

March 27, 2007

Ms. Amy McLaughlin  
Remedial Project Manager  
US Environmental Protection Agency – Region 4  
Atlanta Federal Center  
61 Forsyth Street, SW  
Atlanta, GA 30303

RE: Surficial Extraction System Review Comments  
Cabot Carbon/Koppers Superfund Site, Gainesville Florida

Dear Ms. McLaughlin:

Please find attached comments from our DNAPL Team regarding the *Evaluation of Surficial Aquifer Groundwater Extraction System* issued by GeoTrans and transmitted by Beazer on December 22, 2006.

As you are aware, improving the surficial extraction system so that it no longer allows migration of contamination both vertically and horizontally is one of many important efforts that need to be implemented to protect the community's drinking water supply. If you need additional information, please contact me at 352-393-1613.

Sincerely,



Brett Goodman, P.E.  
Supervising Utility Engineer

cc: M. Brouman (Beazer)  
J. Erickson (Geotrans)  
J. Mousa (ACEPD)  
K. Helton (FDEP)  
D. Richardson, K. Zoltek, R. Hutton (GRU)  
GRU Team  
Correspondence

DNAPL Team Comments  
Surficial Aquifer Hydraulic Containment System Evaluation  
Dated December 22, 2006

The GRU DNAPL Team has the following comments to the Evaluation of Surficial Aquifer Groundwater Extraction System that was issued by GeoTrans and transmitted via a Beazer cover letter dated December 22, 2006

1. GeoTrans' modeling results confirm many of the findings reported in Waterloo Hydrogeologic's Technical Memo. Number 2.
2. Waterloo reported that 100% of particles released in the Lower Surficial Aquifer (Layer 4) below the Former North and South Lagoons are not captured by the Hydraulic Containment System. Instead they pass through the Upper Hawthorn Clay before reaching the hydraulic influence of the extraction wells. GeoTrans confirmed these findings. However, unlike Waterloo's particle tracking results, GeoTrans did not show the ultimate destiny of these escaped particles (contaminants): the Murphree Wellfield.
3. The GeoTrans model has apparently been revised without incorporating information from newly redeveloped surficial monitoring wells. The GRU DNAPL Team's Review and Recommendations Report recommendation #11 was that Beazer "redevelop the network of monitoring wells established during 1984-1995 in the surficial aquifer to remove fines in advance of conducting tests for hydraulic conductivity and quarterly sampling....". We recommend that the extraction system and any remedial alternatives include spatial variability of hydraulic conductivity values and head measurements from the newly redeveloped surficial monitoring wells.
4. The review of the extraction well efficiency should include surficial aquifer contaminant concentrations. Information from the newly redeveloped wells was not incorporated into the review. The GRU DNAPL Team's Review and Recommendations Report recommendation #12 was that Beazer conduct direct-push groundwater sampling at the base of the surficial aquifer to provide additional information regarding the extent of creosote migration from the four DNAPL source zones and map the aerial distribution of the DNAPL over the entire site. Note the historical detection of naphthalene at 5,570 ppb in offsite monitoring well ITW-21 that presumably resulted from DNAPL migrating from an onsite source. These data should also be collected and incorporated into the review of the Hydraulic Containment System efficiency.
5. GeoTrans' particle tracking results are presented in a rather unconventional manner through the use of colored grid blocks rather than particle tracks (pathlines). Capture zones are more easily seen and understood with particle tracks (pathlines) than with colored blocks.
6. Similar to Waterloo's approach, GeoTrans refined the grid vertically to more accurately simulate vertical hydraulic gradients. However, unlike Waterloo, GeoTrans did not refine the rows and columns in the horizontal dimensions, preferring to keep the original 60 X 60 foot spacings to Waterloo's refined 15 by

15 foot spacings. The size of the grid cells may affect the predicted ultimate destiny of particles and conclusions on particle capture. It would be reassuring if GeoTrans reduced the horizontal grid size by a factor of 4 and showed their capture zone conclusions were unaffected.

7. To confirm capture zones with more confidence (especially when a municipal wellfield is potentially threatened), it is common practice to release both forward (upgradient) and backward particles (a circle of particles around the extraction well) to demonstrate that the capture zone is consistent. GeoTrans used only forward particle tracking.
8. In addition to not showing the ultimate destiny of escaped particles from beneath the North and South Lagoons, GeoTrans did not show the ultimate destiny of any uncaptured particles from many other areas of the site. Do GeoTrans' modeling results show any particles reaching the Floridan? Did any reach the Murphree Wellfield? Did GeoTrans' modeling results show any particles reaching the Cabot Carbon site? These are important questions that should be answered.
9. Based on the colored grid blocks, Figures 2 and 3 appear to show very wide capture zones for many of the extraction wells, which are pumping at less than 3 gpm. Is this the case or are we misinterpreting the colors? Were the recharge rates the same as used in GeoTrans' original model? Were the hydraulic conductivities modified (reduced)?
10. Figure 16 shows capture zones of particles released near the upper clay layer with only source area drains operating. GeoTrans reports that these source drains are all that are needed to capture contaminated water in the Surficial Aquifer and that the current extraction system can be phased out (no explanation is given of what criteria will be used to justify phasing out these wells). The figure, however, shows very large areas of the Surficial Aquifer that are not captured by these drains. If the extraction system along the northern and eastern boundaries ceases pumping, this uncaptured, contaminated water will leave the site. Our opinion is that the extraction system cannot be turned off without a thorough assessment of how all the contaminated water beneath the site will be prevented from migrating off site, not just the water in the capture zones of the source area drains. The Surficial Aquifer extraction system should continue operating until groundwater meets ARARs for all COCs.
11. GeoTrans' results show the current system is failing to capture potentially very large quantities of contaminated water and has not been doing so since 1995. GeoTrans does not address how much water has escaped capture and where it went. Particle pathlines in 3D perspective are not shown, so the ultimate fate of this contaminated water is not identified.
12. The report calls attention to the five "performance monitoring wells." However, we do not agree with GeoTrans' conclusion that these wells prove the system is working adequately. There clearly is a need to thoroughly review the efficacy of the performance monitoring system including a review of lateral and vertical placement of the screens and a making a determination of the potential need for installing additional performance monitoring wells. Performance monitoring should be done by transects of multilevel wells and/or periodic direct push sampling at appropriate lateral and vertical locations. Pre-defined performance

monitoring criteria must be met before any boundary extraction wells are deactivated.

13. Even if the boundary extraction wells are no longer used for capturing water, they still may be used for water level measurements, so thought should be given to maintaining all or some of them for that purpose.