Instructions for Using the J&E Model Macro

The EPA's Johnson and Ettinger (J&E) Model SG-ADV workbook was used to calculate the predicted indoor air concentrations, incremental lifetime cancer risks (ILCRs), and the non-cancer hazard indexes (non-cancer HIs) at each soil gas boring. These values were calculated for all chemicals identified as a COPC. The results are shown in Tables 6 and 8. The process was automated using one macro to calculate results for each boring and another to create a summary table from the results.

Running the Macros

1. Open the J&E Model workbooks: *SG-ADV-Feb04_SiteSpecific – Set 1.xlsx* and *SG-ADV-Feb04_SiteSpecific – Set 2.xlsx*. The inputs from Table 3 have been entered into the "DATENTER" sheet of each workbook. A few notes about the inputs:
    - When run, the J&E Model macro will automatically fill in one CAS No. in cell E6 and the associated maximum soil gas concentration in cell F6 of the "DATENTER".
    - The Indoor Air Exchange Rate (ER) is either 1/h or 2/h, as discussed in Appendix E. An ER of 1/h is used for Set 1, and an ER of 2/h is used for Set 2.
    - The average vapor flow rate (Q_{soil}) is either the default (20 L/m) or left blank to have the workbook calculate a site-specific value based on soil type, as discussed in Appendix E. A Q_{soil} of 20 L/m is used in Set 1, and a calculated Q_{soil} is used in Set 2. The calculated value (in units of cm^3/sec) can be found in cell D31 of the "INTERCALCS" sheet of the SG-ADV workbook.
2. Open the workbook that contains the macro: *Indoor Air Calculations By Boring – Set 1.xlsx* and *Indoor Air Calculations By Boring – Set 2.xlsx*. This is where the macro is run and the results from the J&E Model workbooks are stored. Note: the file will already have the results from running the macro in the spreadsheet. To re-calculate the results using the macro, you will need to first delete the sheets named "SG01" through "SG95". Do not delete the other sheets.
3. To run the macro, select the Developer tab[1] in the Excel Ribbon and click on Macros.[2]
4. With *JEModel_ByBoring* highlighted, click on Run.
5. The macro will automatically generate a sheet for each soil gas boring and at the same time insert CAS numbers and maximum soil gas concentrations for one chemical at a time into the "DATENTER" sheet of the J&E Model workbooks. The macro then outputs

[1] To enable the Developer Tab, go to Excel Options. Under the Popular options check the box next to show Developer tab in the Ribbon.

[2] Macros must be enabled in Excel to run a macro. To enable them, go to Excel Options and then select the Trust Center. Click on Trust Center Settings and then select Macro Settings. Additionally, for the macro to run properly, formulas must be set to calculate automatically. This is the default setting, however, it can be changed in the Excel Options under Formulas. The box under Workbook Calculation should be checked for Automatic. These instructions are for Excel 2007 and may not be relevant to older versions.

the indoor air concentration from “INTERCALCS” sheet and the non-cancer HI and ILCR from the “RESULTS” sheet.

6. A second macro was used to generate a summary table that shows all the soil gas borings. To run that macro, open *Summary of Indoor Air Calculations – Set 1.xlsx* and *Summary of Indoor Air Calculations – Set 2.xlsx.*
7. Select the Developer tab in the Excel Ribbon and click on Macros.
8. Select the macro *SummaryTable* and click Run.
9. The macro will fill in both the “Cancer” and “Non-Cancer” sheets with the results from all borings. These results for Set 1 are shown in Table 6 and Table 8 respectively.