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WASTE TREATABILITY GUIDANCE PROGRAM

USER'S GUIDE

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U.S. DEPARTMENT OF ENERGY
CARLSBAD AREA OFFICE

WASTE TREATABILITY GUIDANCE PROGRAM

USER'S GUIDE
REVISION 0

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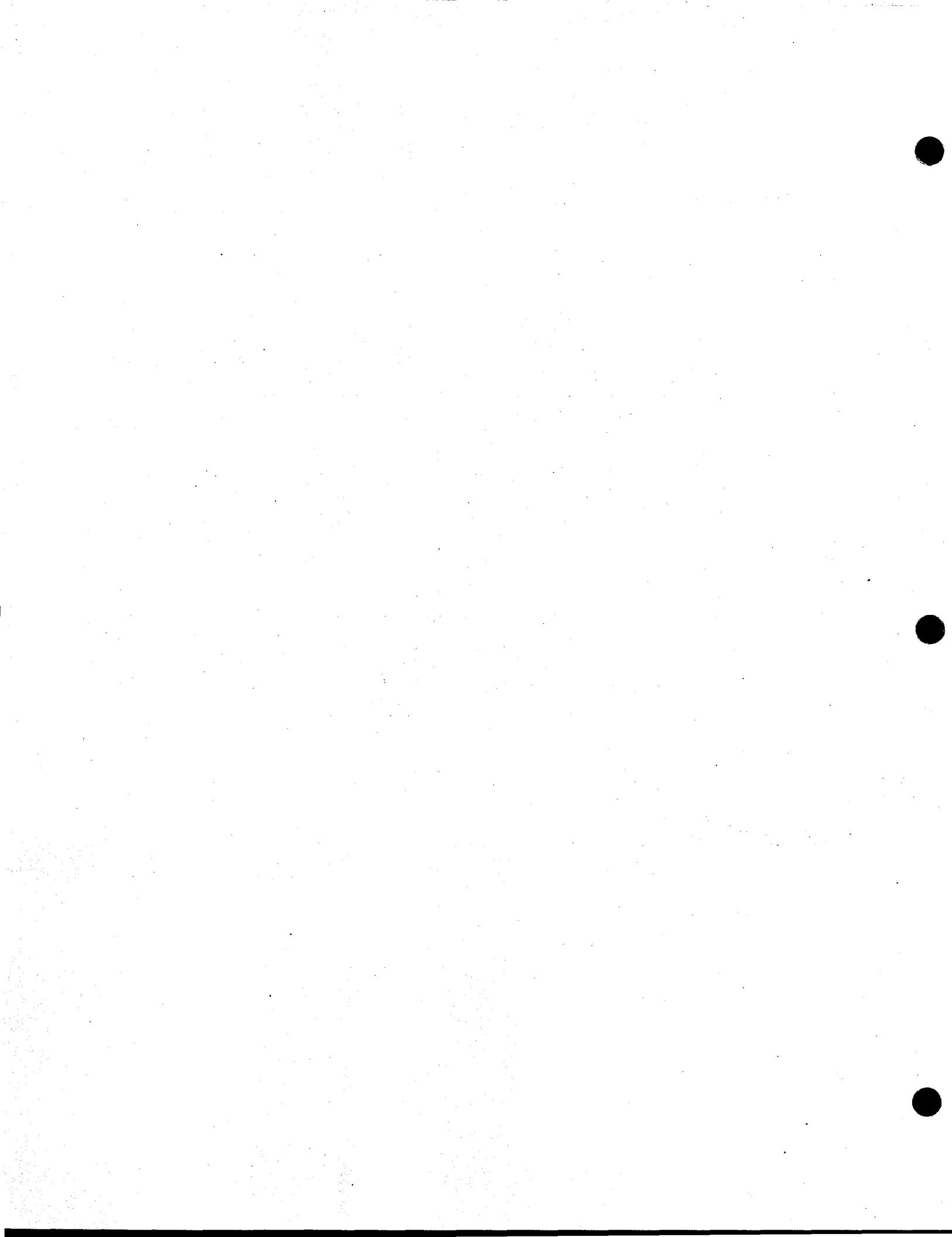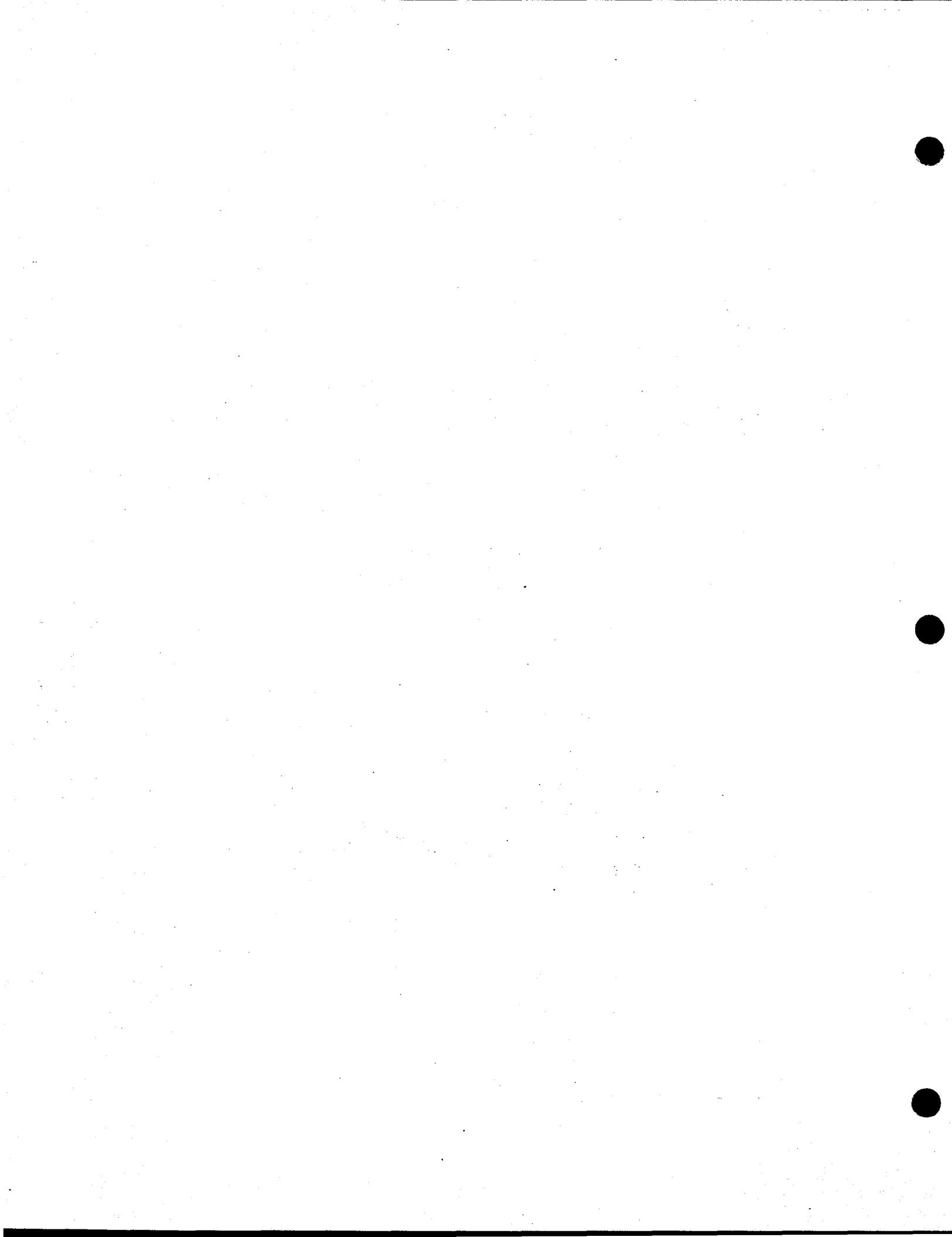CAO, RH TRU Manager, National TRU Program   Date

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Chapter 1. Introduction

1.1   Background

The Department of Energy (DOE) has numerous sites across the country that generate and manage wastes from a variety of production processes and activities. Wastes at these sites include radioactive, hazardous, mixed, and sanitary waste types. Since each site is ultimately responsible for managing its waste, from generation through final disposition, it is necessary for each site to determine the technologies and associated capacities required to manage its waste. The sites must also develop and implement plans for providing these technologies and capacities. On a broader level, one role of the DOE Headquarters (DOE-HQ) Office of Environmental Restoration and Waste Management (DOE-EM) is to facilitate the integration of the site-specific plans into coherent national plans in order to minimize the overall cost by optimizing the use of technologies and facilities. In addition, both the sites and the DOE-EM are frequently required to prepare reports presenting waste information.

Preparing valid waste management plans and consistent waste information reports requires developing and maintaining technically defined, site-specific waste stream data sets. Therefore, the DOE has developed a standard methodology for defining and categorizing waste streams into treatability groups based on characteristic parameters that influence waste management technology needs. The parameters are based on radiological, bulk physical/chemical form, and regulated contaminant characteristics. The methodology applies to all waste types and is presented in "DOE Waste Treatability Groups Guidance" (DOE/LLW-217, Revision 0, January 1995). This document is referred to in this User's Guide as the "Guidance Document".

The Waste Treatability Guidance Program automates the Guidance Document for the categorization of waste information into treatability groups. This application provides a consistent implementation of the methodology across the National TRU Program. The program allows the sites to select waste categories based on the characteristics of a waste stream and assigns the correct waste codes according to the user selections. In addition, the program provides a set of consistent definitions of the waste codes and makes them available on-line to the user.

1.2   Statement of Purpose

This User's Guide provides instructions on how to use the Waste Treatability Guidance Program, including installations instructions and program operation. The guide describes system functions and features and how to interact with the user interface of the application.

This document satisfies the requirements of the Software Quality Assurance Plan for the Waste Treatability Guidance Program regarding User's Guide documentation.

Chapter 2. Getting Started

2.1 System Configuration

The Waste Treatability Guidance Program runs on an IBM-compatible personal computer (PC) with the following minimum configuration:
- 386 processor or greater,
- 8 MB of available disk space,
- 4 MB of conventional memory (8 MB is recommended),
- Graphics adapter card (VGA, Super-VGA, or other Windows compatible graphics card).
- Windows-compatible mouse
- Microsoft Windows Version 3.1 or later running with Disk Operating System (DOS)

In addition, the program requires the following minimum software configuration:
- FILES = 30
- BUFFERS = 20

The set up program will automatically add the following directory to the path statement in the CONFIG.SYS file.
- %PATH% =   c:\windows\asym

2.2 Installation Instructions

Complete the following steps to install the program on your hard disk:
1. Insert distribution disk 1, labeled Setup, into drive a:
2. From the FILE menu, select RUN and type "a:\setup".
3. Select a complete installation
4. Follow the on-screen instructions

Note: This installation establishes the application programs and a runtime version of ToolBook. If ToolBook is already installed on your computer, you may install the application by following the above steps. However, if you decide to remove ToolBook prior to installing the application, it is necessary to re-boot after removing ToolBook and prior to installing the application.

2.3   Program Execution

The program is ready to run. To start, double-click on the NTP icon in the Main Windows group, or run "c:\tru_wg\truwaste.exe" from the File menu.

The program will display the initial splash screen start-up sequence and proceed to the Security Screen.

2.4   Exiting the Program

To exit the program, return to the Main Menu screen and select the "Quit Program" user button on the Main Menu Screen with the left mouse button. Return to the Main Menu Screen in one of the following ways:
- pressing the "Return to Main Menu" user button, if displayed.
- pressing the "Previous Page" user button displayed on each matrix parameter screen until the first screen of the matrix is displayed and then pressing the "Return to Main Menu",
- pressing the "Start Over" user button on any matrix parameter screen to return to the top of the matrix and then pressing the "Return to Main Menu" button, or
- pressing ALT-F4 from anywhere in the program. Only information that has been saved by the user will be retained.

Chapter 3. System Operation

3.1 Security Screen

On initiation of the program, the Security Screen for the TRU Waste Treatability Guidance Program will be displayed with boxes for User Name, Password, and HQ Waste Stream ID. All three fields are mandatory. Select each box with the left mouse button or tab key and enter the appropriate information. Press the "Press to Continue" user button to proceed to the Main Menu Screen.
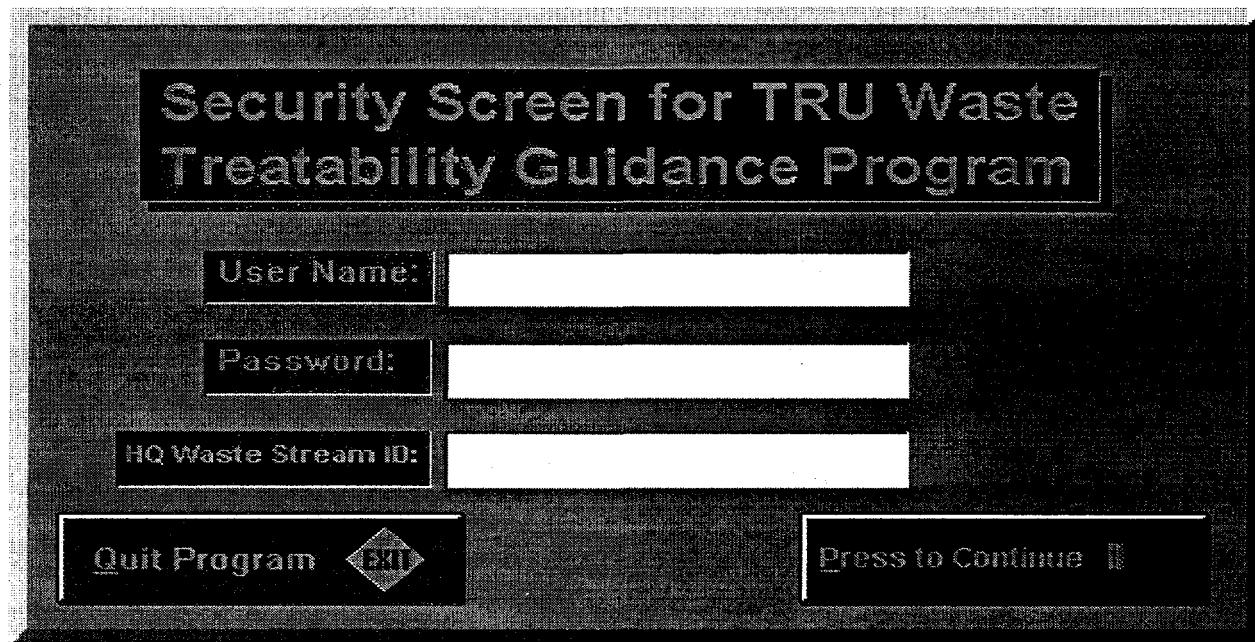
Figure 1.
Security Screen

HQ Waste Stream ID is the TRU Waste Stream identifier assigned to all TRU waste destined for the Waste Isolation Pilot Plant (WIPP). If a waste stream has not been assigned a HQ Waste Stream ID, enter the unique site waste stream identifier. The program will verify that the waste stream identifier has not been previously entered. If it has, a screen is displayed to allow the user to either enter a different identifier or edit the information that has been previously entered.

The program will verify the user name and password. The program allows four opportunities for entering a valid user name and password. After the fourth unsuccessful attempt, the program is automatically terminated.

3.2   Main Menu Screen

The Main Menu Screen is shown in Figure 2. This screen provides access to all system features and functions through selection of menu items.
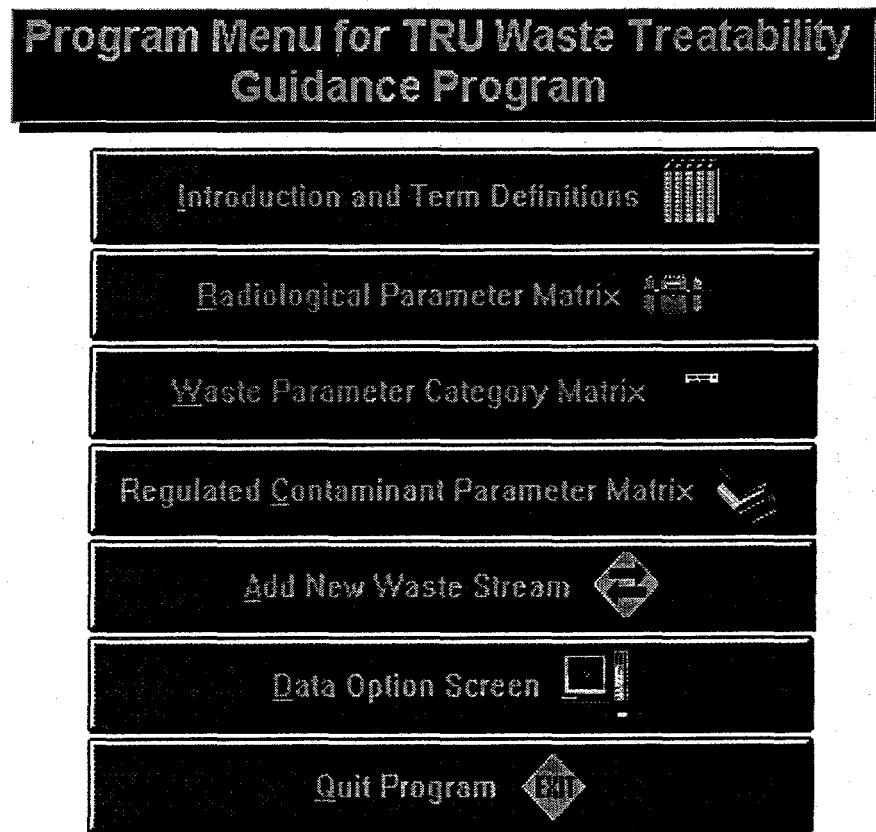
Figure 2.
Main Menu Screen

The actions associated with each item on the Main Menu are presented in Table 1. The items are user buttons, and the associated actions are initiated by selecting the buttons with the left mouse button.

Table 1.
Main Menu Items and Actions

Menu Item	Action
Introduction and Term Definitions	Displays the introduction from the Guidance Document and allows the user to access another screen to view definitions of terms.
Radiological Parameter Matrix	Proceeds to the Radiological Parameter Matrix (Figure 4-1 in the Guidance Document).
Waste Parameter Category Matrix	Proceeds to the Waste Matrix Parameters (Figure B-1 in the Guidance Document).
Regulated Contaminant Category Matrix	Proceeds to the Regulated Contaminant Parameter Category Components (Figure 6-1 in the Guidance Document).
Add New Waste Stream	Accesses a screen which allows the user to enter a new waste stream id. After entering a new id, all waste code categories selected will apply to the new waste stream id.
Data Option Screen	Accesses the Data Option Screen to allow the user to view, and waste stream information. Search and sort operations are also available from this screen.
Quit Program	Exits the program.

The Radiological Parameter Matrix, Waste Parameter Category Matrix, and Regulated Contaminant Category Matrix user buttons have definitions associated with them. To view the definitions, select these items with the right mouse button. The definition, which is the overview information from the Guidance Document, will be displayed in a definition box. Close the box by clicking on it with the left mouse button.

3.3   Introduction and Term Definitions Screens

3.3.1   Introduction screen

Figure 3 presents the Introduction Screen. This screen is accessed from the Main Menu by selecting the "Introduction and Term Definitions" item.

Introduction

INTRODUCTION

This guidance presents a concept for defining and categorizing waste streams based on characteristic parameters that influence waste management technology needs. Implementation of this guidance at each U.S. Department of Energy (DOE) site will facilitate the development of technically defined, site-specific waste stream data sets to support waste management planning and reporting activities. Furthermore, consistent implementation at all of the sites will enable aggregation of the site-specific waste stream data sets into comparable national data sets to support these activities at a DOE complex-wide level.

DOE has numerous sites located throughout the the country. These sites generate and manage waste from a variety of production processes and other activities. This includes waste that is radioactive, hazardous, mixed (i.e., radioactive and hazardous), and sanitary (i.e., nonradioactive or hazardous). Historically, most of the waste was generated from activities associated with the

Go to Definitions   Return to Main Menu

Figure 3.
Introduction Screen

The introduction screen displays a description of the program purpose and underlying concept from the introduction section of the Guidance Document. A scroll bar is provided to allow viewing the entire text . In addition, as shown in Figure 3, two user buttons are provided for

program control. The actions are activated by clicking on the buttons with the left mouse button or by selecting the underlined letter from the keyboard. Table 2 identifies the actions associated with each user button.

Table 2.
Introduction Screen User Button Definitions

User Button	Action
Go to Definitions	Proceeds to the Term Definitions screen.
Return to Main Menu	Returns to the Main Menu screen for subsequent selections.

3.3.2 Term Definition Screen

Figure 4 displays the Term Definition Screen. This screen is accessed from the Introduction Screen with the "Go To Definitions" user button.

Definitions

Parameter
- Radiological Parameter
- Matrix Parameter
- Regulated Contaminant Parameter

Waste Type
- Radioactive Waste
    High-Level Waste
    Transuranic (TRU) Waste
    Low-Level Waste
    Mill Tailings

- Hazardous Waste
    RCRA Regulated
    TSCA Regulated
    RCRA/TSCA Regulated
    State Regulated
    RCRA Regulated - Meets LDRs
    Suspect Regulated

- Mixed Waste
- Sanitary

Return to Introduction

Figure 4.
Term Definition Screen

This screen provides a list of terms used throughout the Guidance Document as user buttons. Definitions are accessed by selecting the desired term with the right mouse button. The definition will be displayed in a definition box. To close the definition, simply click on the definition box with the left mouse button.

One user button is defined for this screen, the "Return to Introduction" button. This user button exits the Term Definition Screen and returns to the Introduction Screen.

3.4   Parameter Category Matrix Screens

The Parameter Category Matrix Screens represent the bulk of the application. These screens reproduce the waste parameter category diagrams as shown in Figures 4-1, B-1, and 6-1 of the Guidance Document. These screens are designed to allow the user to work through the logic of the diagrams by presenting each successive level of options as selectable buttons. The screens are all similar in appearance and operation and will be discussed collectively. The Parameter Category Matrix Screens are accessed by selecting the Radiological Parameter Matrix, the Waste Parameter Category Matrix, or the Regulated Contaminant Category Matrix items from the Main Menu Screen. Figures 5-7 show the first screen of each of the three matrices.
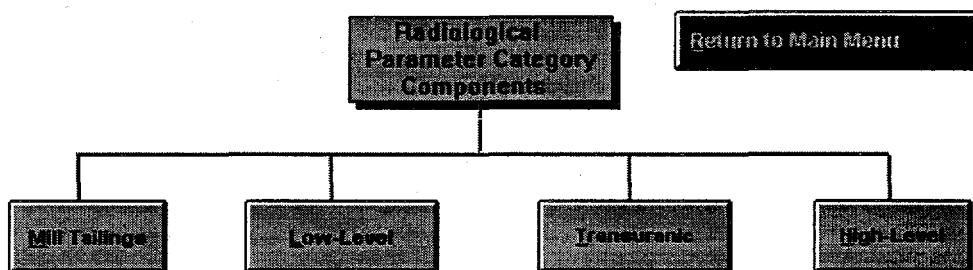

Radiological Parameter Category Components

Figure 5.
First Screen of the Radiological Parameter Matrix
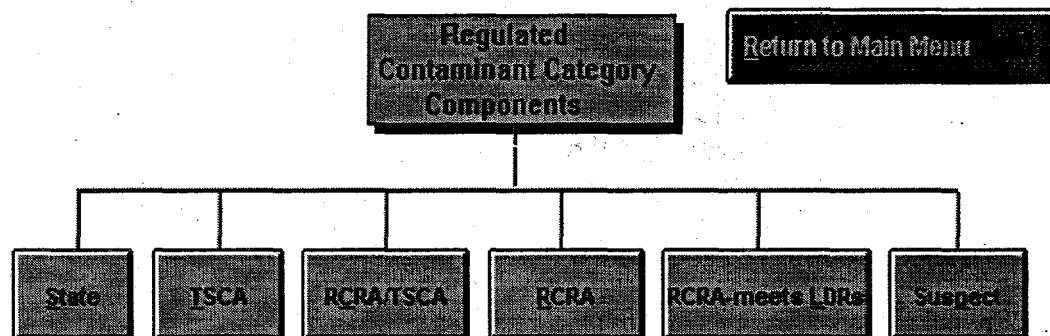
Regulated Contaminant Category Components

Figure 6.
First Screen of the Waste Parameter Category Matrix

Matrix Parameter Categories
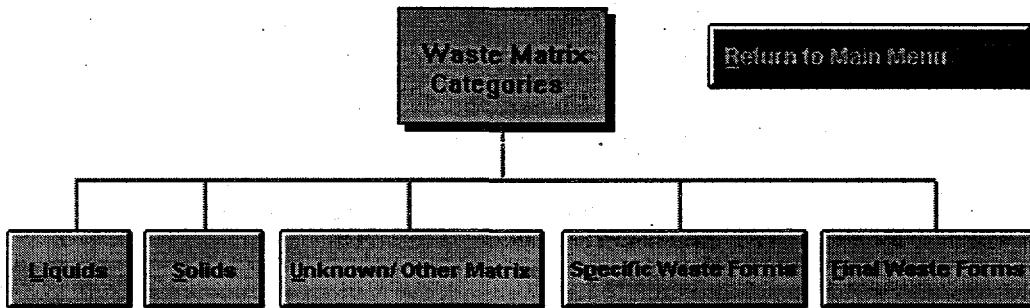
Figure 7.
First Screen of the Regulated Contaminant Matrix

3.4.1 Screen Operation

As shown in Figures 5-7, the first screen of each of the Parameter Category Matrices displays the matrix title and the first level of the matrix. All items are user buttons. The title button is deactivated because it has effectively been selected from the Main Menu. The other user buttons (e.g., "Mill Tailings", "Low-Level", "Transuranic", and "High-Level" in the Radiological Parameter Category matrix) are active. Selection of one of these buttons with the left mouse button directs the program to display the next level of options for that matrix. In addition, user buttons are defined throughout the screens to provide program control. Refer to section 3.4.2 for more information. Finally, definitions of the buttons are available from the right mouse button. Operation of the definitions feature is described in section 3.4.3.

The following steps describe the operation of all the matrix parameter screens.

(1)   Select one of the parameter matrices (i.e., Radiological Parameter Matrix, Waste Parameter Category Matrix, or Regulated Contaminant Category Matrix) from the Main Menu Screen. The program displays a screen with the title of the matrix (i.e., from the Guidance Document figure title), the title user button of the diagram, and user buttons representing the first level of user options.

(2)   View the presented options.

(3)   Select the user button representing the appropriate waste code category based on your knowledge of the waste stream characteristics. The program will build a diagram showing your previous choices and present the next level of options (i.e., the next level of the diagram) based on your selections. For example, to assign the matrix parameter category code for a waste stream consisting of solid metal debris which does not contain lead or cadmium, select "Solids" at the top level of the Matrix Parameter Categories diagram (refer to Figure 6). Note that although the user buttons are still displayed, the user buttons for previously selected categories are deactivated for definition purposes. Refer to **"Definitions"** below for more information.

(4)   View the next level of options, if applicable.

(5)   Select one of the presented options based on your knowledge of the waste stream characteristics. In the example of solid metal debris, the next level selection would be "Inorganic Debris". The program will build a diagram showing your choices and present the next level of choices based on your selections.

(6)   View the next level of options, if applicable.

(7)   Continue viewing and selecting options based on knowledge of the waste stream characteristics until the program presents the final waste code and its definition. Figure 8 shows the final waste code and path for the example of solid metal debris.

(8)   Save the selected waste code to the current waste stream with the "Save Information" user button. Refer to section 3.4.2 for more information on the user buttons.

Figure 8.
Final Path and Assigned Waste Code for Metal Debris without Lead or Cadmium

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3.4.2 Program Control Features

User buttons are provided throughout the matrix parameter screens for program control. These buttons are activated by selecting them with the left mouse button. The following table summarizes the user buttons, their location, and their actions.

Table 3
Matrix Screens Program Control User Buttons

User Button	Location	Action
Return to Main Menu	Initial screen of each Parameter Category Matrix, which is displayed after selecting the matrix from the Main Menu.	Returns to the Main Menu. In effect, this action cancels selection of the matrix. No waste codes are saved if the user has not saved them with the "Save Information" user button.
Previous Page	All waste matrix parameter screens after the first level.	Return to the immediately preceding level. This button effectively cancels the last user waste code category selection.
Start Over	All waste matrix parameter screens after the first level.	Return to the first screen of the current waste parameter matrix and aborts all unsaved selections for the current waste stream.
Save Information	On the last screen of a matrix when the final waste code has been selected.	Saves the selected waste code and path to the current waste stream.

3.4.3 Definitions

Definitions are provided for each waste code category, at all levels of the matrix, by selecting the waste code category user button with the right mouse button. A definitions box will be displayed containing the definition for that waste code category. Figure 9 shows a definition box displayed on a matrix parameter screen.

Matrix Parameter Categories

S Solids and Associated Categories

The initial Solids (S) summary category addresses waste with physically solid matrices, including sludges. Sludges are defined as having a TSS > 30%. Certain waste with physical solid matrices are excluded from this category. These include solids that meet the criteria for assignment to the Specific (X) and Final (Z) Waste Forms summary categories.

Figure 9.
Definition Box On a Waste Matrix Parameter Screen

The following steps summarize the steps to view definitions of waste code categories:

(1)   To view the definition of any waste code category, click on its button with the *right* mouse button.

(2)   To exit the definition and close the definition box, click anywhere on the definition box with the *left* mouse button.

Note that definitions are available only for the current options, not items selected on previous screens. Definitions for previously selected items can be viewed by returning to the screen they were selected on and clicking on them with the right mouse button.

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3.5 Add New Waste Stream Screen

The Add New Waste Stream screen is shown in Figure 10. This screen is accessed from the Main Menu item "Add New Waste Stream" and allows the user to change the current waste stream identifier and enter information for a new waste stream or edit selected codes for a previously entered waste stream.
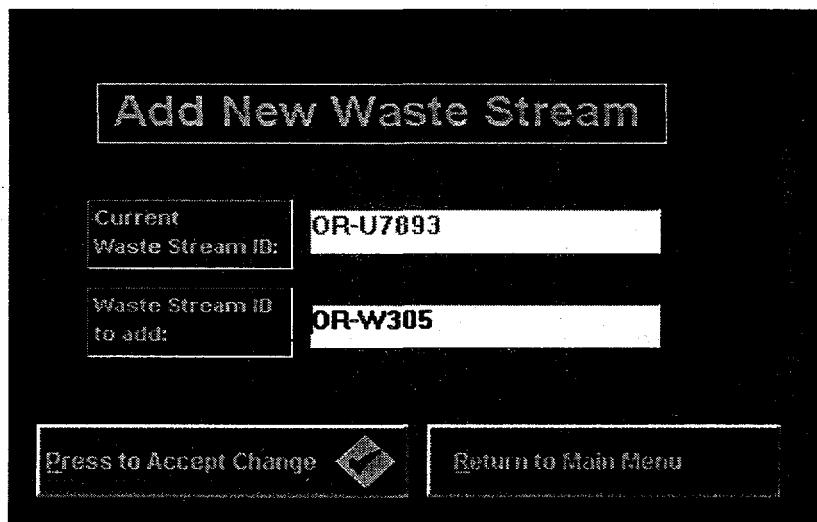
Figure 10.
Add New Waste Stream Screen

3.5.1 Screen Operation

The Add New Waste Stream screen consists of two data fields and two user buttons. The system displays the current waste stream identifier in the "Current Waste Stream ID" field and allows the user to enter a new waste stream in the "Waste Stream ID to add:" field. The new waste stream will be the current waste stream and all waste codes will be assigned to that waste stream.

If the new waste stream id has been previously entered, the program requires confirmation to overwrite the previously entered data. Entering a waste stream that is already in the system effectively switches the current waste stream; duplication is not permitted. After confirmation, all waste codes will be assigned to the new waste stream.

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3.5.2 User Buttons

Two user buttons are provided on this screen. The "Press to Accept Change" button notifies the program to change the waste stream to the new waste stream entered in the "Waste Stream ID to add" data field. When pressed, this button performs the verification described in the previous section.

The "Return to Main Menu" button returns the user to the Main Menu screen to allow assignment of waste codes to the new waste stream.

3.6 Data Options Screen

The Data Options Screen is shown in Figure 11. This screen is accessed from the Main Menu item "Data Option Screen" and allows the user to view, search, sort, and print waste codes selected for waste streams. The user can also delete one waste stream at a time from this screen.

Figure 11.
Data Options Screen

3.6.1 Screen Operation

This screen initially displays the current waste stream as the active record and all information that is associated with that waste stream, including the user identifier, the date the information was entered, the waste stream identifier, and the waste stream category codes that have been assigned. The data fields on this screen can not be edited. The contents can only be modified through the matrix diagrams. Refer to Section 3.4 for instructions on the operation of the matrix parameter screens.

The waste stream category codes are shown for all levels of the matrix diagrams. For the Waste Matrix Parameter Categories, each level of the Matrix Parameter Categories (MPCs) are displayed in the "MATRIX1" through "MATRIX5" data fields. "MATRIX1" shows the summary level category, "MATRIX2" shows the Level 1000 MPC, "MATRIX3" shows the Level 100 MPC, "MATRIX4" shows the Level 10 MPC, and "MATRIX5" shows the Level 1 MPC.

The Regulated Contaminant Parameter Codes (CPC) are displayed as follows: "REG1" is the Regulatory Classification Component, "REG2" is the Descriptive Component, and "REG3" is the Descriptive Component Element. The Descriptive Components and the Descriptive Component Elements are not applicable to all waste streams. If they are assigned, these fields will be blank.

The Radiological Parameter Category (RPC) components are displayed as follows: "RAD1" is the Secondary Radiological Classification Component, "RAD2" is the Descriptive Component, and "RAD3" and "RAD4" are Descriptive Component Elements. The Descriptive Components and the Descriptive Component Elements are not applicable to all waste streams. If they are assigned, these fields will be blank.

The RECORD NUMBER field displays the number of the record as stored in the program. This number will be between 1 and 50.

3.6.2 User Buttons

Twelve user buttons are provided on this screen. Their actions are described in the following table.

Table 4
Data Options Screen User Buttons

User Button	Action
Return to Main Menu	Exits the Data Options Screen and returns to the Main Menu.
Make Record Active	Makes the displayed waste stream the current waste stream such that all waste codes selected will be assigned to that record. In effect, this button allows the user to switch between waste streams.
First	Displays the waste stream and associated information for that is stored in record number 1 in the program. This button does not make the first record active; it is only displayed.
Previous	Displays the waste stream and associated information for the waste stream that immediately precedes the currently displayed waste stream. This button "backs up" one record in the system. The previous record is not made the active record; it is only displayed.
Delete	Removes the currently displayed record from the system.
Next	Displays the waste stream and associated information for the waste stream that immediately follows the currently displayed waste stream. This button "moves forward" one record in the system. The next record is not made the active record; it is only displayed.
Last	Displays the waste stream and associated information for that is stored in record number 50 in the program. This button does not make the last record active; it is only displayed
Print Current Record	Prints a report of the current waste stream and associated information.

User Button	Action
Print All	Prints a report of all waste streams in the system and the associated information for each waste stream.
Search	Finds any character string that has been entered in the data fields and displays the record containing that string with the field highlighted. The search begins at the current record, moves to the bottom record, and loops to the top record. The search stops when a matching string is found. To continue the search, press the user button again.
Sort	Orders records based on a specified sort criteria. The sort criteria can be any field name, which are displayed on the screen in white letters (except for "Record Number"). The first record in the new order is displayed as record number 1 and is made the active record.
Record Number	Allows the user to specify what record number is displayed. Click on the box and enter the record number to go to.

Chapter 4. Reports

The program provides for printing two types of reports: one for a single waste stream and one for all waste streams currently in the system. Both reports contain all waste codes assignments for the waste streams. The reports are generated from the Data Options Screen. Refer to section 3.6 for instructions on printing the reports.

The following figure shows an example report.

USERNAME	gsmith
WASTEID	OR-W111
DATE	11/3/95
MATRIX1	S Solids
MATRIX2	S5000 Debris Waste
MATRIX3	S5100 Inorganic Debris
MATRIX4	S5110 Metal Debris
MATRIX5	S5112 M Debris w/ Pb
RAD1	LL Low-Level
RAD2	CH Contact-Handled
RAD3	T12 0<Alpha<10 nCi/g
RAD4	N90 nonTRU Unknown
REG1	RCRA
REG2	090 No Organics
REG3	M11 Metals w/o Hg
REG4	C11 Ignitable

Figure 12.
Example Waste Code Assignment Report
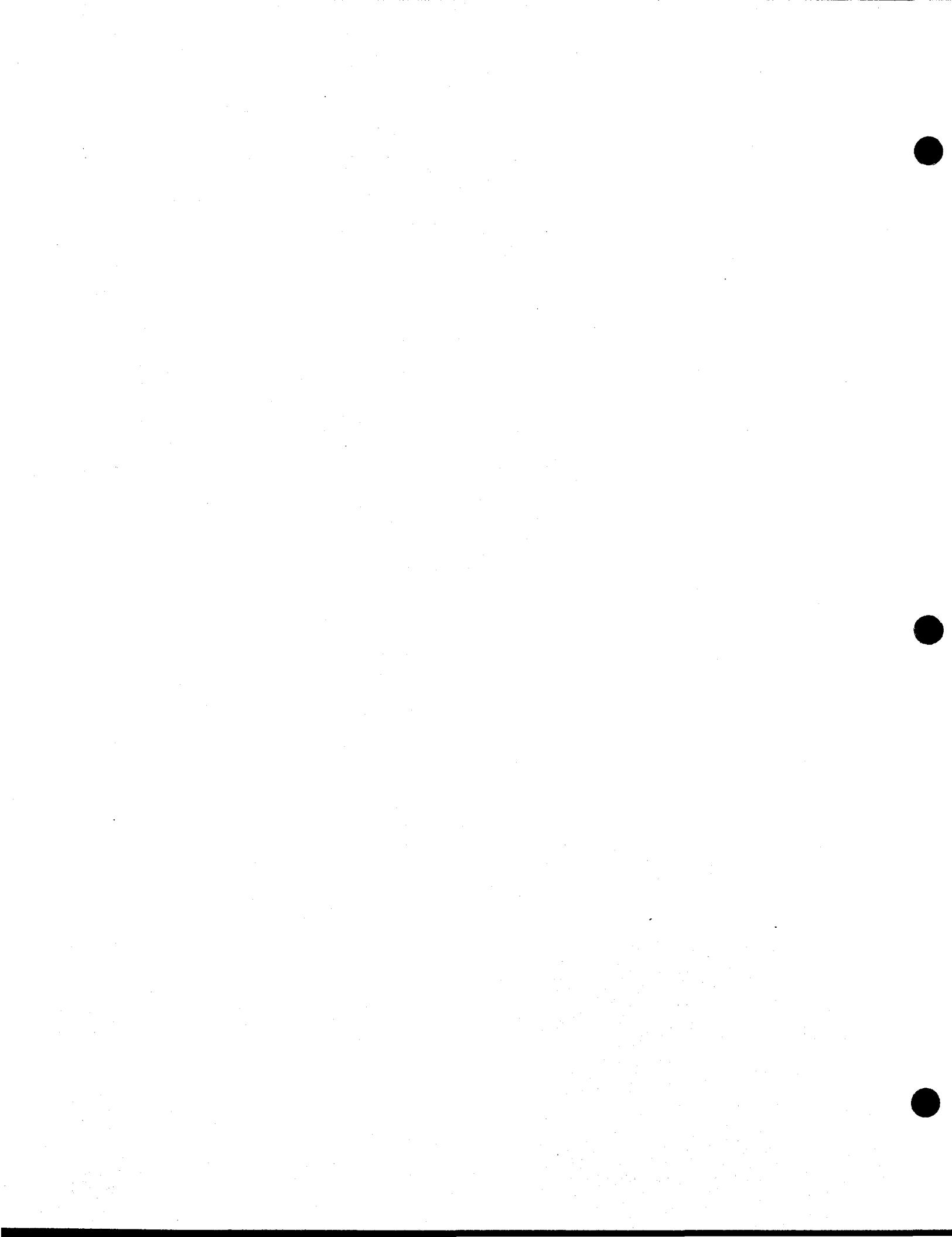
Appendix A

Tables of EPA Code Assignments
Reprinted from the DOE Waste Treatability Group Guidance Document
(DOE/LLW-217, Revision 0, January 1995)
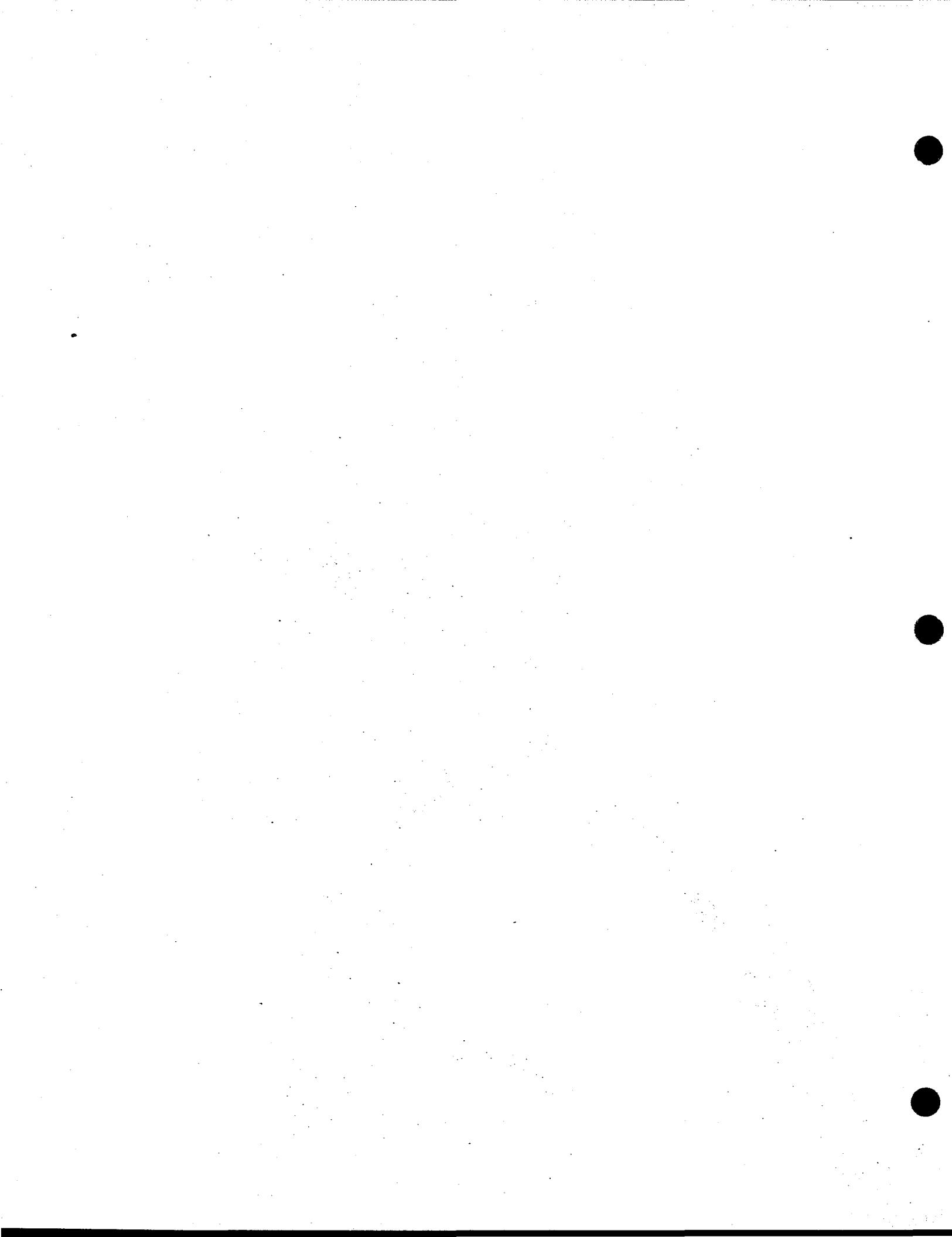
EPA CODE	CHEMICAL NAME
D012	Endrin
D013	Lindane
D014	Methoxychlor
D015	Toxaphene
D016	2,4-D
D017	Silvex
D018	Benzene
D019	Carbon tetrachloride
D020	Chlordane
D021	Chlorobenzene
D022	Chloroform
D023	o-cresol
D024	m-cresol
D025	p-cresol
D026	Cresol
D027	1,4-dichlorobenzene
D028	1,2-dichloroethane
D029	1,1-dichloroethylene
D030	2,4-dinitrotoluene
D031	Heptachlor
D032	Hexachlorobenzene
D033	Hexachlorobutadiene
D034	Hexachloroethane
D035	Methyl ethyl ketone
D036	Nitrobenzene
D037	Pentachlorophenol
D038	Pyridine
D039	Tetrachloroethylene

EPA CODE	CHEMICAL NAME
D040	Trichloroethylene
D041	2,4,5-trichlorophenol
D042	2,4,6-trichlorophenol
D043	Vinyl chloride
F001	1,1,1-trichloroethane
F001	Tetrachloroethylene
F001	Carbon tetrachloride
F001	Trichloroethylene
F001	Methylene chloride
F002	1,1,2-trichloro-1,2,2-trifluoroethane
F002	Methylene chloride
F002	1,1,1-trichloroethane
F002	Trichloroethylene
F002	Chlorobenzene
F002	Ortho-dichlorobenzene
F002	Trichlorofluoromethane
F002	1,1,2-trichloroethane
F002	Tetrachloroethylene
F003	Ethyl ether
F003	Ethyl benzene
F003	n-butyl alcohol
F003	Cyclohexanone
F003	Methanol
F003	Methyl isobutyl ketone
F003	Ethyl acetate
F003	Acetone
F003	Xylene
F004	Cresol

EPA CODE	CHEMICAL NAME
F004	Cresylic acid
F004	Nitrobenzene
F005	Pyridine
F005	Toluene
F005	2-nitropropane
F005	Benzene
F005	Methyl ethyl ketone
F005	Carbon disulfide
F005	Isobutanol
F005	2-ethoxyethanol
F024	Chlorinated organic compounds[1] (also see Table C-3)
F025	Chlorinated organic compounds[2]
F032	Chlorophenolic compounds (nos)[3]
F034	Creosote and its derivatives (nos)[4]
F037	Organic compounds[5] (also see Tables C-3 and C-7)
F038	Organic compounds[6] (also see Tables C-3 and C-7)
F039	Organic compounds[7] (also see Tables C-2,C-3,C-4,C-7)
P001	Warfarin (>0.3%)
P002	1-acetyl-2-thiourea
P003	Acrolein
P004	Aldrin
P005	Allyl alcohol
P007	5-aminoethyl 3-isoxazolol
P008	4-aminopyridine
P014	Thiophenol (benzene thiol)
P016	Bis(chloromethyl)-ether
P017	Bromoacetone
P018	Brucine

EPA CODE	CHEMICAL NAME
P020	2-sec-butyl-4,6-dinitrophenol
P022	Carbon disulfide
P023	Chloroacetaldehyde
P024	p-chloroaniline
P026	1-(o-chlorophenyl) thiourea
P027	3-chloro-propionitrile
P028	Benzyl chloride
P031	Cyanogen
P033	Cyanogen chloride
P034	2-cyclohexyl-4,6-dinitrophenol
P036	Dichlorophenylarsine
P037	Dieldrin
P038	Diethylarsine
P039	Disulfoton
P040	Diethyl-p-pyrazinyl phosphorothioate
P041	Diethyl-p nitrophenyl phosphate
P042	Epinephrine
P043	Diisopropylfluorophosphate(DFP)
P044	Dimethoate
P045	Thiofanox
P046	Alpha, alpha-dimethylphenethylamine
P047	4,6-dinitrocresol
P048	2,4-dinitrophenol
P049	2, 4-dithiobiuret
P050	Endosulfan
P051	Endrin
P054	Aziridine
P057	Fluoroacetamide

EPA CODE	CHEMICAL NAME
P058	Fluoroacetic acid, sodium salt
P059	Heptachlor
P060	Isodrin
P062	Hexaethyltetraphosphate
P064	Isocyanic acid, ethyl ester
P066	Methomyl
P067	2-methylaziridine
P068	Methyl hydrazine
P069	Methylacetonitrile
P070	Aldicarb
P071	Methyl parathion
P072	1-naphthyl-2-thiourea
P075	Nicotine and salts
P077	p-nitroaniline
P081	Nitroglycerin (also see Table C-6)
P082	N-nitrosodimethylamine
P084	N-nitrosomethylvinylamine
P085	Octamethylpyrophosphoramide
P088	Endothall
P089	Parathion
P092	Phenyl mercury acetate (also see Table C-4)
P093	N-phenylthiourea
P094	Phorate
P095	Phosgene
P097	Famphur
P101	Ethyl cyanide
P102	Propargyl alcholol
P108	Strychnine and salts

EPA CODE	CHEMICAL NAME
P109	Tetraethyldithiopyrophosphate
P110	Tetraethyl lead
P111	Tetraethyl pyrophosphate
P112	Tetranitromethane (also see Table C-6)
P116	Thiosemicarbazide
P118	Trichloromethanethiol
P123	Toxaphene
U001	Acetaldehyde
U002	Acetone
U003	Acetonitrile
U004	Acetophenone
U005	2-acetylaminofluorene
U006	Acetyl chloride (also see Tables C-5 and C-6)
U007	Acrylamide
U008	Acrylic acid
U009	Acrylonitrile
U010	Mitomycin C
U011	Amitrole
U012	Aniline
U014	Auramine
U015	Azaserine
U016	Benz(c)acridine
U017	Benzal chloride
U018	Benz(a)anthracene
U019	Benzene
U020	Benzenesulfonyl chloride (also see Tables C-5 and C-6)
U021	Benzidine
U022	Benzo(a)pyrene

EPA CODE	CHEMICAL NAME
U023	Benzotrichloride (also see Tables C-5 and C-6)
U024	bis(2-chloroethoxy) methane
U025	bis(2-chloroethyl) ether
U026	Chlornaphazin
U027	bis(2-chloroisopropyl) ether
U028	bis(2-ethylhexyl) phthalate
U029	Bromomethane
U030	4-bromophenyl phenyl ether
U031	n-butyl alcohol
U033	Carbonyl fluoride (also see Table C-6)
U034	Trichloroacetaldehyde
U035	Chlorambucil
U036	Chlordane (alpha and gamma)
U037	Chlorobenzene
U038	Chlorobenzilate
U039	p-chloro-m-cresol
U041	1-chloro-2,3-epoxypropane
U042	2-chloro ethyl vinyl ether
U043	Vinyl chloride
U044	Chloroform
U045	Chloromethane
U046	Chloromethyl methyl ether
U047	2-chloronaphthalene
U048	2-chlorophenol
U049	4-chloro-o-toluidine hydrochloride
U050	Chrysene
U051	Creosote
U052	Cresol (cresylic acid)

EPA CODE	CHEMICAL NAME
U053	Crotonaldehyde
U055	Cumene
U056	Cyclohexane
U057	Cyclohexanone
U058	Cyclophosphamide
U059	Daunomycin
U060	DDD
U061	DDT
U062	Diallate
U063	Dibenz(a,h)anthracene
U064	1,2,7,8-dibenzopyrene
U066	1,2-dibromo-3-chloropropane
U067	1,2-dibromoethane
U068	Dibromomethane
U069	Di-n-butyl phthalate
U070	o-dichlorobenzene
U071	m-dichlorobenzene
U072	p-dichlorobenzene
U073	3,3-dichlorobenzidine
U074	cis-1,4-dichloro-2-butene
U075	Dichlorodifluoromethane
U076	1,1-dichloroethane
U077	1,2-dichloroethane
U078	1,1-dichloroethylene
U079	1,2-dichloroethylene
U080	Methylene chloride
U081	2,4-dichlorophenol
U082	2,6-dichlorophenol

EPA CODE	CHEMICAL NAME
U083	1,2-dichloropropane
U084	1,3-dichloropropene
U085	1,2,3,4-diepoxybutane
U086	N,N-diethylhydrazine
U087	O,O-diethyl S-methyldithiophosphate
U088	Diethyl phthalate
U089	Diethyl stilbestrol
U090	Dihydrosafrole
U091	3,3-dimethoxybenzidine
U092	Dimethylamine
U093	p-dimethylaminoazobenzene
U094	7,12-dimethyl benz(a)anthracene
U095	3,3'-dimethylbenzidine
U096	a,a-dimethyl benzyl hydroperoxide (also see Table C-6)
U097	Dimethylcarbomyl chloride
U098	1,1-dimethylhydrazine
U099	1,2-dimethylhydrazine
U101	2,4-dimethylphenol
U102	Dimethyl phthalate
U103	Dimethyl sulfate
U105	2,4-dinitrotoluene
U106	2,6-dinitrotoluene
U107	Di-n-octyl phthalate
U108	1,4-dioxane
U109	1,2-diphenylhydrazine
U110	Dipropylamine
U111	Di-n-propylnitrosoamine
U112	Ethyl acetate

EPA CODE	CHEMICAL NAME
U113	Ethyl acrylate
U114	Ethylene bis-dithiocarbamic acid
U115	Ethylene oxide
U116	Ethylene thiourea
U117	Ethyl ether
U118	Ethyl methacrylate
U119	Ethyl methane sulfonate
U120	Fluoranthene
U121	Trichloromonofluoromethane
U122	Formaldehyde
U123	Formic acid (also see Table C-5)
U124	Furan
U125	Furfural
U126	Glycidyaldehyde
U127	Hexachlorobenzene
U128	Hexachlorobutadiene
U129	Lindane
U130	Hexachlorocyclopentadiene
U131	Hexachloroethane
U132	Hexachlorophene
U137	Indeno(1,2,3-c,d)pyrene
U138	Iodomethane
U140	Isobutyl alcohol
U141	Isosafrole
U142	Kepone
U143	Lasiocarpine
U146	Lead subacetate
U147	Maleic anhydride

EPA CODE	CHEMICAL NAME
U148	Maleic hydrazide
U149	Malononitrile
U150	Melphalan
U152	Methacrylonitrile
U153	Methane thiol
U154	Methanol
U155	Methapyrilene
U156	Methyl chlorocarbonate
U157	3-methylchloanthrene
U158	4,4'-methylene-bis-(2-chloroaniline)
U159	Methyl ethyl ketone
U160	Methyl ethyl ketone peroxide (Also see Table C-6)
U161	Methyl isobutyl ketone
U162	Methyl methacrylate
U163	N-methyl N'-nitro N-nitrosoguanidine
U164	Methylthiouracil
U165	Naphthalene
U166	1,4-naphthoquinone
U167	1-naphthlyamine
U168	2-napthylamine
U169	Nitrobenzene
U170	4-nitrophenol
U171	2-nitropropane
U172	n-nitroso-di-n-butylamine
U173	N-nitroso-di-n-ethanolamine
U174	N-nitrosodiethylamine
U176	N-nitroso-N-ethylurea
U177	N-nitroso-N-methylurea

EPA CODE	CHEMICAL NAME
U178	N-nitroso-N-methylurethane
U179	N-nitrosopiperidine
U180	N-nitrosopyrrolidine
U181	5-nitro-o-toluidine
U182	Paraldehyde
U183	Pentachlorobenzene
U184	Pentachlorpethane
U185	Pentachloronitrobenzene
U186	1,3-pentadiene
U187	Phenacetin
U188	Phenol
U190	Phthalic anhydride
U191	2-picoline
U192	Pronamide
U193	1,3-propane sultone
U194	n-propylamine
U196	Pyridine
U197	p-benzoquinone
U200	Reserpine
U201	Resorcinol
U202	Saccharin and salts
U203	Safrole
U206	Streptozatocin
U207	1,2,4,5-tetrachlorobenzene
U208	1,1,1,2-tetrachloroethane
U209	1,1,2,2-tetrachloroethane
U210	Tetrachlorethylene
U211	Carbon tetrachloride

EPA CODE	CHEMICAL NAME
U213	Tetrahydrofuran
U218	Thioacetamide
U219	Thiourea
U220	Toluene
U221	Toluenediamine
U222	o-toluidine hydrochloride
U223	Toluene diisocyanate (also see Table C-6)
U225	Tribromomethane
U226	1,1,1-trichloroethane
U227	1,1,2-trichloroethane
U228	Trichloroethylene
U234	sym-trinitrobenzene (also see Table C-6)
U235	tris-(2,3-dibromopropyl)-phosphate
U236	Trypan blue
U237	Uracil mustard
U238	Ethyl carbamate
U239	Xylenes
U240	2,4-dichlorophenoxyacetic acid
U243	Hexachloropropene
U244	Thiram
U246	Cyanogen bromide
U247	Methoxychlor
U248	Warfarin (>3%)
U328	Benzenamine, 2-methyl

EPA CODE	CHEMICAL NAME
U353	Benzenamine, 4-methyl
U359	2-ethoxyethanol

[1] 2-chloro-1,3-butadiene, 3-chloropropene, 1,1-dichloroethane, 1,2-dichloroethane, 1,2-dichloropropane, cis-1,3-dichloropropene, trans-1,3-dichloropropene, bis(2-ethylhexyl)-phthalate, hexachloroethane.

[2] Chloroform, 1,2-dichloroethane, 1,1-dichloroethylene, methylene chloride, carbon tetrachloride, 1,1,2-trichloroethane trichloroethylene, vinyl chloride, hexachlorobenzene, hexachlorobutadiene, hexachloroethane.

[3] Wastewaters/residues from chlorophenolic wood preserving processes.

[4] Wastewaters/residues from creosote wood preserving processes.

[5] Acenaphthene, anthracene, benzene, benzo(a)anthracene, benzo(a)pyrene, bis(2-ethylhexyl)phthalate, chrysene, di-n-butyl phthalate, ethylbenzene, fluorene, naphthalene, phenanthrene, phenol, pyrene, toluene, xylene(s).

[6] Benzene, benzo(a)pyrene, bis(2-ethylhexyl)phthalate, chrysene, di-n-butyl phthalate, ethylbenzene, fluorene, naphthalene, phenanthrene, phenol, pyrene, toluene, xylene(s).

[7] Leachate from hazardous waste disposal areas.

EPA CODE	CHEMICAL NAME
F020	Tetra- and pentachlorodibenzo-p-dioxins; tetra- and pentachlorodi-benzofurans; tri- and tetrachlorophenols and their chlorophenoxy derivative acids, esters, ethers, amine, and other salts
F021	Penta- and hexachlorodibenzo-p-dioxins; penta- and hexachlorodibenzofurans; pentachlorophenol and its derivatives
F022	Tetra-, penta-, and hexachlorodibenzo-p-dioxins; tetra-, penta-, and hexachlorodibenzofurans
F023	Tetra- and pentachlorodibenzo-p-dioxins; tetra- and pentachlorodibenzofurans; tri- and tetrachlorophenols and their chlorophenoxy derivative acids, esters, ethers, amine, and other salts.
F026	Tetra-, penta-, and hexachlorodibenzo-p-dioxins; tetra-, penta-, and hexachlorodibenzofurans
F027	Tetra-, penta-, and hexachlorodibenzo-p-dioxins; tetra-, penta-, and hexachlorodibenzofurans; tri-, tetra-, and pentachlorophenols and their chlorophenoxy derivative acids, esters, ethers, amine, and other salts
F028	Tetra-, penta-, and hexachlorodibenzo-p-dioxins; tetra-, penta-, and hexachlorodibenzofurans; tri-, tetra-, and pentachlorophenols and their chlorophenoxy derivative acids, esters, ethers, amine, and other salts
F039	Multiple organic compounds, including tetra-, penta-, and hexachlorodibenzo-dioxins; tetra-, penta-, and hexachlorodibenzo-furans (leachate from hazardous waste disposal areas; also see Tables C-1, C-3, C-4, and C-7)

EPA CODE	CHEMICAL NAME	REGULATED METAL(S)
D004	NA	Arsenic
D005	NA	Barium
D006	NA	Cadmium
D007	NA	Chromium
D008	NA	Lead
D010	NA	Selenium
D011	NA	Silver
F006	NA	Cadmium, chromium, lead, nickel, silver (also see Table C-7)
F007	NA	Cadmium, chromium, lead, nickel, silver (also see Table C-7)
F008	NA	Cadmium, chromium, lead, nickel, silver (also see Table C-7)
F009	NA	Cadmium, chromium, lead, nickel, silver (also see Table C-7)
F011	NA	Cadmium, chromium, lead, nickel, silver (also see Table C-7)
F012	NA	Cadmium, chromium, lead, nickel, silver (also see Table C-7)
F019	NA	Chromium (also see Table C-7)
F024	NA	Chromium, lead, nickel (also see Table C-1)
F035	NA	Arsenic, chromium
F037	NA	Chromium, lead, nickel (also see Tables C-1 and C-7)
F038	NA	Chromium, lead, nickel (also see Tables C-1 and C-7)
F039	NA	Several metals[1] (also see Tables C-1, C-2, C-4, and C-7)
P010	Arsenic acid	Arsenic
P011	Arsenic pentoxide	Arsenic
P012	Arsenic trioxide	Arsenic
P013	Barium cyanide	Barium (also see Table C-7)
P015	Beryllium dust	Beryllium
P036	Dichloro-phenylarsine	Arsenic
P038	Diethylarsine	Arsenic
P073	Nickel carbonyl	Nickel
P074	Nickel cyanide	Nickel (also see Table C-7)
P087	Osmium tetroxide	Osmium tetroxide

EPA CODE	CHEMICAL NAME	REGULATED METAL(S)
P099	Potassium silver cyanide	Silver (also see Table C-7)
P103	Selenourea	Selenium
P104	Silver cyanide	Silver (also see Table C-7)
P110	Tetraethyl lead	Lead
P113	Thallic oxide	Thallium
P114	Thallium selenite	Selenium
P115	Thallium (I) sulfate	Thallium
P119	Ammonia vanadate	Vanadium
P120	Vanadium petoxide	Vanadium
U032	Calcium chromate	Chromium
U136	Cacodylic acid	Arsenic
U144	Lead acetate	Lead
U145	Lead phosphate	Lead
U146	Lead subacetate	Lead
U204	Selenium dioxide	Selenium
U205	Selenium sulfide	Selenium (also see Table C-6)
U214	Thallium (I) acetate	Thallium
U215	Thallium (I) carbonate	Thallium
U216	Thallium (I) chloride	Thallium
U217	Thallium (I) nitrate	Thallium

[1] Antimony, arsenic, barium, beryllium, cadmium, chromium, copper, lead, mercury, nickel, selenium, silver, thallium, vanadium, and zinc.

NA - not applicable

EPA CODE	CHEMICAL NAME
D009	Mercury
F039	NA (also see Tables C-1, C-2, C-3, and C-7)
P065	Mercury fulminate (also see Table C-6)
P092	Phenyl mercury acetate
U151	Mercury

NA - not applicable

| EPA CODE	CHEMICAL NAME
D002	Corrosive characteristic
U006	Acetyl chloride (also see Table C-1)
U020	Benzenesulfonyl chloride (also see Tables C-1 and C-6)
U023	Benzotrichloride (also see Tables C-1 and C-6)
U123	Formic acid (also see Table C-1)
U134	Hydrofluoric acid

EPA CODE	CHEMICAL NAME
D003	Reactive characteristic
P006	Aluminum phosphide
P009	Ammonium picrate
P065	Mercury fulminate (also see Table C-4)
P081	Nitroglycerine (also see Table C-1)
P105	Sodium azide
P112	Tetranitromethane (also see Table C-1)
P122	Zinc phosphide (>10%)
U020	Benzenesulfonyl chloride (also see Tables C-1 and C-5)
U023	Benzotrichloride (also see Tables C-1 and C-5)
U033	Carbonyl fluoride (also see Table C-1)
U096	a,a-dimethyl benzyl hydroperoxide (also see Table C-1)
U133	Hydrazine
U160	Methyl ethyl ketone peroxide (also see Table C-1)
U189	Phosphorus sulfide
U205	Selenium sulfide (also see Table C-3)
U223	Toluene diisocyanate (also see Table C-1)
U234	1,3,5-trinitrobenzene (also see Table C-1)

| EPA CODE	CHEMICAL NAME
F006	Plating waste-if cyanides used in process (also see Table C-3)
F007	Plating waste (also see Table C-3)
F008	Plating waste (also see Table C-3)
F009	Plating waste (also see Table C-3)
F010	Note [1]
F011	Note [2] (also see Table C-3)
F012	Note [3] (also see Table C-3)
F019	Note [4] (also see Table C-3)
F037	Note [5] (also see Tables C-1 and C-3)
F038	Note [6] (also see Tables C-1 and C-3)
F039	Note [7] (also see Tables C-1, C-2, C-3, and C-4)
P013	Barium cyanide (also see Table C-3)
P021	Calcium Cyanide
P029	Copper cyanide
P030	Cyanides (soluble salts, complexes)
P063	Hydrogen cyanide
P074	Nickel cyanide (also see Table C-3)
P098	Potassium cyanide
P099	Potassium silver cyanide (also see Table C-3)
P104	Silver cyanide (also see Table C-3)
P106	Sodium cyanide
P121	Zinc cyanide

[1] Metal heat treating operations - oil quench bath residues.
[2] Metal heat treating operations - spent cyanide solutions from salt bath pot cleaning.
[3] Metal heat treating operations - quenching wastewater treatment sludges.
[4] Wastewater treatment sludges from chemical conversion coating of aluminum.
[5] Petroleum refinery primary oil/water/solids separation sludge.
[6] Petroleum refinery secondary emulsified oil/water/solids separation sludge.
[7] Leachate from hazardous waste disposal areas (cyanides are regulated if present).

EPA CODE	CHEMICAL NAME
P056	Fluorine
P076	Nitrogen oxide
P078	Nitrogen dioxide
P096	Phosphine
P105	Sodium azide
U135	Hydrogen sulfide
U249	Zinc phosphide (<10%)
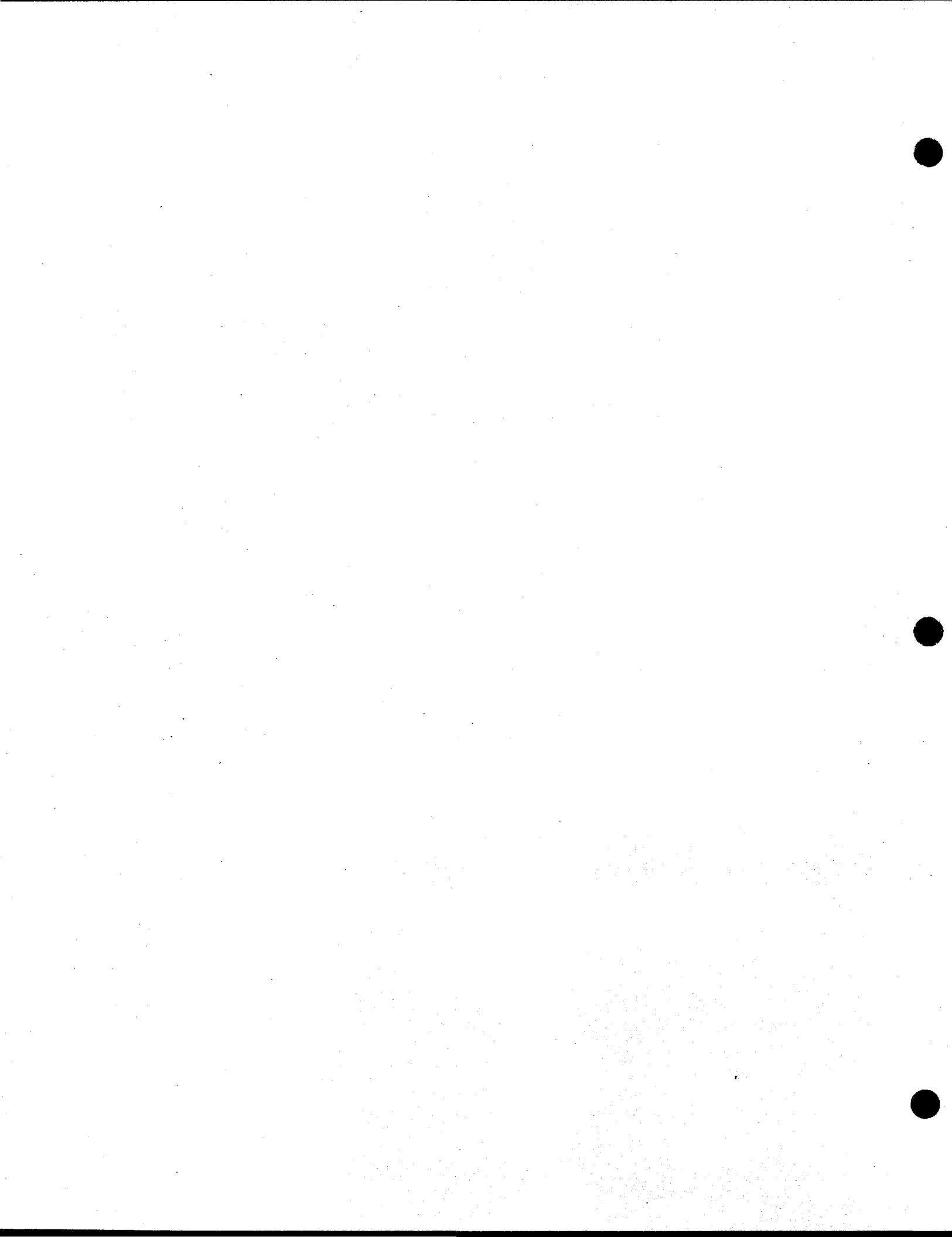
Appendix B

List of System Passwords
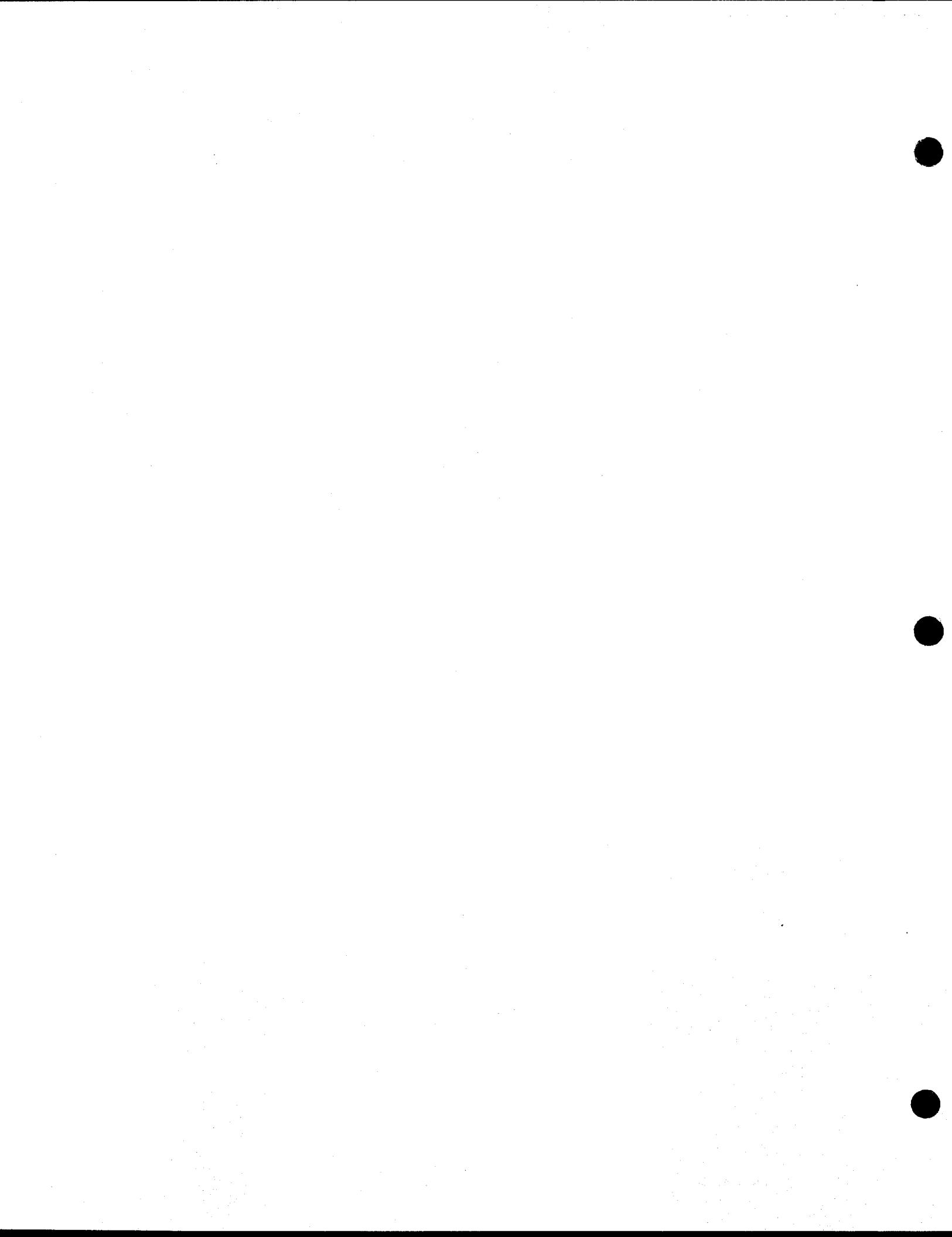
System Passwords for TRU Waste Guidance Program

	Password	User Assigned To	Date Assigned
1	FGH54		
2	46FGD		
3	CVB58		
4	IJ53Y		
5	6U83T		
6	5RBGT		
7	JY814		
8	IN1E5		
9	78IU4		
10	A54WE		

System Passwords for TRU Waste Guidance Program

	Password	User Assigned To	Date Assigned
1	FGH54		
2	46FGD		
3	CVB58		
4	IJ53Y		
5	6U83T		
6	5RBGT		
7	JY814		
8	IN1E5		
9	78IU4		
10	A54WE		

DISCLAIMER