

## Pisula, Joe

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**From:** Pisula, Joe  
**Sent:** Wednesday, November 30, 2011 6:15 PM  
**To:** 'Mccord, Del'; 'Ron Vancil'  
**Cc:** Nevers, Ed; Krause, Larry; 'Mike Williamsen'  
**Subject:** Groundwater Under the Influence  
**Attachments:** 2006-12-11 E-mail RE GUI and IEPA.pdf; Groundwater under Direct Influence of Surface Water.pdf; Page 19 from 2005 ISWS Groundwater Report.pdf

Del and Ron:

It was mentioned at the November 15<sup>th</sup> Water Commission meeting that Tim Hasara has recently approached IEPA with the intent of getting that Agency to re-classify the SSWC well field (that is in the Sangamon River flood plain) to **not** be considered "Groundwater Under the Influence of Surface Water". As you recall, back in 2007 the design team, which included EMC's folks such as Robert Trader, made the decision to design the plant with the assumption that the well water is considered "GUI". Donohue believed then and still believes that that was a prudent outlook to take.

As you can see by my internal e-mail from December 11, 2006, I spoke to Jerry Kuhn at IEPA about the Groundwater Under the Influence of Surface Water and as you can see, the GUI issue had huge impacts on the design and the labor cost of running the plant. As my e-mail notes, Jerry said that if the well water is considered GUI, then pressure filtration would not be permitted, nor would unattended operation be allowed. With that, the team decided to go with membrane filtration, such as the WesTech system that is now being installed.

Donohue and EMC both concluded that in our opinion, the SSWC well field is groundwater under the influence of surface water for these reasons:

- When I first started working with Bob Olson of the Illinois State Water Survey (who did the 2005 well field study), Bob emphatically told me that surface water definitely affects the aquifer and he pointed out that he had direct observation of that in 2003 when he did a 7-day aquifer test at the well field. He said that when it rained heavily during the test, the water levels in the aquifer rose up and did not fall they way they are supposed to during a drawdown test. **See the attached page 19 of his report, which documents those observations.** If the aquifer recharges when it rains nearby, then it must be under the influence of surface water. And if rainfall can influence it, so can contaminated flood water from the Sangamon River, when a flood hits.
- IEPA's definition of Groundwater Under the Influence of Surface Water (scan attached) basically says that if the wells are 50 feet deep or less, they are likely GUI and if they are between 50 feet and 200 feet deep they are GUI ... if there is no confining layer of soil. And if rainfall can quickly affect aquifer levels, it is highly unlikely that confining clay exists above the aquifer. All of the wells in the well field are at about 50 to 55 feet deep, so by definition shallow wells are usually under the influence of surface water.

I may be wrong about this, but the only reason that one would attempt to re-classify the aquifer from GUI to non-GUI would be to then not utilize the WesTech nano-filtration units and to route unfiltered water through the plant to create finished water. If the SSWC would choose to not install the membrane cartridges and/or bypass the membranes to avoid the membranes, the water (that has precipitated iron particles in it from the aerator) would be unfiltered and only the softeners would be left to remove the iron particles (which they will not do ... for very long.)

We believe that it is unlikely that IEPA will re-classify the SSWC well field as being groundwater not under the influence of surface water. After all, the wells are shallow and they are in flood prone areas and common sense tells us that surface water could influence them. However, if that Agency does so, Donohue still believes that the WesTech membrane filtration units must be kept in service and run at all times, in order to adequately protect the water

commission's customers at all times from getting water that could be contaminated by fecal coliforms, Giardia lamblia, Cryptosporidium or other pathogenic organisms.

If you wish to discuss this further, the Donohue staff can discuss it more fully in a conference call.

*DONOHUE & ASSOCIATES, INC.*

Joe Pisula

**From:** Pisula, Joe  
**Sent:** Monday, December 11, 2006 7:49 AM  
**To:** Nevers, Ed; Froh, Dave  
**Cc:** Lawrence, Charles; Vogel, Dave  
**Subject:** Chatham & IEPA Call  
To all:

During our meeting with the EMC folks and Chatham on Dec. 5th we indicated that Donohue would contact IEPA to set up a meeting to discuss the impacts of the Chatham well field being considered "Groundwater Under the Influence of Surface Water" or GUI

Late last Friday I finally got thru to Jerry Kuhn, the Public Water Supplies Permit Section Manager. Jerry said that he and his staff could not possibly meet till sometime in January. I explained our situation and he said: Donohue should go to Chapter I of Title 35 on the website and get IEPA's methodology for determining whether we have GUI. He said that's what they will use to evaluate Chatham for GUI. *Chuck ... Dave Vogel is digging that regulation up, right? When he gets this, have him fwd it to me and Nevers.* Jerry said it is unwise for us to meet with them now because we haven't drilled the test wells and we have no sampling data and therefore we can't answer the questions posed in the regs (things like bacterial contamination, turbidity changes, etc.).

**AN IMPORTANT NOTE:** Jerry did tell me that if the Chatham well field is considered by IEPA to be GUI, then IEPA will not allow pressure filtration but will require open gravity filtration (which Chuck predicted they would). Jerry also said that since gravity filtration would be required, IEPA would NOT allow the plant to be run unattended. This has huge budgetary implications, since EMC in their previous discussions with the Village had always proclaimed that ion exchange is inherently more affordable from an O&M standpoint because it is a one-shift operations approach, not a 24-hour/7 day per week staffing. That was assumed because most ion exchange systems are run that way. We should discuss this further before the meeting on the 19th.

Joe