**MEMORANDUM**

**To:** Professor Sills

**From:** Claire Wilson

**Date:** September 24, 2013

**RE:** Sorption

**Objective**

The objective of this lab was to fit the sorption data to the most appropriate isotherm: linear and Freundlich.

**Method**

In order to determine which isotherm best fit the data, we used the program Kaleidagraph. We applied a linear fit and a Freundlich fit.

The linear equation is:

The Freundlich equation is:

Where:

q= mass of absorbate absorbed per mass of absorbent at equilibrium (mg/L)

C= Concentration of absorbate in the aqueous phase at equilibrium (mg/L)

K= Freundlich isotherm soil-water partition coefficient ((mg/g)(L/mg))

1/n= Freundlich isotherm intensity parameter (unitless)

**Results and Discussion**

First, we fit the linear equation to the data set. The linear isotherm model did not fit the data, therefore, we left it out of the figure. We did not conduct proper statistical tests for goodness of fit, but the goodness of fit could be easily assessed visually.



**Figure 1.** Aqueous concentration vs. solid concentration fit to a Freundlich isotherm.

Above is the data set with a Freundlich isotherm fit to the data set. The Freundlich isotherm fits perfectly to the data set. The n- value in the Freundlich equation was .5, and the Freundlich isotherm soil-water partition coefficient, K, was .1.