PNL--7442

DE91 000004

Solid Waste Projection Model:

Model User's Guide

D.L. Stiles
V.L. Crow

August 1990

Prepared for the U.S. Department of Energy
under Contract DE-AC06-76RLO 1830

Pacific Northwest Laboratory
Operated for the U.S. Department of Energy
by Battelle Memorial Institute

MASSACHUSETTS

DISTRIBUTION OF THIS DOCUMENT IS UNLIMITED

ps

Executive Summary

The Solid Waste Projection Model (SWPM) system is an analytical tool developed by Pacific Northwest Laboratory (PNL) for Westinghouse Hanford Company (WHC) specifically to address solid waste management issues at the Hanford Central Waste Complex (HCWC).

This document, one of six documents supporting the SWPM system, contains a description of the system and instructions for preparing to use SWPM and operating Version 1 of the model.

DISCLAIMER

This report was prepared as an account of work sponsored by an agency of the United States Government. Neither the United States Government nor any agency thereof, nor any of their employees, makes any warranty, express or implied, or assumes any legal liability or responsibility for the accuracy, completeness, or usefulness of any information, apparatus, product, or process disclosed, or represents that its use would not infringe privately owned rights. Reference herein to any specific commercial product, process, or service by trade name, trademark, manufacturer, or otherwise does not necessarily constitute or imply its endorsement, recommendation, or favoring by the United States Government or any agency thereof. The views and opinions of authors expressed herein do not necessarily state or reflect those of the United States Government or any agency thereof.

Contents

1.0 Introduction	1
2.0 System Description	3
2.1 The System Being Modeled	3
2.2 The Solid Waste Projection Model (SWPM) System	4
2.3 Data Required to Support the Model	6
2.4 Model Results	7
3.0 Preparing SWPM For Use	9
3.1 Installation	9
3.2 Starting SWPM	9
3.3 Warnings	10
4.0 Operating the Model	13
4.1 Initializing	14
4.2 Preselecting	15
4.3 Loading Data	17
4.4 Editing Data	17
4.4.1 Editing Waste Generator Data	19
4.4.2 Editing Operations	20
4.4.3 Editing Waste Classes	22
4.4.4 Editing Comments	22
4.4.5 Editing Groupings	23
4.5 Initiating a Run	24
4.6 Selecting, Generating, and Printing Reports	25
4.7 Exiting	26
5.0 User Assistance	29

Figures

2.1	The Solid Waste Management System	3
2.2	The SWPM System	5
2.3	Input Data Required for Solid Waste Projection Modeling	6
2.4	SWPM Output Information	7

Tables

4.1	Solid Waste Projection Model Output Information	26
-----	---	----

1.0 Introduction

Waste management is becoming an ever more important topic. Management of current and future solid wastes will require the development of appropriate treatment, storage, and disposal (TSD) facilities and operations to match the characteristics of the wastes. Inadequate provision of these TSD facilities and operations will surely incur costs in the form of agency fines or excessive handling fees, and may even result in the need to curtail operations. On the other hand, over-development could needlessly commit productive resources and precious capital.

The Solid Waste Projection Model (SWPM) system is an analytical tool developed by Pacific Northwest Laboratory (PNL) for Westinghouse Hanford Company (WHC) specifically to address solid waste management issues at the Hanford Central Waste Complex (HCWC). SWPM provides the ability to:

- develop detailed projections of the volumes of wastes to be managed and the characteristics of these wastes
- characterize and evaluate the impact of alternative TSD technologies or operating strategies on facilities and operations
- assess the impact upon TSD cost and capacity requirements when waste volumes or waste characteristics vary
- track actual versus projected quantities of wastes, evaluating waste volume-reduction activities.

(a) The terms "treatment," "storage," and "disposal," as used here, do not necessarily correspond to the same terms used under the Resource Conservation and Recovery Act (RCRA). For example, storage, as defined by the model, could correspond to normal process holdup under RCRA.

This document contains a description of the SWPM system and instructions for the operation of the Version 1 model. These instructions address the following activities:

- preparing to use SWPM
- operating the model
- using the model for analyses.

This document is part of an integrated set of SWPM system documentation. Five additional documents provide overview information about the SWPM system and detailed instructions in the use, maintenance, and application of the other components of the SWPM system. These documents are as follows:

Title	Description	Primary Audience
<i>System Overview</i>	Overview of the SWPM system and potential applications	Study Managers
<i>Database User's Guide</i>	User's instructions for data entry, maintenance, and reporting	System Administrator
<i>Database Technical Reference Manual</i>	Development and maintenance reference manual for database software and utilities	Database Specialist
<i>Model Technical Reference Manual</i>	Development and maintenance reference manual for model software and applications	Software Engineer
<i>System Administration Manual</i>	Instruction for long-term system administration, maintenance, and configuration management	System Administrator

2.0 System Description

This chapter provides the user with a basic understanding of the solid waste management system being modeled, its representation in the SWPM system, the configuration of the individual SWPM system components, and the data required to support the model.

2.1 The System Being Modeled

A generic representation of the solid waste management system modeled by SWPM is shown in Figure 2.1. Solid wastes of a given type or class are received from a number of facilities and are distributed to various operations. Operations are defined as either treatments or disposals and are

Figure 2.1. The Solid Waste Management System

linked to other operations to represent a given waste management scheme. At each treatment operation, waste volumes are adjusted or modified to reflect changes in volume and are redistributed to subsequent operations until a final destination is reached (disposal). Because all operations have fixed capacity constraints, each operation has an associated storage option to hold any waste distributed to the operation in excess of that capacity. All wastes eventually reach a final disposal operation.

Separate, parallel waste management schemes are defined for each type or class of waste being accepted and processed. Wastes converted from one type or class to another as a result of an operation are then transferred between parallel systems during the subsequent distribution of wastes exiting operations.

2.2 The Solid Waste Projection Model (SWPM) System

The SWPM system, shown in Figure 2.2, uses a data-driven logistics model to provide detailed analyses of the generic system described above. The main module of SWPM is written in ADL, a proprietary modeling language developed by PNL. SWPM operates on an 80386 desktop computer in an OS/2 environment and requires a minimum of 8 megabytes of RAM. A full 16 megabytes of RAM is extremely desirable in order to reduce model execution times and to avoid severe constraints on the size of the input data library.

SWPM is supported by a database, which is used to store and maintain waste volume and characteristics projections, as well as the characterizations of the TSD operations and facilities. This information is passed from the database into a specially formatted electronic file, which matches ADL syntax. This file, called the Reference Data Library (RDL), is loaded into SWPM's operating environment. Operation of the model is entirely separate

Figure 2.2. The SWPM System

from operation of the database, and the normal model user will rarely need to access the database directly. Therefore, this Model User's Guide does not address the operation of the database.

The key to operating SWPM is the graphical user interface, which accesses the RDL and guides the user through the selection of case-specific data sets, providing a complete and reproducible analysis case. Once this case has been specified, a SWPM run may be initiated from the user interface. Any changes or additions made to the RDL in the process of specifying a case are saved in a uniquely identified file called an Incremental Data Library (IDL). Any RDL and/or IDL may be retrieved for use at a later date (see Chapter 4).

The graphical user interface also prompts the user to select from among several standard output tables. These tables, generated after a model run has finished, provide standard reports for model results. Reports may also be generated for previous cases.

2.3 Data Required to Support the Model

The various types of data required to support operation of the projection model are shown schematically in Figure 2.3. This data is supplied by two sources:

- The waste receipts data come from solid waste forecasts provided annually by the facilities generating solid wastes and from inventory data for stored Hanford wastes.
- The information utilized to represent the treatment, storage, and disposal operations is based on historical information obtained from the R-SWIMS^(a) database, waste generator forecast information, and current design information for the HCWC.

Figure 2.3. Input Data Required for Solid Waste Projection Modeling

(a) Maintained by WHC; not part of the SWPM system developed by PNL.

Distribution of incoming waste receipts and of wastes exiting operations is handled by the flow percentages shown in Figure 2.3. These percentages are used to allocate incoming waste volumes to initial operations and to distribute wastes from one operation to the next operation(s). The percentages are based upon waste properties (physical, chemical, radiological, etc.) that define "treatability" and the operating strategy defined for a case. The distribution percentages may be varied by the user for each case (see Chapter 4).

2.4 Model Results

The various types of output information provided by SWPM are shown schematically in Figure 2.4. The volume of each waste type or class received from each waste generator is reported by the SWPM database, while information relevant to TSD operations is reported by the model. For each treatment or disposal operation, SWPM reports the volume of waste

Figure 2.4. SWPM Output Information

processed annually, the annual cost of processing that volume, and the annual utilization (actual volume divided by available capacity) for the operation.

SWPM also reports the volume of waste sent to storage prior to treatment or disposal during each year for each operation, as well as the annual cost of holding that waste in storage until capacity is available to process the material.

3.0 Preparing SWPM For Use

This chapter provides the user with instructions for setting up the system and preparing SWPM for use. Section 3.1 explains the procedures required for system installation and identifies the required hard disk directories. Section 3.2 explains how to start the workstation and operate the model using OS/2. Section 3.3 contains some general cautionary notes regarding SWPM operation and application.

3.1 Installation

SWPM Version 1.0 is delivered by PNL to WHC pre-installed on WHC equipment; no installation procedure is necessary for operation. (The only exception is that modification of the password file is required to install new user names and their corresponding secret passwords.) Correct operation of SWPM Version 1.0 depends on files and directories existing in specified places.

Users having trouble getting SWPM to run may refer to the *Model Technical Reference Manual* for a listing of required directories and files. Users may also refer to the user assistance contacts listed in Chapter 5.

3.2 Starting SWPM

The computing machinery on which SWPM is installed allows the user to select either the OS/2 operating system or MS-DOS. The SWPM database is operated under MS-DOS, while Version 1.0 of the model operates under the OS/2 Standard edition operating system, Version 1.1, as distributed by IBM and Microsoft.

The screens and menus that compose the SWPM user interface are built in OS/2 Presentation Manager (PM) and feature either keyboard or mouse

input. The most convenient means of selecting menu options is by using the mouse to move the highlight bar to a desired option. Once an option has been highlighted, the user selects that option by pressing the right-hand mouse button, or "clicking." In many instances, the mouse button must be depressed twice, referred to as "double clicking."

To start SWPM, turn on the computer, select the OS/2 operating system (rather than MS-DOS), and press [Enter] twice to log in to the network. A full-screen PM window appears, overlaid with two smaller windows, "Task Manager" and "Start Programs." Using the mouse, click on the "Start Programs" window to bring it to the front. Now double-click on the "OS/2 Full-Screen Command Prompt" line. The windows disappear and are replaced with a conventional text-mode display showing the "C>" prompt. Change to the E:\WHC directory by typing "E: [Enter]" and "CD WHC [Enter]." Now type "SWPM [Enter]." The PM window of the SWPM user interface now fills the screen.

Users unfamiliar with an operating system that uses a graphical user interface may wish to use the "Introducing OS/2" program that comes with the operating system. To do this, start as above, but select "Introducing OS/2" instead of "OS/2 Full-Screen Command Prompt." The program will provide a guided tour of OS/2 and PM.

3.3 Warnings

The following warnings are provided to inform prospective SWPM system users of possible problem areas that may be encountered in using the model. Although Version 1 of the model has been designed to meet the specific requirements of this application, as defined by WHC in cooperation with PNL, this is a complex application with many possible pitfalls for which full user protection has not been built into the model. The following are general cautionary notes:

- The system does not protect against all possible user errors, some of which could lead to invalid output or corrupted data files. The user is advised to follow instructions closely. In the event that a system crash occurs, it may be necessary in some cases to contact PNL to recover from the error (see Chapter 5). (Information on what the user was doing immediately prior to any system crash will be useful in diagnosing the problem.)
- The model depends on the use of a large number of files stored on the system hard disk. Renaming, moving, or deleting any of the required files (or the directories in which the files are stored) could make the model or database inoperable or could result in erroneous output. The directory and file structure currently on the computer must not be altered by the routine user. The E:\WHC directory on the hard disk is provided as user work space.
- A complete SWPM case, based on a full set of data, produces voluminous, complex results requiring substantial time to run and significant effort to decipher. To avoid unnecessary complication, cases should be limited to the elements essential for the required analysis and should be carefully planned in advance.
- The algorithms used in the model have been completely tested and verified. However, the data used as input to the system, as supplied by waste generators or WHC engineers, are partially based on historical information or merely the best current representation of the system. The data cannot be viewed as absolutely correct "reference" information. It is the analyst's responsibility to ensure that appropriate bases are used for the particular analysis being performed.

4.0 Operating the Model

Once the software has been installed and SWPM has been started, the user will define an analysis case and execute the model. This chapter provides instructions in using the SWPM user interface to define a case, initiate a model run, and to generate report tables that present SWPM results.

The SWPM user interface was developed to provide a means for an experienced systems analyst to routinely define analysis cases rapidly and in a consistent manner. The screens and menus that compose the interface with SWPM guide the user through initializing the system, selecting and defining case data, loading and editing data prior to a model run, and initiating a run.

At the end of the start-up procedure, several options appear on the screen. Selecting the "OS/2 full screen command prompt" option causes the OS/2 system prompt to appear. Change to the WHC directory on the E:\drive, and type "SWPM" to invoke the model's user interface.

When the SWPM system is active, its main window appears. This window contains a top-level menu bar with the options "Setup/Run" and "Exit." At any time during a SWPM session, "Exit" may be used to discontinue the session and exit the SWPM system.

"Setup/Run" provides the user with all of the options needed to execute a SWPM session. Pulling down the "Setup/Run" menu reveals several options:

- **Initialize:** This option allows the user to complete the sign-on procedure and decide whether to use an existing case or to create a new case.
- **Preselect:** This option allows the analyst to choose the entities (i.e., waste generators, waste classes, treatments, etc.) to be included in the current case.

- **Load:** This option loads the preselected entities into the user interface.
- **Edit:** This option allows the analyst to modify data for individual entities.
- **Run:** This option starts a SWPM run.
- **Generate Reports:** This option allows the user to specify the output report formats to be used to present SWPM results.
- **Stop:** This option allows the user to stop either a model run or report generation.
- **Status:** This option tells the user if either the model or report writer has been run during the current session, or that they are currently running, or that they have successfully completed a run.

At this stage in the SWPM session, only the "Initialize" option is enabled.

4.1 Initializing

Selecting the "Initialize" option under the "Setup/Run" menu reveals a sub-menu with three options. At this stage, only the "Sign On" option may be selected, which asks for user identification when selected. Type the appropriate user name and press "Enter" or click the OK button. (Remember, clicking the Cancel button cancels the SWPM session.) After the user name has been entered, a message appears requesting a password. Type in the assigned password and press "Enter." (As a security precaution, the password does not appear on the screen as it is typed.) If the correct password is not entered, the request for a user name continues to reappear until the proper password is entered or the escape key is pressed.

Now that the user has signed on to SWPM, the other two choices indicated in the "Initialize" sub-menu are available: "Create New Case" or "Load Old Case." To rerun an existing case, or to create a new case by modifying an existing case, select "Load Old Case," which results in a listing of existing SWPM cases. If the box is empty, there are no existing cases and the user should click the Cancel button and create a new case. As with all list boxes, selections can be made by double-clicking on the item of choice or by selecting the item of choice and pressing "Enter." Having selected an existing case, the user can now define the current case, preselect entities to be included in the current case (see Section 4.2), or go directly to loading and editing data (see Section 4.3).

Selecting an existing case automatically chooses the SWPM Reference Data Library (RDL), which contains data for the case. In many cases, the user may wish to use an alternative RDL, or an RDL that has been newly generated by the SWPM database and is now available for use in a new case. For these situations, the "Create New Case" option under the "Initialize" sub-menu is chosen.

Selecting the "Create New Case" option prompts the user to provide a unique name (limited to eight characters or less) for the new case and to choose the correct RDL to accompany the new case. If a name currently assigned to an existing case is provided under the "Create New Case" option, SWPM asks for confirmation that the user wishes to overwrite the existing case.

4.2 Preselecting

The "Preselect" option under the "Setup/Run" menu allows the user to begin defining a case by preselecting the entities to be included. Because loading all of the data in a SWPM library file is time-consuming, the user interface

allows preselection of specific waste generators, waste classes, and treatment and disposal operations of interest for a particular case.

Choose the "Preselect" option under "Setup/Run" in the menu bar. Three list boxes appear, containing names of waste generators, waste classes, and operations. To the left of each entity name, there is either a small circle, indicating that the entity is not currently selected for use, or a check mark, indicating that it is selected. When starting from an existing case rather than creating a new one, some of the waste generator and operation entities may already be selected, and some or all of the waste classes may be selected. Selecting an entity that is already selected (i.e., checked) de-selects it. Selecting a waste class causes all of the existing treatment and disposal operations on that waste class to be displayed in the "Operations" list box; deselecting a waste class causes them to vanish. (If de-selection of a waste class would cause a previously selected operation to vanish, a warning appears on the screen.) Note that the type of operation (treatment or disposal) currently highlighted is indicated under the "operations" list box.

To select a waste generator, click on one that is not currently checked. A box appears asking for specification of a scenario from which to load the data for that waste generator. Choose one of the existing scenarios shown in the list. (There will also be an opportunity to specify a new scenario name for the waste generator during the edit phase, as described in Section 4.4.) Once a scenario has been chosen, this box vanishes, and other entities may be selected or de-selected. (To change the scenario selected for a waste generator, just double-click on the waste generator's name to de-select it, then double-click on it again to select it and get the scenario assignment box back.)

If the "Select All WGs" option is chosen, the same scenario is used for all waste generators. If one or more of the waste generators in the list box has no information files under the scenario name selected, a message to that effect appears on the screen.

To select a waste class for loading or to exclude from loading one that is currently selected, simply double-click on its name. (Note that this causes the contents of the "Operations" list box to change, because operations are specific to waste classes.)

The preselection of operations is exactly like that of waste generators. When all desired preselections have been made, click the OK button to dismiss the preselection box. Data from the data library file may now be loaded.

4.3 Loading Data

Once a subset of data has been preselected, this information is loaded from the chosen data library. Selecting the "Load" option under "Setup/Run" in the main menu turns the arrow cursor into an hourglass, indicating that loading is being performed. (Loading takes a minute or two, depending on the size of the data library.) When loading is complete, an alert is sounded and the hourglass cursor turns back into an arrow.

The data that was loaded may now be edited, or the user may proceed directly to initiating a run (see Section 4.5).

4.4 Editing Data

In many cases the user may wish to alter the configuration of the treatment streams, the volume of waste accepted into the system, or the capacities of individual operations or to make any number of other case-specific adjustments. These modifications may be made to the loaded data through the SWPM user interface using the "Edit" option. Specifically, the user may perform the following functions using the "Edit" option:

- **Edit Waste Generator (WG) Data:** This option allows the user to modify the list of WGs to be used in a case, to modify the

projected volume of waste in a specific WC to be accepted annually from WGs, or to modify the distribution of waste accepted from WGs to first treatment operations.

- **Edit Waste Classes:** This option allows the user to modify the way waste classes are grouped.
- **Edit Operations:** This option allows the user to modify the list of allowable operations for a case; to modify the cost, capacity, or volume adjustment ratio for individual operations; and to modify the distribution of wastes exiting from individual operations.

In addition, the user may add or edit comments for each of the above functions or modify the way in which entities such as WGs, waste classes, or operations are ordered into groupings.

Editing consists of two steps: selection and modification. During selection, the entity to be edited (e.g., a waste generator) is chosen. Once the entity has been selected, the attribute to be modified (e.g., the annual volume of a particular waste) is chosen. The first time this is done for each entity selected, a box appears requesting a new scenario name for the entity. This box contains scenario names that have not yet been used for the currently selected entity (if any). If no names appear in the list, make up a name and enter it.

The new data will be stored in the Incremental Data Library (IDL) under the assigned scenario name and can be recalled and loaded into another case by specifying the scenario name in the preselect phase.

To begin editing data, select "Edit" under "Setup/Run." A second window appears with the title "Edit" and a menu bar containing the following options: "Waste Generator," "Operation," "Waste Class," "Case Description," and "Close."

4.4.1 Editing Waste Generator Data

To edit the data for a waste generator, a waste generator and one of the waste classes it produces must be specified. This is done by moving to the option "Waste Generator" in the lower menu bar and choosing the "Select" option. A box appears with two lists, one containing waste generator names (with scenario names appended), the other empty. When a waste generator is selected from the left-hand list, a list of waste class names appears in the right-hand box. Select one of these waste classes; then click the OK button or press "Enter."

The user may choose to select a different waste generator; the list of waste classes then changes to reflect the output of the newly selected waste generator. Both waste generator and a waste class must be selected before further editing may progress.

Creating a New Waste Generator. The waste generator selection box contains an option labeled "Create New Waste Generator." If this option is chosen, another box appears that allows creation of a new waste generator. After entering the name of the new waste generator, double-click to specify each of the waste classes the new waste generator produces. (Remember, double-clicking on an already selected waste class de-selects it.) After specifying the output of the new waste generator, click the OK button or press "Enter." Another box appears requesting that the user specify a scenario for the new waste generator. Select or type in a scenario name, then click OK or press [Enter]. Note that the newly created waste generator has been added to the left-hand list box.

Editing Projections and Distributions. To edit the numerical data for the currently selected waste generator and waste class, select "Projection/Distribution" under "Waste Generator." A large box appears, which contains three lists boxes, two small edit boxes, and some buttons.

The left-hand list shows the projected quantity of the current waste class produced by the current waste generator during each year. To change a quantity, enter the new quantity in the edit box; then double-click on the year (or years) in the list box. To enter the same quantity into consecutive years, press "Enter" repeatedly. To change the quantity being entered, use the keyboard to change the value in the edit box.

The lower right-hand list box shows the distribution of the waste class among treatment and disposal operations. To add a new operation to the distribution, double-click on its name in the upper right-hand list box. It will be entered with a fractional value of 0.000. To change fractional values of the distribution, enter a new fractional value in the edit box under the lower right-hand list box; then double-click on the corresponding distribution in the lower right-hand list box.

To assign the waste generator's output of the current waste class to an operation that is not on the list of available operations, or even to a new operation, select the "Create New Operation" option. This operation is described in 4.4.2.

When finished with both projections and distributions, click the OK button to dismiss the dialogue box. If the distributions do not sum to unity, it will not be possible to exit until they are corrected. (Using the "Cancel" option at this point causes the data to revert to the state it was in when the dialogue box was first entered.)

4.4.2 Editing Operations

The following subsections describe the procedures for editing operations data.

Selecting an Operation to Edit. Choose "Select" under "Operation" in the second menu bar. A dialogue box that lists the names of currently available operations appears with scenario names appended. Select one to edit and dismiss the dialogue box.

Creating a New Operation. The Operation selection dialogue box contains an option labeled "Create New Operation." When this option is selected, another dialogue box appears that allows creation of a new treatment or disposal operation. This dialogue box includes two list boxes, one showing general operation types and the other showing waste classes. Also included is an edit box, in which the name of the new type of operation may be entered, and a pair of buttons for specifying a treatment or a disposal operation. Using the left-hand list box or the edit box, specify a general operation type. Using the right-hand list box, specify a waste class. These two selections will be combined to produce a new operation. (As usual, double-clicking on a selected entity de-selects it.) When finished, click the "OK" button or press "Enter." Another dialogue box appears, requesting specification of a scenario for the new treatment or disposal. Specify a scenario; then click OK or press [Enter]. Note that the newly created operation has been added to the list of operations.

Editing Capacities and Distributions. To edit the numerical data for the currently selected operation, select "Capacity/Distribution" under "Operation." A large dialogue box appears that contains three list boxes, five small edit boxes, and some buttons. (If the current operation is a disposal, only the boxes that pertain to capacity, not distribution, will be used.)

The left-hand list box shows the currently defined capacity of the operation for each year. To change a capacity, enter the new quantity in the edit box under the list box, then double-click on the applicable year (or years) in the list box. To enter the same quantity into consecutive years, strike "Enter" repeatedly. To change the quantity being entered, use the keyboard to change the value in the edit box.

The lower right-hand list box shows the distribution of the output of the treatment operation among other treatment and disposal operations. To add a new operation to the distribution, double-click on its name in the upper right-hand list box. It will be entered with a fractional value of 0.000. To change fractional values of the distribution, enter a new fractional value in the edit box under the lower right-hand list box, then double-click on the corresponding distribution in the lower right-hand list box.

To distribute the output of a treatment to an operation that is not on the list of available operations, or even to a new operation, click the "Create New Operation" button. The dialogue box for creating a new operation appears.

When finished, click the OK button to dismiss the dialogue box. If the distributions do not sum to unity, it will not be possible to exit until they are corrected. As with waste generators, the user is not permitted to exit until comments have been entered. (Clicking Cancel at this point causes the data to revert to the state it was in when the dialogue box was first entered.)

4.4.3 Editing Waste Classes

A waste class is selected for editing in the same way that a waste generator is selected. Under "Waste Class" in the second menu bar, choose the "Select" option.

The only thing that may be edited for a waste class is the various groups to which it belongs. Select "Groupings" under "Waste Class" and proceed as described above for waste generators.

4.4.4 Editing Comments

The user may wish to add or edit comments in order to describe how the case-specific waste generator data and/or operations data were created and

for what purpose. For the "Waste Generators" option under the "Edit" sub-menu, the user may select the "General Comments" to view or edit all of the prior comments recorded in a scenario for the currently selected WG or to add new comments. These comments provide general documentation for the data assigned to an individual WG. The user may also select "Projection Comments" to document changes to the annual waste volumes projected for an individual WG or "Distribution Comments" to make document changes to the distribution of wastes to operations.

The user may also use comments to document edited data under the "Operations" option. The user may select "General Comments" to view or edit all of the prior comments recorded in a scenario for the currently selected operation or to add new comments. The user may also select "Capacity Comments" to document changes to the annual capacity for an individual operation or "Distribution Comments" to make document changes to the distribution of wastes to subsequent operations.

4.4.5 Editing Groupings

To examine and/or specify the groups to which a currently selected entity belongs, choose the "Groupings" option under the "Waste Generator," "Operations," or "Waste Class" options. (The screen is the same for all options). The left-hand list box shows the names of the groups to which the waste generator currently belongs, while the right-hand list box shows all of the group names for the currently selected case. To the left of each group name in the right-hand list box is a set of letters. A "G" indicates that the corresponding group contains at least one waste generator; a "C" indicates that the group contains at least one waste class; a "T" indicates that the group contains at least one treatment operation; and a "D" indicates that the group contains at least one disposal operation.

To remove the currently selected entity from a group, select the name of the group from the left-hand list box and click the "Delete" button. To add an entity to an existing group, select the name of the group from the right-hand list box and click the "Add" button. To create a new group and add an entity to it, enter the new group name in the edit box and click the "Add" button. When finished, click the "OK" button to dismiss the dialogue box.

4.5 Initiating a Run

After editing, select "Close" from the second menu bar. The lower window vanishes. This action enables the "Run" menu item under "Setup/Run" in the top menu bar (unless the model is already running). To submit the data that has been loaded (and probably edited) to the model, select "Run." If a comment about the case has not already been entered (by using the "Describe Case" option in the Edit menu) a dialogue box appears requesting that a comment be entered. Click OK or press "Enter" after entering the dates for the run and writing a comment.

At this point, the hourglass symbol appears on the screen indicating that information is being processed. After a few seconds, an alert sounds and the arrow cursor returns. The model is now running in the background. If desired, the user may pull down the "Initialize" sub-menu and preselect, load, and edit data for another case.

The user may also drag the main SWPM window out of the way or park it in an icon and perform other OS/2 functions while the model is running. The only thing that cannot be done while the model is running is to initiate simultaneous runs, because of memory management constraints.

When the model terminates, an alert sounds. The "Status" option under "Setup/Run" can be used to determine what happened during the model's execution.

4.6 Selecting, Generating, and Printing Reports

Under "Setup/Run," select "Report," which reveals a sub-menu. To select tables to include in the report, choose the "Specify Content" option. A dialogue box appears with a list box from which any or all report tables may be selected. Table 4.1 summarizes the types of output reports available.

To specify the order in which reports are generated and printed, select "Specify Order." This reveals a sub-menu with eight options: waste generators, waste classes, treatments, disposals, waste generator groups, waste class groups, treatment groups, and disposal groups. When any of these options are selected, a dialogue box appears containing two list boxes, the left one empty and the right one containing the names of instances of the selected entity or group type. Double-click on the entity that is to appear in the report first; note that it appears at the top of the empty box. Now double-click on the entity that is to appear second, then third, etc. Double clicking on entities in the right list box removes them from that box. When the right box contains the complete list of entities in the desired order, click OK.

To begin generating the report, select "Generate." To print a finished report, select "Print."

Table 4.1. Solid Waste Projection Model Output Information

Category of Results	Available Output Information
1. Receipts from Waste Generators	<ul style="list-style-type: none">• annual volumes by waste class
2. Storage Before Treatment	<ul style="list-style-type: none">• annual volumes by treatment type• annual costs by treatment type• annual incremental volumes
3. Treatment Processes	<ul style="list-style-type: none">• annual volumes by treatment type• annual costs by treatment type• annual percent utilization by treatment type
4. Storage Before Disposal	<ul style="list-style-type: none">• annual volumes by disposal type• annual costs by disposal type• annual incremental volumes
5. Disposal Options	<ul style="list-style-type: none">• annual volumes by disposal type• annual costs by disposal type
6. Summary of Input Data ^(a)	<ul style="list-style-type: none">• operating parameters for treatment processes and disposal options• capacity schedules for treatment processes and disposal options

(a) Although this category is actually model input, it is reported in the output to assist the user in evaluating the output information.

4.7 Exiting

To leave SWPM, select "Exit." If the model and/or the report generator is still running, a caution message appears stating that exiting now will kill background jobs. (Remember, it is not necessary to exit SWPM to perform

other OS/2 functions; just park SWPM in its icon and proceed. If you are not familiar with this operation, please see the OS/2 operator's manual.) If any editing has been done since the last execution of the "Run" command, a message appears asking if saving is desired prior to exiting. An affirmative answer causes any changes made to the data to be written to the incremental projection data file. A message appears asking for a new case description if one has not already been entered.

5.0 User Assistance

Should a SWPM user require assistance in resolving technical difficulties, the following individuals may be contacted:

- Steve Shaver, PNL task manager and primary contact for model operation and model user support: 376-4258.
- Dennis Stiles, PNL project manager; primary contact for analytical support: 376-4154.

Requests for information by WHC personnel should also be coordinated with the WHC program monitor, B. C. (Andy) Anderson, at 373-2796.

END

DATE FILMED

10 / 23 / 90