, reservoirs and other facilities associated with the waterworks system must remain locked. For safety and security reasons, only authorized personnel should be allowed access to pump and chemical rooms.

**System Summary Information**

A water system summary is attached. Please review for accuracy. If there are changes that need to be made, contact Thomas B. Stunkard at (608) 275-3300.

Mr. Larry Nelson, Interim Utility Manager - July 28, 2008

**Capacity Development Evaluation**

This sanitary survey serves as an evaluation of the capabilities of your water system. This system has been determined to have adequate technical, managerial, and financial capacity to provide safe drinking water. The ability to plan for, achieve, and maintain compliance with applicable drinking water standards has been demonstrated.

The next sanitary survey of your system is scheduled to take place in 2011. You will be contacted prior to the survey to schedule a date that is convenient for you.

**Required Action**

Please respond within 60 days of receipt of this letter or by September 28, 2008 with notification that all deficiencies have been corrected, or a plan for correcting the deficiencies identified above.

Thank you for your assistance during the sanitary survey. If you have any questions, you can reach me by phone at (608) 275-3300 or by postal mail at the address on this letterhead.

Sincerely,



Thomas B. Stunkard, P.E.  
Public Water Supply Engineer  
Telephone (608) 275-3300

- cc: Bureau of Drinking Water/Groundwater - DG/5
- Chuck Engelhart, Maintenance Superintendent, 110 S. Paterson Street, Madison, WI 53703
- Al Larson, Principal Engineer, 119 E. Olin Avenue, Madison, WI 53713
- Joe Grande, Water Quality Manager, 119 E. Olin Avenue, Madison, WI 53713
- Joe DeMorett, Water Supply Manager, 119 E. Olin Avenue, Madison, WI 53713
- Dan Rodefeld, Operations Manager, 119 E. Olin Avenue, Madison, WI 53713