**Memorandum**

To: Deborah Sills, Ph.D.

From: CENG Laboratory Mona Mohammed

Date: September 24, 2013

Re: Nonlinear Curve Fitting – Sorption

**Objective**

To find an isotherm that best suits the data set given using nonlinear curve fitting software.

**Methods**

In order to find the best isotherm model for the data provided, the data was fitted to two isotherm models – linear eq. 1 and Freundlich eq. 2. This was done using KaleidaGraph. Using visual examination, both the models were assessed, and the better fit model was chosen.

q = KC [eq. 1]

q=KC1/n [eq. 2]

where

q= mass of adsorbate adsorbed per mass of adsorbent at equilibrium (mg/g)

C= concentration of adsorbate in the aqueous phase at equilibrium (mg/l)

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

1/n= Freundlich isotherm intensity parameter (unitless)

**Results and discussion**

Figure 1. shows the best fit model for the data is linear/Freundlich. The equation of the best fitted curve, as such becomes ….

Figure 1.

Figure 1. Dissolved chlordane concentration in mg/g vs. adsorbed chlordane concentration in mg/L. The circles represent data points and the line represents a fitted model. This is a second order reaction with reaction rate coefficient, k=0.14005 L/mg.min