

Inadequate Consideration of Public Health Protection at the LEHR Site

Comments by
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Presented below are comments on some of the issues raised at the September 29, 1999, LEHR site RPM meeting.

Potential Public Health Hazards Associated with IRA Pumped Groundwater

At the September 29, 1999 RPM meeting for the UCD/DOE LEHR national Superfund site on the University of California Davis campus, there was an extended discussion on the potential public health and environmental threat of constituents associated with the TDS. The elevated TDS is of concern because of the exceedance of the Central Valley Regional Water Quality Control Board discharge limit for injection into the groundwater as part of the IRA. Some of those that participated in the discussion asserted that the TDS was innocuous and represented little threat to public health or the environment. Duncan Austin presented the position that since some of the TDS is derived from wastes at the LEHR site, caution has to be exercised in assuming that this TDS is innocuous. It could contain hazardous chemicals that would be a threat to public health and/or the environment.

While I was not involved in the detailed discussion, this is a topic that I and others with an understanding of public health principles and appropriate practice have been concerned about for many years. Those familiar with public health and environmental protection know it is inappropriate to assume that groundwater that contains elevated TDS that is derived in part from landfill wastes of the types that exist at the LEHR site do not contain hazardous or deleterious chemicals that could readily be a threat to public health and/or the environment. This is so well understood in the field that even the US Congress General Accounting Office several years ago pointed out the gross deficiencies in the approach that is typically used in addressing water pollution when mixtures of wastes, such as those associated with landfills or domestic or industrial wastes, represent sources of constituents of potential concern.

Dr. Anne Jones-Lee and I have published several papers on this topic, including:

Lee, G.F. and Jones-Lee, A., "Does Meeting Cleanup Standards Mean Protection of Public Health and the Environment?," In: Superfund XV Conference Proceedings, Hazardous Materials Control Resources Institute, Rockville, MD, pp. 531-540 (1994)

Lee, G.F. and Jones, R.A., "Evaluation of Adequacy of Site Remediation for Redevelopment: Site Assessment at Remediated-Redeveloped 'Superfund' Sites," Proc. 1991 Environmental Site Assessments Case Studies and Strategies: The Conference, Association of Ground Water Scientists and Engineers-NWWA, Dublin, OH, pp. 823-837, (1991).

Jones-Lee, A. and Lee, G.F., "Groundwater Pollution by Municipal Landfills: Leachate Composition, Detection and Water Quality Significance," Proc. Sardinia '93 IV International Landfill Symposium,

Sardinia, Italy, pp. 1093-1103, October (1993).

where we introduced the concept of the “unconventional pollutants” in municipal landfill leachate. These are the constituents that are part of the total organic carbon (TOC) that is uncharacterized in leachate. The typical leachate characterization involves possibly identifying a few milligrams per liter of the thousands of milligrams per liter of TOC in municipal solid waste landfill leachate. As I pointed out at the September 29, 1999 RPM meeting, and as discussed in our papers, there are over 75,000 chemicals in use in the US today. There are about 1,000 new chemicals per year added to this list. We regulate about 100 of these. This is not the first time this issue has been raised. I have been raising it since 1995 in connection with the inadequate list of constituents of concern for the LEHR site.

There was inappropriate discussion by several individuals at the RPM meeting on such issues as the TDS associated with the IRA is no different than TDS that is typically present in groundwaters of the region. Such an approach is naive and strongly contrary to the public interest. While the primary constituents of the TDS are not particularly hazardous, there could readily be waste-derived hazardous materials associated with the TDS. The TDS of the region, away from the LEHR site, generally does not contain constituents from a Superfund site or campus landfill. The elevated TDS associated with the IRA pumped and reinjected groundwater contains a variety of constituents from UCD’s mismanagement of its campus waste, that are not normally in groundwaters of the region.

Land Disposal of IRA Pumped Groundwater

With respect to the land disposal of the IRA pumped groundwaters during the time when it has excessive concentrations of TDS and nitrate, Duncan Austin and Susan Timm are correct in being concerned about this approach. I have been involved for about 40 years in reviewing land treatment of wastes and have published a number of papers on these issues, including:

Lee, G. F., “Potential Problems of Land Application of Domestic Wastewaters.” IN: Land Treatment and Disposal of Municipal and Industrial Wastes, Ann Arbor Science, pp. 179-192 (1976).

Jones, R. A. and Lee, G. F., “Chemical Agents of Potential Health Significance for Land Disposal of Municipal Wastewater Effluents and Sludges,” Proc. Conference on Municipal Wastewater and Sludges, Univ. of Texas at San Antonio, pp 27-60 (1978).

There can readily be constituents in the LEHR site air-stripped IRA pumped groundwater that, when used for irrigation, could cause significant public health and environmental threats.

At the meeting, it was pointed out by B. Oatman that UCD might have to shut down the IRA if it could not find some cheap method of disposal of the inadequately treated groundwater. Duncan Austin correctly pointed out that it is time for UCD to start to develop proper treatment of the polluted groundwaters. The UCD administration needs to face up to the fact that it is going to have to start to pay the true cost of waste disposal. The UCD L. Vanderhoef administration will not be allowed to continue

to pass these costs on to future generations. It is going to have to start to properly manage campus wastes. Land disposal of wastewaters, when the wastewaters are derived from complex mixtures of wastes which are poorly characterized with respect to the vast arena of chemicals that could readily be present in them, will prove to be very expensive to UCD.

There was discussion at the meeting by a couple of individuals about what else should be monitored as part of defining constituents of concern at the LEHR site. Those with an elementary understanding of the US EPA Safe Drinking Water Program know that US EPA has a long list of chemicals that are not now regulated that will come under regulation at some time in the future. Further, as I pointed out, there is need to start to practice biological based monitoring to determine potential effects of mixtures of chemicals. Several years ago, the US EPA held a conference on

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NPDES permit. Further, LEHR site mercury could be in a different form than much of the mercury present upstream in Putah Creek. This could lead to different tendencies for methylation. Without the studies that I have recommended, it is not possible to conclude that the LEHR site is not a contributor to the mercury problem in Putah Creek.

At the September 29th RPM meeting, B. Oatman, made unreliable statements about UCD's environmental control activities being in compliance with regulations, where he said that the UCD wastewater treatment plant was not overloaded. It is a trivial matter to show that B. Oatman's statement is unreliable and reflects the L. Vanderhoef administration's distorted approach toward providing reliable information to the public and others on UCD's environmental management activities. The facts are, as is documented in UCD reports, that UCD's wastewater treatment plant has failed to meet its NPDES permit requirements repeatedly over the years. It is B. Oatman's position that a treatment plant is operating adequately, i.e., not overloaded, even though it fails to meet the permit requirements. This is the kind of unreliable information that prevails throughout the UCD L. Vanderhoef administration's approach to protecting Putah Creek.

Another issue that was raised was the inadequacy of the review that was conducted on the dog pens' surface soil potential to cause pollution through stormwater runoff, where considerable time was spent discussing mercury, chlordane, and heptachlor epoxide PRG and RBAS values without considering the fact that the US EPA's approach for assessing the potential public health hazard does not require evaluation of the bioaccumulation route associated with stormwater runoff from the site. Devaney indicated that Weiss & Associates had addressed this issue in one of its risk assessments. I asked Devaney to fax me a copy of the section of their risk assessment that specifically addressed this issue. The materials he sent me were part of a draft document that has not been approved by the RPM's. Also, it is not clear that it addresses stormwater runoff issues. Further, DSCSOC had extensive comments on the deficiencies of that document. The situation is that, thus far, the potential for constituents in surface soils to cause pollution of Putah Creek through stormwater runoff has failed to be adequately/reliably addressed at the LEHR site.

Review of DSCSOC's Concerns

Part of the September 29th meeting was devoted to a cursory review of DSCSOC's concerns about the adequacy of LEHR site investigation and remediation. The way this review was conducted falls far short of a credible review. Over the past four and a half years, DSCSOC has provided detailed documentation of numerous problems with LEHR site investigations and proposed remediation approaches. While many of these have been eventually addressed, there are still a number of issues that need to be addressed. To allow UCD/DOE to make off the cuff comments as adequate responses to the public's concern on these issues is strongly contrary to proper protection of the public's interest. Hopefully, the RPMs will conduct a proper review of all the outstanding issues that DSCSOC has raised.