Modeling Hypothetical Barium Decay
A Supplemental Problem for Problem 2-4 in *Should We Risk It?*

Purpose:
This problem explores some basic modeling techniques using a spreadsheet.

Overview:
In this problem, you will recreate a table that has been provided for you, then add to that table, then recreate a similar table. You should think before hand about what the question is asking. For your solution set, you should submit a report in which the tables are clear, labeled and discussed. The actual (very large) spreadsheet should be submitted as an appendix. Refer to the handout on "Submitting Risk Analysis Problem Sets." Read carefully pages 50 – 65 *Should We Risk It?* before attempting the problem.

Problem:
a. Use a spreadsheet to recreate table 2-7. Then add two columns: one based on problem 2-D (10 second intervals) and one using the analytical solution (equation 2-12).
b. Create a table similar to table 2-7 for problem 2-4c, using 30 minute and one minute intervals, and then the analytic formula given at the bottom of page 62.
Write out the equations, and provide a brief narrative explanation of each term (i.e. the approximation formula will have four terms, one to the left of the = sign, the other three to the right). Note that the equations are discontinuous over time.

Be sure to show the calculations used for each column in each table. Explain briefly how you did so, and discuss your findings.