

## **Review of the RPM September 8, 1999 Groundwater Monitoring Meeting**

September 28, 1999

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Dear Julie,

I wish to provide DSCSOC with some comments on the UCD LEHR national Superfund Site groundwater monitoring meeting that was held on September 8, 1999.

It was announced at the meeting that this meeting would be devoted to groundwater quality monitoring issues, and that the deficiencies in the surface water monitoring program would be addressed at the September 29, 1999 meeting where an ecologist with the US EPA staff would review some of these issues.

### **Development of RI/FS**

At the September 8, 1999 meeting, discussions were held with respect to the review of the IRA as to whether there was sufficient understanding of the groundwater characteristics at the LEHR site to proceed with the development of an RI/FS. I believe there was general agreement among the RPMs that considerable additional work needs to be done before a meaningful RI/FS can be developed for groundwater remediation at the LEHR site.

### **LEHR Site Groundwater Conceptual Model**

Dr. Jeffrey Bold of Dames & Moore presented a "conceptual model" of the groundwater system associated with the LEHR site. One of the most important aspects of his presentation is a confirmation of some of the issues that I have previously raised regarding the unreliability of the Weiss & Associates vadose zone model. Dr. Bold indicated that his estimates support the position that the time of travel of constituents from the surface to the water table through the vadose zone is in the order of 2 to 5 years, not 30 years as Weiss & Associates promotes. As I have discussed, there is no question that Weiss & Associates vadose zone model is highly unreliable and has no predictive capability.

One of the issues that I feel needs to be addressed is the age of the water in HSU-2 and HSU-4. Through radiodating, it should be possible to make estimates of just how old this water is, and thereby establish some information on the rates of transfer from the surface of the ground to both of these aquifers.

During the discussions of the IRA, it became clear that there is the possibility of a dnuple of chloroform being present under Landfill No. 2. Investigations conducted thus far cannot rule this out.

It was stated at the meeting that generally chlordane, which is in the surface soils of LEHR, does not pass through the soil column to any significant extent. However, that statement ignores the co-solvent effects of kerosene which was used with the chlordane.

At the September 8<sup>th</sup> meeting, Dames & Moore presented some information that indicates that about 400 pounds of chloroform have been disposed of in Landfill No. 2 which is causing the chloroform plume that has moved off-site. However, a review of the basis for those 400 pounds shows that it could be a considerable error. It was also stated that they felt that the chloroform that had been disposed of in Landfill No. 2 was no longer in the landfill, and had moved into the vadose zone in HSU-1 underlying the landfill. In order to verify this situation, there is need to do some horizontal drilling just under the landfill to see if there is any significant chloroform in the vadose zone. If there is, then the assumptions about 400 pounds and the position of the chloroform in the landfill/vadose zone are unreliable.

Dames & Moore presented a number of contour plots of concentrations of various constituents in the groundwaters at the LEHR site. As was discussed by Duncan, and as I have discussed in the past in review of the monitoring reports, these contours have a lot of subjective interpolation in them. Basically, UCD does not have sufficient monitoring wells to provide reliable contouring. There could readily be significant offsite migration which is not covered by the contours.

#### **Offsite Groundwater Pollution by Chloroform**

Dames & Moore presented a map showing the chloroform concentrations of the neighbors wells, which included wells 22-A and 22-J which are to the northeast of the LEHR site. Well 22-A has been found to contain between 1 to 2 : g/L of chloroform since 1996. Well 22-J contains about 0.2 to 0.5 : g/L of chloroform. Both of these wells are located considerably to the east of the known HSU-2 chloroform plume. As I indicated at the meeting, there is need to understand the origin of the chloroform in 22-A and 22-J. Does this indicate that a much larger chloroform plume exists than previously thought? If not, how do these two wells get chloroform in them? I thought there was agreement that there is need to do considerable additional groundwater monitoring well monitoring to the east and north of the existing HSU-2 chloroform plume to verify the extent of that plume through proper sampling, not hydropunch sampling.

#### **Monitoring of Groundwater Pollution by Landfill No. 3**

There was agreement among the RPMs that UCD's proposed approach for monitoring near Landfill No. 3, where they basically had proposed to ignore the pollution that has occurred at this landfill, was unacceptable. UCD is going to be required to put in at least one and likely several additional groundwater monitoring wells, both up- gradient and down-gradient of Landfill No. 3, to define the extent of groundwater pollution by this landfill.

I distributed the materials that you had assembled on the neighbors monitoring wells which, I understand, shows that the patterns of nitrate concentrations versus seasons of the year in the LEHR site IRA wells are not being found in neighbors wells. The net result is that the comments made by UCD consultants Dames & Moore, that this was a natural phenomenon for the region, are not supported by the data. It was agreed

that further review of this issue would be done by Dames & Moore and discussed at a future meeting.

**Overall Assessment**

Overall, I was pleased with the decisions made by the RPMs at the September 8, 1999 meeting. They are