Comments on the
Draft Site-Wide Risk Assessment Work Plan for the
SCDS/LEHR Environmental Restoration
Prepared by Montgomery Watson Harza for the
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Comments Submitted by
G. Fred Lee, PhD, DEE, Advisor to DSCSOC
G. Fred Lee & Associates
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Page 1, under section 1.1 Project Goals, in the first paragraph, mid-paragraph, the statement is made that one of the goals of remediation is to achieve background concentrations. As discussed previously, achieving background concentrations may not be a reliable approach for protection of public health and the environment. Most constituents of concern have a bioavailability component. For constituents which are derived from waste, the bioavailability may be different than that from other sources, including natural sources. To assume that because a concentration of a constituent in a waste management area is the same as background and, therefore, represents the same hazard, can be erroneous.

Page 2, section 1.1.2 mentions "target levels." These need to be specified, and care must be used to avoid using some of the unreliable ecological target levels that have been developed.

The numbered paragraph 2, focuses on reproductive success during a lifetime of exposure. Normally, growth of the organisms is also considered. Chemicals can adversely affect growth, which would be considered an adverse impact.

Page 6, in section 2.1.4, second paragraph describes HSU-3 as a low-permeability layer. HSU-3 has not been adequately characterized to determine whether there are higher-permeability components which would allow transport from HSU-2 to HSU-4.

Beginning on page 7, through pages 8 and 9, there is a discussion of various waste management units. No mention is made of the septic tank areas. These are areas of concern, and should be listed.

Page 9, section 2.2.2.7, first paragraph, third line states that, *"... HSU-2 is a potential water source for the region.*" There is no "potential" about it. It is a water source. Similarly, under section 2.2.2.8 for HSU-4, HSU-4 is a regional water source. The issue is not that it is a "potential" water source.

Similarly for section 2.2.2.9 Putah Creek, there is no issue about Putah Creek receiving pollutants in stormwater runoff from the LEHR site. The statement is made at the end of the paragraph that, *"The potential impacts to Putah Creek from storm water runoff are limited because wastes at the LEHR/SCDS were buried, and covered with clean soil."* That is not true for chlordane, which has been found in stormwater runoff from the site. It may not be true for other constituents either. At this point, it is unclear as to how "clean" the soil was that was used to cover various constituents at the LEHR site waste management areas.

Page 10, section 2.2.3, the IRA is a pilot study, not a bona fide removal action.

Page 11, section 2.3.3, ATSDR conducted two sets of studies. There are two reports that should be referenced, not just one.

Page 11, section 2.4 proposes to use modeling to predict chemical transport and fate, and, therefore, impacts. Such approaches, especially under LEHR site and Putah Creek conditions where there is limited data upon which to reliably develop a model, can be highly unreliable.

Page 12, section 2.4.2 Migration from Groundwater to Surface Soil, the statement is made in the last sentence of the paragraph, *"However, off-site migration of chemicals in groundwater have been addressed by the on-going IRA; therefore, this pathway is considered incomplete."* That statement is not true. The pathway still exists. Further, UCD has not addressed the spread of the pollution that has occurred through the IRA that it conducted, and the fact that it only removed some of the constituents.

Page 13, under 2.4.8 Surface Water/Sediment Equilibrium, it is not clear from the brief description provided that those who wrote this section understand these issues sufficiently well to appreciate the complexity of trying to properly model this system. The so-called "equilibrium partitioning" approach which is advocated here has been found to be fundamentally flawed with respect to predicting pore water concentrations for many constituents, including organochlorine pesticides. Another problem with this approach is that it fails to include the ingestion mode of uptake by benthic invertebrates.

Page 14, first paragraph, the statement about equilibrium partitioning being able to predict chemical concentrations in puddle water is inaccurate. Equilibrium partitioning is not that reliable.

Page 14, under section 2.4.10 Food-Chain Transfer, there is no discussion of the translocation route of transfer of materials from the sub-surface soils to the surface, and thereby exposing the public and the environment to hazardous and/or deleterious chemicals.

Page 15, section 2.5.3 Potential Ecological Receptors and Exposure Pathways needs to be significantly expanded with examples of what will be done, before it will be possible to evaluate whether what is proposed to be done will be reliable.

Page 16, under section 3.2 Identify the Decision (Step 2), adequate detection limits for the chemicals of concern should be added to this section.

Page 17, section 3.3 Input to the Decisions (Step 3) needs to include vegetation as a component on line three.

Page 17, in the table at the top of the page, there is need to include a discussion of the potential for unknown constituents to cause public health and environmental impacts.

Page 17, under section 3.4 Define the Study Boundaries (Step 4), it is important that the offsite pollution of groundwaters by the LEHR site be included in the boundaries as an area that needs further work to define the extent of this pollution.

Page 21, section 4.2.3.4 Analytical Methods and Detection Limits, paragraph 1, last sentence refers to analytical methods being "widely-used industry standards." Just because a method is widely-used does not mean that it is adequate. This has been a chronic problem for monitoring of some parameters at the LEHR site in stormwater runoff. UCD, DOE and their consultants have disregarded the critical concentrations that need to be measured to evaluate whether the measurements being made reliably measure the constituents of concern.

In the next paragraph, mention is made of "screening criteria." Again, without specific examples, it is impossible to judge whether UCD and its consultants are using appropriate screening criteria. There are a lot of screening criteria available which are not reliable and should not be used.

Throughout this discussion, there is focus on complying with US EPA requirements. Both DHS and DTSC have requirements, which in some cases are more stringent than the US EPA's, that must be met. This document needs to be revised to consider state of California requirements, as well.

Page 23, section 5.0 Risk Assessment Methodology mentions in the third line, "Tier 3 probabilistic risk assessment." Caution has to be exercised in using a probabilistic risk assessment, since it may not be as protective as water quality criteria. This occurs for some pesticides.

Page 24, second paragraph, UCD is attempting to be relieved of the responsibility of cleaning up naturally occurring pollutants that are present in stormwater runoff from the site. The state of California and the federal Clean Water Act require that the discharge of pollutants from a site, such as mercury, at concentrations above water quality standards must be controlled, independent of the source.

Page 24, under section 5.1.3, US EPA PRG values do not consider bioaccumulation, and therefore are not protective of public health for those chemicals that tend to bioaccumulate, such as chlordane.

Page 25, under section 5.1.4.1, the third bullet mentions the toxicological benchmarks for screening contaminants of potential concern for effects on aquatic biota, with a reference to ORNL, 1996a. ORNL collected a number of literature values which were known at the time to be unreliable for evaluating impacts. These criteria, which were based on co-occurrence approaches, should not be used for any purpose.

Page 31, section 5.2.6 Biota indicates in the last sentence, *"All other biota exposure point concentrations will be modeled."* This approach can be highly unreliable without an extensive database.

Page 34, section 5.3.6 Soil to Groundwater Modeling states, *"Additional contribution of the vadose zone to groundwater contamination will not be evaluated."* This is an inappropriate approach. The

only work that has been done of any credibility (and even this is questionable) is on the pollution of groundwater by the chloroform that was dumped in waste pits. There is other pollution of groundwaters that has not yet been adequately addressed. This needs to be done. It is questionable whether this can be done reliably by modeling, however.

Page 35, under section 5.3.7 Groundwater Modeling, UCD still refuses to do a proper site-wide groundwater model, which includes the offsite pollution by LEHR wastes. This must be done.

Page 35, under section 5.3.8 Sediment/Surface Water Partition Equation, this equation has been found to be unreliable for many constituents, and cannot be used without considerable site-specific information to verify that it properly predicts the partitioning of constituents between water and sediments.

Page 37, section 5.3.9.2 states that, *"... fish tissue concentrations will be estimated for constituents when site-specific fish tissue data is not available."* At this time, the estimation of fish tissue concentrations is impossible to do reliably. The equations presented on page 37 are not reliable for this purpose. What should be done is to measure fish tissue concentrations. If they are excessive, then determine the origin of the chemicals that are causing the excessive concentrations.

Page 45, section 5.5.1.1 lists under the bullets various species that will be considered. It appears to me that they may be ignoring species that are of potential value to the food web, but not what someone determines to be high priority to the food web. This approach is not in accord with the CVRWQCB's Basin Plan requirements for control of toxicity. All aquatic life has to be protected, independent of its perceived importance to the food web.

Page 45, under section 5.5.1.3, as noted above, there is far too much emphasis on lipophilicity of constituents. Some constituents are fat-soluble. There are many that are not.

Page 46, section 5.5.2, first paragraph relies on food web bioaccumulation. There are constituents, such as DDT, taken up directly by fish gills, that do not involve food web accumulation.

Figure 2 should show the location of the septic tank areas.

Figure 4 does not include translocation. It should.

The same problem exists with Figure 5.