Good morning, Norman --

Below please find DOE's comments on the attached documents. Thank you for the opportunity to review, and please feel free to contact Amiya Das (cc'd on this e-mail) with any questions. Thank you,

Betsy

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CCl4 is present at Hanford site, and DOE's review of the attached reports was from a groundwater and soil remediation perspective. The attached Peer Review Report has extensive discussion on the carcinogenicity of CCl4, that it is a likely or potential carcinogen. DOE has no comment on the carcinogenic discussions in the report.

Comments from the DOE, EM Office of Groundwater and Soil Remediation/EM -32:

- -- In Section 2 (Chemical and Physical Information) of the "Toxicological Review of Carbon Tetrachloride", provide additional chemical and physical information about Carbon Tetrachloride, and discuss the mobility of CCl4 in saturated and unsaturated soil. This information will be useful in research and development activities for contaminant remediation. Also, this information may provide better insight in to accelerated natural attenuation techniques.
- -- Is there a relationship between Reference Dose (RfD) and Maximum Contaminant Level (MCL) for CCl4 in drinking water? If there is, please include a discussion. This information will help establishing remediation goals for groundwater and soil at federal sites contaminated with CCl4.
- -- Reference Dose, RfD of .004mg/kg-day, provides a health safety limit for oral absorption of CCl4. Therefore, it is important to understand the pathways of propagation of this contaminant. Drinking water and food are examples of its pathways. A short and clear discussion of the pathways of CCl4 in to human body, in Section 1 (Introduction) or Section 3 (Toxicokinetics) will be useful.
- -- At the end of Section 2 (Chemical and Physical Information) it is mentioned that CCl4 may biodegrade in soil or water under anaerobic conditions. Does that imply that natural attenuation in a media contaminated with CCl4 would accelerate under anaerobic conditions?
- -- Some acronyms used in the text are not included in the list (for example, Koc) so expanding the list of abbreviations and acronyms will help the reviewer.