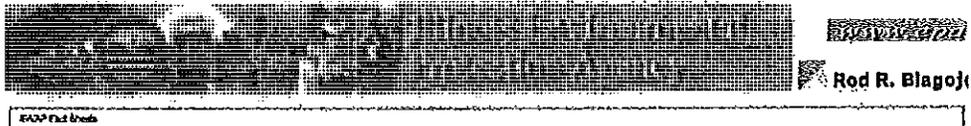


Attachment 2.3:

SOURCE WATER ASSESSMENT SUMMARY



Source Water Assessment Summary

1110650 - MARENGO

Last Updated on 2003-12-24

Importance of Source Water

(A Summary of this section is required in Consumer Confidence Reports)

The Village of Marengo (Facility Number 1110650) utilizes two community water supply wells. Wells #6 and #7 (Illinois EPA #20193 and 00849, respectively) supply an average of 537,989 gallons per day (gpd) to 1,789 services or a population of 4,768 individuals. Large consumers of Marengo's source water include 11 industrial users and 105 commercial users.

Source Water Quality

(A Summary of this section is optional in Consumer Confidence Reports)

Marengo wells #4 and #6 were sampled as part of the Statewide Groundwater Monitoring Program on Oct. 9, 1985 and November 12, 1986, respectively. The samples were analyzed for volatile organic/aromatic compounds (VOC) and inorganic chemicals (IOC). In addition, on July 21, 1999 wells #6 and #7 were sampled for VOC as part of an Illinois EPA investigation of a leaking underground storage tank site.

Review of the IOC data collected for these sampling efforts indicated that the parameters were consistent with other wells utilizing shallow sand and gravel aquifers in this part of Illinois. It is important to note that the IOC results were below the groundwater quality standards established under 35 Illinois Administrative Code Part 620.410, with the exception of a sample from Well #6 collected on November 12, 1986 which indicated a manganese concentration of 153 part per billion (ppb). The numerical groundwater standard, established in Part 624.410, for manganese is 150 ppb, but the Illinois EPA believes that this slightly elevated level is a result of natural mineralization in the sand and gravel aquifer. This belief is based, in part, on information provided in a United States Geological Survey report, "The Groundwater Atlas of the United States, Segment 10 (730-K)," which provides a discussion of the background levels for IOC in Illinois aquifers. Hence, the level of manganese is not considered a violation due to the stipulation in Part 620.410 that no violation occurs as a result of the natural occurrence of an IOC.

Review of the VOC data collected for these sampling events indicated that Well #6 had a detection of .5 ppb of 1,1-Dichloroethane (1,1-DCA) and 2.8 ppb of Methyl Tert-Butyl Ether (MTBE) on July 21, 1999. These detections have not been confirmed by the Illinois EPA. Should monitoring confirm the presence of these constituents, the Illinois EPA will increase sampling frequency to determine if there is a significant threat to the water supply. In addition, the Illinois EPA is developing a groundwater quality standard for MTBE.

Susceptibility To Contamination

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(A Summary of this section is required in Consumer Confidence Reports)

To determine Marengo's susceptibility to groundwater contamination, the following documents were reviewed: a Well Site Survey, published in 1989 by the Illinois EPA; a Hazard Review, published in 1990 by the Illinois EPA; and a Source Water Protection Plan prepared by the Village of Marengo and published by the Illinois Rural Water Association in May of 1997. Based on the information obtained in these documents there are 9 potential sources of groundwater contamination that could pose a hazard to groundwater utilized by the Marengo community water supply wells. Furthermore, information provided by the Leaking Underground Storage Tank and Remedial Project Management Sections of Illinois EPA indicated several additional sites with on-going remediations which may be of concern.

Based upon this information, the Illinois EPA has determined that the Marengo Community Water Supply's source water has a high susceptibility to VOC and SOC contamination. The basis for this determination includes the detection of VOC in well #6 and the land use within the recharge areas of the wells. This land use includes both industrial and agricultural properties. However, as a result of monitoring conducted at the wells and entry point to the distribution system, the land use activities and source water protection initiatives by the village (refer to the following section of this report), the Marengo Community Water Supply's source water has a low susceptibility to IOC contamination.

Furthermore, in anticipation of the U.S. EPA's proposed Ground Water Rule, the Illinois EPA has determined that Marengo's community water supply wells have a low susceptibility to viral contamination. This determination is based upon the fact that the following criteria were evaluated during the Vulnerability Waiver Process: the community's wells are properly constructed with sound integrity and proper site conditions; all potential routes and sanitary defects have been mitigated such that the source water is adequately protected; monitoring data did not indicate a history of disease outbreak; and the sanitary survey of the water supply did not indicate a viral contamination threat. However, having stated this, the "[U.S.] EPA is proposing to require States to identify systems in karst, gravel and fractured rock aquifer systems as sensitive and these systems must perform routine source water monitoring". Because the community's wells are constructed in an unconfined sand and gravel aquifer, the Illinois EPA evaluated the well hydraulics associated with Marengo's well field. Well #6 and #7 have a significant amount of overburden (the wells are approximately 90 feet deep with the last 20 feet open to the aquifer) above the portion of the aquifer contributing a significant quantity of groundwater to the screened interval. This should provide an adequate degree of filtration to prevent the movement of pathogens into the wells.

Source Water Protection Efforts

(A Summary of this section is optional in Consumer Confidence Reports)

The Illinois Environmental Protection Act provides minimum protection zones of 400 feet for Marengo's wells. These minimum protection zones are regulated by the Illinois EPA. To further reduce the risk to the source water, the village has implemented a source water protection program which includes a source water planning and education committee, source water protection management strategies and contingency planning. This effort resulted in the community water supply receiving a special exception permit from the Illinois EPA which allows a reduction in SOC monitoring. The outcome of this monitoring reduction has saved the village considerable laboratory analysis costs.

In addition, the village enacted a "maximum setback zone" for wells #6 and #7, which is authorized by the Illinois Environmental Protection Act and allows county and municipal officials the opportunity to provide additional potential source prohibitions up to 1,000 feet from their wells. The village also enacted a comprehensive overlay zoning ordinance for existing and new businesses located within the recharge area of their wells. As a result of Marengo's significant progress in developing a comprehensive groundwater protection program, the National Groundwater Foundation has previously recognized the village as a Groundwater Guardian Community.

To further minimize the risk to the village's groundwater supply, the Illinois EPA recommends that four additional activities be considered. First, the community should consider enacting a maximum setback

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Ordinance that includes well #8 (after the well becomes active). Second, the water supply staff may wish to revisit their contingency planning documents. Contingency planning documents are a primary means to ensure that, through emergency preparedness, a community will minimize their risk of being without safe and adequate water. Third, the water supply staff is encouraged to review their cross connection control program to ensure that it remains current and viable. Cross connections to either the water treatment plant (for example, at bulk water loading stations) or in the distribution system may negate all source water protection initiatives provided by the community. Finally, the Illinois EPA recommends that the village investigate additional source water protection management options to address the land use activities within the community well's recharge area. Specifically, these management options should include potential impacts from non-point sources related to agricultural land uses. If these additional source water protection management options are not addressed, the village may risk revocation of their SDWA Monitoring waiver.

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