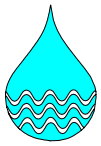
Greg F. Rawl, P.G.

Professional Geologist

P.O. Box 1604
Fort Myers, FL 33902-1604



Specializing in Hydrogeology and Water Resources

June 2, 2006

Mr. Paul O'Connor, AICP, Director
Planning Department, Lee County Government
1500 Monroe St.
Fort Myers, FL 33901

Re: Lee County Groundwater Resource & Mining Study
Wellfield Protection & Mine Pits

Dear Mr. O'Connor,

One of the most important mining/landuse recommendations of our report was that future wellfield protection modeling should take into account the interaction between mine pit surface water bodies and the potable aquifers. This is especially important where mine pits that have been excavated down through the entire thickness of the aquifer in the immediate vicinity of potable wellfields that withdraw water from that very aquifer unit. Surface water bodies, such as mine pits, can act as a conduit for dispersion and the introduction of contaminates into the aquifer's production zone. The rapid movement of contaminates into the aquifer is further expedited by the secondary porosity that occurs in many of Lee County's most productive wellfields. Secondary porosity forms as the result of dissolution of the limestone over thousands of years that results in high hydraulic conductivities and is a characteristic of the Ochopee limestone unit in some areas of Lee County.

Based upon our cursory review of the report and model input files, which we obtained from LCU several months ago, it appears that the new Wellfield Protection model is seriously flawed. For some reason the model failed to incorporate even the most significant surface water features into the simulations.

Phone: 239-332-2622 *grawl10@comcast.net* Fax: 239-332-5622

This becomes particularly important in the vicinity of several LCU wellfields. The worst cast example of this is the Corkscrew wellfield, where one mine in particular, the University Lakes Mine, has been excavated up to the edge of the Corkscrew wellfield property. This mine has been expanded significantly in the last several years.

Additionally, we have seen no attempt in the modeling to address the impact of secondary porosity on the travel times upon which the Wellfield Protection Zones are predicated. This has been shown to be a significant factor in recent studies conducted in the most highly permeable aquifers in South Florida.

When we were reviewing the Lee County 2005 aerial photographs of the University Lakes Mine to determine how best to update the mine database and groundwater flow model, we noticed an area of contamination. I have attached a series of four aerial photographs (figures 1 through 4). In the figure 1 the University Lakes Mine is visible in the northern half of the figure and the Corkscrew Water Treatment Plant and Wellfield are visible in the southern half. In each progressive figure, they zoom in on the contamination plume that seems to be hydraulic fluid seeping into the pit from the northern shoreline. In the case of a large release of contaminants through rapid surface water dispersion and proximity to the wellfield, it is possible that detectible contaminate levels could quickly migrate into potable water supply wells.

I realize after I first brought this issue up, the Consultant did attempt to address these issues, however the problems still exist. As a result of the Consultant's failure to incorporate significant hydrologic features into the model, the model results will always be suspect. This flaw in the model would also open the model up to challenge by an effected party and would thus jeopardize the ordinance.

Very Truly Yours,

Greg F. Rawl

Greg F. Rawl, P.G.

Cc: Jim Lavender, Public Works Director
Roland Ottolini, P.E., Director Natural Resources
Wayne Daltry, Smart Growth Director
Mary Gibbs, Community Development Director

Figure 1 – University Lakes Mine and Corkscrew Water Treatment Plant & Wellfield

Figure 2 – University Lakes Mine

Figure 3 – Northern half of active University Lakes Mine Pit

Figure 4 – Northern shoreline of active University Lakes Mine Pit