

In May of 2006 I reviewed Dan Acquaviva letter dated 3/2/06 and offer the following observations. For simplicity sake I have enumerated the comments one thru four.

- 1.) The first point that he makes he state that the model they put together is the “most comprehensive and accurate County-wide hydrogeologic computer model ever assembled for Lee County”. I fail to see how this is even remotely possible since they totally ignored some of the most important features of the surficial system.
  
- 2.) His second point is that by not simulating the surface water/groundwater interaction that they have produced a more “conservative model”. In some circumstances not including the surface water bodies could be more conservative in providing longer travel distances, however doing so is inaccurate and because it is inaccurate thus opens the door to objections by third parties. In other cases (specifically the ones that I am concerned with when I specifically suggesting that the mine pits be included in the wellfield protection modeling to afford a level of protection associated with development that will undoubtedly occur around these pits in the future), it is actually far less conservative because the zones of protection are not being extended into areas where in the real world potential for contamination does exist. Case in point, the Corkscrew Wellfield.

Below is an Arcview plot of their travel times for the Corkscrew Wellfield for the area just north of the wellfield.



In the figure you can see how the travel times are unrealistic because they do not include the impact of the surface water bodies (this is the 2002 aerial background). In reality the most stringent zone of protection should probably encompass the entire interconnected surface water body especially when you start to take into account the secondary porosity issues, but instead it ignores the surface water bodies. In his letter he states that inclusion of the surface water bodies “was not a conservative approach. This is because it would not provide the greatest legal protection to the nearby public water supply wellfields since the mines would serve as recharge features in the modeling”. In the Corkscrew Real World example if the surface water bodies were properly simulated, the wellfield protection zone would be based upon real world conditions and would provide additional protection.

- 3.) Apparently he totally missed the point of my comment. My comment was related to realistically simulate what was out there in the “real world” including the effect of secondary porosity, not to “inventory potential contamination sources”. If the modeling is not realistic, how can it be enforced if it is

challenged and should the County even promote its adoption knowing that it is flawed?

- 4.) This comment was designed to further explain my concern about the effect of secondary porosity, which apparently is a foreign concept to the author of the letter. He is indicating that by ignoring the secondary porosity the modeling is more conservative, when in fact it is less conservative. Studies done by the USGS in the Miami/Dade NW Wellfield have demonstrated that the travel distances per unit time are greatly expanded not decreased. He states that my comment about the effect of secondary porosity “indicates a general lack of comprehension regarding the purpose of the modeling, its construction, and its calibration” – this statement indicates a general lack of understanding by the author related to groundwater sciences! On one hand he purports to be trying to be “conservative” in the modeling approach, and on the other hand he is saying that including the effects of secondary porosity (which would be a “real world” reason to build in conservatism) would be “arbitrary”. Interesting logic to say the least!