

Name: _____
Hydrogeology (ERS 580)

You have been hire by Mrs. Nesbit, an elderly woman living by Mr. Friendly's Waste Disposal, Inc. Mr. Friendly has been placing sludge that is leaching the toxic chemical 1,2-BClMiSHO into the ground water. Mr. Friendly agrees that he is contamination his ground water but contends that the chemical is known to decay quickly and will attenuate to concentrations far below the Maximum Contaminant Level established by the EPA (5ppm) by the time it migrates to Mrs. Nesbit's well located 20 m from the edge of the waste site. You determine that 100 ppm of 1,2-BClMiSHO is in the ground water below the waste site. You also determine that logitudinal dispersivity is 0.5 m and the seepage velocity is .001 m/sec towards Mrs. Nesbit's house. You conduct a small experiment, measuring the concentration of 1,2-BClMiSHO with time in a reactor containing ground water and some local sediments.

time (sec)	Conc (ppm)
0	50
1000	45.2
1500	43.2
2250	39.9
3375	35.7
5062	30.1
7594	23.4
11391	16

- What is the order of the kinetic reaction controlling the decay of 1,2-BClMiSHO
- Construct a breakthrough curve for 1,2-BClMiSHO. Refer to the analytic solutions in the hydrogeology readings.
- Should Mrs. Nesbit sue Mr. Friendly for contaminating the ground water? When did/will her well become contaminated (if ever) by Mr. Friendly?