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Julie Roth, Executive Director
DSCSOC

**Comments on October 30, 2006 (Rev. F)
Draft DOE Areas Feasibility Study
Prepared by Weiss Associates for SM Stoller Corporation
Comments Submitted by G. Fred Lee, Technical Advisor to DSCSOC**

On October 30, 2006, Weiss Associates, on behalf of SM Stoller Corporation, submitted Rev. F of their *Draft DOE Areas Feasibility Study* for the Laboratory for Energy-Related Health Research (LEHR), University of California, Davis (UCD).

Overall, I find that the Draft DOE Areas Feasibility Study dated October 30, 2006, suffers from essentially all of the same deficiencies as were discussed in DSCSOC's comments on the February 22, 2006, draft of this document:

Lee, G. F., "Comments on Draft DOE Areas Feasibility Study Prepared by Weiss Associates, Dated February 22, 2006," Comments submitted to DSCSOC by G. Fred Lee, G. Fred Lee & Associates, El Macero, CA, April 27 (2006).
<http://members.aol.com/dcsoc6/2006/LEHR-feasibility-comments.pdf>

Basically, DOE, in its October 2006 draft FS, has failed to adequately discuss the limitations of the various possible remediation approaches. Some of these limitations are discussed in DSCSOC's comments on the February draft. The comments on the February draft (with an adjustment made for the difference in page numbers) are incorporated by reference in these comments as being applicable to the October 2006 draft.

Comments on Executive Summary

Page ES-3, second paragraph states with respect to predicting impacts on groundwater,

"These predictions are based on conservative transport model predictions of soil contaminant concentrations that could impact ground water within the next 500 years."

Weiss Associates/DOE is persisting with unreliable information on the "conservative" nature of its unsaturated zone transport model. It is disappointing that the RPMs allow such statements to persist when it is well-known that the unsaturated transport model is far from being conservative in predicting rates of transport. As has been documented in previous DSCSOC comments, the use of average annual moisture content, rather than wetted-front transport, and ignoring

preferential pathway transport, makes the Weiss Associates/DOE model unreliable in predicting transport of pollutants from the LEHR site soils/strata to groundwater. These issues have been repeatedly discussed on the DSCSOC website and again, most recently, in the report by Lee and Jones-Lee on Groundwater Quality Protection Issues:

Lee, G. F. and Jones-Lee, A., "Groundwater Quality Protection Issues," Report of G. Fred Lee & Associates, El Macero, CA, December (2006).

<http://www.members.aol.com/annejlee/GWProtectionIssues.pdf>

Page ES-6, last paragraph states that the community acceptance of the proposed remediation alternatives will be addressed as part of the CERCLA public participation process. It could be far more effective in gaining public acceptance if DOE addressed the concerns listed by DSCSOC in its June 2006 document, "DSCSOC's Community Acceptance Criteria -- LEHR Superfund Site, UC Davis Campus," which is available on the DSCSOC website at

<http://members.aol.com/dcsoc6/2006/CommunityCriteria2.pdf>

Comments on Section 1

Introduction, page 1-1, second paragraph states, "*Additionally, Site risks are below the level of concern for all ecological receptors (UC Davis, 2006b).*" As DSCSOC has documented, the UC Davis Ecological Risk Assessment is fundamentally flawed with respect to addressing the mercury in stormwater runoff from the LEHR site. There is no doubt that the high concentrations of mercury in stormwater runoff that have been recorded on several occasions are an ecological and human health threat in Putah Creek, Yolo Bypass, the Delta and San Francisco Bay. These issues have been discussed in detail in reports which are on the DSCSOC website.

Page 1-9, section 1.3.1 Vadose Zone Modeling, fails to discuss the limited reliability of the vadose zone modeling that has been done by DOE at the LEHR site. See comments above on the Executive Summary.

Comments on Section 3

Page 3-3, section 3.2.2.2 Groundwater Monitoring, states,

"Ground water monitoring may be selected if there is moderate certainty that active soil remediation is not necessary to achieve remedial action goals."

Because of the uncertainty associated with identifying all of the constituents of concern, as well as the effectiveness of proposed remediation approaches, ongoing groundwater monitoring should be part of any remediation. It should not be assumed that a particular remediation approach is effective in protecting public health and the environment.

Page 3-9, section 3.3.3.5 In situ Stabilization, discusses various approaches for immobilizing pollutants in the soil. The issue of leachability of pollutants from so-called "stabilized" wastes that have been treated with a variety of solidification agents is an issue that I have been involved in since the early 1980s. In the spring 2006, as part of work that I did on behalf of the Sierra Club of Canada in evaluating the province of Nova Scotia's Sydney Tar Ponds Agency's \$400-million proposed remediation for the Sydney Tar Ponds site, I had the opportunity to review

current information on cement-based in situ stabilization. While a cursory review of this issue, based on its widespread use, could lead someone to believe that it has been demonstrated to be effective in providing long-term immobilization of pollutants in soils/sediments, a more detailed review will show that there are considerable questions about how effective this approach is in immobilization of organics and, for that matter, heavy metals. My report and PowerPoint slides on this issue, as well as a paper that was accepted for publication in the journal *Remediation*, are available on my website:

Lee, G. F., "Comments on, 'Remediation of Sydney Tar Ponds and Coke Ovens Sites Environmental Impact Statement, Sydney, Nova Scotia,' dated December 2005," Report of G. Fred Lee & Associates, El Macero, CA, USA, May 15 (2006). <http://www.members.aol.com/annejlee/SydneyTarPondsReport.pdf>

Lee, G. F., "Assessment of the Adequacy & Reliability of the STPA Proposed Approach for Remediation of the Sydney Tar Ponds' Sediments," Presentation to the Sydney Tar Ponds and Coke Ovens Sites Remediation Project Joint Review Panel, Sydney, Nova Scotia, CANADA, PowerPoint Slides; G. Fred Lee & Associates, El Macero, CA, May 15 (2006). <http://www.members.aol.com/annejlee/SydneyTarPondsPowerPt.pdf>

Lee, G. F. and Jones-Lee, A., "Progress toward Remediation of the Sydney Tar Ponds: A Major Canadian PCB/PAH 'Superfund' Site," Accepted for publication in *Remediation*, December (2006). <http://www.members.aol.com/annejlee/STP-Remediation-pap.pdf>

The Canadian government appointed an expert panel to independently review the reliability of the Sydney Tar Ponds Agency's assessment of the potential effectiveness of in situ cement-based immobilization of a variety of pollutants. This expert panel agreed with me that the Sydney Tar Ponds Agency had not properly evaluated the situation. It is my experience that, often, those who advocate and/or allow in situ stabilization have not properly evaluated the long-term effectiveness of such stabilization. Ed Barth, of the US EPA's group responsible for evaluating the effectiveness of stabilization of wastes, has published several papers on the lack of adequate evaluation of this effectiveness. Recently he has reaffirmed his position with respect to the lack of proper evaluation of this approach in protecting public health and the environment from so-called "stabilized"-waste-contaminated soils and sediments. Barth's papers and recent comments are discussed in my Sydney Tar Ponds remediation comments.

Page 3-19, section 3.3.6.2 Caps: The same deficiencies in the discussion presented in this section exist as were in the original draft version of February 2006. The DSCSOC comments on these deficiencies apply to this section as well.

Comments on Section 4

Section 4 presents a discussion of various alternatives to remediation of waste management units at the LEHR site. The comments on the February 2006 draft and the above comments on the overall aspects of remediation are applicable to the proposed remediation alternatives for the individual waste management units by a particular technology.

Comments on Section 6 (References)

The references in this section are significantly deficient in failing to provide the reviewers with reference to the DSCSOC discussions of the initial draft FS. With very few exceptions, all of the comments on the initial draft are applicable to this draft as well.

Additional Comments

DSCSOC will have additional comments on the specific remediation approaches that DOE proposes for each waste management unit when these are selected.