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Interactive comment on "Experimental study on retardation of a heavy NAPL vapor in partially saturated porous media" *by* Simon M. Kleinknecht et al.

Anonymous Referee #2

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General Comments:

This manuscript investigates the transport of carbon disulfide (CS2) vapor in partially saturated porous media. Certainly, the experimental design is interesting, and the experimental data presented deserve to be published. However, the analysis of the results presented is not very thorough. Furthermore, the manuscript is neither organized nor written very well.

Specific Comments:

(1) An important concern with this work is that, although in a gaseous state is 1.6 times denser that air, density effects have not been considered in the estimation of the

C1

retardation factor.

(2) The authors must clearly describe the novel contributions of this study. Vapor retardation due to partitioning into the aqueous phase is an intuitive result.

Technical Corrections:

(1) Page 1, line 10, "... as a function of porous medium ..." is awkward.

(2) The legend of Figure 1 is incomplete. Some of the apparatus are not listed.

(3) The are many repetitions in the manuscript. For example, the authors have mentioned several times throughout the manuscript that the experiments were conducted in two different porous media (fine glass beads and Geba fine sand) under both dry and partially saturated (moist) conditions.

(4) The manuscript should be checked very carefully for grammatical errors. For example, (page 7, line 10) "an separate"; (page 7, line 29) insert "the" before "Henry's."

(5) All symbols must be defined in the manuscript as soon as they appear. For example, none of the symbols in equation (1) have been defined.

(6) The first sentence in the "Results and discussion" section does not belong there. It is more of introductory material.

(7) Figure 9 deserves more attention. It is hard to follow.