



RICK SNYDER  
GOVERNOR

STATE OF MICHIGAN  
DEPARTMENT OF ENVIRONMENTAL QUALITY  
KALAMAZOO DISTRICT OFFICE



DAN WYANT  
DIRECTOR

October 3, 2012

Ms. Jody Schick, President  
Village of Marcellus  
P.O. Box 428  
Marcellus, Michigan 49032

WSSN: 04070  
Marcellus

Dear Ms. Schick:

**SUBJECT: Water System Sanitary Survey 2012**

On September 14, 2012, I met with Mr. Charles Riggs to review the Village of Marcellus (Village) water system. The purpose of the visit was to evaluate the water system with respect to the Michigan Safe Drinking Water Act, 1976 PA 399, as amended (Act 399); and the rules promulgated thereunder. During the meeting we discussed water system activities and inspected the water system facilities.

The following are items discussed during the meeting:

**Well Pump House Inspection:**

We inspected the well pump houses and find the well pump, well piping and appurtenances, to be in good operating condition. Housekeeping of the well pump houses appears to be adequate.

The following are our findings from the inspection of the well pump houses:

- The two well pump houses have floor drains that exit through the wall and there is no rodent screen at the floor drain outlet to prevent rodents from getting inside the well pump house. Please have a rodent screen installed immediately for the floor drain outlet.
- Some areas of the treatment building and the Well 4 pump house exterior wall need repainting. A nicely painted exterior wall would provide a good public perception of the Village water system maintenance.
- There is a small amount of rust along the edges of the aerator tank exterior. The Village should evaluate the aerator tank exterior paint for its integrity and conduct repainting if necessary.
- There is no record on the integrity of the aerator trays located inside the aerator tank. The trays should be inspected to evaluate their condition.
- The Village needs to label the current two production wells as Well 3 and Well 4, and not as Well 1 and Well 2. This allows the Village to keep track of former

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wells that are no longer in service and current production wells. Please have the certified well driller who does the Village well maintenance to properly label the wells in the pump efficiency test reports..

### **Well and Elevated Water Storage Tank Maintenance:**

#### Well and Well Pump Maintenance:

We are pleased that the Village has an annual schedule for a certified well driller to conduct annual well pump efficiency testing to evaluate the condition of the well pumps. Copies of the 2011 efficiency pump test reports were received during the meeting. The pump test reports indicate that the wells and pumps are in good operating condition.

In addition to the well pump efficiency testing, it is generally recommended to have the well pump pulled every five years to thoroughly inspect the well pumping components. Our records show that Wells 3 and 4 well pumps were last pulled and overhauled in 2005 and 2004, respectively. Thus, it has been more than five years since both wells were last pulled for inspection. Also, the 2012 pump efficiency test reports prepared by the certified well driller whom we received from the Village recommended that that well pumps be pulled for inspection. The Village should maintain a schedule of every five years to have the well pump pulled for a thorough inspection.

#### High Service Pump Maintenance:

It is my understanding that the Village does not have an annual schedule for pump efficiency testing of the high service pumps. Routine high service pump maintenance is conducted by the water operator. To accurately evaluate the performance of the high service pumps the Village should have an annual schedule for pump efficiency testing of the high service pumps.

#### Elevated Water Storage Tank (Tank) Maintenance:

It is my understanding that the Village's Tank was last inspected by a professional tank inspection company in 2009. The general recommended Tank inspection schedule is every five years and the Village's Tank would be due for an inspection in 2014. The purpose for Tank inspection is to ensure that all the Tank components are in good condition. The 2009 inspection report indicated that active steel losses along exposed surfaces of the sidewalls of the wet interior and recommended installation of an automatic cathodic protection system.

We are pleased that the Village's water operator conducts an annual inspection of the vent screen that is located at the top of the Tank bowl. A broken vent screen will allow dirt, insects, or birds that harbor bacteria to get to the potable water inside the Tank.

**Prechlorination Upstream of the Aerator:**

Currently the water treatment plant does not have chlorination upstream of the aerator and chlorination is only applied downstream from the filters for disinfection. The purpose for having prechlorination upstream of the aerator is to prevent slime growth from developing on the aerator trays. Slime growth on the aerator trays could provide a good environment for bacterial growth. Maintaining a low chlorine dosage will help to prevent slime growth from developing on the aerator trays. We recommend that the Village provide prechlorination upstream of the aerator. If the Village decides to prechlorinate, a permit must be obtained from this office. Also, the Village will have to include in its monthly operation report the daily prechlorine dosage.

**Fluoride Treatment:**

In March 2011, the Village stopped fluoride treatment of its water system. The Department of Environmental Quality (DEQ) was notified by the Village of its plan to stop fluoride treatment after the Village's public meeting was held. The DEQ is uncertain whether the Village council members had adequate information concerning fluoride treatment prior to making the decision. The main purpose of fluoride treatment is to prevent tooth decay. The cost savings from filling and extracting diseased teeth, not counting loss of work time and dental pain more than make up for the cost of fluoridation. Also with high dental costs, water fluoridation in the prevention of tooth decay is especially helpful to low income residents.

We recommend that the Village invite Ms. Susan Deming, Education and Fluoridation Coordinator, Michigan Department of Community Health to provide a talk and discussion on water fluoridation. Ms. Deming can be contacted at 517-373-3624 or by email at demings@michigan.gov.

**Percent Unaccounted Water:**

A water supplier should keep track of its percent of unaccounted water by comparing the amount of water pumped to the amount of water billed. As the Village water billing frequency is monthly and well pumpage is also recorded monthly, the two items can be compared to determine the monthly percent of unaccounted water. We recommend that the Village conduct an annual evaluation of the Village's percent of unaccounted water which the Village has not done in the past. We are pleased to receive a copy of the percent unaccounted water from the Village that shows the monthly percent of unaccounted water for 2010, 2011 and 2012. In general, percent of unaccounted water greater than 15 percent is unacceptable. The majority of the monthly percent of

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unaccounted water was greater than 15 percent. The Village should conduct an investigation to determine the cause for the high percent unaccounted water.

**Cross Connection Control Program:**

Cross connection means a connection or arrangement of piping or appurtenances through which water of questionable quality, wastes, or other contaminants enter a public water supply system due to a reversal of flow. Act 399 requires public community water suppliers to have an active cross connection control program

The Village's cross connection control program was discussed and backflow device testing records reviewed during the meeting. Backflow device testing records were adequately maintained but there were no cross connection inspection records that will easily show the cross connection inspection dates.

Enclosed is a cross connection and backflow device testing tracking spreadsheet to monitor cross connection control program activity that the Village should consider using. The spreadsheet was also emailed to Mr. Riggs. Also, enclosed is a sample cross connection form that the Village can adopt or use as a guide to create the Village own inspection form and using the inspection form when conducting cross connection inspection of a water customer facility.

Based on the annual cross connection report submitted by the Village and discussion with the water operator on cross connection, it appears that the Village has an active cross connection control program.

**Mobile Home Park (MHP):**

It is my understanding that the Village serves a MHP which has its own master meter and about 300 feet to 500 feet of 2-inch PVC water main. The Village does not provide maintenance to the private water main in the MHP. Also, there is no testable backflow device to eliminate the potential for cross connection from the MHP water system. In addition, it is my understanding that the MHP currently has a defective flushing hydrant.

To eliminate any potential cross connection from the MHP water system, the Village should have the MHP owner install a testable double check valve downstream from the master meter. Also, the Village should suggest to the MHP owner to replace the defective flushing hydrant. An operational flushing hydrant will allow flushing of the MHP water main to maintain potable water after any water main maintenance work.

### **Water Distribution System Valves and Hydrants:**

Hydrants and water main valves are important components of the water distribution system and need to be maintained. It is my understanding that the Village conducts hydrant inspection and flushing twice per year. We are pleased that the Village has a hydrant maintenance record to keep track of hydrant maintenance work. Also, it is my understanding that unidirectional flushing is not practiced during hydrant flushing and that the Village conducts conventional hydrant flushing. Conventional hydrant flushing consists of opening up hydrants one at a time without any isolation valve operation. Unidirectional hydrant flushing involves opening one or more hydrants while isolation valves may be closed to control the direction of flow and is more efficient in removing sediment that settled inside the water main than conventional hydrant flushing. We recommend that the Village use unidirectional hydrant flushing in its hydrant flushing program.

Water main valves are located below ground surface and they are one component of the water distribution system that tends to be neglected. Water main valves are important because during a water main break or when a section of water main needs maintenance, the water main valves are relied upon to isolate that section of the water main affected. It is my understanding that the Village does not have a routine valve exercising program. A routine valve exercising program involves setting up a realistic routine valve exercising schedule ensuring that all water main valves get exercised by the targeted schedule. The targeted schedule may be from 2 to 4 years to have all the water main valves exercised. It is my understanding that the Village does not have a water main valve maintenance record for individual water main valves. Water main valve records should be maintained to document maintenance of each valve. Enclosed is a sample valve exercising form the Village can adopt or use as a guide to prepare its own valve exercising form.

As such, we rate the Village marginal on hydrant maintenance and deficient on water main valve exercising.

### **Hydrant Pressure Release Valves:**

It is my understanding that the Village does not have a hydrant pressure release valve and had to borrow the pressure release valves from the Village of Lawton. The Village should have ownership of at least two pressure release valves. During a water system emergency that could occur at any time the Village will have pressure release valves readily available.

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**Consumer Confidence Report (CCR):**

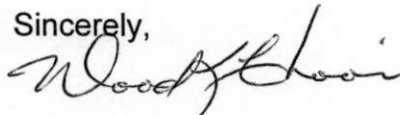
The following are comments from our review of the Village's 2011 CCR:

- The CCR Table of detects indicates the Village has a barium concentration 10 mg/l is incorrect. The correct barium concentration is 0.1 mg/l.
- The chlorine residuals were not correctly reported in the CCR. The correct "Highest Running Annual Quarterly Average" is 0.59 and the range for lowest to highest chlorine residual is 0.09 to 1 mg/l.

Overall the Village's 2011 CCR is satisfactory for completeness. Enclosed is the CCR guidance in how to determine the highest running quarterly average for chlorine residual and to properly complete a CCR report.

I appreciated meeting with Mr. Charles Riggs and his staff to review the Village's water system. We rate the Village satisfactory in the overall operation and maintenance of the water system. Enclosed is the completed survey form for your reference. If there are any major changes on the evaluation form, please let Mr. Gary Wozniak or I know. You may reach Mr. Wozniak at 269-567-3613 or me at the number listed below.

Sincerely,



Wood K. Chooi, P.E., District Engineer  
Kalamazoo Field Office  
Office of Drinking Water and Municipal  
Assistance  
269-567-3611

WKC: CWD

Enclosures

cc: Van Buren/Cass County District Health Department  
cc/enc: Mr. Charles Riggs, Village of Marcellus