# Appendix C:
GIS Search and Query Application Operations Manual

DC SWAP GIS Application
Operations Manual

The DC SWAP GIS application was created on an ESRI ArcGIS 8.3 framework, using standard Visual Basic – Application (VBA) coding. Most of the application is form and macro driven, and requires ESRI ArcGIS 8.3. ArcGIS is not included in this application but may be obtained from ESRI at http://www.esri.com
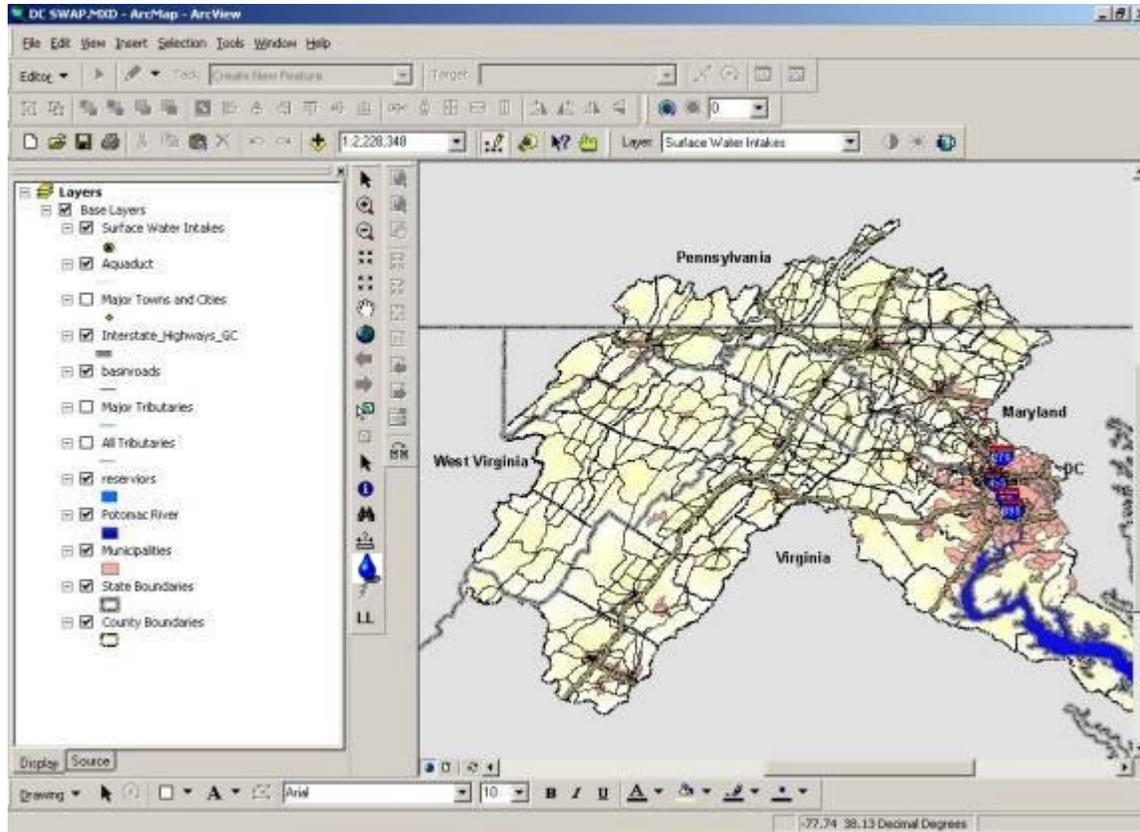
System Requirements
1. PC loaded with functional ESRI ArcGIS 8.3. This program has only been tested with ArcGIS version
 8.3. Proper function may not be assured with higher or lower versions than these, as the program has not been tested on these other versions.
2. CD-ROM: This program may be run directly from CD, or may be copied to a local or network hard drive. The program will likely run faster if copied and run from a local hard drive.

Contents

Overview

The DC SWAP GIS Application is provides simple access to basic information about Potential Sources of Contamination (PSC) using a geographic information system (GIS). The application contains a variety of base map data layers, from county and state boundaries to streams and roads. The user is then able to introduce point sources of potential contamination to provide a spatial analysis is sites throughout the basin. The search and query application allows the user to perform surveys of PCS's within specified time of travel boundaries and to view PCS's by susceptibility rankings and type of facility.

Application Interface

The SWAP GIS application has tools built into the general ArcGIS interface. These tools are accessed from a SWAP toolbar, by clicking on the smile icon in the middle.
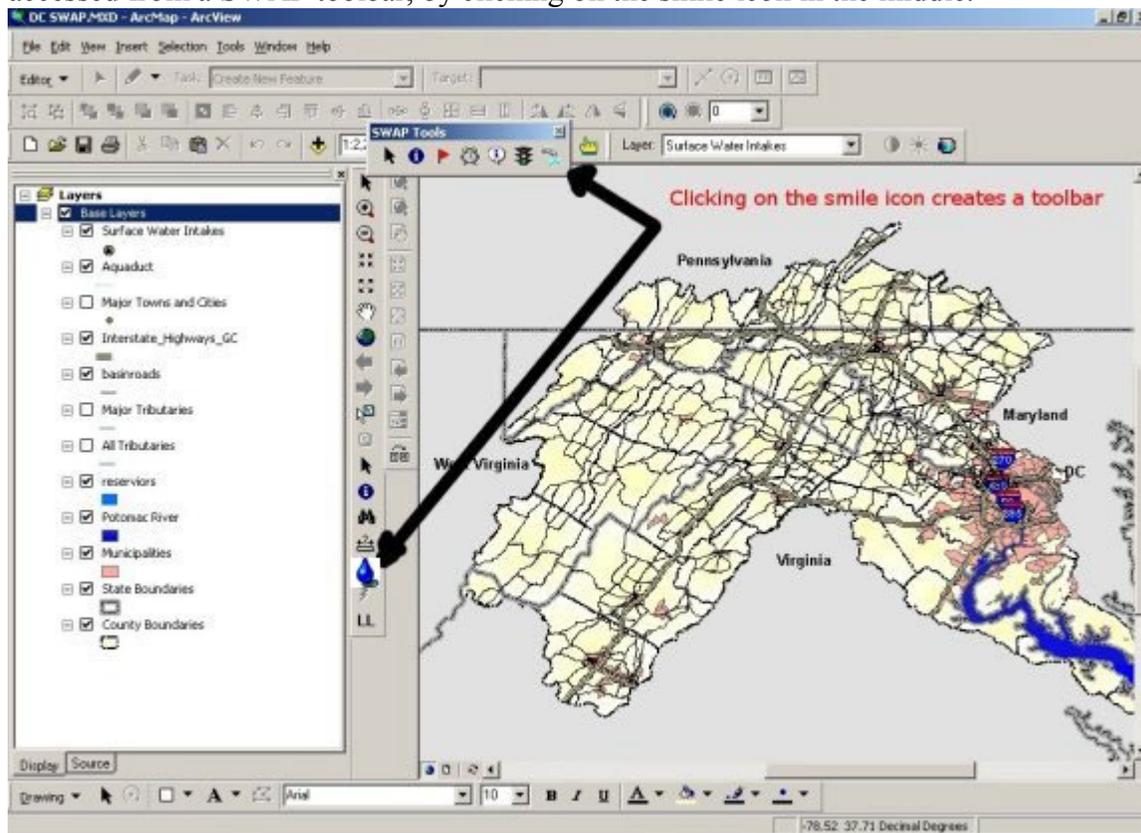
The SWAP Tools Toolbar contains all the tools the user needs to perform a contaminant survey of the basin:

Selection Pointer: Allows user to select data elements in legend.

Information Pointer: Allows user to select data points to obtain information.

Add Locational Data: Creates interface that allows user to plot potential contaminant sources on the map.

Time of Travel: Creates interface that allows user to add time of travel boundaries to the base map.

Spatial Query: Selects all Potential Contaminant Sources (PCS's) inside a time of travel boundary.

Susceptibility Evaluation: Allows user to query sites based on susceptibility ranking.


Running a PCS Analysis

Open the SWAP GIS Application
Step 1. To start the SWAP GIS application, double click on the DC Swap.mxd file in the root directory of your SWAP GIS Application CD, or if you've copied it to your local hard drive, then the same file on your local hard drive. Clicking on this file should cause ArcMap to open with the project in view.
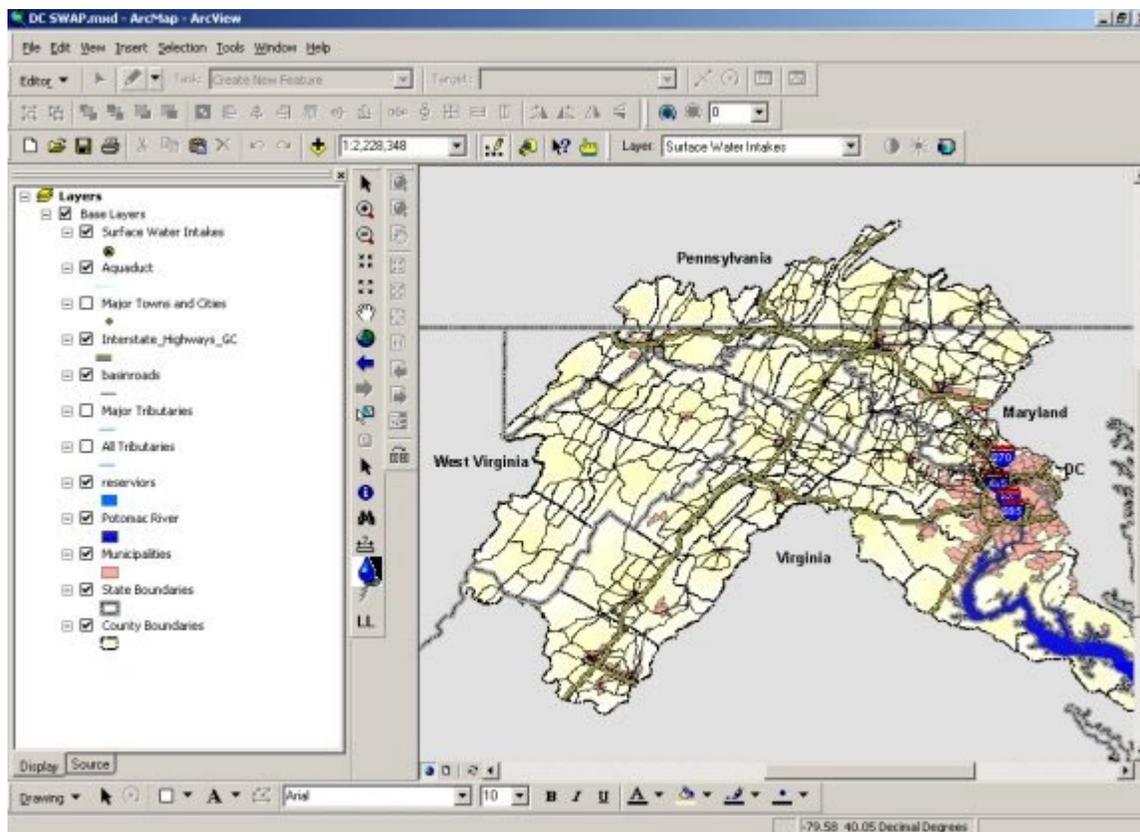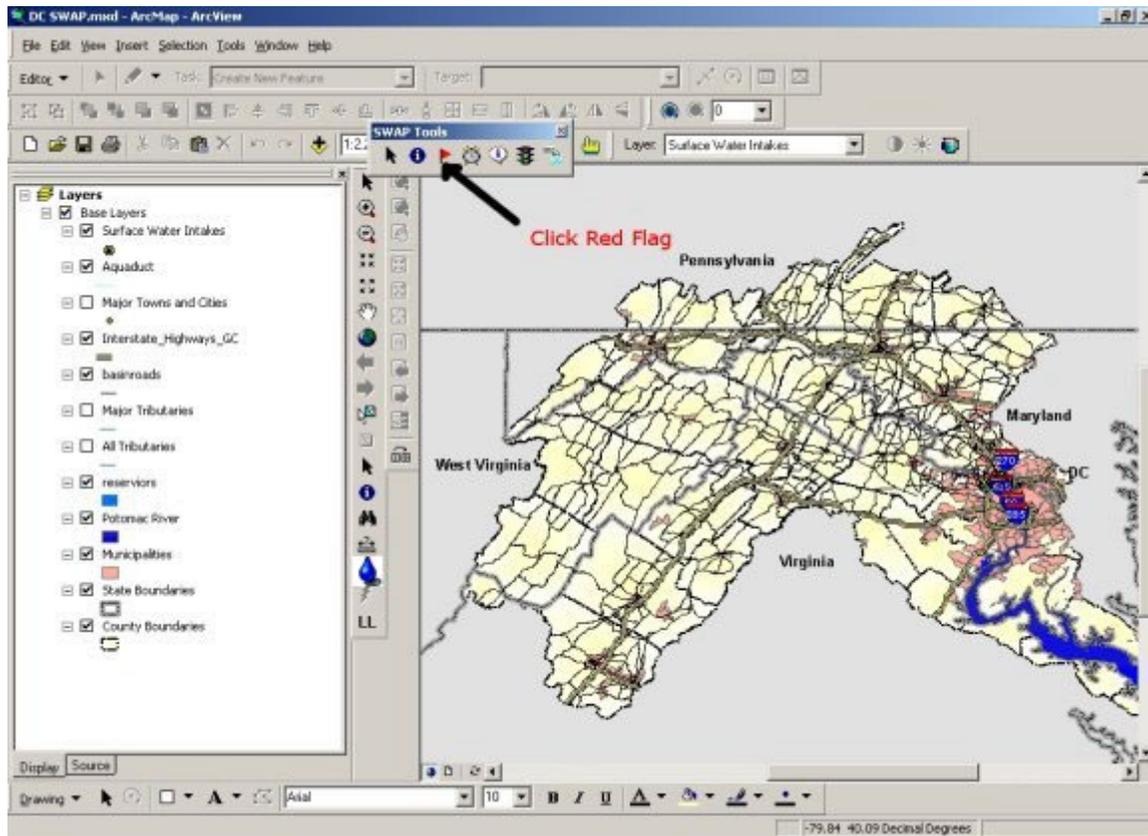
Adding Locational Data

Step 2. To begin adding locational data, click the blue waterdrop icon in the toolbar. This will cause SWAP Tools Toolbar to pop up.
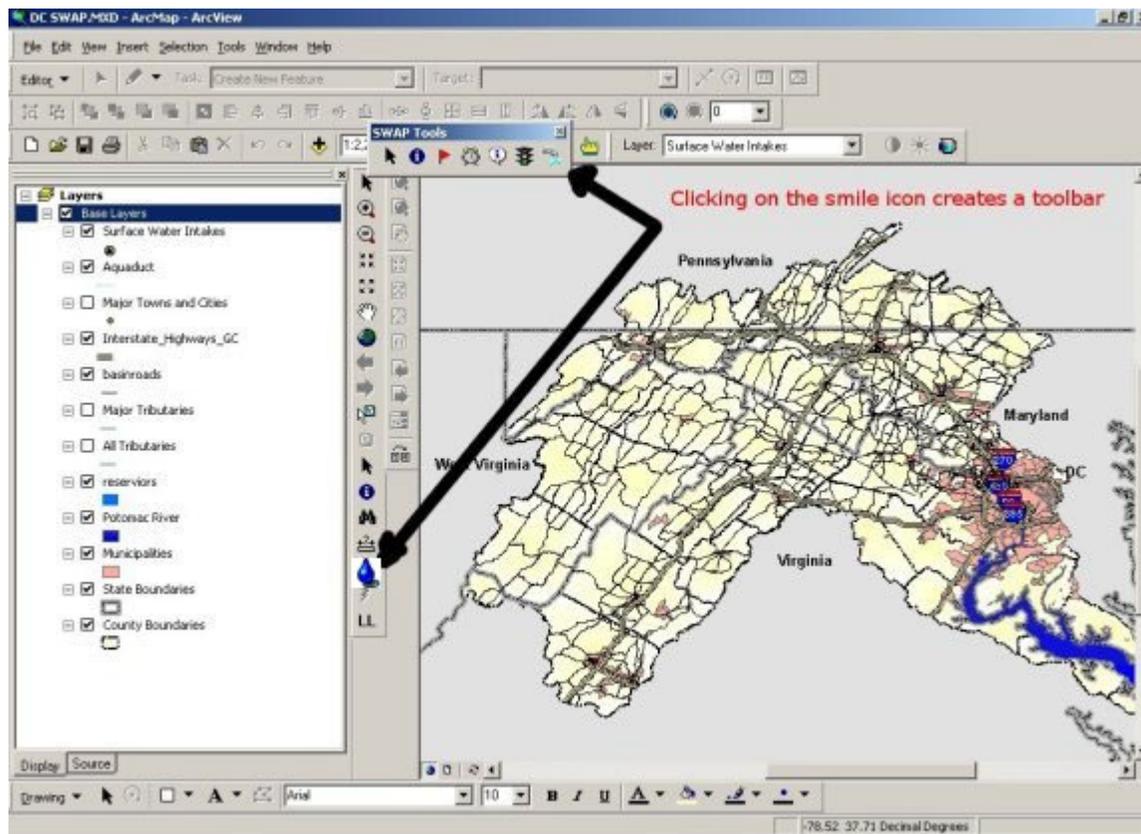
Step 3. Click on the red flag icon in the SWAP Tools toolbar.

Step 4. The Add Data dialog appears. Click on the drop down menu and select the data you wish to add to the map. Then click on the "add data" button. The map will now display the data you selected as points on the map, and the data layer name will appear in the legend on the left. Then click exit. A glossary of data types is attached in this manual.
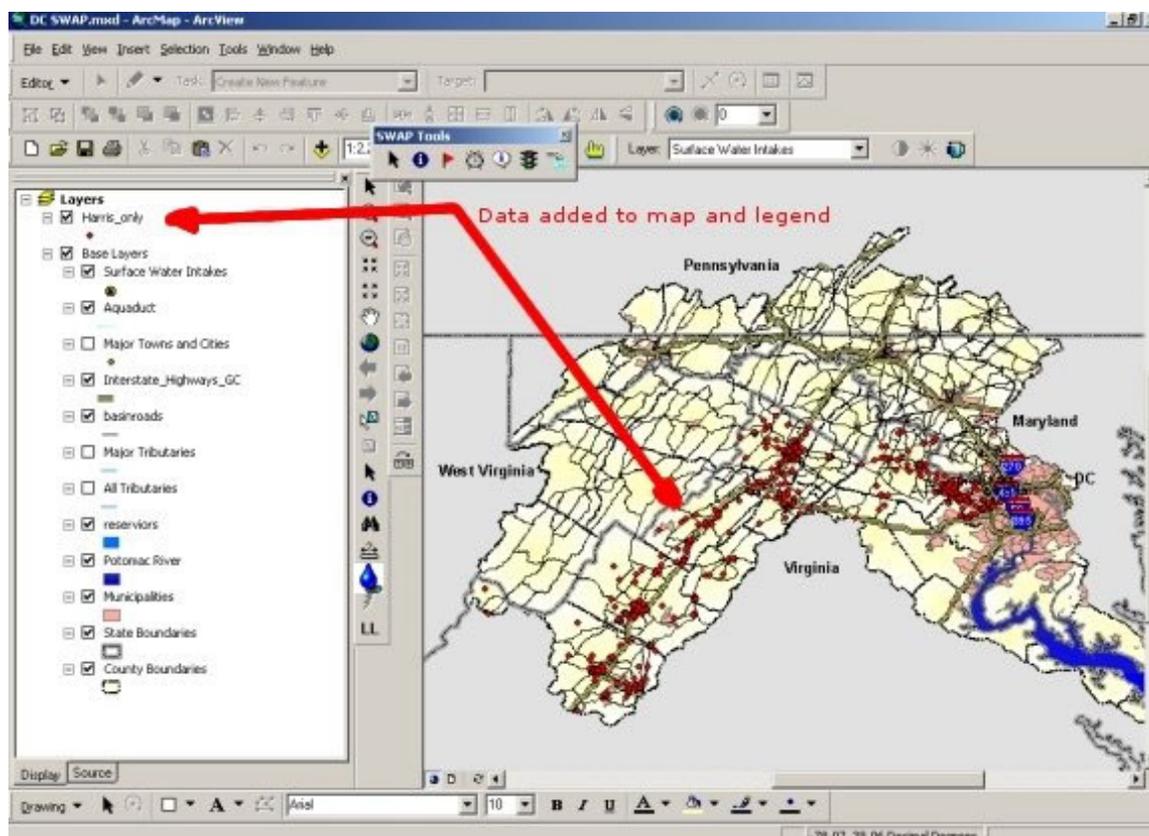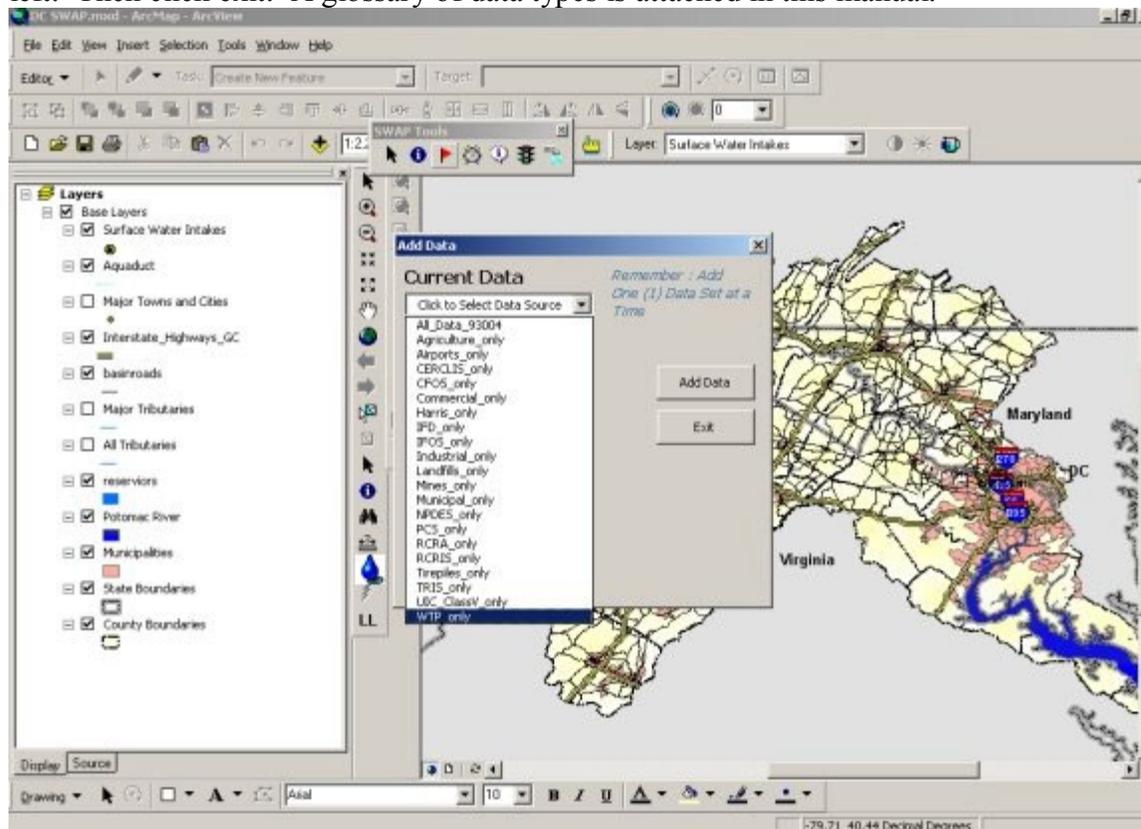
Adding Time of Travel

Step 5. To add time of travel, click the clock icon in the SWAP Tools Toolbar. The Time of Travel dialog should appear.
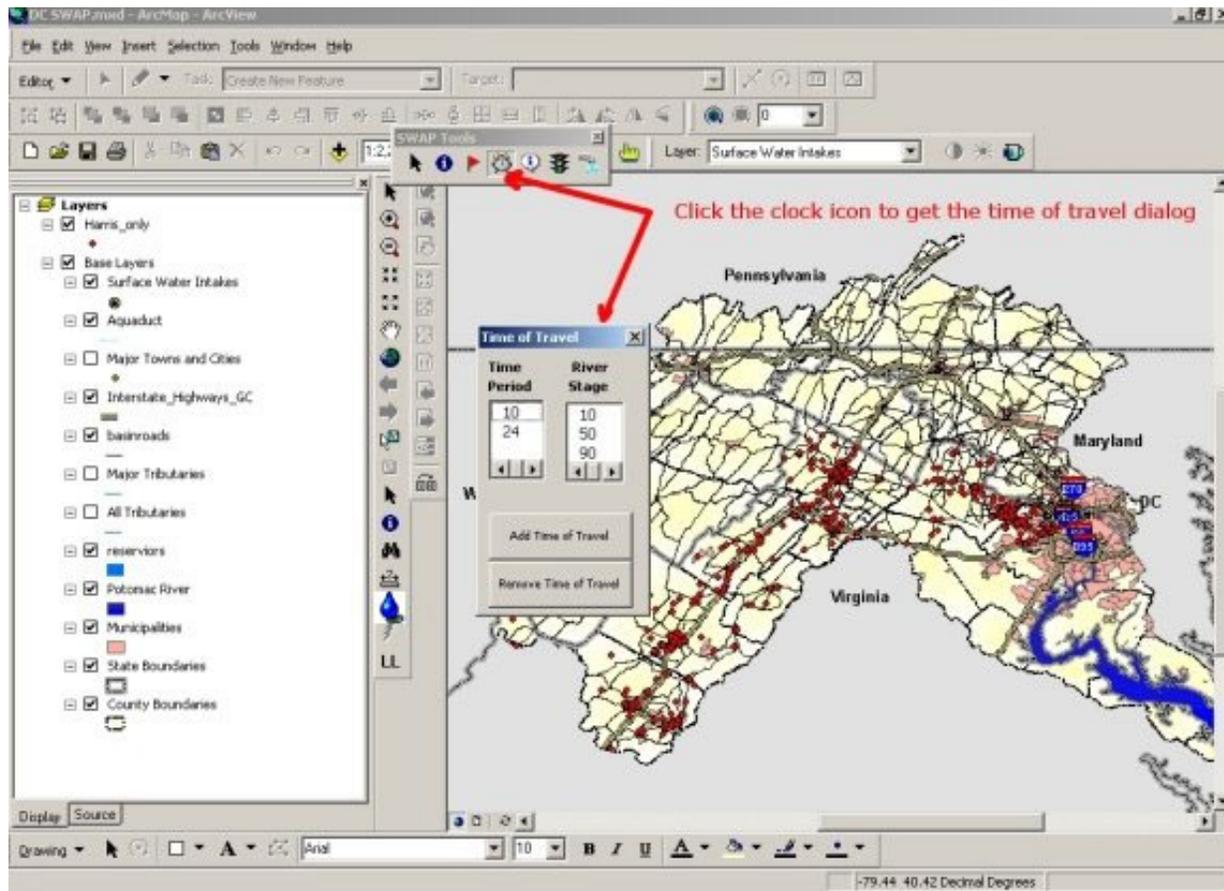
Step 6. In the Time of Travel dialog, select both a time period as well as a river stage, then click the button "Add Time of Travel". This will cause a layer to appear which represents the time of travel in the system for a particular river stage. Do not attempt to add more than one Time of Travel option to each map. In the left hand legend, uncheck the checkbox next to the item "base   layers".

 (To remove a time of travel, select (highlight) the time of travel layer on the left, click the time of travel button on the SWAP Tools toolbar, then click the button "Remove Time of Travel".)

[REDACTED]

Select data inside desired time of travel

    Step 7. While holding down the shift key, click on the time of travel and locational data layers to highlight them. The time of travel layer must be on top.

[REDACTED]

Step 8. Click on the blue "i" icon in the SWAP Tools toolbar, then click anywhere inside of the time of travel in the map. This will then select all data points inside the time of travel.

[REDACTED]

Run Susceptibility Evaluation

Step 9. Click on the location data item in the legend at the left and drag it up so that it becomes the first item in the legend. Then click once on the locational data item, hold down the shift key, the click on the time of travel item (in diagram example "50_@_24") to highlight both.

[REDACTED]

Step 10. Click on the Stoplight icon in the SWAP Tools toolbar to bring up the susceptibility evaluation dialog box. Click
   on any of the three desired ranking levels and click exit to show which of the locational data points have the desired
   susceptibility ranking.

[REDACTED]

Step 11. In the Select by Attribute dialog, click the dropdown next to "Method" and choose   "Select from current selection".
Click the apply button, then click the close button.

[REDACTED]

Step 12. What is now shown on screen are the locational data sites highlighted in yellow which have a ranking as selected in step 10, either High, Medium or Low.

[REDACTED]

Step 13. There are two ways to view information about sites highlighted in yellow (the sites determined to be of the ranking selected in step 10):

A. View information about individual sites within the time of travel:
Click on the white "i" icon in the SWAP Tools toolbar to the left of the red flag, then click on any of the yellow highlight points. This will bring up a window with attributes for that point only.

B.   View information about all highlighted sites within the time of travel:
To view the sites that have been selected based on the selected ranking, right-click on the location data item in the legend, then click "Open Attribute table". After the attribute table opens, at the bottom, click on the button labeled show "selected" records. What appears in the table is a list of all location data sites which have the requested ranking.
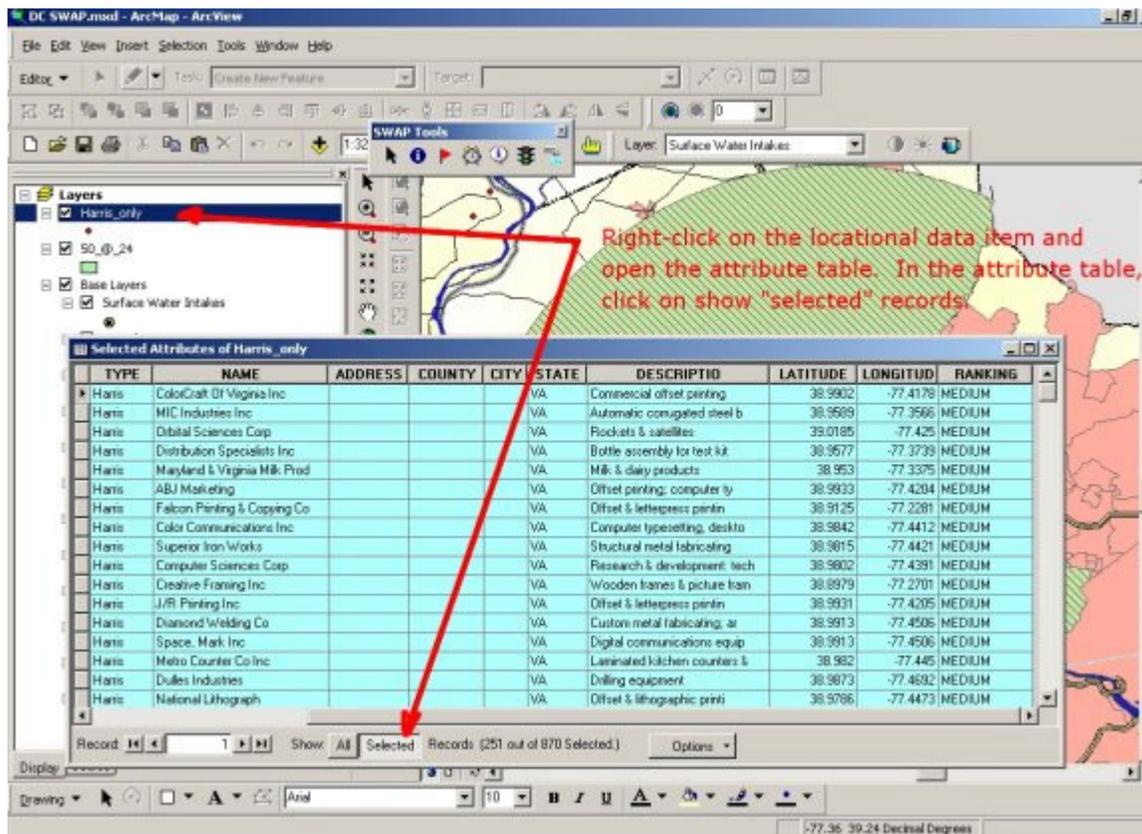
Step 14. To restart a Susceptibility Evaluation or choose a different Time of Travel, the user may either:

A. Exit the the application by closing ArcGIS without saving the previous instance. Begin again from step 1.

B. Highlight all layers in the left-hand pane except base layers, then right-click to remove. Begin again from step 1.

Glossary of Data Sources

Federal databases
CERCLIS – Comprehensive Environmental Response, Compensation, and Liability Information System
IFD – Industrial facility discharge
MINES – USGS Mineral database
NPDES – National Pollutant Discharge Elimination System
PCS – Permit Compliance System (for NPDES)
RCRA – Resource Conservation and Recovery Act sites
RCRIS – Resource Conservation and Recovery Information System (for RCRA)
TRIs - Toxic Release Inventory
WTP – water treatment plants

Virginia state databases
Airports
CFOs – Commercial facility operations
Harris - Harris Industrial database
IFOs – Industrial facility operations
Landfills
Tilepiles
UIC_ClassV – Underground Injection Wells

West Virginia state databases
Agriculture
Commercial
Industrial
Municipal