

Documentation of a Spatial Data-Base Management System for Monitoring Pesticide Application in Washington

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CONVERSION FACTORS

Multiply	By	To obtain
inch (in.)	25.4	millimeter
acre	0.4047	hectare
square mile (mi ²)	2.590	square kilometer
pounds per acre (lbs/acre)	0.4536	kilograms per square meter

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ABSTRACT

The Pesticide-Application Data-Base Management System was created as a demonstration project and was tested with data submitted to the Washington State Department of Agriculture by pesticide applicators from a small geographic area. These data were entered into the Department's relational data-base system and uploaded into the system's ARC/INFO files.

Locations for pesticide applications are assigned within the Public Land Survey System grids, and ARC/INFO programs in the Pesticide-Application Data-Base Management System can subdivide each survey section into 16 idealized quarter-quarter sections for display map grids. The system provides data retrieval and geographic information system plotting capabilities from a menu of seven basic retrieval options. Additionally, ARC/INFO coverages can be created from the retrieved data when required for particular applications.

The Pesticide-Application Data-Base Management System, or the general principles used in the system, could be adapted to other applications or to other States.

INTRODUCTION

In 1989 the U.S. Geological Survey, in cooperation with the U.S. Environmental Protection Agency (USEPA), Region X, undertook the development of a data-base management system for pesticide-application data. The Pesticide-Application Data-Base Management System (PDS) was designed as part of a pilot project, with the goal of providing a system that would be used by the Washington State Department of Agriculture (WSDA) and accessed by other State agencies (U.S. Environmental Protection

Agency, 1992, Pesticide Application Record Database Project Phase II--Pilot Demonstration Project: Final Report: USEPA-Region X, Office of Ground Water). The single most important requirement was for the system to be compatible with a geographic information system (GIS).

Background

Since 1989, pesticide applicators in Washington have been required by legislation to maintain records of pesticide applications. The WSDA is able to require submission of copies of these records for areas when there is some concern regarding pesticide applications.

At the time the PDS project began, the WSDA needed an efficient, comprehensive system to enter and store the pesticide data after collection. In addition, the WSDA needed to display the data geographically and to analyze the data in relation to factors such as wind direction, soils, and land use. The type of system that would meet these requirements was a GIS, and ARC/INFO was chosen for the PDS because it was in widespread use by many resource evaluation and management agencies in Washington. These agencies included the Washington Department of Ecology, Washington Department of Natural Resources (WDNR), USEPA, Soil Conservation Service (SCS), and the U.S. Geological Survey (USGS).

Purpose and Scope

This report documents the data-base management system for those who may wish to adapt the system or the design concepts to similar projects. The discussion includes the reasoning behind the selection of the design

and also some changes that may be necessary for adaptation to other applications. The data files are described and instructions are given on use of the data retrieval and display programs. Technical terminology and agency names are defined in a glossary preceding the appendixes. Details on data coding and data entry are included in an appendix. The documentation and text of the computer programs for data retrieval are also included in the appendixes.

The System

The PDS has a number of retrieval options to answer a variety of questions. The results of a retrieval are available in either tabular file form or in a combination of a geographic plot with a tabular file.

Written in the ARC Macro Language (AML) and in the INFO programming language, the programs are designed for use on a minicomputer running ARC/INFO Rev 5.0.

Other Applications

Although the system was designed for pesticide-application data, it could also accommodate other chemical applications such as fertilizers or herbicides. The system was designed specifically for Washington State, but the steps necessary for adaptation to other States are also discussed.

THE DATA-BASE MANAGEMENT SYSTEM STRUCTURE

The structure of the PDS is critical for the storage, retrieval, and analysis of the pesticide-application data. Design of the data storage structure and design of the locational framework for the geographic data are discussed.

Data-Base Management System Requirements

The design of the basic data-base structure for the PDS was influenced by several requirements. The three most important requirements were (1) that the data base be spatially oriented and capable of providing the pesticide-application data needed to produce GIS products for

viewing and analyses; (2) that the data base provide for statewide coverage at a scale detailed enough to be useful for localized analyses (on the order of 0.25 square mile); and (3) that the data-base management system be relatively easy to use and not require extensive computer and human resources.

In order to meet these requirements, an acceptable compromise was achieved between the accuracy of the location information and the amount of both computer and human resources required for input and operation.

The critical issue was how to best devise an easy and efficient areal applications location system based on data from the pesticide application records.

The GIS required either point locations or area boundaries. However, point locations would not accurately reflect the geographic extent or true location of fields to which chemicals had been applied. A location system that incorporated areal extent would be more accurate. Such a system would also enable the use of a GIS's powerful calculation and display capabilities.

On the other hand, a tremendous amount of both computer and human resources would be required to digitize the outline of all application areas from the application forms. Many coverages would have to be produced and it would be extremely time consuming for the GIS system to manipulate the spatial data. Also, with changing crops and changing field configurations for applications, opportunities for comparisons and analyses would be limited.

Geographic Information System Framework

In order to avoid such difficulties, a referenced grid system was chosen for recording the areas of pesticide application. The Washington Public Land Supply System (PLSS) seemed a suitable grid system because it is a statewide grid, located on many maps, and its township, range, and section format is familiar to most farmers and applicators. Furthermore, the PLSS maps had been digitized previously and were available in an acceptable GIS format from the WDNR.

Each PLSS section contains approximately 1 square mile. For a finer spatial resolution, the sections were subdivided into 16 cells of approximately 40 acres each. These cells, called quarter-quarter sections (QQ), were created by programs developed for the PDS (fig. 1).

D	C	B	A
E	F	G	H
M	L	K	J
N	P	Q	R

Section 14

Figure 1.--Diagram of quarter-quarter section grid lettering system, as adapted from the U.S. Geological Survey well-numbering system.

Design Limitations

By assigning the pesticide-application data to cells, the system assumes that the application was uniformly distributed over the entire cell area. In reality, only part of the cell area may have received a pesticide application, but this assumption appears to be a reasonable compromise for areal applications. Most of the data that are anticipated will be from large farms where most of the grid cells would receive uniform applications over their full areas. The alternative of digitizing individual pesticide-application areas seems to offer small accuracy gains and numerous disadvantages. For specific details, system users can refer to the sketch maps on the paper copies of the pesticide application record form (see fig. 2).

Although the grid system was designed primarily for handling areal-application data, it also could be used to incorporate data from applications along linear features such as highway or railroad rights-of-way. The linear features would first be drawn on gridded maps and then the number of affected acres would be assigned to each quarter-quarter section through which the linear features passed. The system would again handle the data as if the

chemicals had been applied uniformly over the cell. The grid system would not preserve the linear geometry of the original data.

Data Files

Eight ARC/INFO files were defined to store the pesticide-application data. The data files were structured by subject matter, whenever possible, but consideration also was given to the number of values per data field for each application. Data fields with single values per application were grouped in files together. Data fields with multiple values per application were placed in separate files, with no more than one multivalued data field per file. Data fields were set up to accommodate most of the data items on the WSDA Pesticide Application Record form (fig. 2). Although all data fields from the Pesticide Application Record form are represented in the WSDA's own relational data base, a few data fields were not included in the ARC/INFO data base. Some of these fields were not used in the GIS products during the demonstration project, and some were not needed because of data calculations made by the WSDA. The WSDA used reference files to obtain ingredient names and quantities from the EPA product registration number. Calculations were made, as needed, to standardize all application-rate units to pounds per acre for each active ingredient contained in the product.

The data fields representing the name of the ingredient and the name of the product are large (52 and 55 characters, respectively) to retain their unique names. Another large data field is the field representing the number of acres treated with pesticide. Four decimal places are allowed for this field to accommodate data and calculations for residential lawns and small orchards, where the dimensions in acres can be small.

Because ARC/INFO is a relational data base, all of the data files can be linked to one another through the common data field, SHEET.NO. Files with multiple values per application can be linked to files with single values per application, but must not be linked to other files with multiple values per application. Files with only single value fields can be linked to one another (fig. 3).

A brief description of each of the eight data-base files follows. A more detailed description of the data fields within each file appears in Appendix A.

The Receiver file (RECEIVER) identifies the name and mailing address of the person or firm for whom the pesticide was applied.

PESTICIDE APPLICATION RECORD (Version 1)

NOTE: This form must be completed same day as the application
and it must be retained for 7 years. (Ref. RCW 17.21)

1. Date of Application - Year: Month: Day: Time:
2. Name of person for whom the pesticide was applied:
Firm Name (if applicable):
Street Address: City: State: Zip:
3. Licensed Applicator's Name (if different from #2 above): License No.
Firm Name (if applicable): Tel. No.
Street Address: City: State: Zip:
4. Name of person(s) who applied the pesticide (if different than #3 above):
License No(s). if applicable:
5. Application Crop or Site:
6. Total Area Treated (acre, sq. ft., etc):
7. Was this application made as a result of a WSDA Permit? ☐ No ☐ Yes (if yes, give Permit No.) #
8. Pesticide Information (please list all information for each pesticide in the tank mix):

a) Product Name	b) EPA Reg. No.	c) Total Amount of Pesticide Applied in Area Treated	d) Pesticide Applied/Acre (or other measure)	e) Concentration Applied
			/	
			/	
			/	
			/	
			/	

9. Address **or exact location** of application. **NOTE:** If the application is made to one acre or more
of agricultural land, the field location must be shown on the map on page two of this form

10. Wind direction and estimated velocity during the application:
11. Temperature during the application:
12. Apparatus license plate number (if applicable):
13. ☐ Air ☐ Ground ☐ Chemigation
14. Miscellaneous Information:

Location of Application (If the application covers more than one township or range, please indicate the township & range for the top left section of the map only):

Township: N

Range: E OR W (please indicate)

Section(s):

County:

PLEASE NOTE:

The map is divided into 4 sections with each section divided into quarter-quarter sections. Please complete it by marking the appropriate section number(s) on the map and indicate as accurately as possible the location of the area treated.

Section: Section:

N

One Mile

Section: Section:

Miscellaneous Information:

Figure 2.—Example of a Pesticide Application Record form--continued.

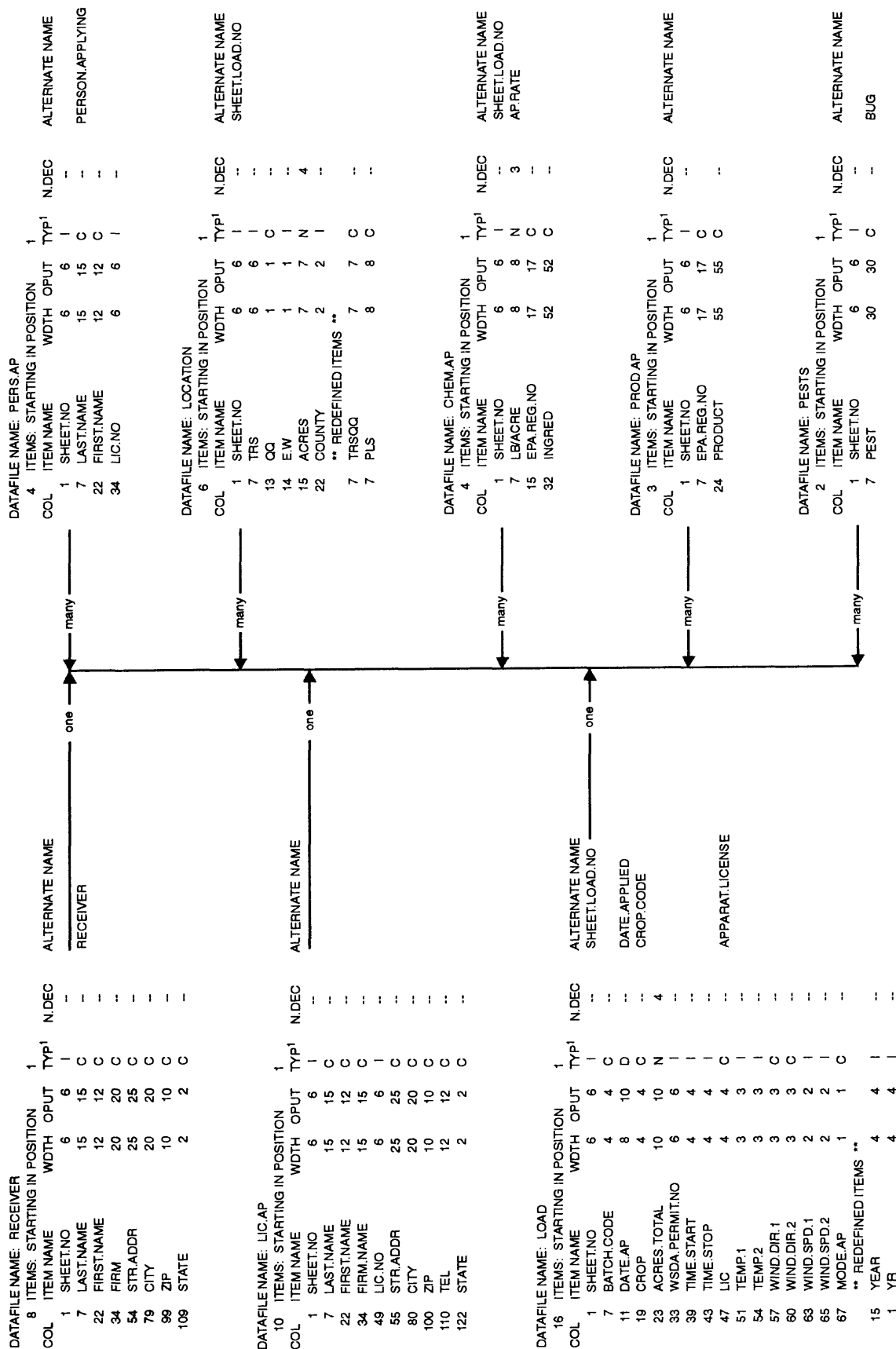


Figure 3.--Diagram showing data file relations in the Pesticide-Application Data-Base Management System.

The Licensed Applicator file (LIC.AP) identifies the name and mailing address of the firm or individual who possesses the WSDA Pesticide Applicator's License under which the pesticide was applied.

The Person Applying file (PERS.AP) contains the name and license number of the person(s) who actually applied the pesticide.

The Location file (LOCATION) contains the location information for the pesticide application in an idealized form of the PLSS using township, range, and section and quarter-quarter section. It also includes the county in which the quarter-quarter section is located.

The Load file (LOAD) contains information regarding the date, time, and site conditions during the specific pesticide-application event.

The Chemical Application file (CHEM.AP) contains the names of the active ingredients and the application rates used during application.

The Product Application file (PROD.AP) contains the product name and corresponding EPA registration number for the applied pesticides.

The Pests file (PESTS) contains the data on the application target, such as insect name or blight name.

Populating the Data Files

It was most cost-effective for WSDA to use their own relational data-base software for all data entry and to transfer the data to the PDS. The USGS and the WSDA coordinated the data field definitions for the two data bases in order to make the data easily transferable.

Some editing was required before uploading the WSDA ASCII file containing the ingredient data field (the item INGRED in the ARC/INFO CHEM.AP file). Ingredient names are used as data file names in the retrieval programs and must not contain spaces. The period symbol was inserted as a buffer between data elements. Also the ingredient names could not contain commas because INFO uses the comma as a data element delimiter. Commas were replaced with the underline symbol. In the future, these changes could be made in the original data base in order to streamline the data transfer.

INSTALLATION OF THE SYSTEM

Installation of the system requires minimal effort, but needs to be done by someone with a basic understanding of ARC/INFO. This section documents the steps necessary for installing and customizing the system at a new site. Most steps are short, but preparation of the grid coverages required for plotting will require more time.

Hardware

The PDS is designed for installation on a Prime mini-computer running ARC/INFO Rev 5.0.

Directories

The data files and retrieval programs need to be located in the main directory (fig. 4). The plotting subroutines must be located in the plotting subdirectories of the main directory. The QQ- and the REF- directories can be positioned as desired. The directories can be renamed as desired.

Data Files

The initial eight ARC/INFO data files contain data from the demonstration project and could be used for testing or demonstrations. When the installer is ready to load a new data set, the files need to be selected individually and the existing data purged from the files. Data can then be loaded in several ways. From tabular ASCII files, data can be loaded with INFO's GET command, for read-only access to the data, or the GET command with the COPY option for full access. For ASCII data separated by delimiters, the INFO ADD FROM command can be used to load the data. This option must be used for binary data. A data entry system also could be developed for entering the data directly to ARC/INFO.

When the LOAD file is populated with data by means of the INFO GET command, the file then is selected in INFO and the DATE.AP is calculated equal to itself. This technique transforms the data field into the standard INFO date format.

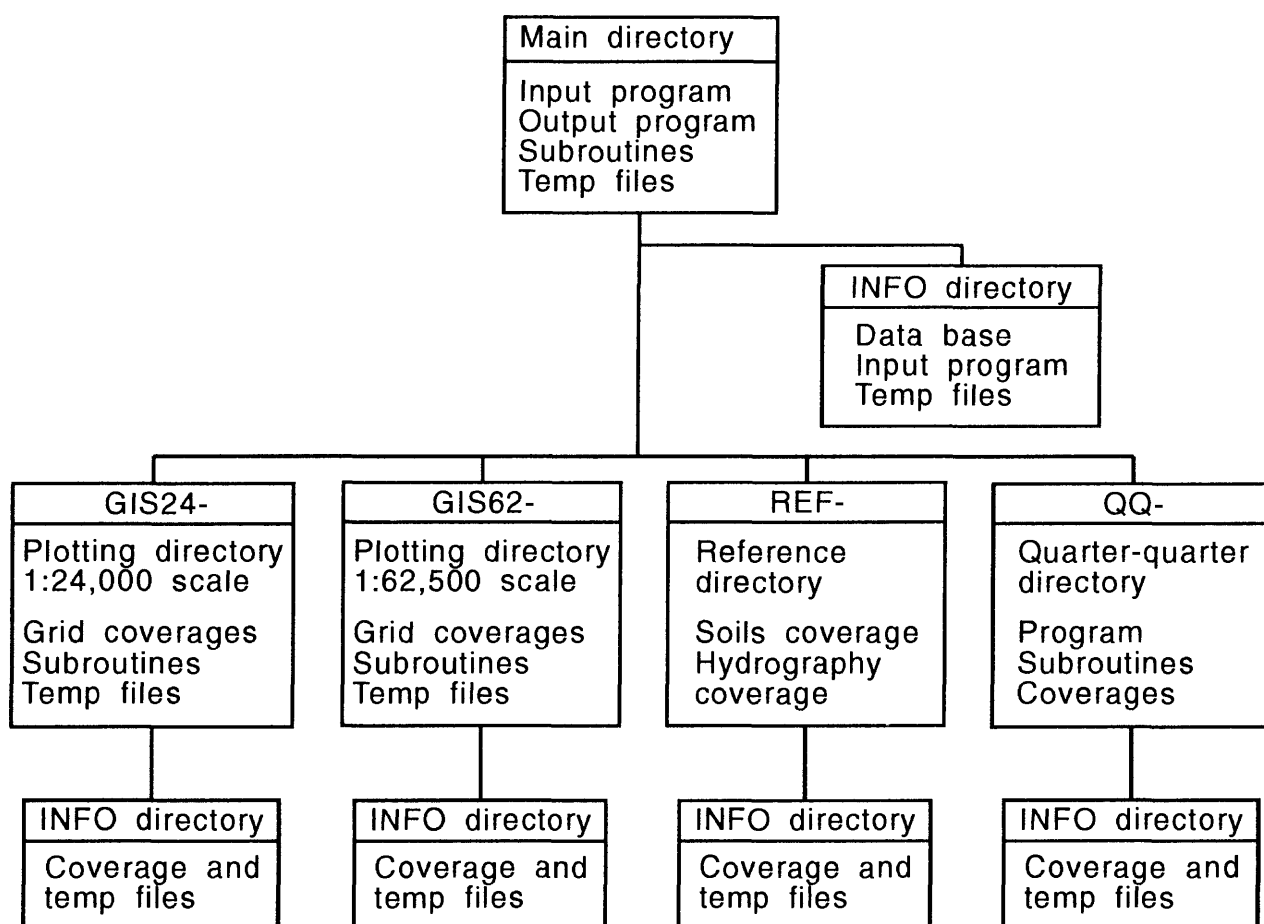


Figure 4.--Diagram showing directory contents in the Pesticide-Application Data-Base Management System.

Each of the data file records must be arranged in sequential order by the item SHEET.NO with the SORT command. The retrieval programs assume that the eight files are sorted by SHEET.NO and will give erroneous output if they are in the incorrect order.

Ingredient-List Program

After installation of new data files, a new reference list of ingredient names needs to be generated. This list also must be regenerated when new ingredient data are added to the data base. The purpose of the list is to provide

help to a user making a retrieval. If the user has a question regarding the spelling of an ingredient name, a "?" can be entered to the query for the ingredient name, and the reference list of ingredient names will be displayed. The ingredient list can be regenerated through the "Miscellaneous Programs" option on the PDS menu.

Program Variables

For producing plots, certain variables must be customized for computer hardware, directory names, coverage names, and plotting parameters. These variables can

be changed through the "Miscellaneous Programs" option on the PDS menu. Details regarding the variables are included in the documentation for the SET.DIR.COV.-AML subroutine (Appendix G).

The RSP.DATE.AML subroutine displays default dates that are used for data retrieval unless the user enters specific dates. These dates also may be changed through the "Miscellaneous Programs" option on the PDS menu.

Como and Watch Files

Program flow is recorded by Primos como files or ARC watch files. After installation and testing, comment symbols can be used to disable these commands. This would eliminate the creation of many non-essential files.

Grid Coverages

Quarter-quarter grid coverages specific to the user's project area must be installed in the appropriate plotting subdirectories. The ARC command EXTERNALALL needs to be invoked in each plotting subdirectory after the coverages are installed. The coverages need to be sized to fit on the plotter paper at a scale specific to the plotting directory. Certain parameters such as PAGESIZE and BOX will need to be changed in the plotting subroutines if the user's project area is larger than the demonstration project area. If quarter-quarter section coverages are not available, idealized quarter-quarter grid coverages can be created from section coverages, with programs located in the QQ- directory. See Appendix C for details on using these programs.

Adapting the System to Another State

The QQ grid-labeling system used in the PDS was adapted from the U.S. Geological Survey well-numbering system for the State of Washington (fig. 1). The adaptation of the PDS to other States is discussed further in Appendix C and in the "Subdivision of the Section Coverages" section of this report.

Sample Coverages

Sample coverages are included in the plotting and reference subdirectories for testing and demonstrating (Appendix D) the system. These coverages can be removed when replaced by coverages for a new application.

USE OF THE SYSTEM

The PDS is designed for users with minimal ARC/INFO experience. However, some experience in ARC/INFO is necessary to modify programs or prepare ARC coverages for subdivision into grids.

Directories

The system directories are organized to provide separate work areas for major functions such as data retrieval, plotting, coverage storage, and coverage preparation (fig. 5). Multiple directories are needed to keep the directories small enough to be reasonably efficient.

The Main Directory

Most of the system operation is performed in the main directory. The pesticide-application data reside in the subdirectory named INFO and is accessed from the main directory. Data retrieval programs (AMLs) are run from the main directory, and the data retrieval output files are written to the main directory.

Plotting Directories

There are separate directories for both map scales used for plotting (1:24,000 and 1:62,500). These directories are located beneath the main directory and contain plotting programs and the grid coverage that provides the grid framework and map extent for plotting. Retrieval programs that create plots are run from the main directory, but they in turn run programs in the plotting directory for the chosen map scale. The plot files are created in the plotting directories. The user must return to the main directory to run more retrieval programs.

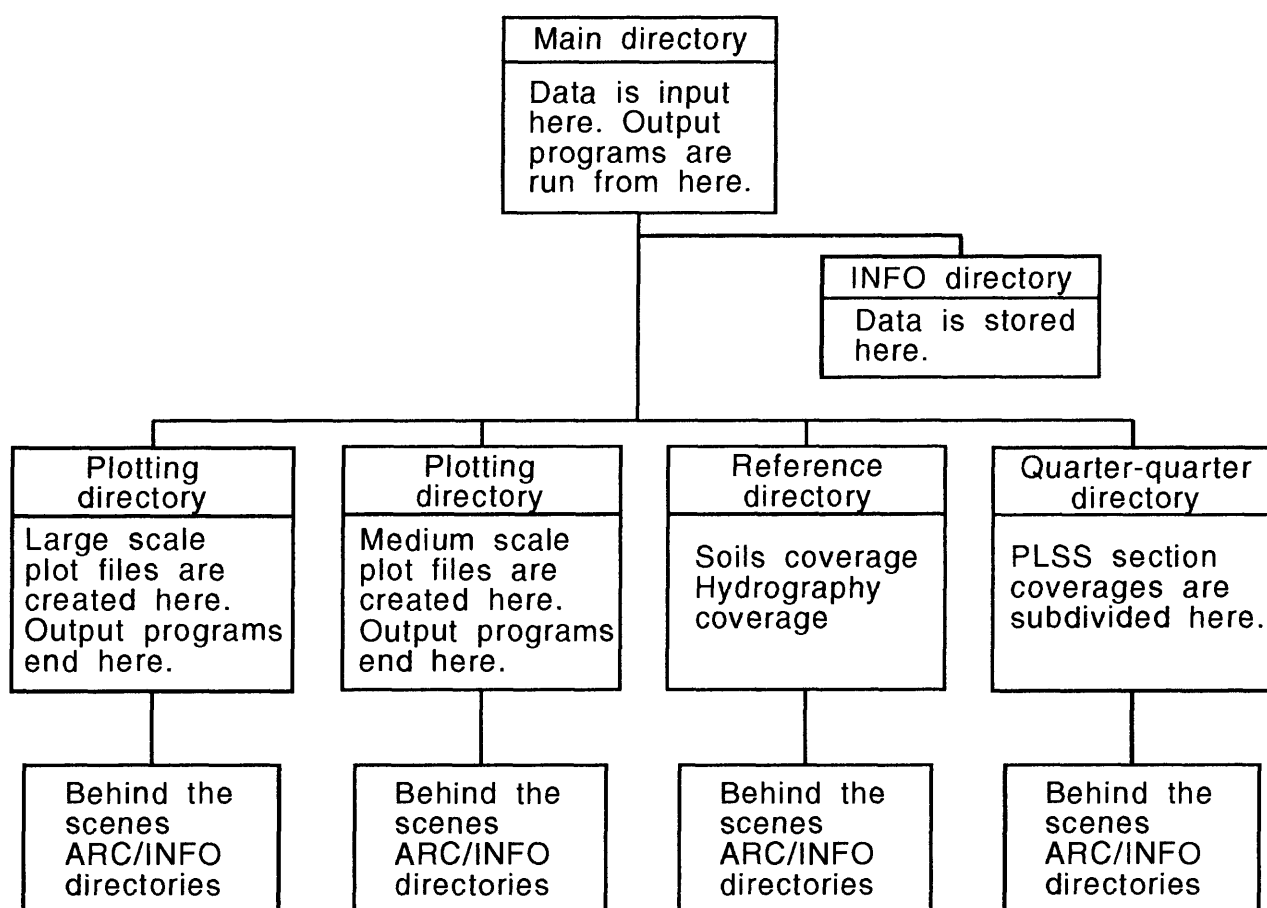


Figure 5.--Diagram showing directory functions in the Pesticide-Application Data-Base Management System.

The Reference Directory

The reference directory, REF-, stores reference coverages such as soils, hydrography, land use, or county boundaries. When plotted with data-base coverages, reference coverages can provide a backdrop of known locations or show relations between the pesticide applications and other geographic data.

The Quarter-Quarter Directory

The quarter-quarter directory, QQ-, contains the programs, subroutines, and coverages used to subdivide the PLSS sections. Completed QQ coverages are moved or copied from this directory to the plotting directories before plots are created.

Multiple-Users Warning

The ARC/INFO system allows only one user to perform INFO data file manipulations at a time. Multiple users may, however, read single INFO files at once. However, because most ARC functions involve the manipulation of INFO files, the data integrity could be irreparably damaged if a data file is called by more than one user at a time. The main program, PDS.AML, checks to see if anyone else is using the PDS system. If the system is in use, a message is sent to the potential user and the program ends. If the potential exists for more than one person using the PDS at a time, users must only enter the system through the main PDS menu program.

Data Retrieval

Data retrievals and plots can be made through a menu system or by running a specific retrieval program. With the menu system, the retrieval options are listed on the screen, the user chooses an option, and the appropriate program is invoked. The menu system is invoked at the ARC prompt by entering '&R PDS'. Programs are run independently by entering '&R <program>' at the ARC prompt.

The retrieval programs require the basic data files to be maintained in sequential order by the SHEET.NO data field. See "Data Files" in the Installation of the System section for further details.

The programs prompt the user for the specific data needed such as dates, chemicals, and applicator's name. Since most of the programs require only one word responses, there is no requirement that the user have any ARC/INFO background. Two programs require the use of conditional logic statements and the statements must be in the standard INFO format. An example of a conditional logic statement is shown and help is available if a '?' is entered. A listing of the data field names or a listing of the chemical ingredient names can be displayed to aid the user.

Data retrieved are written to both an ASCII file and to an INFO data file. Three ASCII files are produced. The file beginning with "COUNT" lists the quantities of the ingredient applied for each quarter-quarter section and the number of affected acres. The file beginning with "SHEET" is ordered by the sheet number and lists the sheet number, application rate, and the number of acres. The file beginning with "LOC" lists the same fields as the

"SHEET" file, but is ordered by location. The "SHEET" and "LOC" files are useful in quality assurance because they list the data used in the data-retrieval calculations.

When plots are requested, the affected grid cells are shaded according to the ARC/INFO data output file. Other coverages can be plotted along with the shaded grids. The only coverages required for plotting purposes are the grid coverages. Coverages are not routinely created as output, but may be created when needed for a specific project. The use of files instead of coverages is more efficient because coverages require large quantities of computer storage space, and coverage manipulations put great demands on the computer resources.

Retrieval Options

The following retrieval options are available with either tabular data output or tabular data plus plots.

1. Quantity applied - one chemical. The user may request a retrieval for the total quantity of the specified ingredient applied during the period. The quantities of the ingredient are summed for each quarter-quarter section and the quantities are plotted in four different shading patterns.

2. Quantity applied - several chemicals. With this option, the user may specify that the quantities for several ingredients be individually summed and the areas of application for each chemical be plotted. Each ingredient is plotted in a unique shading pattern. The sums for each ingredient are not plotted, but are available in the output data files. This retrieval for displaying several chemicals together on the same plot takes longer to run than the others, so a batch-processing option is available. If the batch-processing option is chosen, the user can later move to the plotting directory to view the completed plot file.

3. Quantity applied - application conditions - one chemical. Data retrievals and plots can be made for pesticide applications that were made under specified conditions such as a wind direction or crop type.

4. Quantity applied - person or firm - one chemical. Retrievals can be made on the basis of the person "receiving" the application, the licensed applicator, or the person actually applying the chemical.

5. Rate applied - one chemical. This option will list or plot all the areas that received applications of a specified chemical at rates exceeding a user-specified rate.

6. Where any applied--all chemicals. The user may retrieve data for all the areas that received any of the chemicals during a given period.

7. Where any applied--selected sheet numbers. This program retrieves on the basis of a group of pesticide-application form numbers for use in quality checking data and in making comparisons with hand-plotted data for project evaluation purposes.

Plotting

Before running a retrieval to generate a plot, it can be necessary to alter the plotting parameters. The plotting parameters may be changed through the "Miscellaneous Programs" option on the PDS menu. A submenu is displayed and when the "Change Plotting Parameters" option is selected, the user is prompted with each parameter to change. The present settings are displayed. The appropriate grid coverages also may need to be placed in the desired plotting directory.

The plotting takes place in the appropriate plotting directory and after reviewing the plot, the user can use the plotting menu to save the file with a new name or to return to the main directory.

Page-size plots (8 1/2 x 11 inches) can be generated with programs located in the plotting directories. These programs are dependent upon the basic retrieval options for generating the required data files. After the creation of a full-size plot that contains the desired retrieval, a matching page-size plot can be generated with the related program. Driver programs can run these page-size plot programs after being customized with the arguments needed. Table 1 contains a listing of retrieval options and the related page-size driver programs.

Both plotting directories contain driver programs that are useful if altering and testing the plotting programs (table 1). Like the driver programs discussed above, these programs require that the appropriate files already have been generated by a previous retrieval.

Table 1.--Retrieval menu options and primary plotting programs

Menu options for PDS.AML	In main directory: Primary program	In plotting directory:		
		Program for large plots	Program for 8 1/2x11 plots	Program for re-running plots
1. Quantity applied- one chemical	SUMPLT	PLT2	DRIVER82	DRIVER2
2. Quantity applied- several chemicals	MULTIPLT	PLT.MULTI	DRIVER84	DRIVERMLT
3. Quantity applied- application conditions -one chemical	LOADPLT	PLT3	DRIVER83	DRIVER3
4. Quantity applied- person or firm- one chemical	PERSONPLT	PLT3	DRIVER83	DRIVER3
5. Rate applied- one chemical	RATEPLT	PLT2	DRIVER82	DRIVER2
6. Where any applied- all chemicals	ALLPLT	PLT2	DRIVER82	DRIVER2
7. Where any applied- selected sheet numbers	SHEETPLT	PLT2	DRIVER82	DRIVER2

Maintaining the Retrieval Programs

Several programs will require periodic updating. The reference list of ingredients needs to be updated when new ingredients are added to the data base. This list can be displayed to the screen to aid the user in entering names for retrievals. The user can regenerate the ingredient list through the "Miscellaneous Programs" submenu of the PDS menu.

The user can alter the default dates used for retrievals by choosing the "Change Dates" option on the PDS submenu for "Miscellaneous Programs."

A number of temporary files are generated by the retrieval programs and some can be deleted after the retrievals are complete. This is discussed in detail in the Temporary Files section.

Creating a Data Retrieval Coverage

When ARC/INFO coverages are required for specific applications, the FILETOCOV.AML can be used to generate the coverages. For example, the DRASTIC package requires overlays with polygon coverages such as surficial geology and land use. A FILETOCOV.AML program is located in each plotting directory.

Temporary Files

The output programs generate temporary files each time they are run. When cleaning up the directories, the PDS "Miscellaneous Programs" submenu can be used in the deletion of temporary files. The user is queried for an ingredient name to use in deleting INFO data files. For deleting ASCII files (system files) the user is asked to enter the file name.

Below is a list of the temporary files in the main directory and in the plotting directories:

ASCII files - main directory

(a) Files that begin with TMP. are used in loading INFO files and can be deleted after a program has been run.

(b) Files that begin with COMO. are temporary files used to record the commands and actions occurring during a program run. They can be useful to a programmer who is checking the functions of a program.

(c) DRIVER.AML is written and run each time MULTI.AML or MULTIPLT.AML is run.

INFO files - main directory

(a) Files with names ending in .AP are created to hold the records for a single chemical (INGRED). (The file entitled "CHEM.AP" is a basic data file containing multiple chemicals, however, and must not be erased.) A single-chemical file is created by reselecting the records for that chemical from the CHEM.AP file and copying them to the single-chemical file. This file is necessary to permit a many-to-one INFO relation between the LOCATION file and the chemical application data.

(b) The LOC.INDEX file is created to hold all of the affected QQ sections and the related data required for the particular program.

(c) Files ending in .COUNT are loaded with single records per affected quarter-quarter section (QQ) in the LOC.INDEX file. The quantities for each QQ are summed or calculated, as appropriate.

(d) Files ending in .LUT are look-up tables for plotting. They are created in the main ARC/INFO directory from values in the .COUNT files. They also are copied to INFO in the plotting directory where they are temporary files.

(e) PROG.NEW is an INFO program that is rewritten by many subroutines. It can be removed as desired.

ASCII files - plotting directories

(a) DRIVER.TRANS.AML subroutine is written and run each time MULTIPLT.AML is run. It can be deleted.

(b) PLT.MULTI.AML subroutine is written by the WRITE.PLT.AML subroutine each time MULTIPLT.AML is run.

INFO files - plotting directories

(a) Files ending in .COUNT are the data files used for plotting and are copies of the files of the same name in the main INFO directory.

(b) Files ending in .LUT are look-up tables for plotting. They are created in the main INFO directory and copied to the plotting directory.

(c) PROG.NEW is an INFO program that is rewritten by many subroutines. It may be ERASED after completion of the program run.

Subdivision of the Section Coverages

The PDS program to subdivide PLSS sections into quarter-quarter sections assumes that all sections are 1-mile square and subdivides the sections into 16 quarter-quarter sections. Most sections in Washington are fairly uniform and this idealized subdivision will be reasonably accurate for most areas. However, some of the PLSS sections also will be irregular in shape and (or) irregular in size. The program stretches or shrinks the idealized grid to fit these irregular sections and creates 16 quarter-quarter sections. The resulting areas will not match surveyed quarter-quarters. The standard PLSS documentation directs surveyors to lay out the quarter-quarter sections by starting at the southeast corner of a section and creating as many full, 40-acre quarter-quarter sections as the area of the section allows (U.S. Bureau of Land Management, 1973, Manual of instructions for the survey of the public lands of the United States: Technical Bulletin 6, 333 p.). For example, a narrow section might have only 12 quarter-quarters and none of the westernmost quarter-quarters (D, E, M, or N). Extensive computer programs would have been needed to subdivide all of the possible non-standard PLSS sections.

The user needs to evaluate the level of accuracy required for a specific application. Two important considerations are the level of accuracy of the sketch maps drawn on the pesticide-application sheets and the accuracy used in translating the sketch maps for data entry. The quarter-quarter section grids provided on the field sheets for sketch maps are uniform grids. Application areas in non-standard sections can be particularly inaccurate in the sketches. In addition, unless the data entry operator screens all sketch maps by comparing them to PLSS maps and knows how to

assign quarter-quarter designations in non-standard sections, these differences in assigning the grids may not be significant. If greater accuracy is required, the irregular sections could be subdivided on their maps and the quarter-quarter sections digitized.

The PDS quarter-quarter programs and instructions for their use are located in Appendix C.

FUTURE REVISIONS

If the PDS is implemented for a large geographic area, or statewide, there will be the need to make revisions to the system. In order to handle a large data base, an interface with another relational data-base software system might be necessary, as well as changes to the present management structure.

Directory Reorganization

The directories in this system were set up for a demonstration project for one small geographic area. With a large data base, however, it might be best to download data for each project area into a separate data directory. Data retrievals will be more efficient when using small data files.

At present each project directory requires a set of all of the retrieval AMLs and a set of its own plotting subdirectories. The directories could be organized with one central directory containing the retrieval AMLs and subdirectories for the plotting AMLs. The programs would require modifications to reflect the new directory organization in the pathnames.

Data Fields

It would be more efficient to store the ingredient data in a smaller data field. In the future, the WSDA may use the Chemical Abstracts Service (CAS) numbers for pesticides and in that case, the ingredients could be listed by their CAS numbers in the CHEM.AP file. This would save data storage space and retrievals could be more efficient. The full ingredient names could be available through a cross-reference file, with a program that could search for chemical names or parts of chemical names.

Data File Sorting

It is imperative that the basic data file records be kept in the sequential order of the data field SHEET.NO. If data are to be added to the files from time to time, it may be useful to develop a system for routinely resorting the files. If the data files are large and sorting becomes cumbersome, a system using INFO "Key" files could improve sorting speed.

Retrieval Options

The need for additional retrieval options undoubtedly will arise, and new programs will need to be written and installed. It also may be desirable to add non-interactive or "batch" options to more of the programs. Programs run in batch mode during the day, or preferably at night, will lessen the strain on computer resources.

File Deletion

In some applications, it may be desirable to automate the deletion of some or all temporary files at the end of each data retrieval.

Map Library

With a large geographic area, an ARC/INFO map library (LIBRARIAN) system could be set up to organize the gridded quarter-quarter and section coverages.

Data Input System

In the future, if the data are to be entered directly into the ARC/INFO data-base files, it would be desirable to design a data-input system. With programs and input forms, a fairly efficient, user-friendly system could be set up for entering the data off the Pesticide Application Record. A discussion on data coding requirements for an input system is in Appendix B.

GLOSSARY

AML: ARC Macro Language; also, a program written in the ARC Macro programming language.

ARC/INFO: a Geographic Information System (GIS) software package produced by Environmental Systems Research Institute (ESRI).

ASCII: American Standard Code for Information Interchange file. Also referred to as "sequential", "regular", or "flat" file; a standard data exchange format.

Batch: background processing of data without intervention of the user.

Binary: involving the expression of a number with a base of 2. An efficient method of storage for large numbers.

Como file: records Primos commands and system responses.

Coverage: the basic unit of storage in ARC/INFO. A coverage contains both the positional and attribute data for map features. A coverage generally contains data for one type of map feature such as roads, soil units, or parcels.

Digitize: convert map features to digital form. A map is placed on an electronic table that has an x,y coordinate-reference frame and features are traced with a cursor.

Directory: a virtual storage area for files and subdirectories.

DRASTIC: a standardized system for evaluating ground-water pollution potential using hydrogeologic settings. Developed by the National Water Well Association.

Field: a group of characters or numbers that are treated together and have a name or title.

GIS: Geographic Information System. An automatic data-processing system for storing, retrieving, and analyzing spatial and attribute data.

Node: the beginning and ending locations of an arc in ARC/INFO.

Output program: a program that produces data-output files and (or) displays of spatial data.

PDS: Pesticide-Applications Data-Base Management System.

Plot: a display of spatial data, either on a graphics terminal screen or a hard-copy medium.

Public Lands Survey System (PLSS): the method of designating a geographic location using township (a latitudinal increment) and range (a longitudinal increment) employed in the western United States. The smallest unit of the PLSS is the section, usually 1 square mile or 640 acres.

QQ: a quarter-quarter (or one sixteenth) section of the Public Land Survey System. It is approximately one-sixteenth of a square mile or 40 acres.

Record: a collection of associated data elements stored as one line in a data base.

SCS: Soil Conservation Service, U.S. Department of Agriculture.

USGS/WRD: U.S. Geological Survey/Water Resources Division.

USEPA: U.S. Environmental Protection Agency.

Watch file: records ARC commands and responses.

WDNR: Washington State Department of Natural Resources.

WSDA: Washington State Department of Agriculture.

APPENDIX A - DATA FIELD DEFINITIONS

These definitions give the size and type of the data fields in the PDS ARC/INFO files and define what the fields represent (table 1).

Definition of Data Fields in the RECEIVER Data File

SHEET.NO is a unique six-digit integer variable that is assigned to the field data sheet by the data-entry technician at the time the data are entered into the data base. This number appears in all of the data files and is the primary key used to relate the various files within the data base.

LAST.NAME is a character variable, 15 columns wide, containing the last name of the individual receiving the pesticide application.

FIRST.NAME is a character variable, 12 columns wide, used in conjunction with LAST.NAME to identify the person receiving the pesticide application.

FIRM is a character variable, 20 columns wide, used to identify the business firm, if applicable, that is receiving the pesticide application.

STR.ADDR is a character variable, 25 columns wide, that contains the street or mailing address of the individual or firm receiving the pesticide application.

CITY is a character variable, 20 columns wide, containing the city part of the street or mailing address of the individual or firm receiving the pesticide application.

ZIP is a character variable, 10 columns wide, used to contain the extended zip code (including the hyphen) of the individual or firm receiving the pesticide application.

STATE is a character variable, two columns wide, used to store the U.S. Postal Service State code (ex: WA, OR).

Definition of Data Fields Within the LIC.AP (Licensed Applicators) Data File

SHEET.NO is a unique six-digit integer variable that is assigned to the field data sheet by the data-entry technician at the time the data are entered into the data base. This number is stored in all of the data files and is the primary key used to relate the various files within the data base.

LAST.NAME is a character variable, 15 columns wide, containing the last name of the individual who possesses the WSDA pesticide applicator's license under which the pesticide was applied.

FIRST.NAME is a character variable, 12 columns wide, used in conjunction with LAST.NAME to identify the person who possesses the WSDA pesticide applicator's license under which the pesticide was applied.

FIRM.NAME is a character variable, 20 columns wide, used to identify the business firm, if applicable, that possesses the WSDA pesticide applicator's license under which the pesticide was applied.

STR.ADDR is a character variable, 25 columns wide, that contains the street or mailing address of the individual or firm who possesses the WSDA pesticide applicator's license under which the pesticide was applied.

CITY is a character variable, 20 columns wide, containing the city part of the street or mailing address of the individual or firm who possesses the WSDA pesticide applicator's license under which the pesticide was applied.

LIC.NO is an integer variable, six columns wide, that contains the applicator's license number.

ZIP is a character variable, 10 columns wide, used to contain the extended zip code (including the hyphen) of the individual or firm who possesses the WSDA pesticide applicator's license under which the pesticide was applied.

TEL is a character variable, 11 columns wide, used to contain the telephone of the firm or individual who possesses the WSDA pesticide applicator's license under which the pesticide application was conducted. Two hyphens are used to separate the area code and prefix.

STATE is a character variable, two columns wide, used to store the U.S. Postal Service State code for the licensed applicator's address. (ex: WA, OR)

Definition of Data Fields Within the PERS.AP (Person Applying) Data File

SHEET.NO is a unique six-digit integer variable that is assigned to the field data sheet by the data-entry technician at the time the data are entered into the data base. This number appears in all of the data files and is the primary key used to relate the various files within the data base.

LAST.NAME is a character variable, 15 columns wide, containing the last name of the person(s) who conducted the actual pesticide application.

FIRST.NAME is a character variable, 12 columns wide, used in conjunction with LAST.NAME to identify the person(s) who conducted the actual pesticide application.

LIC.NO is an integer variable, six columns wide, that contains the license number (if applicable) of the person(s) who conducted the actual pesticide application.

Definition of Data Fields Within the LOCATION Data File

SHEET.NO is a unique six-digit integer assigned to the field data sheet by the data-entry technician at the time the data are entered into the data base. This number appears in most of the data files and is the primary key for relating the files.

TRS stands for township, range, and section and is a six-digit integer (no spaces between values).

QQ is the label for the quarter-quarter section in the PLSS. It is a one-digit character item.

E.W is the east-west designator for the PLSS range data field. East = 1, West = 2. This convention is used to conform to the data field format used on DNR digitized PLSS maps.

ACRES is an eight-digit real data field (four decimal places) containing the number of acres treated in the quarter-quarter section.

TRSQQ is a seven-digit character variable describing the township, range, section, and quarter-quarter section.

PLS is an eight-digit character variable describing the township, range, section, quarter-quarter section, and an east-west designation. This field is used to relate to the GIS ARC quarter-quarter coverage.

COUNTY is a two-digit integer code that indicates the county in which the quarter-quarter section exists.

Definitions of Data Fields Within the LOAD File

SHEET.NO is a unique six-digit integer variable that is assigned to the field data sheet by the data-entry technician at the time the data are entered into the data base. This number appears in most of the data files and is the primary key for relating the files.

BATCH.CODE is a four-column character variable for the input batch number. The code can be established to suit the agency entering the data.

DATE.AP is a variable, eight columns wide, used to record the date of the pesticide application. The date format is stored as YYYYMMDD. It is entered in INFO as DD/MM/YY (ex: 7/9/90).

CROP is a two-digit integer code used to identify the crop on which the pesticide was applied.

ACRES.TOTAL is a 10-digit real variable, with 4 decimal places, that indicates the total area to which pesticide was applied for a particular application record. This size was set to accommodate the WSDA data field.

WSDA.PERMIT.NO is a six-digit integer variable that contains the WSDA Pesticide Application Permit Number.

TIME.START is a four-digit integer variable used to record the time of day at which the pesticide application began. The format uses the 24 hour military time HHMM.

TIME.STOP is a four-digit integer variable used to record the time of day at which the pesticide application ended. The format uses the 24 hour military time HHMM.

LIC is a character variable, 10 columns wide, used to record the license number of the equipment used in the pesticide application, when applicable.

TEMP.1 is a three-digit integer variable used to record the ambient air temperature at the time the pesticide application began. The units in the test data are degrees Fahrenheit.

TEMP.2 is a three-digit integer variable used to record the ambient air temperature at the time the pesticide application ended. The units in the test data are degrees Fahrenheit.

WIND.DIR.1 is a character variable, three columns wide, used to record the first wind direction. For example, it could be WNW.

WIND.DIR.2 is a character variable, three columns wide, used to record the second wind direction. For example, it could be WNW.

WIND.SPD.1 is a two-digit integer used to indicate the first wind speed in units of miles per hour.

WIND.SPD.2 is a two-digit integer used to indicate the second wind speed in units of miles per hour.

MODE.AP is a one-character variable for the mode of application. For example, it could be 'A' for an aerial application.

YEAR is a four-digit integer variable. It is a redefined part of the DATE.AP variable.

YR is a shorter name for YEAR.

Definitions of Data Fields Within the CHEM.AP (Chemical Applications) File

SHEET.NO is a unique six-digit integer variable that is assigned to the field data sheet by the data-entry technician at the time the data are entered into the data base. This number appears in most of the data files and is the primary key for relating the files.

EPA.REG.NO is a character variable, 17 columns wide, that contains the USEPA's product registration number of the pesticide.

LB/ACRE is a numeric variable, eight columns wide, with three columns to the right of the decimal point. The variable represents the quantity of the pesticide product, in pounds, applied per acre (areal loading).

INGRED is a character variable, 52 columns wide, that contains the common name of the active ingredient of the pesticide.

Definitions of Data Fields Within the PROD.AP (Product Applications) File

SHEET.NO is a unique six-digit integer variable that is assigned to the field data sheet by the data-entry technician at the time the data are entered into the data base. This number appears in most of the data files and is the primary key for relating the files.

EPA.REG.NO is a character variable, 17 columns wide, that contains the USEPA's product registration number of the pesticide.

PRODUCT is a 55-character variable containing the common name of the product applied.

Definitions of Data Fields Within the PESTS File

SHEET.NO is a unique six-digit integer variable that is assigned to the field data sheet by the data-entry technician at the time the data are entered into the data base. This number appears in most of the data files and is the primary key for relating the files.

PEST is a 30-character variable containing the name of the target pest or pests for the application.

APPENDIX B - DATA CODING AND DATA ENTRY

This discussion covers details needed for planning data coding and data entry.

The following data fields require a limited amount of coding by the data entry technician: the record form number (SHEET.NO), data entry batch number (BATCH.CODE), application area location (PLS), acreage (ACRES), State (STATE), county (COUNTY), and crop type (CROP).

The use of a unique SHEET.NO for each Pesticide Application Record is critical to the proper functioning of the data base. Before the data can be entered into the data base, a unique SHEET.NO should be assigned to the paper copy of the Pesticide Application Record. The data-base manager will need to develop a method to ensure that these numbers are unique.

The codes for STATE, COUNTY, and CROP represent straightforward tabular relations developed to fit the user's needs. Codes used must be compatible with the item definitions within the data files. In the test data set, the code system used for the State designation followed the two-character abbreviation used by the U.S. Postal Service. Coding for COUNTY followed the two-digit convention used by the National Water Information System (NWIS) data system. The user probably will need to develop a crop code appropriate for their own project.

The location of the application area will be indicated by a sketch map on the record form. Some coding and interpretation will be required by the input technician to translate the spatial information into a digital format. The bulk of the digital location data needed is encompassed in the township, range, and section information that is to be supplied by the pesticide applicator. The resolution of this data is on the order of 1 square mile (640 acres). The data base has been constructed to increase this resolution to 40 acres. In order to gain this increased resolution, the input technician will have to use a four-by-four grid to code the location information within a section.

The grid-coding procedure is relatively easy and involves interpolation of the sketch map to determine the QQ's where the pesticide was applied. The letter designation of the four-by-four grid used for the data base follows the convention used by the U.S. Geological Survey well-numbering system in the State of Washington (fig. 1). Each QQ is assumed to represent an area of 40 acres.

The acreage to be assigned to each quarter-quarter section is interpolated from the number given for total acreage treated and from the sketch map (see fig. 2). The amount of time used in implementing this process needs to reflect the detail and accuracy of the original data.

Use of a uniform QQ grid structure assumes that all sections are square and are exactly 640 acres in area. There will be areas where these simplifications will be at odds with the PLSS and with the section coverages that are available from WDNR. The potential inaccuracies will be confined to the quarter-quarter section part of the location information. It can be desirable to write a routine to calculate the area (in acres) of each section within the WDNR coverage and flag any sections that differ significantly from the above assumptions. The interpolation procedures then could be adjusted if necessary to reflect the differences in area.

The form number (SHEET.NO) can be required to be entered only at the beginning of each data entry session and then programmed to be entered automatically into all of the data-base files.

APPENDIX C - CREATING THE QQ COVERAGES

This discussion covers the details of subdividing section coverages into quarter-quarter section (QQ) coverages.

Purchasing Section Coverages

When purchasing section coverages from the WDNR, it would be advisable to order them by township instead of by quad sheets. Quad sheets have partial sections along the edges and these cannot be subdivided properly by the QQ programs. These partial sections can be edited out of the coverages, but then there will be areas that are not included in any coverage.

Preparation of the Input Coverages

- a. If there are partial sections on the outside edges of the coverage, they will need to be removed by the GIS editor. The outside arcs that close off the polygons need to be deleted (ex: POCA coverage).
- b. The WDNR coverages include polygons for State public land property in addition to the section polygons (ex: MESA.W.POCA coverage). The ARC DISSOLVE command needs to be used to remove extraneous arcs within the quarter-quarter sections (ex: MW.DIS coverage).
- c. Each PLSS section must have a node at each corner. If there is no node, the arc may be split at the corner to create one.
- d. The grid coverages must be joined together or trimmed in size as desired for plotting or storing. This will depend on the size of the area of concern and how the coverages will be used.

PDS Version 1.1 has QQ coverages of the appropriate sizes for plotting in the two plotting directories. The 1:24,000 scale directory contains coverages (ex: SEC.1029 and QQ.1029) to plot one township (Township 10, Range 29) at a map scale of 1:24,000 (USGS 7.5-minute quadrangles). The 1:62,500 directory contains coverages (ex: ELTOPIA.SEC) for plotting one township at a map scale of 1:62,500 (USGS 15-minute quadrangles).

When the coverages are purchased from DNR for larger areas, it might be advantageous to set up an ARC LIBRARY (tiling) system for organizing the section and QQ coverages. The plotting programs could be altered to use an outline coverage for the township or quadrangle MAPEXTENT and the sections and quarter-quarters could be plotted from the large coverages.

Program Flow

Note: This program is a heavy user of computer resources. It might be advisable to test it by running it for two or three PLSS sections during the day and then run the remainder in batch mode during the night.

The DRIVER.QQ.AML runs the other AML's to subdivide each section into 16 quarter-quarter sections. The user is prompted for the input coverage name, the output coverage name, the # number for first section, and the # number for last section. The # number refers to the item in the .PAT file preceding the cover-ID item. The user is also asked whether or not to run the program in batch mode.

(a) The PULLITEMS.AML subroutine trims the incover .PAT file of unneeded data fields.

(b) The QQ.AML subroutine makes a new gridded coverage for each section and APPENDs them together.

The RESELECT function creates a new polygon coverage for a single section. ARCDLG gets the coordinates of the four corner nodes of the section. The coordinates are calculated for the additional nodes needed to define the corners of the 16 quarter-quarter sections. A standard PLSS grid (coverage NEW.GRID) is transformed with the calculated node values of the section to make a grid coverage for the section.

The resulting transformed grid coverage is then intersected with the section coverage. This process is repeated until coverages have been created for all specified sections. When all individual section coverages are created, the coverages are APPENDED together and cleaned.

(c) PULLGRIDITEMS.AML subroutine makes a copy of the appended coverage (APPEND.IN) and names it the outcover. It then trims the outcover of unneeded data fields and adds two fields: TRS (township, range, and section) and E.W (east or west for the range).

(d) REDEF.CALC.AML redefines parts of the TOWN.ID and SECTION.ID data fields. The redefined fields then are used to calculate the values in PLS, an eight-digit field for the town, range, and quarter-quarter section value. The last digit indicates whether the range is east (1) or west (2).

Further Consideration

APPEND.IN is a temporary coverage created by the quarter-quartering programs. A coverage can be subdivided in steps by doing the sections in batches. Each time the program is run the new batch of subdivided sections is APPENDED to the existing APPEND.IN coverage. A copy of APPEND.IN is made, modified, and becomes the outcoverage. When the APPEND.IN coverage exists, the program queries whether or not to append the new coverage to the existing APPEND.IN coverage.

If the new coverage is not to be appended, the program prompts whether or not to save the existing APPEND.IN coverage and what new name to give to it to save it. If it is not to be saved, it is killed.

Adapting the System to Another State

The quarter-quarter section (QQ) grid-labeling system used in the PDS was adapted from the U.S. Geological Survey well-numbering system and is specific to the State of Washington. The program to subdivide the PLS Sections into 16 QQ's could be adapted to another State's labeling system by changing the label names in the coverage NEW.GRID. This could be done in INFO by selecting and updating the NEW.GRID.PAT file. Alternatively it could be done in ARCEDIT with the EDITFEATURE LABELS, SELECT, and MOVEITEM commands.

The location code used in the LOCATION file is an eight-digit code representing the township, range, section, QQ, and an east/west designator. In order to fit another State's requirements, the LOCATION data file template could be DEFINED with whatever code size is required.

New redefined items also would be required and the REDEF.CALC.AML subroutine would need to be modified accordingly.

The QQ subroutines were written for the PLS coverages digitized by the WDNR. The subroutines PULLITEMS.AML and PULLGRIDITEMS.AML also would require adaptation for the data fields in the source coverage's _____.PAT file.

Test Coverages

The following coverages demonstrate the stages of preparing and subdividing the coverages into quarter-quarter sections and can be used to test the programs:

MESA.W.POCA is an unedited coverage from the Department of Natural Resources (DNR). The projection is State Plane Coordinates. It covers the Mesa West USGS 7.5-minute quadrangle.

MW.DIS is MESA.W.POCA after using the DISSOLVE command to remove the State land boundaries within the section polygons.

POCA is MESA.W.POCA after editing to remove arcs closing partial sections along the edges and after removal of multiple nodes and labels in polygons. Arcs were split at the corners to create nodes if there were none there. The projection is State Plane Coordinates.

NEW.GRID is the grid for one idealized section of the Washington PLSS divided into 16 quarter-quarter sections. Each poly has a label with its alphabetic designation. The coordinates of the coverage are in digitizer inches. The arcs and labels in this coverage are used by the programs to divide and label each section for the new coverage.

APPEND.IN is a temporary coverage created by the quarter-quartering programs.

APPENDIX D - SAMPLE COVERAGES

The following coverages are located in the PDS directories for testing and plotting (see fig. 4).

GIS24- directory (for plotting at a scale of 1:24,000 or for 8 1/2 x 11 inch plots)

SEC.1029 is a coverage representing the section 10N/29E and was created with an ARC RESELECT command from a section coverage, ELTOPIA.SEC, for the Eltopia quadrangle of the 15-minute series. The Eltopia quadrangle was a composite of three coverages purchased from the WDNR and one digitized by the USGS, WRD, Tacoma, Wash.

QQ.1029 was made with an ARC RESELECT command from a quarter-quarter section coverage, ELTOPIA.QQ, for the Eltopia quadrangle.

STUDY.SEC.SPS was made by editing the Eltopia 15-minute section coverage for only the areas to be included in the Franklin County PDS study area. The projection is Washington State Plane Coordinates South (SPS).

STUDY.QQ.SPS was made by editing the Eltopia 15-minute quarter-quarter section coverage for only the areas to be included in the Franklin County PDS study area. The projection is SPS.

STUDY.SEC.UTM, in the Universe Transverse Mercator projection (UTM), zone 11, was made from the STUDY.SEC.SPS coverage.

STUDY.QQ.UTM, in UTM zone 11, was made from the STUDY.QQ.SPS.

GIS62- directory (for plotting at a scale of 1:62,500)

ELTOPIA.SEC is a coverage representing the full sections of the Eltopia quadrangle. The Eltopia quadrangle was a composite of three coverages purchased from the WDNR and one digitized by the USGS, WRD, Tacoma, Wash. The partial sections around the margins were eliminated in order to subdivide the sections into quarter-quarter sections.

ELTOPIA.QQ was created by the USGS, WRD, Tacoma, Wash., by subdividing the ELTOPIA.SEC section coverage into quarter-quarter sections through AML programs.

REF- directory (for reference coverages)

SOILS is a polygon coverage of soil zones. It was digitized by the USGS from the map Washington Soils and Related Physiography-Columbia Basin, at a scale of 1:158,000, and was published in 1959. The coverage projection is State Plane Coordinates, zone south.

HYDRO is an arc coverage of the rivers, drains, and canals. The coverage was obtained from the 1:100,000 scale DLG coverages and it was updated and canals were added with digitizing. The item RDC indicates whether the arc is classified as a river, drain, or canal in a ground-water model. The LIN item refers to the lining type of the canal. WP is the wetted perimeter or effective width. ALT is the altitude and DEP is the depth (used for rivers). The projection is State Plane Coordinates, zone south.

APPENDIX E - PDS MENU PROGRAM

```

/*-----
/* Command name: PDS.AML
/* Language: AML AT ARC
/* ::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::
/*
/* Purpose: This program asks the user to select a program option.
/*
/* ::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::
/* Called by programs: none
/* ::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::
/* Arguments:
/* Variable name          Definition
/* -----
/* .PROG.NAME             Program name
/* ::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::
/* History:
/* Author/Site,           Date,           Event
/* -----
/* Karen Schurr           2/6/91          Original coding
/* USGS, WRD
/* Tacoma, WA
/*-----
/*
/* SUBROUTINES required in this directory:
/*
/* RSP.PLOT.AML
/*-----
/* Programmer notes:
/*
/* A list of the retrieval options is listed on the screen
/* and the user is asked to select an option. The program
/* option selected is recorded as a variable option
/* and is used in a later program as part of the command to
/* run the correct retrieval program.
/* This program runs the subroutine, RSP.PLOT.AML, which
/* asks the user if they want a plot as part of the retrieval.
/*
/* -----
&TYPE
&TYPE
&TYPE
&TYPE =====
&TYPE Welcome to the Pesticide-Application Data-Base Management System
&TYPE PDS
&TYPE =====
&TYPE
&TYPE
&TYPE Retrieval programs:
&TYPE
&TYPE 1. Quantity applied - one chemical
&TYPE 2. Quantity applied - several chemicals

```

```

&TYPE      3.  Quantity applied - application conditions - one chemical
&TYPE      4.  Quantity applied - person or firm - one chemical
&TYPE      5.  Rate applied - one chemical
&TYPE      6.  Where any applied - all chemicals
&TYPE      7.  Where any applied - selected sheet numbers
&TYPE
&TYPE      Miscellaneous programs:
&TYPE
&TYPE      8.  Submenu
&TYPE
&TYPE      Q.  Quit
&TYPE
&S .PROG.NO = [RESPONSE 'Please select a program number']
&SELECT [UNQUOTE %.PROG.NO%]
&WHEN 1
    &DO
        &S .PROG.NAME = SUM
        &GOTO EARTH
&END
&WHEN 2
    &DO
        &S .PROG.NAME = MULTI
        &GOTO EARTH
&END
&WHEN 3
    &DO
        &S .PROG.NAME = LOAD
        &GOTO EARTH
&END
&WHEN 4
    &DO
        &S .PROG.NAME = PERSON
        &GOTO EARTH
&END
&WHEN 5
    &DO
        &S .PROG.NAME = RATE
        &GOTO EARTH
&END
&WHEN 6
    &DO
        &S .PROG.NAME = ALL
        &GOTO EARTH
&END
&WHEN 7
    &DO
        &S .PROG.NAME = SHEET
        &GOTO EARTH
&END
&WHEN 8
    &DO
        &R MISCMENU.AML
        &GOTO BOTTOM
&END
&WHEN Q
    &DO

```

```

    &STOP
&END
/*
/*          Error check in case of other replies.
/*
&OTHERWISE
    &RETURN
&END
/*
&LABEL EARTH
/*
/*  Run program which asks whether user wishes an output data
/*      file only or a plot file and an output file.
/*
&R RSP.PLOT.AML
/*
&LABEL BOTTOM
/*
/*  Check to see if another user is in the system.  If so,
/*      end.
/*
&R CHKUSE.AML
/*
/*
&RETURN

```

APPENDIX F - RETRIEVAL PROGRAMS

```
/*-----
/* Command name: ALL.AML
/* Language: AML AT ARC
/* ::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::
/* Purpose: This program retrieves the quarter-quarter sections to
/* which pesticides have been applied during a specific time period.
/* The output is written to an INFO file named ALL.COUNT
/* and to a Primos file named COUNT.ALL.
/* ::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::
/* Arguments:
/* Variable name          Definition
/* -----
/* .CHEM                  Chemical name from CHEM.AP file.
/* .FIRST.DATE            Earliest date of selected time period.
/* .LAST.DATE             Last date of selected time period.
/* ::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::
/* History:
/* Author/Site,          Date,          Event
/* -----
/* Karen Schurr          10-26-89       Original coding
/* USGS, WRD
/* Tacoma, WA
/*-----
/* User notes:
/*
/* The program queries the user for the first and last dates of
/* the time period to be considered.
/*
/* The date range selected must exist in the LOAD file and should be
/* in a month/day/year format.
/*
/* A data file (flat file) is created listing each quarter-quarter
/* section to which any chemical was applied during the time period
/* chosen. The file is named COUNT.ALL. IN ORDER TO PRESERVE THE
/* FILE IT SHOULD BE RENAMED (to avoid it being overwritten by
/* future runs of the program).
/*
/* This program does not require a graphics terminal.
/*
/* INFO files required for running this program are:
/*
/* LOCATION
/* CHEM.AP
/* LOAD
/*
/* SUBROUTINES required in this directory:
/*
/* CALC.ALL.AML
/* RSP.DATE.AML
/* SET.DIR.AML
/*-----
```

```

/* Programmer notes:
/*
/* The directory pathname variable is set by the SET.DIR.AML
/* subroutine.
/*
/* The CHEM variable is set to the word "ALL"; any name will work.
/* It should not, however, be an INGRED name as in the CHEM.AP file.
/* This variable is meant to be a general term to encompass all the
/* chemicals. It is used for naming the output files and is used in
/* the plot's title.
/*
/* The RSP.DATE.AML asks the user to enter the date range for
/* consideration.
/*
/* The CALC.ALL.AML subroutine determines all the quarter-quarter
/* sections to which any pesticides have been applied during the
/* specified time period. It defines two temporary INFO files:
/* LOC.INDEX and ALL.COUNT. Records are reselected in the LOCATION
/* data file whenever their matching LOAD data files have dates in
/* the specified range. The locations in the reselected set are
/* written to the LOC.INDEX file.
/*
/* The LOC.INDEX file is sorted on location (PLS). Each unique
/* location in the LOC.INDEX file is loaded into the ALL.COUNT file.
/* The item QUANT is set to 1 for each location.
/*
/* The ASCII output file named COUNT.ALL is created and lists all
/* the affected QQ's.
/*
/* -----
/*
&MESSAGES &OFF
/*
/* ##### System specific commands #####
/*
COMO COMO.ALL
DATE
/*
/* #####
/*
&R SET.DIR.AML                                /* Set variable defining directory.
/*
/*                                           /* Set variable .CHEM = ALL. It
&S .CHEM ALL                                /* will include all chemicals.
/*
&R RSP.DATE.AML                                /* Ask user to enter date range.
/*
&R CALC.ALL.AML %FIRST.DATE% %LAST.DATE%
/*                                     Define LOC.INDEX & ALL.COUNT files.
/*
/*                                     Fill LOC.INDEX file with QQ's that
/*                                     received applications during chosen
/*                                     date range.
/*
/*                                     Load ALL.COUNT file with one record
/*                                     for each location in LOC.INDEX.

```

```
/*
/* ##### System specific commands #####
/*
TIME
COMO -END
/*
/* #####
/*
&MESSAGES &ON
```

```

/*-----
/* Command name: LOAD.AML
/* Language: AML AT ARC
/* ::::::::::::::::::::::::::::::::::::::::::::::::::::
/* Purpose: Creates a tabular data file of the amounts of
/* a single chemical applied to each quarter-quarter section during
/* specified time period and under specified conditions.
/* The ASCII output data file (flat file) created
/* is named: COUNT._____. The INFO file is named: _____.COUNT.
/*
/* ::::::::::::::::::::::::::::::::::::::::::::::::::::::
/* Arguments:
/* Variable name      Definition
/* -----
/*
/* .CHEM              Chemical name from CHEM.AP file.
/* .AT.POINT          Pathname to directory where AML and data base reside.
/* .FIRST.DATE        Earliest date of time period.
/* .LAST.DATE         Last date of time period.
/* .TITLE.TWO         Second title on output file and plot.
/* ::::::::::::::::::::::::::::::::::::::::::::::::::::::
/* History:
/* Author/Site,      Date,      Event
/* -----
/* Karen Schurr      10-26-89    Original coding
/*   USGS, WRD
/*   Tacoma, WA
/* -----
/* User notes:
/*
/* The program queries the user for the chemical name (INGRED
/* in the CHEM.AP file) and the date range to consider.
/* The dates must exist in the LOAD file and the chemical name
/* must be exactly as it appears in the CHEM.AP file. Help is
/* available if the user enters a '?' to the query for the
/* ingredient. A list of the ingredient names in the data
/* base will be displayed on the screen.
/*
/* The user is asked to enter a logical expression containing
/* criteria for data retrieval from the LOAD file. This
/* expression must use the format required for an INFO
/* logic statement.
/*
/* The user is asked to enter a statement to be used as
/* a subtitle on the output file. This statement should
/* contain the criteria used in the logic statement to
/* identify the retrieval, but it may be in any format.
/*
/* An ASCII (flat) output file is created named: COUNT._____.
/* IT SHOULD BE RENAMED TO PREVENT OVERWRITING BY FUTURE PROGRAM
/* RUNS. The INFO file is named _____.COUNT.
/*
/* INFO files required for running this program are:
/*
/* LOCATION
/* CHEM.AP

```

```

/*          LOAD
/*
/*      SUBROUTINES required in this directory:
/*          CALC.LOAD.AML
/*          OUT.SUBTITLE.AML
/*          RSP.CHEM.AML
/*          RSP.DATE.AML
/*          RSP.LOGIC.AML
/*
/*-----
/*  Programmer notes:
/*
/*      The user is asked what ingredient to retrieve by RSP.CHEM.AML.
/*
/*      The user is asked to enter first and last dates for the time
/*      period to be considered by RSP.DATE.AML.
/*
/*      The RSP.LOGIC.AML asks for an INFO logical expression to
/*      specify the retrieval criteria.
/*
/*      The RSP.SUBTITLE.AML asks for a subtitle to be written to
/*      the output file.
/*
/*      The directory pathname variable is set by the SET.DIR.AML.
/*
/*      The CALC.LOAD.AML creates an .AP file for the ingredient
/*      selected.  It defines a LOC.INDEX file and fills it with
/*      records meeting the criteria for the date range and for
/*      the conditions specified from the LOAD file.  The quantity
/*      of the ingredient applied in each quarter-quarter section
/*      is calculated with the FREQUENCY command and written to
/*      the _____.COUNT INFO file.
/*
/*      The OUT.SUBTITLE.AML writes the ASCII output file containing
/*      the retrieval data (COUNT.____).  At the top there is a
/*      subtitle with the criteria used in the retrieval.
/*
/*-----
/*
&MESSAGES &OFF
/*
/* ##### System specific commands #####
/*
COMO COMO.LOAD
/*
/* #####
/*
&MESSAGES &ON
/*
&R RSP.CHEM.AML          /* Ask user chemical to select ingredient
/*                          for retrieval.
/*
&R RSP.DATE.AML          /* Ask user for dates to bracket
/*                          time period.
/*
/*

```

```

&R RSP.LOGIC.AML          /* Ask user for a logical expression
/*                          to give additional criteria to
/*                          the selection of the data set.
/*
&R RSP.SUBTITLE.AML       /* Ask user for the text for a
/*                          file or plot subtitle.
/*
&MESSAGES &OFF
/*
/*
&R SET.DIR.AML            /* Set variable with directory name.
/*
/*
&R CALC.LOAD.AML %CHEM% %.FIRST.DATE% %.LAST.DATE% %.LOGICAL.EXP%
/*                          /* Make .AP file for single chemical.
/*
/*                          Define LOC.INDEX file.
/*
/*                          Fill LOC.INDEX file with records in
/*                          desired date range. Calculate quantity
/*                          from AP.RATE and ACRES. Sum up quantity
/*                          in each qq in %CHEM%.COUNT file.
/*
/*
&R OUT.SUBTITLE.AML %CHEM% %.AT.POINT%          /*Write output file.
/*
/*
/*
/* Delete file that indicates system is in use.
/*
&R DELUSE.AML
/*
&RETURN
/* ##### System specific commands #####
/*
COMO -END
/* #####

```

```

/*-----
/* Command name: MULTI.AML
/* Language: AML AT ARC
/* :-----
/*
/* This program produces an output data file for each chemical listed
/* by the user in an input file. The output files contain the quantity
/* of each chemical applied in each quarter-quarter section.
/*
/*:-----
/* Arguments:
/* Variable name      Definition
/* -----
/* .CHEM              Chemical name (INGRED) from CHEM.AP file.
/* .AT.POINT          Pathname to directory where AML and data base reside.
/* .PLT.DIR           Name of subdirectory where plotting coverages reside.
/* .FIRST.DATE        Earliest date of selected time period.
/* .LAST.DATE         Last date of selected time period.
/* .NI                Response to inquiry about existence of file.
/*:-----
/* History:
/* Author/Site,      Date,      Event
/* -----
/* Karen Schurr      10-19-89    Original coding
/*   USGS, WRD
/*   Tacoma, WA
/*-----
/* User notes:
/*
/* The program queries the user about the existence of the INGRED.SYMB
/* file. The file should be edited to contain the names of the
/* ingredients to be retrieved and the shade symbols to be used
/* in plotting each ingredient.
/*
/* Making the INGRED.SYMB file:
/*
/* Shade symbols must be integers and should be right justified to end
/* in column 3. They may be up to three digits long. The shading
/* patterns should be distinctive in color and design. Patterns with
/* medium to large spacing between the lines would be desirable because
/* multiple patterns may be plotted over one another, and they could be
/* more easily differentiated with the open-spaced lines.
/*
/* Ingredient names must begin in column 4 and must match the INGRED
/* entry in the CHEM.AP data file.
/*
/* (example of INGRED.SYMB file contents)
/* =====
/* 46DICAMBA
/*135ALACHLOR
/* 44DINOSEB
/* =====
/*
/* The dates entered for the retrieval should be in a month/day/year
/* format and the date range should exist in the LOAD file.
/*

```

```

/*      A sequential data file (ASCII file) is created for each chemical
/*      with the areas where it was applied, acreage, and the sum of the
/*      quantity applied during time period.  Each file is named .
/*      COUNT._____.  THE FILES SHOULD BE RENAMED IF THEY ARE TO BE
/*      SAVED TO AVOID BEING OVERWRITTEN BY FUTURE PROGRAM RUNS.
/*
/*      A graphics terminal is not required to run this program.
/*
/*      INFO files required for running this program are:
/*
/*          LOCATION
/*          CHEM.AP
/*          LOAD
/*
/*      SUBROUTINES required in this directory:
/*
/*          CALC.SUM.AML
/*          GUIDE.MULTI.AML
/*          OUTPT.AML
/*          RSP.DATE.AML
/*          SET.DIR.AML
/*          WRITE.DRIVER.AML
/*
/*      SUBROUTINES written in this directory:
/*
/*          DRIVER.AML          (May be deleted after it is run.)
/*
/* -----
/*      Programmer notes:
/*
/*      The user is asked if the INGRED.SYMB file has been made.  If the
/*      response is negative, the GUIDE.MULTI.AML subroutine is run,
/*      which gives instructions on the screen for making the file and
/*      the program ends.  If the response is positive, the program
/*      continues.
/*
/*      The RSP.DATE.AML asks the user to enter the date range to be
/*      considered and the date variables are set from the responses.
/*
/*      The directory pathname variable is set by the subroutine
/*      SET.DIR.AML.
/*
/*      The WRITE.DR.MULTI.AML subroutine generates another subroutine
/*      (DRIVER.AML) and creates an INFO data file (NAME.STORE) to hold
/*      the chemical names listed in the INGRED.SYMB flat
/*      file.  The ingredient names are used to generate one set of commands
/*      in the DRIVER.AML for each chemical on the list.
/*
/*      The DRIVER.AML commands run subroutines that calculate the quantity
/*      for each chemical applied (CALC.SUM.AML) and that create output files
/*      for each one (OUTPT.AML).
/*
/* -----
/*      ##### System specific commands #####
/*

```

```

COMO COMO.MULTI
/*
/* #####
/*
&TYPE =====
&TYPE
&S .NI = [RESPONSE 'Has file INGRED.SYMB been prepared? (Y/N)']
&TYPE
/*
&IF %.NI% = N OR %.NI% = n &THEN &DO /* Give directions for creating
&R GUIDE.MULTI.AML /* file.
&STOP
&END

/* End if no file

/*
&R RSP.DATE.AML /* Ask user for date range.
/*
&R SET.DIR.AML /* Sets directory pathnames.
/*
/*
&R WRITE.DR.MULTI.AML %.AT.POINT% %.FIRST.DATE% %.LAST.DATE%
/* Writes DRIVER.AML
/* to run AML's for
/* each chemical listed in
/* INGRED.SYMB file. Each chemical
/* is summed & listed in a file.
&R DRIVER.AML /* Runs AML'S
/* to make summary for each chemical.
/*
/*
/* Delete file that indicates system is in use.
/*
&R DELUSE.AML
/*
&RETURN
/*
/* ##### System specific commands #####
/*
COMO -END
/*
/* #####

```

```

/*-----
/* Command name: PERSON.AML
/* Language: AML AT ARC
/* ::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::
/* Purpose: Creates an output file of the amounts of a single
/* chemical applied to each quarter-quarter section during
/* specified time period and by, or for, a specified person or firm.
/*
/* ::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::
/* Arguments:
/* Variable name      Definition
/* -----
/*
/* .CHEM              Chemical name from CHEM.AP file.
/* .AT.POINT          Pathname to directory where AML and data base reside.
/* .FIRST.DATE        Earliest date of time period.
/* .LAST.DATE         Last date of time period.
/* .TITLE.TWO         Second title for output file.
/* ::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::
/* History:
/* Author/Site,      Date,      Event
/* -----
/* Karen Schurr      10-26-89    Original coding
/* USGS, WRD
/* Tacoma, WA
/* -----
/* User notes:
/*
/* The program asks for the chemical name (INGRED
/* in the CHEM.AP file). The chemical name must be entered
/* exactly as it appears in the CHEM.AP file.
/* Help is available if a '?' is entered to the query
/* for the ingredient. A list of the ingredient names in the
/* data base will be displayed on the screen.
/*
/* The user is asked the first and last dates for the time
/* period to be considered for retrieval. The dates entered
/* should be in a month/day/year format (ex: 8/31/90) and the
/* date range should exist in the LOAD file.
/*
/* A data file name (RECEIVER, LIC.AP or PERS.AP) must be entered.
/*
/* The user is asked to enter a logical expression containing
/* criteria for data retrieval from the chosen file. This
/* expression must use the format required for an INFO
/* logic statement.
/*
/* The user is also asked to enter a subtitle that identifies the
/* retrieval criteria. This subtitle will be used on the tabular
/* data file and no special format is required.
/*
/* An ASCII (flat) output file is created named: COUNT._____.
/* IT SHOULD BE RENAMED TO PREVENT OVERWRITING BY FUTURE PROGRAM
/* RUNS. The INFO file is named _____.COUNT. Quantities are
/* reported in the units reported by the applicator.
/*

```

```

/*      INFO files required for running this program are:
/*
/*      LOCATION
/*      CHEM.AP
/*      LOAD
/*      RECEIVER, LIC.AP or PERS.AP
/*
/*      SUBROUTINES required in this directory:
/*      CALC.PERSON.AML
/*      OUT.SUBTITLE.AML
/*      RSP.CHEM.AML
/*      RSP.DATE.AML
/*      RSP.FILE.AML
/*      RSP.LOGIC.AML
/*      RSP.SUBTITLE.AML
/*      SET.DIR.AML
/*
/* -----
/*      Programmer notes:
/*
/*      The RSP.CHEM.AML asks the user the name of the chemical to be
/*      summed. This is the INGRED item in the CHEM.AP INFO file.
/*
/*      The DISP.CHEM.AML will display a list of ingredient names to
/*      assist the user if a '?' is entered to the RSP.CHEM.AML query.
/*
/*      The RSP.DATE.AML asks the user to enter the date range to be
/*      considered, and the date variables are set from the responses.
/*
/*      The RSP.FILE.AML asks the user to enter the 'person' file to be
/*      considered.
/*
/*      The RSP.LOGIC.AML asks the user to specify a logical
/*      expression for retrieving data from the RECEIVER, LIC.AP
/*      or PERS.AP file.
/*
/*      The RSP.SUBTITLE.AML asks for a subtitle to be used on the
/*      output data file.
/*
/*      The CALC.PERSON.AML creates a .AP file for a single chemical.
/*      It defines the LOC.INDEX file and fills it with records in
/*      the desired date range and with data meeting the specified
/*      criteria. The INFO _____.COUNT file is filled by the FREQUENCY
/*      command, which creates a sum of the quantity applied in each
/*      quarter-quarter section.
/*
/*      The OUT.SUBTITLE.AML creates an ASCII data file (flat file)
/*      (COUNT.____) that lists the areas where the chemical was
/*      applied, the acreage, and the sum of the quantity applied
/*      during time period. The subtitle lists the retrieval criteria.
/*
/* -----
&MESSAGES &OFF
/*##### TAILOR TO SYSTEM #####
COMO COMO.PERSON
TIME

```

```

/*
/*#####
&MESSAGES &ON
/*
/*                               Run series of AML's to sum applications.
/*
/*
&R RSP.CHEM.AML                               Ask user chemical to plot.
/*
&R RSP.DATE.AML                               Ask user for dates to bracket
/*                               time period.
/*
/*                               Ask user which file to use.
&R RSP.FILE.AML
/*
/*                               Ask user for a logical expression
/*                               to give additional criteria to
/*                               the selection of the data set.
&R RSP.LOGIC.AML
/*
/*                               Ask user to enter a subtitle for
/*                               tabular data output file.
/*
&R RSP.SUBTITLE.AML
/*
/*                               Set variables with directory name.
&R SET.DIR.AML
/*
/*                               Make .AP file for single chemical.
/*
/*                               Define LOC.INDEX file.
/*
/*                               Fill LOC.INDEX file with records in
/*                               desired date range. Calculate quantity
/*                               from AP.RATE and ACRES. Sum up quantity
/*                               in each qq in %CHEM%.COUNT file.
/*
/*
&R CALC.PERSON.AML
/*
/*                               If response is positive, make
/*                               look-up table and legend from
/*                               values in %CHEM%.COUNT.
/*
/*                               Write output file with a subtitle.
/*
&R OUT.SUBTITLE.AML
/*
/*
&MESSAGES &ON
/*
/* Delete file that indicates system is in use.
/*
&R DELUSE.AML
/*
&RETURN
/*

```

```
/*##### MUST BE TAILORED TO USER'S SYSTEM #####  
TIME  
COMO -END  
/*#####  
/*
```

```

/*-----
/* Command name: RATE.AML
/* Language: AML AT ARC
/* ::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::
/* Purpose: Determines the quarter-quarter sections to which
/* the specified chemical has been applied, at or above the specified
/* rate, and within the chosen time period.
/* It produces the ASCII output file, _____.COUNT and the INFO file,
/* COUNT._____ (ingredient).
/*
/* ::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::
/* Variables used in this program:
/* none
/* ::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::
/* History:
/* Author/Site, Date, Event
/* -----
/* Karen Schurr 10-26-89 Original coding
/* USGS, WRD
/* Tacoma, WA
/*-----
/* User notes:
/*
/* The program asks what ingredient to retrieve. The chemical
/* name must be entered exactly as it appears under INGRED
/* in the CHEM.AP file. Help is available if a '?' is entered to
/* the query for the ingredient. A list of the ingredient names
/* in the data base will be displayed on the screen.
/*
/* The user is asked the first and last dates for the time
/* period to be considered for retrieval. The dates entered
/* should be in a month/day/year format (ex: 8/31/90) and the
/* date range should exist in the LOAD file.
/*
/* There is a query for the minimum application rate to be
/* retrieved. This is the AP.RATE field in the CHEM.AP file.
/*
/* An output ASCII file (flat file) is created containing the rate chosen
/* and the areas (QQ's) where the rate was met or exceeded. The file is
/* named: COUNT._____. The INFO data file is named _____.COUNT.
/* THESE FILES SHOULD BE RENAMED IF THEY ARE TO BE SAVED. Otherwise
/* they will be overwritten when the program is run again.
/*
/* A graphics terminal is not required for this program.
/*
/* INFO files required for running this program are:
/*
/* LOCATION
/* CHEM.AP
/* LOAD
/*
/* SUBROUTINES required in this directory:
/* CALC.RATE.AML
/* RSP.CHEM.AML
/* RSP.DATE.AML
/* RSP.RATE.AML

```

```

/*          SET.DIR.AML
/*          RATE.DISPL.AML
/*
/*-----
/* How the program works:
/*
/* The user is queried for: the chemical name by the subroutine
/* RSP.CHEM.AML, the date range by RSP.DATE.AML, and the rate by
/* RSP.RATE.AML.
/*
/* The directory variable is set with the pathname by SET.DIR.AML.
/*
/* The subroutine CALC.RATE.AML creates three temporary INFO data
/* files: _____.AP, LOC.INDEX and _____.COUNT.
/*
/* The _____.AP is a file with the essential data for one chemical
/* from the CHEM.AP file. Records with AP.RATE.CALC lower
/* than the chosen rate are purged from the file.
/*
/* Records are reselected from the LOCATION file whenever their
/* matching LOAD data files have dates in the specified range and
/* when there is a matching SHEET.LOAD.NO in _____.AP. The
/* locations are loaded in the LOC.INDEX file and the file is
/* sorted on location (PLS).
/*
/* Each unique location in the LOC.INDEX file is loaded into the
/* _____.COUNT file. The quantity (QUANT) is calculated to be 1,
/* simply indicating that the rate was met or exceeded in that
/* location.
/*
/* An ASCII output file (COUNT._____) containing the affected
/* locations is written.
/*
/*-----
/*
&MESSAGES &OFF
/*
/* ##### System specific commands #####
/*
COMO COMO.RATE
/*
/* #####
&MESSAGES &ON
&ECHO &OFF
/*
/*          Run series of AML's to sum applications.
/*
/*
/*
&R RSP.CHEM.AML          /*          Ask user chemical to plot.
/*
&R RSP.DATE.AML          /*          Ask user for dates to bracket
/*          /*          time period.
/*
&R RSP.RATE.AML          /*          Ask user for lowest application
/*          /*          rate to list and/or plot.
/*
/*          Ask user to choose automatic

```

```

/*                                     or self-created look-up table
/*                                     and legend.
/*
&MESSAGES &OFF
/*
/*                                     Set variable with directory name.
/*
&R SET.DIR.AML
/*
/*
/*                                     Make .AP file for single chemical.
/*
/*                                     Define LOC.INDEX file.
/*
/*                                     Fill LOC.INDEX file with records
/*                                     for quarter-quarter sections to
/*                                     which applications have been made in
/*                                     desired date range and selected
/*                                     application rate range.
/*
/*                                     Define and fill _____.COUNT
/*                                     file with one record per quarter-
/*                                     quarter section where rate was
/*                                     greater than or equal to rate specified.
&R CALC.RATE.AML
/*
/* Delete file that indicates system is in use.
/*
&R DELUSE.AML
/*
&MESSAGES &ON
/*
/* ##### System specific commands #####
/*
COMO -END
/* #####

```

```

/*-----
/* Command name: SHEET.AML
/* Language: AML AT ARC
/* ::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::
/* Purpose: This program records the quarter-quarter sections to
/* which pesticides have been applied, as reported on a specified
/* range of application record sheet numbers.
/*
/* Results are written to an INFO file named SHEET.COUNT
/* and to a Primos file named COUNT.SHEET.
/* ::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::
/* Arguments:
/* Variable name      Definition
/* -----
/* FIRST.SHEET      First number for selected block of sheet numbers.
/* LAST.SHEET       Last number for selected block of sheet numbers.
/* ::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::
/* History:
/* Author/Site,      Date,      Event
/* -----
/* Karen Schurr      10-26-89    Original coding
/*   USGS, WRD
/*   Tacoma, WA
/* -----
/* User notes:
/*
/* The quantity applied is NOT summed because of the varied chemicals
/* and varied application rates. A FLAG of 1 is calculated for
/* each quarter-quarter section to which any chemical has been applied
/* for selected block of sheet numbers (SHEET.NO).
/*
/* A data file (flat file) is created listing each quarter-quarter section
/* to which any chemical was applied for the selected block of sheet
/* numbers. The file is named COUNT.SHEET. In order to preserve the file
/* it should be renamed (to avoid it being overwritten by future runs of
/* the program).
/*
/* This program does not require a graphics terminal.
/*
/* INFO files required for running this program are:
/*
/* LOCATION
/*
/* SUBROUTINES required in this directory:
/*
/* CALC.SHEET.AML
/* RSP.SHEET.AML
/* SET.DIR.AML
/*
/*-----
/*
/* Programmer notes:
/*
/* The user is asked what range of sheet numbers to retrieve by
/* RSP.SHEET.AML.

```

```

/*
/* The variable for the output file name prefix and for the
/* plot file name prefix is set to "SHEET".
/*
/* The SET.DIR.AML sets the pathname variable for the main directory.
/*
/* The CALC.SHEET.AML defines a LOC.INDEX file and fills it with the
/* records from the LOCATION file which have sheet numbers in the
/* range specified by the user. The SHEET.COUNT file is defined
/* and loaded with one record per unique QQ in the LOC.INDEX file.
/* The ASCII output file, listing the unique QQ's, is written
/* to the main directory.
/*
&MESSAGES &OFF
/*
/* ##### System specific commands #####
/*
COMO COMO.SHEET
/* #####
/*
&R RSP.SHEET.AML /* Ask the user to enter sheet numbers.
/*
&R SET.DIR.AML /* Set variable defining directory.
/*
&R CALC.SHEET.AML %.FIRST.SHEET% %.LAST.SHEET%
/*
/* Define LOC.INDEX & SHEET.COUNT files.
/*
/* Fill LOC.INDEX file with QQ's that
/* received applications during chosen
/* block of sheet numbers.
/*
/* Load SHEET.COUNT file with one record
/* for each location in LOC.INDEX.
/*
/*
/* Delete file that indicates system is in use.
/*
&R DELUSE.AML
/*
/* ##### System specific commands #####
/*
COMO -END
/*
/* #####
&MESSAGES &ON

```

```

/*-----
/*  Command name: SUM.AML
/*  Language: AML AT ARC
/*  ::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::
/*
/*  Purpose:  This program sums up the amount of one chemical that
/*            has been applied in each quarter-quarter section in a
/*            specific time period.
/*
/*            Results are written to an INFO file named _____.COUNT
/*            and to a Primos file with the name: COUNT._____.
/*
/* ::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::
/* Arguments:
/*   Variable name      Definition
/*   -----
/*   .CHEM              INGRED from CHEM.AP file.
/*   .FIRST.DATE        First date of time period considered.
/*   .LAST.DATE         End of time time period.
/*   .AT.POINT          Pathname to directory where AML & data base reside.
/* ::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::
/* History:
/*   Author/Site,      Date,      Event
/*   -----
/*   Karen Schurr      10-26-89    Original coding
/*   USGS, WRD
/*   Tacoma, WA
/*-----
/*  User notes:
/*
/*  The program asks what ingredient to retrieve.  The chemical
/*  name must be entered exactly as it appears under INGRED
/*  in the CHEM.AP file.  Help is available if a '?' is entered to
/*  the query for the ingredient.  A list of the ingredient names
/*  in the data base will be displayed on the screen.
/*
/*  The user is asked the first and last dates for the time
/*  period to be considered for retrieval.  The dates entered
/*  should be in a month/day/year format (ex: 8/31/90) and the
/*  date range should exist in the LOAD file.
/*
/*  An ASCII data file (flat file) is created that lists the
/*  areas where the chemical was applied, the acreage and the sum
/*  of the quantity applied during the time period.  The file is
/*  named COUNT._____.  IN ORDER TO SAVE THE FILE, IT SHOULD
/*  BE RENAMED to prevent overwriting by future
/*  runs of the programs.
/*
/*  This program does not require a graphics terminal.
/*
/*  INFO files required for running this program are:
/*
/*      LOCATION
/*      CHEM.AP
/*      LOAD
/*

```

```

/*      SUBROUTINES required in this directory:
/*
/*          CALC.SUM.AML
/*          OUTPT.AML
/*          RSP.CHEM.AML
/*          RSP.DATE.AML
/*          SET.DIR.AML
/*
/* -----
/*      How the program works:
/*
/*      The RSP.CHEM.AML asks the user the name of the chemical to be
/*      summed. This is the INGRED item in the CHEM.AP INFO file.
/*
/*      The DISP.CHEM.AML will display a list of ingredient names to
/*      assist the user if a '?' is entered to the RSP.CHEM.AML query.
/*
/*      The RSP.DATE.AML asks the user to enter the date range to be
/*      considered, and the date variables are set from the responses.
/*
/*      The directory pathname variable is set by the subroutine
/*      SET.DIR.AML.
/*
/*      CALC.SUM.AML defines three temporary INFO files: _____.AP,
/*      LOC.INDEX and _____.COUNT.
/*
/*      The _____.AP is a file with the essential data for one chemical
/*      from the CHEM.AP file. This file is necessary to permit a many-
/*      to-one relation between the LOCATION data file and the _____.AP
/*      data file. (CHEM.AP and LOCATION would have a many-to-many
/*      relation, which presents operational problems in INFO.)
/*
/*      Records are reselected from the LOCATION file whenever their
/*      matching LOAD data files have dates in the specified range and
/*      when there is a matching SHEET. LOAD.NO in _____.AP. The
/*      locations are loaded in the LOC.INDEX file and the file is
/*      sorted on location (PLS).
/*
/*      Each unique location in the LOC.INDEX file is loaded into the
/*      _____.COUNT file. The quantity (QUANT) per quarter-quarter
/*      section and number of acres are calculated with the FREQUENCY
/*      command.
/*
/*      An ASCII output file (COUNT._____) containing the affected
/*      locations is written. It should be renamed if it is to be saved;
/*      otherwise it will be overwritten when the program is run again.
/*
/* -----
/*
/* ##### System specific commands #####
/*
COMO COMO.SUM
/*
/* #####
/*
/*                               Ask user what chemical to count.
&R RSP.CHEM.AML

```

```

/*                                     Ask user what time period to consider.
&R RSP.DATE.AML
/*                                     Set user directories.
&R SET.DIR.AML
/*
/*                                     Fill LOC.INDEX file with records in
/*                                     desired date range. Calculate quantity
/*                                     from AP.RATE and ACRES. Sum up quantity
/*                                     in each qq in _____.COUNT file.
/*
&R CALC.SUM.AML %.CHEM% %.FIRST.DATE% %.LAST.DATE%
/*
/*                                     Write output file named COUNT._____.
/*
&R OUTPT.AML %.CHEM% %.AT.POINT%
/*
/* Delete file that indicates system is in use.
/*
&R DELUSE.AML
/*
/* ##### System specific commands #####
/*
COMO -END
/*
/* #####
&RETURN

```

```

/*-----
/*  Command name: ALLPLT.AML
/*  Language: AML AT ARC
/*  ::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::
/*  Purpose:  This program records the quarter-quarter sections to
/*            which pesticides have been applied during a specific time period.
/*
/*            Results are written to an INFO file named ALL.COUNT
/*            and to a Primos file named COUNT.ALL.
/*
/*            A plot file is created and displayed on the screen.
/*  ::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::
/*  Arguments:
/*      Variable name      Definition
/*      -----
/*      CHEM              Chemical name from CHEM.AP file.
/*      AT.POINT          Pathname to directory where AML & data base reside.
/*      PLT.DIR           Name of subdirectory where plotting coverages reside.
/*      FIRST.DATE        Earliest date of selected time period.
/*      LAST.DATE         Last date of selected time period.
/*  ::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::
/*
/*  History:
/*      Author/Site,      Date,      Event
/*      -----
/*      Karen Schurr      10-26-89    Original coding
/*      USGS, WRD
/*      Tacoma, WA
/*-----
/*  User notes:
/*
/*  Before running the program it may be necessary to edit the
/*  SET.DIR.COV.AML.  The SET.DIR.COV.AML sets the variables for plotting
/*  and it must contain the correct name of the plotting directory,
/*  the grid coverage names, the number of the plotting device,
/*  the terminal number, the map projection, the map units and the map angle.
/*
/*  The user is asked the first and last dates for the time
/*  period to be considered for retrieval.  The dates entered
/*  should be in a month/day/year format (ex: 8/31/90) and the
/*  date range should exist in the LOAD file.
/*
/*  The ASCII output file is named: COUNT.ALL.  IT SHOULD BE RENAMED
/*  TO PREVENT OVERWRITING BY FUTURE PROGRAM RUNS.
/*
/*  INFO files required for running this program are:
/*
/*      LOCATION
/*      CHEM.AP
/*      LOAD
/*
/*  SUBROUTINES required in this directory:
/*
/*      CALC.ALL.AML
/*      RSP.DATE.AML
/*      SET.DIR.AML

```

```

/*      SET.DIR.COV.AML
/*      LUT.LGD.ALL.AML
/*      WRITE.DRIVER.AML
/*
/*  SUBROUTINES required in the plotting directories:
/*
/*      CREATE.REL.AML
/*      TRANS.BOTH.AML
/*      PLT2.AML
/*
/*  COVERAGES required in plotting directories:
/*
/*      Outline of quarter-quarter sections in the Public Land Survey
/*      Outline of the sections in the Public Land Survey
/*
/*      (Coverages for the 1:62,500 scale plots should cover an area
/*      about the size of a USGS 15-minute quadrangle.)
/*      (Coverages for the 1:24,000 scale plots should cover an area
/*      about the size of a Public Land Survey township.)
/*
/*  -----
/*
/*  Programmer notes:
/*
/*  The directory pathname variable is set by the SET.DIR.AML
/*  subroutine.
/*
/*  The CHEM variable is set to the word "ALL"; any name will work.
/*  It should not, however, be an INGRES name as in the CHEM.AP file.
/*  This variable is meant to be a general term to encompass all the
/*  chemicals. It is used for naming the output files and is used in
/*  the plot's title.
/*
/*  The RSP.DATE.AML asks the user to enter the date range for
/*  consideration.
/*
/*  The CALC.ALL.AML subroutine determines all the quarter-quarter
/*  sections to which any pesticides have been applied during the
/*  specified time period. It defines two temporary INFO files:
/*  LOC.INDEX and ALL.COUNT. Records are reselected in the LOCATION
/*  data file whenever their matching LOAD data files have dates in
/*  the specified range. The locations in the reselected set are
/*  written to the LOC.INDEX file. The item QUANT is set to 1 for
/*  each location.
/*
/*  The ASCII output file named COUNT.ALL is created and lists all
/*  the affected QQ's.
/*
/*  The SET.DIR.COV.AML subroutine sets the variables for plotting:
/*  the name of the plotting directory desired; the appropriate
/*  coverage names; the plotter number and the terminal number.
/*
/*  LUT.LGD.ALL.AML creates the look-up table and legend for
/*  plotting. One shading pattern is used for all QQ's where any
/*  chemicals were applied. The look-up table is created in the
/*  "attach point" INFO directory and the legend is written directly

```

```

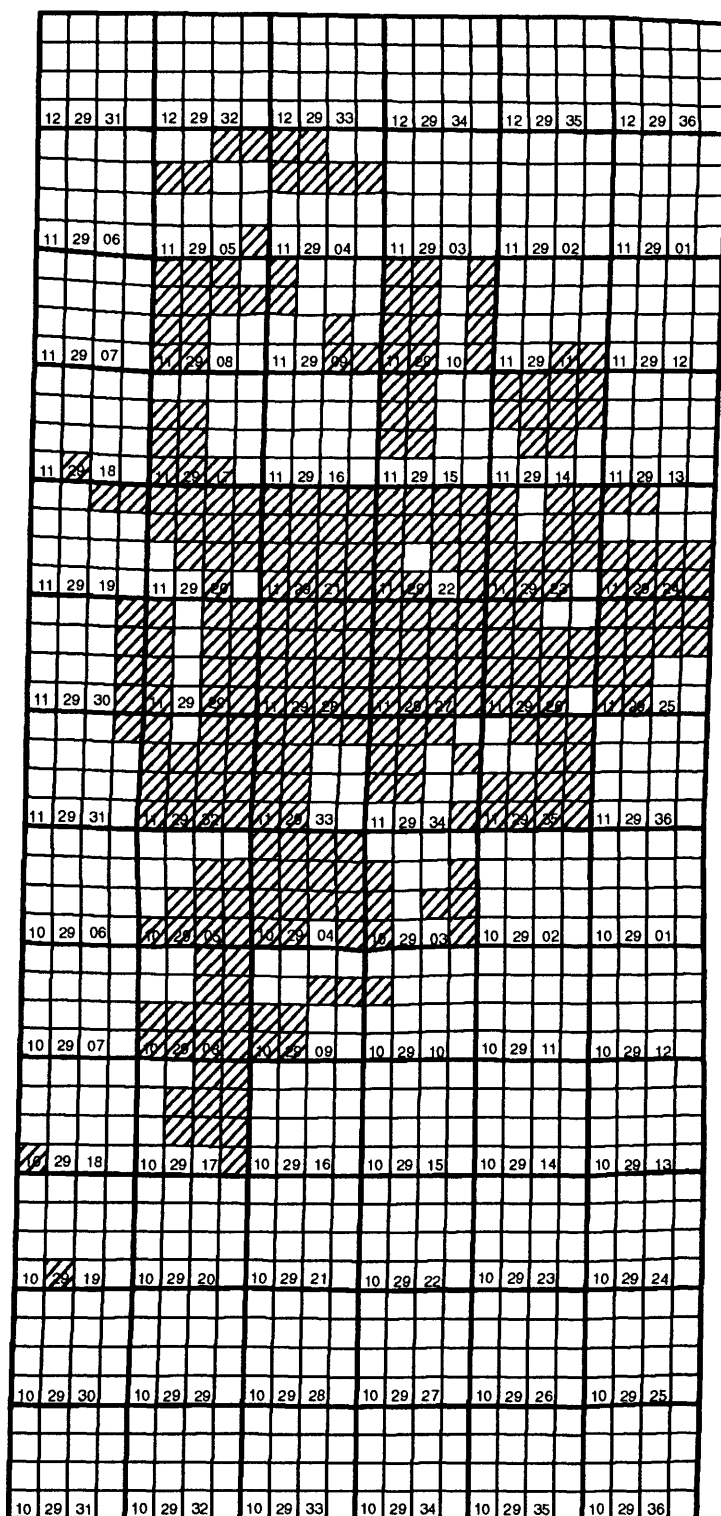
/* to the plotting directory.
/*
/* The control is moved to the selected plotting directory.
/*
/* TRANS.BOTH.AML copies the ALL.COUNT and ALL.LUT (look-up table)
/* to the plotting directory (INFO).
/*
/* PLT2.AML plots the quarter-quarter coverage and shades in all the
/* QQ's where any chemicals were applied. The plot file is displayed
/* on the screen.
/*
/* -----
&MESSAGES &OFF
/*
/* ##### System specific commands #####
/*
COMO COMO.ALLPLT
DATE
/*
/* #####
/*
&R SET.DIR.AML /* Set variables defining directories.
/*
/* /* Set variable to consider all chemicals.
&S .CHEM ALL
/*
&R RSP.DATE.AML
/*
/* Define LOC.INDEX and _____.COUNT files.
/* Start one record per qq in _____.COUNT.
/*
/* Fill LOC.INDEX file with records in
/* desired date range. Calculate quantity
/* from AP.RATE and ACRES. Sum up quantity
/* in each qq in _____.COUNT file.
/*
/* Write output file.
/*
&R CALC.ALL.AML %.FIRST.DATE% %.LAST.DATE%
/*
&R SET.DIR.COV.AML /* Set plotting directory variable and
/* coverage name variables.
/*
/* Create look-up table for one
/* shading pattern.
/* Write legend to plotting directory.
&R LUT.LGD.ALL.AML %.CHEM%
/*
&WORKSPACE *>%.PLT.DIR%
/*
/*
&R TRANS.BOTH.AML %.CHEM% /* Transfer look-up table and
/* _____.COUNT file to
/* plotting directory.
/*

```

```

&MESSAGES &ON
&R PLT2.AML %.CHEM% %.FIRST.DATE% %.LAST.DATE% %.SEC.COV% %.QQ.COV% ~
%.PLOTTER% %.TERMINAL% %.PRJ% %.MPUNITS% %.MPANGLE%
/*
/* ##### System specific commands #####
/*
TIME
COMO -END
/*
/* #####
&RETURN

```



EXPLANATION

All applications
9/1/89-8/31/90

 Chemicals applied

Public Land Survey System
section; number indicates:

11 Township

29 Range

36 Section

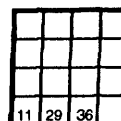


Figure F1.—Example of plot produced by ALLPLT.AML

```

/*-----
/* Command name: LOADPLT.AML
/* Language: AML AT ARC
/* ::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::
/* Purpose: Creates and displays a plot file of the amounts of
/* a single chemical applied to each quarter-quarter under
/* criteria from the LOAD file and during a specified time period.
/* An ASCII output file and an INFO output file are also created.
/*
/* ::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::
/* Arguments:
/* Variable name      Definition
/* -----
/*
/* .CHEM              Chemical name from CHEM.AP file.
/* .AT.POINT          Pathname to directory where AML and data base reside.
/* .PLT.DIR           Name of subdirectory where plotting coverages reside.
/* .FIRST.DATE        Earliest date of time period.
/* .LAST.DATE         Last date of time period.
/* .LUT.LGD           Reply to query for automatically making
/*                    look-up table and legend.
/* .PLT.DIR           Plotting directory.
/* .SEC.COV           Section coverage (ARC).
/* .QQ.COV            Quarter-quarter coverage (ARC).
/* .PLOTTER           Number for plotter (ex: 1039).
/* .TERMINAL          Number for terminal (ex: 4207).
/* .PRJ              Map projection suffix for coverage name (ex: SP or UTM).
/* .MPUNITS           Map units - feet or meters.
/* .MPANGLE           Map angle (ex: 0 for SP, 1.85 for UTM).
/* .TITLE.TWO         Subtitle on output file and plot.
/* ::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::
/* History:
/* Author/Site,      Date,      Event
/* -----
/* Karen Schurr      10-26-89    Original coding
/*   USGS, WRD
/*   Tacoma, WA
/*-----
/* User notes:
/*
/* Before running the program it may be necessary to edit the
/* SET.DIR.COV.AML. The SET.DIR.COV.AML sets the variables for plotting
/* and it must contain the correct name of the plotting directory,
/* the grid coverage names, the number of the plotting device,
/* the terminal number, the map projection, the map units, and the
/* map angle.
/*
/* The program asks what ingredient to retrieve. The chemical
/* name must be entered exactly as it appears under INGRED
/* in the CHEM.AP file. Help is available if a '?' is entered to
/* the query for the ingredient. A list of the ingredient names
/* in the data base will be displayed on the screen.
/*
/* The user is asked the first and last dates for the time
/* period to be considered for retrieval. The dates entered
/* should be in a month/day/year format (ex: 8/31/90) and the

```

```

/*      date range should exist in the LOAD file.
/*
/*      The user may choose to have the look-up table and the legend
/*      created automatically or they may choose to use their own,
/*      previously created, legend & look-up table.  User-created
/*      files must be named _____.LUT and LEGEND._____, where
/*      _____ refers to the chemical name selected for plotting.
/*
/*      An ASCII (flat) output file is created named: COUNT._____.
/*      IT SHOULD BE RENAMED TO PREVENT OVERWRITING BY FUTURE PROGRAM
/*      RUNS.  The INFO file is named _____.COUNT.
/*
/*      INFO files required for running this program are:
/*
/*          LOCATION
/*          CHEM.AP
/*          LOAD
/*
/*      SUBROUTINES required in this directory:
/*          CALC.LOAD.AML
/*          LUT.LGD.AUTO.AML
/*          OUT.SUBTITLE.AML
/*          RSP.CHEM.AML
/*          RSP.DATE.AML
/*          RSP.LOGIC.AML
/*          RSP.LUT.AML
/*          SET.DIR.AML
/*          SET.DIR.COV.AML
/*
/*      SUBROUTINES required in plotting directories:
/*          CREATE.REL.AML
/*          PLT3.AML
/*          TRANS.BOTH.AML
/*          TRANS.COUNT.AML
/*
/*      COVERAGES required in plotting directories:
/*          Outline of quarter-quarter sections in the Public Land Survey.
/*          Outline of the sections in the Public Land Survey.
/*
/*          (Coverages for the 1:62,500 scale plots should cover an area
/*          about the size of a USGS 15-minute quadrangle.)
/*          (Coverages for the 1:24,000 scale plots should cover an area
/*          about the size of a Public Land Survey township.)
/*
/*      _____ refers to the chemical name selected for plotting.
/*
/*      -----
/*
/*      Programmer notes:
/*
/*      The user is asked what ingredient to retrieve by RSP.CHEM.AML.
/*
/*      The user is asked to enter first and last dates for the time
/*      period to be considered by RSP.DATE.AML.
/*
/*      The user is asked to enter a logical expression containing

```

```

/* criteria for data retrieval from the LOAD file. The query
/* is made by the RSP.LOAD.AML.
/*
/* The RSP.LUT.AML asks the user if they wish to have the system
/* automatically create a look-up table and legend for plotting.
/*
/* The directory pathname variable is set by the SET.DIR.AML.
/*
/* The SET.DIR.COV.AML sets the variables for plotting. It sets
/* the name of the plotting directory, the grid coverage names, the
/* number of the plotting device, the terminal number, the map
/* projection, the map units, and the map angle.
/*
/* The CALC.LOAD.AML creates an .AP file for the ingredient
/* selected. It defines a LOC.INDEX file and fills it with
/* records meeting the criteria for the date range and for
/* the conditions specified from the LOAD file. The quantity
/* of the ingredient applied in each quarter-quarter section
/* is calculated.
/*
/* The OUT.SUBTITLE.AML writes the ASCII output file containing
/* the retrieval data. At the top there is a subtitle with
/* the criteria used in the retrieval.
/*
/* If the user chose to have the look-up table and legend created
/* automatically, these are made by the LUT.LGD.AUTO.AML.
/*
/* Control is moved to the plotting directory.
/*
/* If the user chose the automatic look-up table, the look-up
/* table and the .COUNT file are transferred to the plotting
/* directory by the TRANS.BOTH.AML.
/*
/* If the user did not choose the automatic look-up table,
/* the .COUNT file is transferred to the plotting directory
/* by the TRANS.COUNT.AML.
/*
/* The plot file is created by the PLT3.AML. The quantities are
/* divided into five ranges and each range is plotted in a different
/* pattern. The plot file is displayed on the screen.
/*
/*-----
&MESSAGES &OFF
/*
/* ##### System specific commands #####
/*
COMO COMO.LOADPLT
/*
/* #####
/*
&MESSAGES &ON
/*
/* Run series of AML's to sum applications.
/*
/*
&R RSP.CHEM.AML /* Ask user chemical to plot.
/*

```

```

&R RSP.DATE.AML                                /* Ask user for dates to bracket
/*                                              time period.
/*
&R RSP.LOGIC.AML                                /* Ask user for a logical expression
/*                                              to give criteria for
/*                                              the selection of data.
/*
&R RSP.SUBTITLE.AML                            /* Ask user to enter a subtitle
/*                                              to be used on output file
/*                                              and on plot.
/*
&R RSP.LUT.AML                                /* Ask user to choose automatic
/*                                              or self-created look-up table
/*                                              and legend.
/*
&MESSAGES &OFF
/*
&R SET.DIR.AML                                /* Set variable for main directory.
/*
&R SET.DIR.COV.AML                            /* Set variables for coverages for
/*                                              plotting.
/*
&R CALC.LOAD.AML %CHEM% %.FIRST.DATE% %.LAST.DATE% %.LOGICAL.EXP%
/*                                              Make .AP file for single chemical.
/*
/*                                              Define LOC.INDEX file.
/*
/*                                              Fill LOC.INDEX file with records in
/*                                              desired date range. Calculate quantity
/*                                              from AP.RATE and ACRES. Sum up quantity
/*                                              in each qq in %CHEM%.COUNT file.
/*
/*
&R OUT.SUBTITLE.AML %CHEM% %.AT.POINT% /* Write output file.
/*
/*
&IF %.LUT.LGD% = Y OR %.LUT.LGD% = y &THEN &DO
  &R LUT.LGD.AUTO.AML %CHEM% %.AT.POINT% %.PLT.DIR%
/*
/*                                              If response is positive, make
/*                                              look-up table and legend from
/*                                              values in %CHEM%.COUNT.
/*
&END                                           /* &DO
/*
/*
&WORKSPACE %.AT.POINT%>%PLT.DIR% /* Attach to plotting directory.
/*
/*
&IF %.LUT.LGD% = Y or %.LUT.LGD% = y &THEN
/*                                              If automated look-up table chosen, copy
/*                                              both .COUNT and .LUT
/*                                              from %AT.POINT% directory.
/*
&R TRANS.BOTH.AML %CHEM%

```

```

&ELSE
/*
  &R TRANS.COUNT.AML %CHEM% %AT.POINT%
/*          Copy only %CHEM%.COUNT file from %AT.POINT%
/*          directory.
/*
&MESSAGES &ON
/*
/* ##### System specific commands #####
/*
COMO -END
/*
/* #####
/*
&R PLT3.AML %CHEM% %FIRST.DATE% %LAST.DATE% %SEC.COV% %QQ.COV% ~
  %PLOTTER% %TERMINAL% %PRJ% %MPUNITS% %MPANGLE% %TITLE.TWO%
/*
/*          Plot application areas from plotting
/*          directory.
/*
/*
/*

```

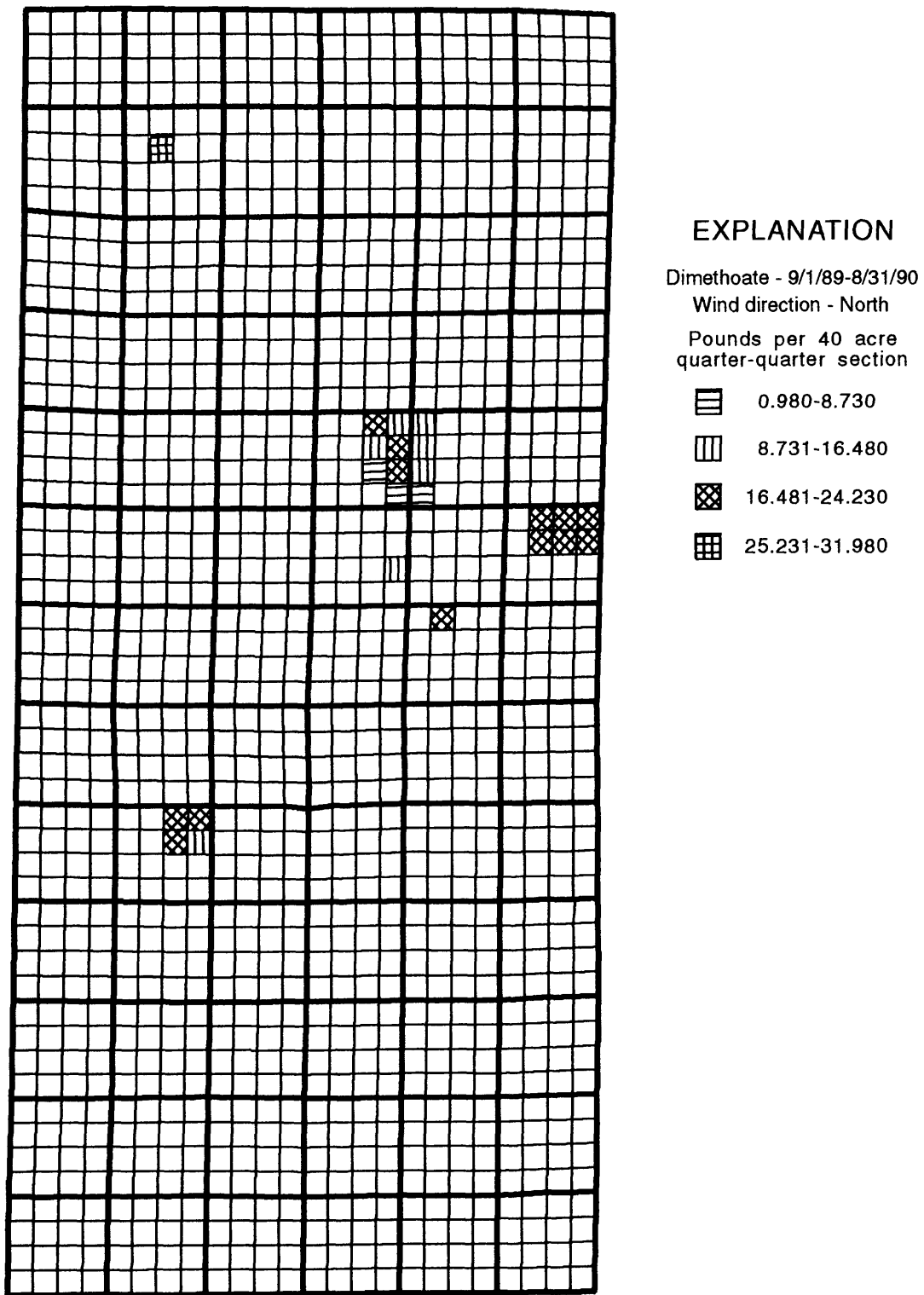


Figure F2.--Example of plot produced by LOADPLT.AML

```

/*-----
/* Command name: MULTIPLT.AML
/* Language: AML AT ARC
/* ::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::
/*
/* This program produces data files and an ARC plot for chemicals spec-
/* ified by the user. The user must first prepare a flat file named
/* INGRED.SYMB containing a list of shading symbols and ingredient names.
/*
/*::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::
/* Arguments:
/* Variable name      Definition
/* -----
/* .CHEM              Chemical name (INGRED) from CHEM.AP file.
/* .AT.POINT          Pathname to directory where AML and data base reside.
/* .PLT.DIR           Name of subdirectory where plotting coverages reside.
/* .FIRST.DATE        Earliest date of selected time period.
/* .LAST.DATE         Last date of selected time period.
/* .NI                Response to inquiry about existence of file.
/* .QUERY.BATCH       Response to query about finishing in batch mode.
/* .PRJ               Projection for plot.
/* .MPUNITS           Map units (feet or meters).
/* .MPANGLE           Map angle.
/*
/* Additional variables used in subroutines:
/*
/* Variable name, I/O,  Type,      Definition
/* -----
/* .CHEM              INGRED, 15,15,C
/* .SEC.COV            Section coverage (ARC)
/* .QQ.COV             Quarter-quarter coverage (ARC)
/* .PLOTTER            Number for plotter (ex: 1039)
/* .TERMINAL           Number for terminal (ex: 4207)
/*
/*::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::
/* History:
/* Author/Site,      Date,      Event
/* -----
/* Karen Schurr      10-19-89    Original coding
/*   USGS, WRD
/*   Tacoma, WA
/*-----
/*-----
/* User notes:
/*
/* Before running the program it may be necessary to edit the
/* SET.DIR.COV.AML. The SET.DIR.COV.AML sets the variables for plotting
/* and it must contain the correct name of the plotting directory,
/* the grid coverage names, the number of the plotting device,
/* the terminal number, the map projection, the map units, and the map angle.
/*
/* The program queries the user about the existence of the INGRED.SYMB
/* file. The file should be edited to contain the names of the
/* ingredients to be retrieved and the shade symbols to be used
/* in plotting each ingredient.
/*

```

```

/*      Making the INGRED.SYMB file:
/*
/*      Shade symbols must be integers and should be right justified to
/*      end in column 3. They may be up to three digits long.  The
/*      shade patterns should be quite open and have distinctive colors
/*      and patterns.  Several patterns will be written over each other
/*      if several chemicals were applied in the same quarter-quarter
/*      sections.
/*
/*      Ingredient names must begin in column 4 and must match the INGRED
/*      entry in the CHEM.AP data file.
/*
/* (example of INGRED.SYMB file contents)
/* =====
/* 46DICAMBA
/*135ALACHLOR
/* 44DINOSEB
/* =====
/*
/*      The user is asked the first and last dates for the time
/*      period to be considered for retrieval.  The dates entered
/*      should be in a month/day/year format (ex: 8/31/90) and the
/*      date range should exist in the LOAD file.
/*
/*      The user is asked to choose whether or not to run the rest of
/*      the program in batch mode.  The list of batch queues is then
/*      displayed and the user asked to choose a queue.  Running in
/*      batch mode frees the terminal for other use, but the user should
/*      not run other ARC functions in this directory or in the plotting
/*      directories while the batch job is running.  The user should not
/*      enter ARC/INFO in these directories while it is running.  After
/*      the batch job is finished the user may view the plot in the plotting
/*      directory with the ARC command DRAW # _____ .
/*                                     (plot file) (terminal)
/*
/*      A sequential data file (ASCII file) is created for each chemical
/*      with the areas where it was applied, acreage, and the sum of the quantity
/*      applied during the time period.  Each file is named COUNT._____.
/*      THE FILES SHOULD BE RENAMED IF THEY ARE TO BE SAVED TO AVOID
/*      OVERWRITING BY FUTURE PROGRAM RUNS.
/*
/*      Each chemical is plotted in a different color and pattern.  The
/*      plot does not indicate the quantities of the applied chemicals.
/*
/*      INFO files required for running this program are:
/*
/*          LOCATION
/*          CHEM.AP
/*          LOAD
/*
/*      SUBROUTINES required in this directory:
/*
/*          CALC.SUM.AML
/*          GUIDE.AML
/*          MULTIPLT.PT.II.BATCH.AML
/*          OUT.LUT.AML

```

```

/*      RSP.BATCH.AML
/*      RSP.DATE.AML
/*      SET.DIR.AML
/*      SET.DIR.COV.AML
/*      WRITE.DRIVER.AML
/*
/*      SUBROUTINES written and run by this program in this directory:
/*
/*      DRIVER.AML
/*
/*      SUBROUTINES required in the plotting directory:
/*
/*      PS.AML
/*      TRANS.BOTH.AML
/*      TRANS.NAME.AML
/*      WRITE.PLT.AML
/*
/*      SUBROUTINE written into plotting directory:
/*
/*      PLOT.MULTI.AML  (May be deleted after it is run.)
/*
/*      COVERAGES required in plotting directories:
/*
/*      Outline of quarter-quarter sections in the Public Land Survey.
/*      Outline of the sections in the Public Land Survey.
/*
/*      (Coverages for the 1:62,500 scale plots should cover an area
/*      about the size of a USGS 15-minute quadrangle.)
/*      (Coverages for the 1:24,000 scale plots should cover an area
/*      about the size of a Public Land Survey township.)
/*
/* -----
/* How the program works:
/*
/* The user is asked if the INGRED.SYMB file has been made. If the
/* response is negative, the GUIDE.MULTI.AML subroutine is run,
/* which gives instructions on the screen for making the file and
/* the program ends.  If the response is positive, the program
/* continues.
/*
/* The RSP.DATE.AML asks the user to enter the date range to be
/* considered and the date variables are set from the responses.
/*
/* The RSP.BATCH.AML gives the user the option of running the
/* remainder of the program in batch mode.  If batch mode is chosen,
/* the user may move down to the appropriate plotting directory after
/* the job is complete and view the plot on the screen.
/*
/* The directory pathname variable is set by the subroutine
/* SET.DIR.AML.
/*
/* The subroutine SET.DIR.COV.AML sets the variables for plotting:
/* the name of the plotting directory desired; the appropriate
/* coverage names; the plotter number; the terminal number; the
/* map projection; the map units; and the map angle.
/*

```

```

/* The MULTIPLT.PT.II.AML runs the rest of the subroutines.
/*
/* The WRITE.DRIVER.AML subroutine generates another subroutine
/* (DRIVER.AML) and creates an INFO data file (NAME.STORE) to store
/* the chemical names listed by the user in the INGRED.SYMB flat
/* file. The names are used to write the DRIVER.AML commands for
/* each chemical on the list. It also writes the
/* DRIVER.TRANS.AML directly into the plotting directory.
/*
/* DRIVER.AML runs CALC.SUM.AML and OUT.LUT.AML. CALC.SUM.AML
/* calculates the sum of the quantity of chemical applied in each
/* quarter-quarter section. OUT.LUT.AML writes an output file and
/* look-up table for each chemical. It also writes a legend
/* directly to the plotting directory, using the chemical names and
/* symbols from the NAME.STORE INFO file.
/*
/* The program transfers control to the plotting directory.
/*
/* The TRANS.NAME.AML copies the NAME.STORE file to the INFO
/* directory.
/*
/* The WRITE.PLT.AML writes the PLT.MULTI.AML with commands to shade
/* the chemicals on the list.
/*
/* PLT.MULTI.AML plots the quarter-quarter sections to which the
/* chemicals were applied during the chosen date range.
/*
/*-----
/*
/* ##### System specific commands #####
/*
COMO COMO.MULTIPLT
/*
/* #####
/*
/*          (1) Ask user if INGRED.SYMB sequential file has
/*              been prepared.
/*
&TYPE
&TYPE =====
&TYPE
&S .NI =          [RESPONSE 'Has file INGRED.SYMB been prepared? (Y/N)']
&TYPE
/*
/*          (2) If response is negative, run GUIDE.AML, which
/*              gives directions for preparing INGRED.SYMB file.
/*
&IF %.NI% = N OR %.NI% = n &THEN &DO
    &R GUIDE.AML
    &STOP
&END
/*          (3) If response is negative, end program so user
/*              may prepare INGRED.SYMB file.
/*
/*
/*          (4) Run RSP.DATE.AML, which asks user to input
/*              date range from terminal.

```

```

&R RSP.DATE.AML
/*
/*          (4.A) Run RSP.BATCH.AML to ask user if they
/*          want to run rest of program in batch mode.
&R RSP.BATCH.AML
/*
&IF %.QUERY.BATCH% = Y OR %.QUERY.BATCH% = y or %.QUERY.BATCH% = YES~
    OR %.QUERY.BATCH% = yes &THEN &DO
BATCH
ARC &R MULTIPLT.PT.II.AML %.FIRST.DATE% %.LAST.DATE% %.QUERY.BATCH%
/END
&TTY
COMO -END
&RETURN
&END          /* &DO block
/*
/*          If batch not requested, run rest of
/*          program interactively.
/*
/*          &R MULTIPLT.PT.II.AML %.FIRST.DATE% %.LAST.DATE% %.QUERY.BATCH%
/*
&RETURN
/*
/* ##### System specific commands #####
/*
COMO -END
/*
/* #####

```

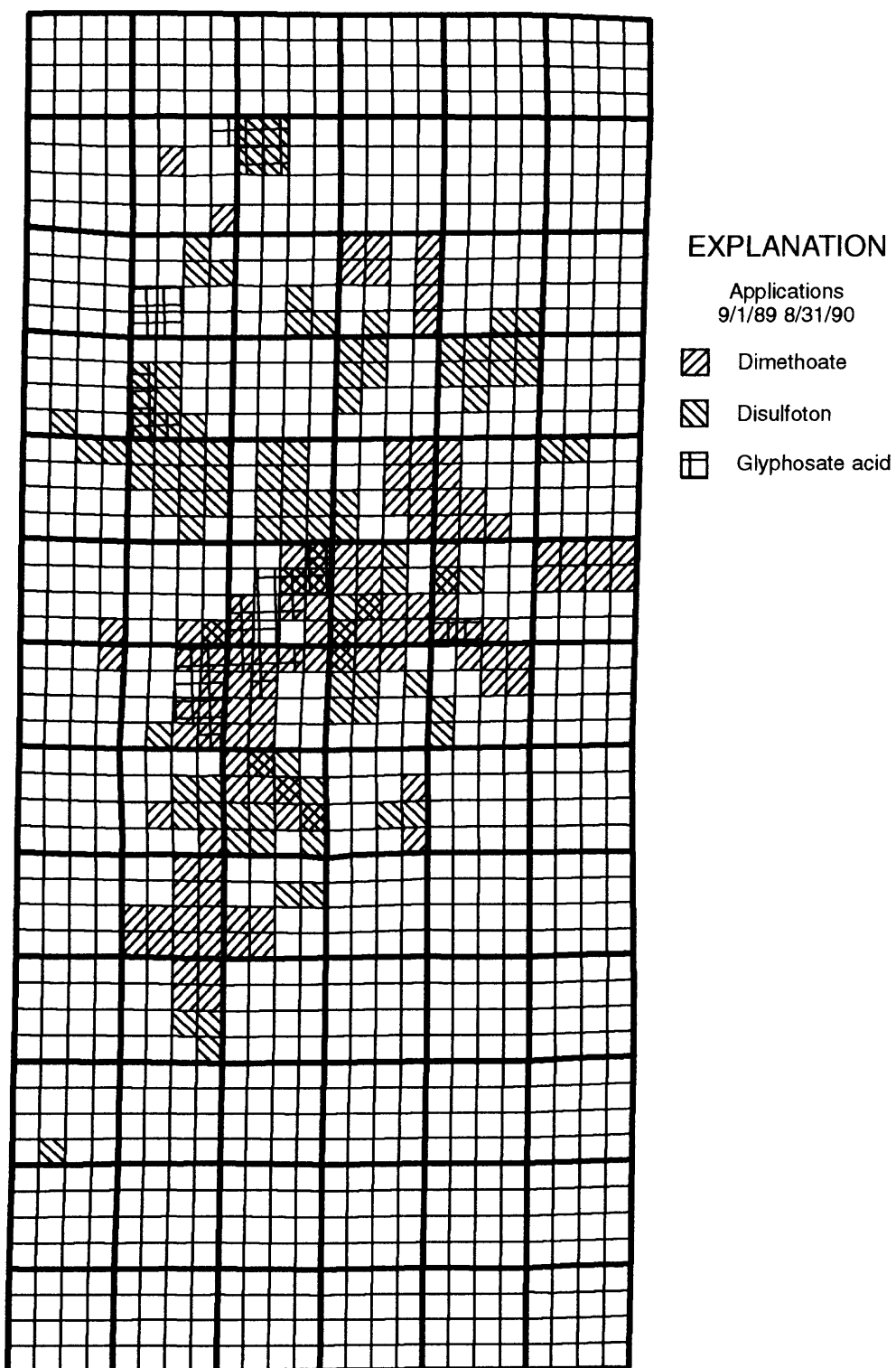


Figure F3.--Example of plot produced by MULTIPLT.AML

```

/*-----
/* Command name: PERSONPLT.AML
/* Language: AML AT ARC
/* ::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::
/*
/* Purpose: Creates an output file and a plot of the amounts of
/* a single chemical applied to each quarter-quarter section during
/* specified time period and by, or for, a specified person or firm.
/*
/* The plot file is created in one of the plotting directories and
/* may run on a plotter.
/*
/* ::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::
/*
/* ::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::
/* Arguments:
/* Variable name      Definition
/* -----
/*
/* .CHEM              Chemical name from CHEM.AP file.
/* .AT.POINT          Pathname to directory where AML and data base reside.
/* .PLT.DIR           Name of subdirectory where plotting coverages reside.
/* .FIRST.DATE        Earliest date of time period.
/* .LAST.DATE         Last date of time period.
/* .LUT.LGD           Reply to query for automatically making
/*                    look-up table and legend.
/* .PLT.DIR           Plotting directory.
/* .SEC.COV           Section coverage (ARC).
/* .QQ.COV            Quarter-quarter coverage (ARC).
/* .PLOTTER           Number for plotter (ex: 1039).
/* .TERMINAL          Number for terminal (ex: 4207).
/* .PRJ              Map projection suffix for coverage name.
/* .MPUNITS           Map units - feet or meters.
/* .MPANGLE           Map angle.
/* .TITLE.TWO        Second title on output file and plot.
/* ::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::
/* History:
/* Author/Site,      Date,      Event
/* -----
/* Karen Schurr      10-26-89    Original coding
/*   USGS, WRD
/*   Tacoma, WA
/* -----
/*
/* User notes:
/*
/* Before running the program it may be necessary to edit the
/* SET.DIR.COV.AML. The SET.DIR.COV.AML sets the variables for plotting
/* and it must contain the correct name of the plotting directory,
/* the grid coverage names, the number of the plotting device,
/* the terminal number, the map projection, the map units, and the map angle.
/*
/* The plotting directories are subdirectories
/* of the "attach point" directory. One plotting directory contains
/* coverages and a plot.aml for mapscale 1:62,500 and the other for
/* 1:24,000.

```

```

/*
/* The program queries the user for the chemical name (INGRED
- /* in the CHEM.AP file), the date range to consider, and
/* whether the program should create the look-up table and legend.
/* The dates must exist in the LOAD file and the chemical name
/* must be exactly as it appears in the CHEM.AP file.
/*
/* The user may choose to have the look-up table and the legend
/* created automatically or they may choose to use their own,
/* previously created, legend & look-up table. User-created
/* files must be named _____.LUT and LEGEND._____, where
/* _____ refers to the chemical name selected for plotting.
/*
/* An ASCII (flat) output file is created named: COUNT._____.
/* IT SHOULD BE RENAMED TO PREVENT OVERWRITING BY FUTURE PROGRAM
/* RUNS. The INFO file is named _____.COUNT. Quantities are
/* reported in the units reported by the applicator.
/*
/* INFO files required for running this program are:
/*
/* LOCATION
/* CHEM.AP
/* LOAD
/* RECEIVER or LIC.AP
/*
/* SUBROUTINES required in this directory:
/* CALC.PERSON.AML
/* LUT.LGD.AUTO.AML
/* OUT.SUBTITLE.AML
/* RSP.CHEM.AML
/* RSP.DATE.AML
/* RSP.FILE.AML
/* RSP.LOGIC.AML
/* SET.DIR.AML
/* SET.DIR.COV.AML
/*
/* SUBROUTINES required in plotting directories:
/* CREATE.REL.AML
/* PLT3.AML
/* TRANS.BOTH.AML
/* TRANS.COUNT.AML
/*
/* COVERAGES required in plotting directories:
/* Outline of quarter-quarter sections in the Public Land Survey.
/* Outline of the sections in the Public Land Survey.
/*
/* (Coverages for the 1:62,500 scale plots should cover an area
/* about the size of a USGS 15-minute quadrangle.)
/* (Coverages for the 1:24,000 scale plots should cover an area
/* about the size of a Public Land Survey township.)
/*
/* _____ refers to the chemical name selected for plotting.
/*
/* -----
/*
/* Programmer notes:

```

```

/*
/* The user is asked what ingredient to retrieve by the
/* RSP.CHEM.AML.
/*
/* The user is asked the first and last dates for the time
/* period to be considered for retrieval by the RSP.DATE.AML.
/*
/* The user is asked which of the files is to be queried by
/* the RSP.FILE.AML.
/*
/* The RSP.LUT.AML asks the user if they wish to have the system
/* automatically create a look-up table and legend for plotting.
/*
/* The directory pathname variable is set by the SET.DIR.AML
/* subroutine.
/*
/* The SET.DIR.COV.AML sets the variables for plotting. It sets
/* the name of the plotting directory, the grid coverage names, the
/* number of the plotting device, the terminal number, the map
/* projection, the map units, and the map angle.
/*
/* The CALC.PERSON.AML creates an .AP file for a single chemical.
/* It defines a LOC.INDEX file and fills the file with records
/* in the correct date range and meeting the criteria from the
/* person files. The quantity the chemical applied per quarter-
/* quarter section is calculated.
/*
/* The OUT.SUBTITLE.AML writes the ASCII output file containing
/* the retrieval data. At the top there is a subtitle with
/* the criteria used in the retrieval.
/*
/* If the user chose to have the look-up table and legend created
/* automatically, these are made by the LUT.LGD.AUTO.AML.
/*
/* Control is moved to the plotting directory.
/*
/* If the user chose the automatic look-up table, the look-up
/* table and the .COUNT file are transferred to the plotting
/* directory by the TRANS.BOTH.AML.
/*
/* If the user did not choose the automatic look-up table,
/* the .COUNT file is transferred to the plotting directory
/* by the TRANS.COUNT.AML.
/*
/* The plot is created by the PLT3.AML.
/* -----
&MESSAGES &OFF
/*##### TAILOR TO SYSTEM #####
COMO COMO.PERSONPLT
TIME
/*
/*#####
&MESSAGES &ON
/* Run series of AML's to sum applications.
/*
/*

```

```

&R RSP.CHEM.AML
/*
&R RSP.DATE.AML
/*
/*
/*
/*
&R CHOOSE.FILE.AML
/*
/*
/*
/*
&R RSP.LOGIC.AML
/*
/*
/*
/*
/*
&R RSP.SUBTITLE.AML
/*
&R RSP.LUT.AML
/*
&MESSAGES &OFF
/*
/*
/*
&R SET.DIR.AML
/*
/*
/*
&R SET.DIR.COV.AML
/*
/*
/*
/*
/*
/*
/*
/*
/*
/*
/*
&R CALC.PERSON.AML
/*
/*
/*
/*
/*
/*
/*
&R OUT.SUBTITLE.AML
/*
&IF %.LUT.LGD% = Y or %.LUT.LGD% = y &THEN &DO
  &R LUT.LGD.AUTO.AML %.CHEM% %.AT.POINT% %.PLT.DIR%
&END
  /* &DO

```

Ask user chemical to plot.

Ask user for dates to bracket
time period.

Ask user which file to use.

Ask user for a logical expression
to give additional criteria to
the selection of the data set.

Ask user to choose automatic
or self-created look-up table
and legend.

Ask user to enter subtitle for
/* use on output file & plot.

Set variables with directory names.

Set variables for coverages for
plotting.

Make .AP file for single chemical.

Define LOC.INDEX file.

Fill LOC.INDEX file with records in
desired date range. Calculate quantity
from AP.RATE and ACRES. Sum up quantity
in each qq in %CHEM%.COUNT file.

If response is positive, make
look-up table and legend from
values in %CHEM%.COUNT.

Write output file.

```

/*
/*
&WORKSPACE %.AT.POINT%>%.PLT.DIR%          /* Attach to plotting directory.
/*
/*
/*          If automated look-up table chosen, copy
/*          both .COUNT and .LUT
/*          from %AT.POINT% directory.
/*
&IF %.LUT.LGD% = Y OR %.LUT.LGD% = 'y' &THEN
    &R TRANS.BOTH.AML %.CHEM%
&ELSE
/*          Copy only %CHEM%.COUNT file from %AT.POINT%
/*          directory.
/*
    &R TRANS.COUNT.AML %.CHEM% %.AT.POINT%
/*
/*          Plot application areas from plotting
/*          directory.
/*
&MESSAGES &ON
/*
/*##### MUST BE TAILORED TO USER'S SYSTEM #####
TIME
COMO -END
/*#####
&R PLT3.AML %.CHEM% %.FIRST.DATE% %.LAST.DATE% %.SEC.COV% %.QQ.COV% ~
    %.PLOTTER% %.TERMINAL% %.PRJ% %.MPUNITS% %.MPANGLE% %.TITLE.TWO%
/*
/*
/*

```

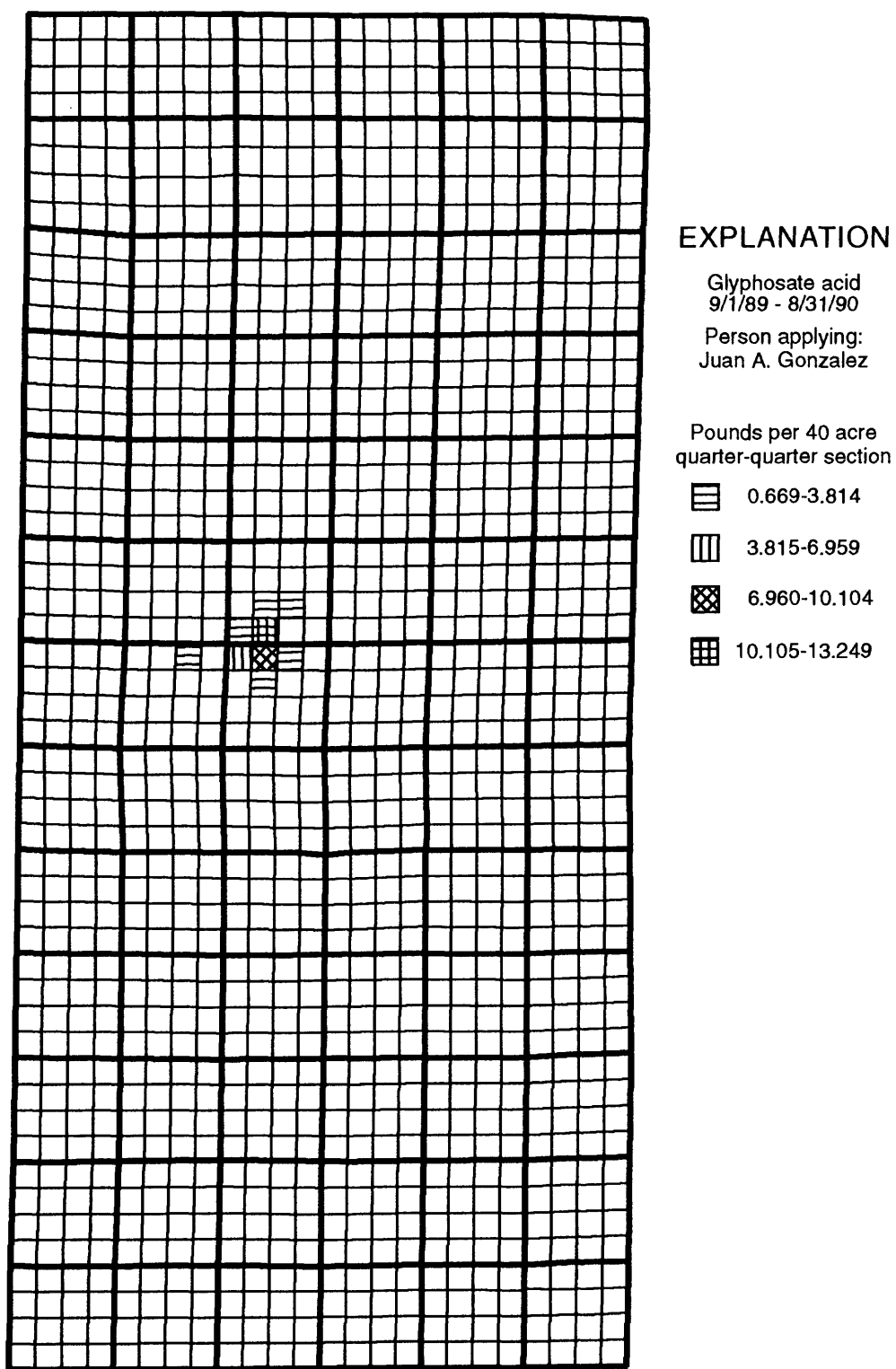


Figure F4.—Example of plot produced by PERSONPLT.AML

```

/*-----
/* Command name: RATEPLT.AML
/* Language: AML AT ARC
/* ::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::
/* Purpose: Determines the quarter-quarter sections to which the
/* specified chemical has been applied, at or above the specified
/* rate, and within the chosen time period.
/*
/* ::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::
/*
/* Variable name      Definition
/* -----
/* .CHEM              Chemical name from CHEM.AP file.
/* .AT.POINT          Pathname to directory where AML and data base reside.
/* .PLT.DIR           Name of subdirectory where plotting coverages reside.
/* .FIRST.DATE        Earliest date of selected time period.
/* .LAST.DATE         Last date of selected time period.
/* .QQ.COV            Coverage containing quarter-quarter sections.
/* .SEC.COV           Coverage containing Public Land Survey sections.
/* .LUT.LGD           Reply to query for automatically making
/*                    look-up table and legend.
/*
/* Additional variables used in subroutines:
/*
/* Variable name      Definition
/* -----
/* .PLOTTER           Number for plotter (ex: 1039)
/* .TERMINAL          Number for terminal (ex: 4207)
/*
/* ::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::
/* History:
/* Author/Site,      Date,      Event
/* -----
/* Karen Schurr      10-26-89    Original coding
/*   USGS, WRD
/*   Tacoma, WA
/* -----
/*
/* User notes:
/*
/* Before running the program it may be necessary to edit the
/* SET.DIR.COV.AML. The SET.DIR.COV.AML sets the variables for plotting
/* and it must contain the correct name of the plotting directory,
/* the grid coverage names, the number of the plotting device,
/* the terminal number, the map projection, the map units, and the map angle.
/*
/* The plotting directories are subdirectories
/* of the "attach point" directory.
/*
/* One plotting directory contains coverages and a plot.aml for
/* mapscale 1:62,500 and the other for 1:24,000.
/*
/* The program asks what ingredient to retrieve. The chemical
/* name must be entered exactly as it appears under INGRED
/* in the CHEM.AP file. Help is available if a '?' is entered to
/* the query for the ingredient. A list of the ingredient names

```

```

/*      in the data base will be displayed on the screen.
/*
/*      The user is asked the first and last dates for the time
/*      period to be considered for retrieval.  The dates entered
/*      should be in a month/day/year format (ex: 8/31/90) and the
/*      date range should exist in the LOAD file.
/*
/*      The user may choose to have the look-up table and the legend
/*      created automatically or they may choose to use their own,
/*      previously created, legend & look-up table.  User-created
/*      files must be named _____.LUT and LEGEND._____, where
/*      _____ refers to the chemical name selected for plotting.
/*
/*      A plot file is created in one of the plotting directories and
/*      is displayed on the screen.
/*
/*      A data file (flat file) is created containing the rate chosen
/*      and the areas where the rate was met or exceeded.  The file is
/*      named: COUNT._____.  The INFO file is named: _____.COUNT.
/*      THE FILES SHOULD BE RENAMED IF THEY ARE TO BE SAVED IN ORDER
/*      TO PREVENT OVERWRITING BY FUTURE PROGRAM RUNS.
/*
/*      INFO files required for running this program are:
/*
/*          LOCATION
/*          CHEM.AP
/*          LOAD
/*
/*      SUBROUTINES required in this directory:
/*          CALC.RATE.AML
/*          LUT.LGD.RATE.AML
/*          RSP.CHEM.AML
/*          RSP.DATE.AML
/*          RSP.RATE.AML
/*          SET.DIR.AML
/*          SET.DIR.COV.AML
/*
/*      SUBROUTINES required in plotting directories:
/*          CREATE.REL.AML
/*          PLT2.AML
/*          TRANS.BOTH.AML
/*          TRANS.COUNT.AML
/*
/*      COVERAGES required in plotting directories:
/*          Outline of quarter-quarter sections in the Public Land Survey.
/*          Outline of the sections in the Public Land Survey.
/*
/*          (Coverages for the 1:62,500 scale plots should cover an area
/*          about the size of a USGS 15-minute quadrangle.)
/*          (Coverages for the 1:24,000 scale plots should cover an area
/*          about the size of a Public Land Survey township.)
/*
/*      Chemical names must be exactly as specified in INGRED item in the
/*      CHEM.AP file.  The date range selected must exist in the CHEM.AP
/*      file.
/*

```

```

/*-----
/* Programmer notes:
/*
/* The user is queried for: the chemical name by the subroutine
/* RSP.CHEM.AML, the date range by RSP.DATE.AML, and the rate by
/* RSP.RATE.AML.
/*
/* The directory variable is set with the pathname by SET.DIR.AML.
/*
/* The SET.DIR.COV.AML sets the variables needed for plotting: the
/* name of the plotting directory desired; the appropriate coverage
/* names; the plotter number, and the terminal number.
/*
/* The user is asked if he wants the look-up table and legend
/* created by the programs. If he does, the subroutine
/* LUT.LGD.RATE.AML is run. This subroutine creates a look-up table
/* in the "attach point" INFO directory and writes a legend directly
/* to the plotting directory.
/*
/* The subroutine CALC.RATE.AML creates three temporary INFO data
/* files: _____.AP, LOC.INDEX and _____.COUNT.
/*
/* The _____.AP is a file with the essential data for one chemical
/* from the CHEM.AP file. This file is necessary to permit a many-
/* to-one relation between the LOCATION data file and the _____.AP
/* data file.
/*
/* Records are reselected from the LOCATION file whenever their
/* matching LOAD data files have dates in the specified range and
/* when there is a matching SHEET.LOAD.NO in _____.AP. The
/* locations are loaded in the LOC.INDEX file and the file is
/* sorted on location (PLS).
/*
/* Each unique location in the LOC.INDEX file is loaded into the
/* _____.COUNT file. The quantity (QUANT) is calculated to be 1,
/* simply indicating that the rate was met or exceeded in that
/* location.
/*
/* An ASCII output file (COUNT._____) containing the affected
/* locations is written. It should be renamed if it is to be saved;
/* otherwise it may be overwritten when the program is run again.
/*
/* In the plotting directory:
/*
/* If the automatic look-up table option was chosen the look-up
/* table and the _____.COUNT INFO files are copied from the "attach
/* point" directory by the TRANS.BOTH.AML. If the user chooses to
/* create his own look-up table and legend, only the _____.COUNT
/* INFO data file is copied from the "attach point" directory.
/*
/* The plot file is created by PLT2.AML.
/*
/* &MESSAGES &OFF
/*
/* ##### System specific commands #####
/*

```

```

COMO COMO.RATEPLT
/*
/* #####
&MESSAGES &ON
&ECHO &OFF
/*          Run series of AML's to sum applications.
/*
/*
&R RSP.CHEM.AML          Ask user chemical to plot.
/*
&R RSP.DATE.AML          Ask user for dates to bracket
/*          time period.
/*
&R RSP.RATE.AML          Ask user for lowest application
/*          rate to list and/or plot.
/*
/*          Ask user to choose automatic
/*          or self-created look-up table
/*          and legend.
/*
&TYPE Automatically create
&S LUT.LGD = [RESPONSE 'look-up table and legends? (Y/N)      ']
&MESSAGES &OFF
/*
/*          Set variables with directory names.
/*
&R SET.DIR.AML
/*
/*          Set variables for coverages for
/*          plotting.
&R SET.DIR.COV.AML
/*
/*
/*          Make .AP file for single chemical.
/*
/*          Define LOC.INDEX file.
/*
/*          Fill LOC.INDEX file with records
/*          for quarter-quarter sections to
/*          which applications have been made in
/*          desired date range and selected
/*          application rate range.
/*
/*          Define and fill _____.COUNT
/*          file with one record per quarter-
/*          quarter section where rate was
/*          greater than or equal to rate specified.
&R CALC.RATE.AML
/*
/*
/*          If response to query was positive, make
/*          look-up table and legend from
/*          values in _____.COUNT.
/*
/*
&IF %LUT.LGD% = Y &THEN &DO

```

```

&R LUT.LGD.RATE.AML %.CHEM% %.RATE%
&END /* &DO
/*
/*##### TAILOR TO SYSTEM #####
/*
A *>%.PLT.DIR% /* Attach to plotting directory.
/*
/*#####
/*
/* If automated look-up table chosen, copy
/* both .COUNT and .LUT
/* from attach-point directory into plotting
/* directory.
/*
&IF %LUT.LGD% = Y &THEN
&R TRANS.BOTH.AML %.CHEM%
&ELSE
/* Copy only _____.COUNT file from attach-point
/* directory.
/*
&R TRANS.COUNT.AML %.CHEM% %.AT.POINT%
/*
/* Plot application areas from plotting
/* directory.
/*
&MESSAGES &ON
/*
/* ##### System specific commands #####
/*
COMO -END
/*
/* #####
/*
&R PLT2.AML %.CHEM% %.FIRST.DATE% %.LAST.DATE% %.SEC.COV% %.QQ.COV% ~
%.PLOTTER% %.TERMINAL% %.PRJ% %.MPUNITS% %.MPANGLE%

```

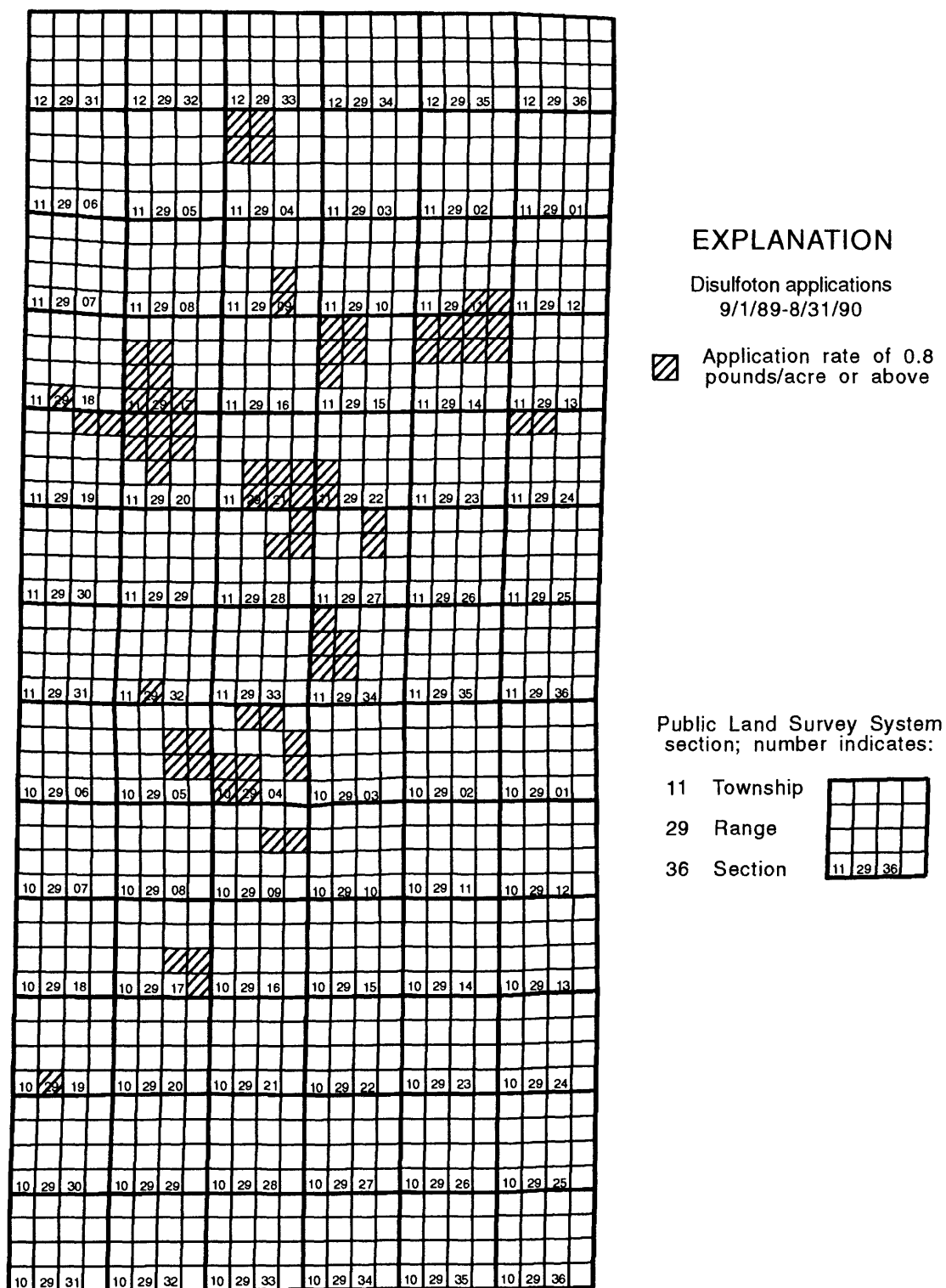


Figure F5.--Example of plot produced by RATEPLT.AML

```

/*-----
/*  Command name: SHEETPLT.AML
/*  Language: AML AT ARC
/*  ::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::
/*  Purpose:  This program records the quarter-quarter sections to
/*            which pesticides have been applied according to a chosen
/*            block of pesticide application sheet numbers.
/*
/*            Results are written to an INFO file named SHEET.COUNT
/*            and to a Primos file named COUNT.SHEET.
/*
/*            A plot file is created and displayed on the screen.
/*  ::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::
/*  Arguments:
/*      Variable name      Definition
/*      -----
/*      .AT.POINT          Pathname to directory where AML and data base reside.
/*      .PLT.DIR           Name of subdirectory where plotting coverages reside.
/*      .FIRST.SHEET       Earliest date of selected time period.
/*      .LAST.SHEET        Last date of selected time period.
/*      .SEC.COV           Section coverage.
/*      .QQ.COV            Quarter-quarter coverage.
/*      .PRJ               Map projection.
/*      .MPUNITS           Map units (feet or meters).
/*      .MPANGLE           Map angle.
/*  ::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::
/*
/*  History:
/*      Author/Site,      Date,      Event
/*      -----
/*      Karen Schurr      10-26-89      Original coding
/*      USGS, WRD
/*      Tacoma, WA
/*  -----
/*  User notes:
/*
/*      Before running this program for the first time the user may
/*      need to edit the SET.DIR.COV.AML.
/*
/*      SET.DIR.COV.AML must contain the name of the desired plotting
/*      directory and the names of the two coverages for plotting.
/*      The plotting directories are subdirectories of the "attach point"
/*      directory.
/*      One plotting directory contains coverages and a plot.aml for mapscale
/*      1:62,500 and the other for mapscale 1:24,000.  The terminal and
/*      plotter numbers must also be inserted in this program (ex: 4207 and
/*      1039).
/*
/*      The program queries the user for the range of sheet numbers desired.
/*      The sheet numbers selected must exist in the LOCATION file.
/*
/*      The ASCII output file is named:  COUNT.SHEET.  IT SHOULD BE RENAMED
/*      TO PREVENT OVERWRITING BY FUTURE PROGRAM RUNS.
/*
/*      INFO files required for running this program are:
/*

```

```

/*      LOCATION
/*
/*      SUBROUTINES required in this directory:
/*
/*      CALC.SHEET.AML
/*      RSP.SHEET.AML
/*      SET.DIR.AML
/*      SET.DIR.COV.AML
/*      LUT.LGD.ALL.AML
/*      WRITE.DRIVER.AML
/*
/*      SUBROUTINES required in the plotting directories:
/*
/*      CREATE.REL.AML
/*      TRANS.BOTH.AML
/*      PLT2.AML
/*
/*      COVERAGES required in plotting directories:
/*
/*      Outline of quarter-quarter sections in the Public Land Survey.
/*      Outline of the sections in the Public Land Survey.
/*
/*      (Coverages for the 1:62,500 scale plots should cover an area
/*      about the size of a USGS 15-minute quadrangle.)
/*      (Coverages for the 1:24,000 scale plots should cover an area
/*      about the size of a Public Land Survey township.)
/*
/*-----
/*
/*      Programmer notes:
/*
/*      The user is asked what range of sheet numbers to retrieve by
/*      RSP.SHEET.AML.
/*
/*      The variable for the output file name prefix and for the
/*      plot file name prefix is set to "SHEET".
/*
/*
/*      The CALC.SHEET.AML defines a LOC.INDEX file and fills it with the
/*      records from the LOCATION file, which have sheet numbers in the
/*      range specified by the user. The SHEET.COUNT file is defined
/*      and loaded with one record per unique QQ in the LOC.INDEX file.
/*      The ASCII output file, listing the unique QQ's, is written
/*      to the main directory.
/*
/*      The directory pathname variable is set by the SET.DIR.AML.
/*
/*      The SET.DIR.COV.AML sets the variables for plotting. It sets
/*      the name of the plotting directory, the grid coverage names, the
/*      number of the plotting device, the terminal number, the map
/*      projection, the map units, and the map angle.
/*
/*      A look-up table with one shading pattern is written by
/*      LUT.LGD.ALL.AML and the program also writes a legend to the
/*      plotting directory.
/*

```

```

/* Control is moved to the plotting directory.
/*
/* The look-up table and the .COUNT file are transferred to the
/* plotting directory by the TRANS.BOTH.AML.
/*
/* The plot file is created by the PLT2.AML.
/*
/* The plot file is displayed on the screen.
/*
/*-----
/*
&MESSAGES &OFF
/*
/* ##### System specific commands #####
/*
COMO COMO.SHEETPLT
/*
/* #####
/*
&R RSP.SHEET.AML /* Ask user for range of sheet numbers.
/*
&S .CHEM = SHEET /* Set filename prefix to "SHEET".
/*
&R SET.DIR.AML /* Set variable defining main directory.
/*
&R CALC.SHEET.AML %.FIRST.SHEET% %.LAST.SHEET%
/*
/* /* Define LOC.INDEX & SHEET.COUNT files.
/* Start one record per qq in _____.COUNT.
/*
/* Fill LOC.INDEX file with records in
/* desired date range. Calculate quantity
/* from AP.RATE and ACRES. Sum up quantity
/* in each qq in _____.COUNT file.
/*
/* Write output file.
/*
/*
/*
&R SET.DIR.COV.AML /* Set plotting directory variable,
/* coverage name variables, and other
/* plotting variables.
/*
&R LUT.LGD.ALL.AML SHEET /* Create look-up table for one
/* shading pattern.
/* Write legend to plotting directory.
/*
&WORKSPACE *>%.PLT.DIR% /* Move control to plotting directory.
/*
&R TRANS.BOTH.AML SHEET /* Transfer look-up table and
/* _____.COUNT file to
/* plotting directory.
/*
/*
&MESSAGES &ON
&R PLT2.AML SHEET %.FIRST.SHEET% %.LAST.SHEET% %.SEC.COV% %.QQ.COV% ~

```

```
% .PLOTTER% % .TERMINAL% % .PRJ% % .MPUNITS% % .MPANGLE%  
/*  
/* ##### System specific commands #####  
/*  
COMO -END  
/*  
/* #####
```

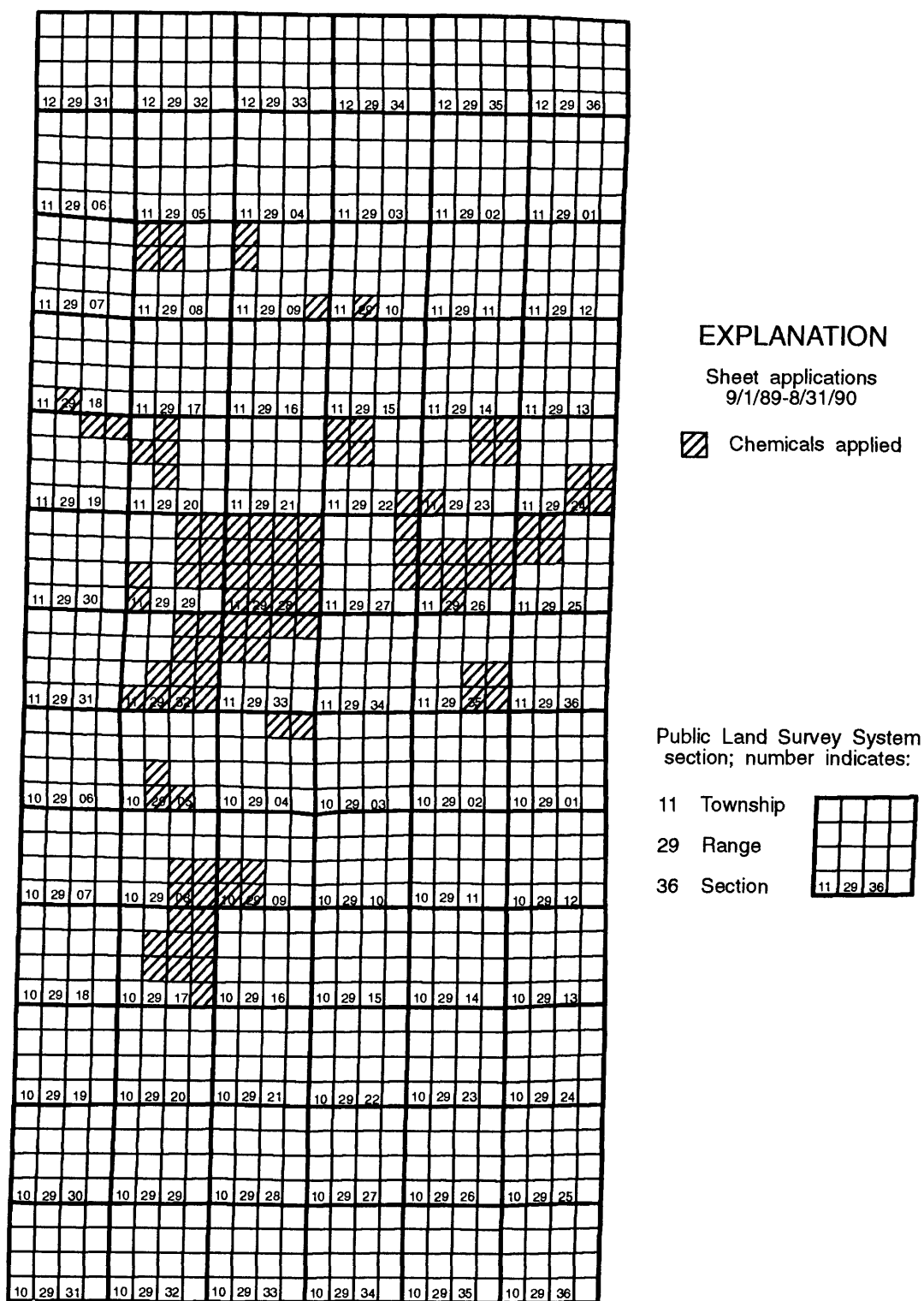


Figure F6.—Example of plot produced by SHEETPLT.AML

```

/*-----
/* Command name: SUMPLT.AML
/* Language: AML AT ARC
/* ::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::
/* Purpose: Creates and displays a plot file of the amounts of
/* chemical applied to each quarter-quarter during
/* specified time period. The quantities are divided into
/* five ranges and each range is plotted in a different color.
/*
/* A data file (flat file) is created containing the rate chosen
/* and the areas where the rate was met or exceeded. The file is
/* named: COUNT._____. The INFO file is named: _____.COUNT.
/*
/* The plot file is created in one of the plotting directories and
/* may run on a plotter.
/*
/* ::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::
/* Arguments:
/* Variable name      Definition
/* -----
/* .CHEM              Chemical name from CHEM.AP file.
/* .AT.POINT          Pathname to directory where AML and data base reside.
/* .PLT.DIR           Name of subdirectory where plotting coverages reside.
/* .FIRST.DATE        Earliest date of time period.
/* .LAST.DATE         Last date of time period.
/* .LUT.LGD           Reply to query for automatically making
/*                    look-up table and legend.
/* .PLT.DIR           Plotting directory.
/* .SEC.COV           Section coverage (ARC).
/* .QQ.COV            Quarter-quarter coverage (ARC).
/* .PLOTTER           Number for plotter (ex: 1039).
/* .TERMINAL          Number for terminal (ex: 4207).
/* .PRJ              Map projection.
/* .MPUNITS           Map units (feet or meters).
/* .MPANGLE           Angle for plot.
/* ::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::
/* History:
/* Author/Site,      Date,      Event
/* -----
/* Karen Schurr      10-26-89    Original coding
/*   USGS, WRD
/*   Tacoma, WA
/*-----
/*
/* User notes:
/*
/* Before running the program it may be necessary to edit the
/* SET.DIR.COV.AML. The SET.DIR.COV.AML sets the variables for plotting
/* and it must contain the correct name of the plotting directory,
/* the grid coverage names, the number of the plotting device,
/* the terminal number, the map projection, the map units, and the map angle.
/*
/* The plotting directories are subdirectories
/* of the "attach point" directory. One plotting directory contains
/* coverages and a plot.aml for mapscale 1:62,500 and the other for

```

```

/*      1:24,000.
/*
/*      The program asks what ingredient to retrieve. The chemical
/*      name must be entered exactly as it appears under INGRED
/*      in the CHEM.AP file. Help is available if a '?' is entered to
/*      the query for the ingredient. A list of the ingredient names
/*      in the data base will be displayed on the screen.
/*
/*      The user is asked the first and last dates for the time
/*      period to be considered for retrieval. The dates entered
/*      should be in a month/day/year format (ex: 8/31/90) and the
/*      date range should exist in the LOAD file.
/*
/*      The user may choose to have the look-up table and the legend
/*      created automatically or they may choose to use their own,
/*      previously created, legend & look-up table. User-created
/*      files must be named _____.LUT and LEGEND._____, where
/*      _____ refers to the chemical name selected for plotting.
/*
/*      An ASCII (flat) output file is created named: COUNT._____.
/*      IT SHOULD BE RENAMED TO PREVENT OVERWRITING BY FUTURE PROGRAM
/*      RUNS. The INFO file is named _____.COUNT. Quantities are
/*      reported in pounds per quarter-quarter section.
/*
/*      INFO files required for running this program are:
/*
/*          LOCATION
/*          CHEM.AP
/*          LOAD
/*
/*      SUBROUTINES required in this directory:
/*          CALC.SUM.AML
/*          LUT.LGD.AUTO.AML
/*          OUTPT.AML
/*          RSP.CHEM.AML
/*          RSP.DATE.AML
/*          RSP.LUT.AML
/*          SET.DIR.AML
/*          SET.DIR.COV.AML
/*
/*      SUBROUTINES required in plotting directories:
/*          CREATE.REL.AML
/*          PLT2.AML
/*          TRANS.BOTH.AML
/*          TRANS.COUNT.AML
/*
/*      COVERAGES required in plotting directories:
/*          Outline of quarter-quarter sections in the Public Land Survey.
/*          Outline of the sections in the Public Land Survey.
/*
/*          (Coverages for the 1:62,500 scale plots should cover an area
/*          about the size of a USGS 15-minute quadrangle.)
/*          (Coverages for the 1:24,000 scale plots should cover an area
/*          about the size of a Public Land Survey township.)
/*
/*      _____ refers to the chemical name selected for plotting.

```

```

/*
/* -----
/* User notes:
/*
/* Before running the program it may be necessary to edit the
/* SET.DIR.COV.AML. The SET.DIR.COV.AML sets the variables for plotting
/* and it must contain the correct name of the plotting directory,
/* the grid coverage names, the number of the plotting device,
/* the terminal number, the map projection, the map units, and the map angle.
/*
/* The user is asked the first and last dates for the time
/* period to be considered for retrieval. The dates entered
/* should be in a month/day/year format (ex: 8/31/90) and the
/* date range should exist in the LOAD file.
/*
/* The user is asked if he wants the look-up table and legend
/* created by the programs. If he does, the subroutine
/* LUT.LGD.RATE.AML is run. This subroutine creates a look-up table
/* in the "attach point" INFO directory and writes a legend directly
/* to the plotting directory.
/*
/* The directory pathname variable is set by the subroutine
/* SET.DIR.AML.
/*
/* The SET.DIR.COV.AML sets the variables needed for plotting: the
/* name of the plotting directory desired; the appropriate coverage
/* names; the plotter number and the terminal number; the map projection,
/* the map units, and the map angle.
/*
/* CALC.SUM.AML defines three temporary INFO files: _____.AP,
/* LOC.INDEX and _____.COUNT.
/*
/* The _____.AP is a file with the essential data for one chemical
/* from the CHEM.AP file. This file is necessary to permit a many-
/* to-one relation between the LOCATION data file and the _____.AP
/* data file. (CHEM.AP and LOCATION would have a many-to-many
/* relation, which presents operational problems in INFO.)
/*
/* Records are reselected from the LOCATION file whenever their
/* matching LOAD data files have dates in the specified range and
/* when there is a matching SHEET. LOAD.NO in _____.AP. The
/* locations are loaded in the LOC.INDEX file and the file is
/* sorted on location (PLS).
/*
/* Each unique location in the LOC.INDEX file is loaded into the
/* _____.COUNT file. The quantity (QUANT) per quarter-quarter
/* section and number of acres are calculated with the FREQUENCY
/* command.
/*
/* An ASCII output file (COUNT._____) containing the affected
/* locations is written by the OUTPT.AML.
/*
/* In the plotting directory:
/*
/* If the automatic look-up table option was chosen the look-up
/* table and the _____.COUNT INFO files are copied from the "attach

```

```

/* point" directory by the TRANS.BOTH.AML. If the user chose to
/* create his own look-up table and legend, only the _____.COUNT
/* INFO data file is copied from the "attach point" directory.
/*
/* The plot file is created by PLT2.AML.
/* -----
&MESSAGES &OFF
/*
/* ##### System specific commands #####
/*
COMO COMO.SUMPLT
/*
/* #####
&MESSAGES &ON
/*
/* Run series of AML's to sum applications.
/*
/*
&R RSP.CHEM.AML Ask user chemical to plot.
/*
&R RSP.DATE.AML Ask user for dates to bracket
/* time period.
/*
/*
/* Ask user to choose automatic
/* or self-created look-up table
/* and legend.
/*
&R RSP.LUT.AML
/*
&MESSAGES &OFF
/*
/* Set variables with directory names.
/*
/*
&R SET.DIR.AML
/*
/* Set variables for coverages for
/* plotting.
&R SET.DIR.COV.AML
/*
/*
/* Make .AP file for single chemical.
/*
/* Define LOC.INDEX file.
/*
/* Fill LOC.INDEX file with records in
/* desired date range. Calculate quantity
/* from AP.RATE and ACRES. Sum up quantity
/* in each qq in %CHEM%.COUNT file.
/*
/*
&R CALC.SUM.AML %CHEM% %.FIRST.DATE% %.LAST.DATE%
/*
/* If response is positive, make
/* look-up table and legend from
/* values in %CHEM%.COUNT.
/*

```

```

/*                                     Write output file.
/*
&R OUTPT.AML %CHEM% %AT.POINT%
/*
&IF %LUT.LGD% = Y &THEN &DO
    &R LUT.LGD.AUTO.AML %CHEM% %AT.POINT% %PLT.DIR%
/*
&END                                     /* &DO
/*
/*
&WORKSPACE %PLT.DIR%                 /* Attach to plotting directory.
/*
/*
/*                                     If automated look-up table chosen, copy
/*                                     both .COUNT and .LUT
/*                                     from %AT.POINT% directory.
/*
&IF %LUT.LGD% = Y &THEN
    &R TRANS.BOTH.AML %CHEM% %AT.POINT% %PLT.DIR%
&ELSE
/*                                     Copy only %CHEM%.COUNT file from %AT.POINT%
/*                                     directory.
/*
    &R TRANS.COUNT.AML %CHEM% %AT.POINT% %PLT.DIR%
/*
/*                                     Plot application areas from plotting
/*                                     directory.
/*
&MESSAGES &ON
/*
/*
/* ##### System specific commands #####
/*
COMO -END
/*
/* #####
/*
    &R PLT2.AML %CHEM% %FIRST.DATE% %LAST.DATE% %SEC.COV% ~
    %QQ.COV% %PLOTTER% %TERMINAL% %PRJ% %MPUNITS% %MPANGLE%
/*
/*

```

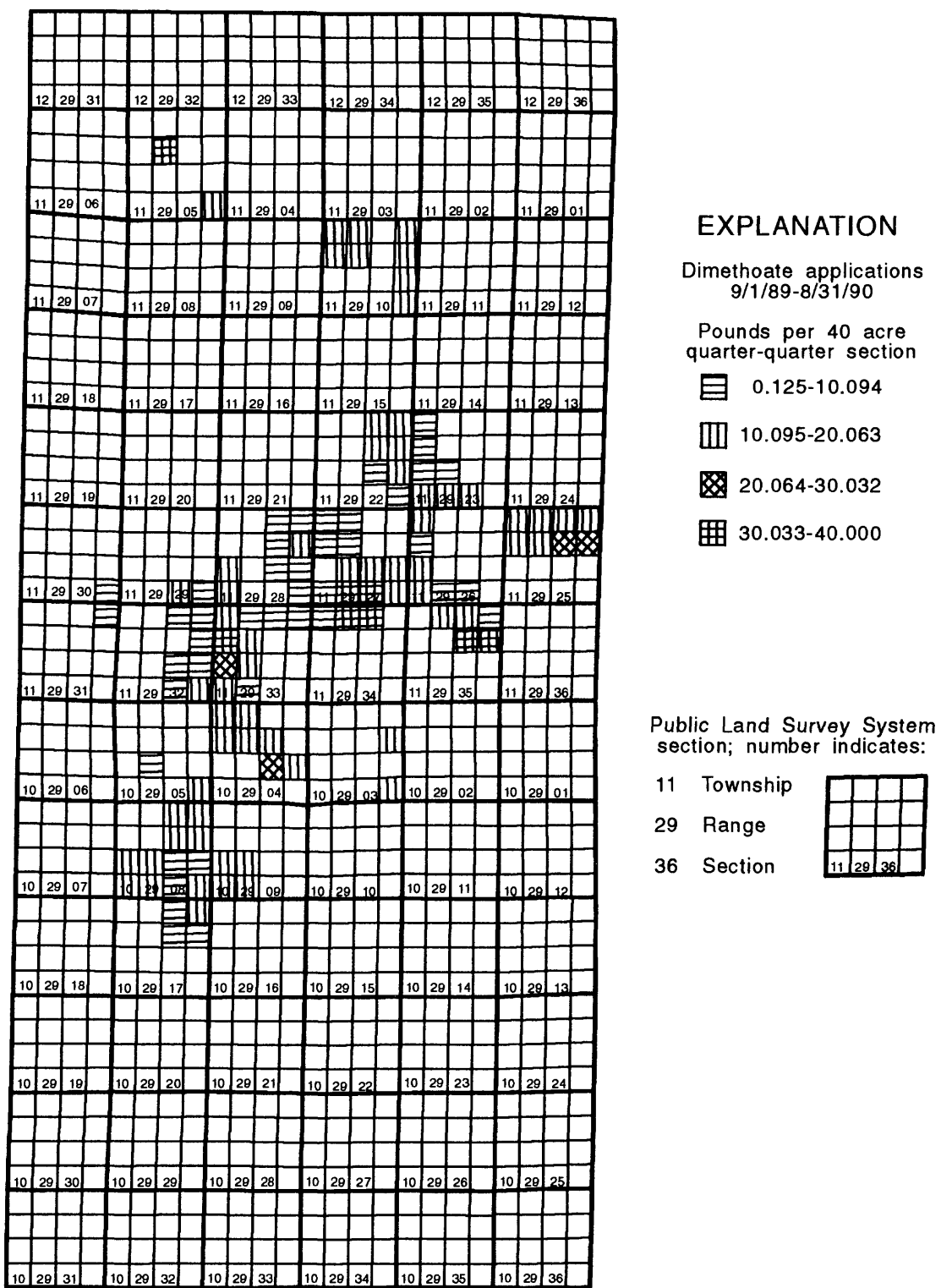


Figure F7.--Example of plot produced by SUMPLT.AML

APPENDIX G - RETRIEVAL SUBROUTINES (A-Z)

```

/*-----
/*  Command name: CALC.ALL.AML
/*  Language: AML AT ARC
/*  ::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::
/*  Purpose:  This program develops a list of all quarter-quarter sections
/*            to which any pesticides have been applied during a specific
/*            time period.
/*
/*            The list of the quarter-quarter sections is written to an INFO file
/*            named PEST.COUNT and to a Primos file named COUNT.PEST.
/*  ::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::
/*
/*  Called by PROGRAMS:
/*      ALL.AML
/*      ALLPLT.AML
/*
/*  ::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::
/*  Arguments:
/*      Variable name      Definition
/*      -----
/*      .CHEM              Chemical name from CHEM.AP file.
/*      .AT.POINT          Pathname to directory where AML and data base reside.
/*      .FIRST.DATE        Earliest date of selected time period.
/*      .LAST.DATE         Last date of selected time period.
/*  ::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::
/*  History:
/*      Author/Site,          Date,          Event
/*      -----
/*      Karen Schurr          10-26-89      Original coding
/*      USGS, WRD
/*      Tacoma, WA
/*  -----
/*
/*  Programmer note:
/*
/*      This AML flags each quarter-quarter section where pesticides
/*      have been applied, by calculating the "quantity" in the
/*      _____.AP file = 1.
/*
/*  ##### System specific commands #####
/*
/*  COMO COMO.CALC.ALL
/*
/*  #####
/*
/*
/*  &DATA ARC INFO
/*  REMARKS
/*  REMARKS                      Define LOC.INDEX file.
/*  REMARKS
/*  REMARKS                      (LOC.INDEX is a temporary INFO file
/*  REMARKS                      to hold all of the locations where

```

REMARKS	any of the chemicals were applied
REMARKS	during the chosen time period.)
REMARKS	
&IF [EXISTS LOC.INDEX -INFO] &THEN &DO	
SEL LOC.INDEX	
ERASE LOC.INDEX	
Y	
REMARKS	&END
&END	
DEFINE LOC.INDEX	
PLS,8,8,C	
QUANT,1,1,I	
&IF [EXISTS %.CHEM%.COUNT -INFO] &THEN &DO	
SEL %.CHEM%.COUNT	
ERASE %.CHEM%.COUNT	
Y	
&END	
REMARKS	
REMARKS	Define PEST.COUNT (INFO) file.
REMARKS	
REMARKS	(The PEST.COUNT file is a temporary
REMARKS	file that is used in plotting.
REMARKS	It is filled with one record for
REMARKS	each unique location in the LOC.INDEX
REMARKS	file. The quantity is simply 1,
REMARKS	indicating to the look-up table
REMARKS	that the quarter-quarter section
REMARKS	should be shaded. The file
REMARKS	contains only locations where any
REMARKS	chemical was applied.)
DEFINE %.CHEM%.COUNT	
PLS,8,8,C	
QUANT,1,1,I	
REMARKS	
REMARKS	Reselect LOCATION records
REMARKS	for dates requested.
REMARKS	
CALC \$NM = 1	
SEL LOAD	
RES DATE.AP GE %.FIRST.DATE% OR DATE.AP LE %.LAST.DATE%	
REL LOCATION 1 BY SHEET.NO SEQ	
NEXT 1	
OUTPUT %.AT.POINT%>TMP.FILE INIT	
DIS 1T,\$1PLS PRINT	
REMARKS	
REMARKS	Load Index file with the QQ's
REMARKS	for each application in the
REMARKS	date range.
REMARKS	
SEL LOC.INDEX	
GET %.AT.POINT%>TMP.FILE COPY	
SORT ON PLS	
REMARKS	
REMARKS	Load PEST.COUNT file with one
REMARKS	record per unique QQ.

```

REMARKS
    RELATE %.CHEM%.COUNT BY PLS INIT
    CALC $1QUANT = 1
SEL %.CHEM%.COUNT
REMARKS
REMARKS                                Write ASCII output file
REMARKS                                named COUNT.PEST.
REMARKS
    OUTPUT %.AT.POINT%>COUNT.%.CHEM% INIT
    PRI ' '
    PRI ' Locations where any chemicals were applied during'
    PRI '      ',[QUOTE %.FIRST.DATE%],' to ',[QUOTE %.LAST.DATE%]
    PRI ' '
    PRI '      ',PLS
Q STOP
&END                                /* &DATA
&TYPE
&TYPE
&TYPE  *** File name for spooling: COUNT.%.CHEM%      ***
&TYPE
/*
/* ##### System specific commands #####
/*
COMO -END
/*
/* #####
&RETURN

```

```

/*-----
/* Command name: CALC.LOAD.AML
/* Language: AML AT ARC
/* ::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::
/* Purpose: Sums up the amount of chemical applied to each quarter-
/* quarter section during specified time period and under specified
/* conditions.
/* ::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::
/* CALLED BY PROGRAMS:
/*
/* LOADPLT.AML
/*
/* Arguments:
/* Variable name      Definition
/* -----
/* .CHEM              Chemical name from CHEM.AP file.
/* .FIRST.DATE        Earliest date in selected time period.
/* .LAST.DATE         Last date in selected time period.
/* .LOGICAL.EXP       Logical expression for selecting records from
/*                   LOAD file.
/* ::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::
/* History:
/* Author/Site,      Date,      Event
/* -----
/* Karen Schurr      10-26-89    Original coding
/*   USGS, WRD
/*   Tacoma, WA
/* -----
/*
/* ##### System specific commands #####
/*
COMO COMO.CALC.LOAD
/*
/* #####
&ARGS .CHEM .FIRST.DATE .LAST.DATE .LOGICAL.EXP
/*
&DATA ARC INFO
REMARKS
REMARKS                                     If file exists, erase it.
REMARKS
&IF [EXISTS %.CHEM%.AP -INFO] &THEN &DO
    SEL %.CHEM%.AP
    ERASE %.CHEM%.AP
Y
&END
REMARKS
REMARKS                                     Define new file.
    DEFINE %.CHEM%.AP
        SHEET.NO, 6, 6, I
        LB/ACRE, 8, 8, N, 3
        INGRED, 52, 52, C

REMARKS
REMARKS                                     Get data from CHEM.AP.
REMARKS
    SEL CHEM.AP

```

```

RES INGRED = [QUOTE %.CHEM%]
OUTPUT %.AT.POINT%>TMP.CHEM INIT
DIS 1T,SHEET.NO,0X,LB/ACRE,0X,INGRED PRINT
REMARKS
REMARKS                                Load new file.
REMARKS
SEL %.CHEM%.AP
GET %.AT.POINT%>TMP.CHEM COPY
REMARKS
REMARKS                                Define LOC.INDEX file.
REMARKS
&IF [EXISTS LOC.INDEX -INFO] &THEN &DO
    SEL LOC.INDEX
    ERASE LOC.INDEX
Y
&END                                /* &DO
    DEFINE LOC.INDEX
    SHEET.NO,6,6,I
    PLS,8,8,C
    ACRES,8,8,N,4
    LB/ACRE,8,8,N,3
    DATE.AP,8,10,D
    QUANT,8,8,N,3

REMARKS
REMARKS                                Load Index file.
REMARKS
CALC $NM = 1
SEL LOAD
    RES [UNQUOTE %.LOGICAL.EXP%]
    REL %.CHEM%.AP 1 BY SHEET.NO SEQ
    RELATE LOCATION 2 BY SHEET.NO SEQ
    NEXT 1
    NEXT 2
    OUTPUT %.AT.POINT%>TMP.FILE INIT
DIS 1T,SHEET.NO,0X,$2PLS,0X,$2ACRES,0X,$1LB/ACRE,0X,YR,0X,MO,0X,DA PRINT
REMARKS
REMARKS                                Calculate quantity applied.
REMARKS
REMARKS
REMARKS                                Calculate as round numbers.
REMARKS
SEL LOC.INDEX
GET %.AT.POINT%>TMP.FILE COPY
    RES DATE.AP LT %.FIRST.DATE% OR DATE.AP GT %.LAST.DATE%
    PURGE
Y
    CALC QUANT = LB/ACRE * ACRES
    RES QUANT = 0
    PURGE
Y
REMARKS
REMARKS                                If _____.COUNT exists, erase it.
REMARKS
&IF [EXISTS %.CHEM%.COUNT -INFO] &THEN &DO
    SEL %.CHEM%.COUNT

```

```

        ERASE %.CHEM%.COUNT
Y
&END                                /* &DO
REMARKS
Q STOP
&END                                /*    &DATA
/*
/*                                Calculate count and sums.
/*
FREQUENCY LOC.INDEX %.CHEM%.COUNT
PLS
END
QUANT
ACRES
END
/*
/* ##### System specific commands #####
COMO -END
/* #####
&RETURN

```

```

/*-----
/* Command name: CALC.PERSON.AML
/* Language: AML AT ARC
/* ::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::
/* Purpose: Sums up the amount of chemical applied to each quarter-
/* quarter section during specified time period and when certain
/* criteria are met in a chosen 'person' file.
/* ::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::
/* CALLED BY PROGRAMS:
/*
/* PERSON.AML
/* PERSONPLT.AML
/*
/* Arguments:
/* Variable name      Definition
/* -----
/* .CHEM              Chemical name from CHEM.AP file.
/* .FIRST.DATE        Earliest date in selected time period.
/* .LAST.DATE         Last date in selected time period.
/* .FILE.NAME         RECEIVER, LIC.AP or PERS.AP file.
/* .LOGICAL.EXP       Logical expression for selecting records in 'person'
/*                   file.
/* ::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::
/* History:
/* Author/Site,      Date,      Event
/* -----
/* Karen Schurr      10-26-89    Original coding
/*   USGS, WRD
/*   Tacoma, WA
/* -----
/*
/* ##### System specific commands #####
/*
COMO COMO.CALC.PERSON
/*
/* #####
&IF [EXISTS %.CHEM%.AP -INFO] &THEN &DO
&DATA ARC INFO
  SEL %.CHEM%.AP
  ERASE %.CHEM%.AP
Y
Q STOP
&END
&END
/*
PULLITEMS CHEM.AP %.CHEM%.AP
INGRED
SHEET.NO
LB/ACRE
END
/*
&DATA ARC INFO
  SEL %.CHEM%.AP
  RES INGRED NE [QUOTE %.CHEM%]
  PURGE
Y

```

```

REMARKS
REMARKS                                Define LOC.INDEX file.
REMARKS
    &IF [EXISTS LOC.INDEX -INFO] &THEN &DO
        SEL LOC.INDEX
        ERASE LOC.INDEX
Y
    &END                                /* &DO
    DEFINE LOC.INDEX
        SHEET.NO,6,6,I
        PLS,8,8,C
        QUANT,8,8,N,3
        ACRES,8,8,N,4

    SEL LOCATION
        SORT ON SHEET.NO
REMARKS
REMARKS                                Load Index file.
REMARKS
CALC $NM = 1
SEL LOCATION
    REL %.CHEM%.AP 1 BY SHEET.NO SEQ
    REL LOAD 2 BY SHEET.NO SEQ
    REL LOC.INDEX 3 BY PLS APPEND
    REL %.FILE.NAME% 4 BY SHEET.NO SEQ
    &IF [EXISTS PROG.NEW -INFO] &THEN &DO
        ERASE PROG.NEW
Y
    &END
    PROG PROG.NEW
REMARKS                                Reselect LOCATION records
REMARKS                                for chemical and dates requested.
    PROG 2
        IF SHEET.NO = $1SHEET.NO AND ~
        $2DATE.AP GE %.FIRST.DATE% AND $2DATE.AP LE %.LAST.DATE% AND ~
        $4[UNQUOTE %.LOGICAL.EXP%]
            CALC $3SHEET.NO = SHEET.NO
            MOVE PLS TO $3PLS
            CALC $3ACRES = ACRES
REMARKS
REMARKS                                Calculate quantity applied.
REMARKS
        CALC $3QUANT = $1LB/ACRE * $3ACRES
REMARKS
REMARKS                                Calculate as round numbers.
REMARKS
        ENDIF
        PROG 3
        PROG END

    COMP PROG.NEW
    RUN PROG.NEW
        SEL LOC.INDEX
            RES QUANT = 0
            PURGE
Y

```

```

REMARKS
&IF [EXISTS %.CHEM%.AP -INFO] &THEN &DO
    SEL %.CHEM%.AP
    ERASE %.CHEM%.AP
Y
&END
REMARKS
&IF [EXISTS %.CHEM%.COUNT -INFO] &THEN &DO
    SEL %.CHEM%.COUNT
    ERASE %.CHEM%.COUNT
Y
REMARKS                                     &DO
&END
Q STOP
&END
/*                                     Calculate count and sums.
FREQUENCY LOC.INDEX %.CHEM%.COUNT
PLS
END
QUANT
ACRES
END
&END
/*
/* ##### System specific commands #####
/*
COMO -END
/* #####
/*
&RETURN

```

```

/*-----
/* Command name: CALC.RATE.AML
/* Language: AML AT ARC
/* ::::::::::::::::::::::::::::::::::::::::::::::::::::
/* Purpose: Determines the quarter-quarter sections to which the
/* specified chemical has been applied, at or above the specified
/* rate, during the chosen time period.
/*
/* ::::::::::::::::::::::::::::::::::::::::::::::::::::::
/*
/* CALLED BY PROGRAMS:
/*
/* RATE.AML
/* RATEPLT.AML
/*
/* ::::::::::::::::::::::::::::::::::::::::::::::::::::::
/* Variable name      Definition
/* -----
/* .CHEM              Ingredient name from CHEM.AP file.
/* .AT.POINT          Pathname to directory where AML and data base reside.
/* .PLT.DIR           Name of subdirectory where plotting coverages reside.
/* .RATE              Minimum application rate as chosen by program user.
/* .FIRST.DATE        Earliest date of selected time period.
/* .LAST.DATE         Last date of selected time period.
/* ::::::::::::::::::::::::::::::::::::::::::::::::::::::
/* History:
/* Author/Site,      Date,      Event
/* -----
/* Karen Schurr      12-15-89    Original coding
/* USGS, WRD
/* Tacoma, WA
/*-----
/*
/* ##### System specific commands #####
/*
COMO COMO.CALC.RATE
/* #####
&MESSAGES &ON
&DATA ARC INFO
&IF [EXISTS %.CHEM%.AP -INFO] &THEN &DO
    SEL %.CHEM%.AP
    ERASE %.CHEM%.AP
Y
&END
REMARKS
REMARKS
REMARKS
REMARKS
REMARKS
REMARKS
REMARKS
REMARKS
REMARKS
REMARKS
    DEFINE %.CHEM%.AP
        SHEET.NO, 6, 6, I
        LB/ACRE, 8, 8, N, 3

```

```

/* &DO
Prepare template of _____.AP
file for specified chemical.

_____.AP is a temporary file
created with the essential data
for one chemical, to permit
a many-to-one relation with the
LOCATION file.

```

```

REMARKS
REMARKS
REMARKS
REMARKS
REMARKS
REMARKS
      &IF [EXISTS LOC.INDEX -INFO] &THEN &DO
        SEL LOC.INDEX
        ERASE LOC.INDEX
Y
REMARKS
      &END
      DEFINE LOC.INDEX
        SHEET.NO, 6, 6, I
        PLS, 8, 8, C
        LB/ACRE, 8, 8, N, 3
        DATE.AP, 8, 10, D

      OUTPUT %.AT.POINT%>TMP.CHEM INIT
      SEL CHEM.AP
      RES INGRED = [QUOTE %.CHEM%] AND LB/ACRE GE %.RATE%
      DIS 1T, SHEET.NO, 0X, LB/ACRE PRINT
REMARKS
REMARKS
REMARKS
REMARKS
REMARKS
      Load _____.AP file
      with records for selected
      chemical and rate
      at or above target rate.
      SEL %.CHEM%.AP
      GET %.AT.POINT%>TMP.CHEM COPY
      CALC SHEET.NO = SHEET.NO
REMARKS
CALC $NM = 1
REMARKS
      OUTPUT %.AT.POINT%>TMP.CHEM INIT
      SEL %.CHEM%.AP
      REL LOAD 1 BY SHEET.NO SEQ
      RELATE LOCATION 2 BY SHEET.NO SEQ
      NEXT 2
      DIS 1T, $1SHEET.NO, 0X, $2PLS, 0X, LB/ACRE, 0X, $1YR, 0X, $1MO, 0X, $1DA PRINT
REMARKS
REMARKS
REMARKS
      Load Index file.
      SEL LOC.INDEX
      GET %.AT.POINT%>TMP.CHEM COPY
      RES DATE.AP LT %.FIRST.DATE% OR DATE.AP GT %.LAST.DATE%
REMARKS
REMARKS
REMARKS
      Keep only records in date range.
      PURGE
Y
REMARKS
REMARKS
      &IF [EXISTS %.CHEM%.COUNT -INFO] &THEN &DO
      SEL %.CHEM%.COUNT
      ERASE %.CHEM%.COUNT

```

```

Y
&END
REMARKS
REMARKS                                     Define _____.COUNT file.
REMARKS
REMARKS                                     The _____.COUNT file is a temporary
REMARKS                                     file that is used in plotting.  It
REMARKS                                     is filled with one record for each
REMARKS                                     unique location in the LOC.INDEX file.
REMARKS                                     The QUANT = 1 simply indicates
REMARKS                                     to the look-up table that the quarter-
REMARKS                                     quarter section should be shaded.  The
REMARKS                                     file contains only locations where the
REMARKS                                     minimum rate was met or exceeded.
REMARKS
      DEFINE %.CHEM%.COUNT
PLS, 8, 8, C
QUANT, 1, 1, I

REMARKS
REMARKS
REMARKS
SEL LOC.INDEX
      SORT ON SHEET.NO
REMARKS
REMARKS                                     Write output file, sorted on sheet number.
REMARKS
      OUTPUT %.AT.POINT%>SHEET.%.CHEM% INIT
      PRI [QUOTE %.CHEM%], '                File name:  SHEET.', [QUOTE %.CHEM%]
      PRI ' '
      PRI 'Time period: ', [QUOTE %.FIRST.DATE%], ' to ', [QUOTE %.LAST.DATE%]
      PRI ' '
      PRI 'Areas with application rate >=: ', [QUOTE %.RATE%], ' lbs/acre'
      PRI ' '
      PRI '   Location      Date      Lb/acre  Sheet number'
      PRI '   ', PLS, ' ', DATE.AP, ' ', LB/ACRE, ' ', SHEET.NO

REMARKS
SEL LOC.INDEX
      SORT ON PLS
REMARKS
REMARKS                                     Write output file sorted on location.
REMARKS
      OUTPUT %.AT.POINT%>COUNT.%.CHEM% INIT
      PRI [QUOTE %.CHEM%], '                File name:  COUNT.', [QUOTE %.CHEM%]
      PRI ' '
      PRI 'Time period: ', [QUOTE %.FIRST.DATE%], ' to ', [QUOTE %.LAST.DATE%]
      PRI ' '
      PRI 'Areas with application rate >=: ', [QUOTE %.RATE%], ' lbs/acre'
      PRI ' '
      PRI '   Location      Date      Lb/acre  Sheet number'
      PRI '   ', PLS, ' ', DATE.AP, ' ', LB/ACRE, ' ', SHEET.NO

REMARKS
REMARKS                                     Load _____.COUNT file with each
REMARKS                                     unique location in LOC.INDEX.
REMARKS

```

```

    RELATE %.CHEM%.COUNT BY PLS INIT
REMARKS                                     Assign value of one to each location.
    CALC $1QUANT = 1
REMARKS
REMARKS
Q STOP
&END
/*
/* ##### System specific commands #####
/*
COMO -END
/* #####
/*
&RETURN

```

```

/*-----
/* Command name: CALC.SHEET.AML
/* Language: AML AT ARC
/* ::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::
/* Purpose: This program develops a list of quarter-quarter sections
/* to which any pesticides have been applied during a specific
/* time period.
/*
/* The list of the quarter-quarter sections is written to an INFO file named
/* PEST.COUNT and to a Primos file named COUNT.PEST.
/*:~::~::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::
/*
/* Called by PROGRAMS:
/*
/* SHEET.AML
/* SHEETPLT.AML
/*
/*:~::~::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::
/* Arguments:
/* Variable name, I/O, Type, Definition
/* -----
/* .AT.POINT Pathname to directory where AML and data base reside.
/* .PLT.DIR Name of subdirectory where plotting coverages reside.
/* .FIRST.SHEET Earliest date of selected time period.
/* .LAST.SHEET Last date of selected time period.
/*:~::~::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::
/* History:
/* Author/Site, Date, Event
/* -----
/* Karen Schurr 2/6/91 Original coding
/* USGS, WRD
/* Tacoma, WA
/*-----
/*
/* This AML lists each quarter-quarter section
/* where pesticides have been applied according to the block
/* of application sheet numbers chosen.
/*
COMO COMO.CALC.SHEET
/*
&DATA ARC INFO
REMARKS
REMARKS Define LOC.INDEX file.
REMARKS
REMARKS (LOC.INDEX is a temporary INFO file
REMARKS to hold all of the locations where
REMARKS any of the chemicals were applied
REMARKS during the chosen time period.)
REMARKS
&IF [EXISTS LOC.INDEX -INFO] &THEN &DO
    SEL LOC.INDEX
    ERASE LOC.INDEX
Y
REMARKS &END
&END
DEFINE LOC.INDEX

```

```

SHEET.NO,6,6,I
PLS,8,8,C

&IF [EXISTS SHEET.COUNT -INFO] &THEN &DO
  SEL SHEET.COUNT
  ERASE SHEET.COUNT
Y
&END
REMARKS
REMARKS          Define SHEET.COUNT (INFO) file.
REMARKS
REMARKS          (The SHEET.COUNT file is a temporary
REMARKS          file that is used in plotting. It
REMARKS          is filled with one record for each
REMARKS          unique location in the LOC.INDEX file.
REMARKS          The quantity is set to 1, indicating
REMARKS          to the look-up table that the quarter-
REMARKS          quarter section should be shaded. The
REMARKS          file contains only locations where any
REMARKS          chemical was applied.)
REMARKS
  DEFINE SHEET.COUNT
SHEET.NO,6,6I
PLS,8,8,C
QUANT,1,1,I

  SEL LOCATION
  SORT ON SHEET.NO
REMARKS          Reselect LOCATION records
REMARKS          for sheet numbers requested.
REMARKS
CALC $NM = 1
  RES SHEET.NO GE %.FIRST.SHEET% AND SHEET.NO LE %.LAST.SHEET%
  OUTPUT %.AT.POINT%>TMP.FILE INIT
  DIS 1T,SHEET.NO,0X,PLS PRINT
REMARKS          Load Index file with the QQ's
REMARKS          for each application in the
REMARKS          date range.
REMARKS
  SEL LOC.INDEX
  GET %.AT.POINT%>TMP.FILE COPY
REMARKS
REMARKS          Load SHEET.COUNT file with one
REMARKS          record per unique QQ.
REMARKS
SEL LOC.INDEX
  SORT ON PLS
  RELATE SHEET.COUNT BY PLS INIT
  CALC $1SHEET.NO = SHEET.NO
  CALC $1QUANT = 1
SEL SHEET.COUNT
REMARKS
REMARKS          Write ASCII output file
REMARKS          named COUNT.SHEET.
REMARKS
  OUTPUT %.AT.POINT%>COUNT.SHEET INIT

```

```

PRI ' '
PRI ' Locations where any chemicals were applied according to sheet numbers'
PRI '      ',[QUOTE %.FIRST.SHEET%],' to ',[QUOTE %.LAST.SHEET%]
PRI ' '
PRI '      PLS      Sheet number'
PRI ' '
PRI '      ',PLS,'      ',SHEET.NO
Q STOP
&END                                /* &DATA
&TYPE
&TYPE
&TYPE *** File name for spooling: COUNT.SHEET ***
&TYPE
COMO -END
&RETURN

```

```

/*-----
/* Command name: CALC.SUM.AML
/* Language: AML AT ARC
/* ::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::
/* Purpose: Sums up the amount of chemical applied to each quarter-
/* quarter section during specified time period.
/* ::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::
/* CALLED BY PROGRAMS:
/*
/* MULTI.AML
/* SUM.AML
/* MULTIPLT.AML
/* SUMPLT.AML
/*
/* Arguments:
/* Variable name      Definition
/* -----
/* .CHEM              Chemical name from CHEM.AP file.
/* .AT.POINT          Pathname to directory where AML and data base reside.
/* .PLT.DIR           Name of subdirectory where plotting coverages reside.
/* .FIRST.DATE        Earliest date in selected time period.
/* .LAST.DATE         Last date in selected time period.
/* ::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::
/* History:
/* Author/Site,      Date,      Event
/* -----
/* Karen Schurr      10-26-89    Original coding
/* USGS, WRD
/* Tacoma, WA
/* -----
/*
COMO COMO.CALC.SUM
&ARGS .CHEM .FIRST.DATE .LAST.DATE
&DATA ARC INFO
&IF [EXISTS %.CHEM%.AP -INFO] &THEN &DO
    SEL %.CHEM%.AP
    PURGE
Y
    SEL CHEM.AP
    RES INGRED = [QUOTE %.CHEM%]
    OUTPUT %.AT.POINT%>TMP.CHEM INIT
    DIS 1T,SHEET.NO,0X,LB/ACRE,0X,INGRED PRINT
    SEL %.CHEM%.AP
    GET %.AT.POINT%>TMP.CHEM COPY
&END
&IF ^ [EXISTS %.CHEM%.AP -INFO] &THEN &DO
    DEFINE %.CHEM%.AP
    SHEET.NO,6,6,I
    LB/ACRE,8,8,N,3
    INGRED,52,52,C

    SEL CHEM.AP
    RES INGRED = [QUOTE %.CHEM%]
    OUTPUT %.AT.POINT%>TMP.CHEM INIT
    DIS 1T,SHEET.NO,0X,LB/ACRE,0X,INGRED PRINT
    SEL %.CHEM%.AP

```

```

        GET %.AT.POINT%>TMP.CHEM COPY
&END
REMARKS
REMARKS                                Define LOC.INDEX file.
REMARKS
        &IF [EXISTS LOC.INDEX -INFO] &THEN &DO
            SEL LOC.INDEX
            ERASE LOC.INDEX
Y
        &END                                /* &DO
        DEFINE LOC.INDEX
            SHEET.NO,6,6,I
            PLS,8,8,C
            ACRES,8,8,N,4
            LB/ACRE,8,8,N,3
            DATE.AP,8,10,D
            QUANT,8,8,N,3

REMARKS
REMARKS                                Load Index file.
REMARKS
CALC $NM = 1
        SEL %.CHEM%.AP
        RELATE LOCATION BY SHEET.NO SEQ
        REL LOAD 2 BY SHEET.NO SEQ
        NEXT 1
        OUTPUT %.AT.POINT%>TMP.FILE INIT
        DIS 1T,SHEET.NO,0X,$1PLS,0X,$1ACRES,0X,LB/ACRE,0X,$2YR,0X,$2MO,0X,$2DA~
        PRINT
REMARKS
REMARKS                                Delete records outside date range.
REMARKS                                Calculate quantity applied.
REMARKS                                Calculate as round numbers.
REMARKS
        SEL LOC.INDEX
        GET %.AT.POINT%>TMP.FILE COPY
        RES DATE.AP LT %.FIRST.DATE% OR DATE.AP GT %.LAST.DATE%
        PURGE
Y
        CALC QUANT = LB/ACRE * ACRES
        RES QUANT = 0
        PURGE
Y
REMARKS
REMARKS
&IF [EXISTS %.CHEM%.COUNT -INFO] &THEN &DO
        SEL %.CHEM%.COUNT
        ERASE %.CHEM%.COUNT
Y
REMARKS                                &DO
&END
Q STOP
&END
/*                                Calculate count and sums.
FREQUENCY LOC.INDEX %.CHEM%.COUNT
PLS

```

```
END  
QUANT  
ACRES  
END  
COMO -END  
/*  
&RETURN
```

```

/*-----
/* Command name: CHEMLIST.AML
/* Language: AML AT ARC
/* ::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::
/*
/* Purpose: This program creates the unique active ingredient names
/* list from the Chem file to be displayed as a help file for
/* data retrieval. It creates the DISP.CHEM.AML, which is
/* called by the RSP.CHEM.AML.
/*
/* ::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::
/* Arguments:
/* Variable name      Definition
/* -----
/* none
/* ::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::
/* History:
/* Author/Site,      Date,      Event
/* -----
/* Karen Schurr      6/14/91      Original coding
/* USGS, WRD
/* Tacoma, WA
/*-----
/*
/* Set pathname to workspace.
/*
&S .AT.POINT = [SHOW &WORKSPACE]
/*
&DATA ARC INFO
REMARKS
REMARKS      Initialize file.
REMARKS
      SEL CHEM.UNIQ
      PURGE
Y
REMARKS
REMARKS      Create a file with unique ingredient names.
REMARKS
      SEL CHEM.AP
      SORT ON INGRED
      RELATE CHEM.UNIQ BY INGRED INIT
      MOVE INGRED TO $1INGRED
REMARKS
REMARKS      Sort back to SHEET.NO.
REMARKS
      SEL CHEM.AP
      SORT ON SHEET.NO
      SEL CHEM.UNIQ
REMARKS
REMARKS      Write an AML displaying the list of unique names.
REMARKS
      OUTPUT %.AT.POINT%>DISP.CHEM.AML INIT
DIS '/*-----' PRINT
DIS '/* Command name: DISP.CHEM.AML' PRINT
DIS '/* Language: AML AT ARC' PRINT
DIS '/* ::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::' PRINT

```

```

DIS '/* Purpose: This program will display a list of the ingredients' PRINT
DIS '/*          to make the correct spellings available for making a' PRINT
DIS '/*          retrieval.' PRINT
DIS '/*' PRINT
DIS '/*:-----' PRINT
DIS '/* Arguments:' PRINT
DIS '/*      Variable name      Definition' PRINT
DIS '/*      -----' PRINT
DIS '/*          None' PRINT
DIS '/*:-----' PRINT
DIS '/* History:' PRINT
DIS '/*      Author/Site,          Date,          Event' PRINT
DIS '/*      -----' PRINT
DIS '/*      Karen Schurr          10-26-89          Original coding' PRINT
DIS '/*          USGS, WRD' PRINT
DIS '/*          Tacoma, WA' PRINT
DIS '/*-----' PRINT
DIS '/*' PRINT
DIS '/* NOTE: This program may be regenerated with a new ingredient' PRINT
DIS '/*          list, by running the CHEMLIST.AML' PRINT
DIS '/*' PRINT
DIS '/*-----' PRINT
DIS '/* ' PRINT
      DIS '&TYPE      ',INGRED PRINT
      DIS '&TYPE' PRINT
      DIS '&RETURN' PRINT
Q STOP
Q
&END          /* &DATA BLOCK

```

```

/*-----
/*  Command name: CHKUSE.AML
/*  Language: AML AT ARC
/*  ::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::
/*  Purpose: Checks to see if system is in use.  If it is in use,
/*           the user is given a message and the system ends.
/*  ::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::
/*  Called by programs:
/*    PDS.AML
/*  ::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::
/*  Arguments:
/*    Variable name          Definition
/*    -----
/*  ::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::
/*  History:
/*    Author/Site,          Date,          Event
/*    -----
/*    Bernie McNamara      Original coding
/*      USGS, WRD
/*      Sacramento, CA
/*
/*    Karen Schurr         Minor adaptations to this system.
/*      USGS, WRD
/*      Tacoma, WA
/*  -----
/*  Subroutines required in this directory:
/*    NONE
/*
/*-----
/*  Programmer notes:
/*    This file is deleted when the user leaves the system.  This
/*    is done in the following programs, which run the DELUSE.AML:
/*    ALL.AML
/*    LOAD.AML
/*    MULTI.AML
/*    PERSON.AML
/*    RATE.AML
/*    SHEET.AML
/*    SUM.AML
/*
/*  In the plotting directories.
/*    PLT2.AML
/*    PLT3.AML
/*    WRITE.PLT.AML
/*-----
&WATCH COMO.CHKUSE
/*
/* test for program currently in use.
&IF [EXISTS PEST.INUSE -FILE] &THEN &DO
  &S UNIT = [OPEN PEST.INUSE IOS -R]
  &S .PROG_USER = [READ %UNIT% IOS]
  &S DONE = [CLOSE %UNIT%]
  &TYPE
  &TYPE *****
  &TYPE
  &TYPE The program is currently being used by %.prog_user%.

```

```

&TYPE Only one user at a time can run the program.
&TYPE
&TYPE *****
&STOP
&END
&ELSE &DO /* set up temp file to block others from concurrently using program
&S UNIT = [OPEN PEST.INUSE IOS -W]
&S REC = [WRITE %UNIT% [USERNAME]]
&S DONE = [CLOSE %UNIT%]
&S .PROG_USER = [USERNAME]
&END
/* test the INFO directory for another user doing INFO things
&WORKSPACE *>INFO /* attach to INFO directory
&S UNIT = [OPEN ARCD9 IOS -R] /* open ARCD9 using READ status
&IF %IOS% NE 0 &THEN &DO
&TYPE;&TYPE
&TYPE *****
&TYPE
&TYPE The INFO directory accessed by this program is currently
&TYPE in use! You will have to try again later!
&TYPE
&TYPE *****
&STOP
&END /* end-if
&WORKSPACE %.AT.POINT%
&WATCH &OFF
&RETURN
/*

```

```

/*-----
/*  Command name: CHNGDATE.AML
/*  Language: AML AT ARC
/*  ::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::
/*  Purpose:  Sets or changes the default dates in the SETVAR.AML.
/*  ::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::
/*  Called by programs:
/*      MISCMENU.AML
/*  ::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::
/*  Arguments:
/*      Variable name                      Definition
/*      -----
/*      .DFLT.FIRST                      First date
/*      .DFLT.LAST                      Last date
/*  ::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::
/*  History:
/*      Author/Site,          Date,          Event
/*      -----
/*      Karen Schurr          4-10-92          Original coding
/*      USGS, WRD
/*      Tacoma, WA
/*-----
/*
/*  Set pathname for main directory.
/*
&R SET.DIR.AML
/*
/*  This AML queries the user for changing the plot directory,
/*  the grid coverages, terminal, and plotter.
/*  It saves these changes by regenerating the SET.DIR.COV.AML
/*  with the new variables.
&TYPE
&TYPE =====
&TYPE
/*
/*          Read existing date defaults in SETVAR.AML.
/*
&R SETVAR.AML
/*
/*          Query for date changes.
/*
&S .DFLT.FIRST = [TRANSLATE [RESPONSE [QUOTE Enter first date ~
<CR> = [UNQUOTE %.DFLT.FIRST%]] [UNQUOTE %.DFLT.FIRST%]]]
&TYPE ' '
&S .DFLT.LAST = [TRANSLATE [RESPONSE [QUOTE Last date ~
<CR> = [UNQUOTE %.DFLT.LAST%]] [UNQUOTE %.DFLT.LAST%]]]
&TYPE ' '
&TYPE
&TYPE
&TYPE
/*
/*          Set pathname to directory.
/*
&S .AT.POINT = [SHOW &WORKSPACE]
/*
&DATA ARC INFO

```

REMARKS

OUTPUT %.AT.POINT%>SETVAR.AML INIT

```
PRI '/*-----'
PRI '/*-----'
PRI '/* Command name: SETVAR.AML'
PRI '/* Language: AML AT ARC'
PRI '/* ::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::'
PRI '/* Purpose: Sets default date variables.'
PRI '/*: ::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::'
PRI '/* Called by programs:'
PRI '/* ALLPLT.AML'
PRI '/* MULTIPLT.AML'
PRI '/* RATEPLT.AML'
PRI '/* SUMPLT.AML'
PRI '/*: ::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::'
PRI '/* Arguments:'
PRI '/* Variable name          Definition'
PRI '/* -----'
PRI '/* .DFLT.FIRST            First default date'
PRI '/* .DFLT.LAST              Last default date'
PRI '/*: ::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::'
PRI '/* History:'
PRI '/* Author/Site,           Date,           Event'
PRI '/* -----'
PRI '/* Karen Schurr           3/21/91         Original coding'
PRI '/* USGS, WRD'
PRI '/* Tacoma, WA'
PRI '/*-----'
PRI '/*'
PRI '/*'
PRI '/*##### TAILOR TO SYSTEM #####'
PRI '/*'
PRI '&S .DFLT.FIRST = ', [QUOTE [UNQUOTE %.DFLT.FIRST%]]
PRI '&S .DFLT.LAST = ', [QUOTE [UNQUOTE %.DFLT.LAST%]]
PRI '/*'
PRI '/*#####'
PRI '&RETURN'
PRI '/*'
REMARKS
REMARKS
Q STOP
Q
/*
&END                               /* Data block
&RETURN
```

```

/*-----
/* Command name: CHNGPLT.AML
/* Language: AML AT ARC
/* ::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::
/* Purpose: Sets or changes the plotting directory variable name and
/* the coverage name variables, projection, map units, map angle,
/* terminal type, and plotter type.
/* ::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::
/* Called by programs:
/*
/* MISCMENU.AML
/* ::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::
/* Arguments:
/* Variable name Definition
/* -----
/* .PLT.DIR Plotting directory.
/* .SEC.COV Section coverage.
/* .QQ.COV Quarter-quarter coverage.
/* .PRJ Map projection (cover name suffix).
/* .MPUNITS Map units (feet or meters).
/* .MPANGLE Map angle.
/* .TERMINAL Terminal model number.
/* .PLOTTER Plotter number (ex: 4207).
/* ::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::
/* History:
/* Author/Site, Date, Event
/* -----
/* Karen Schurr 4-10-92 Original coding
/* USGS, WRD
/* Tacoma, WA
/* -----
/* Subroutines required in this directory:
/* SET.DIR.COV.AML
/*
&TYPE
&TYPE =====
&TYPE
/*
/* Run program to set default variables.
/*
&R SET.DIR.COV.AML
/*
&S .PLT.DIR = [TRANSLATE [RESPONSE [QUOTE Enter plotting directory name~
<CR> = [UNQUOTE %.PLT.DIR%]] [UNQUOTE %.PLT.DIR%]]]
&TYPE ' '
&S .SEC.COV = [TRANSLATE [RESPONSE [QUOTE Section coverage name ~
<CR> = [UNQUOTE %.SEC.COV%]] [UNQUOTE %.SEC.COV%]]]
&TYPE ' '
&S .QQ.COV = [TRANSLATE [RESPONSE [QUOTE Quarter-quarter name ~
<CR> = [UNQUOTE %.QQ.COV%]] [UNQUOTE %.QQ.COV%]]]
&TYPE ' '
&S .PRJ = [TRANSLATE [RESPONSE [QUOTE Projection (coverage suffix) ~
<CR> = [UNQUOTE %.PRJ%]] [UNQUOTE %.PRJ%]]]
&TYPE ' '
&S .MPUNITS = [TRANSLATE [RESPONSE [QUOTE Map units (meters or feet) ~
<CR> = [UNQUOTE %.MPUNITS%]] [UNQUOTE %.MPUNITS%]]]

```

```

&TYPE ' '
&S .MPANGLE = [TRANSLATE [RESPONSE [QUOTE Map angle ~
  <CR> = [UNQUOTE %.MPANGLE%]] [UNQUOTE %.MPANGLE%]]]
&TYPE ' '
&S .TERMINAL = [TRANSLATE [RESPONSE [QUOTE Terminal type ~
  <CR> = [UNQUOTE %.TERMINAL%]] [UNQUOTE %.TERMINAL%]]]
&TYPE ' '
&S .PLOTTER = [TRANSLATE [RESPONSE [QUOTE Plotter number ~
  <CR> = [UNQUOTE %.PLOTTER%]] [UNQUOTE %.PLOTTER%]]]
&TYPE
&TYPE
&TYPE
/*
/*          Set directory pathname.
/*
&S .AT.POINT = [SHOW &WORKSPACE]
/*
&DATA ARC INFO
REMARKS
  OUTPUT %.AT.POINT%>SET.DIR.COV.AML INIT
PRI '/*-----'
PRI '/* Command name: SET.DIR.COV.AML'
PRI '/* Language: AML AT ARC'
PRI '/* ::::::::::::::::::::::::::::::::::::::::::::::::::::'
PRI '/* Purpose: To set the plotting directory variable name and the'
PRI '/* coverage name variables for the Section coverage and for the'
PRI '/* Quarter-quarter coverage.'
PRI '/*:~'
PRI '/* Called by programs:'
PRI '/* ALLPLT.AML'
PRI '/* LOADPLT.AML'
PRI '/* MULTIPLT.AML'
PRI '/* PERSONPLT.AML'
PRI '/* RATEPLT.AML'
PRI '/* SHEETPLT.AML'
PRI '/* SUMPLT.AML'
PRI '/*:~'
PRI '/* Arguments:'
PRI '/* Variable name          Definition'
PRI '/* -----'
PRI '/* .PLT.DIR                Plotting directory'
PRI '/* .SEC.COV                Section coverage'
PRI '/* .QQ.COV                Quarter-quarter coverage'
PRI '/* .PRJ                    Map projection (cover name suffix)'
PRI '/* .MPUNITS                Map units (feet or meters)'
PRI '/* .MPANGLE                Map angle'
PRI '/* .TERMINAL                Terminal model number'
PRI '/* .PLOTTER                Plotter number (ex: 4207)'
PRI '/*:~'
PRI '/* History:'
PRI '/* Author/Site,          Date,          Event'
PRI '/* -----'
PRI '/* Karen Schurr          10-26-89      Original coding'
PRI '/* USGS, WRD'
PRI '/* Tacoma, WA'
PRI '/*-----'

```

```

PRI '/*'
PRI '/*   This AML sets the variables for the coverages for plotting'
PRI '/*       the pesticides.'
PRI '&S .PLT.DIR = ', [QUOTE [UNQUOTE %.PLT.DIR%]]
PRI '&S .SEC.COV = ', [QUOTE [UNQUOTE %.SEC.COV%]]
PRI '&S .QQ.COV = ', [QUOTE [UNQUOTE %.QQ.COV%]]
PRI '&S .PRJ = ', [QUOTE [UNQUOTE %.PRJ%]]
PRI '&S .MPUNITS = ', [QUOTE [UNQUOTE %.MPUNITS%]]
PRI '&S .MPANGLE = ', [QUOTE [UNQUOTE %.MPANGLE%]]
PRI '&S .TERMINAL = ', [QUOTE [UNQUOTE %.TERMINAL%]]
PRI '&S .PLOTTER = ', [QUOTE [UNQUOTE %.PLOTTER%]]
PRI '/*+++++
PRI '/*'
PRI '/*           Notes for PJ.PEST>CHEM subdirectories'
PRI '/*'
PRI '/* 1:62,500 Plotting Directory'
PRI '/*'
PRI '/* GIS62-                /* Plotting directory'
PRI '/* ELTOPIA.SEC           /* Section Coverage prefix'
PRI '/* ELTOPIA.QQ           /* Quarter-quarter Coverage prefix'
PRI '/* SPS                  /* Map projection & coverage'
PRI '/*                      /*      suffix'
PRI '/* FEET                 /* Map units'
PRI '/* 0                    /* Map angle'
PRI '/*+++++
PRI '/* 1:24,000 Plotting Directory'
PRI '/*'
PRI '/* GIS24-                /* Plotting directory'
PRI '/* STUDY.SEC             /* Section coverage prefix'
PRI '/* STUDY.QQ             /* Quarter-quarter coverage prefix'
PRI '/* UTM                  /* Map projection & coverage'
PRI '/*                      /*      suffix'
PRI '/* METERS               /* Map units'
PRI '/* 1.85                 /* Map angle'
PRI '/*=====
PRI '/* Any directory:'
PRI '/*'
PRI '/* 4207                  /* Tektronix terminal'
PRI '/* 1039                  /* CalComp plotter'
PRI '/*'
REMARKS
REMARKS
Q STOP
/*
&END                      /* Data block
&RETURN

```

```

/*-----
/* Command name: CHOOSE.FILE.AML
/* Language: AML AT ARC
/* ::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::
/* Purpose: Displays a menu of data files for which help is
/*          available and displays a list of the INFO data file fields for
/*          the file chosen.
/*
/* ::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::
/* Called by program:
/*   RSP.LOGIC.AML
/*
/* Arguments:
/*   Variable name          Definition
/*   -----
/*   .FILE                  INFO data base file.
/* ::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::
/* History:
/*   Author/Site,          Date,          Event
/*   -----
/*   Karen Schurr          3/1/91          Original coding
/*   USGS, WRD
/*   Tacoma, WA
/* -----
/*
COMO COMO.CHOOSE.FILE
DATE
&TYPE
&TYPE Help Menu
&TYPE
&TYPE Data fields (items) may be displayed.
&TYPE Please choose a file.
&TYPE
&TYPE 1. LOAD
&TYPE 2. RECEIVER
&TYPE 3. LIC.AP
&TYPE 4. PERS.AP
&TYPE
&TYPE 99. QUIT
&TYPE
&LABEL AGAIN
&S .FILE [RESPONSE ' Enter number)']
&SELECT %.FILE%
&WHEN 1; &R DISP.LOAD.AML
&WHEN 2; &R DISP.RECEIVER.AML
&WHEN 3; &R DISP.LIC.AP.AML
&WHEN 4; &R DISP.PERS.AP.AML
&WHEN 99; &STOP
&OTHERWISE; &DO
&TYPE 'Invalid Selection - Choose again'
&GOTO AGAIN
&END
&RETURN

```

```

/*-----
/*  Command name: DISP.CHEM.AML
/*  Language: AML AT ARC
/*  ::::::::::::::::::::::::::::::::::::::::::::::::::::
/*  Purpose:  This program displays a list of the ingredients
/*            to make the correct spellings available for making a
/*            retrieval.
/*
/*  ::::::::::::::::::::::::::::::::::::::::::::::::::::::
/*  Arguments:
/*    Variable name      Definition
/*    -----
/*      None
/*  ::::::::::::::::::::::::::::::::::::::::::::::::::::::
/*  History:
/*    Author/Site,      Date,      Event
/*    -----
/*    Karen Schurr      10-26-89    Original coding
/*    USGS, WRD
/*    Tacoma, WA
/*  -----
/*
/*  NOTE: This program may be regenerated with a new ingredient
/*        list, by running the CHEMLIST.AML.
/*
/*  -----
/*
&TYPE  2_4-D.ACID
&TYPE  ALACHLOR
&TYPE  ATRAZINE
&TYPE  AZINPHOS.METHYL
&TYPE  BIFENTHRIN
&TYPE  BROMOXYNIL
&TYPE  CARBARYL
&TYPE  CHLOROTHALONIL
&TYPE  CHLORPYRIFOS
&TYPE  COPPER.METALLIC
&TYPE  CYANAZINE
&TYPE  DIAZINON
&TYPE  DICAMBA.ACID
&TYPE  DICLOFOP-METHYL
&TYPE  DIMETHOATE
&TYPE  DISULFOTON
&TYPE  DIURON
&TYPE  DNOC
&TYPE  ENDOSULFAN
&TYPE  EPTC
&TYPE  ETHALFLURALIN
&TYPE  ETHEPHON
&TYPE  FENVALERATE
&TYPE  FLUAZIFOP-BUTYL
&TYPE  GLYPHOSATE.ACID
&TYPE  HEXAZINONE
&TYPE  LINURON
&TYPE  MALATHION
&TYPE  MANCOZEB

```

```

&TYPE  MANEB
&TYPE  MCPA.ACID
&TYPE  METHAMIDOPHOS
&TYPE  METHYL.PARATHION
&TYPE  METIRAM
&TYPE  METOLACHLOR
&TYPE  METRIBUZIN
&TYPE  MEVINPHOS
&TYPE  NAA.ACID
&TYPE  NAD
&TYPE  NALED
&TYPE  OIL/XYLENE(A)
&TYPE  ORYZALIN
&TYPE  PARAQUAT
&TYPE  PARATHION
&TYPE  PENDIMETHALIN
&TYPE  PERMETHRIN
&TYPE  PHOSPHAMIDON
&TYPE  PROPARGITE
&TYPE  PROPHAM
&TYPE  PROPICONAZOLE
&TYPE  SETHOXYDIM
&TYPE  SIMAZINE
&TYPE  SULFUR
&TYPE  TRIADIMEFON
&TYPE  TRIFLURALIN
&TYPE  ZINC.PHOSPHIDE
&TYPE
&RETURN

```

```

/*-----
/* Command name: DEL.AML
/* Language: AML AT ARC
/* ::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::
/* Purpose: Deletes temporary INFO FILES.
/*
/*::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::
/* Called by programs:
/*     DRIVDEL.AML
/*     DRDELPLT.AML
/*::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::
/* Arguments:
/*     Variable name          Definition
/*     -----
/*     .FILE                  Name for temporary file.
/*::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::
/* History:
/*     Author/Site,          Date,          Event
/*     -----
/*     Karen Schurr          6/12/92        Original coding
/*     USGS, WRD
/*     Tacoma, WA
/*-----
/* Subroutines required in this directory:
/*     none
/*-----
&WATCH COMO.DEL
/*
&ARGS .FILE
/*
/*     If file does not exist, send message.
/*
&IF NOT [EXISTS %.FILE% -INFO] &THEN
&TYPE 'Data file ' [QUOTE [UNQUOTE %.FILE%]] 'not found.'
/*
/*     If file exists, delete it.
/*
&IF [EXISTS %.FILE% -INFO] &THEN &DO
&TYPE Deleting [QUOTE [UNQUOTE %.FILE%]]
&S D = [DELETE %.FILE% -INFO]
&END
&RETURN
&WATCH &OFF

```

```

/*-----
/* Command name: DELSYS.AML
/* Language: AML AT ARC
/* ::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::
/* Purpose: Deletes temporary ASCII files (system files).
/*
/* ::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::
/* Called by programs:
/* DRDELSYS.AML
/* ::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::
/* Arguments:
/* Variable name          Definition
/* -----
/* .FILE                  Temporary ASCII file.
/* ::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::
/* History:
/* Author/Site,           Date,           Event
/* -----
/* Karen Schurr           6/12/92         Original coding
/* USGS, WRD
/* Tacoma, WA
/*-----
/* Subroutines required in this directory:
/*
/* none
/*-----
/*
&ARGS .FILE
&WATCH COMO.DELSYS
/*
/* If file does not exist, send message.
/*
&IF NOT [EXISTS %.FILE% -FILE] &THEN
&TYPE 'Data file ' [QUOTE [UNQUOTE %.FILE%]] 'not found.'
/*
/* If files exists, delete it.
/*
&IF [EXISTS %.FILE% -FILE] &THEN &DO
&TYPE Deleting [QUOTE [UNQUOTE %.FILE%]]
&S D = [DELETE %.FILE% -FILE]
&END
&RETURN
&WATCH &OFF

```

```

/*-----
/*  Command name: DRDELSYS.AML
/*  Language: AML AT ARC
/*  ::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::
/*  Purpose:  Runs the program to delete ASCII files.
/*
/*  ::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::
/*  Called by programs:
/*      MISCMENU.AML
/*  ::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::
/*  Arguments:
/*      Variable name          Definition
/*      -----
/*      .FILE                  Name of ASCII file.
/*  ::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::
/*  History:
/*      Author/Site,          Date,          Event
/*      -----
/*      Karen Schurr          6/12/92        Original coding
/*      USGS, WRD
/*      Tacoma, WA
/*-----
/*  Subroutines required in this directory:
/*      RSP.CHEM.AML
/*      DELSYS.AML
/*-----
&WATCH COMO.DRDELSYS
/*
/*          Ask for ingredient name used in file name.
/*
&R RSP.CHEM.AML
/*
/*          Run programs to delete files.
/*
&R DELSYS COUNT.%.CHEM%
&R DELSYS SHEET.%.CHEM%
&R DELSYS LOC.%.CHEM%
/*
&WATCH &OFF
&RETURN

```

```

/*-----
/*  Command name: DISP.LIC.AP.AML
/*  Language: AML AT ARC
/*  ::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::
/*
/*  Purpose:  This program displays the data fields for the LIC.AP file.
/*
/*  ::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::
/*  Called by programs:
/*    CHOOSE.FILE.AML
/*
/*  ::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::
/*  Arguments:
/*    Variable name      Definition
/*    -----
/*    none
/*  ::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::
/*  History:
/*    Author/Site,      Date,      Event
/*    -----
/*    Karen Schurr      2/26/91      Original coding
/*    USGS, WRD
/*    Tacoma, WA
/*-----
/*
&TYPE
&TYPE
&TYPE DATAFILE NAME: LIC.AP                                     2/27/1991
&TYPE
&TYPE COL  ITEM NAME      WIDTH OPUT TYP N.DEC  ALTERNATE NAME
&TYPE
&TYPE      1  SHEET.NO      6      6  I      -
&TYPE      7  LAST.NAME     15     15  C      -
&TYPE     22  FIRST.NAME    12     12  C      -
&TYPE     34  FIRM.NAME     15     15  C      -
&TYPE     49  LIC.NO        6      6  I      -
&TYPE     55  STR.ADDR      25     25  C      -
&TYPE     80  CITY          20     20  C      -
&TYPE    100  ZIP            10     10  C      -
&TYPE    110  TEL            12     12  C      -
&TYPE    122  STATE         2      2  C      -
&TYPE
&TYPE
&TYPE
/*
&RETURN

```

```

/*-----
/* Command name: DISP.LOAD.AML
/* Language: AML AT ARC
/* ::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::
/*
/* Purpose: This program displays the data fields for the Load file.
/*
/* ::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::
/* Called by programs:
/* LOAD.AML
/* LOADPLT.AML
/*
/* ::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::
/* Arguments:
/* Variable name Definition
/* -----
/* none
/* ::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::
/* History:
/* Author/Site, Date, Event
/* -----
/* Karen Schurr 2/26/91 Original coding
/* USGS, WRD
/* Tacoma, WA
/*-----
/*

```

&TYPE

&TYPE DATAFILE NAME: LOAD

2/ 4/1991

&TYPE

&TYPE	COL	ITEM NAME	WIDTH	OPUT	TYP	N.DEC	ALTERNATE NAME
-------	-----	-----------	-------	------	-----	-------	----------------

&TYPE

&TYPE	1	SHEET.NO	6	6	I	-	SHEET.LOAD.NO
&TYPE	7	BATCH.CODE	4	4	C	-	
&TYPE	11	DATE.AP	8	10	D	-	DATE.APPLIED
&TYPE	19	CROP	4	4	C	-	CROP.CODE
&TYPE	23	ACRES.TOTAL	10	10	N	4	
&TYPE	33	WSDA.PERMIT.NO	6	6	I	-	
&TYPE	39	TIME.START	4	4	I	-	
&TYPE	43	TIME.STOP	4	4	I	-	
&TYPE	47	LIC	4	4	C	-	APPARAT.LICENSE
&TYPE	51	TEMP.1	3	3	I	-	
&TYPE	54	TEMP.2	3	3	I	-	
&TYPE	57	WIND.DIR.1	3	3	C	-	
&TYPE	60	WIND.DIR.2	3	3	C	-	
&TYPE	63	WIND.SPD.1	2	2	I	-	
&TYPE	65	WIND.SPD.2	2	2	I	-	
&TYPE	67	MODE.AP	1	1	C	-	
&TYPE		** REDEFINED ITEMS **					
&TYPE	15	YEAR	4	4	I	-	
&TYPE	11	YR	4	4	I	-	

&TYPE

&TYPE

/*

&RETURN

```

/*-----
/* Command name: DISP.PERS.AP.AML
/* Language: AML AT ARC
/* ::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::
/* Purpose: Displays the items (data field names) in the
/*           the PERS.AP INFO data file
/* ::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::
/* Arguments:
/*   Variable name      Definition
/*   -----
/*   none
/* ::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::
/* History:
/*   Author/Site,      Date,      Event
/*   -----
/*   Karen Schurr      2-26-91     Original coding
/*   USGS, WRD
/*   Tacoma, WA
/*-----
/*

```

&TYPE

&TYPE

&TYPE DATAFILE NAME: PERS.AP

1/16/1991

&TYPE

&TYPE COL	ITEM NAME	WDTH	OPUT	TYP	N.DEC	ALTERNATE NAME
&TYPE						

&TYPE

&TYPE	1	SHEET.NO	6	6	I	-
-------	---	----------	---	---	---	---

&TYPE	7	LAST.NAME	15	15	C	- PERSON.APPLYING
-------	---	-----------	----	----	---	-------------------

&TYPE	22	FIRST.NAME	12	12	C	-
-------	----	------------	----	----	---	---

&TYPE	34	LIC.NO	6	6	C	-
-------	----	--------	---	---	---	---

&TYPE

&TYPE

&TYPE

&RETURN

```

/*-----
/*  Command name: DISP.RECEIVER.AML
/*  Language: AML AT ARC
/*  ::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::
/*
/*  Purpose:  This program displays the data fields for the Receiver file.
/*
/*  ::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::
/*  Called by programs:
/*    PERSON.AML
/*    PERSONPLT.AML
/*
/*  ::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::
/*  Arguments:
/*    Variable name      Definition
/*    -----
/*    none
/*  ::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::
/*  History:
/*    Author/Site,      Date,      Event
/*    -----
/*    Karen Schurr      2/26/91      Original coding
/*    USGS, WRD
/*    Tacoma, WA
/*-----
/*
&TYPE
&TYPE DATAFILE NAME: RECEIVER                                2/26/1991
&TYPE
&TYPE COL  ITEM NAME      WIDTH OPUT TYP N.DEC  ALTERNATE NAME
&TYPE
&TYPE      1  SHEET.NO      6      6  I    -
&TYPE      7  LAST.NAME     15     15  C    -    RECEIVER
&TYPE     22  FIRST.NAME    12     12  C    -
&TYPE     34  FIRM          20     20  C    -
&TYPE     54  STR.ADDR      25     25  C    -
&TYPE     79  CITY          20     20  C    -
&TYPE     99  ZIP           10     10  C    -
&TYPE    109  STATE         2      2  C    -
&TYPE
&TYPE
/*
&RETURN

```

```

/*-----
/* Command name: DRDELPLT.AML
/* Language: AML AT ARC
/* ::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::
/* Purpose: Calls programs to delete INFO files in both the main
/* directory and the plotting directory.
/* ::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::
/* Called by programs:
/* MISCMENU.AML
/* ::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::
/* Arguments:
/* Variable name Definition
/* -----
/* .CHEM ingredient.
/* ::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::
/* History:
/* Author/Site, Date, Event
/* -----
/* Karen Schurr 6/12/92 Original coding
/* USGS, WRD
/* Tacoma, WA
/* -----
/* Subroutines required in this directory:
/* SET.DIR.AML
/* RSP.CHEM.AML
/* DELCHK.AML
/* DEL.AML
/* SET.DIR.COV.AML
/* -----
/* Subroutine required in plotting directory.
/* DEL.AML
/* -----
/* User notes:
/*
/* -----
&WATCH COMO.DRDELPLT
/*
/* Set pathname to main directory.
/*
&R SET.DIR.AML
/*
&R RSP.CHEM.AML
/* Prevents the deletion of CHEM.AP file.
/*
&R DELCHK.AML
/*
&TYPE
&TYPE 'In the main directory:'
&TYPE
&R DEL %.CHEM%.LUT
&R DEL %.CHEM%.AP
&R DEL %.CHEM%.COUNT
/*
/* Set pathname to plotting directory.
/*
&R SET.DIR.COV.AML

```

```
/*
/*      Attach to plotting directory and delete INFO files.
/*
&WORKSPACE %.PLT.DIR%
/*
/*
&TYPE
&TYPE 'In the plotting directory:'
&TYPE
&R DEL %.CHEM%.LUT
&R DEL %.CHEM%.COUNT
&WORKSPACE %.AT.POINT%
&RETURN
&WATCH &OFF
```

```

/*-----
/* Command name: DRIVDEL.AML
/* Language: AML AT ARC
/* ::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::
/* Purpose: Runs the program that deletes temporary INFO files.
/*
/* ::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::
/* Called by programs:
/* MISCMENU.AML
/* ::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::
/* Arguments:
/* Variable name Definition
/* -----
/* .CHEM ingredient.
/* ::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::
/* History:
/* Author/Site, Date, Event
/* -----
/* Karen Schurr 6/12/92 Original coding
/* USGS, WRD
/* Tacoma, WA
/*-----
/* Subroutines required in this directory:
/* RSP.CHEM.AML
/* DELCHK.AML
/* DEL.AML
/*-----
&WATCH COMO.DRDEL
/*
/* Ask ingredient name used in file names.
&R RSP.CHEM.AML
/* Prevents the deletion of CHEM.AP file.
/*
&R DELCHK.AML
/*
/* Run program to delete INFO files.
&TYPE
&TYPE 'In the main directory:'
&TYPE
&R DEL %.CHEM%.LUT
&R DEL %.CHEM%.AP
&R DEL %.CHEM%.COUNT
/*
&WATCH &OFF
&RETURN

```

```

/*
/*
/*                                DRIVER.AML
/*
/* This AML is written by WRITE.DRIVER.AML. It may be deleted
/* after it has been run. It is replaced by a new version each
/* time WRITE.DRIVER.AML is written.
/*
&ARGS .FIRST.DATE .LAST.DATE
&S .CHEM DIMETHOATE
&R CALC.SUM.AML DIMETHOATE      %.FIRST.DATE% %.LAST.DATE%
&R OUT.LUT.AML DIMETHOATE
&S .CHEM DISULFOTON
&R CALC.SUM.AML DISULFOTON      %.FIRST.DATE% %.LAST.DATE%
&R OUT.LUT.AML DISULFOTON
&S .CHEM GLYPHOSATE.ACID
&R CALC.SUM.AML GLYPHOSATE.ACID %.FIRST.DATE% %.LAST.DATE%
&R OUT.LUT.AML GLYPHOSATE.ACID
&RETURN

```

```

/*-----
/* Command name: GUIDE.AML
/* Language: AML AT ARC
/* ::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::
/* Purpose: Lists the data requirements for the INGRED.SYMB
/*           file. The information is displayed on the screen.
/* ::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::
/*
/* CALLED BY PROGRAMS:
/*
/* MULTIPLT.AML
/*
/* ::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::
/* Arguments:
/* Variable name      Definition
/* -----
/* none
/* ::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::
/* History:
/* Author/Site,      Date,      Event
/* -----
/* Karen Schurr      12-15-89    Original coding
/* USGS, WRD
/* Tacoma, WA
/* -----
/*
/*
&TYPE
&TYPE A flat (ASCII) file named INGRED.SYMB must be prepared
&TYPE containing a list of shading symbols and ingredient names.
&TYPE
&TYPE Shade symbols must be integers and should be right justified to
&TYPE end in column 3. They may be up to three digits long.
&TYPE
&TYPE Ingredient names must begin in column 4 and must match the INGRED
&TYPE entry in the CHEM.AP data file.
&TYPE
&TYPE EX:
&TYPE 46DICAMBA
&TYPE 135ALACHLOR
&TYPE 44DINOSEB
&TYPE
&TYPE
&TYPE In order to view CHEM.AP data file, give the following commands:
&TYPE
&TYPE INFO
&TYPE SEL CHEM.AP
&TYPE LIST INGRED
&TYPE Q STOP
&TYPE
/*
&RETURN

```

```

/*-----
/*  Command name: GUIDE.MULTI.AML
/*  Language: AML AT ARC
/*  ::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::
/*  Purpose:  Lists the data requirements for the INGRED.SYMB
/*             file.  The information is displayed on the screen.
/*  ::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::
/*  CALLED BY PROGRAMS:
/*
/*      MULTI.AML
/*  ::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::
/*  Arguments:
/*      Variable name      Definition
/*      -----
/*      none
/*  ::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::
/*  History:
/*      Author/Site,      Date,      Event
/*      -----
/*      Karen Schurr      12-15-89      Original coding
/*      USGS, WRD
/*      Tacoma, WA
/*  -----
/*
&TYPE
&TYPE
&TYPE  A flat (ASCII) file named INGRED.SYMB must be prepared
&TYPE  containing ingredient names.
&TYPE
&TYPE  Ingredient names must begin in column 4 and must match the INGRED
&TYPE  entry in the CHEM.AP data file.
&TYPE
&TYPE  EX:
&TYPE      DICAMBA
&TYPE      ALACHLOR
&TYPE      DINOSEB
&TYPE
&TYPE
/*
&RETURN

```

```

/*-----
/* Command name: LUT.LGD.ALL.AML
/* Language: AML AT ARC
/* ::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::
/* Purpose: Creates a look-up table and a legend for plotting,
/* based on values in the <ingred>.AP file.
/*
/* ::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::
/* CALLED BY PROGRAMS:
/*
/* ALLPLT.AML
/* ::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::
/* Variable name      Definition
/* -----
/* .CHEM              Chemical name from CHEM.AP file.
/* .AT.POINT          Pathname to directory where AML and data base reside.
/* .PLT.DIR           Name of subdirectory where plotting coverages reside.
/* ::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::
/* History:
/* Author/Site,      Date,      Event
/* -----
/* Karen Schurr      10-26-89    Original coding
/* USGS, WRD
/* Tacoma, WA
/*-----
/*
&ARGS .CHEM
/*
/*##### TAILOR TO SYSTEM #####
/*
COMO COMO.LUT.LGD.ALL
DATE
/*
/
*#####
/*
&DATA ARC INFO
REMARKS                      Erase old look-up table if one
REMARKS                      exists.
REMARKS
&IF [EXISTS %.CHEM%.LUT -INFO] &THEN &DO
    SEL %.CHEM%.LUT
    ERASE %.CHEM%.LUT
Y
&END
REMARKS
REMARKS                      Define new look-up table template.
DEFINE %.CHEM%.LUT
SYMBOL,3,3,I
QUANT,1,1,I

REMARKS
REMARKS                      Make flat file with data for look-up
REMARKS                      table.
REMARKS
OUTPUT %.AT.POINT%>TMP.DATA INIT

```

REMARKS	
REMARKS	Symbol 0, if no chemical applied.
REMARKS	Symbol 46, if any chemical applied.
REMARKS	
PRINT ' 00'	
REMARKS	RED
DIS 1T, ' 461' PRINT	
REMARKS	Load look-up table with Symbol
REMARKS	& Quantity data.
SEL %.CHEM%.LUT	
GET %.AT.POINT%>TMP.DATA COPY	
REMARKS	
REMARKS	Print legend directly to plotting
REMARKS	directory.
REMARKS	
OUTPUT %.AT.POINT%>%.PLT.DIR%>LEGEND.%.CHEM% INIT	
DIS 1T, '. 46' PRINT	
DIS 1T, 'Chemicals' PRINT	
DIS 1T, ' applied' PRINT	
REMARKS	
REMARKS	
Q STOP	
&END	/* &DATA
&RETURN	

```

/*-----
/* Command name: LUT.LGD.AUTO.AML
/* Language: AML AT ARC
/* ::::::::::::::::::::::::::::::::::::::::::::::::::::
/* Purpose: Creates a look-up table and a legend for plotting.
/*: ::::::::::::::::::::::::::::::::::::::::::::::::::::::
/*
/* Called by programs:
/*
/* SUMPLT.AML
/*: ::::::::::::::::::::::::::::::::::::::::::::::::::::::
/* Arguments:
/* Variable name      Definition
/* -----
/* .CHEM              Chemical name from CHEM.AP file.
/* .AT.POINT          Pathname to directory where AML and data base reside.
/* .PLT.DIR           Name of subdirectory where plotting coverages reside.
/*: ::::::::::::::::::::::::::::::::::::::::::::::::::::::
/* History:
/* Author/Site,      Date,      Event
/* -----
/* Karen Schurr      10-26-89    Original coding
/* USGS, WRD
/* Tacoma, WA
/*-----
/*
/* The values for the look-up table and the legend are calculated from
/* the quantity data in the <ingred>.COUNT file. The data for the
/* look-up table is written to an ASCII file in the plotting directory
/* and the legend is written to the plotting directory.
/*
&ARGS .CHEM .AT.POINT .PLT.DIR
/*
/* ##### System specific commands #####
/*
COMO COMO.LUT.LGD.AUTO
/*
/* #####
/*
&DATA ARC INFO
REMARKS
  FORMAT $NUM1,8,8,N,3
  FORMAT $NUM2,8,8,N,3
  FORMAT $NUM3,8,8,N,3
  FORMAT $NUM4,8,8,N,3
  FORMAT $NUM5,8,8,N,3
  FORMAT $NUM6,8,8,N,3
REMARKS
REMARKS              If .LUT file exists, erase it and define
REMARKS              a new one.
REMARKS
&IF [EXISTS %.CHEM%.LUT -INFO] &THEN &DO
  SEL %.CHEM%.LUT
  ERASE %.CHEM%.LUT
Y
&END

```

```

DEFINE %.CHEM%.LUT
SYMBOL,3,3,I
QUANT,8,8,N,3

REMARKS
REMARKS
REMARKS
REMARKS
OUTPUT %.AT.POINT%>TMP.DATA INIT
REMARKS
REMARKS
REMARKS
SEL %.CHEM%.COUNT
    SORT ON QUANT
        RES $RECNO = 1
        CALC $NUM1 = QUANT
        ASEL
REMARKS
REMARKS
    SORT ON QUANT (D)
        RES $RECNO = 1
        CALC $NUM5 = QUANT
        ASEL
REMARKS
REMARKS
    SORT ON PLS
REMARKS
REMARKS
REMARKS
    CALC $NUM3 = ( $NUM1 + $NUM5 ) / 2
    CALC $NUM2 = ( $NUM1 + $NUM3 ) / 2
    CALC $NUM4 = ( $NUM3 + $NUM5 ) / 2
REMARKS
REMARKS
REMARKS
REMARKS
    PRINT '  00'
REMARKS
    DIS 1T, ' 11', $NUM2 PRINT
REMARKS
    DIS 1T, ' 24', $NUM3 PRINT
REMARKS
    DIS 1T, '170', $NUM4 PRINT
REMARKS
    DIS 1T, ' 58', $NUM5 PRINT
REMARKS
REMARKS
REMARKS
REMARKS
    SEL %.CHEM%.LUT
    GET %.AT.POINT%>TMP.DATA COPY
    NSELECT
REMARKS
REMARKS
REMARKS
    OUTPUT %.AT.POINT%>%.PLT.DIR%>LEGEND.%.CHEM% INIT

```

Open ASCII file to
receive look-up table data.

Calculate largest quantity.

Calculate smallest quantity.

Return <ingred>.COUNT file to being
ordered by PLS.

Calculate 3 intermediate quantities.

Write data for look-up table to
a temporary file in the main
directory.

Green

Blue

Brown

Red

Load look-up table with data from
temporary ASCII file.

Print legend into plotting directory.

```

DIS 1T, 'Pounds per' PRINT
DIS 1T, '40 acre ' PRINT
DIS 1T, 'quarter-' PRINT
DIS 1T, 'quarter ' PRINT
DIS 1T, 'section' PRINT
DIS 1T, '' PRINT
DIS 1T, '. 11' PRINT
DIS 1T, '' PRINT
DIS 1T, $NUM1, '-' PRINT
DIS 1T, $NUM2 PRINT
DIS 1T, '. 24' PRINT
DIS 1T, '' PRINT
    CALC $NUM6 = $NUM2 + .001
DIS 1T, $NUM6, ' - ' PRINT
DIS 1T, $NUM3 PRINT
DIS 1T, '.170' PRINT
DIS 1T, '' PRINT
    CALC $NUM6 = $NUM3 + .001
DIS 1T, $NUM6, '-' PRINT
DIS 1T, $NUM4 PRINT
DIS 1T, '.58' PRINT
DIS 1T, '' PRINT
    CALC $NUM6 = $NUM4 + .001
DIS 1T, $NUM6, '-' PRINT
DIS 1T, $NUM5 PRINT
REMARKS
REMARKS
Q STOP
&END
&RETURN
/* &DATA

```

```

/*-----
/* Command name: LUT.LGD.RATE.AML
/* Language: AML AT ARC
/* ::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::
/* Purpose:  Creates a look-up table and a legend for plotting,
/*   based on values in the <ingred>.AP file.
/*:~::~::::::::::::::::::::::::::::::::::::::::::::::::::::::::::
/* Called by programs:
/*
/*      RATEPLT.AML
/*:~::~::::::::::::::::::::::::::::::::::::::::::::::::::::::::::
/*      Variable name      Definition
/*      -----
/*      .CHEM              Chemical name from CHEM.AP file.
/*      .AT.POINT          Pathname to directory where AML and data base reside.
/*      .PLT.DIR           Name of subdirectory where plotting coverages reside.
/*      /RATE              Minimum application rate as chosen by program user.
/*:~::~::::::::::::::::::::::::::::::::::::::::::::::::::::::::::
/* History:
/*      Author/Site,      Date,      Event
/*      -----
/*      Karen Schurr      10-26-89      Original coding
/*      USGS, WRD
/*      Tacoma, WA
/*-----
/*
&ARGS .CHEM .RATE
/*
/*##### TAILOR TO SYSTEM #####
/*
COMO COMO.LUT.LGD.ALL
DATE
/*
/
*#####
/*
&DATA ARC INFO
REMARKS
    FORMAT $NUM1,4,4,I
    FORMAT $NUM2,4,4,I
    FORMAT $NUM3,4,4,I
    FORMAT $NUM4,4,4,I
    FORMAT $NUM5,4,4,I
    FORMAT $NUM6,4,4,I
REMARKS
REMARKS                                Erase old look-up table if one
REMARKS                                exists.
REMARKS
&IF [EXISTS %.CHEM%.LUT -INFO] &THEN &DO
    SEL %.CHEM%.LUT
    ERASE %.CHEM%.LUT
Y
&END
REMARKS
REMARKS                                Define new look-up table template.
DEFINE %.CHEM%.LUT

```

SYMBOL,3,3,I
QUANT,1,1,I

REMARKS

REMARKS

Make flat file with data for look-up
table.

REMARKS

REMARKS

OUTPUT %.AT.POINT%>TMP.DATA INIT

REMARKS

REMARKS

Symbol 0 if less than %.RATE%.

REMARKS

Symbol 46 if %.RATE% or above.

REMARKS

PRINT ' 00'

REMARKS

RED

DIS 1T,' 461' PRINT

REMARKS

Load look-up table with Symbol and Quantity to Look-up
data.

REMARKS

SEL %.CHEM%.LUT

GET %.AT.POINT%>TMP.DATA COPY

REMARKS

REMARKS

Print legend directly to plotting
directory.

REMARKS

REMARKS

OUTPUT %.AT.POINT%>%.PLT.DIR%>LEGEND.%.CHEM% INIT

DIS 1T,'. 46' PRINT

DIS 1T,'Application rate' PRINT

DIS 1T,' ' PRINT

DIS 1T,'of ',[QUOTE %.RATE%],' or above' PRINT

DIS 1T,' ' PRINT

DIS 1T,' (pounds/acre) 'PRINT

REMARKS

REMARKS

Q STOP

&END

/* &DATA

&RETURN

```

/*-----
/*  Command name: MISCMENU.AML
/*  Language: AML AT ARC
/*  ::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::
/*
/*  Purpose:  This program asks the user to select a program option.
/*
/*::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::
/*  Called by programs:  PDS.AML
/*::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::
/*  Arguments:
/*      Variable name          Definition
/*      -----
/*      .PROG.NAME             Program name.
/*::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::
/*  History:
/*      Author/Site,           Date,           Event
/*      -----
/*      Karen Schurr           4/24/92          Original coding
/*      USGS, WRD
/*      Tacoma, WA
/*-----
/*
/*  SUBROUTINES required in this directory:
/*
/*      SET.DIR.AML
/*      DRIVDEL.AML
/*      DRDELPLT.AML
/*      DRDELSYS.AML
/*      CHNGDATE.AML
/*      CHNGPLT.AML
/*      DELUSE.AML
/*
/*-----
/*  Programmer notes:
/*
/*      A list of the program options is listed on the screen
/*      and the user is asked to select an option.  The program
/*      option selected is recorded as a variable option
/*      and is used in a later program as part of the command to
/*      run the correct retrieval program.
/*
/*-----
&TYPE
&TYPE
&TYPE
&TYPE =====
&TYPE      Miscellaneous programs
&TYPE
&TYPE =====
&TYPE
&TYPE
&TYPE
&TYPE      1.  Delete temporary INFO files, main directory.
&TYPE      2.  Delete temporary INFO files, main and plotting directories.
&TYPE      3.  Delete temporary ASCII files.

```

```

&TYPE      4.  Change default dates.
&TYPE      5.  Change plotting defaults.
&TYPE
&TYPE
&TYPE      Q.  Quit
&TYPE
/*
/*      Set pathname to main directory.
/*
&R SET.DIR.AML
/*
&S .PROG.NO = [RESPONSE 'Please select a program number']
&SELECT [UNQUOTE %.PROG.NO%]
&WHEN 1
    &DO
        &R DRIVDEL
        &GOTO EARTH
&END
&WHEN 2
    &DO
        &R DRDELPLT
        &GOTO EARTH
&END
&WHEN 3
    &DO
        &R DRDELSYS
        &GOTO EARTH
&END
&WHEN 4
    &DO
        &R CHNGDATE
        &GOTO EARTH
&END
&WHEN 5
    &DO
        &R CHNGPLT
        &GOTO EARTH
&END
&WHEN Q
    &DO
        &STOP
    &END
/*
/*      Error check in case of other replies.
/*
&OTHERWISE
/*
&DO
&TYPE ' '
&TYPE ' Not an option.  Please try again.'
&TYPE ' '
&LABEL EARTH
&R MISCMENU.AML
/*
&END
&END

```

```
/*  
/*      Delete flag file for system in use.  
/*  
&R DELUSE.AML  
/*  
/*  
&RETURN
```

```

/*-----
/* Command name: MULTIPLT.PT.II.AML
/* Language: AML AT ARC
/* ::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::
/*
/* This program produces data files and an ARC plot for chemicals spec-
/* ified by the user. When the user chooses the batch-mode option while
/* running the MULTIPLT program, this program runs in batch mode & the
/* plot file is created but not displayed to the screen.
/* Without batch mode, the plot file is displayed automatically after
/* it is created.
/* ::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::
/*
/* CALLED BY PROGRAM:
/*
/* MULTIPLT.AML
/*
/*
/* Arguments:
/* Variable name      Definition
/* -----
/* .AT.POINT      Pathname to directory where AML and data base reside.
/* .PLT.DIR       Name of subdirectory where plotting coverages reside.
/* .FIRST.DATE    Earliest date of selected time period.
/* .LAST.DATE     Last date of selected time period.
/* .NI            Response to inquiry about existence of file.
/* .QUERY.BATCH  Response to inquiry about running in batch mode.
/*
/* Additional variables used in subroutines:
/*
/* Variable name, I/O,      Type,      Definition
/* -----
/* .CHEM              INGRED, 15,15,C
/* .SEC.COV           Section coverage (ARC)
/* .QQ.COV            Quarter-quarter coverage (ARC)
/* .PLOTTER           Number for plotter (ex: 1039)
/*
/* ::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::
/* History:
/* Author/Site,      Date,      Event
/* -----
/* Karen Schurr      10-19-89    Original coding
/*   USGS, WRD
/*   Tacoma, WA
/* -----
/*
/* A sequential data file (ASCII file) is created for each chemical
/* with the areas where it was applied, acreage and the sum of the quantity
/* applied during time period. Each file is named COUNT._____.
/* THE FILES SHOULD BE RENAMED IF THEY ARE TO BE SAVED TO AVOID
/* OVERWRITING BY FUTURE PROGRAM RUNS.
/*
/* Each chemical is plotted in a different color and pattern. The
/* plot does not indicate the quantities of the applied chemicals.
/*
/* INFO files required for running this program are:

```

```

/*
/*      LOCATION
/*      CHEM.AP
/*      LOAD
/*
/*      SUBROUTINES required in this directory:
/*
/*      CALC.SUM.AML
/*      OUT.LUT.AML
/*      SET.DIR.AML
/*      SET.DIR.COV.AML
/*      WRITE.DRIVER.AML
/*
/*      SUBROUTINES written and run by this program in this directory:
/*
/*      DRIVER.AML
/*
/*      SUBROUTINES required in the plotting directory:
/*
/*      PS.AML
/*      TRANS.BOTH.AML
/*      TRANS.NAME.AML
/*      WRITE.PLT.AML
/*
/*      SUBROUTINE written into plotting directory:
/*
/*      PLOT.MULTI.AML  (May be deleted after it is run.)
/*
/*      COVERAGES required in plotting directories:
/*
/*      Outline of quarter-quarter sections in the Public Land Survey.
/*      Outline of the sections in the Public Land Survey.
/*
/*      (Coverages for the 1:62,500 scale plots approximately cover an area
/*      about the size of a USGS 15-minute quadrangle.)
/*      (Coverages for the 1:24,000 scale plots approximately cover an area
/*      about the size of a Public Land Survey township.)
/*
/****** MUST BE TAILORED TO USER'S SYSTEM *****
COMO COMO.MULTIPLT.PT.II
&ARGS .FIRST.DATE .LAST.DATE .QUERY.BATCH
DATE
/*
/*
/*      (5) Run SET.DIR.AML, which sets directory
/*      pathname.
&R SET.DIR.AML
/*      (6) Run SET.DIR.COV.AML which sets name for
/*      plotting directory and names for QQ and
/*      Section coverages.
&R SET.DIR.COV.AML
/*
/*      (7) Run WRITE.DRIVER.AML, which writes DRIVER.AML
/*      and DRIVER.TRANS.AML to run AML's for
/*      each chemical listed in INGRED.SYMB file.
/*

```

```

/*
&LISTVAR
&R WRITE.DRIVER.AML %.AT.POINT% %.FIRST.DATE% %.LAST.DATE%
&TYPE 'WRITE.DRIVER.AML'
&LISTVAR
/*
/*
Runs AML'S
/*
to make summary for each chemical.
/*
Runs OUT.LUT.AML to make a look-up
/*
table for each chemical and to
/*
write a flat output file.
/*
Each chemical is summed and
/*
listed in a file.
/*
A look-up table is created for
/*
plotting. The summation (.COUNT)
/*
files and the look-up table are
/*
copied to the plotting directory.
&R DRIVER.AML %.FIRST.DATE% %.LAST.DATE%
/*
/***** TAILOR TO SYSTEM *****/
/*
&WORKSPACE %.AT.POINT%>%.PLT.DIR%      /* Attach to plotting directory
/*
/*****
/*
Copies NAME.STORE file for making
/*
plot AML for each chemical.
/*
&R TRANS.NAME.AML
/*
Write AML to plot chemicals.
&R WRITE.PLT.AML %.FIRST.DATE% %.LAST.DATE% %.QUERY.BATCH%
/*
Copies _____.COUNT file to plotting
/*
directory.
/*
Copies look-up tables to plotting
/*
directory.
&R DRIVER.TRANS.AML
/*
Makes plot file.
/*
&R PLT.MULTI.AML %.FIRST.DATE% %.LAST.DATE% %.QUERY.BATCH% %.SEC.COV% ~
%.QQ.COV% %.PLOTTER% %.TERMINAL% %.PRJ% %.MPUNITS% %.MPANGLE%
/*
&END      /* &DATA
&STOP
&RETURN
/***** TAILOR TO SYSTEM *****/
/*
COMO -END

```

```

/*-----
/*  Command name: NAMEPLT.AML
/*  Language: AML AT ARC
/*  ::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::
/*  Purpose:  Queries for new plot file name.
/*  ::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::
/*  Called by programs:
/*      PLT2.AML
/*      PLT3.AML
/*      PLT82.AML
/*      PLT83.AML
/*      PLT84.AML
/*      PLT.MULTI.AML
/*  ::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::
/*  Arguments:
/*      Variable name          Definition
/*      -----
/*      .PLT.NAME              Name of plot file.
/*      .NEW.NAME              New plot file name.
/*      .RESP                  Response to query.
/*  ::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::
/*  History:
/*      Author/Site,          Date,          Event
/*      -----
/*      Karen Schurr          4-10-92        Original coding
/*      USGS, WRD
/*      Tacoma, WA
/*  -----
/*
/*      This AML queries the user for a new plot file name.  The
/*      plot file is renamed to save it from future overwrites.
/*
&TYPE
&TYPE =====
&TYPE
/*
/*
/*
/*      Query for new plot file name.
/*
&S .RESP = .FALSE
&TYPE Present plot file:  [UNQUOTE %.PLT.NAME%]
&TYPE ' '
&S .NEW.NAME = [TRANSLATE [RESPONSE [QUOTE New name]]]
&TYPE ' '
/*
/*  If file name exists, query for change.
/*
&IF [EXISTS %.NEW.NAME% -FILE] &THEN &DO
&TYPE ' '
&TYPE [UNQUOTE %.NEW.NAME% already exists.]
&S .RESP = [QUERY 'Do you want to try again' .TRUE.]
&IF %.RESP% = .TRUE. &THEN &DO
/*
/*      Query for name again.
/*

```

```

&TYPE ' '
&S .NEW.NAME = [TRANSLATE [RESPONSE [QUOTE New name]]]
&TYPE ' '
&IF [EXISTS %.NEW.NAME% -FILE] &THEN &DO
&TYPE ' '
&TYPE [UNQUOTE %.NEW.NAME% already exists.]
&END
&END
&END
&RETURN
&END
/*
&IF %.RESP% = .FALSE &THEN &DO
&STOP
&END
&RETURN
/*
&TYPE Changing [UNQUOTE %.PLT.NAME%] to [UNQUOTE %.NEW.NAME%]
/*#####
/*
CN %.PLT.NAME% %.NEW.NAME%
/*
/*#####
/*
&RETURN

```

```

/*-----
/*  Command name: OUT.LUT.AML
/*  Language: AML AT ARC
/*  ::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::
/*  Purpose:  This program makes a list of quarter-quarter sections
/*            to which the chemical has been applied during a
/*            specific time period.  A look-up table and legend are created
/*            for plotting.
/*  ::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::
/*  Called by programs:
/*
/*  MULTIPLT.AML (via DRIVER.AML run by MULTIPLT.PT.II.AML)
/*  ::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::
/*  Arguments:
/*      Variable name          Definition
/*      -----
/*      .CHEM                  INGRED from CHEM.AP file.
/*      .AT.POINT              Directory containing data base.
/*      .FIRST.DATE            Earliest date.
/*      .LAST.DATE             Last date.
/*  ::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::
/*  History:
/*      Author/Site,           Date,           Event
/*      -----
/*      Karen Schurr          10-26-89         Original coding
/*  -----
/*
/*  Note:  Results are written to an INFO file named <ingred>.COUNT
/*         and to a flat file with the name COUNT.<ingred>.
/*
/*  ##### System specific commands #####
/*
COMO COMO.OUTPT
/*
/*  #####
&ARGS .CHEM
&DATA ARC INFO
    FORMAT $NUM1,3,3,I
REMARKS                                     Write Primos file _____.COUNT.
    SEL %.CHEM%.COUNT
OUTPUT %.AT.POINT%>COUNT.%.CHEM% INIT
    PRI ' '
    PRI ' '
    PRI [QUOTE %.CHEM%],' ',[QUOTE %.FIRST.DATE%],' - ',[QUOTE %.LAST.DATE%]
    PRI ' '
    PRI ' '
    PRI 'NOTE:  Beware of the acreage sums.  A figure of 40 acres could'
    PRI '          represent, for example, a 10 acre field which received'
    PRI '          four applications or it could represent one 40 acre field'
    PRI '          that received one application.'
    PRI ' '
    PRI ' '
    PRI ' '
    PRI '    Location      Quantity  Acres   Applications  '
    PRI '                  (lbs.)'
    PRI ' '

```

```

PRI '      ',PLS,'      ',QUANT,'      ',ACRES,'      ',FREQUENCY
REMARKS
REMARKS
REMARKS
REMARKS
Write Primos file SHEET._____

SEL LOC.INDEX
SORT ON SHEET.NO
OUTPUT %.AT.POINT%>SHEET.%.CHEM% INIT
PRI ' '
PRI ' File name: SHEET.',[QUOTE %.CHEM%],' - - sorted on sheet number'
PRI ' '
PRI ' '
PRI [QUOTE %.CHEM%],' ',[QUOTE %.FIRST.DATE%],' - ',[QUOTE %.LAST.DATE%]
PRI ' '
PRI '      Location      Lb/acre  Acres      Sheet number '
PRI ' '
PRI '      ',PLS,'      ',LB/ACRE,'      ',ACRES,'      ',SHEET.NO
REMARKS
REMARKS
REMARKS
REMARKS
Write Primos file LOC._____.

SEL LOC.INDEX
SORT ON PLS
OUTPUT %.AT.POINT%>LOC.%.CHEM% INIT
PRI ' '
PRI ' File name: LOC.',[QUOTE %.CHEM%],' - - sorted on location'
PRI ' '
PRI ' '
PRI [QUOTE %.CHEM%],' ',[QUOTE %.FIRST.DATE%],' - ',[QUOTE %.LAST.DATE%]
PRI ' '
PRI '      Location      Lb/acre  Acres      Sheet number '
PRI ' '
PRI '      ',PLS,'      ',LB/ACRE,'      ',ACRES,'      ',SHEET.NO
REMARKS
REMARKS
REMARKS
REMARKS
Create look-up table for plotting.

&IF [EXISTS %.CHEM%.LUT -INFO] &THEN &DO
  SEL %.CHEM%.LUT
  ERASE %.CHEM%.LUT
Y
&END
DEFINE %.CHEM%.LUT
SYMBOL,3,3,I
QUANT,8,8,N,3

OUTPUT %.AT.POINT%>TMP.DATA INIT
REMARKS
SEL NAME.STORE
RES INGRED = [QUOTE %.CHEM%]
CALC $NUM1 = SYMBOL
REMARKS
REMARKS
REMARKS
Determine the largest QUANT
value.
SEL %.CHEM%.COUNT

```

```

SORT ON QUANT (D)
  RES BY $RECNO = 1
DIS 1T,' 00' PRINT
DIS 1T,$NUM1,QUANT PRINT
ASEL
SORT ON PLS
REMARKS
REMARKS                                     Transfer Symbol & Quantity to Look-up
REMARKS                                     table.
SEL %.CHEM%.LUT
  GET %.AT.POINT%>TMP.DATA COPY
REMARKS
Q STOP
&END                                     /* &DATA
&RETURN
/*
/* ##### System specific commands #####
COMO -END
/* #####

```

```

/*-----
/* Command name: OUTPT.AML
/* Language: AML AT ARC
/* ::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::
/* Purpose: This program makes a list of quarter-quarter sections
/* to which the chemical has been applied during a
/* specific time period.
/* ::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::
/* Called by programs:
/*
/* SUM.AML
/* SUMPLT.AML
/* MULTI.AML
/* ::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::
/* Arguments:
/* Variable name Definition
/* -----
/* .CHEM INGRED from CHEM.AP file.
/* .AT.POINT Directory containing data base.
/* .FIRST.DATE Earliest date.
/* .LAST.DATE Last date.
/* ::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::
/* History:
/* Author/Site, Date, Event
/* -----
/* Karen Schurr 10-26-89 Original coding
/* -----
/*
/* Note: Results are written to an INFO file named <ingred>.COUNT
/* and to an ASCII file with the name COUNT.<ingred>.
/*
COMO COMO.OUTPT
DATE
&ARGS .CHEM .AT.POINT
&DATA ARC INFO
REMARKS/* Write Primos file COUNT.<ingred>.
SEL %.CHEM%.COUNT
OUTPUT %.AT.POINT%>COUNT.%.CHEM% INIT
PRI ' '
PRI ' '
PRI [QUOTE %.CHEM%],' ',[QUOTE %.FIRST.DATE%],' -',[QUOTE %.LAST.DATE%]
PRI ' '
PRI ' '
PRI ' NOTE: Beware of the acreage sums. A figure of 40 acres could'
PRI ' represent, for example, a 10 acre field that received'
PRI ' four applications or it could represent one 40 acre field'
PRI ' that received one application.'
PRI ' '
PRI ' '
PRI ' Location Quantity Acres Applications '
PRI ' (lbs.)'
PRI ' '
PRI ' ',PLS,' ',QUANT,' ',ACRES,' ',FREQUENCY
REMARKS
REMARKS Write Primos file SHEET.<ingred>.
REMARKS

```

```

SEL LOC.INDEX
SORT ON SHEET.NO
OUTPUT %.AT.POINT%>SHEET.%.CHEM% INIT
PRI ' '
PRI ' File name: SHEET.',[QUOTE %.CHEM%],' - - sorted on sheet number'
PRI ' '
PRI ' '
PRI [QUOTE %.CHEM%],' ',[QUOTE %.FIRST.DATE%],' - ',[QUOTE %.LAST.DATE%]
PRI ' '
PRI ' Location Lb/acre Acres Sheet number '
PRI ' '
PRI ' ',PLS,' ',LB/ACRE,' ',ACRES,' ',SHEET.NO
REMARKS
REMARKS
REMARKS
REMARKS Write Primos file LOC.<ingred>.
REMARKS
SEL LOC.INDEX
SORT ON PLS
OUTPUT %.AT.POINT%>LOC.%.CHEM% INIT
PRI ' '
PRI ' File name: LOC.',[QUOTE %.CHEM%],' - - sorted on location'
PRI ' '
PRI ' '
PRI [QUOTE %.CHEM%],' ',[QUOTE %.FIRST.DATE%],' - ',[QUOTE %.LAST.DATE%]
PRI ' '
PRI ' Location Lb/acre Acres Sheet number '
PRI ' '
PRI ' ',PLS,' ',LB/ACRE,' ',ACRES,' ',SHEET.NO
REMARKS
REMARKS
Q STOP
&END /* &DATA
COMO -END
&TYPE **
&TYPE **
&TYPE ***** File names for spooling: COUNT.%.CHEM% *****
&TYPE ** SHEET.%.CHEM%
&TYPE ** LOC.%.CHEM%
&RETURN

```

```

/*-----
/* Command name: OUT.SUBTITLE.AML
/* Language: AML AT ARC
/* ::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::
/* Purpose: This program makes a list of quarter-quarter sections
/* to which the chemical has been applied during a
/* specific time period. A title is written at the top
/* of the list, specifying the criteria used for the retrieval.
/*:~::~::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::
/* Called by programs:
/*
/* LOAD.AML
/* LOADPLT.AML
/* PERSON.AML
/* PERSONPLT.AML
/*:~::~::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::
/* Arguments:
/* Variable name      Definition
/* -----
/* .CHEM              INGRED from CHEM.AP file.
/* .AT.POINT          Directory containing data base.
/* .FIRST.DATE        Earliest date.
/* .LAST.DATE         Last date.
/* .TITLE.TWO         Second line of title.
/*:~::~::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::
/* History:
/* Author/Site,      Date,      Event
/* -----
/* Karen Schurr      10-26-89    Original coding
/*-----
/*
/* Note: Results are written to an INFO file named _____.COUNT
/* and to an ASCII file with the name COUNT._____.
/*
COMO COMO.OUT.TITLE.TWO
&DATA ARC INFO
REMARKS/* Write Primos file COUNT._____.
SEL %.CHEM%.COUNT
OUTPUT %.AT.POINT%>COUNT.%.CHEM% INIT
PRI ' '
PRI ' '
PRI [QUOTE %.CHEM%],' ',[QUOTE %.FIRST.DATE%],' -',[QUOTE %.LAST.DATE%]
PRI ' '
PRI [QUOTE [UNQUOTE %.TITLE.TWO%]]
PRI ' '
PRI 'NOTE: Beware of the acreage sums. A figure of 40 acres could'
PRI ' represent, for example, a 10 acre field that received'
PRI ' four applications or it could represent one 40 acre field'
PRI ' that received one application.'
PRI ' '
PRI ' '
PRI ' PLS QUANT ACRES FREQUENCY '
PRI ' ',PLS,' ',QUANT,' ',ACRES,' ',FREQUENCY
Q STOP
&END /* &DATA
COMO -END

```

```
&TYPE **  
&TYPE **  
&TYPE ***** File name for spooling:    COUNT.%.CHEM%    *****  
&TYPE **  
&RETURN
```

```

/*-----
/* Command name: RATE.DISPL.AML
/* Language: AML AT ARC
/* ::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::
/* Purpose: Displays on the screen the locations where the application
/*          rate met or exceeded the rate chosen.
/* ::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::
/* Called by programs:
/*          RATE.AML
/* ::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::
/* Arguments:
/*          Variable name      Definition
/*          -----
/*          .CHEM              Chemical name from CHEM.AP file.
/*          .FIRST.DATE        Earliest date of selected time period.
/*          .LAST.DATE         Last date of selected time period.
/* ::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::
/* History:
/*          Author/Site,      Date,      Event
/*          -----
/*          Karen Schurr      1/30/90      Original coding
/*          USGS, WRD
/*          Tacoma, WA
/*-----
/*
COMO COMO.RATE.DISPL
&DATA ARC INFO
REMARKS
REMARKS              A program is used here because, when run, it
REMARKS              does not display the background commands.
&IF [EXISTS PROG.NEW -INFO] &THEN &DO
    ERASE PROG.NEW
Y
&END
PROG PROG.NEW
    SEL %.CHEM%.COUNT
    DIS =
    DISP ' '
    DIS ' Chemical: ',[QUOTE %.CHEM%]
    DIS ' '
    DIS ' Time period: ',[QUOTE %.FIRST.DATE%],' to ',[QUOTE %.LAST.DATE%]
    DIS ' '
    DISP ' Areas where rate of ',[QUOTE %.RATE%],' was met or exceeded:'
    DISP ' '
    DISP ' ', PLS
    DISP ' '
    DIS '-----'
    DIS ' '
    DIS ' *** File name for spooling: COUNT.',[QUOTE %.CHEM%]
PROG END

COMP PROG.NEW
RUN PROG.NEW
Q STOP
&END
&RETURN

```

```

/*-----
/*  Command name: RSP.BATCH.AML
/*  Language: AML AT ARC
/*  ::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::
/*
/*  Purpose:  This program asks the user whether the program should be
/*             run in batch mode.
/*  ::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::
/*  Called by programs:
/*    MULTIPLT.AML
/*
/*  ::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::
/*  Arguments:
/*    Variable name                      Definition
/*    -----
/*    .QUERY.BATCH                      Answer to batch query.
/*  ::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::
/*  History:
/*    Author/Site,          Date,          Event
/*    -----
/*    Karen Schurr          4/19/90          Original coding
/*    USGS, WRD
/*    Tacoma, WA
/*-----
/*
&TYPE
&S .QUERY.BATCH = [RESPONSE 'Run program in batch mode?      ']
/*
&RETURN

```

```

/*-----
/* Command name: RSP.CHEM.AML
/* Language: AML AT ARC
/* ::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::
/*
/* Purpose: This program prompts the user for a chemical name.
/*
/* ::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::
/* Called by programs:
/*
/* SUM.AML
/* SUMPLT.AML
/* RATE.AML
/* RATEPLT.AML
/* ::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::
/* Arguments:
/* Variable name Definition
/* -----
/* .CHEM INGRED from CHEM.AP file.
/* ::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::
/* History:
/* Author/Site, Date, Event
/* -----
/* Karen Schurr 10-26-89 Original coding
/* USGS, WRD
/* Tacoma, WA
/*-----
/* SUBROUTINES required in this directory:
/*
/* DISP.CHEM.AML
/*
/* HELP available:
/*
/* A response of '?' will bring up a list of ingredient names.
/* The list of chemical names appears in the DISP.CHEM.AML
/* file and should be updated as new chemicals are added.
/*
&ARGS .CHEM
&TYPE
&TYPE =====
&TYPE
&TYPE -----
&TYPE ? = Help (Displays list of
&TYPE active ingredient names)
&TYPE Q = Quit
&TYPE -----
&TYPE
&TYPE
&TYPE
&S .CHEM = [TRANSLATE [RESPONSE 'Please enter an ingredient name (all CAPS)~
']]
&TYPE
&TYPE
&TYPE
&SELECT [UNQUOTE %.CHEM%]
&WHEN ?

```

```
&DO
  &R DISP.CHEM.AML
  &R RSP.CHEM.AML
&END                               /* &DO
&WHEN Q
  &STOP
&END
/*
&RETURN
```

```

/*-----
/* Command name: RSP.DATE.AML
/* Language: AML AT ARC
/* ::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::
/*
/* Purpose: This program prompts the user for the time period.
/*
/* ::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::
/* Called by programs:
/* ALL.AML
/* ALLPLT.AML
/* MULTI.AML
/* MULTIPLT.AML
/* RATE.AML
/* RATEPLT.AML
/* SUM.AML
/* SUMPLT.AML
/* ::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::
/* Arguments:
/* Variable name Definition
/* -----
/* .FIRST.DATE Earliest date of time period.
/* .LAST.DATE Last date of time period.
/* .DFLT.FIRST Default for first date.
/* .DFLT.LAST Default for last date.
/* ::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::
/* History:
/* Author/Site, Date, Event
/* -----
/* Karen Schurr 10-26-89 Original coding
/* USGS, WRD
/* Tacoma, WA
/* -----
/* SUBROUTINES required in this directory:
/*
/* SETVAR.AML
/*
/* The date following the prompt is optional and
/* may be removed. It serves as the default if
/* the user does not enter another date and uses
/* a carriage return to continue. The default
/* date is declared in the SETVAR.AML and may
/* be changed there.
/*
/*
/*
&TYPE
&TYPE =====
&TYPE
&TYPE -----
&TYPE (Date format: M/D/YY)
&TYPE
&TYPE Q = Quit
&TYPE -----
&TYPE
&TYPE
&TYPE Enter beginning date of time period desired.

```

```

/*
/*                               Set default dates.
/*
&R SETVAR.AML
/*
&S .FIRST.DATE = [RESPONSE [QUOTE [UNQUOTE '          ']( <CR> = ~
[UNQUOTE %.DFLT.FIRST% ])] %.DFLT.FIRST%]
&TYPE
&TYPE Final date of time period desired
/*
&S .LAST.DATE = [RESPONSE [QUOTE [UNQUOTE '          ']( <CR> = ~
[UNQUOTE %.DFLT.LAST% ])] %.DFLT.LAST%]
&TYPE
/*
&RETURN

```

```

/*-----
/*  Command name: RSP.FILE.AML
/*  Language: AML AT ARC
/*  ::::::::::::::::::::::::::::::::::::::::::::::::::::
/*
/*  Purpose:  This program prompts the user for the file name.
/*
/*  ::::::::::::::::::::::::::::::::::::::::::::::::::::::
/*  Called by programs:
/*      PERSON.AML
/*      PERSONPLT.AML
/*  ::::::::::::::::::::::::::::::::::::::::::::::::::::::
/*  Arguments:
/*      Variable name          Definition
/*      -----
/*      .FILE.NAME            INFO data file.
/*
/*  ::::::::::::::::::::::::::::::::::::::::::::::::::::::
/*  History:
/*      Author/Site,          Date,          Event
/*      -----
/*      Karen Schurr          2-26-91        Original coding
/*      USGS, WRD
/*      Tacoma, WA
/*-----
/*
&TYPE
&TYPE
&TYPE
&S .FILE.NAME = [RESPONSE 'Enter file name']
&TYPE
&TYPE
&TYPE
/*
&RETURN
/*
&RETURN

```

```

/*-----
/* Command name: RSP.LOGIC.AML
/* Language: AML AT ARC
/* ::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::
/*
/* Purpose: This program asks the user what criteria to consider in
/* selecting data and asks the user to enter a title to be used in
/* the output file and on the plot.
/*
/* ::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::
/* Called by programs:
/* LOAD.AML
/* LOADPLT.AML
/* PERSON.AML
/* PERSONPLT.AML
/*
/* ::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::
/* Arguments:
/* Variable name      Definition
/* -----
/* .LOGICAL.EXP
/* .TITLE.TWO
/*
/* ::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::
/* History:
/* Author/Site,      Date,      Event
/* -----
/* Karen Schurr      2/26/89      Original coding
/* USGS, WRD
/* Tacoma, WA
/* -----
/*
&TYPE
&TYPE
&TYPE
&TYPE =====
&TYPE -----
&TYPE Q = quit
&TYPE ? = help
&TYPE -----
&TYPE Enter logical expression, including quotes around character data.
&TYPE (ex: WIND.DIR.1 CN '''N''')
&TYPE
&S .LOGICAL.EXP = [RESPONSE ' ']
&IF %.LOGICAL.EXP% = Q OR %.LOGICAL.EXP% = q &THEN
&STOP
&IF %.LOGICAL.EXP% = ? &THEN &DO
&R CHOOSE.FILE.AML
&R RSP.LOGIC.AML
&END /* &DO
/*
&RETURN

```

```

/*-----
/* Command name: RSP.LUT.AML
/* Language: AML AT ARC
/* ::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::
/*
/* Purpose: This program asks whether the look-up table should be
/* automatically created.
/*
/* ::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::
/* Called by programs:
/* LOAD.AML
/* LOADPLT.AML
/* PERSON.AML
/* PERSONPLT.AML
/*
/* ::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::
/* Arguments:
/* Variable name Definition
/* -----
/* .LUT.LGD Legend/look-up table reply.
/*
/* ::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::
/* History:
/* Author/Site, Date, Event
/* -----
/* Karen Schurr 2/26/89 Original coding
/* USGS, WRD
/* Tacoma, WA
/*-----
/*
&TYPE =====
&TYPE -----
&TYPE Q = quit
&TYPE -----
/*
/* Ask user if they want a look-up table and legend
/* created automatically for the plot.
/*
&TYPE Automatically create look-up
&S .LUT.LGD = [TRANSLATE [QUERY ' table and legends? ~
(Y/N) ']]
/*
/* If the user enters 'q' or 'Q', stop the program.
/*
&SELECT [UNQUOTE %.LUT.LGD%]
&WHEN .TRUE.
&S .LUT.LGD = Y
&RETURN
&OTHERWISE
&STOP
&END
/*
&RETURN

```

```

/*-----
/*  Command name: RSP.PLOT.AML
/*  Language: AML AT ARC
/*  ::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::
/*
/*  Purpose:  This program prompts the user for output option.  Options
/*             are either data file only, or a plot file in addition to
/*             a data file.
/*  ::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::
/*  Called by programs:
/*    PDS.AML
/*  ::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::
/*  Arguments:
/*    Variable name          Definition
/*    -----
/*    .OPTION                File or plot option.
/*  ::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::
/*  History:
/*    Author/Site,          Date,          Event
/*    -----
/*    Karen Schurr          2-6-91          Original coding
/*    USGS, WRD
/*    Tacoma, WA
/*-----
/*
&TYPE
&TYPE
&TYPE
&TYPE
&TYPE =====
&TYPE
&TYPE  Output options:
&TYPE
&TYPE    1. Output data file
&TYPE    2. Plot file and output data file
&TYPE
&TYPE    Q. Quit
&TYPE
&TYPE
&TYPE
/*
&S .OPTION = [RESPONSE 'Please select an option.']
&SELECT [UNQUOTE %.OPTION%]
/*
&WHEN 1
  &DO
    &S .PROG.SUFFIX = .AML
    &GOTO EARTH
&END
&WHEN 2
  &DO
    &S .PROG.SUFFIX = PLT.AML
    &GOTO EARTH
&END
&OTHERWISE
  &STOP

```

```
&END
/*
&LABEL EARTH
/*
/*      Run program for retrieval
/*
&R %.PROG.NAME%%.PROG.SUFFIX%
/*
&TYPE
/*
&RETURN
```

```

/*-----
/*  Command name: RSP.RATE.AML
/*  Language:  AML AT ARC
/*  ::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::
/*
/*  Purpose:  This program prompts the user for the application rate.
/*
/*  ::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::
/*  Called by programs:
/*    RATE.AML
/*    RATEPLT.AML
/*  ::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::
/*  Arguments:
/*    Variable name          Definition
/*    -----
/*    .RATE                  Application rate.
/*  ::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::
/*  History:
/*    Author/Site,          Date,          Event
/*    -----
/*    Karen Schurr          11-17-89      Original coding
/*    USGS, WRD
/*    Tacoma, WA
/*-----
/*
&TYPE
&TYPE Enter the lowest application rate
&TYPE to list and/or plot.
&TYPE (The rate asked for is the application
&TYPE rate (LB/ACRE) in the CHEM.AP file
&S .RATE = [RESPONSE '
&TYPE
/*

&RETURN

```

```

/*-----
/* Command name: RSP.SHEET.AML
/* Language: AML AT ARC
/* ::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::
/*
/* Purpose: This program prompts the user for the sheet numbers.
/*
/* ::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::
/* Called by programs:
/* SHEET.AML
/* SHEETPLT.AML
/* ::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::
/* Arguments:
/* Variable name      Definition
/* -----
/* .FIRST.SHEET      First number of selected block of sheet numbers.
/* .LAST.SHEET       Last number of selected block of sheet numbers.
/* ::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::
/* History:
/* Author/Site,      Date,      Event
/* -----
/* Karen Schurr      10-26-89    Original coding
/* USGS, WRD
/* Tacoma, WA
/*-----
/*
&TYPE
&TYPE =====
&TYPE
&TYPE
&S .FIRST.SHEET = [RESPONSE 'Enter first sheet number desired      ']
&S .LAST.SHEET =  [RESPONSE 'Final sheet number desired          ']
&TYPE
&TYPE
&TYPE
/*
&RETURN

```

.

```

/*-----
/*  Command name: RSP.SUBTITLE.AML
/*  Language: AML AT ARC
/*  ::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::
/*
/*  Purpose:  This program prompts the user for the title text for
/*            the output file and for the plot.
/*
/*  ::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::
/*  Called by programs:
/*    LOAD.AML
/*    LOADPLT.AML
/*    PERSON.AML
/*    PERSONPLT.AML
/*
/*  ::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::
/*  Arguments:
/*    Variable name      Definition
/*    -----
/*    .TITLE.TWO
/*
/*  ::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::
/*  History:
/*    Author/Site,      Date,      Event
/*    -----
/*    Karen Schurr      2/26/89      Original coding
/*    USGS, WRD
/*    Tacoma, WA
/*-----
/*
&TYPE =====
&TYPE -----
&TYPE Q = quit
&TYPE -----
&TYPE
&TYPE Enter subtitle (for output file and plot (if applicable).
&TYPE (include essentials of logical expression)
&TYPE
&S .TITLE.TWO = [RESPONSE ' ']
&IF %.TITLE.TWO% = Q OR %.TITLE.TWO% = q &THEN &DO
  &STOP
  &RETURN
&END /* &DO data block
/*
&RETURN

```

```

/*-----
/* Command name: SET.DIR.AML
/* Language: AML AT ARC
/* ::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::
/* Purpose: Sets the pathname for the data base directory.
/* ::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::
/* Called by programs:
/* ALL.AML
/* ALLPLT.AML
/* LOAD.AML
/* LOADPLT.AML
/* MULTI.AML
/* MULTIPLT.AML
/* PERSON.AML
/* PERSONPLT.AML
/* RATE.AML
/* RATEPLT.AML
/* SHEET.AML
/* SHEETPLT.AML
/* SUM.AML
/* SUMPLT.AML
/* ::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::
/* Arguments:
/* Variable name          Definition
/* -----
/* .AT.POINT              Full pathname to directory.
/* ::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::
/* History:
/* Author/Site,           Date,           Event
/* -----
/* Karen Schurr           10-26-89        Original coding
/*   USGS, WRD
/*   Tacoma, WA
/* -----
/*
/*           Sets pathname for data base directory to
/*           that of the directory from which the
/*           program is run. The ARC/INFO directory
/*           must be a subdirectory, one level down,
/*           from the program directory.
/*
&S .AT.POINT = [SHOW &WORKSPACE]
/*
&RETURN

```

```

/*-----
/* Command name: SET.DIR.COV.AML
/* Language: AML AT ARC
/* ::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::
/* Purpose: Sets the plotting directory variable name and the
/* coverage name variables for the section coverage and for the
/* quarter-quarter coverage.
/* ::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::
/* Called by programs:
/* ALLPLT.AML
/* LOADPLT.AML
/* MULTIPLT.AML
/* PERSONPLT.AML
/* RATEPLT.AML
/* SHEETPLT.AML
/* SUMPLT.AML
/* ::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::
/* Arguments:
/* Variable name          Definition
/* -----
/* .PLT.DIR               Plotting directory.
/* .SEC.COV               Section coverage.
/* .QQ.COV                Quarter-quarter coverage.
/* .PRJ                   Map projection (cover name suffix).
/* .MPUNITS               Map units (feet or meters).
/* .MPANGLE               Map angle.
/* .TERMINAL              Terminal model number.
/* .PLOTTER               Plotter number (ex: 4207).
/* ::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::
/* History:
/* Author/Site,          Date,          Event
/* -----
/* Karen Schurr          10-26-89       Original coding
/*   USGS, WRD
/*   Tacoma, WA
/* -----
/*
&S .PLT.DIR = GIS24-
&S .SEC.COV = STUDY.SEC
&S .QQ.COV = STUDY.QQ
&S .PRJ = UTM
&S .MPUNITS = METERS
&S .MPANGLE = 1
&S .TERMINAL = 4207
&S .PLOTTER = 1039
/*
/*           Notes for PJ.PEST>CHEM subdirectories
/*
/* 1:62,500 Plotting Directory
/*
/* GIS62-                /* Plotting directory
/* ELTOPIA.SEC           /* Section coverage prefix
/* ELTOPIA.QQ            /* Quarter-quarter coverage prefix
/* SPS                   /* Map projection and coverage
/*                       /* suffix
/* FEET                  /* Map units

```

```

/* 0                      /* Map angle
/*+++++++
/* 1:24,000 Plotting Directory
/*
/* GIS24-                  /* Plotting directory
/* STUDY.SEC               /* Section coverage prefix
/* STUDY.QQ               /* Quarter-quarter coverage prefix
/* UTM                     /* Map projection and coverage
/*                               suffix
/* METERS                  /* Map units
/* 1.85                    /* Map angle
/*=====
/* Any directory:
/*
/* 4207                    /* Tektronix terminal
/* 1039                    /* CalComp plotter
/*

```

```

/*-----
/* Command name: SETVAR.AML
/* Language: AML AT ARC
/* ::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::
/* Purpose: Sets default date variables for the first and last date.
/* ::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::
/* Called by programs:
/* ALLPLT.AML
/* MULTIPLT.AML
/* RATEPLT.AML
/* SUMPLT.AML
/* ::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::
/* Arguments:
/* Variable name          Definition
/* -----
/* .DFLT.FIRST            First default date
/* .DFLT.LAST              Last default date
/* ::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::
/* History:
/* Author/Site,           Date,           Event
/* -----
/* Karen Schurr           3/21/91         Original coding
/* USGS, WRD
/* Tacoma, WA
/*-----
/*
/*
/*##### TAILOR TO SYSTEM #####
/*
&S .DFLT.FIRST = 9/1/89
&S .DFLT.LAST = 8/31/90
/*
/*#####
&RETURN
/*

```

```

/*-----
/* Command name: WRITE.DRIVER.AML
/* Language: AML AT ARC
/* ::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::
/* Purpose: This program writes the legend to the plotting directory
/* and it generates two AML's. One of the AML's runs other AML's that
/* sum the data and prepare output data files for each chemical specified.
/* The other AML runs an AML that copies the _____.COUNT files and the
/* look-up tables to the plotting directory.
/*
/* ::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::
/* Called by programs:
/* MULTIPLT.PT.II.AML
/* ::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::
/* Arguments:
/* Variable name          Definition
/* -----
/* .CHEM                  Chemical name from CHEM.AP file.
/* .AT.POINT              Pathname to directory where AML and data base reside.
/* .PLT.DIR               Name of the plotting directory.
/* .FIRST.DATE            Earliest date of selected time period.
/* .LAST.DATE             Last date of selected time period.
/* ::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::
/* History:
/* Author/Site,          Date,          Event
/* -----
/* Karen Schurr          10-19-89       Original coding
/* USGS, WRD
/* Tacoma, WA
/* -----
/*
/*
/* ##### System specific commands #####
/*
COMO COMO.WRITE.DRIVER
/*
/* #####
&ARGS .AT.POINT .FIRST.DATE .LAST.DATE
/*
/* ----- Make INFO NAME.STORE file for -----
/* ingredients and symbols
/*
&DATA ARC INFO
REMARKS
REMARKS                                     Erase any old copy of file.
REMARKS
      &IF [EXISTS NAME.STORE -INFO] &THEN &DO
        SEL NAME.STORE
        ERASE NAME.STORE
Y
      &END                                     /* &DO
REMARKS
REMARKS                                     Define new file template.
      DEFINE NAME.STORE
SYMBOL,3,3,I
INGRED,15,15,C

```

```

SEL NAME.STORE
  GET %.AT.POINT%>INGRED.SYMB COPY      /* Load file with ASCII file
REMARKS                                containing list of ingredients
REMARKS                                and symbols.
REMARKS
REMARKS
REMARKS ----- Write the legend -----
REMARKS
&IF [EXISTS PROG.NEW -INFO] &THEN &DO
  ERASE PROG.NEW
Y
&END                                /* &DO
REMARKS
REMARKS
PROG PROG.NEW
  SEL NAME.STORE
  OUTPUT %.AT.POINT%>%.PLT.DIR%>LEGEND.MULTI INIT
PROG EVEN
  DIS 1T, '.',SYMBOL PRINT
  DIS 1T, ' 'PRINT
  DIS 1T,INGRED PRINT
PROG ODD
REMARKS
PROG END

COMP PROG.NEW
RUN PROG.NEW

REMARKS
REMARKS ----- Create WRITE.DRIVER.AML -----
REMARKS
REMARKS
REMARKS                                Erase old program if it exists.
REMARKS
  &IF [EXISTS PROG.NEW -INFO] &THEN &DO
    ERASE PROG.NEW
Y
  &END                                /* &DO
REMARKS
REMARKS                                Create program to write
REMARKS                                a driver AML program.
REMARKS
PROG PROG.NEW
  SEL NAME.STORE
  OUTPUT %.AT.POINT%>DRIVER.AML INIT
  PRI '/*'
  PRI '/*                                DRIVER.AML'
  PRI '/*'
  PRI '/* This AML is written by WRITE.DRIVER.AML. It may be deleted'
  PRI '/* after it has been run. It is replaced by a new version each'
  PRI '/* time WRITE.DRIVER.AML is written.'
  PRI '/*'
  PRI '&ARGS .FIRST.DATE .LAST.DATE'
PROG 2
  PRI '&S .CHEM ',INGRED

```



```

/*-----
/* Command name: WRITE.DR.MULTI.AML
/* Language: AML AT ARC
/* ::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::
/* Purpose:
/*   This program writes an AML that prepares the output files for
/*   multiple chemicals.
/*
/* ::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::
/* Called by programs:
/*   MULTI.AML
/* ::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::
/* Arguments:
/*   Variable name      Definition
/*   -----
/*   .CHEM              Chemical name from CHEM.AP file.
/*   .AT.POINT          Pathname to directory where AML and data base reside.
/*   .FIRST.DATE        Earliest date of selected time period.
/*   .LAST.DATE         Last date of selected time period.
/* ::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::
/* History:
/*   Author/Site,      Date,      Event
/*   -----
/*   Karen Schurr      10-19-89    Original coding
/*   USGS, WRD
/*   Tacoma, WA
/*-----
/*
/*
/* ##### System specific commands #####
/*
COMO COMO.WRITE.DR.MULTI
/*
/* #####
&ARGS .AT.POINT .FIRST.DATE .LAST.DATE
/*
/*
/*                               Define the file NAME.STORE
/*                               to hold the chemicals and
/*                               symbols from the ASCII file
/*                               INGRED.SYMB.
&DATA ARC INFO
  &IF [EXISTS NAME.STORE -INFO] &THEN &DO
    SEL NAME.STORE
    ERASE NAME.STORE
Y
  &END                               /* &DO
  DEFINE NAME.STORE
SYMBOL,3,3,I
INGRED,15,15,C

SEL NAME.STORE
  GET %.AT.POINT%>INGRED.SYMB COPY    /* Flat file containing list
REMARKS                               of ingredients and symbols.
REMARKS
REMARKS                               Erase old program if it exists.

```

```

REMARKS
  &IF [EXISTS PROG.NEW -INFO] &THEN &DO
    ERASE PROG.NEW
Y
  &END                                /* &DO
REMARKS
REMARKS                                Create program to write
REMARKS                                a driver AML program.
REMARKS
OUTPUT [UNQUOTE %.AT.POINT%]>DRIVER.AML INIT
  SEL NAME.STORE
  PRI '/*'
  PRI '/*                                DRIVER.AML'
  PRI '/*'
  PRI '/* This AML is written by WRITE.DR.MULTI.AML.  It may be deleted'
  PRI '/* after it has been run.  It is replaced by a new version each'
  PRI '/* time WRITE.DR.MULTI.AML is run.'
  PRI '/*'
PROG PROG.NEW
PROG 2
  PRI '&S .CHEM ',INGRED
  PRI '&R CALC.SUM.AML ',INGRED,' ',[QUOTE %.FIRST.DATE%],' ',[QUOTE~
    %.LAST.DATE%]
  PRI '&R OUTPT.AML ',INGRED,' ',[QUOTE %.AT.POINT%]
PROG 3
PROG END

COMP PROG.NEW
RUN PROG.NEW
  PRI '&RETURN'
REMARK
Q STOP
&END                                /* &DATA
&RETURN
##### TAILOR TO SYSTEM #####
COMO -END
#####

```

APPENDIX H - GIS24 SUBROUTINES

```

/*-----
/* Command name: CREATE.REL.AML
/* Language: AML AT ARC
/* ::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::
/* Purpose: Creates the relate table needed to plot the values
/* from the _____.COUNT file.
/* ::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::
/* Called by programs:
/* PLT2.AML
/* PLT.MULTI.AML
/* ::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::
/* Variable name      Definition
/* -----
/*
/*      .CHEM      User-selected ingredient name from CHEM.AP file.
/*
/* ::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::
/* History:
/*      Author/Site,      Date,      Event
/*      -----
/*      Karen Schurr      11-15-89      Original coding
/*      USGS, WRD
/*      Tacoma, WA
/* -----
/*
/*
&ARGS .CHEM
RELATE ADD
%.CHEM%.REL
%.CHEM%.COUNT
INFO
PLS
PLS
ORDERED
[UNQUOTE ' ']
&RETURN

```

```

/*-----
/* Command name: DRIVER2.AML
/* Language: AML AT ARC
/* ::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::
/* Purpose: Runs the PLT2.AML, with all the arguments. The data for
/* running the PLT2.AML must already exist (after a retrieval
/* and before the essential files have been overwritten by another
/* retrieval).
/*
/* ::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::
/* Arguments:
/* Variable name      Definition
/* -----
/* none
/* ::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::
/* History:
/* Author/Site,      Date,      Event
/* -----
/* Karen Schurr      3/14/91      Original coding
/*      USGS, WRD
/*      Tacoma, WA
/*-----
/*
COMO COMO.DRIVER2
/*
&R SETVAR.AML          /* Set pathnames.
/*
&R PLT2 ALL 9/1/89 8/31/90 STUDY.SEC STUDY.QQ 1039 4207 UTM METERS 1.85
COMO -END

```

```

/*-----
/* Command name: DRIVER3.AML
/* Language: AML AT ARC
/* ::::::::::::::::::::::::::::::::::::::::::::::::::::
/* Purpose: Runs the PLT3.AML, with all the arguments. The data for
/* running the PLT3.AML must already exist (after a retrieval
/* and before the essential files have been overwritten by another
/* retrieval).
/*
/* ::::::::::::::::::::::::::::::::::::::::::::::::::::::
/* Arguments:
/* Variable name      Definition
/* -----
/* none
/* ::::::::::::::::::::::::::::::::::::::::::::::::::::::
/* History:
/* Author/Site,      Date,      Event
/* -----
/* Karen Schurr      3/14/91      Original coding
/* USGS, WRD
/* Tacoma, WA
/*-----
/*
COMO COMO.DRIVER3
/*
&R SETVAR.AML          /* Set directory pathnames.
/*
&R PLT3 DIURON 9/1/89 8/31/90 STUDY.SEC STUDY.QQ 1039 4207 SPS FEET 0 ~
'Wind - North'
/*
COMO -END

```

```

/*-----
/* Command name: DRIVER82.AML
/* Language: AML AT ARC
/* ::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::
/* Purpose:  Runs the PLT82.AML, with all the arguments.  The PLT82.AML
/* creates an 8 1/2 x 11 inch plot.  The data for running the
/* PLT2.AML must already exist (after a retrieval and
/* before the essential files have been overwritten by another
/* retrieval).
/*
/* ::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::
/* Arguments:
/*   Variable name      Definition
/*   -----
/*   none
/* ::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::
/* History:
/*   Author/Site,      Date,      Event
/*   -----
/*   Karen Schurr      3/14/91      Original coding
/*   USGS, WRD
/*   Tacoma, WA
/*-----
/*
COMO COMO.DRIVER82
/*
&R SETVAR.AML      /* Sets directory pathnames.
/*
&R PLT82 DISULFOTON 9/1/89 8/31/90 STUDY.SEC STUDY.QQ 1039 4207 UTM METERS~
1.85
COMO -END

```

```

/*-----
/* Command name: DRIVER83.AML
/* Language: AML AT ARC
/* ::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::
/* Purpose: Runs the PLT83.AML, with all the arguments. The PLT83.AML
/* creates an 8 1/2 x 11 inch plot. The data for running the
/* PLT3.AML must already exist (after a retrieval and
/* before the essential files have been overwritten by another
/* retrieval).
/*
/* ::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::
/* Arguments:
/* Variable name      Definition
/* -----
/* none
/* ::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::
/* History:
/* Author/Site,      Date,      Event
/* -----
/* Karen Schurr      3/14/91      Original coding
/* USGS, WRD
/* Tacoma, WA
/*-----
/*
COMO COMO.DRIVER83
/*
/*
&R SETVAR.AML      /* Sets directory pathnames.
/*
&R PLT83 DIMETHOATE 9/1/89 8/31/90 STUDY.SEC STUDY.QQ 1039 4207 UTM METERS~
1.85 'Wind Direction - North'
COMO -END

```

```

/*-----
/* Command name: DRIVER84.AML
/* Language: AML AT ARC
/* ::::::::::::::::::::::::::::::::::::::::::::::::::::
/* Purpose: Generates and runs the PLT84.AML, with all the arguments.
/* The data for running the PLT84.AML must already exist (after
/* a MULTIPLT.AML retrieval and before the essential files have been
/* overwritten by another retrieval).
/*
/*: ::::::::::::::::::::::::::::::::::::::::::::::::::::::
/* Arguments:
/* Variable name      Definition
/* -----
/* none
/*: ::::::::::::::::::::::::::::::::::::::::::::::::::::::
/* History:
/* Author/Site,      Date,      Event
/* -----
/* Karen Schurr      3/14/91      Original coding
/* USGS, WRD
/* Tacoma, WA
/*-----
/*
COMO COMO.DRIVER84
/*
&R SETVAR.AML      /* Sets directory pathnames.
/*
&R WRITE.PLT84.AML 9/1/89 8/31/90 'N' STUDY.SEC STUDY.QQ 1039 4207~
UTM METERS 1.85
/*
&R PLT84.AML 9/1/89 8/31/90 'N' STUDY.SEC STUDY.QQ 1039 4207 UTM METERS 1.85
COMO -END

```

```

/*-----
/* Command name: DRIVERMLT.AML
/* Language: AML AT ARC
/* ::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::
/* Purpose: Runs the PLT.MULTI.AML, with all the arguments. The data for
/* running the PLT.MULTI.AML must already exist (after a retrieval
/* and before the essential files have been overwritten by another
/* retrieval).
/*
/* ::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::
/* Arguments:
/* Variable name      Definition
/* -----
/* none
/* ::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::
/* History:
/* Author/Site,      Date,      Event
/* -----
/* Karen Schurr      3/14/91      Original coding
/* USGS, WRD
/* Tacoma, WA
/*-----
/*
COMO COMO.DRIVERMLT
/*
&R SETVAR.AML      /* Sets directory pathnames.
/*
&R PLT.MULTI.AML 1/1/89 12/31/89 N STUDY.SEC STUDY.QQ 1039 ~
4207 UTM METERS 1.8
COMO -END

```

```

/*:.....:
/*  DRIVER.TRANS.AML
/*:.....:
/*  Called by programs:
/*      MULTIPLT.AML
/*:.....:
/*  Generated by the WRITE.DRIVER.AML
/*
/*:.....:
&S .CHEM DIMETHOATE
&R TRANS.BOTH.AML DIMETHOATE
&S .CHEM DISULFOTON
&R TRANS.BOTH.AML DISULFOTON
&S .CHEM GLYPHOSATE.ACID
&R TRANS.BOTH.AML GLYPHOSATE.ACID
&RETURN

```

```

/*-----
/* Command name: FILETOCOV.AML
/* Language: AML AT ARC
/* ::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::
/* Purpose: Creates a coverage from the pesticide output data file.
/*
/*::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::
/* Arguments:
/* Variable name          Definition
/* -----
/* .CHEM                  INGRED, 15,15,C.
/* .NEW.COV               Pesticide coverage.
/* .RSP                   Query to user.
/*::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::
/* History:
/* Author/Site,          Date,          Event
/* -----
/* Karen Schurr          3/13/91        Original coding
/*   USGS, WRD
/*   Tacoma, WA
/*-----
/*
/*##### TAILOR TO SYSTEM #####
COMO COMO.FILETOCOV
DATE
/*#####
  &ARGS .CHEM .NEWCOV
  &MESSAGES &ON
/*
&IF [NULL %.CHEM%] &THEN ~
&RETURN &MESSAGE Usage: &R FILETOCOV.AML <file> <outcover>
&IF [NULL %.NEWCOV%] &THEN ~
&RETURN &MESSAGE Usage: &R FILETOCOV.AML <file> <outcover>
/*
&IF [EXISTS %.NEWCOV% -COVERAGE] &THEN &DO
  &TYPE [UNQUOTE %.NEWCOV%] already exists.
  &TYPE
  &S .RSP = [RESPONSE 'Do you wish to KILL the existing coverage?']
&END                                  /* &DO block
/*
&IF ^ [EXISTS %.NEWCOV% -COVERAGE] &THEN
  &GOTO SUBONE
/*
  &IF %.RSP% = Y or %.RSP% = y &THEN
    KILL %.NEWCOV%
  &IF %.RSP% = N OR %.RSP% = N &THEN &DO
    COMO -END
    &STOP
    &RETURN
  &END                                  /* &DO block
&LABEL SUBONE
/*                                  If coverage exists, kill it.
/*
&IF [EXISTS TEMPQQ -COVERAGE] &THEN
  KILL TEMPQQ
/*                                  Make a copy of the grid coverage.

```

```

/*
COPY STUDY.QQ.UTM TEMPQQ
/*
/*                               Add the item QUANT.N.
/*
ADDITEM TEMPQQ.PAT TEMPQQ.PAT QUANT.N 7 7 N 2
&DATA ARC INFO
SEL TEMPQQ.PAT
REDEFINE
37
QUANT,4,4,I

SEL %.CHEM%.COUNT
  RELATE TEMPQQ.PAT BY PLS
  CALC $NM = 1
  CALC $1QUANT = QUANT
Q STOP
Q
&END                               /* &DATA block
&DATA ARC
/*
/*                               /* Create new coverage from QQ's affected
/*                               by applications.
/*
RESELECT TEMPQQ %.NEWCOV% POLY
RESELECT QUANT NE 0

N
N
Q
&END                               /* Data block
&RETURN
/*##### TAILOR TO SYSTEM #####
COMO -END
/*#####
&ECHO &OFF
&MESSAGES &ON

```

```

/*-----
/*  Command name: NAMEPLT.AML
/*  Language: AML AT ARC
/*  ::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::
/*  Purpose:  Queries for new plot file name.
/*  ::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::
/*  Called by programs:
/*      PLT2.AML
/*      PLT3.AML
/*      PLT82.AML
/*      PLT83.AML
/*      PLT84.AML
/*      PLT.MULTI.AML
/*  ::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::
/*  Arguments:
/*      Variable name          Definition
/*      -----
/*      .PLT.NAME              Name of plot file.
/*      .NEW.NAME              New plot file name.
/*      .RESP                  Response to query.
/*  ::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::
/*  History:
/*      Author/Site,          Date,          Event
/*      -----
/*      Karen Schurr          4-10-92        Original coding
/*      USGS, WRD
/*      Tacoma, WA
/*-----
/*
/*  This AML queries the user for a new plot file name.  The
/*  plot file is renamed to save it from future overwrites.
/*
&TYPE
&TYPE =====
&TYPE
/*
/*
/*
/*      Query for new plot file name.
/*
&S .RESP = .FALSE
&TYPE Present plot file:  [UNQUOTE %.PLT.NAME%]
&TYPE ' '
&S .NEW.NAME = [TRANSLATE [RESPONSE [QUOTE New name]]]
&TYPE ' '
/*
/*  If file name exists, query for change.
/*
&IF [EXISTS %.NEW.NAME% -FILE] &THEN &DO
&TYPE ' '
&TYPE [UNQUOTE %.NEW.NAME% already exists.]
&S .RESP = [QUERY 'Do you want to try again' .TRUE.]
&IF %.RESP% = .TRUE. &THEN &DO
/*
/*      Query for name again.
/*

```

```

&TYPE ' '
&S .NEW.NAME = [TRANSLATE [RESPONSE [QUOTE New name]]]
&TYPE ' '
&IF [EXISTS %.NEW.NAME% -FILE] &THEN &DO
&TYPE ' '
&TYPE [UNQUOTE %.NEW.NAME% already exists.]
&END
&END
&END
&RETURN
&END
/*
&IF %.RESP% = .FALSE &THEN &DO
&STOP
&END
&RETURN
/*
&TYPE Changing [UNQUOTE %.PLT.NAME%] to [UNQUOTE %.NEW.NAME%]
/*#####
/*
CN %.PLT.NAME% %.NEW.NAME%
/*
/*#####
/*
&RETURN

```

```

/*-----
/*  Command name: PLT2.AML
/*  Language: AML AT ARC
/*  ::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::
/*  Purpose:  Plots areas where chemicals have been applied.
/*
/*  ::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::
/*  Called by programs:
/*      ALLPLT.AML
/*      RATEPLT.AML
/*      SUMPLT.AML
/*  ::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::
/*  Arguments:
/*      Variable name          Definition
/*      -----
/*      .ANSW                  Answer to query.
/*      .CHEM                  INGRED, 15,15,C.
/*      .FIRST.DATE            M/DD/YY.
/*      .LAST.DATE             M/DD/YY.
/*      .SEC.COV               Section coverage (ARC).
/*      .QQ.COV                Quarter-quarter coverage (ARC).
/*      .PLT.NAME              Plot file name.
/*      .PLOTTER               Number for plotter.
/*      .TERMINAL              Number for graphics terminal.
/*      .PRJ                   Map projection (ex: UTM or SP).
/*      .MPUNITS               Map units (meters or feet).
/*      .MPANGLE               Map angle (0 for SP; 1.85 for UTM).
/*  ::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::
/*  History:
/*      Author/Site,          Date,          Event
/*      -----
/*      Karen Schurr         10-26-89        Original coding
/*      USGS, WRD
/*      Tacoma, WA
/*-----
/*
/* ##### System specific commands #####
/*
COMO COMO.PLT2
/* #####
/*
    &ARGS .CHEM .FIRST.DATE .LAST.DATE .SEC.COV .QQ.COV .PLOTTER .TERMINAL ~
    .PRJ .MPUNITS .MPANGLE
    &MESSAGES &ON
/*
    ARCPLOT
    DISPLAY %.PLOTTER%
&TYPE
&TYPE (** Please ignore the prompt to enter a file name.
&TYPE     The plot file name is being automatically entered.
&TYPE
&TYPE Please be patient.  The plot file is being created and
&TYPE     and will be displayed on the screen.
&TYPE
&TYPE NOTE:  The plot file will be named #2.[UNQUOTE %.CHEM%].
&TYPE     It may be overwritten by future program.

```

```

&TYPE          runs.  After viewing, the plot file should be
&TYPE          renamed to preserve it.
&TYPE
    #2.%.CHEM%
    LINESET PLOTTER.LIN
    MAPEXTENT %.QQ.COV%.%.PRJ%
    PAGESIZE 24 34
    MAPLIMITS 0 1 21 31
    MAPPOSITION CEN CEN
    MAPUNITS %.MPUNITS%
    MAPANGLE %.MPANGLE%
/*
    LINESYMBOL 1          /* BLACK BALLPOINT PEN - PEN 1
    BOX 0 0 24 33
/*
    MAPSCALE 24000
/*
    LINEC 8
    ARCS %.QQ.COV%.%.PRJ%
/*
/*
/*                                Create RELATE.
/*
    &R CREATE.REL.AML %.CHEM%
/*
    POLYGONSHADES %.QQ.COV%.%.PRJ% %.CHEM%.REL//QUANT %.CHEM%.LUT
/*
    TEXTC 1
    TEXTSIZE .08
    POLYGONTEXT %.SEC.COV%.%.PRJ% TRS
/*
    LINESYMB 9
    ARCS %.SEC.COV%.%.PRJ%
    TEXTC 1
    TEXTSIZE .06
    LABELTEXT %.QQ.COV%.%.PRJ% QUARTER.GIS
/*
/*
LINESYMBOL 1
    TEXTC 1
    TEXTSIZE .1
    KEYPOSITION 20 10.5
    KEYBOX .65 .65
    KEYSHADE LEGEND.%.CHEM%
TEXTSIZE .15
    MOVE 20 11
    TEXT 'Index'
/*
TEXTSIZE .4
    MOVE 3 31.5
    TEXT [QUOTE %.CHEM% APPLICATIONS - %.FIRST.DATE% - %.LAST.DATE%]
/*
MOVE 20 2
    TEXTSIZE .2
    TEXT 'Scale 1:24,000'
/*
    &R PLT2LOGO.AML

```

```

/*
Q
&TERMINAL %.TERMINAL%
/*
/* ##### System specific commands #####
DRAW #2.%.CHEM% %.TERMINAL%
/* #####
/*
/*          Set variable representing default plot file name.
/*
&S .PLT.NAME = #2.%.CHEM%
&S .ANSW = [QUERY 'Plotting menu' .TRUE.]
&IF %.ANSW% = .TRUE. &THEN &DO
Q
&R PLTMENU.AML
&END
&WORKSPACE %.AT.POINT%
&R DELUSE.AML
&WORKSPACE %.PLT.DIR%
&TTY
&RETURN
/* ##### System specific commands #####
COMO -END
/* #####
&MESSAGES &ON

```

```

/*-----
/* Command name: PLT2.LOGO.AML
/* Language: AML AT ARC
/* ::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::
/* Purpose: Plots USGS/Dept of Interior logo.
/*
/*::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::
/* Called by programs:
/*     ALLPLT.AML
/*     RATEPLT.AML
/*     SUMPLT.AML
/*::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::
/* Arguments:
/*     Variable name      Definition
/*     -----
/*     none
/*::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::
/* History:
/*     Author/Site,      Date,      Event
/*     -----
/*     Karen Schurr      3/14/91      Original coding
/*     USGS, WRD
/*     Tacoma, WA
/*-----
/*
MAPEXTENT %.AT.POINT%>%.PLT.DIR%>USGS.LOGO
MAPLIMITS 20 20 22 22
MAPPOSITION CEN CEN
MAPUNITS INCHES
MAPSCALE AUTOMATIC
  MAPANGLE 10
RESELECT %.AT.POINT%>%.PLT.DIR%>USGS.LOGO POLY SHADE = 2
  POLYGONSHADES %.AT.POINT%>%.PLT.DIR%>USGS.LOGO 2
  LINEC 2
  POLYS %.AT.POINT%>%.PLT.DIR%>USGS.LOGO
  CLEARSELECT
  MAPANGLE 25
RESELECT %.AT.POINT%>%.PLT.DIR%>USGS.LOGO POLY SHADE = 4
  POLYGONSHADES %.AT.POINT%>%.PLT.DIR%>USGS.LOGO 4
  LINEC 4
  POLYS %.AT.POINT%>%.PLT.DIR%>USGS.LOGO
  CLEARSELECT
  MAPANGLE 0
RESELECT %.AT.POINT%>%.PLT.DIR%>USGS.LOGO POLY SHADE = 8
  POLYGONSHADES %.AT.POINT%>%.PLT.DIR%>USGS.LOGO 104
  LINEC 104
  POLYS %.AT.POINT%>%.PLT.DIR%>USGS.LOGO
&RETURN

```

```

/*-----
/*  Command name: PLT3.AML
/*  Language: AML AT ARC
/*  ::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::
/*  Purpose: Plots areas where selected chemical has been applied.
/*  The plot will have a subtitle defining the specifics of the
/*  retrieval.
/*  ::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::
/*  Called by programs:
/*      LOADPLT.AML
/*      PERSONPLT.AML
/*  ::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::
/*  Arguments:
/*      Variable name          Definition
/*      -----
/*      .CHEM                  INGRED, 15,15,C.
/*      .FIRST.DATE            M/DD/YY.
/*      .LAST.DATE             M/DD/YY.
/*      .SEC.COV               Section coverage (ARC).
/*      .QQ.COV                Quarter-quarter coverage (ARC).
/*      .PLOTTER               Number for plotter.
/*      .TERMINAL              Number for graphics terminal.
/*      .TITLE.TWO             Second title.
/*      .PRJ                   Map projection suffix for cover name.
/*      .MPUNITS               Feet or meters.
/*      .MPANGLE               Map angle.
/*  ::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::
/*  History:
/*      Author/Site,          Date,          Event
/*      -----
/*      Karen Schurr          10-26-89        Original coding
/*      USGS, WRD
/*      Tacoma, WA
/*-----
/*
/* ##### System specific commands #####
/*
COMO COMO.PLT3
/* #####
/*
&ARGS .CHEM .FIRST.DATE .LAST.DATE .SEC.COV .QQ.COV .PLOTTER .TERMINAL ~
.PRJ .MPUNITS .MPANGLE .TITLE.TWO
&MESSAGES &ON
ARC PLOT
DISPLAY %.PLOTTER%
&TYPE
&TYPE (** Please ignore the prompt to enter a file name.
&TYPE The plot file name is being automatically entered.
&TYPE
&TYPE Please be patient. The plot file is being created and
&TYPE and will be displayed on the screen.
&TYPE
&TYPE NOTE: The plot file will be named #3.[UNQUOTE %.CHEM%].
&TYPE It may be overwritten by future program
&TYPE runs. After viewing, the plot file should be
&TYPE renamed to preserve it.

```

```

&TYPE
#3.%.CHEM%
TEXTSET PLOTTER.TXT
LINESET PLOTTER.LIN
MARKERSET PLOTTER.MRK
SHADESET PLOTTER.SHD
MAPEXTENT %.QQ.COV%.%.PRJ%
PAGESIZE 24 34
MAPLIMITS 0 1 21 31
MAPPOSITION CEN CEN
MAPUNITS %.MPUNITS%
MAPANGLE %.MPANGLE%
/*
  LINESYMBOL 1          /* BLACK BALLPOINT PEN - PEN 1
  BOX 0 0 24 33
/*
  MAPSCALE 24000
/*
  LINEC 8
  ARCS %.QQ.COV%.%.PRJ%
/*
/*                      Create RELATE.
/*
&R CREATE.REL.AML %.CHEM%
/*
  POLYGONSHADES %.QQ.COV%.%.PRJ% %.CHEM%.REL//QUANT %.CHEM%.LUT
/*
  TEXTC 1
  TEXTSIZE .08
  POLYGONTEXT %.SEC.COV%.%.PRJ% TRS
/*
  LINESYMB 9
    ARCS %.SEC.COV%.%.PRJ%
  TEXTC 1
  TEXTSIZE .06
  LABELTEXT %.QQ.COV%.%.PRJ% QUARTER.GIS
/*
/*
LINESYMBOL 1
TEXTC 1
TEXTSIZE .15
KEYPOSITION 20. 10.5
KEYBOX .65 .65
KEYSHADE LEGEND.%.CHEM%
TEXTSIZE .2
MOVE 20. 11
TEXT 'Index'
TEXTSIZE .4
MOVE 4 32
TEXT [QUOTE %.CHEM% - %.FIRST.DATE% - %.LAST.DATE%]
MOVE 4 31.3
TEXT [QUOTE [UNQUOTE %.TITLE.TWO%]]
MOVE 20 2
TEXTSIZE .2
TEXT 'Scale 1:24,000'
/*

```

```

&R PLT2LOGO.AML
/*
Q
/*
/* ##### System specific commands #####
/*
DRAW #3.%.CHEM% %.TERMINAL%
/* #####
/*
&S .PLT.NAME = #3.%.CHEM%
&S .ANSW = [QUERY 'Plotting menu' .TRUE.]
&IF %.ANSW% = .TRUE. &THEN &DO
Q
&R PLTMENU.AML
&END
&TTY
/*
/* Delete file which indicates system is in use.
/*
&WORKSPACE %.AT.POINT%
&R DELUSE.AML
&WORKSPACE %.PLT.DIR%
&RETURN
/* ##### System specific commands #####
COMO -END
/* #####
&MESSAGES &ON

```

```

/*-----
/* Command name: PLT82.AML
/* Language: AML AT ARC
/* ::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::
/* Purpose: Plots areas where selected chemical has been applied.
/* This program was adapted from PLT2.AML, to create 8 1/2 x 11 plots.
/* It is not called by the retrieval programs, but may be run if
/* the required files are already in the plotting directory. These
/* files would exist after a successful run of any program
/* that calls the PLT2.AML (SUMPLT.AML, ALLPLT.AML etc.).
/*::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::
/* Called by programs:
/* DRIVER82.AML
/*::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::
/* Arguments:
/* Variable name          Definition
/* -----
/* .CHEM                  INGRED, 15,15,C.
/* .FIRST.DATE            M/DD/YY.
/* .LAST.DATE             M/DD/YY.
/* .SEC.COV              Section coverage (ARC).
/* .QQ.COV               Quarter-quarter coverage (ARC).
/* .PLOTTER              Number for plotter.
/* .TERMINAL             Number for graphics terminal.
/* .PRJ                 Map projection (ex: UTM or SP).
/* .MPUNITS              Map units (meters or feet).
/* .MPANGLE              Map angle (0 for SP; 1.85 for UTM).
/*::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::
/* History:
/* Author/Site,          Date,          Event
/* -----
/* Karen Schurr          10-26-89      Original coding
/* USGS, WRD
/* Tacoma, WA
/*-----
/*
/* ##### System specific commands #####
/*
COMO COMO.PLT82
/* #####
/* &ARGS .CHEM .FIRST.DATE .LAST.DATE .SEC.COV .QQ.COV .PLOTTER .TERMINAL ~
/* .PRJ .MPUNITS .MPANGLE
/* &MESSAGES &ON
/*
/* ARC PLOT
/* DISPLAY %.PLOTTER%
&TYPE
&TYPE (** Please ignore the prompt to enter a file name.
&TYPE The plot file name is being automatically entered.
&TYPE
&TYPE Please be patient. The plot file is being created and
&TYPE and will be displayed on the screen.
&TYPE
&TYPE NOTE: The plot file will be named #82.[UNQUOTE %.CHEM%].
&TYPE It may be overwritten by future program
&TYPE runs. After viewing, the plot file should be

```

```

&TYPE          renamed to preserve it.
&TYPE
    #82.%.CHEM%
    TEXTSET PLOTTER.TXT
    LINESET PLOTTER.LIN
    MARKERSET PLOTTER.MRK
    SHADESET PLOTTER.SHD
    MAPEXTENT %.QQ.COV%.%.PRJ%
    PAGESIZE 8.5 11
/*
    MAPLIMITS 1.0 .75 7.5 9.5
    MAPPOSITION LL 1.0 1.0
    MAPSCALE AUTOMATIC
    MAPUNITS %.MFUNITS%
    MAPANGLE %.MPANGLE%
/*
    LINESYMBOL 1      /* BLACK BALLPOINT PEN - PEN 1
    BOX 1.0 1.25 7.5 10.25      /* Report margins
/*
/*
    LINEC 8
    ARCS %.QQ.COV%.%.PRJ%
/*
/*
/*
    Create RELATE.
/*
&R CREATE.REL.AML %.CHEM%
/*
    POLYGONSHADES %.QQ.COV%.%.PRJ% %.CHEM%.REL//QUANT %.CHEM%.LUT
/*
    TEXTC 1
    TEXTSIZE .08
    POLYGONTEXT %.SEC.COV%.%.PRJ% TRS
/*
    LINESYMB 5
        ARCS %.SEC.COV%.%.PRJ%
/*
/*
    TEXTC 1
/*
    TEXTSIZE .06
/*
    LABELTEXT %.QQ.COV%.%.PRJ% QUARTER.GIS
/*
/*
    LINESYMBOL 1
    TEXTC 1
    TEXTSIZE .1
    KEYPOSITION 5.15 7
    KEYBOX .15 .15
    KEYSHADE LEGEND.%.CHEM%
    MOVE 5.15 7.2
    TEXTSIZE .1
    TEXT 'Index'
/*
    TEXTSIZE .12
    MOVE 1.2 9.75
    TEXT [QUOTE %.CHEM% APPLICATIONS - %.FIRST.DATE% - %.LAST.DATE%]
/*
/*
    &R FLT82LOGO.AML
/*

```

```

Q
/*
/* ##### System specific commands #####
/*
DRAW #82.%.CHEM% %.TERMINAL%
/* #####
/*-----
/*
/*          Give user option of using plotting menu.  The plotting
/*          menu facilitates renaming plot files to preserve them.
/*
/*          Set variable representing default plot file name.
/*
&S .PLT.NAME = #82.%.CHEM%
/*
/*          Query user regarding plotting menu.
/*
&S .ANSW = [QUERY 'Plotting menu' .TRUE.]
&IF %.ANSW% = .TRUE. &THEN &DO
Q
&R PLTMENU.AML
&END
&WORKSPACE %.AT.POINT%
&R DELUSE.AML
&WORKSPACE %.PLT.DIR%
&TTY
Q
&RETURN
/* ##### System specific commands #####
COMO -END
/* #####
&MESSAGES &ON

```

```

/*-----
/* Command name: PLT82LOGO.AML
/* Language: AML AT ARC
/* ::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::
/* Purpose: Plots USGS logo on 8 1/2 x 11 inch plots.
/*
/* ::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::
/* Arguments:
/* Variable name, I/O, Type, Definition
/* -----
/* none
/* ::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::
/* History:
/* Author/Site, Date, Event
/* -----
/* Karen Schurr 10-26-89 Original coding
/* USGS, WRD
/* Tacoma, WA
/*-----
/*
MAPEXTENT PJ.PEST>KMS>LOGO
MAPLIMITS 7.8 4 8.2 4.4
MAPPOSITION CEN CEN
MAPUNITS INCHES
MAPSCALE AUTOMATIC
MAPANGLE 10
RESELECT PJ.PEST>KMS>LOGO POLY SHADE = 2
POLYGONSHADES PJ.PEST>KMS>LOGO 2
LINEC 2
POLYS PJ.PEST>KMS>LOGO
CLEARSELECT
MAPANGLE 25
RESELECT PJ.PEST>KMS>LOGO POLY SHADE = 4
POLYGONSHADES PJ.PEST>KMS>LOGO 4
LINEC 4
POLYS PJ.PEST>KMS>LOGO
CLEARSELECT
MAPANGLE 0
RESELECT PJ.PEST>KMS>LOGO POLY SHADE = 8
POLYGONSHADES PJ.PEST>KMS>LOGO 104
LINEC 104
POLYS PJ.PEST>KMS>LOGO
&RETURN

```

```

/*-----
/*  Command name: PLT83.AML
/*  Language: AML AT ARC
/*  ::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::
/*  Purpose:  Plots areas where selected chemical has been applied
/*             in 8.5 x 11 format for reports.
/*  ::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::
/*  Called by programs:
/*      LOADPLT.AML
/*      PERSONPLT.AML
/*  ::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::
/*  Arguments:
/*      Variable name          Definition
/*      -----
/*      .CHEM                  INGRES, 15,15,C.
/*      .FIRST.DATE            M/DD/YY.
/*      .LAST.DATE             M/DD/YY.
/*      .SEC.COV               Section coverage (ARC).
/*      .QQ.COV                Quarter-quarter coverage (ARC).
/*      .PLOTTER               Number for plotter.
/*      .TERMINAL              Number for graphics terminal.
/*      .TITLE.TWO             Second title.
/*      .PRJ                   Map projection suffix for cover name.
/*      .MPUNITS               Feet or meters.
/*      .MPANGLE               Map angle.
/*  ::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::
/*  History:
/*      Author/Site,           Date,           Event
/*      -----
/*      Karen Schurr          10-26-89        Original coding
/*      USGS, WRD
/*      Tacoma, WA
/*  -----
/*
/*  ##### System specific commands #####
/*
COMO COMO.PLT83
/* #####
/*  &ARGS .CHEM .FIRST.DATE .LAST.DATE .SEC.COV .QQ.COV .PLOTTER .TERMINAL ~
/*      .PRJ .MPUNITS .MPANGLE .TITLE.TWO
/*  &MESSAGES &ON
/*  ARCPLOT
/*  DISPLAY %.PLOTTER%
&TYPE
&TYPE (** Please ignore the prompt to enter a file name.
&TYPE     The plot file name is being automatically entered.
&TYPE
&TYPE Please be patient.  The plot file is being created and
&TYPE     and will be displayed on the screen.
&TYPE
&TYPE NOTE:  The plot file will be named #83.[UNQUOTE %.CHEM%].
&TYPE         It may be overwritten by future program
&TYPE         runs.  After viewing, the plot file should be
&TYPE         renamed to preserve it.
&TYPE
&TYPE     #83.%.CHEM%

```

```

TEXTSET PLOTTER.TXT
LINESET PLOTTER.LIN
MARKERSET PLOTTER.MRK
SHADESET PLOTTER.SHD
MAPEXTENT %.QQ.COV%.%.PRJ%
PAGESIZE 8.5 11
MAPLIMITS 1.0 .75 7.5 9.5
MAPPOSITION LL 1.0 1.0
MAPSCALE AUTOMATIC
MAPUNITS %.MPUNITS%
MAPANGLE %.MPANGLE%
/*
  LINESYMBOL 1      /* BLACK BALLPOINT PEN - PEN 1
  TEXTCOLOR 1
  BOX 1.0 1.25 7.5 10.25 /* Report margins
/*
/*
  ARCS %.QQ.COV%.%.PRJ%
/*
/*
/*
  &R CREATE.REL.AML %.CHEM%
/*
  POLYGONSHADES %.QQ.COV%.%.PRJ% %.CHEM%.REL//QUANT %.CHEM%.LUT
/*
  TEXTSIZE .08
/* ** POLYGONTEXT %.SEC.COV%.%.PRJ% TRS
/*
  LINESYMB 9
  ARCS %.SEC.COV%.%.PRJ%
  TEXTSIZE .06
/* ** LABELTEXT %.QQ.COV%.%.PRJ% QUARTER.GIS
/*
/*
  LINESYMBOL 1
  TEXTSIZE .08
  KEYPOSITION 5.15 7
  KEYBOX .15 .15
  KEYSHADE LEGEND.%.CHEM%
  TEXTSIZE .1
  MOVE 5.15 7.2
  TEXT 'Index'
  TEXTSIZE .15
  MOVE 1.2 9.80
  TEXT [QUOTE %.CHEM% - %.FIRST.DATE% - %.LAST.DATE%]
  MOVE 1.2 9.55
  TEXT [QUOTE [UNQUOTE %.TITLE.TWO%]]
/*
/*
Q
/*
/* ##### System specific commands #####
/*
DRAW #83.%.CHEM% %.TERMINAL%
/* #####
/*-----

```

```

/* #####
/*
/*          Give user option of using plotting menu.  The plotting
/*          menu facilitates renaming plot files to preserve them.

/*          Set variable representing default plot file name.
/*
&S .PLT.NAME = #83.%.CHEM%
/*
/*          Query user regarding plotting menu.
/*
&S .ANSW = [QUERY 'Plotting menu' .TRUE.]
&IF %.ANSW% = .TRUE. &THEN &DO
Q
&R PLTMENU.AML
&END
&WORKSPACE %.AT.POINT%
&R DELUSE.AML
&WORKSPACE %.PLT.DIR%
&TTY
Q
&RETURN
/*
/* ##### System specific commands #####
/*
COMO -END
/*
/* #####
&MESSAGES &ON

```

```

/*-----
/* Command name: PLT84.AML
/* Language: AML AT ARC
/* ::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::
/* Called by programs:
/* DRIVER84.AML
/* ::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::
/* Purpose: Plots a list of chemicals in an 8 1/2 x 11 inch plot.
/* ::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::
/* Arguments:
/* Variable name          Definition
/* -----
/* .CHEM                  INGRED, 15,15,C.
/* .FIRST.DATE            M/DD/YY.
/* .LAST.DATE             M/DD/YY.
/* .QUERY.BATCH           Answer to query on batch mode.
/* .SEC.COV               Section coverage (ARC).
/* .QQ.COV                Quarter-quarter coverage (ARC).
/* .PLOTTER               Number for plotter (ex: 1039).
/* .TERMINAL              Number for terminal (ex: 4207).
/* .PRJ                   Map projection (ex: UTM or SP).
/* .MPUNITS               Map units (meters or feet).
/* .MPANGLE               Map angle (0 for SP; 1.85 for UTM).
/* ::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::
/* History:
/* Author/Site,           Date,           Event
/* -----
/* Karen Schurr           10-26-89        Original coding
/* USGS, WRD
/* Tacoma, WA
/* -----
/*
/* This program is written by WRITE.PLT.AML whenever MULTIPLT.AML
/* is run. It may be deleted from the directory.
/*
    &ARGS .FIRST.DATE .LAST.DATE .QUERY.BATCH .SEC.COV .QQ.COV .PLOTTER ~
    .TERMINAL .PRJ .MPUNITS .MPANGLE
COMO COMO.PLT84
  ARCPLOT
  DISPLAY 1039
  &TYPE
  &TYPE Please stand by - - file name is being
  &TYPE automatically entered & plot will be displayed.
  &TYPE (May ignore prompt to enter file name.)
  &TYPE
  &TYPE NOTE: The plot file may be overwritten by future
  &TYPE program runs. After viewing the plot you may
  &TYPE wish to rename the plot file to save it.
  &TYPE
  #84.MULTI
  MAPEXTENT %.SEC.COV%.%.PRJ%
  TEXTSET PLOTTER.TXT
  LINESET PLOTTER.LIN
  MARKERSET PLOTTER.MRK
  SHADESET PLOTTER.SHD
  PAGESIZE 8.5 11

```

```

MAPLIMITS 1.0 .75 7.5 9.5
MAPPOSITION LL 1.0 1.0
/*
MAPUNITS METERS
MAPANGLE 1.85
LINESYMBOL 1      /* BLACK, thin line
BOX 0 0 8.5 11
BOX 1.0 1.25 7.5 10.25
/*
MAPSCALE AUTOMATIC
/*
ARCS %.QQ.COV%.%.PRJ%
/*
LINESYMB 9      /* BLACK, triple thick line
ARCS %.SEC.COV%.%.PRJ%
/*
/*
&R CREATE.REL.AML DIMETHOATE
&R PS.AML DIMETHOATE
&R CREATE.REL.AML DISULFOTON
&R PS.AML DISULFOTON
&R CREATE.REL.AML GLYPHOSATE.ACID
&R PS.AML GLYPHOSATE.ACID
/*
TEXTC 1
TEXTSIZE .08
/* ** POLYGONTEXT %.SEC.COV%.%.PRJ% TRS
/*
TEXTSIZE .06
/* ** LABELTEXT %.QQ.COV%.%.PRJ% QUARTER.GIS /* This takes time to plot
/*                                         May want to disable with
/*                                         comment lines.
/*
LINESYMB 1
TEXTC 1
TEXTSIZE .1
KEYPOSITION 5.15 7
KEYBOX .15 .15
KEYSHADE LEGEND.MULTI
MOVE 5.15 7.2
TEXT [QUOTE Index]
/*
TEXTSIZE .15
MOVE 1.2 9.75
TEXT [QUOTE APPLICATIONS - [UNQUOTE %.FIRST.DATE%] [UNQUOTE %.LAST.DATE%]]
/*
/*
Q
&IF %.QUERY.BATCH% = Y OR %.QUERY.BATCH% = y OR %.QUERY.BATCH% = YES~
OR %.QUERY.BATCH% = yes &THEN &GOTO EARTH
DRAW #84.MULTI 4207
/*-----
/* #####
/*
/*          Set variable representing default plot file name.
/*

```

```

&S .PLT.NAME = #84.%.CHEM%
/*
/*          Query user regarding plotting menu.
/*
&S .ANSW = [QUERY 'Plotting menu' .TRUE.]
&IF %.ANSW% = .TRUE. &THEN &DO
Q
&R PLTMENU.AML
&END
&WORKSPACE %.AT.POINT%
&R DELUSE.AML
&WORKSPACE %.PLT.DIR%
&TTY
  LABEL EARTH
Q
&RETURN
  COMO -END

```

```

/*-----
/*  Command name: PLTMENU.AML
/*  Language: AML AT ARC
/*  ::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::
/*
/*  Purpose:  This program asks the user to select a program option.
/*
/*::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::
/* Called by programs:  none
/*::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::
/* Arguments:
/*   Variable name           Definition
/*   -----
/*   .PROG.NAME             Program name.
/*::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::
/* History:
/*   Author/Site,           Date,           Event
/*   -----
/*   Karen Schurr           2/6/91           Original coding
/*   USGS, WRD
/*   Tacoma, WA
/*-----
/*
/*  SUBROUTINES required in this directory:
/*
/*   NAMEPLT.AML
/*
/*-----
/*  Programmer notes:
/*
/*      A list of options is listed on the screen
/*      and the user is asked to select an option.  The program
/*      option selected is recorded as a variable option
/*      and is used to call the desired program.
/*
/* -----
&TYPE
&TYPE
&TYPE
&TYPE =====
&TYPE
&TYPE   Plotting Menu:
&TYPE
&TYPE       1.  Save plot file.
&TYPE       2.  Return to main directory.
&TYPE
&TYPE       Q.  Quit.
&TYPE
&S .PROG.NO = [RESPONSE 'Please select a program number']
&SELECT [UNQUOTE %.PROG.NO%]
/*
/*           Rename plot file to save it.
/*
&WHEN 1
  &DO
    &S .PROG.NAME = NAMEPLT

```

```

    &GOTO EARTH
&END
/*
/*          Return to main directory.
/*
&WHEN 2
    &DO
        &S .PROG.NAME = RETMAIN
        &GOTO EARTH
&END
&WHEN Q
    &DO
        &STOP
&END
/*
/*          Error check in case of other replies.
/*
&OTHERWISE
    &RETURN
&END
/*
&LABEL EARTH
/*
&R %.PROG.NAME%
/*
/*
&RETURN

```

```

/*-----
/* Command name: PLT.MULTI.AML
/* Language: AML AT ARC
/* ::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::
/* Called by programs:
/*     MULTIPLT.AML
/*::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::
/* Purpose: Plots chemicals specified by user in INGRED.SYMB file.
/*     This program is written by WRITE.PLT.AML whenever MULTIPLT.AML
/*     is run. It may be deleted from the directory.
/*::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::
/* Arguments:
/*     Variable name, I/O,      Type,      Definition
/*     -----
/*     .CHEM                    INGRED, 15,15,C.
/*     .FIRST.DATE              M/DD/YY.
/*     .LAST.DATE               M/DD/YY.
/*     .QUERY.BATCH             Answer to query on batch mode.
/*     .SEC.COV                 Section coverage (ARC).
/*     .QQ.COV                  Quarter-quarter coverage (ARC).
/*     .PLOTTER                  Number for plotter (ex: 1039).
/*     .TERMINAL                 Number for terminal (ex: 4207).
/*     .PRJ                     Map projection (ex: UTM or SP).
/*     .MPUNITS                  Map units (meters or feet).
/*     .MPANGLE                  Map angle (0 for SP; 1.85 for UTM).
/*::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::
/* History:
/*     Author/Site,            Date,            Event
/*     -----
/*     Karen Schurr            10-26-89          Original coding
/*     USGS, WRD
/*     Tacoma, WA
/*-----
/*
/*
&ARGS .FIRST.DATE .LAST.DATE .QUERY.BATCH .SEC.COV .QQ.COV .PLOTTER ~
      .TERMINAL .PRJ .MPUNITS .MPANGLE
DATE
COMO COMO.PLT.MULTI
ARC PLOT
DISPLAY 1039
&TYPE
&TYPE Please stand by - - file name is being
&TYPE automatically entered & plot will be displayed.
&TYPE (May ignore prompt to enter file name.)
&TYPE
&TYPE NOTE: The plot file may be overwritten by future
&TYPE program runs. After viewing the plot you may
&TYPE wish to rename the plot file to save it.
&TYPE
#1.MULTI
MAPEXTENT %.SEC.COV%.%.PRJ%
TEXTSET PLOTTER.TXT
LINESET PLOTTER.LIN
MARKERSET PLOTTER.MRK
SHADESET PLOTTER.SHD

```

```

    PAGESIZE 24 34
    MAPLIMITS 0 1 21 31
    MAPPOSITION CEN CEN
/*
    MAPUNITS [UNQUOTE %.MPUNITS%]
    MAPANGLE [UNQUOTE %.MPANGLE%]
    LINESYMBOL 1      /* BLACK, thin line
    BOX 0 0 24 33
/*
    MAPSCALE 24000
/*
    LINESYMBOL 104    /* BROWN, thin line
    ARCS %.QQ.COV%.%.PRJ%
/*
    LINESYMB 9        /* BLACK, triple thick line
    ARCS %.SEC.COV%.%.PRJ%
/*
/*
&R CREATE.REL.AML DIMETHOATE
&R PS.AML DIMETHOATE
&R CREATE.REL.AML DISULFOTON
&R PS.AML DISULFOTON
&R CREATE.REL.AML GLYPHOSATE.ACID
&R PS.AML GLYPHOSATE.ACID
/*
    TEXTC 1
    TEXTSIZE .08
    POLYGONTEXT %.SEC.COV%.%.PRJ% TRS
/*
    TEXTC 1
    TEXTSIZE .06
    LABELTEXT %.QQ.COV%.%.PRJ% QUARTER.GIS /* This takes time to plot
/*                                         May want to disable with
/*                                         comment lines.
/*
LINESYMB 1
TEXTC 1
TEXTSIZE .1
KEYPOSITION 20 10.5
KEYSHADE LEGEND.MULTI
TEXTSIZE .15
MOVE 20 11
TEXT [QUOTE Index]
/*
TEXTSIZE .3
MOVE 4 31.5
TEXT [QUOTE APPLICATIONS - [UNQUOTE %.FIRST.DATE%] [UNQUOTE %.LAST.DATE%]]
/*
MOVE 20 2
TEXTSIZE .2
TEXT [QUOTE Scale 1:24,000]
&R PLT2LOGO.AML
/*
Q
DRAW #1.MULTI 4207
/*

```

```

/*          Set variable representing default plot file name.
/*
&S .PLT.NAME = #1.MULTI
&S .ANSW = [QUERY [QUOTE Plotting menu] .TRUE.]
&IF %.ANSW% = .TRUE. &THEN &DO
Q
&R PLTMENU.AML
&END
/*
/* Delete file indicating system is in use.
/*
&WORKSPACE %.AT.POINT%
&R DELUSE.AML
&WORKSPACE %.PLT.DIR%
/*
&RETURN
COMO -END

```

```

/*-----
/*  Command name: PS.AML
/*  Language: AML AT ARC
/*  ::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::
/*  Purpose:  Shades polygons in the plot file.
/*  ::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::
/*  Called by programs:
/*  PLT.MULTI.AML
/*  ::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::
/*  Arguments:
/*  Variable name          Definition
/*  -----
/*  none
/*  ::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::
/*  History:
/*  Author/Site,          Date,          Event
/*  -----
/*  Karen Schurr          11-15-89      Original coding
/*  USGS, WRD
/*  Tacoma, WA
/*  -----
/*  The commands to run this AML are written by WRITE.PLT.AML.
/*  One command line is written for each chemical listed in the
/*  INGRED.SYMB file.
/*
/*
POLYGONSHADES %.QQ.COV%.%.PRJ% %.CHEM%.REL//QUANT %.CHEM%.LUT
&RETURN

```

```

/*-----
/* Command name: RETMAIN.AML
/* Language: AML AT ARC
/* ::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::
/* Purpose: Return to main directory
/* ::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::
/* Called by programs:
/* PLTMENU.AML
/* ::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::
/* Arguments:
/* Variable name          Definition
/* -----
/* .AT.POINT              Main Directory.
/* ::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::
/* History:
/* Author/Site,           Date,           Event
/* -----
/* Karen Schurr           4-13-92         Original coding
/* USGS, WRD
/* Tacoma, WA
/* -----
&WATCH COMO.RETMAIN
&WORKSPACE %.AT.POINT%
&WATCH &OFF

```

```

/*-----
/*  Command name: SETVAR.AML
/*  Language: AML AT ARC
/*  ::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::
/*  Purpose: Sets pathname variables for running DRIVER programs
/*  for plotting.
/*  ::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::
/*  Called by programs:
/*  DRIVER2.AML
/*  DRIVER3.AML
/*  DRIVER82.AML
/*  DRIVER83.AML
/*  DRIVER84.AML
/*  ::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::
/*  Arguments:
/*  Variable name          Definition
/*  -----
/*  .AT.POINT              Main directory.
/*  .PLT.DIR               Plotting directory.
/*  ::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::
/*  History:
/*  Author/Site,          Date,          Event
/*  -----
/*  Karen Schurr          10-26-89      Original coding
/*  USGS, WRD
/*  Tacoma, WA
/*-----
/*  Subroutines required in this directory:
/*  none
/*-----
/*  User notes:
/*-----
&WATCH COMO.SETVAR
/*
/*
&S .AT.POINT PJ.PEST>CHEM
&S .PLT.DIR GIS24-

```

```

/*-----
/* Command name: TRANS.BOTH.AML
/* Language: AML AT ARC
/* ::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::
/* Purpose: Copies both the look-up table and the <INGRED>.COUNT file
/* to the plotting directory.
/* ::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::
/* Called by programs:
/* ALLPLT.AML
/* MULTIPLT.AML
/* RATEPLT.AML
/* SUMPLT.AML
/* ::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::
/* Arguments:
/* Variable name          Definition
/* -----
/* .CHEM                  INGRED.
/* .AT.POINT              Main directory.
/* ::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::
/* History:
/* Author/Site,          Date,          Event
/* -----
/* Karen Schurr          10-26-89        Original coding
/* USGS, WRD
/* Tacoma, WA
/* -----
/*
/*
&ARGS CHEM
/*
##### TAILOR TO SYSTEM #####
/*
COMO COMO.TRANS.BOTH
DATE
/*
#####
/*
/*
/* Erase old files, if exist.
/*
&DATA ARC INFO
&IF [EXISTS %.CHEM%.COUNT -INFO] &THEN &DO
    SEL %.CHEM%.COUNT
    ERASE %.CHEM%.COUNT
Y
&END                                /* &DO
&IF [EXISTS %.CHEM%.LUT -INFO] &THEN &DO
    SEL %.CHEM%.LUT
    ERASE %.CHEM%.LUT
Y
&END                                /* &DO
REMARKS                             Copy .COUNT from main directory.
REMARKS                             COPY .LUT from main directory.
ADIR %.AT.POINT%>INFO
TAKE DATA ARC %.CHEM%.COUNT
TAKE DATA ARC %.CHEM%.LUT

```

```

Q STOP
&END                                     /* &DATA
/* ##### TAILOR TO SYSTEM #####
TIME
COMO -END
/* #####
&RETURN

```

```

/*-----
/* Command name: TRANS.COUNT.AML
/* Language: AML AT ARC
/* ::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::
/* Purpose: Copies the <INGRED>.COUNT INFO file to the plotting sub-
/* directory.
/* ::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::
/* Called by programs:
/* SUMPLT.AML
/* MULTIPLT.AML
/* RATEPLT.AML
/* ::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::
/* Arguments:
/* Variable name          Definition
/* -----
/* .CHEM                  INGRED.
/* ::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::
/* History:
/* Author/Site,           Date,           Event
/* -----
/* Karen Schurr           10-26-89        Original coding
/* USGS, WRD
/* Tacoma, WA
/* -----
/*
/*      This program transfers a copy of the %CHEM%.COUNT
/*      INFO data file to the plotting ARC/INFO subdirectory.
/*
&ARGS .CHEM
/*
/*##### TAILOR TO SYSTEM #####
/*
COMO COMO.TRANS.COUNT
/*
/*#####
/*
&IF [EXISTS %.CHEM%.COUNT -INFO] &THEN &DO
    TABLES
        SELECT %.CHEM%.COUNT
        ERASE %.CHEM%.COUNT
Y
    Q STOP
&END                                /* &DO
/*
COPYINFO %.AT.POINT%>INFO:ARC:%.CHEM%.COUNT %.CHEM%.COUNT
/* ##### TAILOR TO SYSTEM #####
TIME
COMO -END
/*#####
&RETURN

```

```

/*-----
/* Command name: TRANS.NAME.AML
/* Language: AML AT ARC
/* ::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::
/* Purpose: Copies the NAME.STORE INFO file to the plotting sub-
/* directory.
/*::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::
/* Called by programs:
/* MULTIPLT.AML
/*::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::
/* Arguments:
/* Variable name          Definition
/* -----
/*
/*::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::
/* History:
/* Author/Site,          Date,          Event
/* -----
/* Karen Schurr          1-31-89        Original coding
/* USGS, WRD
/* Tacoma, WA
/*-----
/*
/*##### TAILOR TO SYSTEM #####
/*
COMO COMO.NAME.STORE
/*
/* #####
/*                               Enter Info.
&DATA ARC INFO
REMARKS                               Check to see if name file exists.
REMARKS
&IF [EXISTS NAME.STORE -INFO] &THEN &DO
REMARKS                               If file exists, erase it.
REMARKS
      SEL NAME.STORE
      ERASE NAME.STORE
Y
&END                               /* &DO
REMARKS
REMARKS                               Set path to "attach point"
REMARKS                               INFO directory.
ADIR %.AT.POINT%>INFO
REMARKS
REMARKS                               Copy name file from "attach
REMARKS                               point" INFO directory.
TAKE DATA ARC NAME.STORE
Q STOP
&END                               /* &DATA
/* ##### System specific commands #####
COMO -END
/* #####
&RETURN

```

```

/*-----
/* Command name: WRITE.PLT.AML
/* Language: AML AT ARC
/* ::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::
/* Purpose: Generates the PLT.MULTI.AML
/*: ::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::
/* Called by programs:
/*   MULTIPLT.PT.II.AML
/*: ::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::
/* Arguments:
/*   Variable name          Definition
/*   -----
/*   .CHEM                  INGRED, 15,15,C.
/*   .FIRST.DATE            M/DD/YY.
/*   .LAST.DATE             M/DD/YY.
/*   .SEC.COV               Section coverage (ARC).
/*   .QQ.COV                Quarter-quarter coverage (ARC).
/*   .PLOTTER               Number for plotter (ex: 1039).
/*   .TERMINAL              Number for terminal (ex: 4207).
/*   .PRJ                   Map projection (ex: UTM or SP).
/*   .MPUNITS               Map units (meters or feet).
/*   .MPANGLE               Map angle (0 for SP; 1.85 for UTM).
/*
/*: ::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::
/* History:
/*   Author/Site,          Date,          Event
/*   -----
/*   Karen Schurr          10-26-89       Original coding
/*   USGS, WRD
/*   Tacoma, WA
/*-----
/*
/* ##### System specific commands #####
/*
COMO COMO.WRITE.PLT
/*
/* #####
&DATA ARC INFO
  &IF [EXISTS PROG.NEW -INFO] &THEN &DO
    ERASE PROG.NEW
Y
&END                                /* &DO
REMARKS
REMARKS                                Write legend.
  OUTPUT %.AT.POINT%>%.PLT.DIR%>PLT.MULTI.AML INIT
PRI '/*-----
PRI '/* Command name: PLT.MULTI.AML'
PRI '/* Language: AML AT ARC'
PRI '/* ::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::
PRI '/* Called by programs:'
PRI '/*   MULTIPLT.AML'
PRI '/*: ::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::
PRI '/* Purpose: To plot a list of chemicals'
PRI '/*: ::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::
PRI '/* Arguments:'
PRI '/*   Variable name, I/O,      Type,          Definition'

```

```

PRI '/* -----'
PRI '/* CHEM INGRED, 15,15,C'
PRI '/* FIRST.DATE M/DD/YY'
PRI '/* LAST.DATE M/DD/YY'
PRI '/* QUERY.BATCH Answer to query on batch mode'
PRI '/* SEC.COV Section coverage (ARC)'
PRI '/* QQ.COV Quarter-quarter coverage (ARC)'
PRI '/* PLOTTER Number for plotter (ex: 1039)'
PRI '/* TERMINAL Number for terminal (ex: 4207)'
PRI '/* PRJ Map projection (ex: UTM or SP)'
PRI '/* MPUNITS Map units (meters or feet)'
PRI '/* MPANGLE Map angle (0 for SP; 1.85 for UTM)'
PRI '/* ::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::'
PRI '/* History:'
PRI '/* Author/Site, Date, Event'
PRI '/* -----'
PRI '/* Karen Schurr 10-26-89 Original coding'
PRI '/* USGS, WRD'
PRI '/* Tacoma, WA'
PRI '/* -----'
PRI '/* '
PRI '/* This program is written by WRITE.PLT.AML whenever MULTIPLT.AML'
PRI '/* is run. It may be deleted from the directory.'
PRI '/*'
PRI ' &ARGS .FIRST.DATE .LAST.DATE .QUERY.BATCH .SEC.COV .QQ.COV .PLOTTER ~ '
PRI ' .TERMINAL .PRJ .MPUNITS .MPANGLE'
PRI ' DATE'
PRI ' COMO COMO.PLT.MULTI'
PRI ' ARCPLOT'
PRI ' DISPLAY ',[QUOTE %.PLOTTER%]'
PRI ' &TYPE'
PRI ' &TYPE Please stand by - - file name is being'
PRI ' &TYPE automatically entered & plot will be displayed.'
PRI ' &TYPE (May ignore prompt to enter file name.)'
PRI ' &TYPE'
PRI ' &TYPE NOTE: The plot file may be overwritten by future'
PRI ' &TYPE program runs. After viewing the plot you may'
PRI ' &TYPE wish to rename the plot file to save it.'
PRI ' &TYPE'
PRI ' #1.MULTI'
PRI ' MAPEXTENT %.SEC.COV%.%.PRJ%'
PRI ' TEXTSET PLOTTER.TXT'
PRI ' LINESET PLOTTER.LIN'
PRI ' MARKERSET PLOTTER.MRK'
PRI ' SHADESET PLOTTER.SHD'
PRI ' PAGESIZE 24 34'
PRI ' MAPLIMITS 0 1 21 31'
PRI ' MAPPOSITION CEN CEN'
PRI '/*'
PRI ' MAPUNITS [UNQUOTE %.MPUNITS%]'
PRI ' MAPANGLE [UNQUOTE %.MPANGLE%]'
PRI ' LINESYMBOL 1 /* BLACK, thin line'
PRI ' BOX 0 0 24 33'
PRI '/*'
PRI ' MAPSCALE 24000'
PRI '/*'

```

```

PRI '    LINESYMBOL 104    /* BROWN, thin line'
PRI '    ARCS %.QQ.COV%.%.PRJ%'
PRI '/*'
PRI '    LINESYMB 9        /* BLACK, triple thick line'
PRI '    ARCS %.SEC.COV%.%.PRJ%'
PRI '/*'
REMARKS
SEL NAME.STORE
    PRI '/*'
PROG PROG.NEW
PROG 2
    PRI '&R CREATE.REL.AML ',INGRED
    PRI '&R PS.AML ',INGRED
PROG 3
PROG END

COMP PROG.NEW
RUN PROG.NEW
PRI '/*'
PRI '    TEXTC 1'
PRI '    TEXTSIZE .08'
PRI '    POLYGONTEXT %.SEC.COV%.%.PRJ% TRS'
PRI '/*'
PRI '    TEXTC 1'
PRI '    TEXTSIZE .06'
PRI '    LABELTEXT %.QQ.COV%.%.PRJ% QUARTER.GIS /* This is time consuming to
PRI '/*                                     plot. May want to disable with'
PRI '/*                                     comment lines.'
PRI '/*'
PRI 'LINESYMB 1'
PRI 'TEXTC 1'
PRI 'TEXTSIZE .1'
PRI 'KEYPOSITION 20 10.5'
PRI 'KEYSHADE LEGEND.MULTI'
PRI 'TEXTSIZE .15'
PRI 'MOVE 20 11'
PRI 'TEXT [QUOTE Index]'
PRI '/*'
PRI 'TEXTSIZE .3'
PRI 'MOVE 4 31.5'
PRI 'TEXT [QUOTE APPLICATIONS - [UNQUOTE %.FIRST.DATE%] ~
[UNQUOTE %.LAST.DATE%]]'
PRI '/*'
PRI 'MOVE 20 2'
PRI 'TEXTSIZE .2'
PRI 'TEXT [QUOTE Scale 1:24,000]'
PRI '&R PLT2LOGO.AML'
PRI '/*'
PRI ' Q'
PRI 'DRAW #1.MULTI ',[QUOTE %.TERMINAL%]
PRI '/*'
PRI '/*          Set variable representing default plot file name.'
PRI '/*'
PRI '&S .PLT.NAME = #1.MULTI'
PRI '&S .ANSW = [QUERY [QUOTE Plotting menu] .TRUE.]'
PRI '&IF %.ANSW% = .TRUE. &THEN &DO'

```

```

PRI 'Q'
PRI '&R PLTMENU.AML'
PRI '&END'
PRI '/*'
PRI '/* Delete file indicating system is in use.'
PRI '/*'
PRI '&WORKSPACE %.AT.POINT%'
PRI '&R DELUSE.AML'
PRI '&WORKSPACE %.PLT.DIR%'
PRI '/*'
PRI '&RETURN'
PRI 'COMO -END'
Q STOP
&END                                /* &DATA
&RETURN
COMO -END

```

```

/*-----
/* Command name: WRITE.PLT84.AML
/* Language: AML AT ARC
/* ::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::
/* Purpose: Generates the PLT84.AML, which creates a pagesize plot.
/*:~::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::
/* Called by programs:
/* DRIVER84.AML
/*:~::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::
/* Arguments:
/* Variable name          Definition
/* -----
/* .CHEM                  INGRED, 15,15,C.
/* .FIRST.DATE            M/DD/YY.
/* .LAST.DATE             M/DD/YY.
/* .SEC.COV               Section coverage (ARC).
/* .QQ.COV                Quarter-quarter coverage (ARC).
/* .PLOTTER               Number for plotter (ex: 1039).
/* .TERMINAL              Number for terminal (ex: 4207).
/* .PRJ                   Map projection (ex: UTM or SP).
/* .MPUNITS               Map units (meters or feet).
/* .MPANGLE               Map angle (0 for SP; 1.85 for UTM).
/*:~::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::
/* History:
/* Author/Site,           Date,           Event
/* -----
/* Karen Schurr           10-26-89        Original coding
/* USGS, WRD
/* Tacoma, WA
/*-----
/*
/*##### TAILOR TO DIRECTORIES #####
/*
COMO COMO.WRITE.PLT84
/*
/
#####
&ARGS .FIRST.DATE .LAST.DATE .QUERY.BATCH .SEC.COV .QQ.COV .PLOTTER~
.TERMINAL .PRJ .MPUNITS .MPANGLE
&DATA ARC INFO
    &IF [EXISTS PROG.NEW -INFO] &THEN &DO
        ERASE PROG.NEW
Y
&END                                     /* &DO
REMARKS
REMARKS                                Write AML.
    OUTPUT %.AT.POINT%>%.PLT.DIR%>PLT84.AML INIT
PRI '/*-----'
PRI '/* Command name: PLT84.AML'
PRI '/* Language: AML AT ARC'
PRI '/* ::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::'
PRI '/* Called by programs:'
PRI '/* DRIVER84.AML'
PRI '/*:~::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::'
PRI '/* Purpose: To plot a list of chemicals in an 8 1/2 x 11 pagesize plot.'
PRI '/*:~::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::'

```

```

PRI '/* Arguments:'
PRI '/*      Variable name, I/O,      Type,      Definition'
PRI '/*      -----'
PRI '/*      CHEM                      INGRED, 15,15,C'
PRI '/*      FIRST.DATE                 M/DD/YY'
PRI '/*      LAST.DATE                  M/DD/YY'
PRI '/*      QUERY.BATCH                Answer to query on batch mode'
PRI '/*      SEC.COV                    Section coverage (ARC)'
PRI '/*      QQ.COV                     Quarter-quarter coverage (ARC)'
PRI '/*      PLOTTER                     Number for plotter (ex: 1039)'
PRI '/*      TERMINAL                   Number for terminal (ex: 4207)'
PRI '/*      PRJ                        Map projection (ex: UTM or SP)'
PRI '/*      MPUNITS                    Map units (meters or feet)'
PRI '/*      MPANGLE                    Map angle (0 for SP; 1.85 for UTM)'
PRI '/*:.....'
PRI '/* History:'
PRI '/*      Author/Site,              Date,              Event'
PRI '/*      -----'
PRI '/*      Karen Schurr              10-26-89          Original coding'
PRI '/*      USGS, WRD'
PRI '/*      Tacoma, WA'
PRI '/*-----'
PRI '/* '
PRI '/*This program is written by WRITE.PLT.AML whenever MULTIPLT.AML'
PRI '/* is run. It may be deleted from the directory.'
PRI '/*'
PRI '/*      &ARGS .FIRST.DATE .LAST.DATE .QUERY.BATCH .SEC.COV .QQ.COV .PLOTTER ~'
PRI '/*      .TERMINAL .PRJ .MPUNITS .MPANGLE'
PRI '/*      COMO COMO.PLT84'
PRI '/*      ARCPLOT'
PRI '/*      DISPLAY '[QUOTE %.PLOTTER%]'
PRI '/*      &TYPE'
PRI '/*      &TYPE Please stand by - - file name is being'
PRI '/*      &TYPE automatically entered & plot will be displayed.'
PRI '/*      &TYPE (May ignore prompt to enter file name.)'
PRI '/*      &TYPE'
PRI '/*      &TYPE NOTE: The plot file may be overwritten by future'
PRI '/*      &TYPE program runs. After viewing the plot you may'
PRI '/*      &TYPE wish to rename the plot file to save it.'
PRI '/*      &TYPE'
PRI '/*      #84.MULTI'
PRI '/*      MAPEXTENT %.SEC.COV%.%.PRJ%'
PRI '/*      TEXTSET PLOTTER.TXT'
PRI '/*      LINESET PLOTTER.LIN'
PRI '/*      MARKERSET PLOTTER.MRK'
PRI '/*      SHADESET PLOTTER.SHD'
PRI '/*      PAGESIZE 8.5 11'
PRI '/*      MAPLIMITS 1.0 .75 7.5 9.5'
PRI '/*      MAPPOSITION LL 1.0 1.0'
PRI '/*'
PRI '/*      MAPUNITS '[QUOTE [UNQUOTE %.MPUNITS%]]'
PRI '/*      MAPANGLE '[QUOTE [UNQUOTE %.MPANGLE%]]'
PRI '/*      LINESYMBOL 1 /* BLACK, thin line'
PRI '/*      BOX 0 0 8.5 11'
PRI '/*      BOX 1.0 1.25 7.5 10.25'
PRI '/*'

```

```

PRI '    MAPSCALE AUTOMATIC'
PRI '/*'
PRI '    ARCS %.QQ.COV%.%.PRJ%'
PRI '/*'
PRI '    LINESYMB 9          /* BLACK, triple thick line'
PRI '    ARCS %.SEC.COV%.%.PRJ%'
PRI '/*'
REMARKS
SEL NAME.STORE
    PRI '/*'
PROG PROG.NEW
PROG 2
    PRI '&R CREATE.REL.AML ',INGRED
    PRI '&R PS.AML ',INGRED
PROG 3
PROG END

COMP PROG.NEW
RUN PROG.NEW
PRI '/*'
PRI '    TEXTC 1'
PRI '    TEXTSIZE .08'
PRI '/* **    POLYGONTEXT %.SEC.COV%.%.PRJ% TRS'
PRI '/*'
PRI '    TEXTSIZE .06'
PRI '/* **    LABELTEXT %.QQ.COV%.%.PRJ% QUARTER.GIS /* This takes time~
to plot'
PRI '/*
PRI '/*
PRI '/*
PRI 'LINESYMB 1'
PRI 'TEXTC 1'
PRI 'TEXTSIZE .1'
PRI 'KEYPOSITION 5.15 7'
PRI 'KEYBOX .15 .15'
PRI 'KEYSHADE LEGEND.MULTI'
PRI 'MOVE 5.15 7.2'
PRI 'TEXT [QUOTE Index]'
PRI '/*'
PRI 'TEXTSIZE .15'
PRI 'MOVE 1.2 9.75'
PRI 'TEXT [QUOTE APPLICATIONS - [UNQUOTE %.FIRST.DATE%] [UNQUOTE
%.LAST.DATE%]]'
PRI '/*'
PRI '/*'
PRI ' Q'
PRI '&IF %.QUERY.BATCH% = Y OR %.QUERY.BATCH% = y OR %.QUERY.BATCH% = YES~'
PRI ' OR %.QUERY.BATCH% = yes &THEN &GOTO EARTH'
PRI 'DRAW #84.MULTI ',[QUOTE %.TERMINAL%]
PRI '&TTY'
PRI 'LABEL EARTH'
PRI 'Q'
PRI '&RETURN'
PRI 'COMO -END'
Q STOP
&END
/* &DATA

```

&RETURN
COMO -END

APPENDIX I - GIS62 SUBROUTINES

```

/*-----
/*  Command name: CREATE.REL.AML
/*  Language: AML AT ARC
/*  ::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::
/*    Purpose:  Creates the relate table needed to plot the values
/*              from the <INGRED>.COUNT file.
/*  ::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::
/*  Called by programs:
/*    PLT2.AML
/*    PLT.MULTI.AML
/*  ::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::
/*    Variable name, I/O,      Type,      Definition
/*    -----
/*
/*      .CHEM    User-selected ingredient name from CHEM.AP file.
/*
/*  ::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::
/*  History:
/*    Author/Site,      Date,      Event
/*    -----
/*    Karen Schurr      11-15-89      Original coding
/*    USGS, WRD
/*    Tacoma, WA
/*-----
/*
/*  This program is a subroutine for the plotting AML's. It creates the
/*    relate table needed to plot the values in the _____.COUNT file.
/*
&ARGS .CHEM
RELATE ADD
%.CHEM%.REL
%.CHEM%.COUNT
INFO
PLS
PLS
ORDERED
[UNQUOTE ' ']
&RETURN

```

```

/*-----
/*  Command name: DRIVER2.AML
/*  Language: AML AT ARC
/*  ::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::
/*  Purpose:  Runs the PLT2.AML, with all the arguments.  The data for
/*  running the PLT2.AML must already exist (after a retrieval
/*  and before the essential files have been overwritten by another
/*  retrieval).
/*
/*  ::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::
/*  Arguments:
/*  Variable name      Definition
/*  -----
/*  none
/*  ::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::
/*  History:
/*  Author/Site,      Date,      Event
/*  -----
/*  Karen Schurr      3/14/91      Original coding
/*  USGS, WRD
/*  Tacoma, WA
/*-----
/*
COMO COMO.DRIVER2
&R SETVAR.AML /* Sets pathnames to directories.
/*
&R PLT2 DIMETHOATE 9/1/89 8/31/90 ELTOPIA.SEC ELTOPIA.QQ 1039 4207 SPS FEET 0
COMO -END

```

```

/*-----
/* Command name: DRIVERMLT.AML
/* Language: AML AT ARC
/* ::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::
/* Purpose: Runs the PLT.MULTI.AML, with all the arguments. The data for
/* running the PLT.MULTI.AML must already exist (after a retrieval
/* and before the essential files have been overwritten by another
/* retrieval).
/*
/* ::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::
/* Arguments:
/* Variable name          Definition
/* -----
/* none
/* ::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::
/* History:
/* Author/Site,           Date,           Event
/* -----
/* Karen Schurr           3/14/91         Original coding
/* USGS, WRD
/* Tacoma, WA
/*-----
/*
COMO COMO.DRIVERMLT
&R PLT.MULTI.AML 9/1/89 8/31/90 N ELTOPIA.SEC ELTOPIA.QQ 1039 ~
  4207 SPS FEET 0
COMO -END

```

```

/*:.....:
/*  DRIVER.TRANS.AML
/*:.....:
/*  Called by programs:
/*    MULTIPLT.AML
/*:.....:
&S .CHEM DIMETHOATE
&R TRANS.BOTH.AML DIMETHOATE
&S .CHEM DISULFOTON
&R TRANS.BOTH.AML DISULFOTON
&S .CHEM GLYPHOSATE.ACID
&R TRANS.BOTH.AML GLYPHOSATE.ACID
&RETURN

```

```

/*-----
/* Command name: PLT2.AML
/* Language: AML AT ARC
/* ::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::
/* Purpose: Plots areas where selected chemical has been applied
/* at a scale of 1:62,500.
/* ::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::
/* Called by programs:
/* ALLPLT.AML
/* RATEPLT.AML
/* SUMPLT.AML
/* ::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::
/* Arguments:
/* Variable name          Definition
/* -----
/* .CHEM                  INGRED, 15,15,C.
/* .FIRST.DATE            M/DD/YY.
/* .LAST.DATE             M/DD/YY.
/* .SEC.COV               Section coverage (ARC).
/* .QQ.COV                Quarter-quarter coverage (ARC).
/* .PLOTTER               Number for plotter.
/* .TERMINAL              Number for graphics terminal.
/* .PRJ                   Map projection (ex: UTM or SP).
/* .MPUNITS                Map units (meters or feet).
/* .MPANGLE               Map angle (0 for SP; 1.85 for UTM).
/* ::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::
/* History:
/* Author/Site,          Date,          Event
/* -----
/* Karen Schurr          10-26-89      Original coding
/* USGS, WRD
/* Tacoma, WA
/* -----
/*
/* ##### System specific commands #####
/*
COMO COMO.PLT2
/* #####
/*
&ARGS .CHEM .FIRST.DATE .LAST.DATE .SEC.COV .QQ.COV .PLOTTER .TERMINAL ~
.PRJ .MPUNITS .MPANGLE
&MESSAGES &ON
/*
ARC PLOT
DISPLAY %.PLOTTER%
&TYPE
&TYPE (** Please ignore the prompt to enter a file name.
&TYPE The plot file name is being automatically entered.
&TYPE
&TYPE Please be patient. The plot file is being created and
&TYPE and will be displayed on the screen.
&TYPE
&TYPE NOTE: The plot file will be named #2.[UNQUOTE %.CHEM%].
&TYPE It may be overwritten by future program
&TYPE runs. After viewing, the plot file should be
&TYPE renamed to preserve it.

```

```

&TYPE
#2.%.CHEM%
TEXTSET PLOTTER.TXT
LINESET PLOTTER.LIN
MARKERSET PLOTTER.MRK
SHADESET PLOTTER.SHD
MAPEXTENT %.QQ.COV%.%.PRJ%
PAGESIZE 20 25
MAPUNITS %.MPUNITS%
MAPANGLE %.MPANGLE%
/*
  LINESYMBOL 1      /* BLACK BALLPOINT PEN - PEN 1
  BOX 0 0 18 23
/*
  BOX 0 0 13 19
  MAPSCALE 62500
/*
/*  MAPLIMITS 1 1 13 19
  LINEC 8
  ARCS %.QQ.COV%.%.PRJ%
/*
/*                                Create RELATE.
/*
&R CREATE.REL.AML %.CHEM%
/*
  POLYGONSHADES %.QQ.COV%.%.PRJ% %.CHEM%.REL//QUANT %.CHEM%.LUT
/*
  TEXTC 1
  TEXTSIZE .08
  POLYGONTEXT %.SEC.COV%.%.PRJ% TRS
/*
  LINESYMB 9
    ARCS %.SEC.COV%.%.PRJ%
  TEXTC 1
  TEXTSIZE .06
  LABELTEXT %.QQ.COV%.%.PRJ% QUARTER.GIS
/*
/*
LINESYMBOL 1
TEXTC 1
TEXTSIZE .1
KEYPOSITION 13.5 10.5
KEYBOX .25 .25
KEYSHADE LEGEND.%.CHEM%
TEXTSIZE .15
MOVE 13.5 11
TEXT 'Index'

TEXTSIZE .3
MOVE 1 19.5
TEXT [QUOTE %.CHEM% APPLICATIONS - %.FIRST.DATE% - %.LAST.DATE%]

MOVE 14 2
TEXTSIZE .2
TEXT 'Scale 1:62,500'
/*

```

```

Q
/*
/* ##### System specific commands #####
DRAW #2.%.CHEM% %.TERMINAL%
/* #####
/*
/* Delete file that indicates system is in use.
/*
&WORKSPACE %.AT.POINT%
&R DELUSE.AML
&WORKSPACE %.PLT.DIR%
/*
/*      Query on using plotting menu.
/*
&S .PLT.NAME = #2.%.CHEM%
&S .ANSW = [QUERY 'Plotting menu' .TRUE.]
&IF %.ANSW% = .TRUE. &THEN &DO
Q
&R PLTMENU.AML
&END
&TTY
&RETURN
/*
/* Delete file indicating system is in use.
/*
&WORKSPACE %.AT.POINT%
&R DELUSE.AML
&WORKSPACE %.PLT.DIR%
/*
/* ##### System specific commands #####
COMO -END
/* #####
&MESSAGES &ON

```

```

/*-----
/* Command name: PLT.MULTI.AML
/* Language: AML AT ARC
/* ::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::
/* Called by programs:
/*     MULTIPLT.AML
/* ::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::
/* Purpose: Plots list of chemicals in INGRED.SYMB file at the scale 1:62,500.
/* ::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::
/* Arguments:
/*     Variable name          Definition
/*     -----
/*     .CHEM                  INGRED, 15,15,C.
/*     .FIRST.DATE            M/DD/YY.
/*     .LAST.DATE             M/DD/YY.
/*     .QUERY.BATCH           Answer to query on batch mode.
/*     .SEC.COV               Section coverage (ARC).
/*     .QQ.COV                Quarter-quarter coverage (ARC).
/*     .PLOTTER               Number for plotter (ex: 1039).
/*     .TERMINAL              Number for terminal (ex: 4207).
/*     .PRJ                   Map projection (ex: UTM or SP).
/*     .MPUNITS               Map units (meters or feet).
/*     .MPANGLE               Map angle (0 for SP; 1.85 for UTM).
/* ::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::
/* History:
/*     Author/Site,          Date,          Event
/*     -----
/*     Karen Schurr          10-26-89       Original coding
/*     USGS, WRD
/*     Tacoma, WA
/* -----
/*
/* This program is written by WRITE.PLT.AML whenever MULTIPLT.AML
/* is run. It may be deleted from the directory.
/*
    &ARGS .FIRST.DATE .LAST.DATE .QUERY.BATCH .SEC.COV .QQ.COV .PLOTTER ~
        .TERMINAL .PRJ .MPUNITS .MPANGLE
    DATE
    COMO COMO.PLT.MULTI
    ARC PLOT
    DISPLAY 1039
    &TYPE
    &TYPE Please stand by - - file name is being
    &TYPE automatically entered & plot will be displayed.
    &TYPE (May ignore prompt to enter file name.)
    &TYPE
    &TYPE NOTE: The plot file may be overwritten by future
    &TYPE program runs. After viewing the plot you may
    &TYPE wish to rename the plot file to save it.
    &TYPE
    #1.MULTI
    MAPEXTENT %.SEC.COV%,%.PRJ%
    TEXTSET PLOTTER.TXT
    LINESET PLOTTER.LIN
    MARKERSET PLOTTER.MRK
    SHADESET PLOTTER.SHD

```

```

    PAGESIZE 20 25
/*
    MAPUNITS [UNQUOTE %.MPUNITS%]
    MAPANGLE [UNQUOTE %.MPANGLE%]
    LINESYMBOL 1      /* BLACK, thin line
    BOX 0 0 18 23
/*
    LINESYMBOL 5      /* BLACK, thicker line
    BOX 0 0 13 19
    MAPSCALE 62500
/*
    LINESYMBOL 104    /* BROWN, thin line
    ARCS %.QQ.COV%.%.PRJ%
/*
    LINESYMB 9        /* BLACK, triple thick line
    ARCS %.SEC.COV%.%.PRJ%
/*
/*
&R CREATE.REL.AML DIMETHOATE
&R PS.AML DIMETHOATE
&R CREATE.REL.AML DISULFOTON
&R PS.AML DISULFOTON
&R CREATE.REL.AML GLYPHOSATE.ACID
&R PS.AML GLYPHOSATE.ACID
/*
    TEXTC 1
    TEXTSIZE .08
    POLYGONTEXT %.SEC.COV%.%.PRJ% TRS
/*
    TEXTC 1
    TEXTSIZE .06
    LABELTEXT %.QQ.COV%.%.PRJ% QUARTER.GIS /* This takes time to plot
/*                                     May want to disable with
/*                                     comment lines.
/*
LINESYMB 1
TEXTC 1
TEXTSIZE .1
KEYPOSITION 13.5 10.5
KEYBOX .25 .25
KEYSHADE LEGEND.MULTI
TEXTSIZE .15
MOVE 13.5 11
TEXT [QUOTE Index]
/*
TEXTSIZE .3
MOVE 2 19.25
TEXT [QUOTE APPLICATIONS - [UNQUOTE %.FIRST.DATE%] [UNQUOTE %.LAST.DATE%]]
/*
MOVE 14 2
TEXTSIZE .2
TEXT [QUOTE Scale 1:62,500]
/*
Q
&IF %.QUERY.BATCH% = Y OR %.QUERY.BATCH% = y OR %.QUERY.BATCH% = YES~
    OR %.QUERY.BATCH% = yes &THEN &GOTO EARTH

```

DRAW #1.MULTI 4207
&TTY
LABEL EARTH
Q
&RETURN
COMO -END

```

/*-----
/*  Command name: PS.AML
/*  Language: AML AT ARC
/*  ::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::
/*  Purpose:  Shades polygons in the plot file.
/*  ::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::
/*  Called by programs:
/*      PLT.MULTI.AML
/*  ::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::
/*  Arguments:
/*      Variable name          Definition
/*      -----
/*      none
/*  ::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::
/*  History:
/*      Author/Site,          Date,          Event
/*      -----
/*      Karen Schurr          11-15-89        Original coding
/*      USGS, WRD
/*      Tacoma, WA
/*  -----
/*  The commands to run this AML are written by WRITE.PLT.AML.
/*  One command line is written for each chemical listed in the
/*  INGRED.SYMB file.
/*
/*
POLYGONSHADES %.QQ.COV%.%.PRJ% %.CHEM%.REL//QUANT %.CHEM%.LUT
&RETURN

```

```

/*-----
/* Command name: SETVAR.AML
/* Language: AML AT ARC
/* ::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::
/* Purpose: Sets pathname variables for running DRIVER programs
/* for plotting.
/*: ::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::
/* Called by programs:
/* DRIVER2.AML
/*: ::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::
/* Arguments:
/* Variable name          Definition
/* -----
/* .AT.POINT              Main directory.
/* .PLT.DIR                Plotting directory.
/*: ::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::
/* History:
/* Author/Site,           Date,           Event
/* -----
/* Karen Schurr           6/9/92          Original coding
/* USGS, WRD
/* Tacoma, WA
/*-----
/* Subroutines required in this directory:
/* none
/*
/*-----
/* User notes:
/*
/*-----
&WATCH COMO.SETVAR
/*
/*
&S .AT.POINT PJ.PEST>CHEM
&S .PLT.DIR GIS62-

```

```

/*-----
/* Command name: TRANS.BOTH.AML
/* Language: AML AT ARC
/* ::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::
/* Purpose: Copies both the look-up table and the <INGRED>.COUNT file
/* to the plotting subdirectory.
/* ::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::
/* Called by programs:
/* ALLPLT.AML
/* MULTIPLT.AML
/* RATEPLT.AML
/* SUMPLT.AML
/* ::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::
/* Arguments:
/* Variable name          Definition
/* -----
/* .CHEM                  INGRED.
/* ::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::
/* History:
/* Author/Site,          Date,          Event
/* -----
/* Karen Schurr          10-26-89        Original coding
/* USGS, WRD
/* Tacoma, WA
/* -----
/*
/* This program transfers a copy of the %CHEM%.COUNT and %CHEM%.LUT
/* INFO data files to the plotting ARC/INFO directory.
/*
&ARGS CHEM
/*
/*##### TAILOR TO SYSTEM #####
/*
COMO COMO.TRANS.BOTH
DATE
/*
/*#####
/*
/*
/* Erase old files, if exist.
/*
&DATA ARC INFO
&IF [EXISTS %CHEM%.COUNT -INFO] &THEN &DO
    SEL %CHEM%.COUNT
    ERASE %CHEM%.COUNT
Y
&END                                /* &DO
&IF [EXISTS %.CHEM%.LUT -INFO] &THEN &DO
    SEL %.CHEM%.LUT
    ERASE %.CHEM%.LUT
Y
&END                                /* &DO
REMARKS
REMARKS                                Copy .COUNT and .LUT from Data Base directory.
ADIR %.AT.POINT%>INFO
TAKE DATA ARC %CHEM%.COUNT

```

```

TAKE DATA ARC %CHEM%.LUT
Q STOP
&END                                     /* &DATA
/* ##### TAILOR TO SYSTEM #####
TIME
COMO -END
/*#####
&RETURN

```

```

/*-----
/* Command name: TRANS.COUNT.AML
/* Language: AML AT ARC
/* ::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::
/* Purpose: Copies the <INGRED>.COUNT INFO file to the plotting sub-
/* directory.
/* ::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::
/* Called by programs:
/* SUMPLT.AML
/* MULTIPLT.AML
/* RATEPLT.AML
/* ::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::
/* Arguments:
/* Variable name          Definition
/* -----
/* .CHEM                  INGRED.
/* ::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::
/* History:
/* Author/Site,           Date,           Event
/* -----
/* Karen Schurr           10-26-89        Original coding
/* USGS, WRD
/* Tacoma, WA
/* -----
/*
/* This program transfers a copy of the %CHEM%.COUNT
/* INFO data file to the plotting directory.
/*
&ARGS .CHEM
/*
/*##### TAILOR TO SYSTEM #####
/*
COMO COMO.TRANS.COUNT
DATE
/*
/*#####
/*
&DATA ARC INFO
&IF [EXISTS %.CHEM%.COUNT -INFO] &THEN &DO
    SEL %.CHEM%.COUNT
    ERASE %.CHEM%.COUNT
Y
&END                                /* &DO
ADIR %.AT.POINT%>INFO
TAKE DATA ARC %.CHEM%.COUNT
Q STOP
&END                                /* &DATA
/* ##### TAILOR TO SYSTEM #####
TIME
COMO -END
/*#####
&RETURN

```

```

/*-----
/* Command name: TRANS.NAME.AML
/* Language: AML AT ARC
/* ::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::
/* Purpose: Copies the NAME.STORE INFO file to the plotting sub-
/* directory.
/* ::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::
/* Called by programs:
/* MULTIPLT.AML
/* ::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::
/* Arguments:
/* Variable name          Definition
/* -----
/*
/* ::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::
/* History:
/* Author/Site,           Date,           Event
/* -----
/* Karen Schurr           1-31-89          Original coding
/* USGS, WRD
/* Tacoma, WA
/* -----
/*
/* This program transfers a copy of the NAME.STORE
/* INFO data file to the plotting ARC/INFO subdirectory.
/*
/*
/* ##### TAILOR TO SYSTEM #####
/*
COMO COMO.NAME.STORE
DATE
/*
/* #####
/*
/* Enter Info.
&DATA ARC INFO
REMARKS Check to see if name file exists.
REMARKS
&IF [EXISTS NAME.STORE -INFO] &THEN &DO
REMARKS If file exists, erase it.
REMARKS
SEL NAME.STORE
ERASE NAME.STORE
Y
&END /* &DO
REMARKS
REMARKS Set path to "attach point"
REMARKS INFO directory.
ADIR %.AT.POINT%>INFO
REMARKS
REMARKS Copy name file from "attach
REMARKS point" INFO directory.
TAKE DATA ARC NAME.STORE
Q STOP
&END /* &DATA
/* ##### TAILOR TO SYSTEM #####

```

```
TIME
COMO  -END
/*#####
&RETURN
```

```

/*-----
/* Command name: WRITE.PLT.AML
/* Language: AML AT ARC
/* ::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::
/* Purpose: Generates the PLT.MULTI.AML for plots at a scale of 1:62,500.
/*:~::~::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::
/* Called by programs:
/* MULTIPLT.PT.II.AML
/*:~::~::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::
/* Arguments:
/* Variable name          Definition
/* -----
/* .CHEM                  INGRED, 15,15,C.
/* .FIRST.DATE            M/DD/YY.
/* .LAST.DATE             M/DD/YY.
/* .SEC.COV               Section Coverage (ARC).
/* .QQ.COV                Quarter-quarter Coverage (ARC).
/* .PLOTTER               Number for plotter (ex: 1039).
/* .TERMINAL              Number for terminal (ex: 4207).
/* .PRJ                   Map projection (ex: UTM or SP).
/* .MPUNITS               Map units (meters or feet).
/* .MPANGLE               Map angle (0 for SP; 1.85 for UTM).
/*
/*:~::~::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::
/* History:
/* Author/Site,          Date,          Event
/* -----
/* Karen Schurr          10-26-89      Original coding
/* USGS, WRD
/* Tacoma, WA
/*-----
/*
/* ##### System specific commands #####
/*
COMO COMO.WRITE.PLT
/*
/* #####
&DATA ARC INFO
    &IF [EXISTS PROG.NEW -INFO] &THEN &DO
        ERASE PROG.NEW
Y
&END
/* &DO
REMARKS
REMARKS Write legend.
    OUTPUT %.AT.POINT%>%.PLT.DIR%>PLT.MULTI.AML INIT
PRI /*-----
PRI /* Command name: PLT.MULTI.AML'
PRI /* Language: AML AT ARC'
PRI /* ::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::
PRI /* Called by programs:'
PRI /* MULTIPLT.AML'
PRI /*:~::~::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::
PRI /* Purpose: To plot a list of chemicals - mapscale 1:62,500'
PRI /*:~::~::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::
PRI /* Arguments:'
PRI /* Variable name, I/O, Type, Definition'

```

```

PRI '/* -----'
PRI '/*      CHEM                      INGRED, 15,15,C'
PRI '/*      FIRST.DATE                M/DD/YY'
PRI '/*      LAST.DATE                 M/DD/YY'
PRI '/*      QUERY.BATCH               Answer to query on batch mode'
PRI '/*      SEC.COV                   Section Coverage (ARC)'
PRI '/*      QQ.COV                    Quarter-quarter Coverage (ARC)'
PRI '/*      PLOTTER                   Number for plotter (ex: 1039)'
PRI '/*      TERMINAL                  Number for terminal (ex: 4207)'
PRI '/*      PRJ                      Map projection (ex: UTM or SP)'
PRI '/*      MPUNITS                   Map units (meters or feet)'
PRI '/*      MPANGLE                   Map angle (0 for SP; 1.85 for UTM)'
PRI '/* ::::::::::::::::::::::::::::::::::::::::::::::::::::::::::::'
PRI '/* History:'
PRI '/*      Author/Site,              Date,              Event'
PRI '/* -----'
PRI '/*      Karen Schurr              10-26-89           Original coding'
PRI '/*      USGS, WRD'
PRI '/*      Tacoma, WA'
PRI '/* -----'
PRI '/* '
PRI '/* This program is written by WRITE.PLT.AML whenever MULTIPLT.AML'
PRI '/* is run. It may be deleted from the directory.'
PRI '/*'
PRI '/* &ARGS .FIRST.DATE .LAST.DATE .QUERY.BATCH .SEC.COV .QQ.COV .PLOTTER ~ '
PRI '/*      .TERMINAL .PRJ .MPUNITS .MPANGLE'
PRI '/*      DATE'
PRI '/* COMO COMO.PLT.MULTI'
PRI '/*      ARCPLOT'
PRI '/*      DISPLAY ',[QUOTE %.PLOTTER%]'
PRI '/*      &TYPE'
PRI '/*      &TYPE Please stand by - - file name is being'
PRI '/*      &TYPE      automatically entered & plot will be displayed.'
PRI '/*      &TYPE      (May ignore prompt to enter file name.)'
PRI '/*      &TYPE'
PRI '/*      &TYPE NOTE: The plot file may be overwritten by future'
PRI '/*      &TYPE      program runs. After viewing the plot you may'
PRI '/*      &TYPE      wish to rename the plot file to save it.'
PRI '/*      &TYPE'
PRI '/*      #1.MULTI'
PRI '/*      MAPEXTENT %.SEC.COV%.%.PRJ%'
PRI '/*      TEXTSET PLOTTER.TXT'
PRI '/*      LINESET PLOTTER.LIN'
PRI '/*      MARKERSET PLOTTER.MRK'
PRI '/*      SHADESET PLOTTER.SHD'
PRI '/*      PAGESIZE 20 25'
PRI '/*'
PRI '/*      MAPUNITS [UNQUOTE %.MPUNITS%]'
PRI '/*      MAPANGLE [UNQUOTE %.MPANGLE%]'
PRI '/*      LINESYMBOL 1      /* BLACK, thin line'
PRI '/*      BOX 0 0 18 23'
PRI '/*'
PRI '/*      LINESYMBOL 5      /* BLACK, thicker line'
PRI '/*      BOX 0 0 13 19'
PRI '/*      MAPSCALE 62500'
PRI '/*'

```

```

PRI '    LINESYMBOL 104    /* BROWN, thin line'
PRI '    ARCS %.QQ.COV%.%.PRJ%'
PRI '/*'
PRI '    LINESYMB 9        /* BLACK, triple thick line'
PRI '    ARCS %.SEC.COV%.%.PRJ%'
PRI '/*'
REMARKS
SEL NAME.STORE
    PRI '/*'
PROG PROG.NEW
PROG 2
    PRI '&R CREATE.REL.AML ',INGRED
    PRI '&R PS.AML ',INGRED
PROG 3
PROG END

COMP PROG.NEW
RUN PROG.NEW
PRI '/*'
PRI '    TEXTC 1'
PRI '    TEXTSIZE .08'
PRI '    POLYGONTEXT %.SEC.COV%.%.PRJ% TRS'
PRI '/*'
PRI '    TEXTC 1'
PRI '    TEXTSIZE .06'
PRI '    LABELTEXT %.QQ.COV%.%.PRJ% QUARTER.GIS /* This takes considerable~
time
PRI '/*                                to plot.  If labels not needed, may want to
PRI '/*                                disable with 'comment lines.'
PRI '/*'
PRI 'LINESYMB 1'
PRI 'TEXTC 1'
PRI 'TEXTSIZE .1'
PRI 'KEYPOSITION 13.5 10.5'
PRI 'KEYBOX .25 .25'
PRI 'KEYSHADE LEGEND.MULTI'
PRI 'TEXTSIZE .15'
PRI 'MOVE 13.5 11'
PRI 'TEXT [QUOTE Index]'
PRI '/*'
PRI 'TEXTSIZE .3'
PRI 'move 2 19.25'
PRI 'TEXT [QUOTE APPLICATIONS - [UNQUOTE %.FIRST.DATE%] [UNQUOTE~
%.LAST.DATE%]]'
PRI '/*'
PRI 'MOVE 14 2'
PRI 'TEXTSIZE .2'
PRI 'TEXT [QUOTE Scale 1:62,500]'
PRI '/*'
PRI ' Q'
PRI 'DRAW #1.MULTI ',[QUOTE %.TERMINAL%]
PRI '/*'
PRI '/*          Set variable representing default plot file name.'
PRI '/*'
PRI '&S .PLT.NAME = #1.MULTI'
PRI '&S .ANSW = [QUERY [QUOTE Plotting menu] .TRUE.]'

```

```

PRI '&IF %.ANSW% = .TRUE. &THEN &DO'
PRI 'Q'
PRI '&R PLTMENU.AML'
PRI '&END'
PRI '/*'
PRI '/* Delete file indicating system is in use.'
PRI '/*'
PRI '&WORKSPACE %.AT.POINT%'
PRI '&R DELUSE.AML'
PRI '&WORKSPACE %.PLT.DIR%'
PRI '/*'
PRI '&RETURN'
PRI 'COMO -END'
Q STOP
&END
&RETURN
COMO -END
/* &DATA

```