



State of Wisconsin \ DEPARTMENT OF NATURAL RESOURCES

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June 29, 2007

FILE REF:3300/Waukesha/Elm Grove/OC  
PWS ID#: 26802017  
Squires Grove-OC  
Elm Grove, WI  
Waukesha County

Squires Grove Management Association  
ATTN: SCOTT WOZNIAK  
PO BOX 5183  
ELM GROVE, WI 53122-

Subject: Sanitary Survey Report

Dear Mr. Wozniak:

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 06/15/2007, Annette Jakubiak and Chad Czarkowski conducted a sanitary survey of your water system, Squires Grove. During the sanitary survey Scott Wozniak and Fred Douglass (Municipal Well & Pump) were present. At the completion of the survey, you 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 45 days of the receipt of this letter, or by 08/15/2007. Failure to submit the corrective action plan or complete the corrective action within 45 days may 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**

Two wells at Squires Grove supply water for 70 condominiums at Squires Grove, 48 condominiums at Pilgrim Parkway, 42 homes for Squires Grove Homeowners Association (east), and 4 homes on Verdant St. These wells are programmed to pump 1/3 of the water supply from the newer deep well (JB732), and 2/3 from the older shallow well (FX364). The shallow well (Well #1) is equipped with a 10HP / 130 gpm line shaft turbine pump and is located in the pump house. The deep well (Well #2) is equipped with a 30HP / 100 gpm submersible pump and is located outside of the pump house near the southwest corner of the 65,000 gallon reservoir. Discharge lines from both wells merge at a location inside the pump house before entering the reservoir. Two 20 HP (300 gpm) lift pumps discharge water from the reservoir to the 3,600 gallon, flow through, hydropneumatic tank. The distribution line enters the floor near the east end of the pressure tank.

The shallow well was completed to a total depth of 400 feet on 11/1/1972 by Layne Christensen. The 12 3/4 inch casing extends through clay, sand and gravel, and dolomite to a depth of 144 feet below ground surface. The well is grouted with neat cement to 60 feet and draws water from the dolomite and dolomite Maquoketa formation. In 1972 the static water level was 58 feet below ground surface and the pumping water level was 200 feet below ground surface.

The deep well was completed to a total depth of 998 feet on 7/9/1980 by Richard E Berkholtz. The 8 inch casing extends 540 feet through clay, hardpan, limestone, and shale. The well is grouted to 540 feet and draws water from the limestone and sandstone formations. In 1980 the static water level was 445 feet below ground surface and the pumping water level was 503 feet below ground surface.

### **Significant Deficiencies**

During the course of the sanitary survey, 0 significant deficiencies were identified. Significant deficiencies indicate noncompliance with one or more Wisconsin Administrative Codes and/or represent an immediate health risk to consumers. As such, the deficiencies listed below should be corrected as soon as possible.

### **Deficiencies**

During the course of the sanitary survey, 9 deficiencies were identified. Deficiencies are problems in the drinking water system that have 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. If there were any significant deficiencies identified above, those should undergo corrective action first.

<b>Deficiency</b>	<b>Compliance Due Date</b>	<b>Code Citation</b>
1. The air lines for the altitude gauges are loose at the shallow well.	7/30/2007	811.37 (2)(b)
2. There are no reservoir inspection reports on file with the Department.	12/31/2007	811.08 (5)
3. Access to reservoir manhole is not watertight or locked.	12/31/2007	811.58 (7)
4. Reservoir overflow is less than 12" above splash pad.	7/16/2007	811.58 (4)
5. The three threaded faucets off of the high lift reservoir pump are cross-connections to a potential contamination source.	7/16/2007	811.09
6. System does not have a comprehensive Emergency Operations Plan on file with the Department.	8/15/2007	811.11(8)(b)
7. The system does not have adequate budget to cover necessary upgrades or emergency costs.	1/1/2008	811.04
8. The outlet for use by the chemical feed is not labeled.	7/16/2007	811.40 (4)(d)
9. The base of the deep well does not have a 6 inch concrete collar around the casing.	8/15/2007	811.24 (2)

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

1. Wisconsin Administrative Code, NR 811.37 (2)(b) requires that water level measuring equipment be installed to prevent entrance of foreign material. The two air lines at the shallow well appeared to be sealed, however, they were found to slide in and out of the connection to the well. Seal the gap around each air line either by silicon caulk or a more secure connection to the well. **By July 30, 2007, seal the gap around the air lines at the shallow well.**
2. Wisconsin Administrative Code, NR 811.08 (5) requires water storage facility inspection reports to be submitted to the department upon completion. The reservoir was believed to have been inspected in 2002 after the last sanitary survey, however, no reservoir inspection reports are available. NR 811.08 (5) requires reservoirs to be inspected every 5 years, and the Squires Grove reservoir is due for an inspection this year. **By December 31, 2007, submit a reservoir inspection report to Chad Czarkowski at the address on this letterhead.**
3. Wisconsin Administrative Code, NR 811.58 (7) requires reservoir manholes be fitted with a locked, solid watertight cover. There was no lock on the manhole cover located in the pump house and no seal on the underside of the cover. **During the reservoir inspection (before 12/31/2007) add a seal (or gasket) on the reservoir manhole cover to make it water proof, and install a locking mechanism on the cover.** It is also recommended that the reservoir manhole cover be scraped, primed, and painted to avoid further corrosion. Make sure any paint used on water storage facilities (including pressure tanks) is consistent with current A.W.W. A. standard D102, per Wisconsin Administrative Code, NR 811.58 (15).

4. Wisconsin Administrative Code, NR 811.08 (4) requires reservoir overflow pipes to terminate a minimum of 12 inches above ground surface. The overflow, located in a landscaped area, was measured at 10 inches above the splash pad. Removing two inches of bark chips may bring the air gap to the minimum 12 inches. **By July 16, 2007, increase the gap between the end of the overflow pipe and the ground. Make sure that any water discharged through the pipe does not accumulate below the pipe and is free to drain away from the reservoir.**
5. Wisconsin Administrative Code, NR 811.09 prohibits cross-connections. The three threaded faucets on the high lift pump discharge pipe are cross-connections to potential contaminant sources when connected to hoses. **By July 16, 2007, install hose end vacuum breakers on the threaded faucets located on the high lift pump discharge pipe; or replace them with smooth end faucets; or file off the threads.**
6. Wisconsin Administrative Code NR 811.11 (8)(b) requires other-than-municipal systems to have an emergency operation plan which includes, at a minimum, lists of plumbers, electricians or other contractors available to respond in emergency situations and procedures for obtaining a backup water source. Squires Grove has auto dial procedures in place to contact the certified operator for low pressure, low battery, power failure, and low temperature. Other emergency numbers need to be included in a plan. **Prepare an emergency operation plan for Squires Grove and submit a copy to Chad Czarkowski, at the address listed at the top of this letter, by August 15, 2007.**

Wisconsin Rural Water Association has developed an Emergency Response Plan Template for OTM and NN water systems at [http://www.wrwa.org/ERP%20Template%20SS%20\(Revised\).doc](http://www.wrwa.org/ERP%20Template%20SS%20(Revised).doc). A copy of the template is enclosed for your use, if you choose to use it. In addition, the Department recommends that loss of pressure procedures be included in the emergency operation plan to address notifications and sampling requirements when at least 25% of the distribution loses pressure. Loss of pressure corrective actions are outlined in NR 811.08 (4) and include the following:

- a. Issue a "precautionary boil/bottled water" notice to all affected water customers, and maintain until approval is obtained from the Department to cease the 'boil water' notice. Residents and businesses should be told to boil the water a minimum of 1 minute or provide bottled water.
  - b. Notify the appropriate regional office of the Department of Natural Resources (Chad Czarkowski, Southeast Region, 414-263-8628), within no later than one working day as to the extent of the problem, cause and corrective actions taken.
  - c. If available, start emergency disinfection of the water supply as soon as possible. At a minimum, the free chlorine residual shall be 0.2 mg/L at the entry point to the distribution system, and detectable throughout the furthest point in the distribution system. Higher disinfection requirements may be required by the Department. Water mains and storage facilities in the area that lost pressure should be flushed to remove contaminated water and to quickly establish an adequate disinfection residual.
  - d. As soon as adequate pressure has been returned to the system collect a minimum of 2 Investigation samples, 24 hours apart, from different locations representative of the portion of the distribution that lost pressure, and have them analyzed for coliform bacteria.
  - e. Take corrective actions necessary to prevent additional significant pressure losses.
7. Wisconsin Administrative Code NR 811.04 requires community water systems to keep facilities in good operating condition by performing maintenance and replacement of equipment when necessary. The available funds for operation and maintenance (O&M) are only a fraction of the budget required for routine and emergency O&M of the system. The system was constructed in the 1970's and will be required to be brought up to current code during replacement of obsolete equipment or if the department determines that outdated equipment is affecting the quality of water supplied to consumers. One example is the float tube used to measure water levels in the reservoir. Although a common measuring device in the 1970's, it is not approved for use under the current NR 811 code because it operates through an opening in the roof of the reservoir. The float tube opening has been reduced as much as possible by fitting the top of the tube with a wood cap and this appears to be working. The area around the float cap should be routinely checked and cleaned as needed until it is brought up to code. **By January 1, 2008, increase the system budget, as necessary, to fund emergency and routine O&M requirements.**

8. Wisconsin Administrative Code NR 811.40 (4)(d) requires the electrical outlet used for chemical feed pumps to be clearly marked and connected with the well pump or service pump as appropriate. The outlet near the shallow well is wired to operate with the well pump(s), however, it is not marked as such. **By July 16, 2007, clearly mark the outlet for use with chemical injection equipment.**
9. Wisconsin Administrative Code, NR 811.24 (2), and the original approval for Well #2 dated August 6, 1980, require well casings with submersible pumps to be surrounded by a concrete collar. The collar must be at least 6 inches high and should extend outward from the casing approximately 1½ to 2 inches thick. The collar provides support and corrosion protection for the casing, which is especially important since this well had been approved for location outside of a pump shelter. **By August 15, 2007, install a concrete collar around the base of Well #2 (deep well).**

### **Recommendations**

During the course of the sanitary survey, 1 recommendation was identified. Recommendations are problems in the water system that may hinder your public water system from consistently providing safe drinking water to consumers.

<b>Recommendations</b>
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| 1. Identify an emergency power supply in your Emergency Response Plan. |
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### **Discussion of Recommendations:**

1. Squires Grove does not have a plan in case of a power outage. The Department recommends identifying an alternate power source, if one is available, before the need arises.

### **Water Quality Monitoring and Reporting**

Your system has a very good record of compliance with monitoring and reporting requirements. We appreciate your continued efforts in complying with these Safe Drinking Water Act requirements.

- Squires Grove has been in compliance with primary drinking water standards and monitoring requirements since 2001. Water is blended to reduce radium concentrations from the deep well. Combined Radium 226&228 has been in compliance at the entry point since 1997, and gross Alpha has been in compliance at the entry point since 2000. The quarterly radium composite sampling has begun for 2007. Overall water quality is good.
- The 2007 Monitoring Requirement for Squires Grove is enclosed with this report. The composite radioactivity sample is due by December 31. Monthly bacteriological samples are due by the last day of each month.
- **Bacteriological samples** must be collected from representative locations in the distribution and rotated on a monthly basis. Jakubiak recorded the system's 5 primary and 5 alternate hydrant locations for bacteriological sampling. Enough of these locations should be sampled on a rotating basis in order to accurately represent water quality in the distribution. Five sample locations will be required in a month following an unsafe bacteriological sample. Any changes to these locations must be submitted in writing to DNR prior to sampling the new location.
- Make sure the **lead and copper sample locations** used in August 2006 (15275 RED FOX LANE, 15100 RED FOX LANE, 1040 PILGRIM PARKWAY, 1140 PILGRIM PARKWAY, 1122 PILGRIM PARKWAY) are used each time lead and copper are sampled. Samples are to be first draw samples collected from kitchen or bathroom taps. Any changes to these locations must be submitted in writing to DNR prior to sampling the new location.
- Samples collected for **Inorganic contaminants (IOCs), volatile organic contaminants (VOCs), synthetic organic contaminants (SOCs), nitrate, and radioactivity** are to be collected from the entry point (EP) defined as a location in the water system after treatment or chemical addition, but prior to the distribution. Your entry point sample faucet is the smooth bore faucet located on the pressure tank.

- A Public Water Monitoring Site Plan for Squires Grove has been compiled based on information collected during the sanitary survey. **Please review, sign, and submit a copy of the attached Monitoring Site Plan to Chad Czarkowski at the address on this letterhead.** Done
- Note that when the Department requires a **raw water** sample, it must be collected from the faucet nearest each well. The smooth bore faucet on the discharge pipe near Well #1 is the shallow well raw water faucet, and the ¼ inch petcock located on the Well #2 discharge pipe before the chemical injection port is the deep well raw water faucet.

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

Monthly pumpage reports are not required at this time. In July 2007, Chapter NR 820, Wisconsin Administrative Code is expected to become effective, requiring monthly flow measurements for high capacity wells (>70 gpm). The wells at Squires Grove are high capacity wells. **Squires Grove will be required to submit yearly pumpage reports by March 1 beginning in 2008 for the previous year 2007.** The Private Water Supply Section, Bureau of Drinking Water and Groundwater, will be sending the owners more information on this requirement in the fall of 2007.

#### **Certified Operator**

Fred Douglass (Municipal Well & Pump) is the certified operator for Squires Grove. His certification is due to expire on November 11, 2008.

#### **Water System Security**

We recommend that you conduct a daily security check of your entire drinking water system to insure doors are locked and windows secured.

#### **System Summary Information**

A water system summary is attached. Please review for accuracy. If there are changes that need to be made, contact Chad Czarkowski at 414-263-8628.

#### **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.

Your system has been determined to have adequate technical, managerial, and financial capacity because:

- The system is physically and operationally able to meet Safe Drinking Water Act requirements.
- Operator has the ability to implement the necessary technical knowledge.
- Ownership of the facility is clear and the owner understands responsibilities.
- System operator is clear and the operator understands responsibilities.
- In the past, the system has had adequate revenue for normal daily operations and emergency repairs/replacements and is expected to be able to replenish funds as needed for the future.

#### **Next Inspection**

The next sanitary survey of your system is scheduled to take place in 2010. You will be contacted prior to the survey to schedule a date that is convenient for you.

#### **Required Action**

Please respond within 45 days of receipt of this letter (by 08/15/2007) 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 Chad Czarkowski by phone at 414-263-8628, by fax at 414-263-8483, by e-mail at [Charles.Czarkowski@Wisconsin.gov](mailto:Charles.Czarkowski@Wisconsin.gov), or by postal mail at the address on this letterhead.

Sincerely,



Annette Jakubiak  
Water Supply Specialist

Enclosure:      Water System Summary Information  
                    Emergency Response Plan Template (Wisconsin Rural Water Association)  
                    2007 Routine Monitoring Requirements  
                    Squires Grove Monitoring Site Plan  
                    Well Construction Reports

CC:      Bureau of Drinking Water and Groundwater – DG/2 Madison  
            Rhonda Volz – SER/Milwaukee/DG Supervisor, via email  
            Chad Czarkowski – SER/Milwaukee/DG Expert, via email  
            Roger Clark – SER/Plymouth/DG PA, via email  
            Diane TenPas - SER/Milwaukee/DG PA, via email  
            Fred Douglass /Municipal Well & Pump - Certified Operator  
            Case File – SER/Milwaukee