Minutes of the May 18, 2009 Public Meeting
Schenk Elementary School
Well 8 Iron and Manganese Mitigation
Madison Water Utility

The meeting began at 7:00 pm.

Al Larson, Principal Engineer, Madison Water Utility, led the meeting which included a PowerPoint presentation on a screen in the front of the room. He introduced Jeff Lafferty from the city-county health department, Jon Standridge and Dan Melton of the Water Utility Board and Joe Grande the Utility Water Quality Manager. He explained the purpose of the citizens advisory panel (CAP) which was formed for this project. There had already been CAP meetings on April 15th and the 27th. He introduced CAP members present at the meeting.

There were PowerPoint slides showing the public participation process for the Well 8 project. This showed four steps: establish the project, evaluate alternatives, select a location and evaluate architecture. Al stated that this public meeting was step one of the public participation process. Every step of the public participation process will have its own public meeting and public hearing. The CAP will be active throughout the project. CAP membership may change especially if the location of construction or issues involved in the project were to change.

Al explained the information available on the water utility website. The notice of intent section on the home page directed views to the documents related to the Well 8 Iron and Manganese mitigation project. Al identified available project documents including the meeting minutes. There was a water quality tab on the web site which provided specific information on iron and manganese.

Al explained that the water system has 23 wells. Well 8 was part of the largest pressure zone with 15 wells. He presented the borders of the area served by well 8 including the Yahara River, Pennsylvania Avenue, Commercial Avenue, and Stark Weather Creek. Al explained that Well 8 it was built in the 1930s and currently only pumps water during the summer months.

A PowerPoint slide was shown with a bar graph of annual Well 8 iron and manganese concentrations measured at the well. The measured iron concentrations were twice the EPA secondary standard. The manganese concentrations were just above the secondary standard. Staining caused by water from Well 8 is produced by the iron rather than the manganese because iron oxidizes quicker when exposed to chlorine added to the water by the water utility.

Al showed a bar chart from January 1999 to June 2009 with Well 8 pumping rates versus complaints filed with the water department. Al noted this same slide was available in the scoping document on the water websites. Some complaints were attributed to construction.

Al showed a PowerPoint slide show of Well 8 mitigation alternatives. The first alternative is to maintain the status quo. The second alternative was to abandon Well 8. This alternative may require the drilling of a new well. This would require DNR approval. It is not clear how difficult it would be find a new well location due to the close development within Madison. The third alternative was to move water from other wells. This requires more study to determine the capacity of the other wells vs. future needs. The fourth alternative was to construct an iron and manganese filter. This option was discussed in the January 28th 2008 report to the water board. The report also discussed adding filters to Wells 29, 7, and 10. On March 25, 2008, the board accepted this report and its recommendations. The fifth alternative is to disinfect Well 8 water to control the bacteria. There will be a pilot test this summer to evaluate if this is feasible. The sixth alternative is to create a regional treatment system for both Well 7 and 8. Well 7 is located on Sherman Avenue. An issue that needs to be resolved for this option is the ability to get clean water back out to water customers. The seventh and last alternative is to blend Well 8 water with higher quality well such as Well 11 behind the Woodman's grocery on Milwaukee Avenue. The high iron and manganese from Well 8 would be diluted with the better water. Well 11 customers would receive worse water.

Al showed photographs of Well 8. The existing pumping building was identified with an outline of a

potential new building containing a filter down the hill of the existing building. These were preliminary sketches.

The meeting was opened for questions.

Question posed by alder Marsha Rummel. Could Well 8 be abandoned and replaced with a new well to handle both Well 8 and Well 3 requirements?

Reply. Al stated that this would be looked at as an alternative. He noted that even if Wells 7 and 8 are filtered, there may still be a need for a Well 3 replacement, it would be evaluated. This has been determined in a system study in conjunction with the Well 3 work. The current Master Plan estimates that by 2015 all wells will be needed to serve the area. Current growth rates are lower but it's not clear if this is due to the current economy. The average system wide water consumption is 33 million gallons per day. The peak water consumption is over 50 million gallons per day in July when people are watering their gardens and lawns. Al suggested that if peak demand could be reduced the number wells required would possibly be less. He stated that the only available site for replacing Well 3 close to its original location was in Tenny Park, but this was not publicly acceptable. They are currently looking at a new well site at MATC.

Question by Madeleine from the CAP. Can the efficiency of the filter that could be installed at Well 8 be controlled?

Reply. Al stated that the efficiency is not controllable. A new filter is capable of capturing all of the iron and manganese that's available. Only after the filter becomes clogged does breakthrough occur.

Question by Steve from the CAP. Can the success and performance of the filter at Well 29 be used to estimate the performance of a new filter at Well 8?

Reply. Al stated that Well 29 had iron lower than Well 8. The manganese at Well 29 was higher. If there's are no VOCs to interfere with the filter operation, then the Well 8 filter reductions should be comparable to those found at Well 29. Al speculated that once Well 29 filter media has been properly seasoned it will reduce iron and manganese to the point where they will be non-detectable.

Al presented pictures of filters at other water treatment stations. These included several vertical steel tanks at Black River Falls. And a large filter installed in Middleton in the 1960s.

Question by Alder Marsha Rummel. How long does the filter media last?

Reply. Al stated that the manufacturer's recommendation is eight years for a typical filter lifetime. But some filters may last as long as 20 years.

Al showed a picture of Well 29 and the filters at this location. There were eight 4-foot diameter steel vessels. The pumping rate was 1,100 gallons per minute. The filters are backwashed every 24 hours. Al noted that the filter material is made of Pyrolucite which is a name for manganese dioxide ore. He noted that on Saturday July 11th there would be open house of the well 29 filter and invited people to come see the new filter.

Question. What is the anticipated cost of a filter at Well 8?

Reply. Al stated that a 36 foot by 44 foot building addition might cost $1.6 million and the filter vessels would be another $350,000. Some work will be required at the site and the project budget is currently set at $3.5 million. A rough rule of time is that for every million dollars in capital cost, one percent is added to a typical utility bill. Al showed a slide with the average utility bill. The water cost was $94.30. Sewer cost was $146. The total utility bill was to $240.30. Al estimated that the new well filter at Well 8 would cost $3.5 million. So this is estimated to add $3 dollars to the typical utility bill every six months. Al noted that his 2009 Well 8 study submitted to the water board, the filters were estimated to add eight dollars per year to the typical utility bill.

Question by Alder Marsha Rummel. She was wondering why there were not water rates which charged more for higher usage. This would discourage water consumption and encourage conservation.

Reply. A representative from the water board and the president of the water utility Jon Standridge noted that they both wanted water conservation rates. The state public service commission overseas water rates and they require more frequent billing to go to conservation rates. The water board will be working with the public service commission to determine if rates could be charged for higher water consumption.

Statement by Madeleine from the CAP. She noted that the goal of water service is to provide good water to all customers and so the cost is spread around to everyone.

Al discussed that there been ongoing conservation efforts within the city which had reduced water consumption. Oscar Mayer had a conservation program which reduced their water consumption. Al noted that a dairy had closed on Park Street reducing utility water consumption. He noted that recently another dairy had closed on East Washington Avenue also reducing water requirements. However Al noted that the university electrical cogeneration plant had added a new significant consumer of water. He added that the university had a five to ten-year conservation effort to create a 10 percent reduction in the water consumption. Al also mentioned recent projects that were anticipated to create the need for more water including the Union Corners.

Al discussed the water distribution system for Well 8 and noted that much of the system was built 100 years ago. The pipe was not large enough to move a lot of water for long distances. The typical pipe diameter throughout the neighborhood was 6 inches. However, pipe sizes of 16 to 20-inch are needed to move water long distances. Al concluded that if existing wells are abandoned, a study of the distribution pipe system would be needed to determine what improvements would be necessary to maintain the currently level of service especially for fire fighting. He noted that a new 16-inch pipe had been installed from Blair Street to East Towne as part of the East Washington Avenue reconstruction.

Question. Will the Well 8 filter need to remove VOCs like carbon tetrachloride?

Reply. Al stated that the filter will be designed to remove whatever contaminants are in the water at Well 8. He doubts that there are VOCs like carbon tetrachloride in Well 8 water. Testing has not indicated that it is present. Well 3 was the well that had carbon tetrachloride in the water and the well was abandoned for this reason.

Question. What are the capacities of Wells 7 and 8?

Reply. Al stated that most Well 7 and 8 have capacities of about one billion gallons per year. Usage of both these Wells is well under their current capacity.

Question. What is the life expectancy of a well in the system?

Reply. Al stated that a typical well life is 100 to 120 years. An infrastructure management plan completed in 2005 had concluded that Well 8 was is good condition.

Question. Who is serviced by Well 8?

Reply. Al stated that the well which provides your water depends on where you live. He suggested that people go to the water web site and look under Water Quality for My Address. Al noted currently 100% of the water supplied to the Goodman Center is served by a Well 11 which is behind Woodman's on Milwaukee Street.

Question. Are there any health concerns related to the manganese in the water from Well 8?

Reply. Jeff from the health department stated there were no health concerns related to the water at Well 8. The EPA sets water standards. The manganese levels at Well 8 are at the aesthetic standard. This is not a safety concern.

Question. Are some people more sensitive to manganese?

Reply. Jeff said yes, but the levels of manganese are orders of magnitude below any health concern. Jeff noted that the EPA established the health standards well below any level at which known effects are suspected to occur.

Question. How close has Well 8 been to the 300 parts per billion health level set by EPA?

Reply. Joseph Grande, Water Quality Manager for Madison Water Utility stated that since 2006 over 450 samples were taken from customers of Well 8. One sample had manganese above 300 parts per billion, but subsequent samples from that location were below that level. Eighty-four samples collected in 2007, 75 samples in 2008, and 37 samples in 2009 were all below the 300 ppb threshold. The median concentrations ranged from 37-80 ppb for the four years. The water department will continue to collect samples at houses served by Well 8. They believe that any higher levels that were measured were likely due to system upsets. In it was requested that if anybody receives discolored water they should contact the water utility.

Reply. Al added that flushing is currently being used to remove accumulated sediments from the mains and maintain better levels in homes. He said that if Well 8 is not fixed then there will be more flushing.

Question by Alder Marsha Rummel. She asked whether the water that was being used to flush the system could reused.

Reply. Al stated that 1,000 to 2,000 gallons per minute rate was needed in order to clean out the water system. It was difficult to capture and reuse water at such a high rate. They had considered a truck that could filter the water but this was $300,000 and was not considered feasible for the purpose. They are looking at ways to use the water to scour the storm sewers to clean them.

Al provided a conclusion to the public meeting. He said he had not heard any strong opposition to mitigating the iron and manganese at Well 8. He stated that there would be more decision points along this project. He thought that if anything was done at Well 8 it may need Park Board approval and potentially a referendum. He said the earliest that there would be any construction at Well 8 would be the year 2011. Al suggested that those interested in more information could sign up for a water utility list-serve. And they can also go to the utility web site. Or they could contact Al directly to be placed on the e-mail list for Well 8 discussions.

Statement by meeting participant. He noted that there was a need to continue to look at more conservation alternatives to eliminate the need for Well 8.

Reply. Al noted that alternatives one and three would rely on some sort of conservation.

Question. Why is Well 8 being evaluated for filter rather than Well 7?

Reply. Al noted that the 2008 study concluded that iron and manganese levels at Well 8 were higher than Well 7 and needed to be a fixed first. He noted that Sen. Rep. Baldwin had awarded $300,000 to allow funding of the Well 8 project. Al noted that they are considering a study to look at Wells 7 and 8 and possibly the replacement for Well 3 to determine if the hydraulics and usage by these wells could use a single solution. Al noted that there were business cards and brochures available for people to pick up.

The public meeting ended at 8:30 PM. Approximately 30 people were in attendance.

Minutes prepared by Steven Klafka, Well 8 Mitigation CAP and reviewed by Al Larson