**Steps Required to Set Up the**
**"TRIM.Expo w. TRIM.Risk (>1 run)" Example Application**
(December 28, 2005**)**

This file provides step-by-step instructions for creating an example application of the "TRIM.Expo w. TRIM.Risk (>1 run)" scenario using the provided input files. Exhibit 1 provides a list of input files and databases that are required to run the application. This table is intended to be used as a reference for the example application.

**NOTE:** This application is for training purposes only and is not intended to apply to any real world situation.

**Exhibit 1. List of Input Files and Databases**

| File | | Source of File | |
|---|---|---|---|
| **Name** | **Description** | **Downloaded** | **Created by User** |
| blkemploy.txt | APEX employment probabilities by age group file | | Created by the APEX Block Builder |
| blklocation.txt | APEX sector location file | | Created by the APEX Block Builder |
| blockcom.txt | APEX commuting flow file | | Created by the APEX Block Builder |
| blkpopF.txt<br>blkpopM.txt | APEX gender-specific population estimates files | | Created by the APEX Block Builder |
| apexpopdbExampleMult | APEX population database | | Created by the TRIM Inhalation Population Processor |
| MEdescription_multi.txt | APEX micro descriptions file | Downloaded with this example application | |
| ME_Mapping.txt | APEX micro mapping file | Downloaded with this example application | |
| ProfileFunctions_multi.txt | APEX profile functions file | Downloaded with this example application | |
| zones_multi.txt | APEX temperature zone location file | Downloaded with this example application | |
| temperatures_multi.txt | APEX temperature data file | Downloaded with this example application | |

| File | | Source of File | |
|---|---|---|---|
| **Name** | **Description** | **Downloaded** | **Created by User** |
| District Location files (3)<br>• SA1_dis<br>• SA2_dis<br>• SA3_dis | APEX district location files | Downloaded with this example application | |
| Air Quality Data files (20 files)<br><br>• Facility1_Area_B2eP_aq.txt<br>• Facility1_Area_CrVI_aq.txt<br>• Facility1_Point_B2eP_aq.txt<br>• Facility1_Point_CrVI_aq.txt<br>• Facility2_Area_CrVI_aq.txt<br>• Facility2_Area_Perc_aq.txt<br>• Facility2_Point_CrVI_aq.txt<br>• Facility2_Point_Perc_aq.txt<br>• Facility3_Area_BaA_aq.txt<br>• Facility3_Area_Ni3S2_aq.txt<br>• Facility3_Point_BaA_aq.txt<br>• Facility3_Point_Ni3S2_aq.txt<br>• Facility4_Area_EG_aq.txt<br>• Facility4_Point_EG_aq.txt<br>• Facility5_Area_BaA_aq.txt<br>• Facility5_Area_EG_aq.txt<br>• Facility5_Area_Perc_aq.txt<br>• Facility5_Point_BaA_aq.txt<br>• Facility5_Point_EG_aq.txt<br>• Facility5_Point_Perc_aq.txt | APEX air quality data files | Downloaded with this example application | |
| CHADQuest.txt | APEX personal info file | Downloaded from the EPA website | |
| CHADEvents.txt | APEX diary events file | Downloaded from the EPA website | |
| CHADMets.txt | APEX activity-specific MET file | Downloaded from the EPA website | |
| Physiology.txt | APEX physiological parameters file | Downloaded from the EPA website | |
| ventilation.txt | APEX ventilation file | Downloaded from the EPA website | |
| HHToxDB_101405 | Human Toxicity Value database | Downloaded from the EPA website | |
| resperdb | Residency Period database | Downloaded from the EPA website | |

(1) Download the zip file (APEX_Inputs_CHAD.zip) containing the Consolidated Human Activity Database (CHAD) and other human characteristics data files (i.e., the physiology and ventilation files) to your computer from the TRIM.Expo$_{Inhalation}$/APEX Download page (www.epa.gov/ttn/fera/apex_download.html). Unzip this file into the "input" subdirectory of your APEX directory (e.g., C:\Models\APEX\input). Be sure to maintain the directory structure of the files being unzipped. This is done by default with WinZip's Wizard interface, and is done by checking the "Use folder names" box in the Extract screen of WinZip's Classic interface.

(2) After installing the necessary input files in (1), the APEX Block File Builder will be used to create block-level input files based on 2000 U.S. census tract-level data. Download the APEX Block File Builder application (apex_block_file_builder_v1.zip) from the TRIM.Expo$_{Inhalation}$/APEX Download page (www.epa.gov/ttn/fera/apex_download.html) and follow steps (1) through (4) of the instructions in the APEX Block File Builder Version 1.0 User's Guide (included in the download) in the first section (labeled "INSTALLATION") to install this application. To create the block-level files for this example application, follow steps (2a) through (2c) below.

(2a) Start the Block File Builder by either clicking on the APEX_Block_Builder icon on the desktop or by selecting it from "Programs" under the Windows Start menu. Then select "Block File Builder" from the "File Builder" drop-down menu of the window that opens.

(2b) In the resulting Block File Builder window, make the following selections:

For the "Maximum travel distance (km)" and "Commuting fraction for eliminating a work block" parameters, use the default values (i.e., 100 and 0.0001, respectively).

Use the Block File Builder default file names for the block-level commuting (blockcom.txt), population (blkpop.txt), sector location (blklocation.txt), and employment (blkemploy.txt) files. By default, these files will be written to the APEX Block Builder installation output directory.

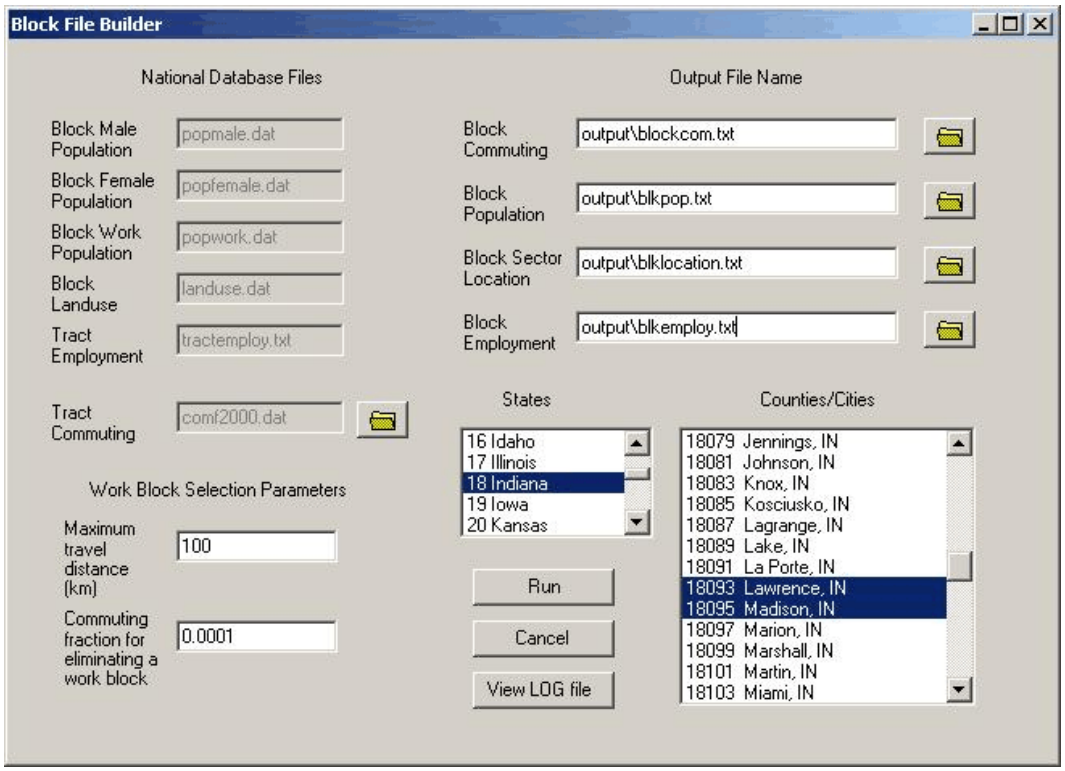
In the "States" selection window scroll down and select "18 Indiana." A list of the counties in Indiana will appear in the "Counties/Cities" selection window to the right. In this window, scroll down and select the following three counties by holding down the "Ctrl" key and clicking on:

- 18093 Lawrence, IN
- 18095 Madison, IN
- 18169 Wabash, IN

(2c) After making the appropriate selections in the Block File Builder window (Exhibit 2) click the "Run" button to generate the block-level APEX files. A DOS window will open in which the progress of the processor can be viewed (run time is typically less than 30 minutes). Note that the selected county "18169

Wabash, IN" is not shown in the "Counties/Cities" window of Exhibit 2; scroll down in the "Counties/Cities" window to see/select it.

**Exhibit 2. Block File Builder Window**




After the block-level sector location, employment, population, and commuting files have been generated, move these files from the APEX Block Builder installation output directory to the "input" subdirectory of your APEX directory (e.g., C:\Models\APEX\input). Rename the population files to "blkpopF.txt" and "blockpopM.txt" (i.e., remove the "." within the file names).

(3) After creating the block-level input files, the TRIM inhalation population processor will be run (via a TRIM scenario) to convert TRIM.Expo$_{Inhalation}$ input files (in text format) into MySQL database files. To run the "TRIM Inhalation Population Processor" scenario, follow steps (3a) through (3g) below.

(3a) Open TRIM.Risk by clicking on the Start button and selecting Programs > TRIM > TRIM, or by typing "runtrim.bat" from a run or DOS command window.

(3b) Double-click on the "Inhalation risk assessment using RfCs and UREs, with TRIM.Expo (Generic)" project in the Project Selection window to open the scenario list.

(3c) In the resulting window, click on the "TRIM Inhalation Population Processor" scenario and click the "Duplicate" button at the bottom of the window. When

prompted to name the duplicate, type “Example Application - TRIM Inhalation Population Processor,” and click “OK.” A scenario with this name will the appear in the window.

(3d) Open the “Example Application - TRIM Inhalation Population Processor” scenario by double-clicking on the name.

(3e) The “Example Application - TRIM Inhalation Population Processor” scenario window will open. The left side of the window (called “Input Panels”) lists the parameters needed for the simulation. The “Input Panels” for this scenario consist of only the “Settings” tab. The right side of the scenario window shows the components of this TRIM.Risk scenario in the “Graph View” pane. Some of the fields on the “Settings” tab must be filled in for the example application. Check that filled fields are accurate for your computer, and fill in the blank fields (hitting “Tab” after typing in a value to progress to the next field) based on instructions in Exhibit 3.

**Exhibit 3. Parameters Values on Input Panels of Training Application**

| Parameter | Instructions for Setting Parameter |
|---|---|
| **Settings Tab** | |
| Run Name | This property is a descriptive name for the run you are performing.<br>Suggested: **ExampleMult** |
| TRIM Directory | Check that this parameter is filled in with the directory where the TRIM installation is on your computer. If not, navigate to the correct directory using the “Browse” button. |
| APEX Directory | Check that this parameter is filled in with the directory where APEX (i.e., TRIM.Expo) files are located on your computer. If not, navigate to the correct directory using the “Browse” button. |
| APEX Input Directory | Location of APEX input files, or folders containing input files. Type in: **${str(“APEX Directory”)}\input** |
| APEX Population Directory | Location of folder containing APEX population input files. Type in or navigate to the correct directory using the “Browse” button. Type in: **${str(“APEX Input Directory”)}\Population** or **${str(“APEX Input Directory”)}** |
| APEXPopDB Name | Type or copy in the name of the exposure estimates database to be generated.<br>Suggested: **apexpopdb${str(“Run Name”)}** |
| MySQL User Name | Check that the MySQL user name is set correctly. This should be the user name you entered during the TRIM installation. |
| MySQL Password | Check that the MySQL password is set correctly. This should be the password you entered during the TRIM installation. |
| Population Input Files | Click on the “Edit” button in this row. In the resulting window, click the “plus” button ( ) twice. Click in the first row and type “pop file, Female, All” in the “Parameter” column. Then click in the second row and type “pop file, Male, All” in the “Parameter” column. For each row, browse to the corresponding population file, **blkpopF.txt** and **blkpopM.txt**, respectively. Click “OK” when finished. |
| Input File - Sector Locations | Type in: **${str(“APEX Input Directory”)}\blklocation.txt**[a] |

| Parameter | Instructions for Setting Parameter |
|---|---|
| Input File - Employment | Type in: **${str("APEX Input Directory")}\blkemploy.txt**[a] |

[a] Alternatively, you can browse to these TRIM.Expo files using the "Browse" button next to each parameter input, instead of typing in the file reference as suggested here.

(3f) After specifying parameter values on the "Input Panels" the run is ready. Highlight the "APEXPopProcessor" module instance by clicking on it, then click on the "play" button ( ) at the top of the scenario window. Choose "Yes" if the "Confirm deletion of Old Output Files" window appears after clicking the "play" button. The successful completion of the scenario will be indicated by a circle with a check mark ( ).

(3g) Close the "Example Application - TRIM Inhalation Population Processor" scenario by clicking on the "X" in the upper right-hand corner.

After completing steps (1) through (3), all of the input files required for this example application have been downloaded or created. Follow steps (4) through (12) to complete the example application.

(4) Click on the "TRIM.Expo w. TRIM.Risk (>1 run)" scenario in the "Inhalation risk assessment using RfCs and UREs, with TRIM.Expo (Generic)" project window and click the "Duplicate" button at the bottom of the window. When prompted to name the duplicate, type "Example Application - TRIM.Expo w. TRIM.Risk (>1 run)" and click "OK." A scenario with this name will the appear in the window.

(5) Open the "Example Application - TRIM.Expo w. TRIM.Risk (>1 run)" scenario by double-clicking on the name.

(6) The "Example Application - TRIM.Expo w. TRIM.Risk (> 1 run)" scenario window will open. The left side of the window (called "Input Panels") lists some of the parameters needed for the simulation. The "Input Panels" have four tabs; "Settings," "Databases," "APEX Settings," and "Other." The right side of the scenario window shows the components of this TRIM.Risk scenario in the "Graph View" pane. Some of the fields on these tabs must be filled in for this example application. Check that filled fields are accurate for your computer and fill in the blank fields (hitting "Tab" after typing in a value to progress to the next field) based on instructions in Exhibit 4.

## Exhibit 4. Parameters Values on Input Panels of Example Application

| Parameter | Instructions for Setting Parameter |
|---|---|
| **Settings Tab** | |
| Run Name | This property is a descriptive name for the run you are performing. Suggested: **ExampleRiskMult** |
| TRIM Directory | Check that this parameter is filled in with the directory where the TRIM installation is on your computer. If not, navigate to the correct directory using the "Browse" button. |
| APEX Directory | Check that this parameter is filled in with the directory where APEX (i.e., TRIM.Expo) files are located on your computer. If not, navigate to the correct directory using the "Browse" button. |
| APEX Input Directory | Location of APEX input files, or folders containing input files. Type in: **${str("APEX Directory")}\input** |
| APEX Executable | Location of the APEX executable on your computer. Type in: **${str("TRIM Directory")}\bin\APEX330.exe** |
| MySQL User Name | Check that the MySQL user name is set correctly. This should be the user name you entered during the TRIM installation. |
| MySQL Password | Check that the MySQL password is set correctly. This should be the password you entered during the TRIM installation. |
| R Bin Directory | Check that this parameter is filled in with the directory where the R bin directory is on your computer. If not, navigate to the correct directory using the "Browse" button. |
| **Databases Tab**[a] | |
| APEX Population Database | The name of the APEX population database generated by running the "TRIM Inhalation Population Processor" scenario – see (3). Type in: **apexpopdbExampleMult** |
| Human Health Toxicity Database | The name of the human health toxicity database downloaded from the EPA website. Type in: **HHToxDB_101405** |
| Residency Period Database | The name of the residency period database downloaded from the EPA website. Type in: **resperdb** |
| Output Databases | |
| Inhalation Exposure DB Name | Type or copy in the name of the exposure estimates database to be generated. Suggested: **apexoutdb${str("Run Name")}** |
| Inhalation Risk DB Name | Type or copy in the name of the risk estimates database to be generated. Suggested: **apexriskdb${str("Run Name")}** |
| Risk Metrics DB Name | Type or copy in the name of the risk metrics database to be generated. Suggested: **apexmetricsdb${str("Run Name")}** |
| **APEX Settings Tab** | |
| Start Date | 19880101 |
| End Date | 19881231 |
| Scenario | A descriptive name for the run you are performing. Suggested: **1988 Exposure Study** |
| Random Seed | 547862400 |
| Use Daylight Savings Time? | [blank] |

| Parameter | Instructions for Setting Parameter |
|---|---|
| Include Commuting to Work? | ✔ |
| Write Hourly Output? | [blank] |
| **Other Tab** | |
| TRIM.Expo$_{Inhalation}$ PostProcessor | |
| Overwrite Existing Database? | ✔ |
| Summary File Name | Location and name of the APEX postprocessor summary file to be generated. Suggested: **${str("Default Directory")}\apexpostproc_summary.txt**[b] |
| TRIM.Risk$_{HH-NP}$ | |
| Overwrite Output Database | ✔ |
| TRIM.Risk Metrics | |
| Risk Metrics Summary File | Location and name of the risk metrics summary file to be generated. Suggested: **${str("Default Directory")}\hhmetrics_summary.txt**[b] |
| DAVE | |
| TRIM Database Type | No user interaction required. |

[a] Although there are "Browse" buttons on this tab next to each input and output database, do not browse to the databases. Some modules read the entire file path as the database name and are then unable to locate the database. Instead, type in the name of each database; the input databases should be located in the "MySQL Server 4.x\data" subdirectory of the MySQL directory on your computer, and the output databases will be written to this directory as well.

[b] To change the location of the "Default Directory," edit the value for the parameter "Default Directory" in the scenario parameters table, which is accessed by selecting "Edit Parameter Values" from the "Scenario" menu.

(7) After specifying the parameter values on the "Input Panels," double-click on "Iterator(APEX)" (i.e., the lower portion of the top-most box in the "Graph View" pane). Click on the "Iterating Lists" tab and then click "Edit Synchronized Lists." This will open to the "Chemical" tab of the Synchronized Input Lists Editor.

(7a) Add the following six chemicals to the "Chemical" tab of the Synchronized Input Lists Editor:

- Hexavalent chromium (CrVI);
- Bis(2-ethylhexyl)phthalate (B2eP);
- Perchloroethylene (Perc);
- Nickel subsulfide (Ni3S2);
- Benzo(a)anthracene (BaA); and
- Ethylene glycol (EG).

To add a chemical, click on the "plus" button ( ) and type the chemical abbreviation (e.g., CrVI) in the "New Iteration Name" window that appears and click "OK."

(7b) Enter parameter values in the "Chemical" tab for the following parameters for each chemical based on the values provided in Exhibit 5:

- PPM to ug/m3 Factor;
- Input Concentration Units;
- Output Concentration Units; and
- CAS Number.

To enter a parameter value for a chemical, first use the arrow buttons (←→) in the "Selected Iteration" pane to highlight the chemical name in the "All Iterations" pane. Next, double-click in the "Value" column for one of the properties in the "Selected Iteration" pane, enter the value for the parameter, and press "Tab." Repeat this process for the other three parameters. **Important – Only edit parameter values on the "Selected Iteration" pane, not on the "All Iterations" pane.** After entering values for all four parameters for a chemical, repeat the process for the remaining chemicals.

To make changes to a chemical profile that has already been added, use the arrow buttons (←→) to highlight the chemical in the "All Iterations" pane. The parameter values for the highlighted chemical can then be edited by double-clicking on the "Value" column in the "Selected Iteration" pane for a parameter and editing the value. To delete a chemical, highlight the chemical in the "All Iterations" pane and click on the "minus" button (⊖) in either the "Selected Iteration" or "All Iterations" pane.

**Exhibit 5. Inputs for "Chemical" Tab of Synchronized Input Lists Editor**

| Parameter | Value | | | | | |
|---|---|---|---|---|---|---|
| | **CrVI** | **B2eP** | **Perc** | **Ni3S2** | **BaA** | **EG** |
| PPM to ug/m3 Factor | 6780 | 6780 | 6780 | 6780 | 6780 | 6780 |
| Input Concentration Units | ug/m3 | ug/m3 | ug/m3 | ug/m3 | ug/m3 | ug/m3 |
| Output Concentration Units | ug/m3 | ug/m3 | ug/m3 | ug/m3 | ug/m3 | ug/m3 |
| CAS Number | 18540-29-9 | 117-81-7 | 127-18-4 | 12035-72-2 | 56-55-3 | 107-21-1 |

(7c) Next, specify values in the "Chemical" tab for the following parameters:

- Table - Exposure Cutpoints;
- Table - Daily Max 1-Hour Exposure Cutpoints;
- Table - Daily Max 8-Hour Exposure Cutpoints;
- Table - Daily Average Exposure Cutpoints; and
- Table - Simulation Average Exposure Cutpoints.

To specify values for a chemical, first use the arrow buttons (←→) in the "Selected Iteration" pane to highlight the chemical name in the "All Iterations"

pane. Next, click the "Edit" button of the row corresponding to one of these five parameters in the "Selected Iteration" pane. The "Edit - [*Parameter Name*] values" window will appear. Click the "plus" button ( ) to add rows to this table. The number of rows added should correspond to the number of rows for the parameter in Exhibit 6 (e.g., add seven rows for the "Table - Daily Max 1 Hour Exposure Cutpoints" parameter). Double-click in the "Value" column and enter the values for the parameter from Exhibit 6. Be sure to click "Tab" after entering each value to enter the input value into the table. Repeat this process for the remaining parameters. After entering values for all five parameters for a chemical, repeat the process for the remaining chemicals.

**Exhibit 6. Cutpoint Values for Five Tables in Chemical Profile**

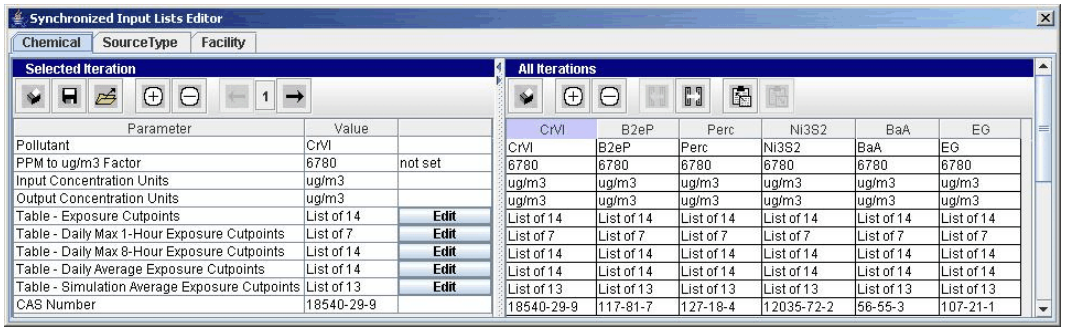
| | **Parameter** | | | | |
|---|---|---|---|---|---|
| **Row Number** | **Table - Exposure Cutpoints** | **Table - Daily Max 1-Hour Exposure Cutpoints** | **Table - Daily Max 8-Hour Exposure Cutpoints** | **Table - Daily Average Exposure** | **Table - Simulation Average Exposure[b]** |
| 1 | 2 | 5 | 3 | 2 | 0.5 |
| 2 | 4 | 10 | 6 | 4 | 1.0 |
| 3 | 6 | 20 | 7 | 5 | 1.25 |
| 4 | 8 | 30 | 8 | 6 | 1.50 |
| 5 | 10 | 40 | 9 | 7 | 1.75 |
| 6 | 15 | 50 | 10 | 8 | 2.0 |
| 7 | 20 | 75 | 11 | 9 | 2.5 |
| 8 | 25 | No values.[a] | 12 | 10 | 3.0 |
| 9 | 30 | | 13 | 11 | 4.0 |
| 10 | 35 | | 14 | 12 | 5.0 |
| 11 | 40 | | 15 | 14 | 6.0 |
| 12 | 45 | | 18 | 16 | 8.0 |
| 13 | 50 | | 20 | 18 | 10.0 |
| 14 | 60 | | 25 | 20 | No value.[a] |

[a] The "Daily Max 1-Hour Exposure Cutpoints" and "Simulation Average Exposure" tables should have 7 and 13 rows, respectively.

[b] Disregard the "not set" text in the column to the right of the "Value" column, which remains even after these values have been specified. This does not affect the module's execution.

When you have specified the parameter and cutpoint values (Exhibits 5 and 6), the "Chemical" tab should look like the screen shot in Exhibit 7.

**Exhibit 7. Completed "Chemical" Tab of Synchronized Input Lists Editor**

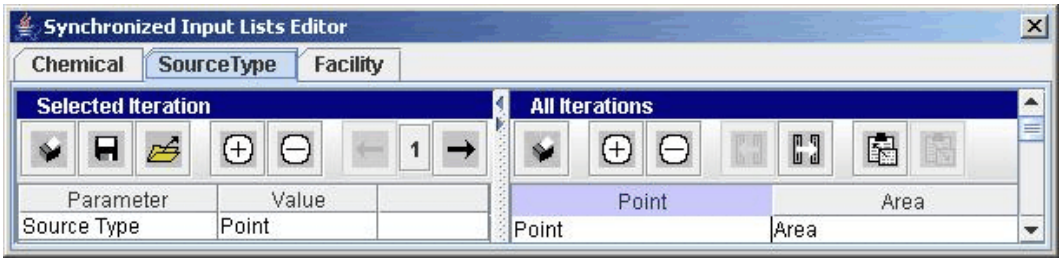



(7d) Click on the "SourceType" tab of the Synchronized Input Lists Editor. On this tab, add two source types, "Point" and "Area." To add the "Point" source type, click on the "plus" button ( ), type "Point" in the "New Iteration Name" window that appears, and click "OK." Double-click in the "Value" column on the "Selected Iteration" pane and type "Point" again. Repeat this process to add the "Area" source type. **Only edit a source-type profile on the "Selected Iteration" pane, not on the "All Iterations" pane.**

To make changes to a source profile that has already been added, use the arrow buttons ( ) to highlight the source type in the "All Iterations" pane. The parameter values for the highlighted source type can then be edited by double-clicking on the "Value" column in the "Selected Iteration" pane for a parameter and editing the value. To delete a source type, highlight the source type in the "All Iterations" pane and click on the "minus" button ( ) in either the "Selected Iteration" or "All Iterations" pane.

When you have completed (7d), the "SourceType" tab should look like the screen shot in Exhibit 8.

**Exhibit 8. Completed "SourceType" Tab of Synchronized Input Lists Editor**




(7e) Click the "Facility" tab of the Synchronized Input Lists Editor. On this tab, you will add five facilities and the corresponding parameter values, as summarized in Exhibit 9. To add a facility, click on the "plus" button ( ), type the facility name (e.g., "Facility1") in the "New Iteration Name" window that appears, and click "OK." Next, double-click in the "Value" column for one of the properties in the "Selected Iteration" pane, enter the value for the parameter from Exhibit 9, and press "Enter." Repeat this process for all of the parameters. **Important - Only edit a facility profile on the "Selected Iteration" pane, not on the "All**

**Iterations" pane.** After entering values for all parameters for a facility, repeat the process for the remaining facilities.

To make changes to a facility profile that has already been added, use the arrow buttons ( ) to highlight the facility in the "All Iterations" pane. The parameter values for the highlighted facility can then be edited by double-clicking on the "Value" column in the "Selected Iteration" pane for a parameter and editing the value. To delete a facility, highlight the facility in the "All Iterations" pane and click on the "minus" button ( ) in either the "Selected Iteration" or "All Iterations" pane.

When you have specified the parameter values (Exhibit 9), the "Facility" tab should look like the screen shot in Exhibit 10.

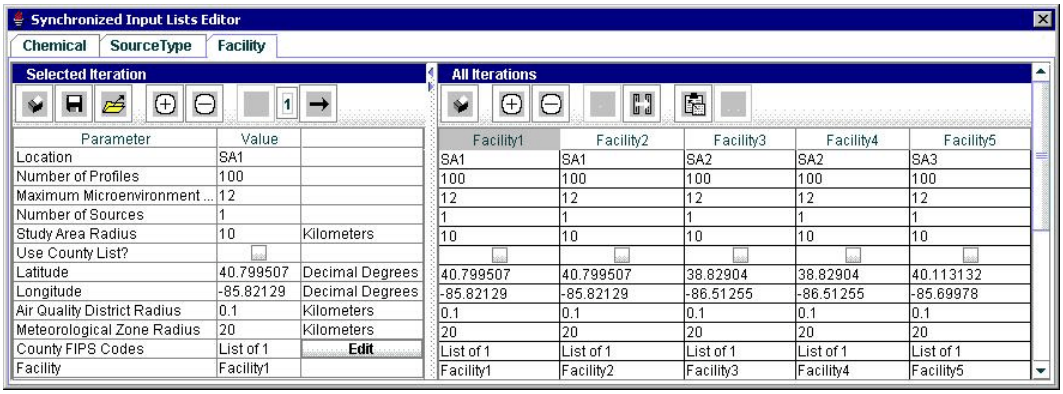
**Exhibit 9. Inputs for "Facility" Tab of Synchronized Input Lists Editor**

| Parameter | Facility Name | | | | |
|---|---|---|---|---|---|
| | **Facility1** | **Facility2** | **Facility3** | **Facility4** | **Facility5** |
| Location | SA1 | SA1 | SA2 | SA2 | SA3 |
| Number of Profiles | 100 | 100 | 100 | 100 | 100 |
| Maximum Microenvironment Number | 12 | 12 | 12 | 12 | 12 |
| Number of Sources | 1 | 1 | 1 | 1 | 1 |
| Study Area Radius | 10 | 10 | 10 | 10 | 10 |
| Use County List?[a] | No | No | No | No | No |
| Latitude | 40.799507 | 40.799507 | 38.82904 | 38.82904 | 40.113132 |
| Longitude | -85.82129 | -85.82129 | -86.51255 | -86.51255 | -85.69978 |
| Air Quality District Radius | 0.1 | 0.1 | 0.1 | 0.1 | 0.1 |
| Meteorological Zone Radius | 20 | 20 | 20 | 20 | 20 |
| County FIPS Codes[b] | List of 1 ("1234") | List of 1 ("1234") | List of 1 ("1234") | List of 1 ("1234") | List of 1 ("1234") |
| Facility | Facility1 | Facility2 | Facility3 | Facility4 | Facility5 |

[a] Click in this column so that "<unset boolean>" is replaced by a checked check box; then click again so that the check box is un-checked (this parameter should **not** be left as "<unset boolean>").

[b] The value "1234" is a placeholder and not an actual FIPS code. If the study area is not being restricted to particular counties (as in this example application), a placeholder value is required in the input parameter "County FIPS Codes" for the model to run successfully. To enter a placeholder value, simply click on the "Edit" button next to "County FIPS Codes," click on the plus button ( ), type "1234" in the "Value" column, then press "Tab" to the enter the value. Click "OK" when finished; the parameter "County FIPS Codes" should display the input as "List of 1." This dummy value will not be misinterpreted as a county list as long as the "Use County List" check box is not checked.

**Exhibit 10. Completed "Facility" Tab of Synchronized Input Lists Editor**




(8) After specifying parameter values in the Synchronized Input Lists Editor, close this window to return to the Iterator(APEX) module instance window. Click on the "Parameters" tab and specify the parameter values as summarized in Exhibit 11. To view the parameters in the same order as listed in Exhibit 11, click once on the column heading "Parameter." Parameters that are included on the "Parameters" tab but are not included in Exhibit 11 require no user interaction.

**Exhibit 11. Inputs for "Parameters" Tab of Iterator(APEX)**

| Parameter | Value | Instructions for Setting Parameter |
|---|---|---|
| Additive factor for average concentration | 0.0 | Double-click in "Value" column and type in value. |
| Altitude | 90 | Double-click in "Value" column and type in value. |
| COHb Convergence Factor | 2.5 | Double-click in "Value" column and type in value. |
| Comments | Run of Example App | Double-click in "Value" column and type in value. |
| Do Rollback Adjustments? | ✔ | Click on check box in "Value" column. |
| Include these profiles in Events File | 1, 8, 23 | Double-click in "Value" column and type in value. |
| Input File - Air Quality Data | ${str("Input Data Directory")}\AirQuality\${str("Facility")}_${str("Source Type")}_${str("Pollutant")}_aq.txt | Double-click in "Value" column and type in this file path exactly as it is provided. Note that you cannot browse to the air quality files, and these files **must** be located in the "AirQuality" subdirectory of the APEX input directory. |
| Input File - Census Commuting Flow | ${str("Input Data Directory")}\blockcom.txt | Browse to file or double-click in "Value" column and type in file path (file was created in (3)). |

| Parameter | Value | Instructions for Setting Parameter |
|---|---|---|
| Input File - District Locations | ${str("Input Data Directory")}\AirQuality\districts\${ str("Location")}_dis.txt | Double-click in "Value" column and type in this file path exactly as it is provided. Note that you cannot browse to the district locations files. For this path to point to the correct files, the district locations files **must** be located in the "AirQuality\districts" subdirectory of the APEX input directory. |
| Input File - Employment | ${str("Input Data Directory")}\blkemploy.txt | Browse to file or double-click in "Value" column and type in file path (file was created in (3)). |
| Input File - Meteorological Zone Locations | ${str("Input Data Directory")}\zones_multi.txt | Browse to file or double-click in "Value" column and type in file path. |
| Input File - Microenvironment Descriptions | ${str("Input Data Directory")}\MEdescription_multi.txt | Browse to file or double-click in "Value" column and type in file path. |
| Input File - Microenvironment Mapping | ${str("Input Data Directory")}\ME_Mapping.txt | Browse to file or double-click in "Value" column and type in file path. |
| Input File - Profile Functions | ${str("Input Data Directory")}\ProfileFunctions_multi.txt | Browse to file or double-click in "Value" column and type in file path. |
| Input File - Sector Locations | ${str"Input Data Directory")}\blklocation.txt | Browse to file or double-click in "Value" column and type in file path (file was created in (3)). |
| Input File - Temperature Data | ${str("Input Data Directory")}\temperatures_multi.txt | Browse to file or double-click in "Value" column and type in file path. |
| Log Temperature Zones? | ✔ | Click on check box in "Value" column. |
| Maximum Age | 99 | Double-click in "Value" column and type in value. |
| Minimum Age | 0 | Double-click in "Value" column and type in value. |
| Missing Age Diary Probability Factor | 0.1 | Double-click in "Value" column and type in value. |
| Missing Employment Diary Probability Factor | 0.1 | Double-click in "Value" column and type in value. |
| Missing Gender Diary Probability Factor | 0.1 | Double-click in "Value" column and type in value. |
| Multiplicative factor for average concentration | 0.0 | Double-click in "Value" column and type in value. |

| Parameter | Value | Instructions for Setting Parameter |
|---|---|---|
| Persons to include in EVENTS file | 10 | Double-click in "Value" column and type in value. |
| Pollutant Notification Threshold | 100.0 | Double-click in "Value" column and type in value. |
| Population Input Files | List of 2 | Click on the "Edit" button in this row. In the resulting window, click the "plus" button ( ) twice. Click in the first row and type "pop file, Female, All" in the "Parameter" column. Then click in the second row and type "pop file, Male, All" in the "Parameter" column. For each row, browse to the corresponding population file, **blkpopF.txt** and **blkpopM.txt**, respectively. Click "OK" when finished. (Population files were created in (3)). |
| Primary Age Window Width | 25.0 | Double-click in "Value" column and type in value. |
| Rollback Background Concentration | 0.0 | Double-click in "Value" column and type in value. |
| Rollback Maximum Concentration | 10.0 | Double-click in "Value" column and type in value. |
| Rollback Target Concentration | 5.0 | Double-click in "Value" column and type in value. |
| Shoulder Age Window Width | 0.1 | Double-click in "Value" column and type in value. |
| Specific Input Directory | ${str("APEX Input Directory")} | Double-click in "Value" column and type in this file path. |

(9) After specifying parameter values on the "Input Panels" (6), the Iterator(APEX) Synchronized Input Lists Editor (7), and the "Parameters" tab (8), the run is ready. Close the Iterator(APEX) module instance window (by selecting "Close Module Instance" from the "File" menu), highlight the "Iterator(APEX)" module instance by clicking on it, then click on the "play" button ( ) at the top of the scenario window. Choose "Yes" if the "Confirm deletion of Old Output Files" window appears after clicking the "play" button.

(10) After Iterator(APEX), APEX Postprocessor, and TRIM.Risk$_{HH-NP}$ have finished (indicated by a circle with a check mark, ) the TRIM.Risk$_{HH}$ Inhalation Metrics GUI will automatically open (typically run time for the three upstream modules is less than one hour).

(10a) Databases Tab

Confirm that database names match those selected on the "Input Panels" in (6).

- Step 1: Confirm that the name entered in the box corresponds to the "Risk Metrics DB Name" entered on the "Databases" tab of the "Input Panels."

- Step 2: Confirm that the name and location of the risk metrics simulation description file in the box matches that specified on the "Other" tab of the "Input Panels."

- Step 3: Confirm that the TRIM.Risk$_{HH-NP}$ database to be processed (i.e., the database containing risk estimates from which the risk metrics will be derived) corresponds to the "Inhalation Risk DB Name" entered on the "Databases" tab of the "Input Panels."

- Step 4: Confirm that the human health toxicity database name in the box corresponds to the "Human Health Toxicity Database" specified on the "Databases" tab of the "Input Panels."

- Step 5: Confirm that the residency period database name in the box corresponds to the "Residency Period Database" specified on the "Databases" tab of the "Input Panels."

After making your selections, click "Done" and continue on to the Assessment-Specific Selections tab.

(10b) Assessment-Specific Selections Tab

- Click on the radio button ( ) next to "Select all study areas, facilities (where applicable), sources, and chemicals in chosen TRIM.Risk Database," then choose to derive metrics for either (1) aggregates and for each individually or (2) just for aggregates.

- Specify level of chemical aggregation as "None (Chemical-specific)" by clicking the appropriate radio button.

- Under "Specify Population" select "All Persons" for the gender group and select "All Persons" for the race group.

After making your selections, click on the Individual-Level Metrics tab.

(10c) Individual-Level Metrics Tab

For this example application, you can select any individual-level and population-level metrics on this tab and the following tab. No particular choices are required, though you must make some selections on the individual-level metrics tab. The

metrics contained in the output database will be based on user selections on these tabs.

- Specify the upper and lower bounds for age group bins by clicking on the box under "Max Age" and typing in a numeric value; hit "Tab" to move the cursor into the next box. Alternatively, use the default bounds values.

- Specify the residency period(s) of interest by clicking in the check box next to the desired residency period(s).

- Select a percentile for age group representation by clicking on the radio button next to the desired percentile.

- Select either "Minimum" or "Median" by clicking the appropriate radio button to specify the age within each age group at which residency begins.

After making your selections, click on the Population-Level Metrics tab.

(10d) Population-Level Metrics Tab

Users do not need to select any population metrics on this tab. If population metrics are of interest, select one or more of the following metrics by clicking on the appropriate check boxes.

- Hazard Bin Frequency Counts
- Cancer Risk Bin Frequency Counts
- Population-weighted Chronic Hazard Frequency Distribution
- Population-weighted Cancer Risk Frequency Distribution
- Statistical Cancer Incidence Estimate (if this metric is selected, specify the number of years of exposure for this calculation by typing in a numeric value in the box provided).

If no population-level metrics are specified, only the individual-level risk metrics specified on the previous tab will be generated.

After making your selections, click on the Validate and Save tab.

(10e) Validate and Save Tab

- Click on the "Validate" button below the "Validation messages" window; if all selections are valid, a "validation passed" message will appear.

- Click "Save and Exit" to save selections, exit, and run the TRIM.Risk metrics generator.

(11) The TRIM.Risk$_{HH}$ Inhalation Metrics GUI will run automatically and the green circle next to "RiskMetricsGenerator-NP" will appear filled in (●) while the model is running.

The time the TRIM.Risk metrics generator takes to run depends on the number of modeled individuals, number of study areas, sources, chemicals, etc., and the selections you made in the GUI (typically run time is less than one hour).

(12) When the TRIM.Risk metrics generator is finished, the DAVE Database Selector window will open. In this window, select the name of the risk metrics output database (set in (6) by the "Risk Metrics DB Name" parameter as **apexmetricsdbExampleRiskMult**), select a risk metric from the "Available Metrics" drop-down menu, and click either "Analyze" or "Export" to view the results. The analyze options allow you to create tables and graphs based on the results of the TRIM.Risk simulation. The export option will export a single comma-delimited file for a particular risk metric. This file can be viewed in a text or spreadsheet program.

Other databases from this run (i.e., the exposure and risk databases generated with the names specified on the "Databases" tab of the "Input Panels") can also be selected and viewed within DAVE. On the DAVE Database Selector window, select "All TRIM Databases" from the drop-down menu next to "Database Type." All TRIM databases on your computer in the MySQL data directory will then be displayed in the window. Alternatively, select "Human Inhalation Exposure (APEX3.3)" or "Human Health Risk (APEX3.3)" to view APEX-generated exposure and risk databases, respectively.

For instruction on using DAVE to analyze TRIM outputs, refer to the DAVE User's Guide.