The authors would like to thank Prof. Yeh for his constructive comments which will substantially improve the readability of the paper. All comments are addressed and incorporated to the revised manuscript. Detailed responses to the comments are as follows.

Please note. All comments are bold-faced. Authors' responses follow immediately below the comments.

General comments

This paper develops a mathematical model for describing solute transport in a finite domain aquifer with an inlet boundary represented by an arbitrary time-dependent function. The model is based on one-dimensional advective-dispersive equation with considering the linear adsorption and first order decay mechanisms. A generalized solution of the model is derived by means of Laplace transform and generalized integral transform. In addition, the solutions of three special cases including constant, exponentially decaying and sinusoidally periodic input functions are also presented. This manuscript is well organized and clearly written. Those three special cases should be potentially useful to real-world problems. I therefore recommend its acceptance after minor revision.

Authors' responses:

The authors appreciate the comments from Prof. Yeh.

Specific comments

1. The domain length of 1 m given in Table may be too small. For real-world

contamination problems, the dimensions of contamination plumes reported in Bedient et al. (1999) are good references. For examples, the spill of aviation gas and jet fuel at the U.S. Coast Guard Station at Traverse City, Michigan was more than 1 mile long (Bedient et al. 1999, p.83) and the length of the groundwater plume from typical underground storage tanks was between 101 ft and 130 ft for California and between 190 ft and 260 ft for Texas (Bedient et al. 1999, p.84). Moreover, the Cape Canaveral site in Florida exhibited a TCE plume approximately 1200 ft long (Bedient et al. 1999, p.265).

Authors' response:

The authors fully agree this comment. The simulated domain length is increased from 1 m to 100 m.

2. It may be of readers' interest to see one of the derivations for the solutions of those three time-dependent input functions. Such a derivation may be given either in the text or in the abstract.

Authors' response:

The derivations of the analytical solutions for three time-dependent input functions are provided in the Appendix in the revised manuscript.

Some remarks

1. Page 4101, line 28: "spatial domain" may read "spatial domains".

Authors' response:

"spatial domain" is amended to "spatial domains".

2. Page 4103, line 15" " $x_D = \frac{x}{L}$ " should type " $x_D = x/L$ ". The same corrections should be made for similar problems throughout the text.

Authors' response:

The format of the mathematical expression is corrected throughout the text.

3. Page 4108, line 22: please check figure number for "Figure 2".

Authors' response:

"Figure 2" is changed to "Figure 1".

4. Page 4108, line 25: "numerical solutions" may read "numerical solution".

Authors' response:

"numerical solutions" is changed to "numerical solution".

5. Page 4109, line 17: "Gaussian integration procedure" may be replaced by "Gaussian quadratures". (Press et al. 1992)

Authors' response:

"Gaussian integration procedure" is replaced by "Gaussian quadratures"

6. Page 4109, line 23: "Figsures" should read "Figures".

Authors' response:

This typo "Figsures" is amended to "Figures".

7. Page 4109, line 24: please add ",respectively" after "input functions".

Authors' response:

", respectively" is added to this sentence.

References

Bedient, P. B., Rifai, H. S., and Newell, C. J., Ground Water Contaminant, 2nd ed., PTR Prentice Hall, 1999.

Press, W. H., B. P. Flannery, S. A. Teukolsky, and W. T. Vetterling, *Numerical Recipes*, Second Ed., Cambridge University Press, Cambridge, 1992.