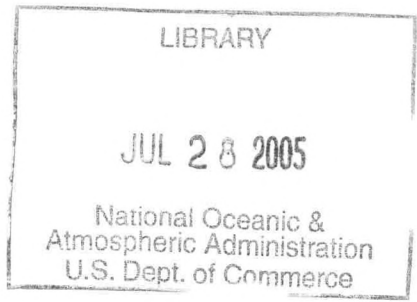


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# WASTE TIRE PROJECT

FINAL REPORT



Report Prepared By:

VIRGINIA EcoMAPS OFFICE

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## WASTE TIRE PROJECT DOCUMENTATION

### INTRODUCTION:

The EcoMAPS Office of the Virginia Department of Environmental Quality (DEQ) was asked to assist the Waste Tire Fund Program (DEQ) in preparation of a comprehensive survey of waste tire piles in the state. The Waste Program hired and trained a staff of tire pile inspectors to collect data on a variety of characteristics of Virginia's waste tire piles. The data collected included information like the number of tires, location, landowner's name and address, and land use of the area adjacent to the site (see the attached Data Dictionary (A) for a complete list). Most of the surveying occurred during the summer and fall of 1993. The Inspectors were equipped with hand-held Global Positioning System Units (GPS) that were used to collect the Latitude and Longitude of each site. The GPS units were spatially accurate to within 100 meters. This Latitude/Longitude measurement enabled the survey data to be used in EcoMAPS Geographic Information System (GIS). Inspectors turned their survey forms into the Program Support Technician of the Waste Program office. This individual entered the surveys into a dBase IV file titled "SURMASTE" (Survey Master) and highlighted any missing or confusing information on the form. The surveys were then reviewed by the program manager and any changes were made in the SURMASTE file. At this point a floppy disk with a copy of the SURMASTE file and a hard copy of the survey forms was sent to EcoMAPS. EcoMAPS was then responsible for performing the following analysis on each surveyed site: (1) population density within 1/2 mile of the site; (2) presence or absence of an airport within 5 miles of the site; and (3) the ground water pollution potential in the vicinity of the site. This documentation will explain the procedures used to collect the above 3 data elements, and the procedures used to prepare the SURMASTE dBase file for use in a GIS. Also included is information about the location of digital files and instructions for transferring Arc/Info coverages into Arc/View, and creating hard-copy maps.

## I. Initial Data Preparation

A. Receive a copy of Dbase file "surmaste" (survey master) from the Waste Tire Division on a floppy disk. The file will contain all items listed on the Data Dictionary (see Attachment A). Each new set of sites received from the Waste Tire Division constitutes a new Batch. It was necessary to divide the data into 9 Batches to be able to manage the data effectively.

1. Place the hard-copy survey forms in a 3-ring binder labelled by Batch number.
2. Label the floppy disk by its Batch number.
3. Copy the new surmaste file to the hard drive (C:\) of the PC.
4. Since the surmaste file will contain all sites from all previous Batches, it is necessary to delete unwanted records from the file and work only with new sites. Enter dBase IV by typing '**dbase**' at the C:\ prompt. At the Main Menu type '**alt + c**' and select '**Add File to Catalog**' ... then select '**Display Data**'. Type '**alt + g**' to go to the last completed record. Type '**alt + e**' to exit this view of the data. At the Main Menu, type '**alt + e**' and select '**exit to dot prompt**'. At the dot prompt, type '**delete next 100**' or whatever number of records necessary to delete to get to unprocessed records. Type '**pack**' for dBase to actually process the deletion. Type '**assist**' to return to the Main Menu. Select '**Display Data**' again to view the new surmaste file which would contain only the unprocessed sites.
5. While viewing the surmaste file, sort the records by jurisdiction name alphabetically. Type '**alt + o**' to organize the database. Type '**JURISDCTN**' which is the item to sort by. Return to perform the sort. This command creates a new file sorted by jurisdiction name. Rename the sorted file Batch1 (2, 3, etc.) Type '**alt + e**' to return to the Main Menu. At this point, work with the batch#.\* file and not the surmaste (unsorted) file. Select the Batch# file just created. Print out a list of the sites in this Batch by performing a query and selecting the items: 'SITENAME', 'JURISDCTN', 'FIPS' and 'ID'. FIPS and ID will probably be blank at this point. Exit and print the query using '**shift + F9**'.
6. Assign a Unique ID to each site. This is a six digit number consisting of the FIPS code plus a 3 digit consecutive number beginning with 001 (see Attachment B for a list of FIPS codes). For example, the first site in Accomack County would have a unique ID of

001001. The twenty-fifth site in Prince William County would have a unique ID of 153025. When assigning a unique ID, check the tracking forms from the previous Batch for that jurisdiction to see the last consecutive number used. The unique ID should be recorded in 3 places: (1) on the query printed out in step 5; (2) on the tracking form, (3) on the hardcopy tire survey forms, and (4) in the dBase file as item 'ID'.

7. Fill out Tracking Forms (see Attachment C for a sample) for this Batch. The Tracking Forms are used to record the progress of each site through the analysis process and record the actual population, airport and soil permeability data collected from the GIS. Make one set of tracking forms for each Batch, and separate sheets for each county or city within each Batch. These forms are kept in a light blue 3-ring labelled "Tracking Forms; 1993 Waste Tire Survey" binder and are organized by Batch number.

B. Using the notebook of hardcopy tire survey forms (see Attachment D for a sample), complete a thorough data check of the dBase file for missing values, errors, etc. EcoMAPS copy of the tire survey forms are organized by Batch # in two dark blue 3-ring binders labelled "1993 Waste Tire Survey Forms". Check the dBase file against the hardcopy tire survey forms item for item - every record. Most importantly:

1. Make sure that the FIPS codes match the jurisdiction name listed.
2. Verify that Latitude and Longitude are in degrees, minutes, seconds. If the GPS unit recorded the Lat/Long in degrees, minutes, thousands of minutes - multiply the latter by 60. For example:

$$37\ 18\ .205 = 37\ 18\ 12$$

$$77\ 23\ .879 = 77\ 23\ 53$$

3. Make sure that the data on the form make intuitive sense (i.e. percentages add up to 100, not 98, etc.)

4. All corrections were checked by David Bailey or Beth Patten of the Waste Division before being recorded in a file of Tire Survey Corrections.

## II. Data Transfer

### A. Prepare the dBase batch#.\* file for use in the GIS.

1. Make a copy of the dBase file and give it a new name: "sites#.\*" (use the same sites # as Batch #) In dBase, modify the structure of the "sites#" file and remove all items except 'ID', 'LAT' and 'LONG'. Use **ctrl + u** to delete unwanted items.

2. In dBase, use the TOOLS menu to export the sites#.dbf file, with the text fixed-length fields (.txt) option. This creates a file: sites#.txt that contains only the items 'ID', 'LAT', and 'LONG'. This is the file that will be used in the createpoint.aml (the program that will create an Arc/Info point coverage from the Lat/Long items in the sites.txt file).

### B. Transfer the sites.txt file from the PC to the Workstation using TELNET.

1. Create an Arc/Info workspace on the workstation:  
\rich1h\work\tire\batch#. Type **telnet** and then **cd** to the correct workspace (the directory just created). Press **ALT + F** to get the ftp: prompt. At this prompt type **mget sites#.txt**. You will be asked "mget sites#.txt?" type **y** and **<CR>** (return). Type **bye** and **exit** to end the telnet session.

2. Move to the workstation and **cd** to \rich1h\work\tire\batch#. Type **ls** or **dir** to verify that sites#.txt is in the appropriate directory. Type **textedit sites#.txt &** to create a texteditor file that can be modified. Put one space between ID and LAT and LONG. Save the changes.

For example: 071001355623763222 will not work!

but: 071001 355623 763222 will work.  
(ID) (LAT) (LONG)

**III. Create a point coverage of the sites** using LAT/LONG from sites#.txt. Use the createpoint.aml.

A. Run createpoint.aml

Type **arc** to enter Arc/Info.

Arc: **createpo sites#.txt sites#** (use the same sites#)

projection: **lam** (lambert)

units: **dms** (degrees, minutes, seconds)

beginning column for LAT: **8**

ending column for LAT: **13**

beginning column for LONG: **15**

ending column for LONG: **20**

how many data attributes would you like to add to the .pat? **1**

item name: **id**

input width: **6**

output width: **<CR>** (return = same as input width)

item type: **c**

beginning column for ID: **1**

ending column for ID: **6**

end user input.....

B. Verify that the point coverage sites# has been properly created by viewing it in Arc/Plot, and checking the sites#.pat in INFO. Make sure that the file has the correct number of records. This procedure creates a point coverage in Arc/Info with no attributes except ID. The item ID will be used later to link all of the other data attributes to the coverage using the JOINITEM command.

#### IV. Create individual point coverages and buffers from one sites# point coverage.

An AML (\rich1h\work\tire\plotamls\BUFFER.AML) was written that makes each site in the sites# point coverage its own separate coverage. For example, if there are 75 points in the sites# coverage, this AML will create 75 new point coverages (one per site). The AML also creates 2 buffer coverages around each site. A 1/2 mile (805 meter) buffer is created around each site for use in collecting the population data. A 5 mile (8049 meter) buffer is created around each site for use in locating airports. The buffer.aml was also modified to automatically perform clips of the 1990 census block coverage using the 1/2 mile buffer coverage. To maintain sufficient processing space, it is best to limit the number of records per Batch to around 100.

Type `arc` to enter Arc/Info.

**Arc:** &r buffer.aml

A copy of the buffer.aml is attached (see Attachment E). Four new coverages are created for each site. The coverages are named using the following naming conventions:

1. site point coverage: si(ID) for example: si081002
2. 1/2 mile buffer coverage: b1(ID) for example: b1081002
3. 5 mile buffer coverage: b2(ID) for example: b2081002
4. 1/2 mile census block coverage: po(ID) for example: po081002

V. **Extract county boundaries** from librarian census. Use the written tracking forms, work in alphabetical order, one county at a time. The county boundary file should be named: (ID)cnty for counties and (ID)city for cities. Each county boundary file should be copied into the directory: \rich1h\work\tire\county\fips+cnty

A. Type **arc** to enter Arc/Info.

Arc: **librarian census**  
l: **settile c51(FIPS)** (the 3-digit FIPS of the county wanted)  
l: **setlayer names county**  
l: **setoutputname county (c+FIPS)** (must start with a character)  
l: **extract simple**  
l: **quit**

B. Make the county coverage a polygon coverage.

Arc: **build c+fips poly**

C. Rename the coverage to fips+cnty (or city) and change it from double to single precision so that it can be used in PC Arc/View.

Arc: **copy c+fips fips+cnty single**



**VI. Make a copy of the state soil permeability and airport coverages** for use in your Batch# directory. The vasoilam coverage is a digital version of the "Ground Water Map of Virginia" which was produced by the Virginia Water Control Board Ground Water Program at 1:1,000,000 scale. The EcoMAPS Office digitized the map specifically for use in the waste tire project. The map divides Virginia into regions of low (1), medium (2) and high (3) permeability. The airports coverage was extracted using U.S.G.S. Digital Line Graph (DLG) data at 1:100,000 scale. Data element 190 (miscellaneous transportation), 403 (landing strips, airports) was used. These coverages are currently in /rich1h/work/tire/.

Arc: **copy /rich1h/work/tire/vasoilam /rich1h/work/tire/batch#/vasoilam**

Arc: **copy /rich1h/work/tire/airports /rich1h/work/tire/batch#/airports**

**VII. Collect the data for soil permeability and airports in Arc/Plot.** Using the tracking forms, work in alphabetical order, one county at a time. Type **arc** to enter Arc/Info, and **ap** to enter Arc/Plot. Enter the following commands. It may be necessary to change the map extent if there are several sites near each other. Using the written tracking forms start with the first site in each county and work down.

```
mape fips+cnty
arcs fips+cnty
linecolor 7
arcs vasoilam
linecolor 3
arcs airports
markercolor 2
points si+id
linecolor 2
arcs b2+id
```

The county boundary will be white, the soil polygons will be yellow, the airports will be green, the site and its 5 mile buffer will be red. It may be necessary to change the map extent (if the site is near the border of the county) since its 5 mile buffer will likely extend well into a neighboring county. If there is an airport within the 5 mile buffer of the site, record this as **2** = YES or **0** = NO on the tracking forms. To obtain the permeability data perform the identify command:

```
id vasoilam poly *
```

... then point to the site with your cursor. Permeability potential is listed as 1, 2 or 3. Record this number on the tracking forms. Type **Q** to leave Arc/Plot.

**VIII. Lastly, you need to collect the population data** within 1/2 mile of each site. Again work alphabetically through the written tracking forms, one county at a time.

A. Enter INFO and create a report which will total the population for your 1/2 mile buffer.

Arc: **info**

DON'T FORGET TO CHANGE TO CAPSLOCK IN INFO!

**ARC  
SEL PO+ID.PAT  
REPORT TOTAL  
TOTAL  
T  
<CR>  
<CR>  
<CR>  
Y  
N  
100  
<CR>**

After this is done once without changing directories, the prompts will be shortened to:

**ARC  
SEL PO+ID.PAT  
REPORT TOTAL  
N  
100  
<CR>**

THE TOTAL WILL BE DISPLAYED ON THE SCREEN.

B. Write the total printed on the screen on the tracking forms in the column titled "ACTUAL POP". Remember these numbers still need to be changed to population density (NOPOP)later. To translate the ACTUAL POP to NO POP, divide ACTUAL POP by .78. For example, if the ACTUAL POP was 435, then NO POP is  $435/.78$  or 558. Using the number in the NOPOP column, record POPSCORE from 1-25 (see Attachment A).

**IX. After collecting all the data and recording it on the tracking forms, enter it into the dBase file "batch#.\*".** Using the tracking forms, working alphabetically through the counties - enter the data for airports, population, and soil permeability. Check again later to make sure the data entry was accurate. When complete, enter the data in the Eco\_RTURND column.

To combine one or more batch#.\* files in dBase to create a master file, use the following procedure. Select the first file you want to append records to. Modify the structure of this file. Type "ALT + A" to Append the file, select the next batch to add. This can be done several times to combine several batches into one file. (Note: the original file will not be preserved so make a copy of it before appending.

## X. PERFORMING THE JOINITEM

At this point, there is an Arc/Info coverage (731cov) which contains only ID, LAT and LONG for each site, and a dBase file (731fin) which contains all of the attribute information for each site. Linking these two files is done using the Arc/Info JOINITEM command.

A. You must have access to your dBase file, PC Arc/Info, and TELNET to perform this procedure. Type `arc` to enter PC Arc/Info. At the `arc:` prompt type:

```
arc: export info 731fin sitedata
```

where 731fin is the name of the dBase file and sitedata is the name of the interchange file created using the export command.

B. Send sitedata.e00 from the PC to the workstation using TELNET (review II, B, 1). At the workstation, verify that sitedata.e00 made it to the appropriate workspace (in the same one with 731cov).

C. In Arc, import the interchange file into INFO.

```
arc: import info sitedata sitedata
```

Look at the file in INFO to be sure all records and items were transferred correctly.

D. In Arc, join the 731cov.pat with the sitedata INFO file using ID as the link.

```
arc: joinitem 731cov.pat sitedata 731cov.pat id id
```

Verify that the new 731cov.pat has all of the attribute information from the original dBase file.

## XI. Transferring Data for use in ARC/VIEW

To take the tire point coverage 731cov and transfer it to the PC for use in Arc/View requires creating an export file on the workstation, transferring the export file to the pc using telnet, and importing the file at the pc.

### A. Create the export file

```
Arc: export cover 731cov 731cov
```

this creates an export or interchange file called 731cov.e00

### B. Telnet from workstation to pc

At the PC, type **telnet** and then cd to the workspace where 731cov is located. Press **ALT + F** to get the ftp: prompt. Type **mput 731cov.e00**. You will be asked "mput 731cov.e00?" , respond y and <cr> (return). Type **bye** and **exit** to end the telnet session.

### C. Import the file

Using the import.exe command import 731cov.e00 to the appropriate directory at the pc.

```
c:\ import 731cov.e00 731cov
```

the file is now ready for use in Arc/View (see Arc/View documentation)

## XII. Working with the Arc/Info Tire Coverages at the Workstation

This section will briefly describe the location and contents of all coverages and files used in the waste tire project. Everything is stored in a directory called:

### rich1h/work/tire

covers            plotamls            demo

### rich1h/work/tire/demo

This directory contains data and export files used for the Tire Arc/View demonstration created by Adam Frisch in October 1993.

### rich1h/work/tire/covers

In this directory are stored copies of all coverages commonly used in relation to the tire project. A short description of each coverage is:

Name:	Type:	Contents:
731cov	point	Tire pile sites and attribute information.
airports	line	Airports and Landing Strips from 1:100,000 DLG's
county	poly	County boundaries from librarian census; labels have been moved by K.B.Klinker so that county names do not write atop eachother.
cfreg	poly	Tire region boundaries (as marked by David Bailey) for use in map titled "Current Flow Programs". This coverage was created by making a copy of the county coverage above, adding 2 items to the .pat (tire region name and region number), and coding each county in Arc/Edit using the CALC and MOVE. The arc dissolve command was used to create polygon boundaries based on region number.
deq	poly	Department of Environmental Quality regions was copied from _____.
lib100k	poly	This is the USGS halfsheet index, with names and was copied from _____.

pwtires      point      This is a coverage of tire pile sites in Prince William County which was created for C. Musselman. It was created by using the arc reselect command for all sites with a FIPS = 153. There are 15 tire pile sites in this coverage.

rd1valam      line

rd2valam      line

rdmajor      line      This is a special coverage that was created for David Bailey. It includes only a subset of Virginia's roads (like 66 and 95). It was created in Arc/Edit by reselecting specified roads from \_\_\_\_\_ and saving them to this new coverage.

vasoilam      poly      This is a copy of the coverage digitized by EcoMAPS from the "Ground Water Map of Virginia" at 1:1,000,000 scale. K.B. Klinker corrected spelling errors in INFO.

**rich1h/work/tire/plotamls**

In addition to containing copies of most of the coverages already described above, this directory contains the aml programs, associated key files, .gra and .cbs files, and map compositions. Copies of all amls are located in Attachment E.

<b>AML</b>	<b>11x17.cbs</b>	<b>33x51.cbs</b>
30map.aml	map30.cbs	mapb30.cbs
(a maps of the 30 largest tire piles in VA)		
731map.aml	map731.cbs	mapb731.cbs
(a map of all tire piles in VA)		
731resel.aml	mapresel.cbs	mapbresel.cbs
(a map of all tire piles in VA showing ranges based on number of tires)		
cfreg.aml	mapreg.cbs	mapbreg.cbs
(a map of tire regions or "Current Flow Programs")		
hppmap.aml	map <id> .cbs	n/a
(a map of one site for hazardous prevention planning)		



buffer.aml  
(the aml used to create individual point coverages, and buffers around each site)

hppid.aml  
(an aml used to gather information for use in the hppmap.aml - see below)

### **XIII. Plotting Maps with Tire Data**

rich1h/work/tire/plotamls

#### **A. Commonly Requested Maps**

All of the commonly requested maps should be relatively easy to plot. The aml's create an 11x17 inch map. Presentation size maps were created in map composition and mscaling all map elements by 3. See above for the name of .cbs file needed. Please do not edit the amls. If changes are needed, please make a copy of the aml first.

#### **B. Hazardous Prevention Plan Maps (HPP)**

One of the most common requests from the Waste Tire Program office is for HPP Maps of a tire pile. Two aml's have been written to make this process easy for any individual to perform. The HPPID.AML helps the user gather the necessary information about the tire pile, based on the ID number supplied by the Waste office. The HPPMAP.AML prompts the user for the information gathered in the HPPID.AML and creates a .gra file for an 11x17 inch map. A sample HPPMAP is attached.

##### **1. Run the HPPID.AML**

arc: &r hppid <cr>

The program will automatically bring the user into arc/plot and draw the county boundaries, halfsheet index grid, halfsheet labels, and all tire piles. The user is then prompted for the 6-digit unique site ID.

Enter unique ID: 033001 <cr>

Type the id and press enter or return. The selected tire pile will now be highlighted in green on the screen and its attributes will be displayed in the window. At this point, the user should record the following information about the site:

The 4 halvesheets that surround the site:

**BRISE          WYTHW          PIKEE          BLUEW**

COMMONNAME: **Smith's Tires**

FIPS: **c51033**

JURISDCTN: **Halifax County**

NOPOP (pop. density): **546**

After this information has been recorded, the user should quit arc/plot by typing q.

## 2. Run the HPPMAP.AML

arc: &r hppmap 4 halvesheet names ID COMMONNAME

for example:

arc: **&r hppmap brise wythw pikee bluew 033001 Smith's Tires <cr>**

**[Note: the COMMONNAME and other items will appear on the map exactly as they are typed, so follow the capitalization standards used in this example!]**

The system will begin processing the information entered. Every minute or so, the user is prompted:

[Note the FIPS must always include c51 at the beginning.]

Enter Census FIPS: **c51033 <cr>**

Enter County Name: **Halifax County <cr>**

[Note: enter today's month and year.]

Enter Date: **February, 1994 <cr>**

[Note: don't forget to type people per square mile or it will not show up on the map!]

Enter Density: **546 people per square mile** <cr>

After all necessary information has been entered, the HPP map will be displayed on the screen. Check carefully for spelling and other errors. The hppmap.aml has automatically created a .gra file called map{ID}.gra. Using the above example the .gra file would be called map033001.gra. Use this .gra file to plot the HPP map. The HPP MAP FORM may be useful in creating these maps.

**HPP MAP FORM**

**Requested by (name):** \_\_\_\_\_

**Needed by (date):** \_\_\_\_\_

**Unique Site ID:** \_\_\_\_\_

**Number of Copies:** \_\_\_\_\_

\_\_\_\_\_  
**/rich1h/work/tire/plotamls/**

**arc: &r hppid**

**4 halfsheet names:** \_\_\_\_\_

**COMMONNAME:** \_\_\_\_\_

**FIPS: c51** \_\_\_\_\_

**JURISDCTN:** \_\_\_\_\_ **County/City**

**NOPOP:** \_\_\_\_\_ **people per square mile**

**quit**

\_\_\_\_\_  
**arc: &r hppmap** \_\_\_\_\_ **{4 halfsheets}** \_\_\_\_\_ **{ID}** \_\_\_\_\_ **{COMMONNAME}**

**Date Completed:** \_\_\_\_\_

**By:** \_\_\_\_\_

**Name of .gra file: map** \_\_\_\_\_ **.gra**

**Name of .cbs file: map** \_\_\_\_\_ **.cbs**

**DATA DICTIONARY**

**ATTACHMENT A**

**WASTE TIRE DATA DICTIONARY**

ITEM	DESCRIPTION	TYPE	WIDTH
COMMONNAME	Common Name given to the site or the owner's last name (e.g. Bob's Tire Land)	character	30
JURISDCTN	Name of the jurisdiction with zoning control; either county or city; not a town (e.g. Accomack)	character	20
FIPS	3 digit FIPS Code for the jurisdiction (e.g. 001)	character	3
ID	FIPS Code plus 3-digit unique consecutive number for the piles found in each jurisdiction starting with 001 (e.g. 153001)	character	6
OWNERNAME	Name of the property owner from tax records (e.g. Mary D. Jones)	character	30
ADDRESS1	Street or route number or a business identifier (e.g. 1232 Maple Street)	character	30
ADDRESS2	Street or route number (e.g. RR # 234)	character	30
CITY	City of mail delivery of the owner (e.g. Reston)	character	25
STATE	State of mail delivery of the owner; 2 letter postal abbreviation (e.g. NC)	character	2
ZIP	Zip Code of mail delivery of the owner (e.g. 23432)	character	10
PILADD1	Address of the pile; could be "same" as the owner's (e.g. 52 Main Street)	character	30
PILADD2	City or town where the pile is located (e.g. Ashland)	character	30
ADJUSE1	Adjacent use code in no particular order (see below) (e.g. R1)	character	2
ADJUSE2	Adjacent use code in no particular order	character	2
ADJUSE3	Adjacent use code in no particular order	character	2
ADJUSE4	Adjacent use code in no particular order	character	2
ADJUSE5	Adjacent use code in no particular order	character	2
OPERATOR	Name of the operator if it is different from the property owner (e.g. Martin Smith)	character	30
OPADD1	Address of the operator; could be the same as the pile address (e.g. 421 Oak Street)	character	30
OPADD2	Address of the operator; could be the same as the pile address (e.g. Box Number 23)	character	30
OPADDCITY	City of operator address (e.g. Yorktown)	character	25
OPADDST	State of operator address (e.g. VA)	character	2
OPADDZIP	Zip Code of operator address (e.g. 34343)	character	10
WITNESS	Listing of persons that have seen dumping (in no particular order) (e.g. Mike Carter, neighbor)	character	25
WITNESS2	Listing of persons that have seen dumping (in no particular order)	character	25
WITNESS3	Listing of persons that have seen dumping (in no particular order)	character	25

DUMPBEGAN	Month and year dumping began; or listed as pre-1988 (e.g. 01/13/89)	date	8
PRIORRPTS	Are there prior reports on file at DEQ? yes or no (e.g. Y)	logical	1
VISIBLE	Is the site visible from a public road? yes or no (e.g. N)	logical	1
COURTAGREE	Is there a court order or agreement with the owner/ operator? yes or no (e.g. N)	character	1
QUAD	Name of the 7.5 minute U.S.G.S. Quad Sheet where site is located (e.g. Radford North)	character	20
DIRECTIONS	Directions to the site; in a memo field; this field exists only in the dBase file - not in any GIS coverage!	memo	10
FOURLANE	Is there a four lane highway or US road within one mile? yes = 2, no = 0 (e.g. 2)	numeric	1
ACCESS	Is there access to the pile for large trucks? no access = 5, one road = 3, two roads = 1, good access = 0 (e.g. 5)	numeric	1
BARRIER	Is there a security barrier? no barrier = 3, natural barrier = 2, could be gated = 1, gated barrier = 0 (e.g. 2)	numeric	1
BUILDG	Is there an occupied building within? 200 feet = 4, 1000 feet = 3, 5000 feet = 2 (e.g. 4)	numeric	1
SPECPOP	Does the occupied building contain a group of people that need extra help in an emergency? (i.e. school, nursing home), yes = 3; no = 0 (e.g. 3)	numeric	1
HEIGHT	Average height of the tires: under 5 feet = 1; 5 - 10 feet = 2; over 10 feet = 3 (e.g. 1)	numeric	1
NOTIRES	Estimated number of tires at the site (e.g. 43,000)	numeric	7
TIRESCORE	Score between 1-25 based on estimated number of tires in NOTIRES (see below)	numeric	2
COMBCTRL	Is there combustible material within 20 feet? yes = 3, no = 0 (e.g. 0)	numeric	1
UNDGUTLLIN	Is there an underground utility line within 200 feet? yes = 1, no = 0 (e.g. 1)	numeric	1
OVREHEADUTL	Is there an overhead utility line within 100 feet? yes = 1, no = 0 (e.g. 0)	numeric	1
WATERWAY	Is there water near the site? to support commercial shipping = 8, flowing = 6, standing = 4, puddles = 1 (e.g. 8)	numeric	1
DRINKWATER	Is there a public water impoundment? within 500 feet = 6, 5000 feet = 3, no = 0 (e.g. 6)	numeric	1
OTHRWSTS	Are there other wastes mixed with the tires? 75% = 3, 50% = 2, 25% = 1, no = 0 (e.g. 3)	numeric	1
RECENTDUMP	Is there evidence of recent dumping at the site? yes = 3, no = 0 (e.g. 3)	numeric	1
WHOLE	Percentage of the pile that is whole tires (e.g. 80)	numeric	3
SHRED	Percentage of the pile that is shredded tires (e.g. 10)	numeric	3



OVER	Percentage of the pile that is oversize tires (larger than truck tires) (e.g. 30)	numeric	3
RIMS	Percentage of the pile that is tires on rims (e.g. 25)	numeric	3
SPLIT	Percentage of the pile that is split tires (e.g. 10)	numeric	3
GRADIENT	What is the estimated slope at the site? (e.g. 35)	numeric	4
LAT	Latitude of the site, based on GPS reading, in degrees, minutes, seconds (e.g. 354012)	numeric	6
LONG	Longitude of the site, based on GPS reading, in degrees, minutes, seconds (e.g. 783500)	numeric	6
PERM	Soil Permeability (pollution potential); low = 1, medium = 2, high = 3 (e.g. 2)	numeric	1
AIRPORT	Is there an airport within 5 miles of the site? yes = 2, no = 0 (e.g. 2)	numeric	1
NOPOP	What is the population density for the area? (e.g. 426)	numeric	6
POPScore	Score between 1-25, based on population density (NOPOP); (see below)	numeric	2
DATECOMPLT	The date the data was entered into dBase by the Waste Division technician. (e.g. 09/23/93)	date	8
ECO_RTURND	The date EcoMAPS completed the GIS data collection and entered the data into dBase. (e.g. 11/10/93)	date	8

**Adjacent Use Codes (ADJUSE...)**

- A1** Agricultural - ornamentals or garden
- A2** Agricultural - crop production
- A3** Agricultural - livestock
- A4** Agricultural - wooded area
  
- C1** Commercial - neighborhood shopping
- C2** Commercial - office and general business district
- C3** Commercial - service business district and outside activities
  
- I1** Industrial - inside process
- I2** Industrial - inside and outside process
  
- R1** Residential - under 1/2 acre
- R2** Residential - under 2 acres
- R3** Residential - over 2 acres

Tirescores (1-25, based on NOTIRES)

1	1	1,000
2	1,0001	5,000
3	5,0001	10,000
4	10,001	15,000
5	15,001	20,000
6	20,001	30,000
7	30,001	40,000
8	40,001	50,000
9	50,001	60,000
10	60,001	80,000
11	80,001	100,000
12	100,001	125,000
13	125,001	150,000
14	150,001	175,000
15	175,001	200,000
16	200,001	250,000
17	250,001	300,000
18	300,001	400,000
19	400,001	500,000
20	500,001	700,000
21	700,001	900,000
22	900,001	1,200,000
23	1,200,001	1,500,000
24	1,500,001	2,000,000
25	2,000,001	and over

Popscores (1-25, based on NOPOP)

1	1	25
2	26	50
3	51	75
4	76	100
5	101	150
6	151	200
7	201	250
8	251	300
9	301	350
10	351	400
11	401	500
12	501	600
13	601	700
14	701	800
15	801	900
16	901	1,000
17	1,001	1,500
18	1,501	2,000
19	2,001	2,500
20	2,501	3,000
21	3,001	3,500
22	3,501	4,000
23	4,001	5,000
24	5,001	6,000
25	6,001	and over

**VIRGINIA FIPS CODES**

**ATTACHMENT B**

COUNTIES

001 ACCOMACK  
 003 ALBEMARLE  
 005 ALLEGHANY  
 007 AMELIA  
 009 AMHERST  
 011 APPOMATTOX  
 013 ARLINGTON  
 015 AUGUSTA  
 017 BATH  
 019 BEDFORD  
 021 BLAND  
 023 BOTETOURT  
 025 BRUNSWICK  
 027 BUCHANAN  
 029 BUCKINGHAM  
 031 CAMPBELL  
 033 CAROLINE  
 035 CARROL  
 036 CHARLES CITY  
 037 CHARLOTTE  
 041 CHESTERFIELD  
 043 CLARKE  
 045 CRAIG  
 047 CULPEPER  
 049 CUMBERLAND  
 051 DICKENSON  
 053 DINWIDDIE  
 057 ESSEX  
 059 FAIRFAX  
 061 FAUQUIER  
 063 FLOYD  
 065 FLUVANNA  
 067 FRANKLIN  
 069 FREDERICK  
 071 GILES  
 073 GLOUCESTER  
 075 GOOCHLAND  
 077 GRAYSON  
 079 GREENE  
 081 GREENSVILLE  
 083 HALIFAX  
 085 HANOVER  
 087 HENRICO  
 089 HENRY  
 091 HIGHLAND  
 093 ISLE OF WIGHT  
 095 JAMES CITY COUNTY  
 097 KING AND QUEEN  
 099 KING GEORGE  
 101 KING WILLIAM  
 103 LANCASTER  
 105 LEE  
 107 LOUDOUN  
 109 LOUISA  
 111 LUNENBURG  
 113 MADISON  
 115 MATHEWS  
 117 MECKLENBURG  
 119 MIDDLESEX  
 121 MONTGOMERY  
 125 NELSON  
 127 NEW KENT  
 131 NORTHHAMPTON  
 133 NORTHUMBERLAND  
 135 NOTTOWAY  
 137 ORANGE  
 139 PAGE  
 141 PATRICK  
 143 PITTSYLVANIA

145 POWHATAN  
 147 PRINCE EDWARD  
 149 PRINCE GEORGE  
 153 PRINCE WILLIAM  
 155 PULASKI  
 157 RAPPAHANNOCK  
 159 RICHMOND  
 161 ROANOKE  
 163 ROCKBRIDGE  
 165 ROCKINGHAM  
 167 RUSSELL  
 169 SCOTT  
 171 SHENANDOAH  
 173 SMYTH  
 175 SOUTHAMPTON  
 177 SPOTSYLVANIA  
 179 STAFFORD  
 181 SURRY  
 183 SUSSEX  
 185 TAZEWELL  
 187 WARREN  
 191 WASHINGTON  
 193 WESTMORELAND  
 195 WISE  
 197 WYTHE  
 199 YORK

CITIES

510 ALEXANDRIA  
 515 BEDFORD  
 520 BRISTOL  
 530 BUENA VISTA  
 540 CHARLOTTESVILLE  
 550 CHESAPEAKE  
 560 CLIFTON FORGE  
 570 COLONIAL HEIGHTS  
 580 COVINGTON  
 590 DANVILLE  
 595 EMPORIA  
 600 FAIRFAX  
 610 FALLS CHURCH  
 620 FRANKLIN  
 630 FREDERICKSBURG  
 640 GALAX  
 650 HAMPTON  
 660 HARRISONBURG  
 670 HOPEWELL  
 678 LEXINGTON  
 680 LYNCHBURG  
 683 MANASSAS CITY  
 685 MANASSAS PARK CITY  
 690 MARTINSVILLE  
 700 NEWPORT NEWS  
 710 NORFOLK  
 720 NORTON  
 730 PETERSBURG  
 735 POQUOSON  
 740 PORTSMOUTH  
 750 RADFORD  
 760 RICHMOND  
 770 ROANOKE  
 775 SALEM  
 780 SOUTH BOSTON  
 790 STAUNTON  
 800 SUFFOLK  
 810 VIRGINIA BEACH  
 820 WAYESBORO  
 830 WILLIAMSBURG  
 840 WINCHESTER

**SAMPLE TRACKING FORM**

**ATTACHMENT C**



**SAMPLE TIRE SURVEY FORM**

**ATTACHMENT D**

**TIRE PILE SURVEY**

Date \_\_\_\_\_  
Inspector \_\_\_\_\_

(1) Common Name given to the site or the owners last name. \_\_\_\_\_

(2) Name of jurisdiction. \_\_\_\_\_

(3) FIPS code for the jurisdiction  \_\_\_\_\_ consecutive number for jurisdiction

(4) Name and address of the owner \_\_\_\_\_ (5) Address of the pile \_\_\_\_\_

(6) Adjacent property uses \_\_\_\_\_ (7) Operator, if different from owner \_\_\_\_\_

(8) Witnesses to dumping \_\_\_\_\_

(9) When did dumping begin?  1 \_\_\_\_\_

(10) Prior reports available?  \_\_\_\_\_

(11) Is site visible from a public road?  If so take a picture. \_\_\_\_\_

(12) Is there a court order/agreement covering the removal of the tires?  If so, attach. \_\_\_\_\_ (13) Name of the quad sheet (USGS). \_\_\_\_\_

(14) Directions from a major road or landmark. \_\_\_\_\_

(15) Is there a 4 lane road or US highway within one mile? yes = 2

(16) Road access is 11 feet wide with no sharp turns and 100 foot turnaround No access = 5 only one road = 3 Two roads = 1 good access = 0

(17) Is there a security barrier? No barrier = 3 natural barrier = 2 could be gated = 1 gated barrier = 0

(18) Is there an occupied building? within 200 feet = 4 within 1,000 feet = 3 within 5,000 feet = 2

(19) Does the building contain a special population? yes = 3

(20) What is the average height expressed in feet? under 5 = 1 between 5 and 10 = 2 over 10 = 3

(21) Estimated number of tires # \_\_\_\_\_ Using the 25 point scale.

(22) Vegetation or combustible material within 20 feet of the pile? yes = 3

(23) Underground utility lines within 200 feet? yes = 1

(24) Overhead line within 100 feet? yes = 1

(25) Navigable waterway = 8 flowing = 6 standing = 4 puddles = 1

(26) Public water impoundment within 500 feet = 6 within 5,000 feet = 3

(27) Are there other wastes mixed with the tires? greater than: 75% = 3 50% = 2 25% = 1

(28) Is there evidence of dumping in last three months? yes = 3

(29) % of total pile is whole tires  (30) % of shredded tires   
(31) % of total pile is oversize tires  (32) % of tires on rims   
(33) % of total pile is split tires

(34) What is the average grade for the site?

(35) What is the LAT/LONG?

(36) Information obtained by GIS on the permeability of the soil 3 points

(37) Is there an airport within five miles? yes = 2

(38) Information obtained by GIS on the population density 25 point scale



## Characteristics of Sites Which Will Be Rated

The impacts to the environment, human health and property which this list addresses arise primarily from the uncontrolled burning of the tires. In many cases, tire fires are deliberately set. There are fifteen characteristics that will be used for rating the threat from a tire pile, based on the effects which could be expected from a fire. The total number of points which could be received by any site is 100. The lowest number of points any site could receive is 4. For the first two categories (with large point spreads) the entire range has not been shown.

	<u>Range</u>	<u>Points</u>
1) NUMBER OF TIRES	Under 1000 tires	1
	Over 2.5 million tires	25

The estimate of the number of tires is made by field inspection. The formula to be used (cubic feet/27 x 10) is an industry standard. The presence of larger size tires does represent a complicating factor, but the formula will generally account for the volume of rubber that could burn. The more tires involved, the longer the fire can burn, and the more oil which can be produced.

2) POPULATION (DENSITY/SQ. MILE)	25 or fewer	1
	Over 10,000	25

This is an estimate of the number of people residing within one-half mile radius of the pile. The field inspector determines the exact location and the population count is obtained through a GIS (Geographic Information System) using Census block level data. This source will not show the number of people working in an area. In an industrial or commercial area where there are few residences nearby, this method could underestimate the impacts to people who are at their place of work. Additional points will be picked up for this example under item #3, however. People will be most affected by smoke from a tire fire. Some of the closest residents may also be affected by the fire or fire fighting operations. Evacuation of high density populations near a site would require considerable resources and planning. Smoke and fumes can last as long as the fire. Some very large tire fires have burned for months.

3) OCCUPIED BUILDING Within	5,000 feet	2
	1,000 feet	3
	200 feet	4

An occupied building nearby could be a potential exposure which fire fighters would have to protect. The occupying business or other activity may be shut down temporarily due to the effects of the fire (heat & smoke) or fire fighting efforts (traffic and access).

4) DOES THE BUILDING CONTAIN A SPECIAL POPULATION?

NO	0
YES	3

Facilities which would be difficult to evacuate because of their special populations are hospitals, nursing homes and schools. Others may qualify if it would be difficult to remove people quickly.

5) OTHER WASTES MIXED WITH TIRES

Less than 25%	0
25%	1
50%	2
75%	3

The presence of other waste, especially hazardous or flammable waste, provides additional possibilities for a fire to start. If a fire does occur, the other waste can change the constituents of run-off and the fire fighting strategy, making containment more difficult. Explosions and the release of hazardous fumes make fire fighting more dangerous.

6) OVERHEAD UTILITY LINES	NO	0
WITHIN 100 FEET	YES	1

The presence of overhead power lines represents an potential ignition source and a hazard for fire-fighters. A fire could interrupt utility service.

7) UNDERGROUND UTILITY LINES	NO	0
within 200 feet	YES	1

Inspectors will look for pedestal or markers. Underground gas or fuel lines/tanks could be the source of ignition: or, once a fire has started they could explode due to the intense heat. The additional fuel can compound the problems of controlling the fire. Any underground utility lines also represent a hindrance to fire-fighting efforts that involve trenching or using earth moving equipment to smother the fire with dirt or other material.

8) SURFACE WATER  
    within 1/2 mile

	puddles	1
	lakes, ponds, marsh, other	2
	w/ non-commercial boating	6
	with commercial navigation	8

Any flow of oil into a waterbody is serious. With temperatures insufficient for complete combustion, tires undergo pyrolysis, producing oil which flows to whatever low point it can reach. The oil from a tire fire will likely contain benzene, toluene and other contaminants. The relative difficulty of containment, clean-up and extent of damage are reflected in the above scores. Clean up on a river or harbor could be disruptive to commerce. Puddles may support vector populations.

9) PUBLIC WATER IMPOUNDMENT	w/i 5,000 feet	3
	w/i 500 feet	6

The potential to contaminate reservoirs which supply drinking water to population centers is considered a threat to human health.

10) POTENTIAL FOR GROUNDWATER CONTAMINATION	Low	1
	Medium	2
	High	3

This ranking is based on ground water areas delineated on a map produced by the Virginia Water Control Board Ground Water Program. The areas reflect the potential for ground water pollution movement.

11) COMMERCIAL AIRPORT(S) Within 5 miles of site	NO	0
	YES	2

12) U.S. HIGHWAY OR 4 LANE ROAD Within 1 mile	NO	0
	YES	2

13) RECENT DUMPING Evidence of dumping in the last three months	NO	0
	YES	3

Recent dumping, either witnessed or inferred from the presence of physical evidence, increases the probability of activities which could result in a fire (accidental or deliberate) at a site.

14) PILE HEIGHT Average in feet	under 5 feet	1
	between 5 and 10 feet	2
	over 10 feet	3

The higher tires are stacked, the more likely there will be incomplete combustion resulting in pyrolysis and oil production. Higher stacks also make it more difficult to create fire breaks to prevent the spread of fire from one section of the pile to another. As tires burn, the stacks may collapse and close off what separations do exist.

15) SECURITY BARRIER	gated barrier	0
	could be gated	1
	natural barrier	2
	no barrier	3

Unrestricted access to a site increases the opportunity for additional dumping or fire.

16) VEGETATION OR COMBUSTIBLE	NO	0
MATERIAL WITHIN 20 FEET	YES	3
OF TIRE PILE		

Dense vegetation or forest near a tire pile could be the initial fuel which causes a tire pile to ignite. (It would take a source of heat around 1200 degrees F. to ignite a tire). Fire management is made more difficult, and the potential for damage is increased if a tire fire spreads to adjacent forests or scrub.

17) ROAD ACCESS	Three or more	0
Number of roads	Two	1
	One	3
	None	5

Access is defined as a road 11 feet wide with no sharp turns and a 100 foot turnaround. Fire trucks and earth-moving equipment should be able to enter.

**ARC MACRO LANGUAGE PROGRAMS**

**ATTACHMENT E**

```
[richmond]work:/richlh/work/tire/plotamls>ls
30map.aml      cfreg          hshd.txt      mapb30.cbs    mark1.txt
731cov        cfreg.aml     info          mapb731.cbs  mark2.txt
731covbu      county        lib100k       mapbreg.cbs  pwtires
731map.aml    deq           line.txt      mapbresel.cbs rdmajor
731resel.aml  hline.txt    log           mapreg.cbs   reglin.txt
airports      hppid.aml    map30.cbs     mapresel.cbs regshd.txt
buffer.aml    hppmap.aml   map731.cbs    mark.txt
[richmond]work:/richlh/work/tire/plotamls>
```

```
/*30MAP.AML
/*2/7/94
/*Kimberley B. Klinker

/*An aml to create a .gra file called map30 for an 11x17 map
/*which includes the 30 sites with 50,000 tires or more as
/*of December 16, 1993.

/*The associated key files to this aml are: line.txt and mark.txt.
/*The associated plot files are map30.gra and map30.cbs

arcplot
display 1040
/*the name of the .gra file created
map30
pagesize 17 11
mape county
/*to obtain scale information
/*mapunits meters
/*mapinfo

/*settings
lineset carto
shadeset calcompl
markerset mineral
textfont 93715
textquality kern

/*box around entire page
linesymbol 9
box 0 0 17 11

/*selected roads from special coverage made for D. Bailey
linesymbol 6
arcs rdmajor

/*county lines from coverage Kim edited to move county labels
linesymbol 5
arcs county

/*deq regional boundaries
linesymbol 12
arcs deq

/*legend
linesymbol 5
keyposition 1 6.2
keybox 0.4 0.4
keyseparation 0.1 0.1
textsize .3
keyline line.txt
keymarker mark.txt

/*title and text
textsize .68
move 8.5 10
text 'DEPARTMENT OF ENVIRONMENTAL QUALITY' cc
move 8.5 9
text '30 Largest Waste Tire Piles in Virginia' cc
move 1 7
```



```

textsize .3
text 'Prepared by the Virginia EcoMAPS Office'
move 1 6.6
text 'February 1994'
move 1 .4
textsize .1
text 'Sources: U.S. Geological Survey, U.S. Bureau of the Census, Waste Division (DEQ),

/*tire piles with 50,000 or more tires in green
markersymbol 323
markerscale .8
reselect 731cov points notires > 49999
points 731cov

/*county and road names
textsize .09
labeltext county name cc
textsize .07
reselect rdmajor arcs drawcode = 1
arctext rdmajor route point1 ll
clearselect

/*Scale Bar
linesymbol 13
line 13.9 5 14.4 5
line 14.9 5 15.4 5
linesymbol 69
line 14.4 5 14.9 5

/*Scale Text
move 14.7 6
textsize .28
/*FOR 17X11 SIZE MAPS:
text 'Scale 1 : 2,000,000' cc
/*FOR 51X33 SIZE MAPS
/*text 'Scale 1 : 635,000' cc
textsize .18
move 13.9 5.1
text '0'
move 14.4 5.1
text '15'
move 14.9 5.1
text '30'
move 15.4 5.1
text '45'
move 14.7 4.8
text 'Miles' cc

/*Northarrow
maplimits 13.3 5.5 16 9
mape /wise2/halves/narrow
mapunits inches
mapscale 6
mapposition cen cen
linesymbol 9
arcs /wise2/halves/narrow

q
draw map30 9999 3

```

&return

```
/*731MAP.AML
/*2/9/94
/*Kimberley B. Klinker

/*An aml to create a .gra file called map731 for an 11x17 map
/*which includes all tire piles in the database as
/*of December 16, 1993.

/*The associated key files to this aml are: line.txt and mark1.txt.
/*The associated plot files are map731.gra and map731.cbs

arcplot
display 1040
/*the name of the .gra file created
map731
pagesize 17 11
mape county
/*to obtain scale information
/*mapunits meters
/*mapinfo

/*settings
lineset carto
shadeset calcomp1
markerset mineral
textfont 93715
textquality kern

/*box around entire page
linesymbol 9
box 0 0 17 11

/*selected roads from special coverage made for D. Bailey
linesymbol 6
arcs rdmajor

/*county lines from coverage Kim edited to move county labels
linesymbol 5
arcs county

/*deq regional boundaries
linesymbol 12
arcs deq

/*legend
linesymbol 5
keyposition 1 6.2
keybox 0.4 0.4
keyseparation 0.1 0.1
textsize .3
keyline line.txt
keymarker mark1.txt

/*title and text
textsize .68
move 8.5 10
text 'DEPARTMENT OF ENVIRONMENTAL QUALITY' cc
move 8.5 9
text 'Waste Tire Piles in Virginia' cc
move 1 7
```

```

textsize .3
text 'Prepared by the Virginia EcoMAPS Office'
move 1 6.6
text 'February 1994'
move 1 .4
textsize .1
text 'Sources: U.S. Geological Survey, U.S. Bureau of the Census, Waste Division (DEQ),

/*tire piles in green
markersymbol 323
/*a slightly smaller size than in 30map so that they show up
markerscale .5
points 731cov

/*county and road names
textsize .09
labeltext county name cc
textsize .07
reselect rdmajor arcs drawcode = 1
arctext rdmajor route point1 ll
clearselect

/*Scale Bar
linesymbol 13
line 13.9 5 14.4 5
line 14.9 5 15.4 5
linesymbol 69
line 14.4 5 14.9 5

/*Scale Text
move 14.7 6
textsize .28
/*for 17x11 size maps
text 'Scale 1 : 2,000,000' cc
/*for 51x33 size maps
/*text 'Scale 1 : 635,000' cc
textsize .18
move 13.9 5.1
text '0'
move 14.4 5.1
text '15'
move 14.9 5.1
text '30'
move 15.4 5.1
text '45'
move 14.7 4.8
text 'Miles' cc

/*Northarrow
maplimits 13.3 5.5 16 9
mape /wise2/halves/narrow
mapunits inches
mapscale 6
mapposition cen cen
linesymbol 9
arcs /wise2/halves/narrow

q
draw map731 9999 3

```

&return

```
/*731RESEL.AML
/*2/9/94
/*Kimberley B. Klinker

/*An aml to create a .gra file called mapresel for an 11x17 map
/*which includes all tire piles in the database as
/*of December 16, 1993. The map divides the tire piles by the
/*number of tires at each site (Item NOTIRES in dbase)

/*The associated key files to this aml are: line.txt and mark2.txt.
/*The associated plot files are mapresel.gra and mapresel.cbs

arcplot
display 1040
/*the name of the .gra file created
mapresel
pagesize 17 11
mape county
/*to obtain scale information
/*mapunits meters
/*mapinfo

/*settings
lineset carto
shadeset calcomp1
markerset mineral
textfont 93715
textquality kern

/*box around entire page
linesymbol 9
box 0 0 17 11

/*selected roads from special coverage made for D. Bailey
linesymbol 6
arcs rdmajor

/*county lines from coverage Kim edited to move county labels
linesymbol 5
arcs county

/*deg regional boundaries
linesymbol 12
arcs deg

/*legend
linesymbol 5
keyposition 1 6.6
keybox 0.4 0.4
keyseparation 0.1 0.1
textsize .3
keyline line.txt
keymarker mark2.txt

/*title and text
textsize .68
move 8.5 10
text 'DEPARTMENT OF ENVIRONMENTAL QUALITY' cc
move 8.5 9
text 'Waste Tire Piles in Virginia' cc
```

```
move 1 7.3
textsize .3
text 'Prepared by the Virginia EcoMAPS Office'
move 1 7
text 'February 1994'
move 1 .4
textsize .1
text 'Sources: U.S. Geological Survey, U.S. Bureau of the Census, Waste Division (DEQ),

/*tire piles
markerset mineral
markerscale .5
clearselect
reselect 731cov points notires < 40000
markersymbol 123
points 731cov
clearselect
reselect 731cov points notires > 39999
reselect 731cov points notires < 100000
markersymbol 323
points 731cov
clearselect
reselect 731cov points notires > 99999
reselect 731cov points notires < 500000
markersymbol 423
points 731cov
clearselect
reselect 731cov points notires > 499999
markerset mineral
markerscale .8
markersymbol 223
points 731cov

/*county and road names
textsize .09
labeltext county name cc
textsize .07
reselect rdmajor arcs drawcode = 1
arctext rdmajor route point1 ll
clearselect

/*Scale Bar
linesymbol 13
line 13.9 5 14.4 5
line 14.9 5 15.4 5
linesymbol 69
line 14.4 5 14.9 5

/*Scale Text
move 14.7 6
textsize .28
/*for 17x11 size maps
/*text 'Scale 1 : 2,000,000' cc
/*for 51x33 size maps
text 'Scale 1 : 635,000' cc
textsize .18
move 13.9 5.1
text '0'
move 14.4 5.1
text '15'
```

```
move 14.9 5.1
text '30'
move 15.4 5.1
text '45'
move 14.7 4.8
text 'Miles' cc
```

```
/*Northarrow
maplimits 13.3 5.5 16 9
mape /wise2/halves/narrow
mapunits inches
mapscale 6
mapposition cen cen
linesymbol 9
arcs /wise2/halves/narrow
```

```
q
draw mapresel 9999 3
&return
```



```

/*buffer.aml
/*Al Frauenfelder and Kim Klinker
/*10/1/93
/*this aml is to be run after completing the createpoint.aml
/*this aml creates separate point coverages for each site from a point coverage
/*containing numerous sites. The aml also creates 1/2 mile and 5 mile buffers
/*around each site and clips the 1990 census coverage to create a population
/*coverage. Four coverages per site are created with this aml: si(id), b1(id),
/*b2(id) and po(id). The items necessary to change are the number you want to
/*start with, and the max number.

/*start with zero
&sv index = 0
/*end with the number of tire pile sites, or number of records
/*in the text file
&sv max = 70
&do &until %index% eq %max%
&sv index = %index% + 1
/*where 731cov is the point coverage containing all sites
reselect 731cov out %index% point
reselect $recno = %index%
[unquote ' ' ]
n
n

buffer out%index% buf%index%1 # # 805 # point
buffer out%index% buf%index%1 # # 8049 # point

clip /york1/work/pop/poptest/blksim buf%index%1 po%index%

display 9999 1
arccedit
editc out%index%
editf label
sel all
&sv name := [show label 1 item id]
q
rename out%index% si%name%
rename buf%index%1 b1%name%
rename buf%index%2 b2%name%
rename po%index% po%name%

&end
&return

```

```
/*CFREG.AML
/*2/10/94
/*Kimberley B. Klinker
```

```
/*An aml to create a .gra file called mapreg for an 11x17 map
/*which shades D. Bailey's tire clean up regions. For "Current
/*Flow Programs" map
```

```
/*The associated key files to this aml are: reglin.txt and regshd.txt
/*The associated plot files are mapreg.gra and mapreg.cbs
```

```
arcplot
display 1040
/*the name of the .gra file created
mapreg
pagesize 17 11
mape county
/*to obtain scale information
/*mapunits meters
/*mapinfo
```

```
/*settings
lineset carto
shadeset calcomp1
markerset mineral
textfont 93715
textquality kern
```

```
/*Clean Up Regions
reselect cfreg poly regionnum = 1
polygonshades cfreg 299
clearselect
reselect cfreg poly regionnum = 2
polygonshades cfreg 948
clearselect
reselect cfreg poly regionnum = 3
polygonshades cfreg 387
clearselect
reselect cfreg poly regionnum = 4
polygonshades cfreg 596
clearselect
reselect cfreg poly regionnum = 5
polygonshades cfreg 722
clearselect
reselect cfreg poly regionnum = 6
polygonshades cfreg 154
clearselect
reselect cfreg poly regionnum = 7
polygonshades cfreg 956
clearselect
reselect cfreg poly regionnum = 8
polygonshades cfreg 16
clearselect
```

```
/*box around entire page
linesymbol 9
box 0 0 17 11
```

```
/*selected roads from special coverage made for D. Bailey
```

```
/*linesymbol 6
/*arcs rdmajor

/*county lines from coverage Kim edited to move county labels
linesymbol 122
arcs county

/*draw polygon boundaries in a thicker black line
linesymbol 9
polygons cfreg

/*deq regional boundaries
/*linesymbol 12
/*arcs deq

/*tire piles in green
/*markersymbol 323
/*a slightly smaller size than in 30map so that they show up
/*markerscale .5
/*points 731cov

/*county and road names
textsize .09
labeltext county name cc
/*textsize .07
/*reselect rdmajor arcs drawcode = 1
/*arctext rdmajor route point1 ll
/*clearselect

/*legend
linesymbol 5
keyposition 1 6.6
keybox 0.35 0.35
keyseparation 0.1 0.1
textsize .25
keyline reglin.txt
keyshade regshd.txt

/*title and text
textsize .68
move 8.5 10
text 'DEPARTMENT OF ENVIRONMENTAL QUALITY' cc
move 8.5 9
text 'Current Flow Programs' cc
move 1 7.1
textsize .25
text 'Prepared by the Virginia EcoMAPS Office'
move 1 6.8
text 'February 1994'
move 1 .4
textsize .1
text 'Sources: U.S. Geological Survey, U.S. Bureau of the Census, Waste Division (DEQ),

/*Scale Bar
linesymbol 13
line 13.9 5 14.4 5
line 14.9 5 15.4 5
```

```
linesymbol 69
line 14.4 5 14.9 5

/*Scale Text
move 14.7 6
textsize .28
/*for 17x11 size maps
/*text 'Scale 1 : 2,000,000' cc
/*for 51x33 size maps
text 'Scale 1 : 635,000' cc
textsize .18
move 13.9 5.1
text '0'
move 14.4 5.1
text '15'
move 14.9 5.1
text '30'
move 15.4 5.1
text '45'
move 14.7 4.8
text 'Miles' cc

/*Northarrow
maplimits 13.3 5.5 16 9
mape /wise2/halves/narrow
mapunits inches
mapscale 6
mapposition cen cen
linesymbol 9
arcs /wise2/halves/narrow

q
draw mapreg 9999 3
&return
```

```
/*HPPID.AML
/*Kimberley B. Klinker
/*2/4/94
/*an aml to display the contents of the 731cov tire point coverage on the
/*screen and reselect one tire pile to be displayed in green
/*the user simply has to enter the unique 6-digit ID of the tire pile
/*the user will view the tire pile location to determine the 4 USGS
/*halfsheets (100K) to use in HPPMAP.AML
/*the contents of the .pat associated with the site will be displayed using
/*the LIST command
/*the user should record the FIPS, JURISDICTION (County),
/*and NOPOP (population density)
```

```
arcplot
mape county
linecolor 2
arcs lib100k
labeltext lib100k idname cc
linecolor 1
arcs county
points 731cov
&sv id [response 'Please Enter Unique ID Now']
reselect 731cov points id = [quote %id%]
markerset mineral
markersymbol 323
markerscale 1.3
points 731cov
&type The tire pile selected %id% is now displayed in green.
&sys sleep 5
&type Please note its location on the 100k halfsheet index.
&type Record the names of the 4 nearest halfsheets.
&sys sleep 10
&type Now record the commonname, fips, jurisdctn and nopop for the site.
&sys sleep 5
list 731cov points commonname fips jurisdctn nopop
&sys sleep 10
&type Type quit to exit Arc/Plot, thank you for playing!
&return
```

```
/*HPPMAP.AML
/*Alfredo Frauenfelder and Kim Klinker
/*2/4/94

/*This aml creates a .gra file for an 11x17 map of a tire pile.
/*These maps are used for hazardous prevention plans.
/*The associated key files to this aml are hline.txt and hshd.txt.

/*The user must enter the name of the 4 halvesheets around the site, the site
/*ID and the site COMMONNAME
/*e.g. arc: &r hppmap brise wythw pikee bluew 191013 Slaughter's Tires
/*Important - everything will be displayed on the map exactly
/*as the user enters it

&args sheet1 sheet2 sheet3 sheet4 site name:rest

/*create sites coverage for individual point from 731cov
reselect 731cov %site%cov points
resel id = [quote %site%]
[unquote ' ']
n
n

/*create 1/2 mile and 5 mile buffer coverages around sitecov
buffer %site%cov %site%b1 # # 805 # point
buffer %site%cov %site%b5 # # 8049 # point

/*enter arcplot to begin to create map
arcplot
display 1040
/*the .gra file created will be called map'ID' or map191013.gra/rich
map%site%

library census 100k
tiles %sheet1% %sheet2% %sheet3% %sheet4% 100k
/*here the user should enter: c51001
tile [response 'Enter Census FIPS'] census
mape %site%b5
pageunits inches
pagesize 17 11

/*settings
lineset carto.lin
textfont 93715
textquality tightkern

/*draw a box around the map
linesymbol 9
box 0 0 17 11

/*draw the streams, waterbodies, and marshes
linesymbol 1
linecolor cmy 100 0 0
reselect .hydro line major1 ne 0
arcs .hydro
shadeset calcomp1
reselect .hydro poly major1 = 50 and minor1 ne 111
polygonshades .hydro 788
clearselect
```

```
reselect .hydro poly major1 = 50 and minor1 = 111
polygonshades .hydro 764
clearselect

/*draw railroads
linesymbol 88
arcs .rr

/*draw airports
reselect .mt line major1 = 190 and minor1 = 403
linesymbol 10
arcs .mt

/*draw the roads
linesymbol 1
reselect .road1 line length > 1000 and route ne 0
textsize .09
arctext .road1 route line blank
nselect .road1 line
arcs .road1
reselect .road2 line length > 1000 and route ne 0
textsize .09
arctext .road2 route line blank
nselect .road2 line
arcs .road2
arcs .road3

/*draw the county boundaries
linesymbol 135
arcs .county

/*draw the local names
reselect .names point type = 'locale'
textsize .1
pointtext .names name

/*draw the site
markerset mineral
markersymbol 323
markersize .15
points %site%cov

/*draw the 1/2 mile and 5 mile buffers
linesymbol 11
arcs %site%b1
arcs %site%b5

/*draw text, titles, etc
textsize .33
move 11.5 10
text 'COMMONWEALTH OF VIRGINIA'
textsize .34
move 11.5 9
text 'Waste Tire Inventory'
move 11.5 8.5
text %name%
move 11.5 8
/*here the user should enter: Fairfax County
/*don't forget to include the word County
text [response 'Enter County Name']
```

```

move 11.5 7.5
textsize .15
text 'Data Sources:'
move 11.5 7.3
text 'U.S.G.S. Digital Line Graph'
move 11.5 7.1
text 'U.S. Census Bureau 1990 TIGER/Line File'
move 11.5 6.9
text 'Department of Environmental Quality'
move 11.5 .8
text 'Prepared by: Virginia EcoMAPS Office,'
move 11.5 .6
text 'Department of Environmental Quality'
move 11.5 .4
/*here the user should enter today's month and year
text [response 'Enter Date']
move 12 2.5
textsize .15
text 'Estimated Population Density, Half Mile Radius:'
move 12 2.3
/*here the user should enter: 5,666 people/sq. mile
text [response 'Enter Density']

/*draw scale bar
linesymbol 69
line 13 1.5 14 1.5
linesymbol 13
line 12 1.5 13 1.5
line 14 1.5 15 1.5
move 12 1.7;text '0'
move 13 1.7;text '1'
move 14 1.7;text '2'
move 15 1.7;text '3 Miles'

/*draw legend
textsize .15
linesymbol 9
keyposition 11.5 6.7
keybox .4 .4
keyseparation .08 .08
keyline hline.txt
keyshade hshd.txt

/*draw north arrow
mape /wise2/halves/narrow
maplimits 11.5 1.5 17 4
mapunits inches
mapscale 6
arcs /wise2/halves/narrow

q

/*kill the new coverages created so the aml won't crash if rerun
kill %site%(!cov,b1,b5!) all

draw map%site% 9999 3

&return

```