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SYSTEM DESIGN DESCRIPTION

FOR

WASTE INFORMATION AND CONTROL SYSTEM

Prepared by:

Automation and Simulation Engineering

Revision 0 November 1994

Prepared for:

**Westinghouse Hanford Company
P.O. Box 1970
Richland, Washington 99352**

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Revision 0

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**SYSTEM DESIGN DESCRIPTION
FOR
WASTE INFORMATION AND CONTROL SYSTEM**

1.0 INTRODUCTION

The Westinghouse Hanford Company (WHC) Hazardous Material Control Group (HMC) of the 222-S Laboratory has requested the development of a system to help resolve many of the difficulties associated with tracking and data collection of containers and drums of waste. This system has been identified as Waste Information and Control System (WICS).

The request for developing and implementing WICS has been made to the Automation and Simulation Engineering Group (ASE). ASE has contracted the support of BDM Federal, Inc. for the development of this System Design Description.

1.1 PURPOSE

WICS shall partially automate the procedure for acquisition, tracking and reporting of the container, drum, and waste data that is currently manually processed. The WICS project shall use handheld computer units (HCU) to collect laboratory data, a "local" database with an "user friendly interface" to import the laboratory data from the HCUs, and barcode technology with associated software and operational procedures. After the container, drum, and waste data has been collected and verified, it shall be manipulated to provide informal reports containing data required to properly document waste disposal.

The WICS system shall be developed using handheld computer technology (hardware and software) developed previously by ASE, and standard available personal computer (PC) products, which shall substantially reduce development and implementation costs. It shall meet all current requirements and standards as to data security, integrity, change control and quality assurance.

The intended audience for this System Design Description is HMC personnel and system development personnel.

1.2 SCOPE

The WICS can be divided into two main components:

1. Handheld Computer Unit (HCU)

This component will include the following:

- o The software required to provide the required functionality in the HCU. This software shall provide for the prompting of the operator for the data required, limited validation checking of the data, and transferring of the data to a personal computer.
- o It is assumed that the HCU will be based on the one piece handheld computer and barcode reader by Symbol Technologies, Incorporated Laser Data Terminal (LDT 3805).

2. WICS Workstation (WS)

The WICS WS application will provide a database and user interface for the following activities:

- o Receiving data associated with uniquely identified waste containers and drums.
- o Tracking of waste containers and drums
- o Receiving data characterizing waste container and drum types and other WICS master data
- o Receiving/sending data from/to the HCU
- o Generating required reports
- o Managing users and privilege levels

WICS will provide its' users similar functionality to the Solid Waste Information Tracking System (SWITS). However, WICS has been tailored to the HMC Group needs. It incorporates customized user screens, data structures, and reports that allow HMC personnel to perform their required functions with extreme ease and efficiency. Conversely, SWITS has been designed for wide, general use and is difficult to customize to the specificities required by the HMC Group. In addition, many of SWITS' functions are still under development and are currently unavailable for its' users.

1.3 OVERVIEW

This System Design Description (SDD) defines the design for the WICS. This SDD describes the internal software and data structure design for implementation of the WICS. The SDD has been prepared following the WHC-CM-3-10, "Software Practices".

The document is divided into six sections. The first section, **Introduction**, describes the purpose and scope of the SDD and provides an overview.

Section 2.0, **Decomposition Description**, describes the environment in which the system will operate and depicts the decomposition of the system into lower level processes. It contains an event list, context diagram, logical process model, and state transition diagrams.

Section 3.0, **Dependency Description**, describes objects, methods, and procedures and how they will work together to form the WICS.

Section 4.0, **Interface Description**, presents an illustration and brief description of each proposed screen.

Section 5.0, **Data Design**, contains the logical data and the physical data models.

Section 6.0, **References**, documents the references used in preparing the SDD.

1.4 DEFINITIONS

The following are abbreviations and definitions of terms used in this document:

AD	Approval Designator
ASE	Automation and Simulation Engineering Group
ATP	Acceptance Test Procedure
ATR	Acceptance Test Report
CIN	Container Identification Number
DFD	Data Flow Diagram
DOE	Department of Energy
ECN	Engineering Change Notice
EDT	Engineering Data Transmittal
ETR	Extended Temperature Range
HCU	Handheld Computer Unit
HLAN	Hanford Local Area Network
HMC	Hazardous Material Control Group
HWP	Hazardous Waste Profile
OTP	Operability Test Procedure
OTR	Operability Test Report

QA	Quality Assurance
PC	Personal Computer
RCR	Review Comment Record
RWP	Radioactive Waste Profile
SAA	Satellite Accumulation Area
SC	Safety Class
SRS	System Requirements Specification
STD	State Transition Diagram
SWITS	Solid Waste Information Tracking System
WHC	Westinghouse Hanford Company
WICS	Waste Information and Control System
WS	WICS Workstation

Analysis -- Separation of an intellectual or substantial whole into its constituent parts for individual study. The stated finding of such separation or determination.

Application -- The use of quality-affecting computer software, programs, models, or other computer items to perform engineering design analysis, calculations, scientific analysis, data acquisition or to operate hardware or facilities.

Approval Designator -- Defined in WH 4-3-5, section 12.7 (see references).

Archive -- The action of placing infrequently used data into permanent storage.

Attribute -- 1) A single fact about a business entity or relationship. 2) A property inherent in or associated with an entity. (Referred to as a data element in an information system.)

Business Process -- A defined strategic method of performing business.

Computer Software -- A set of computer codes, procedures, rules, and associated documentation and data pertaining to the operation of computer systems. This includes user-provided instructions and data that implement preprogrammed algorithms in control systems; computer codes and data that shall reside in firmware, and when specified by the cognizant manager, user-provided instructions and data used by commercial software such as spread sheet and database packages.

Computer Software/System Requirements Specification -- The documentation of essential requirements (functions, performance, design constraints and attributes) of the computer software and its external interfaces.

Database -- A generic term referring to the storage of data by a computer in a certain data structure.

Data Collection System -- This encompasses the hardware, software, and procedure related to gathering, processing, storing, and archiving a specific type of data.

Engineering Practices -- Documented management methods (WHC-CM-6-1) which establish the manner and the order for the performance of common configuration management practices relating to engineering tasks.

Handheld Computer Unit -- A system which is a handheld portable computer with integrated barcode reader which supports keyboard or barcode data input, and provides upload/download support for computer data. A barcode reader with an integrated laser scanner capable of reading code 3-of-9 is an example of such a unit.

Location -- In WICS, a specific, identifiable place where containers, drums or other waste data are collected. The location is identified by a unique location number.

Project Cognizant Engineer -- Responsible engineer within the performing development organization that assumes Cognizant Engineer responsibility for development of the system as defined by WHC-CM-6-1, Standard Engineering Practices, EP-5.2.

Safety Class -- Defined in WHC-CM-1-3, MRP-5.46 (see references).

Software Practices -- Documented management methods (WHC-CM-3-10) which establish the manner and the order for the performance of common configuration management practices relating to software and systems engineering tasks.

System Cognizant Engineer -- Responsible engineer that assumes Cognizant Engineer responsibility for the system as defined by WHC-CM-6-1, Standard Engineering Practices, EP-5.2, for the facility and user.

Quality Record -- A completed document that furnishes evidence of the quality of items and/or activities affecting quality.

Waste Container -- A container which is used to store solid or liquid mixed waste. Waste containers are used within the laboratory to contain the waste. When a waste container is ready for disposal, it is sealed, weighed, and packed into a waste drum for final disposal.

Waste Drum -- The most common "outside" waste container. An outside waste container contains waste for final shipment and burial. Throughout this document drum is used to refer to all types of outside waste containers.

Waste Package -- An assembly of compactible or non-compactible solid waste which is packed into a waste drum for final disposal.

2.0 DECOMPOSITION DESCRIPTION

2.1 EVENT LIST

An event list documents the external events which the system must support. The event list and the context diagram work together to model the information flow in the system. Each input flow on the context produces a response to an event. Similarly, each output flow is a response to an event. The event list for the WICS includes the following:

- o WICS System Administrator adds authorized user data to WICS database
- o Authorized users add Master Data to WICS database
- o Selected Master Data is uploaded onto HCU from WS
- o User collects laboratory data with HCU
- o User downloads HCU collected data to the WS
- o User views, adds, modifies, or deletes data with WS
- o User prints reports as needed with WS
- o WICS data is periodically archived automatically by WS.

2.2 CONTEXT DIAGRAM

The WICS context diagram, shown in Figure 1, represents a high level view of the environment in which the WICS will operate. The circle depicts the WICS. The rectangular boxes represent the roles played by people or other external entities that will communicate with the WICS. The curved lines depict the flow of data to and from the system.

Both the WS and HCU clocks are needed by WICS. The WS will be connected to the HLAN and therefore, the WS clock will be automatically controlled by the HLAN. The HCU clock will set by the WS clock. After the HCU user has successfully logged-on the HCU, the user is asked to verify the date and time displayed by the HCU. This will ensure that the WS and HCU clocks are always synchronized with the HLAN clock.

Figure 1. WICS Context Diagram

2.3 LOGICAL PROCESS MODEL

The logical process model depicts the processes that are required to respond to the events described in the event list and context diagram. The logical process model consists of data flow diagrams and include brief summaries which describe each data flow diagram (DFD).

A detailed listing of the data items which are shown flowing between the entities on the diagrams is provided with each diagram. The data items are either listed on the diagram, a subsequent diagram (sub-level), or in a table included in the diagram's summary.

2.3.1 WICS Level 0 - Data Flow Diagram

The top level data flow diagram for WICS is shown in Figure 2. This diagram shows the data flow between the two primary sub-systems of WICS and the external entities from/to which data flows. The types of information that will be processed are depicted to provide an overall understanding of the mapping of actual business process activities to the functionality of the system.

The data which is shown is high level (explicit data items are not shown), except for the HCU and WS Date & Time. The remaining data is detailed on subsequent diagrams, except for Error Verification Data. Error Verification Data is provided to the user by both the WS and HCU sub-systems. All data which is entered by the user is checked for format and sometimes for other conditions, e.g., whether the data is in the Master Data Table when the HCU user is entering master data. The Error Verification Data is in the form of messages to the user which tell him that the data entered is invalid and to re-enter the data. This Error Verification Data is described in more detail in Section 4.0 Interface Descriptions.

Figure 2. WICS Level 0 - Data Flow Diagram - (DFD 0.0)

2.3.2 HCU Data Flow Diagrams

DFD 1.0 - Perform HCU Functions

The top level DFD for the HCU subsystem is shown in Figure 3. The primary HCU modules that shall be implemented are shown. These modules correspond to the various activities that the Facility Personnel performs. The modules include:

- Log-On HCU
- Collect Container Data
- Collect Drum Data
- Transfer Data to/from WS
- Log-Off HCU

The data items that enter and leave the modules are shown along with their sources and/or destinations. Specific data items are shown for the Log-On HCU and Log-Off HCU modules. The data items for the Collect Container Data and Collect Drum Data modules are detailed in the succeeding HCU data flow diagrams. The data items for the Transfer Data to/from WS module are shown except for the details of the WS Master Data Validation Files and the HCU Laboratory Data Files. These data files and the data items contained in the files are listed below:

WS Master Data Validation Files

Filename: ATYP.TXT	WICS Data Table: Absorbent Type
<u>Field</u>	<u>Name</u>
1	Absorbent Type Code
2	Absorbent Description
Filename: CTYP.TXT	WICS Data Table: Container Type
<u>Field</u>	<u>Name</u>
1	Container Type Code
2	Material
3	Size
Filename: DTYP.TXT	WICS Data Table: Drum Type
<u>Field</u>	<u>Name</u>
1	Drum Type Code
2	Drum Type
3	Drum Size
Filename: LOCA.TXT	WICS Data Table: Location
<u>Field</u>	<u>Name</u>
1	Location Code

Figure 3. Perform HCU Functions - Data Flow Diagram - (DFD 1.0)

Filename: LTYP.TXT
Field
1
2

WICS Data Table: Liner Type
Name
Liner Type Code
Liner Description

Filename: PTYP.TXT
Field
1
2

WICS Data Table: Packing Pad Type
Name
Packing Pad Type Code
Packing Pad Description

Filename: USER.TXT
Field
1
2
3

WICS Data Table: WICS Log-On
Name
User ID
Password
Privilege Level

Filename: WTYP.TXT
Field
1
2

WICS Data Table: Waste Type
Name
Waste Type
Waste Type Description

HCU Laboratory Data Files

Filename: CLOS.TXT
Field
1
2
3
4
5
6
7
8

WICS Data Table: Closing Checklist
Name
Drum CIN
Closing User ID
Closing Date
Liner Closed
Lock-Ring Bolt Tightened
Gross Weight
Weight Labeled
RAM Tag Dose Rate

Filename: MXWS.TXT
Field
1
2

WICS Data Table: S or L Mixed Waste Invent.
Name
Drum CIN
Container ID

Filename: PREP.TXT
Field
1
2
3
4
5
6
7
8

WICS Data Table: Preparation Checklist
Name
Drum CIN
Preparation User ID
Preparation Date
QC Status
RWP Reviewed
Liner Placement
Absorbent Placement
Warning Stickers

Filename: SHIP.TXT
Field

1
2
3
4
5
6

WICS Data Table: Shipping Prep. Checklist
Name

Drum CIN
Shipping Prep User ID
Shipping Prep Date
Lock-Ring Bolt Torqued
Torque Wrench Number
Labeled

Filename: SLWS.TXT
Field

1
2
3
4
5
6
7
8
9
10
11
12
13

WICS Data Table: Comp/N-C S Waste Inv.
Name

Drum CIN
Package ID
Package Volume
Package Weight
Paper %
Rubber %
Plastic %
Cloth %
Glass %
Metal %
Miscellaneous %
Miscellaneous Description
Miscellaneous Density

Filename: WCON.TXT
Field

1
2
3
4
5
6
7
8
9
10

WICS Data Table: Waste Container
Name

Container ID
Log Book Number
Container Type Code
Location Code
Labeling User ID
Labeling Date
Weight
Weighing User ID
Weighing Date
Sample Number

Filename: WDRMPK.TXT WICS Data Table: Waste Drum
Field

1
2
3
4
5
6
7
8

Name

Drum CIN
Packing User ID
Packing Date
Location Code
Waste Type
Packing Pad Type Code
Packing Pad Quantity
Mixed Waste

Filename: WDRMPR.TXT WICS Data Table: Waste Drum

<u>Field</u>	<u>Name</u>
1	Drum CIN
2	Drum Type Code
3	Liner Type Code
4	Liner Quantity
5	Absorbent Type Code
6	Absorbent Quantity

Filename: WSAM.TXT WICS Data Table: Waste Sample

<u>Field</u>	<u>Name</u>
1	Sample Number
2	User ID
3	Date

The data items in these files are fully described in Section 5.0 Detailed Design. Each field in the data file record is delimited by a comma and the text data fields enclosed in quotes. Each record shall end in a carriage return and line feed. The end of each file is marked with a control "Z".

DFD 1.1 - HCU - Collect Container Data

The DFD for the HCU module Collect Container Data is shown in Figure 4. The Collect Container Data modules that shall be implemented are shown. These modules correspond to the various activities that the Facility Personnel performs. The modules include:

- Label Container
- Sample Waste
- Weigh Container

The data items that enter and leave the modules are shown along with their sources and/or destinations. Specific data items are shown for all the modules.

Figure 4. HCU - Collect Container Data - Data Flow Diagram - (DFD 1.1)

DFD 1.2 - HCU - Collect Drum Data

The top level DFD for the HCU subsystem is shown in Figure 5. The primary HCU modules that shall be implemented are shown. These modules correspond to the various activities that the Facility Personnel performs. The modules include:

- Log-On HCU
- Prepare to Pack Drum
- Pack Drum with Waste
- Close/Weigh Drum
- Prepare to Ship Drum

The data items that enter and leave the modules are shown along with their sources and/or destinations. Specific data items are shown for the Log-On HCU module. The data items for the other four modules are shown in the DFD, except the Prep, Close, and Ship Checklist Info and the Waste Contents. The data items for these categories are listed below:

Prep Checklist Info:

<u>Item</u>	<u>Name</u>
1	QC Status
2	RWP Reviewed
3	Warning Stickers

Note, the Liner Placement and Absorbent Placement data items are provided automatically by the HCU software. If the Liner and Absorbent Type Codes and Quantities are provided by the user, then the Liner and Absorbent Placement data items are assigned a Yes value, otherwise they are assigned a No value.

Close Checklist Info:

<u>Item</u>	<u>Name</u>
1	Liner Closed
2	Lock-Ring Bolt Tightened
3	Gross Weight
4	Weight Labeled
5	RAM Tag Dose Rate

Ship Checklist Info:

<u>Item</u>	<u>Name</u>
1	Lock-Ring Bolt Torqued
2	Torque Wrench Number
3	Labeled

Figure 5. HCU - Collect Drum Data - Data Flow Diagram - (DFD 1.2)

Waste Contents (If Mixed Waste = 1):

<u>Item</u>	<u>Name</u>
1	Container ID

Waste Contents (If Mixed Waste = 1):

<u>Item</u>	<u>Name</u>
1	Package Volume
2	Package Weight
3	Paper %
4	Rubber %
5	Plastic %
6	Cloth %
7	Glass %
8	Metal %
9	Miscellaneous %
10	Miscellaneous Description
11	Miscellaneous Density

Note, Package ID is automatically assigned by the HCU software. The first waste package for a given Drum CIN is given a Package ID of one. Thereafter, the waste packages are numbered sequentially.

2.3.3 WS Data Flow Diagrams

DFD 2.0 - Perform WS Functions

The top level DFD for the WS subsystem is shown in Figure 6. The primary WS modules that shall be implemented are shown. These modules correspond to the various activities that the Facility Personnel performs. The modules include:

- Log-On WS
- Process Container Data
- Process Drum Data
- Process Master Data
- Transfer Data to/from HCU
- Print Reports
- Perform Help Function
- Exit WICS
- Manage Database

The data items that enter and leave the modules are shown along with their sources and/or destinations. Specific data items are shown for the Log-On HCU and Exit WICS modules. Most of the data items for the remaining modules, due to space limitations, are shown in summary only. These data items are summarized on the DFD as the following categories:

- o Types of information coming from the Facility Personnel, e.g., location info, container info, drum info, etc.
- o Report Information
- o WICS Data
- o Master Data for HCU Validation
- o Data Files from HCU
- o WICS Archive Data

The specific data items corresponding to these data categories are detailed for each module below.

Figure 6. Perform WS Functions - Data Flow Diagram - (DFD 2.0)

Process Container Data:

The Process Container Data module consists of two primary submodules, Process Container Log Book Data and Process Waste Sample Data. The data flow from these submodules is basically identical to the flow shown in Figure 6 for their parent module - Process Container Data. Therefore, the DFDs for these submodules are not shown. However, the specific data items that flow from these submodules and the other entities are different. Therefore, the data items will be listed separately in the following.

Process Container Log Book Data:**Facility Personnel Information:**

The information which can be viewed, edited, inserted, deleted, or printed by the Facility Personnel (from the Process Container Log Book Module) is listed in Table 1. This table identifies the data item, which Data Table the data item is from, and whether the user can view, edit, insert, delete, or print the data item from this module.

Table 1. Data Items Flowing From/To Facility Personnel - Process Container Log Book Data Module

Data Table	Data Item	View	Edit	Insert	Delete	Print
Waste Container	Container ID	Y	Y	Y	Y	Y
Waste Container	Container Type Code	Y	S	S	A	Y
Container Type	Size	Y	N	N	N	Y
Container Type	Material	Y	N	N	N	Y
Waste Container	Location Code	Y	S	S	A	Y
Location	Level 1	Y	N	N	N	Y
Location	Level 2	Y	N	N	N	Y
Location	Level 3	Y	N	N	N	Y
Location	Level 4	Y	N	N	N	Y
Waste Container	Log Book Number	Y	Y	Y	A	Y
Waste Container	Labeling User ID	Y	Y	Y	A	Y
Waste Container	Labeling Date	Y	Y	Y	A	Y
Waste Container	Weight	Y	Y	Y	A	Y
Waste Container	Weighing User ID	Y	Y	Y	A	Y
Waste Container	Weighing Date	Y	Y	Y	A	Y
Waste Container	Container Status	Y	S	S	A	Y
Waste Container	HMC Letter Number	Y	Y	Y	A	Y
Waste Container	RWP/HWP Number	Y	Y	Y	A	Y
Waste Container	Drum CIN	Y	Y	Y	A	Y
Waste Container	Disposition	Y	Y	Y	A	Y
Waste Container	Comments	Y	Y	Y	A	Y
Waste Container	Waste Stream Code	Y	S	S	A	Y

Solid or Liquid Mixed Waste Stream	Waste Stream Description	Y	N	N	N	Y
Solid or Liquid Mixed Waste Stream	Hazard Class	Y	N	N	N	Y
Solid or Liquid Mixed Waste Stream	Waste Procedure Number	Y	N	N	N	Y
Solid or Liquid Mixed Waste Stream	Waste Code	Y	N	N	N	Y
Solid or Liquid Mixed Waste Stream	Physical State	Y	N	N	N	Y
Solid or Liquid Mixed Waste Stream	Waste Status	Y	N	N	N	Y
Solid or Liquid Mixed Waste Stream	Chemical pH	Y	N	N	N	Y
Solid or Liquid Mixed Waste Stream	Flash Point	Y	N	N	N	Y
Solid or Liquid Mixed Waste Stream	Boiling Point	Y	N	N	N	Y
Solid or Liquid Mixed Waste Stream	Density	Y	N	N	N	Y
Chemical Component	Waste Component Code	Y	N	N	N	Y
Chemical Component	Chemical Component	Y	N	N	N	Y
Chemical Component	Chemical Composition %	Y	N	N	N	Y
Chemical Component	MSDS Number	Y	N	N	N	Y
Waste Sample	Sample Number	Y	N	N	N	Y
Waste Sample	Sampling User ID	Y	N	N	N	Y
Waste Sample	Sampling Date	Y	N	N	N	Y
Waste Sample	Special Analysis Type	Y	N	N	N	Y

Key: Y - Yes - Facility Personnel can perform this function
 N - No - Facility Personnel cannot perform this function
 A - Automatic - Function automatically performed by WS
 S - Select - Facility Personnel can select/enter data item from list

Report Information:

The report information which flows into WICS Reports is identified in Table 1 as the data items which are flagged with a "Y" in the Print column.

WICS Data:

The WICS Data which flows into/out-of WICS Data Tables are all the data items in Table 1.

Process Waste Sample Data:**Facility Personnel Information:**

The information which can be viewed, edited, inserted, deleted, or printed by the Facility Personnel (from the Process Waste Sample Module) is listed in Table 2. This table identifies the data item, which Data Table the data item is from, and whether the user can view, edit, insert, delete, or print the data item from this module.

Table 2. Data Items Flowing From/To Facility Personnel - Process Waste Sample Data Module

Data Table	Data Item	View	Edit	Insert	Delete	Print
Waste Container	Container ID	Y	N	N	N	Y
Waste Container	Waste Stream Code	Y	N	N	N	Y
Waste Sample	Sample Number	Y	Y	Y	Y	Y
Waste Sample	Sampling User ID	Y	Y	Y	A	Y
Waste Sample	Sampling Date	Y	Y	Y	A	Y
Waste Sample	Special Analysis Type	Y	S	S	A	Y

Key: Y - Yes - Facility Personnel can perform this function
N - No - Facility Personnel cannot perform this function
A - Automatic - Function automatically performed by WS
S - Select - Facility Personnel can select/enter data item from list

Report Information:

The report information which flows into WICS Reports is identified in Table 2 as the data items which are flagged with a "Y" in the Print column.

WICS Data:

The WICS Data which flows into/out-of WICS Data Tables are all the data items in Table 2.

Process Drum Data:

The Process Drum Data module consists of three primary submodules, Process Drum Log Book Data, Process Drum Checklist Data, and Process Drum Inventory Data. The data flow from these submodules is basically identical to the flow shown in Figure 6 for their parent module - Process Drum Data. Therefore, the DFDs for these submodules are not shown. However, the specific data items that flow from these submodules and the other entities are different. Therefore, the data items will be listed separately in the following.

Process Drum Log Book Data:**Facility Personnel Information:**

The information which can be viewed, edited, inserted, deleted, or printed by the Facility Personnel (from the Process Drum Data Module) is listed in Table 3. This table identifies the data item, which Data Table the data item is from, and whether the user can view, edit, insert, delete, or print the data item from this module.

Table 3. Data Items Flowing From/To Facility Personnel - Process Drum Log Book Data Module

Data Table	Data Item	View	Edit	Insert	Delete	Print
Waste Drum	Drum CIN	Y	Y	Y	Y	Y
Waste Drum	Drum Type Code	Y	S	S	A	Y
Drum Type	Drum Size	Y	N	N	N	Y
Drum Type	Drum Type	Y	N	N	N	Y
Waste Drum	RWP/HWP Number	Y	Y	Y	A	Y
Waste Drum	Mixed Waste	Y	Y	Y	A	Y
Waste Drum	Waste Type	Y	S	S	A	Y
Waste Drum	QC Date	Y	Y	Y	A	Y
Waste Drum	Packing User ID	Y	Y	Y	A	Y
Waste Drum	Packing Date	Y	Y	Y	A	Y
Waste Drum	Location Code	Y	S	S	A	Y
Closing Checklist	Gross Weight	Y	Y	Y	A	Y
Prep Checklist	Preparation Date	Y	Y	Y	A	Y
Closing Checklist	Closing Date	Y	Y	Y	A	Y
Waste Drum	Manifest Number	Y	Y	Y	A	Y
Waste Drum	Radioactive Shipment No.	Y	Y	Y	A	Y
Waste Drum	Shipment No.	Y	Y	Y	A	Y
Waste Drum	Ship Date	Y	Y	Y	A	Y

Key: Y - Yes - Facility Personnel can perform this function
 N - No - Facility Personnel cannot perform this function
 A - Automatic - Function automatically performed by WS
 S - Select - Facility Personnel can select/enter data item from list

Report Information:

The report information which flows into WICS Reports is identified in Table 3 as the data items which are flagged with a "Y" in the Print column.

WICS Data:

The WICS Data which flows into/out-of WICS Data Tables are all the data items in Table 3.

Process Drum Checklist Data:

The Process Drum Checklist Data module consists of four primary submodules, Process General Checklist Data, Process Drum Preparation Checklist Data, Process Drum Closing/Weighing Checklist Data, and Process Drum Preparation to Ship Checklist Data. The data flow from these submodules is basically identical to the flow shown in Figure 6 for their parent module - Process Drum Data. Therefore, the DFDs for these submodules are not shown. However, the specific data items that flow from these submodules and the other entities are different. Therefore, the data items will be listed separately in the following.

Process General Checklist Data:**Facility Personnel Information:**

The information which can be viewed, edited, inserted, deleted, or printed by the Facility Personnel (from the Process General Checklist Data Module) is listed in Table 4. This table identifies the data item, which Data Table the data item is from, and whether the user can view, edit, insert, delete, or print the data item from this module.

Table 4. Data Items Flowing From/To Facility Personnel - Process General Checklist Data Module

Data Table	Data Item	View	Edit	Insert	Delete	Print
Waste Drum	Drum CIN	Y	Y	N	Y	Y
Waste Drum	Location Code	Y	S	N	A	Y
Location	Level 1	Y	N	N	N	Y
Location	Level 2	Y	N	N	N	Y
Location	Level 3	Y	N	N	N	Y
Location	Level 4	Y	N	N	N	Y
Waste Drum	Liner Type Code	Y	S	N	A	Y
Waste Drum	Liner Quantity	Y	Y	N	A	Y
Liner Type	Liner Weight	Y	N	N	N	Y
Liner Type	Liner Thickness	Y	N	N	N	Y
Liner Type	Liner Volume	Y	N	N	N	Y
Liner Type	Liner Description	Y	N	N	N	Y
Waste Drum	Absorbent Type Code	Y	S	N	A	Y
Waste Drum	Absorbent Quantity	Y	Y	N	A	Y
Absorbent Type	Absorbent Density	Y	N	N	N	Y
Absorbent Type	Absorbent Description	Y	N	N	N	Y

Key: Y - Yes - Facility Personnel can perform this function
 N - No - Facility Personnel cannot perform this function
 A - Automatic - Function automatically performed by WS
 S - Select - Facility Personnel can select/enter data item from list

Report Information:

The report information which flows into WICS Reports is identified in Table 4 as the data items which are flagged with a "Y" in the Print column.

WICS Data:

The WICS Data which flows into/out-of WICS Data Tables are all the data items in Table 4.

Process Drum Preparation Checklist Data:**Facility Personnel Information:**

The information which can be viewed, edited, inserted, deleted, or printed by the Facility Personnel (from the Process Drum Preparation Checklist Data Module) is listed in Table 5. This table identifies the data item, which Data Table the data item is from, and whether the user can view, edit, insert, delete, or print the data item from this module.

Table 5. Data Items Flowing From/To Facility Personnel - Process Drum Preparation Checklist Data Module

Data Table	Data Item	View	Edit	Insert	Delete	Print
Waste Drum	Drum CIN	Y	Y	N	Y	Y
Prep. Checklist	QC Status	Y	Y	Y	A	Y
Prep. Checklist	RWP Reviewed	Y	Y	Y	A	Y
Prep. Checklist	Liner Placement	Y	Y	Y	A	Y
Prep. Checklist	Absorbent Placement	Y	Y	Y	A	Y
Prep. Checklist	Warning Stickers	Y	Y	Y	A	Y
Prep. Checklist	Preparation User ID	Y	Y	Y	A	Y
Prep. Checklist	Preparation Date	Y	Y	Y	A	Y

Key: Y - Yes - Facility Personnel can perform this function
N - No - Facility Personnel cannot perform this function
A - Automatic - Function automatically performed by WS

Report Information:

The report information which flows into WICS Reports is identified in Table 5 as the data items which are flagged with a "Y" in the Print column.

WICS Data:

The WICS Data which flows into/out-of WICS Data Tables are all the data items in Table 5.

Process Drum Closing/Weighing Checklist Data:**Facility Personnel Information:**

The information which can be viewed, edited, inserted, deleted, or printed by the Facility Personnel (from the Process Drum Closing/Weighing Checklist Data Module) is listed in Table 6. This table identifies the data item, which Data Table the data item is from, and whether the user can view, edit, insert, delete, or print the data item from this module.

Table 6. Data Items Flowing From/To Facility Personnel - Process Drum Closing/Weighing Checklist Data Module

Data Table	Data Item	View	Edit	Insert	Delete	Print
Waste Drum	Drum CIN	Y	Y	N	Y	Y
Closing Checklist	Liner Closed	Y	Y	Y	A	Y
Closing Checklist	L-R Bolt Tightened	Y	Y	Y	A	Y
Closing Checklist	Gross Weight	Y	Y	Y	A	Y
Closing Checklist	Weight Labeled	Y	Y	Y	A	Y
Closing Checklist	RAM Tag Dose Rate	Y	Y	Y	A	Y
Closing Checklist	Closing User ID	Y	Y	Y	A	Y
Closing Checklist	Closing Date	Y	Y	Y	A	Y

Key: Y - Yes - Facility Personnel can perform this function
 N - No - Facility Personnel cannot perform this function
 A - Automatic - Function automatically performed by WS

Report Information:

The report information which flows into WICS Reports is identified in Table 6 as the data items which are flagged with a "Y" in the Print column.

WICS Data:

The WICS Data which flows into/out-of WICS Data Tables are all the data items in Table 6.

Process Drum Preparation to Ship Checklist Data:**Facility Personnel Information:**

The information which can be viewed, edited, inserted, deleted, or printed by the Facility Personnel (from the Process Drum Preparation to Ship Checklist Data Module) is listed in Table 7. This table identifies the data item, which Data Table the data item is from, and whether the user can view, edit, insert, delete, or print the data item from this module.

Table 7. Data Items Flowing From/To Facility Personnel - Process Drum Preparation to Ship Checklist Data Module

Data Table	Data Item	View	Edit	Insert	Delete	Print
Waste Drum	Drum CIN	Y	Y	N	Y	Y
Shipping Checklist	L-R Bolt Torqued	Y	Y	Y	A	Y
Shipping Checklist	Torque Wrench No.	Y	Y	Y	A	Y
Shipping Checklist	Labeled	Y	Y	Y	A	Y
Shipping Checklist	Shipping Prep. User ID	Y	Y	Y	A	Y
Shipping Checklist	Shipping Prep. Date	Y	Y	Y	A	Y

Key: Y - Yes - Facility Personnel can perform this function
N - No - Facility Personnel cannot perform this function
A - Automatic - Function automatically performed by WS

Report Information:

The report information which flows into WICS Reports is identified in Table 7 as the data items which are flagged with a "Y" in the Print column.

WICS Data:

The WICS Data which flows into/out-of WICS Data Tables are all the data items in Table 7.

Process Drum Packaging Inventory Data:**Facility Personnel Information:**

The information which can be viewed, edited, inserted, deleted, or printed by the Facility Personnel (from the Process Drum Packaging Inventory Data Module) is listed in Table 8. This table identifies the data item, which Data Table the data item is from, and whether the user can view, edit, insert, delete, or print the data item from this module.

Table 8. Data Items Flowing From/To Facility Personnel - Process Drum Packaging Inventory Data Module

Data Table	Data Item	View	Edit	Insert	Delete	Print
Waste Drum	Drum CIN	Y	Y	N	Y	Y
Waste Drum	Mixed Waste	Y	Y	Y	A	Y
Drum Type	Drum Type	Y	N	N	N	Y
Drum Type	Drum Size	Y	N	N	N	Y
Waste Drum	Liner Quantity	Y	Y	Y	A	Y
Liner Type	Liner Description	Y	N	N	N	Y
Waste Drum	Absorbent Quantity	Y	Y	Y	A	Y
Absorbent Type	Absorbent Description	Y	N	N	N	Y
Waste Drum	Packing Pad Quantity	Y	Y	Y	A	Y
Packing Pad Type	Packing Pad Description	Y	N	N	N	Y

Key: Y - Yes - Facility Personnel can perform this function
 N - No - Facility Personnel cannot perform this function
 A - Automatic - Function automatically performed by WS

Report Information:

The report information which flows into WICS Reports is identified in Table 8 as the data items which are flagged with a "Y" in the Print column.

WICS Data:

The WICS Data which flows into/out-of WICS Data Tables are all the data items in Table 8.

Process Drum Inventory Data:

The Process Drum Inventory Data module consists of three primary submodules, Process Drum Packaging Inventory Data, Process Drum Solid or Liquid Mixed Waste Inventory Data, and Process Drum Compactible/Non-Compactible Solid Waste Inventory Data. The data flow from these submodules is basically identical to the flow shown in Figure 6 for their parent module - Process Drum Data. Therefore, the DFDs for these submodules are not shown. However, the specific data items that flow from these submodules and the other entities are different. Therefore, the data items will be listed separately in the following.

Process Drum Solid or Liquid Mixed Waste Inventory Data:**Facility Personnel Information:**

The information which can be viewed, edited, inserted, deleted, or printed by the Facility Personnel (from the Process Drum Solid or Liquid Mixed Waste Inventory Data Module) is listed in Table 9. This table identifies the data item, which Data Table the data item is from, and whether the user can view, edit, insert, delete, or print the data item from this module.

Table 9. Data Items Flowing From/To Facility Personnel - Process Drum Solid or Liquid Mixed Waste Inventory Data Module

Data Table	Data Item	View	Edit	Insert	Delete	Print
Waste Drum	Drum CIN	Y	N	N	N	Y
Solid or Liquid Mixed Waste Inventory	Container ID	Y	Y	Y	Y	Y

Key: Y - Yes - Facility Personnel can perform this function
N - No - Facility Personnel cannot perform this function
A - Automatic - Function automatically performed by WS

Report Information:

The report information which flows into WICS Reports is identified in Table 9 as the data items which are flagged with a "Y" in the Print column.

WICS Data:

The WICS Data which flows into/out-of WICS Data Tables are all the data items in Table 9.

Process Drum Compactible/Non-Compactible Solid Waste Inventory Data:**Facility Personnel Information:**

The information which can be viewed, edited, inserted, deleted, or printed by the Facility Personnel (from the Process Drum Compactible/Non-Compactible Solid Waste Inventory Data Module) is listed in Table 10. This table identifies the data item, which Data Table the data item is from, and whether the user can view, edit, insert, delete, or print the data item from this module.

Table 10. Data Items Flowing From/To Facility Personnel - Process Drum Compactible/Non-Compactible Solid Waste Inventory Data Module

Data Table	Data Item	View	Edit	Insert	Delete	Print
Waste Drum	Drum CIN	Y	N	N	N	Y
Comp/Non-C Solid Waste Inventory	Package ID	Y	Y	Y	Y	Y
Comp/Non-C Solid Waste Inventory	Package Volume	Y	Y	Y	A	Y
Comp/Non-C Solid Waste Inventory	Package Weight	Y	Y	Y	A	Y
Comp/Non-C Solid Waste Inventory	Paper %	Y	Y	Y	A	Y
Comp/Non-C Solid Waste Inventory	Rubber %	Y	Y	Y	A	Y
Comp/Non-C Solid Waste Inventory	Plastic %	Y	Y	Y	A	Y
Comp/Non-C Solid Waste Inventory	Cloth %	Y	Y	Y	A	Y
Comp/Non-C Solid Waste Inventory	Glass %	Y	Y	Y	A	Y
Comp/Non-C Solid Waste Inventory	Metal %	Y	Y	Y	A	Y
Comp/Non-C Solid Waste Inventory	Miscellaneous %	Y	Y	Y	A	Y
Comp/Non-C Solid Waste Inventory	Miscellaneous Description	Y	Y	Y	A	Y
Comp/Non-C Solid Waste Inventory	Miscellaneous Density	Y	Y	Y	A	Y

Key: Y - Yes - Facility Personnel can perform this function
 N - No - Facility Personnel cannot perform this function
 A - Automatic - Function automatically performed by WS

Report Information:

The report information which flows into WICS Reports is identified in Table 10 as the data items which are flagged with a "Y" in the Print column.

WICS Data:

The WICS Data which flows into/out-of WICS Data Tables are all the data items in Table 10.

Process Master Data:

The Process Master Data module consists of 15 primary submodules:

- Process User Data
- Process Location Data
- Process Container Type Data
- Process Drum Type Data
- Process Waste Type Data
- Process Hazard Class Data
- Process Waste Status Data
- Process Special Analysis Type Data
- Process Container Status Data
- Process Liner Type Data
- Process Absorbent Type Data
- Process Packing Pad Type Data
- Process Waste Component Density Data
- Process Waste Stream Data
- Process Setup/Configuration Data

The data flow from these submodules is basically identical to the flow shown in Figure 6 for their parent module - Process Master Data. Therefore, the DFDs for these submodules are not shown. However, the specific data items that flow from these submodules and the other entities are different. Therefore, the data items will be listed separately in the following pages.

Process User Data:**Facility Personnel Information:**

The information which can be viewed, edited, inserted, deleted, or printed by the Facility Personnel (from the Process User Data Module) is listed in Table 11. This table identifies the data item, which Data Table the data item is from, and whether the user can view, edit, insert, delete, or print the data item from this module.

Table 11. Data Items Flowing From/To Facility Personnel - Process User Data Module

Data Table	Data Item	View	Edit	Insert	Delete	Print
WICS Log-On	Employee ID	Y	Y	Y	Y	Y
WICS Log-On	Password	Y	Y	Y	A	Y
Privilege Name	Privilege Name	Y	S	S	A	Y

Key: Y - Yes - Facility Personnel can perform this function
N - No - Facility Personnel cannot perform this function
A - Automatic - Function automatically performed by WS
S - Select - Facility Personnel can select/enter data item from list

Report Information:

The report information which flows into WICS Reports is identified in Table 11 as the data items which are flagged with a "Y" in the Print column.

WICS Data:

The WICS Data which flows into/out-of WICS Data Tables are all the data items in Table 11.

Process Location Data:**Facility Personnel Information:**

The information which can be viewed, edited, inserted, deleted, or printed by the Facility Personnel (from the Process Location Data Module) is listed in Table 12. This table identifies the data item, which Data Table the data item is from, and whether the user can view, edit, insert, delete, or print the data item from this module.

Table 12. Data Items Flowing From/To Facility Personnel - Process Location Data Module

Data Table	Data Item	View	Edit	Insert	Delete	Print
Location	Location Code	Y	N	S	Y	Y
Location	Level 1	Y	Y	Y	A	Y
Location	Level 2	Y	Y	Y	A	Y
Location	Level 3	Y	Y	Y	A	Y
Location	Level 4	Y	Y	Y	A	Y

Key: Y - Yes - Facility Personnel can perform this function
N - No - Facility Personnel cannot perform this function
A - Automatic - Function automatically performed by WS
S - Select - Facility Personnel can select/enter data item from list

Report Information:

The report information which flows into WICS Reports is identified in Table 12 as the data items which are flagged with a "Y" in the Print column.

WICS Data:

The WICS Data which flows into/out-of WICS Data Tables are all the data items in Table 12.

Process Container Type Data:**Facility Personnel Information:**

The information which can be viewed, edited, inserted, deleted, or printed by the Facility Personnel (from the Process Container Type Data Module) is listed in Table 13. This table identifies the data item, which Data Table the data item is from, and whether the user can view, edit, insert, delete, or print the data item from this module.

Table 13. Data Items Flowing From/To Facility Personnel - Process Container Type Data Module

Data Table	Data Item	View	Edit	Insert	Delete	Print
Container Type	Container Type Code	Y	Y	Y	Y	Y
Container Type	Material	Y	Y	Y	A	Y
Container Type	Size	Y	Y	Y	A	Y
Container Type	Material Volume	Y	Y	Y	A	Y
Container Type	Tare Weight	Y	Y	Y	A	Y

Key: Y - Yes - Facility Personnel can perform this function
N - No - Facility Personnel cannot perform this function
A - Automatic - Function automatically performed by WS
S - Select - Facility Personnel can select/enter data item from list

Report Information:

The report information which flows into WICS Reports is identified in Table 13 as the data items which are flagged with a "Y" in the Print column.

WICS Data:

The WICS Data which flows into/out-of WICS Data Tables are all the data items in Table 13.

Process Drum Type Data:**Facility Personnel Information:**

The information which can be viewed, edited, inserted, deleted, or printed by the Facility Personnel (from the Process Drum Type Data Module) is listed in Table 14. This table identifies the data item, which Data Table the data item is from, and whether the user can view, edit, insert, delete, or print the data item from this module.

Table 14. Data Items Flowing From/To Facility Personnel - Process Drum Type Data Module

Data Table	Data Item	View	Edit	Insert	Delete	Print
Drum Type	Drum Type Code	Y	Y	Y	Y	Y
Drum Type	Drum Type	Y	Y	Y	A	Y
Drum Type	Drum Size	Y	Y	Y	A	Y
Drum Type	Tare Weight	Y	Y	Y	A	Y

Key: Y - Yes - Facility Personnel can perform this function
N - No - Facility Personnel cannot perform this function
A - Automatic - Function automatically performed by WS
S - Select - Facility Personnel can select/enter data item from list

Report Information:

The report information which flows into WICS Reports is identified in Table 14 as the data items which are flagged with a "Y" in the Print column.

WICS Data:

The WICS Data which flows into/out-of WICS Data Tables are all the data items in Table 14.

Process Waste Type Data:**Facility Personnel Information:**

The information which can be viewed, edited, inserted, deleted, or printed by the Facility Personnel (from the Process Waste Type Data Module) is listed in Table 15. This table identifies the data item, which Data Table the data item is from, and whether the user can view, edit, insert, delete, or print the data item from this module.

Table 15. Data Items Flowing From/To Facility Personnel - Process Waste Type Data Module

Data Table	Data Item	View	Edit	Insert	Delete	Print
Waste Type	Waste Type	Y	Y	Y	Y	Y
Waste Type	Waste Type Description	Y	Y	Y	A	Y

Key: Y - Yes - Facility Personnel can perform this function
N - No - Facility Personnel cannot perform this function
A - Automatic - Function automatically performed by WS
S - Select - Facility Personnel can select/enter data item from list

Report Information:

The report information which flows into WICS Reports is identified in Table 15 as the data items which are flagged with a "Y" in the Print column.

WICS Data:

The WICS Data which flows into/out-of WICS Data Tables are all the data items in Table 15.

Process Hazard Class Data:**Facility Personnel Information:**

The information which can be viewed, edited, inserted, deleted, or printed by the Facility Personnel (from the Process Hazard Class Data Module) is listed in Table 16. This table identifies the data item, which Data Table the data item is from, and whether the user can view, edit, insert, delete, or print the data item from this module.

Table 16. Data Items Flowing From/To Facility Personnel - Process Hazard Class Data Module

Data Table	Data Item	View	Edit	Insert	Delete	Print
Hazard Class	Hazard Class	Y	Y	Y	Y	Y
Hazard Class	Hazard Class Description	Y	Y	Y	A	Y

Key: Y - Yes - Facility Personnel can perform this function
N - No - Facility Personnel cannot perform this function
A - Automatic - Function automatically performed by WS
S - Select - Facility Personnel can select/enter data item from list

Report Information:

The report information which flows into WICS Reports is identified in Table 16 as the data items which are flagged with a "Y" in the Print column.

WICS Data:

The WICS Data which flows into/out-of WICS Data Tables are all the data items in Table 16.

Process Waste Status Data:**Facility Personnel Information:**

The information which can be viewed, edited, inserted, deleted, or printed by the Facility Personnel (from the Process Waste Status Data Module) is listed in Table 17. This table identifies the data item, which Data Table the data item is from, and whether the user can view, edit, insert, delete, or print the data item from this module.

Table 17. Data Items Flowing From/To Facility Personnel - Process Waste Status Data Module

Data Table	Data Item	View	Edit	Insert	Delete	Print
Waste Status	Waste Status	Y	Y	Y	Y	Y
Waste Status	Waste Status Description	Y	Y	Y	A	Y

Key: Y - Yes - Facility Personnel can perform this function
N - No - Facility Personnel cannot perform this function
A - Automatic - Function automatically performed by WS
S - Select - Facility Personnel can select/enter data item from list

Report Information:

The report information which flows into WICS Reports is identified in Table 17 as the data items which are flagged with a "Y" in the Print column.

WICS Data:

The WICS Data which flows into/out-of WICS Data Tables are all the data items in Table 17.

Process Special Analysis Type Data:**Facility Personnel Information:**

The information which can be viewed, edited, inserted, deleted, or printed by the Facility Personnel (from the Process Special Analysis Type Data Module) is listed in Table 18. This table identifies the data item, which Data Table the data item is from, and whether the user can view, edit, insert, delete, or print the data item from this module.

Table 18. Data Items Flowing From/To Facility Personnel - Process Special Analysis Type Data Module

Data Table	Data Item	View	Edit	Insert	Delete	Print
Special Analysis Type	Special Analysis Type	Y	Y	Y	Y	Y
Special Analysis Type	Analysis Type Description	Y	Y	Y	A	Y

Key: Y - Yes - Facility Personnel can perform this function
N - No - Facility Personnel cannot perform this function
A - Automatic - Function automatically performed by WS
S - Select - Facility Personnel can select/enter data item from list

Report Information:

The report information which flows into WICS Reports is identified in Table 18 as the data items which are flagged with a "Y" in the Print column.

WICS Data:

The WICS Data which flows into/out-of WICS Data Tables are all the data items in Table 18.

Process Container Status Data:**Facility Personnel Information:**

The information which can be viewed, edited, inserted, deleted, or printed by the Facility Personnel (from the Process Container Status Data Module) is listed in Table 19. This table identifies the data item, which Data Table the data item is from, and whether the user can view, edit, insert, delete, or print the data item from this module.

Table 19. Data Items Flowing From/To Facility Personnel - Process Container Status Data Module

Data Table	Data Item	View	Edit	Insert	Delete	Print
Container Status	Container Status	Y	Y	Y	Y	Y
Container Status	Container Status Description	Y	Y	Y	A	Y

Key: Y - Yes - Facility Personnel can perform this function
N - No - Facility Personnel cannot perform this function
A - Automatic - Function automatically performed by WS
S - Select - Facility Personnel can select/enter data item from list

Report Information:

The report information which flows into WICS Reports is identified in Table 19 as the data items which are flagged with a "Y" in the Print column.

WICS Data:

The WICS Data which flows into/out-of WICS Data Tables are all the data items in Table 19.

Process Liner Type Data:**Facility Personnel Information:**

The information which can be viewed, edited, inserted, deleted, or printed by the Facility Personnel (from the Process Liner Type Data Module) is listed in Table 20. This table identifies the data item, which Data Table the data item is from, and whether the user can view, edit, insert, delete, or print the data item from this module.

Table 20. Data Items Flowing From/To Facility Personnel - Process Liner Type Data Module

Data Table	Data Item	View	Edit	Insert	Delete	Print
Liner Type	Liner Type Code	Y	Y	Y	Y	Y
Liner Type	Liner Weight	Y	Y	Y	A	Y
Liner Type	Liner Thickness	Y	Y	Y	A	Y
Liner Type	Liner Volume	Y	Y	Y	A	Y
Liner Type	Liner Description	Y	Y	Y	A	Y

Key: Y - Yes - Facility Personnel can perform this function
N - No - Facility Personnel cannot perform this function
A - Automatic - Function automatically performed by WS
S - Select - Facility Personnel can select/enter data item from list

Report Information:

The report information which flows into WICS Reports is identified in Table 20 as the data items which are flagged with a "Y" in the Print column.

WICS Data:

The WICS Data which flows into/out-of WICS Data Tables are all the data items in Table 20.

Process Absorbent Type Data:**Facility Personnel Information:**

The information which can be viewed, edited, inserted, deleted, or printed by the Facility Personnel (from the Process Absorbent Type Data Module) is listed in Table 21. This table identifies the data item, which Data Table the data item is from, and whether the user can view, edit, insert, delete, or print the data item from this module.

Table 21. Data Items Flowing From/To Facility Personnel - Process Absorbent Type Data Module

Data Table	Data Item	View	Edit	Insert	Delete	Print
Absorbent Type	Absorbent Type Code	Y	Y	Y	Y	Y
Absorbent Type	Absorbent Density	Y	Y	Y	A	Y
Absorbent Type	Absorbent Description	Y	Y	Y	A	Y

Key: Y - Yes - Facility Personnel can perform this function
N - No - Facility Personnel cannot perform this function
A - Automatic - Function automatically performed by WS
S - Select - Facility Personnel can select/enter data item from list

Report Information:

The report information which flows into WICS Reports is identified in Table 21 as the data items which are flagged with a "Y" in the Print column.

WICS Data:

The WICS Data which flows into/out-of WICS Data Tables are all the data items in Table 21.

Process Packing Pad Type Data:**Facility Personnel Information:**

The information which can be viewed, edited, inserted, deleted, or printed by the Facility Personnel (from the Process Packing Pad Type Data Module) is listed in Table 22. This table identifies the data item, which Data Table the data item is from, and whether the user can view, edit, insert, delete, or print the data item from this module.

Table 22. Data Items Flowing From/To Facility Personnel - Process Packing Pad Type Data Module

Data Table	Data Item	View	Edit	Insert	Delete	Print
Packing Pad Type	Packing Pad Type Code	Y	Y	Y	Y	Y
Packing Pad Type	Pad Weight	Y	Y	Y	A	Y
Packing Pad Type	Pad Volume	Y	Y	Y	A	Y
Packing Pad Type	Pad Description	Y	Y	Y	A	Y

Key: Y - Yes - Facility Personnel can perform this function
N - No - Facility Personnel cannot perform this function
A - Automatic - Function automatically performed by WS
S - Select - Facility Personnel can select/enter data item from list

Report Information:

The report information which flows into WICS Reports is identified in Table 22 as the data items which are flagged with a "Y" in the Print column.

WICS Data:

The WICS Data which flows into/out-of WICS Data Tables are all the data items in Table 22.

Process Waste Component Density Data:**Facility Personnel Information:**

The information which can be viewed, edited, inserted, deleted, or printed by the Facility Personnel (from the Process Waste Component Density Data Module) is listed in Table 23. This table identifies the data item, which Data Table the data item is from, and whether the user can view, edit, insert, delete, or print the data item from this module.

Table 23. Data Items Flowing From/To Facility Personnel - Process Waste Component Density Data Module

Data Table	Data Item	View	Edit	Insert	Delete	Print
Waste Package Component Density	Paper Density	Y	Y	N	N	Y
Waste Package Component Density	Rubber Density	Y	Y	N	N	Y
Waste Package Component Density	Plastic Density	Y	Y	N	N	Y
Waste Package Component Density	Cloth Density	Y	Y	N	N	Y
Waste Package Component Density	Glass Density	Y	Y	N	N	Y
Waste Package Component Density	Metal Density	Y	Y	N	N	Y

Key: Y - Yes - Facility Personnel can perform this function
N - No - Facility Personnel cannot perform this function

Report Information:

The report information which flows into WICS Reports is identified in Table 23 as the data items which are flagged with a "Y" in the Print column.

WICS Data:

The WICS Data which flows into/out-of WICS Data Tables are all the data items in Table 23.

Process Waste Stream Data:**Facility Personnel Information:**

The information which can be viewed, edited, inserted, deleted, or printed by the Facility Personnel (from the Process Waste Stream Data Module) is listed in Table 24. This table identifies the data item, which Data Table the data item is from, and whether the user can view, edit, insert, delete, or print the data item from this module.

Table 24. Data Items Flowing From/To Facility Personnel - Process Waste Stream Data Module

Data Table	Data Item	View	Edit	Insert	Delete	Print
Solid or Liquid Mixed Waste Stream	Waste Stream Code	Y	Y	Y	Y	Y
Solid or Liquid Mixed Waste Stream	Waste Stream Description	Y	Y	Y	A	Y
Solid or Liquid Mixed Waste Stream	Hazard Class	Y	S	S	A	Y
Solid or Liquid Mixed Waste Stream	Waste Procedure Number	Y	Y	Y	A	Y
Solid or Liquid Mixed Waste Stream	Waste Code	Y	Y	Y	A	Y
Solid or Liquid Mixed Waste Stream	Physical State	Y	Y	Y	A	Y
Solid or Liquid Mixed Waste Stream	Waste Status	Y	S	S	A	Y
Solid or Liquid Mixed Waste Stream	Chemical ph	Y	Y	Y	A	Y
Solid or Liquid Mixed Waste Stream	Flash Point	Y	Y	Y	A	Y
Solid or Liquid Mixed Waste Stream	Boiling Point	Y	Y	Y	A	Y
Solid or Liquid Mixed Waste Stream	Density	Y	Y	Y	A	Y
Chemical Component	Component Code	Y	Y	Y	A	Y
Chemical Component	Chemical Component	Y	Y	Y	A	Y
Chemical Component	Composition %	Y	Y	Y	A	Y
Chemical Component	MSDS Numbers	Y	Y	Y	A	Y

Key: Y - Yes

N - No -

A - Automatic -

S - Select -

Facility Personnel can perform this function

Facility Personnel cannot perform this function

Function automatically performed by WS

Facility Personnel can select/enter data item from list

Report Information:

The report information which flows into WICS Reports is identified in Table 24 as the data items which are flagged with a "Y" in the Print column.

WICS Data:

The WICS Data which flows into/out-of WICS Data Tables are all the data items in Table 24.

Process Setup/Configuration Data:**Facility Personnel Information:**

The information which can be viewed, edited, inserted, deleted, or printed by the Facility Personnel (from the Process Setup/Configuration Data Module) is listed in Table 25. This table identifies the data item, which Data Table the data item is from, and whether the user can view, edit, insert, delete, or print the data item from this module.

Table 25. Data Items Flowing From/To Facility Personnel - Process Setup/Configuration Data Module

Data Table	Data Item	View	Edit	Insert	Delete	Print
WS Port Setup/Config	Printer Port	Y	S	S	N	N
WS Port Setup/ Config	HCU Port	Y	S	S	N	N

Key: Y - Yes Facility Personnel can perform this function
N - No - Facility Personnel cannot perform this function
A - Automatic - Function automatically performed by WS
S - Select - Facility Personnel can select/enter data item from list

Report Information:

The report information which flows into WICS Reports is identified in Table 25 as the data items which are flagged with a "Y" in the Print column.

WICS Data:

The WICS Data which flows into/out-of WICS Data Tables are all the data items in Table 25.

Transfer Data to/from HCU:

The Transfer Data to/from HCU module consists of two primary submodules, Send Data to HCU and Receive Data from HCU. The data flow from these submodules is basically identical to the flow shown in Figure 6 for their parent module - Transfer Data to/from HCU. Therefore, the DFDs for these submodules are not shown. However, the specific data items that flow from these submodules and the other entities are different. Therefore, the data items will be listed separately in the following.

Send Data:

Master Data for HCU Validation:

The data items which are represented by "Master Data for HCU Validation" are those which are contained in the WS Master Data Validation Files. These data files and the data items contained in the files are listed in Section 2.3.2, HCU Data Flow Diagrams.

WICS Data:

The WICS Data which flows out-of the WICS Data Tables are all the data items in the WS Master Data Validation Files.

Receive Data:

Data Files from HCU:

The data items which are represented by "Data Files from HCU" are those which are contained in the HCU Laboratory Data Files. These data files and the data items contained in the files are listed in Section 2.3.2, HCU Data Flow Diagrams.

WICS Data:

The WICS Data which flows out-of the WICS Data Tables are all the data items in the HCU Laboratory Data Files.

Print Reports:

The Print Reports module consists of two primary submodules, Print Disposal Request Report and Print Other Reports. The data flow from these submodules is basically identical to the flow shown in Figure 6 for their parent module - Print Reports. Therefore, the DFDs for these submodules are not shown. However, the specific data items that flow from these submodules and the other entities are mostly different. However, several data items will be printed on each page of each report, including the WS Date and the Revision Number and Revision Acronym from the Revision Data Table. The data items that are unique to each report are listed separately in the following. The format for all the reports are provided in Section 3.1.3.3 of the System Requirements Specification for WICS.

Print Disposal Request Report:

The Disposal Request Report shall contain all the data required to generate Attachment B of a "Waste Storage/Disposal Request" form. The user generates this report by selecting a group of Container IDs from a list provided by the WS. This list of Container IDs will be all the containers which have a weight, do not have a HMC Letter Number, and do not have a RWP/HWP Number associated with them. After the user has made his selection, he will be prompted to enter a HMC Letter Number. This number will then be written to each of the selected Waste Container records. All necessary data will be printed in the report for each indicated Container ID.

Report Information and WICS Data:

The data items (and their corresponding data tables) that are required for the Disposal Request Report are listed in Table 26.

Table 26. Data Items Required for Disposal Request Report

Data Table	Data Item
Waste Container	Container ID
Waste Container	Weight
Waste Container	Container Status
Waste Container	HMC Letter Number
Container Type	Size
Data Table	Data Item
Container Type	Material
Solid or Liquid Mixed Waste Stream	Waste Stream Description
Solid or Liquid Mixed Waste Stream	Physical State
Solid or Liquid Mixed Waste Stream	Chemical ph
Solid or Liquid Mixed Waste Stream	Flash Point
Solid or Liquid Mixed Waste Stream	Boiling Point
Solid or Liquid Mixed Waste Stream	Density
Solid or Liquid Mixed Waste Stream	Hazard Class
Solid or Liquid Mixed Waste Stream	Waste Status
Chemical Component	Chemical Component
Chemical Component	Chemical Composition %
Chemical Component	MSDS Number

Print Other Reports:

The Print Other Reports Module has ten primary submodules:

- Print Container Log Book Report
- Print Waste Sample Report
- Print Drum Log Book Report
- Print Drum Checklist Report
- Print Drum Lab Packed Inventory Report
- Print Drum Waste Inventory Report
- Print Master Data Report
- Print Disposal Record Report
- Print Waste Manifest Report
- Print Request for Special Analysis Report

The data flow from these submodules is basically identical to the flow for the Print Reports Module. Therefore, the DFDs for these submodules are not shown. However, the specific data items that are required from the WICS Data Tables and which are printed for each report are detailed in the following pages.

Print Container Log Book Report:

The Container Log Book Report will contain all the data associated with a unique Container ID for a user specified set of Container IDs. The default will be for all active Container IDs. The data records will be arranged in ascending order by Container ID.

Report Information and WICS Data:

The data items (and their corresponding data tables) that are required for the Container Log Book Report are listed in Table 27.

Table 27. Data Items Required for Container Log Book Report

Data Table	Data Item
Waste Container	Container ID
Waste Container	Log Book Number
Waste Container	Labeling User ID
Waste Container	Labeling Date
Waste Container	Container Type Code
Waste Container	Weight
Waste Container	Weighing User ID
Waste Container	Weighing Date
Waste Container	Location Code
Waste Container	Container Status
Waste Container	RWP or HWP Number
Waste Container	Drum CIN
Waste Container	Disposition
Waste Container	Comments
Waste Container	Waste Stream Code
Waste Container	HMC Letter Number
Data Table	Data Item
Container Type	Material
Container Type	Size
Location	Level 1
Location	Level 2
Location	Level 3

Location	Level 4
Solid or Liquid Mixed Waste Stream	Waste Stream Description
Solid or Liquid Mixed Waste Stream	Hazard Class
Solid or Liquid Mixed Waste Stream	Waste Procedure Number
Solid or Liquid Mixed Waste Stream	Waste Code
Solid or Liquid Mixed Waste Stream	Waste Status
Solid or Liquid Mixed Waste Stream	Physical State
Solid or Liquid Mixed Waste Stream	Chemical ph
Solid or Liquid Mixed Waste Stream	Flash Point
Solid or Liquid Mixed Waste Stream	Boiling Point
Solid or Liquid Mixed Waste Stream	Density
Chemical Component	Chemical Component
Chemical Component	Composition %
Chemical Component	MSDS Number
Waste Sample	Sample Number
Waste Sample	Sampling User ID
Waste Sample	Sampling Date
Waste Sample	Special Analysis Type

Print Waste Sample Report:

The Waste Sample Report will contain all the data associated with a waste sample for a unique Container ID. The default set of Container IDs will be all active Container IDs. If a subset of Container IDs is desired the user will be able to specify their selection by Container ID. The data records will be arranged in ascending order by Container ID.

Report Information and WICS Data:

The data items (and their corresponding data tables) that are required for the Waste Sample Report are listed in Table 28.

Table 28. Data Items Required for Waste Sample Report

Data Table	Data Item
Waste Container	Container ID
Solid or Liquid Mixed Waste Stream	Waste Stream Description
Waste Sample	Sample Number
Waste Sample	Sampling User ID
Waste Sample	Sampling Date
Waste Sample	Special Analysis Type

Print Drum Log Book Report:

The Drum Log Book Report will contain all the data associated with a unique Drum CIN for a user specified set of Drum CINs. The default will be for all active Drum CINs. If a subset of Drum CINs is desired the user will be able to specify their selection. The data records will be arranged in ascending order by Drum CIN.

Report Information and WICS Data:

The data items (and their corresponding data tables) that are required for the Drum Log Book Report are listed in Table 29.

Table 29. Data Items Required for Drum Log Book Report

Data Table	Data Item
Waste Drum	Drum CIN
Waste Drum	Waste Type
Waste Drum	Manifest Number
Waste Drum	Radioactive Shipment Number
Waste Drum	Shipment Number
Waste Drum	Ship Date
Waste Drum	QC Date
Waste Drum	Packing Date
Waste Drum	Location Code
Waste Drum	RWP or HWP Number
Closing Checklist	Gross Weight
Drum Type	Drum Type
Drum Type	Drum Size

Print Drum Checklist Report:

The Drum Checklist Report will contain all the data associated with a specific drum's preparation, packaging, and shipping preparation checklists. The user will indicate the Drum CINs of interest.

Report Information and WICS Data:

The data items (and their corresponding data tables) that are required for the Drum Checklist Report are listed in Table 30.

Table 30. Data Items Required for Drum Checklist Report

Data Table	Data Item
Waste Drum	Drum CIN
Waste Drum	Liner Quantity
Waste Drum	Absorbent Quantity
Preparation Checklist	Preparation User ID
Preparation Checklist	Preparation Date
Closing Checklist	Closing User ID
Closing Checklist	Closing Date
Closing Checklist	Gross Weight
Closing Checklist	RAM Tag Dose Rate
Shipping Preparation Checklist	Shipping Prep User ID
Shipping Preparation Checklist	Shipping Prep Date
Shipping Preparation Checklist	Torque Wrench Number
Liner Type	Liner Description
Absorbent Type	Absorbent Description
Location	Level 1, Level 2, Level 3, and Level 4

Print Drum Lab Packed Inventory Report:

The Drum Lab Packed Inventory Report will contain all the data associated with a specific drum's mixed waste inventory. The user will indicate the Drum CIN of interest. If the indicated Drum CIN was not packed yet or the waste packed into it was not mixed waste, then the user will be provided with an appropriate error message.

Report Information and WICS Data:

The data items (and their corresponding data tables) that are required for the Drum Lab Packed Inventory Report are listed in Table 31.

Table 31. Data Items Required for Drum Lab Packed Inventory Report

Data Table	Data Item
Waste Drum	Drum CIN
Waste Drum	RWP or HWP Number
Waste Drum	Liner Quantity
Waste Drum	Absorbent Quantity
Waste Drum	Packing Pad Quantity
Waste Drum	Packing Date
Waste Drum	Packing User ID
Closing Checklist	Closing Date
Closing Checklist	RAM Tag Dose Rate
Drum Type	Drum Type
Drum Type	Drum Size
Liner Type	Liner Description
Absorbent Type	Absorbent Description
Packing Pad Type	Packing Pad Description
Location	Level 1, Level 2, Level 3, and Level 4
Solid or Liquid Mixed Waste Inventory	Container ID
Waste Container	Weight
Waste Container	Sample Number
Container Type	Material
Container Type	Size
Container Type	Material Volume

Container Type	Tare Weight
Solid or Liquid Mixed Waste Stream	Waste Stream Description

This report also shall contain the following calculated data items:

- o Total Container Weight -- Sum of all container tare weights
- o Total Container Volume -- Sum of all container material volumes
- o Total Hazardous Constituent Weight -- Sum of the quantity (gross weight minus tare weight) for all containers. Note, this assumes that all the waste in the containers is of the same type and can be referred to as "hazardous constituent" as a total.
- o Total Hazardous Constituent Volume -- Sum of all the container sizes.
- o Total Liner Weight -- Liner Quantity times Liner Weight
- o Total Liner Volume -- Liner Quantity times Liner Volume
- o Total Packing Pad Weight -- Packing Pad Quantity times Packing Pad Weight
- o Total Packing Pad Volume -- Packing Pad Quantity times Packing Pad Volume
- o Total Absorbent Volume -- Absorbent Quantity divided by Absorbent Density

Print Drum Waste Inventory Report:

The Drum Waste Inventory Report will contain all the data associated with a specific drum's compactible or non-compactible solid waste inventory. The user will indicate the Drum CIN of interest. If the indicated Drum CIN was not packed yet or the waste packed into it was not compactible or non-compactible solid waste, then the user will be provided with an appropriate error message.

Report Information and WICS Data:

The data items (and their corresponding data tables) that are required for the Drum Waste Inventory Report are listed in Table 32.

Table 32. Data Items Required for Waste Inventory Report

Data Table	Data Item
Waste Drum	Drum CIN
Waste Drum	RWP or HWP Number
Waste Drum	Liner Quantity
Waste Drum	Absorbent Quantity
Waste Drum	Packing Pad Quantity
Waste Drum	Packing Date
Waste Drum	Packing User ID
Closing Checklist	Closing Date
Closing Checklist	RAM Tag Dose Rate
Drum Type	Drum Type
Drum Type	Drum Size
Liner Type	Liner Description
Absorbent Type	Absorbent Description
Packing Pad Type	Packing Pad Description
Location	Level 1, Level 2, Level 3, and Level 4
Data Table	Data Item
Compactible/Non-Comp Solid Waste Inv.	Package ID
Compactible/Non-Comp Solid Waste Inv.	Package Volume
Compactible/Non-Comp Solid Waste Inv.	Package Weight
Compactible/Non-Comp Solid Waste Inv.	Paper %

Compactible/Non-Comp Solid Waste Inv.	Rubber %
Compactible/Non-Comp Solid Waste Inv.	Plastic %
Compactible/Non-Comp Solid Waste Inv.	Cloth %
Compactible/Non-Comp Solid Waste Inv.	Glass %
Compactible/Non-Comp Solid Waste Inv.	Metal %
Compactible/Non-Comp Solid Waste Inv.	Miscellaneous %
Compactible/Non-Comp Solid Waste Inv.	Miscellaneous Description

This report also shall contain the following calculated data items:

- o Total Paper Volume -- Sum for all Package IDs the quantity (% Paper times Package Volume)
- o Total Paper Weight -- Total Paper Volume multiplied by Paper Density.
- o Total Rubber Volume -- Sum for all Package IDs the quantity (% Rubber times Package Volume)
- o Total Rubber Weight -- Total Rubber Volume multiplied by Rubber Density
- o Total Plastic Volume -- Sum for all Package IDs the quantity (% Plastic times Package Volume)
- o Total Plastic Weight -- Total Plastic Volume multiplied by Plastic Density.
- o Total Cloth Volume -- Sum for all Package IDs the quantity (% Cloth times Package Volume)
- o Total Cloth Weight -- Total Cloth Volume multiplied by Cloth Density
- o Total Glass Volume -- Sum for all Package IDs the quantity (% Glass times Package Volume)
- o Total Glass Weight -- Total Glass Volume multiplied by Glass Density
- o Total Metal Volume -- Sum for all Package IDs the quantity (% Metal times Package Volume)
- o Total Metal Weight -- Total Metal Volume multiplied by Metal Density
- o Total Miscellaneous Volume -- Sum for all Package IDs the quantity (% Miscellaneous times Package Volume). Note, this assumes that all the miscellaneous in the drum is of the same type.
- o Total Miscellaneous Weight -- Total Miscellaneous Volume multiplied by Miscellaneous Density
- o Total Liner Weight -- Liner Quantity times Liner Weight
- o Total Liner Volume -- Liner Quantity times Liner Volume
- o Total Packing Pad Weight -- Packing Pad Quantity times Packing Pad Weight
- o Total Packing Pad Volume -- Packing Pad Quantity times Packing Pad Volume
- o Total Absorbent Volume -- Absorbent Quantity divided by Absorbent Density

Print Master Data Report:

The Master Data Report will contain the WS master data. The user will be able to select which master data set(s) he/she would like printed. The default will be all master data sets.

Report Information and WICS Data:

The data items (and their corresponding data tables) that are required for the Master Data Report are listed in Table 33.

Table 33. Data Items Required for Master Data Report

Data Table	Data Item
WICS Log-On	All Data Items
Location	All Data Items
Container Type	All Data Items
Drum Type	All Data Items
Liner Type	All Data Items
Absorbent Type	All Data Items
Packing Pad Type	All Data Items
Solid or Liquid Mixed Waste Stream	All Data Items
Chemical Component	All Data Items
Waste Package Component Density	All Data Items
Waste Type	All Data Items
Hazard Class	All Data Items
Waste Status	All Data Items
Container Status	All Data Items
Special Analysis Type	All Data Items

Print Disposal Record Report:

The Disposal Record Report will contain all WICS data for a specific drum CIN which is applies to a "Low-Level Waste Storage/Disposal Record" form. Note, the WICS data contained in this report will not consist of all the data required to complete this form. The user will indicate the Drum CIN of interest. If the indicated Drum CIN was not packed yet, then the user will be provided with an appropriate error message.

Report Information and WICS Data:

The data items (and their corresponding data tables) that are required for the Disposal Record Report are listed in Table 34.

Table 34. Data Items Required for Disposal Record Report

Data Table	Data Item
Waste Drum	Drum CIN
Waste Drum	RWP or HWP Number
Waste Drum	Radioactive Shipment Number
Waste Drum	Manifest Number
Waste Drum	Packing Date
Waste Drum	Waste Type
Drum Type	Drum Type
Drum Type	Drum Size
Drum Type	Tare Weight
Closing Checklist	Gross Weight
Solid or Liquid Mixed Waste Stream	Waste Stream Description (If Mixed Waste = Yes for this Drum CIN)
Solid or Liquid Mixed Waste Stream	Waste Code (If Mixed Waste = Yes for this Drum CIN)
Waste Container	Weight (If Mixed Waste = Yes for this Drum CIN)

Print Waste Manifest Report:

The Waste Manifest Report will contain all WICS data for a specific waste shipment which is applies to an "Uniform Hazardous Waste Manifest" form. Note, the WICS data contained in this report will not consist of all the data required to complete this form. The user will indicate the Shipment Number or Radioactive Shipment Record Number of interest. The report will include information for each Drum CIN that has the indicated Shipment or Radioactive Shipment Record Number.

Report Information and WICS Data:

The data items (and their corresponding data tables) that are required for the Waste Manifest Report are listed in Table 35.

Table 35. Data Items Required for Waste Manifest Report

Data Table	Data Item
Waste Drum	Drum CIN
Waste Drum	Radioactive Shipment Number
Waste Drum	Shipment Number
Waste Drum	Waste Type
Drum Type	Drum Type
Drum Type	Drum Size
Closing Checklist	Gross Weight
Liner Type	Liner Description
Solid or Liquid Mixed Waste Stream	Waste Stream Description (If Mixed Waste = Yes for this Drum CIN)
Solid or Liquid Mixed Waste Stream	Waste Code (If Mixed Waste = Yes for this Drum CIN)

Print Special Analysis Report:

The Request for Special Analysis Report will contain all the data required to request a special laboratory analysis for a waste sample. The user will indicate the Container ID of interest. If the indicated Container ID does not exist or already has a sample number then the user will be provided with an appropriate error message. If analysis type(s) do not already exist for the indicated Container ID, the user will be prompted to enter the analysis types requested.

Report Information and WICS Data:

The data items (and their corresponding data tables) that are required for the Special Analysis Report are listed in Table 36.

Table 36. Data Items Required for Special Analysis Report

Data Table	Data Item
Waste Container	Container ID
Solid or Liquid Mixed Waste Stream	Waste Stream Description
Waste Sample	Special Analysis Type

Perform Help Function:

The Perform Help Function module consists of two primary submodules, Perform About Function and Perform System Change Requests Function. The data flow from these submodules is basically identical to the flow shown in Figure 6 for their parent module - Perform Help Function. Therefore, the DFDs for these submodules are not shown. However, the specific data items that flow from these submodules and the other entities are different. Therefore, the data items will be listed separately in the following.

Perform About Function:**WICS Data:**

The WICS Data which flows out-of the WICS Data Tables for this module consist of the data items shown in Table 37.

Table 37. Data Items Required for Perform About Function Module

Data Table	Data Item
Revision Data	All Data Items

Perform System Change Requests Function:

WICS Data:

The WICS Data which flows out-of the WICS Data Tables for this module consist of the data items shown in Table 38.

Table 38. Data Items Required for Perform System Change Requests Function Module

Data Table	Data Item
System Change Requests	All Data Items

Manage Database:

The Manage Database module will provide management and archiving of all data associated with unique Container IDs and Drum CINs. This function will be performed automatically by the WS. The WS will remove old Container ID and Drum CIN data sets from the WICS Data Tables and write them to the WICS Archive Files.

WICS Data:

The data consists of two sets of data. The first set includes all the data associated with a specific Container ID. The Container ID data set consists of all the data items listed in Tables 1 and 2. The second set includes all the data associated with a specific Drum CIN. The Drum CIN data set consists of all the data items listed in Tables 3 through 10.

WICS Archive Data:

The WICS Archive Files will be named CXMMDDYY.OLD and DXMMDDYY.OLD, for the Container ID data set and the Drum CIN data set, respectively. The "MMDDYY" in these file names refers to the date which the data files were archived. The "X" is a number which identifies the sequence records are archived on the same day.

The Container ID data set will be changed to view only access immediately after they are packaged into a drum, i.e., six months after the date packed. The Container ID data set will be archived six months after the drum "Ship Date".

The Drum CIN data set will be changed to view only access immediately after the drum is shipped, i.e., six months after the date in the "Ship Date" data item in the Waste Drum data table. The Drum CIN data set will be archived six months after the "Ship Date".

2.4 STATE TRANSITION DIAGRAMS

State Transition Diagrams are used to model the control process. They describe the processes that must be carried out by the system and the actions that activate and deactivate the processes. The state transition diagrams for the HCU and the WS are presented in the following sections.

2.4.1 HCU State Transition Diagrams

The top level state transition diagram (STD) for the HCU is shown in Figure 7. This diagram shows the major states and processes of the HCU operations.

Figures 8 through 21 show the data flow for the HCU screens. Each of these figures present the data flow for the HCU operations. Screens are represented by the boxes in the figures. The screens are explicitly defined in Section 4.1. Each screen in Section 4.1 is represented in one or more of the Figures 8 through 21. These screen data flow diagrams are state transition diagrams with the state being the HCU screen waiting for a response from the user. The transitions in these figures are represented by the responses from the user. Figures 8 through 20 assume that the responses by the user are valid and show the flow of data accordingly. However, at each state invalid responses can be given by the user. Examples of state transition diagrams for invalid responses are provided in Figure 21.

There are two user responses on these figures which need further explanation - 'F1', 'F2', and 'F7'. These refer to defined HCU functions. The 'F' in these notations represent the HCU function key. The '1', '2', and '7' represent the corresponding number keys. Therefore, the user employs the 'F1' function by pressing the function and '1' key at the same time. The 'F1' function is used when the user wants to review a Master Data file for the purpose of selecting a master data item. The 'F2' function is used when the user has finished entering Container IDs when packing a drum with mixed waste. The 'F7' function is used when the user wants to return to the previous menu.

Figure 7. HCU Top Level State Transition Diagram

Figure 8. HCU STD - Main Menu

Figure 9. HCU STD - Container Data Menu

Figure 10. HCU STD - Label Container

Figure 11. HCU STD - Sample Waste

Figure 12. HCU STD - Weigh Container

Figure 13. HCU STD - Waste Drum Data Menu

(Figure Cont'd Next Page)

Figure 14. HCU STD - Prepare to Pack Drum

Figure 14. HCU STD - Prepare to Pack Drum (cont'd)

Figure 15. HCU STD - Pack Drum with Mixed Waste

Figure 15. HCU STD - Pack Drum with Mixed Waste (cont'd)

Figure 16. HCU STD - Pack Drum with Compactible/Non-Compactible Solid Waste

Figure 17. HCU STD - Close/Weigh Drum

Figure 18. HCU STD - Prepare to Ship Drum

Figure 19. HCU STD - Transfer Data Menu

Figure 20. HCU STD - Log-Off WICS Menu

Figure 21. HCU STD - Data Input Error Example - Master Data

2.4.2 WS State Transition Diagram

The top level state transition diagram for the WS sub-system is provided in Figure 22. This is a classic transaction center where states are determined by menu selections. At any given point in time the WS subsystem will be in one of these states or derivatives thereof. The sub-system conducts some preliminary "housekeeping" activities and then awaits the log on of a user. After a successful log on, it displays the main menu and awaits selection by the user. The sub-system returns to this state after successful completion of the selected menu item. Some states allow a finite number of attempts to change the state, failing which the sub-system halts and returns control to the calling module. The sub-system ends when the user logs off, powers off, or "boots" the system.

Figure 22. WS Top Level State Transition Diagram

3.0 DEPENDENCY DESCRIPTION

3.1 PROCESSES AND CONSTITUENT FILES

The WICS system will consist of (at least) the following file categories:

- Executable, Scripts and Libraries
- Forms
- Reports
- Dialog boxes

The files listed below are not exhaustive and are provided as a starting point for implementation. Newer files may be added and existing files modified to support the application.

Executable, Scripts and Libraries

MS-WINDOWS - The WICS system is designed to work with standard Windows on the workstation. Version 3.1 is required on the workstation. The entire development of the WICS system shall take place in the Windows environment and executable code shall be "burnt" in to the HCU.

DOS - A version of DOS that is compatible with the HCU shall form the operating environment on the HCU.

PARADOX FOR WINDOWS - Either the run time or full interactive version will be required as the WS sub-system will be written entirely in ObjectPAL.

MICROSOFT C/C++ and TURBO C/C++ - These will be used as the primary development vehicle for the C code that shall be compiled to run on the HCU. These are needed for development / maintenance of the WICS system.

SYMBOL LIBRARIES - These will be used in the C code written for the HCU subsystem.

WICS.SDL - This is the main script and will run on the workstations. Additionally it will be used to allow or deny access to all other programs, forms and tables associated with the application. This script will activate the main menu screen.

PCXFR.SDL - This script will handle the transfer of information between the workstation and HCU. This shall primarily reuse PCXFR.C and other existing communication routines and libraries.

COMM.DLL (or other low level I/O library) - This will be used to implement XMODEM data transfer protocol between the HCU and WS.

Forms

Table 39 provides a listing and short description of the WS forms. These forms are for the WS screens which have been identified to this point in the implementation.

Table 39. Listing of WS Forms

Form File Name	Form Description
LOGON.FSL	WICS Welcome and Log-On Screen
MAINMENU.FSL	Main Menu
CON_MENU.FSL	Container Menu
CON_LOG.FSL	Container Log Book Data
CON_WSTM.FSL	Waste Stream Data Entry for Waste Container
CON_WSAM.FSL	Waste Sample Data Entry for Waste Container
WSAMPLE.FSL	Waste Sample Data
DRM_MENU.FSL	Drum Menu
DRM_LOG.FSL	Drum Log Book Data
DRM_CHK.FSL	Drum Checklist - General Data
DRM_PREP.FSL	Drum Packing Preparation Checklist
DRM_CLOS.FSL	Drum Closing/Weighing Checklist
DRM_SHIP.FSL	Drum Shipping Preparation Checklist
DRM_INV.FSL	Drum Inventory Data
DRM_MXWS.FSL	Drum Mixed Waste Inventory
DRM_CSWS.FSL	Drum Compactible/Non-Compactible Solid Inventory
Form File Name	Form Description
MAS_MENU.FSL	Master Data Menu
USER.FSL	User Data
CTYP.FSL	Container Type
DTYP.FSL	Drum Type
WTYP.FSL	Waste Type
HAZ.FSL	Hazard Class Data
WSTA.FSL	Waste Status Data
SPEANA.FSL	Special Analysis Data
LOCA.FSL	Location Data

CSTA.FSL	Container Status Data
LTYP.FSL	Liner Type Data
ATYP.FSL	Absorbent Type Data
PTYP.FSL	Packing Pad Data
WDEN.FSL	Waste Density Data
MXWS_STR.FSL	Mixed Waste Stream Data
CHEM_COM.FSL	Chemical Component Data
SETUP.FSL	Setup/Configuration Data
HCU_MENU.FSL	HCU Menu
SEND.FSL	Send Data Screen
RECEIVE.FSL	Receive Data Screen
REP_MENU.FSL	Report Menu
REP_OTHR.FSL	Report - Other Menu
HLP_MENU.FSL	Help Menu
ABOUT.FSL	About Information Box
Form File Name	Form Description
SCR.FSL	System Change Request Information Box

Reports

WICS reports will be stored in a shared directory on the WICS File Server. WICS users can access these reports depending in their privilege level. Each report will prompt the user to specify query criteria for generation of a specific report. The following reports will be available:

- Disposal Request
- Container Log Book
- Waste Sample
- Drum Log Book
- Drum Packaging Checklist
- Drum Lab Packed Inventory
- Drum Waste Inventory
- Master Data
- Disposal Record
- Waste Manifest
- Request for Special Analysis

Other

WICS will utilize standard Paradox for Windows information and dialog boxes for the display of informative messages and selection of reports.

3.2 TOP MENU OPTIONS

The WICS menu options for the HCU and the WS are described in this section.

3.2.1 HCU Menu Options

The format for the HCU menu options is presented in Figure 23. Each menu option has a number associated with it. The menu option is chosen by entering the number. The descriptive text for the HCU menu options is presented in Table 40.

3.2.2 WS Menu Options

The format for the WS menu options is presented in Figure 24. The menus will be Paradox screens. An option is chosen by using the mouse to select and click on the desired option or by entering the hot-key for an option shown by the highlighted letter in the option. The descriptive text for the WS menu options is presented in Table 41.

Figure 23. HCU Menu Option Format

Table 40. HCU Menu Option Descriptions

CONTAINER DATA Label Sample Weigh	Select a function to perform on a Waste Container: Label, Sample Waste or Weigh Label Waste Container with barcode and enter it into Database Record removal of Waste Sample from Waste Container Weigh Waste Container and record weight
WASTE DRUM DATA Prepare Pack Close/Weigh Prepare to Ship	Select a function to perform on a Waste Drum: Prepare, Pack, Close/Weigh or Prepare to Ship Record Waste Drum preparation for packing Inventory Waste packed into Drum Record closing and weighing of Drum Record Drum labeling and lock-ring bolt torquing
TRANSFER DATA Send Receive	Select to Transfer collected data to WS or Master Data from WS Send HCU Laboratory collected data to WS Receive Master Data files from WS
LOG-OFF WICS No Yes	Select to exit or continue running WICS application Return to menu, continue running WICS application Quit WICS application

Table 41. WS Menu Option Descriptions

CONTAINER	Select a function to perform on a waste container: Process Container Log Book or Waste Sample
Log Book Sample	View, edit, insert, delete or print Container Log Book Data View, edit, insert, delete or print Container Waste Sample Data
DRUM	Select a function to perform on a waste drum: Process Log Book, Checklist or Waste Inventory
Log Book Checklist Inventory	View, edit, insert, delete or print Drum Log Book Data View, edit, insert, delete or print Drum Checklist Data View, edit, insert, delete or print Drum Inventory Data
MASTER	Select Master Data Table to view, edit, insert, delete or print
Users	View, edit, insert, delete or print User Data
Location	View, edit, insert, delete or print Location Data
Container Type	View, edit, insert, delete or print Container Type Data
Drum Type	View, edit, insert, delete or print Drum Type Data
Waste Type	View, edit, insert, delete or print Waste Type Data
Hazard Class	View, edit, insert, delete or print Hazard Class Data
Waste Status	View, edit, insert, delete or print Waste Status Data
Special Analysis	View, edit, insert, delete or print Special Analysis Data
Container Status	View, edit, insert, delete or print Container Status Data
Liner	View, edit, insert, delete or print Liner Type Data
Absorbent	View, edit, insert, delete or print Absorbent Type Data
Packing Pad	View, edit, insert, delete or print Packing Pad Data
Component Density	View, edit, insert, delete or print Component Density Data
Waste Stream	View, edit, insert, delete or print Waste Stream Data
Setup/Configuration	View, edit, insert, delete or print Setup/Configuration Data
HCU	Select to send or receive WS Data
Send Receive	Send WS Master Data to the HCU Receive HCU Laboratory Data
REPORTS	Select a report for printing: Disposal Request or Other
Request	Print Disposal Request Report
Other	Select Other Report for printing
Container Log	Print Container Log Report
Drum Log	Print Drum Log Report
Master Data	Print Master Data Report
Waste Sample	Print Waste Sample Report
Drum Packaging Checklist	Print Drum Packaging Checklist Report
Lab Packed Inventory	Print Lab Packed Inventory Report
Waste Inventory	Print Waste Inventory Report
Disposal Record	Print Disposal Record Report
Waste Manifest	Print Waste Manifest Report
Special Analysis	Print Request for Special Analysis Report
HELP	Select a help topic: About or System Change Requests
About System Change Requests	Display information about software name and current version Listing of System Change Requests
EXIT	Select to exit or continue running WICS application
No Yes	Return to menu, continue running WICS application Quit WICS application

Figure 24. WS Menu Option Format

4.0 INTERFACE DESCRIPTION

The following sections describe the screens that comprise the interface for the WICS System. This description includes a short summary information of the screen(s) purpose and some general comments about its operations. Access to the screens is provided by determining the access level of the user. Thus only those operations that are allowed under a certain privilege can be invoked, the inaccessible functions shall be dimmed. This is done to reduce the maintenance of the different screens that could potentially exist if screens were designed to specifically address each access category. Moreover, the system operation allows for a very significant overlap of functions within each access category that makes this decision desirable. Also newer user categories can be defined at a later point in time without having to create newer screens to support the categories.

The screen descriptions have been broken down into two main sections: HCU screens -- those screens that are provided on the hand held computer and are accessible by anyone with a valid user ID and password on the HCU; and WS screens -- those screens that are provided on the workstation and provide different functions that are accessible depending on the user access level.

It should be noted, that the exact format of the screens shown in this section are to provide guidelines to the programmer for actual implementation. The final screen formats may be different than those shown, but the data items being processed by each screen will be identical.

4.1 HCU SCREENS

The HCU screens are shown in Figures 25 through 41 . These figures present all of the HCU screens which are required for data collection and verification while laboratory users are in the field collecting data.

The purpose of these screens is to enable the user to collect laboratory data while ensuring that the data is valid and properly recorded for downloading to the WS.

The numbers on the extreme left of each of the screens represent the line number on the HCU display. These numbers will not be visible to the user but are for the reader's convenience. Also, the '>' characters are intended to show blank spaces in the screen layout. The 'x' characters are used to illustrate where the user will input data and show the format of the specific data item. Note that all data items input by the user will be displayed to the user including the Employee ID and Password.

Figure 25. HCU Screens - User Log-On

HCU Screen - User Log-On

```
0>>>Welcome to the
1>Waste Information
2>and Control System
3
4>>>>Please Log-On
5
6>>Employee ID xxxxx
7>>Password xxxxxx
```

HCU Screen - Invalid User

```
0!!Invalid User ID/
1>>Password!!
2
3>>Press any Key to
4>>Continue
5
6
7
```

Figure 26. HCU Screens - Verify Date/Time and Enter Correct Date/Time

HCU Screen - Verify Date

```
0>>>>>>>WICS
1>>Verify Date/Time
2
3>Date: mm/dd/yy
4>Time: hh:mm:ss
5
6>Are both Correct
7>(0=No/[1=Yes])? x
```

HCU Screen - Enter Date

```
0>>>>>>>WICS
1
2>Enter Date/Time:
3>mm/dd/yy
4>hh:mm:ss
5
6>xx/xx/xx
7>xx:xx:xx
```

Figure 27. HCU Screens - WICS Main Menu

HCU Screen - WICS Main Menu

```
0>>>WICS Main Menu
1
2>1 - Container Data
3>2 - Waste Drum Data
4>3 - Transfer Data
5>4 - Log-Off WICS
6
7>Enter Selection - x
```

Figure 28. HCU Screens - Container Data Menu

HCU Screen - Container Data Menu

```
0>>>>>>Collect
1Waste Container Data
2
3>1 - Label Container
4>2 - Sample Waste
5>3 - Weigh Container
6
7>Enter Selection - x
```

Figure 29. HCU Screens - Label Container

HCU Screen - Label - 1

0>>Label Container
1>>>>>>(Cont'd)
2
3>Enter Log Book No.
4
5>xx-xx-xx
6
7

HCU Screen - Label - 2.

0>>Label Container
1
2>Enter Container ID
3>(Barcode Number)
4
5>xxxx
6
7>Scan or use Keypad

HCU Screen - Label - 3

0>>Label Container
1>>>>>>(Cont'd)
2
3>Enter Location Code
4
5>Axxxx
6
7>Scan or use Keypad

HCU Screen - Label - 4

0>>Label Container
1>>>>>>(Cont'd)
2
3>Enter Container
4>Type Code No. xxx
5
6>Press F1 to Select
7>Container Type

Figure 29. HCU Screens - Label Container (Cont'd)

HCU Screen - View/Select Container Type

0>Select Container Type

1

2>1- xxxxxxxx x.x lit

3>2- xxxxxxxx x.x lit

4>3- xxxxxxxx x.x lit

5>4- xxxxxxxx x.x lit

6>5- view more

7>Enter Selection - x

HCU Screen - Label Edit/Save

0>Edit/Save Data

1

21-Container ID xxxx

32-LogBook # xx-xx-xx

43-Location # Axxxx

54-Container Type xxx

6Prs Enter to Save or

7Select # to Edit - x

Figure 30. HCU Screens - Sample Waste

HCU Screen - Sample - 1

0>Remove Waste Sample
1>>>from Container
2
3>Enter Container ID
4>(Barcode Number)
5>xxxx
6
7>Scan or use Keypad

HCU Screen - Sample - 2

0>Remove Waste Sample
1>>>from Container
2
3>Enter Sample Number
4
5>Wxxxxxx
6
7

HCU Screen - Sample Edit/Save

0>Edit/Save Data
1
21-Container ID xxxx
32-Sample No. Wxxxxx
4
5
6Prs Enter to Save or
7Select # to Edit - x

Figure 31. HCU Screens - Weigh Container

HCU Screen - Weigh - 1

0>Weigh Container
1
2>Enter Container ID
3>(Barcode Number)
4
5>xxxx
6
7>Scan or use Keypad

HCU Screen - Weigh - 2

0>Weigh Container
1
2>Enter Container
3>Weight in Kg.
4
5>xx.xx
6
7

HCU Screen - Weigh Edit/Save

0>Edit/Save Data
1
21-Container ID xxxx
32-Weight xx.xx Kg
4
5
6Prs Enter to Save or
7Select # to Edit - x

Figure 32. HCU Screens - Collect Waste Drum Data Menu

HCU Screen - Waste Drum Data Menu

```
0>>>>>Collect
1>>Waste Drum Data
2
3>1 - Prepare to Pack
4>2 - Pack with Waste
5>3 - Close/Weigh
6>4 - Prepare to Ship
7>Enter Selection - x
```

Figure 33. HCU Screens - Prepare to Pack Drum

HCU Screen - Prepare to Pack - 1

0Prepare to Pack Drum

1

2>Enter Drum CIN

3

4>xxxxxxxxxxxxxxxxxx

5

6

7>Scan or use Keypad

HCU Screen - Prepare to Pack - 2

0Prepare to Pack Drum

1>>>>>>(Cont'd)

2

3>Enter Drum Type

4>Code No. xx

5

6>Press F1 to Select

7>Drum Type

HCU Screen - View/Select Drum Type

0Select Drum Type Cd

1

21-Drum Type Code xx

3xxxxxxxxxxxxxxxxxxxxxx

42-Drum Type Code xx

5xxxxxxxxxxxxxxxxxxxxxx

63-View More

7>Enter Selection - x

HCU Screen - Prepare to Pack - 3

0Prepare to Pack Drum

1>>>>>>(Cont'd)

2

3>Drum Inspected?

4

5>(0=No/[1=Yes])? x

6

7

Figure 33. HCU Screens - Prepare to Pack Drum (Cont'd)

HCU Screen - Prepare to Pack - 4

0Prepare to Pack Drum .
1>>>>>>(Cont'd)
2
3>R/HWP Reviewed?
4
5>(0=No/[1=Yes])? x
6
7

HCU Screen - Prepare to Pack - 5

0Prepare to Pack Drum
1>>>>>>(Cont'd)
2
3>Enter Liner Type
4>Code No. xx
5
6>Press F1 to Select
7>Liner Type

HCU Screen - View/Select Liner Type

0Select Liner Type Cd
1
21-Liner Type Code xx
3xxxxxxxxxxxxxxxxxxxxxx
42-Liner Type Code xx
5xxxxxxxxxxxxxxxxxxxxxx
63-View More
7>Enter Selection - x

HCU Screen - Prepare to Pack - 6

0Prepare to Pack Drum
1>>>>>>(Cont'd)
2
3>Enter Liner Qty
4
5>xx
6
7

Figure 33. HCU Screens - Prepare to Pack Drum (Cont'd)

HCU Screen - Prepare to Pack - 7

0Prepare to Pack Drum
1>>>>>(Cont'd)
2
3>Enter Absorbent
4>Type Code No. xx
5
6>Press F1 to Select
7>Absorbent Type

HCU Screen - View/Select Absorbent Type Code

0Select Absorb Typ Cd
1
21-Absorb Type Cde xx
3xxxxxxxxxxxxxxxxxxxxxx
42-Absorb Type Cde xx
5xxxxxxxxxxxxxxxxxxxxxx
63-View More
7>Enter Selection - x

HCU Screen - Prepare to Pack - 8

0Prepare to Pack Drum
1>>>>>(Cont'd)
2
3>Enter Absorbent
4>Weight in Kg.
5
6>xx.xx
7

HCU Screen - Prepare to Pack - 9

0Prepare to Pack Drum
1>>>>>(Cont'd)
2
3>Hazardous/Radiation
4>Stickers Attached?
5
6>(0=No/[1=Yes])? x
7

Figure 33. HCU Screens - Prepare to Pack Drum (Cont'd)

HCU Screen - Prepare to Pack Edit/Save - 1

0>Edit/Save Data
1
21-CIN xxxxxxxxxxxxxxxx
32-Drum Type Code xx
43-Drum Inspected? x
54-R/HWP Reviewed? x
6Prs Enter to Save or
7Select # to Edit - x

HCU Screen - Prepare to Pack Edit/Save - 2

0>Edit/Save Data
1
21-Liner Quantity xx
32-Liner Type Code xx
4xxxxxxxxxxxxxxxxxxxxx
53-Stickers Attchd? x
6Prs Enter to Save or
7Select # to Edit - x

HCU Screen - Prepare to Pack Edit/Save - 3

0>Edit/Save Data
1
21-Absorb Wt xx.xx kg
32-Absorb Type Cde xx
4xxxxxxxxxxxxxxxxxxxxx
5
6Prs Enter to Save or
7Select # to Edit - x

Figure 34. HCU Screens - Pack Drum With Mixed Waste

HCU Screen - Pack Drum - 1

0>>Pack Drum
1
2
3>Enter Drum CIN
4
5>xxxxxxxxxxxxxx
6
7>Scan or use Keypad

HCU Screen - Pack Drum - 2

0>>Pack Drum (Cont'd)
1
2
3>Enter Location Code
4
5>Axxxx
6
7>Scan or Use Keypad

HCU Screen - Pack Drum - 3

0>>Pack Drum (Cont'd)
1
2
3>Enter Waste Type
4>xx
5
6>Press F1 to Select
7>Waste Type

HCU Screen - View/Select Waste Type

0>Select Waste Type
1
21- Waste Type xx
3xxxxxxxxxxxxxxxxxxxxxx
42- Waste Type xx
5xxxxxxxxxxxxxxxxxxxxxx
63- View More
7>Enter Selection - x

Figure 34. HCU Screens - Pack Drum With Mixed Waste (Cont'd)

HCU Screen - Pack Drum - 4

0>>Pack Drum (Cont'd)
1
2
3>Enter Packing Pad
4>Type Code xx
5
6>Press F1 to Select
7Packing Pad Type Cd

HCU Screen - View/Select Packing Pad Type

0Select Pack Pad Type
1
21-Pack Pad Typ Cd xx
3xxxxxxxxxxxxxxxxxxxxxx
42-Pack Pad Typ Cd xx
5xxxxxxxxxxxxxxxxxxxxxx
63-View More
7>Enter Selection - x

HCU Screen - Pack Drum - 5

0>>Pack Drum (Cont'd)
1
2
3>Enter Packing Pad
4>Quantity
5
6>xx
7

HCU Screen - Pack Drum Edit/Save - 1

0>Edit/Save Data
1
21-CIN xxxxxxxxxxxxxxxx
32-Location Cd Axxxx
43-Waste Type xx
5
6Prs Enter to Save or
7Select # to Edit - x

Figure 34. HCU Screens - Pack Drum With Mixed Waste (Cont'd)

HCU Screen - Pack Drum Edit/Save Data - 2

0>Edit/Save Data
1
21-Packing Pad Qty xx
32-Pack Pad Typ Cd xx
4
5
6Prs Enter to Save or
7Select # to Edit - x

HCU Screen - Pack Drum - 6

0>>Pack Drum (Cont'd)
1
2Mixed Waste or Treat
3as Mixed Waste?
4
5>Y/N
6
7>Enter Selection - x

HCU Screen - Mixed Waste - 1

0>>Pack Drum (Cont'd)
1
2>>Enter Container
3>Barcode Label No.
4>xxxx
5
6>Scan or Use Keypad
7Press F2 to Continue

HCU Screen - Mixed Waste Edit/Save

0>Edit/Save Data
1
21-Container ID xxxx
32-Container ID xxxx
43-Container ID xxxx
54-Container ID xxxx
6Prs Enter to Save or
7Select # to Edit - x

Figure 35. HCU Screens - Pack Drum With Compactible/Non-Compactible Waste

HCU Screen - Compactible/Non-Compactible - 1

```
0>>Pack Drum (Cont'd)
1
2
3>Enter Waste Package
4>Volume in qts.
5
6>xxxx.xx
7
```

HCU Screen - Compactible/Non-Compactible -2

```
0>>Pack Drum (Cont'd)
1
2
3>Enter Waste Package
4>Weight in Kg.
5
6>xxxx.xx
7
```

HCU Screen - Compactible/Non-Compactible -3

```
0>>Pack Drum (Cont'd)
1
2>Enter Waste Package
3
4Paper Volume %>>>>>0
5Rubber Volume %>>>>>0
6Plastic Volume %>>>>>0
7
```

HCU Screen - Compactible/Non-Compactible -4

```
0>>Pack Drum (Cont'd)
1
2>Enter Waste Package
3
4Cloth Volume %>>>>>0
5Glass Volume %>>>>>0
6Metal Volume %>>>>>0
7Misc. Volume %>>>>>0
```

**Figure 35. HCU Screens - Pack Drum With Compactible/Non-Compactible Waste
(Cont'd)**

HCU Screen - Compactible/Non-Compactible - 5

```
0>>Pack Drum (Cont'd)
1
2
3>Enter Miscellaneous
4>Description
5
6xxxxxxxxxxxxxxxxxxxxxxx
7
```

HCU Screen - Compactible/Non-Compactible - 6

```
0>>Pack Drum (Cont'd)
1
2
3>Enter Miscellaneous
4>Density
5
6xx.xx kg/qt
7
```

HCU Screen - Compactible/Non-Compactible Edit/Save - 1

```
0>Edit/Save Data
1
21-Volume xxxx.xx qts
32-Weight xxxx.xx kg
43-Paper Volume xxx%
54-Rubber Volume xxx%
6Prs Enter to Save or
7Select # to Edit - x
```

HCU Screen - Compactible/Non-Compactible Edit/Save - 2

```
0>Edit/Save Data
1
21-Plastic Volum xxx%
32-Cloth Volume xxx%
43-Glass Volume xxx%
54-Metal Volume xxx%
6Prs Enter to Save or
7Select # to Edit - x
```

**Figure 35. HCU Screens - Pack Drum With Compactible/Non-Compactible Waste
(Cont'd)**

HCU Screen - Compactible/Non-Compactible Edit/Save - 3

0>Edit/Save Data
1
21-Misc. Volume xxx%
32-Misc. Description
4xxxxxxxxxxxxxxxxxxxxxx
53-Density xx.xx kg/q
6Prs Enter to Save or
7Select # to Edit - x

HCU Screen - Compactible/Non-Compactible - 7

0>>Pack Drum (Cont'd)
1
2
3More Waste Packages?
4
5>(0=No/[1=Yes])? x
6
7

Figure 36. HCU Screens - Close/Weigh Drum

HCU Screen - Close/Weigh - 1

0>>Close/Weigh Drum

1

2

3>Enter Drum CIN

4

5>xxxxxxxxxxxxxxxxx

6

7>Scan or use Keypad

HCU Screen - Close/Weigh - 2

0>>Close/Weigh Drum

1

2

3>Liner Closed?

4

5>(0=No/[1=Yes])? x

6

7

HCU Screen - Close/Weigh - 3

0>>Close/Weigh Drum

1

2

3>L-R Bolt Tightened?

4

5>(0=No/[1=Yes])? x

6

7

HCU Screen - Close/Weigh - 4

0>>Close/Weigh Drum

1

2>Enter Drum Weight

3>in Kg.

4

5>xxxx.xx

6

7

Figure 36. HCU Screens - Close/Weigh Drum (Cont'd)

HCU Screen - Close/Weigh - 5

0>>Close/Weigh Drum
1
2>Drum Labeled with
3>Weight?
4
5>(0=No/[1=Yes])? x
6
7

HCU Screen - Close/Weigh - 6

0>>Close/Weigh Drum
1
2>Enter RAM Tag Dose
3>Rate
4
5>Note, Required for
6>Mixed Waste Only
7>xx.xx

HCU Screen - Close/Weigh Edit/Save - 1

0>Edit/Save Data
1
21-CIN xxxxxxxxxxxxxxx
32-Liner Closed? x
43-L-R Bolt Tight? x
5
6Prs Enter to Save or
7Select # to Edit - x

HCU Screen - Close/Weigh Edit/Save - 2

0>Edit/Save Data
1
21-Weight xxxx.xx kg
32-Weight Labeled? x
43-RAM Tag Dos xx.xx
5
6Prs Enter to Save or
7Select # to Edit - x

Figure 37. HCU Screens – Prepare Drum for Shipping

HCU Screen – Prepare Drum to Ship – 1

0Prepare Drum to Ship

1

2

3>Enter Drum CIN

4

5>xxxxxxxxxxxxxxx

6

7>Scan or use Keypad

HCU Screen – Prepare Drum to Ship – 2

0Prepare Drum to Ship

1

2

3>L-R Bolt Torqued?

4

5>(0=No/[1=Yes])? x

6

7

HCU Screen – Prepare Drum to Ship – 3

0Prepare Drum to Ship

1

2>Enter Torque

3>Wrench Number

4

5xxxxxxxxxxxxxxx

6

7

HCU Screen – Prepare Drum to Ship – 4

0Prepare Drum to Ship

1

2

3>Drum Labeled

4>per RWP/HWP?

5

6>(0=No/[1=Yes])? x

7

Figure 37. HCU Screens - Prepare Drum for Shipping (Cont'd)

HCU Screen - Prepare to Ship Edit/Save - 1

0>Edit/Save Data

1

21-CIN xxxxxxxxxxxxxxxx

32-L-R Bolt Torqud? x

43-Torque Wrench No.

5>>xxxxxxxxxxxxx

6Prs Enter to Save or

7Select # to Edit - x

HCU Screen - Prepare to Ship Edit/Save - 2

0>Edit/Save Data

1

21-Drum Labeled per

3>>RWP/HWP? x

4

5

6Prs Enter to Save or

7Select # to Edit - x

Figure 38. HCU Screens - Transfer Data To/From WS

HCU Screen - Transfer Data

0>>>Transfer Data
1>to/from Workstation
2
3>1 - Send Data
4>2 - Receive Data
5
6
7>Enter Selection - x

HCU Screen - Send Data

0>>>>Send Data
1
2Set-up WS to Receive
3
4>1 - Begin Transfer
5>2 - Abort Transfer
6
7>Enter Selection - x

HCU Screen - Receive Data

0>>>>Receive Data
1
2Set-up WS to Send
3
4>1 - Begin Transfer
5>2 - Abort Transfer
6
7>Enter Selection - x

Figure 39. HCU Screens - Exit WICS

HCU Screen - Log-Off Menu

```
0>>>Log-Off WICS
1>>>>Application
2
3>1 - Yes
4>2 - No
5
6
7>Enter Selection - x
```

Figure 40. HCU Screens - Master Data Input Error

HCU Screen - Master Data Error

```
0!!Data Input Error!!
1
2>Data Entered is not
3in Master Data Files
4
5>Retry - Press Enter
6>Abort - Press F7
7
```

Figure 41. HCU Screens - Checklist Completion Error

HCU Screen - Checklist Completion Error

```
0!! Checklist Must be
1!! Completed Before
2!! Continuing
3
4>Retry - Press Enter
5>Abort - Press F7
6
7
```

4.2 WS SCREENS

The WS screens are shown in Figures 42 through 79. These figures present all the WS screens which are required for processing WICS data. They do not include all the information and dialog boxes which will be displayed to the user by the WICS application. However, some of the dialog boxes are included.

4.2.1 Welcome and Log-On Screen

This screen (see Figure 42) will display a welcome message to any user accessing the WICS system. It will appear when the WICS icon is selected. It will also prompt the user for the User ID and Password. The User ID will be visible when the user enters it, but the Password will not. Pressing the "Ok" button accepts the entry and it is processed for validation. An incorrect User ID and Password will result in the screen being displayed again. Additional items on this screen will include an "Exit" button, a "Help" button, and the date and time. The "Exit" button will log the user off of WICS and return him to his operating system. The "Help" button will display the Help Menu. The Help Menu will allow the user to view Help information, but will not allow the user to go to the Main Menu from the Help Menu.

After the User ID and Password has been validated, the user's privilege level is used to determine the functions that the user can perform. WICS users will be assigned one of four privilege levels. These are:

- READONLY - This user will be able to only: view and print WICS Container, Drum, and Master data (except User data); generate WICS reports (except User Master data report); and access Help menu.
- GENERAL - This user can perform READONLY user functions plus can: perform all HCU and functions; send or receive HCU data; and edit and insert Container and Drum data.
- LIMITED - This user can perform GENERAL user functions plus can: delete Container and Drum data and edit, insert, and delete Master data (except User Master data).
- SYSADMIN - This user can perform LIMITED user functions plus can: view, edit, insert, delete, and print User Master data.

Figure 42. WS Welcome and Log-On Screen

The screenshot displays a graphical user interface for the 'Waste Information and Control System'. At the top, a large rectangular box contains the title 'Waste Information and Control System' in a bold, serif font, with 'and' centered on a new line. Below this title box is a smaller box labeled 'User Logon'. Inside the 'User Logon' box are two input fields: 'User.ID' and 'Password'. At the bottom of the screen, there are three buttons: 'OK' with a checkmark icon, 'EXIT' with an 'X' icon, and 'HELP' with a question mark icon.

**Waste Information
and
Control System**

User Logon

User.ID

Password

☒ OK ☒ EXIT ☒ HELP

4.2.2 WICS WS Main Menu Screen

The WICS Main Menu Screen is shown in Figure 43. This screen is displayed to every user of the WICS system who has successfully logged-on. It asks the user to select a category of WICS information to be processed. The system waits for the user to select one of the options and then the control is transferred to the appropriate screen based on the selection. Depending on the access level of the user one or more options may be inaccessible. Since control to the sub-menus can be transferred only from this screen security issues of revealing what is under each option at this high level screen do not arise. The options which are denied to the user based on his privilege level will be dimmed and inoperable. This dimming of unallowed functions is consistent throughout all other WICS WS screens.

Figure 43. WS Main Menu Screen

The screenshot displays the 'WICS MAIN MENU' interface. At the top, the title 'WICS MAIN MENU' is centered in a bold, underlined font. Below the title, a prompt reads 'Please select one of the following options'. The menu consists of several rectangular buttons arranged in a grid. The buttons are labeled: 'CONTAINER', 'DRUM', 'MASTER DATA', 'HCU', 'REPORTS', 'EXIT' (with an 'X' icon), and 'HELP' (with a '?' icon). The 'EXIT' and 'HELP' buttons are located at the bottom of the menu.

WICS MAIN MENU	
Please select one of the following options	
CONTAINER	DRUM
MASTER DATA	HCU
REPORTS	
X EXIT	? HELP

4.2.3 WS Container Menu Screens

The Container Menu Screen is shown in Figure 44. This screen is displayed if the user chooses the "container" option on the Main Menu (by pressing the button labelled "CONTAINER"). This allows the user to access Container "Log book" and "Sample" data. An authorized user can choose either of these options, return to the main menu, or choose help.

Figure 44. Container Menu Screen

The data processing screens for the Container Log Book option are shown in Figures 45 through 47. These screens allow the user to view, search, edit, insert, delete or print Container Log Book data. An authorized user can choose any of these options, return to the main or previous menu, or choose help. The "Waste Stream" and "Waste Sample" buttons in Figure 45 allow the user access to additional container data involving the container's waste stream and sample.

These screens initially display the first record in the Waste Container data table. The user can then search for the record of his interest, edit the data items in this record, insert a new record, delete this record, or print this record. Additionally, wherever the user is in the table, he can view the first, previous, next, or last record. Also, note that from these screens the user cannot modify Master Data which is displayed, only selection of Master data may be made. All the data screens which are presented throughout the following sections have similar operations.

Figure 45. Container Log Book Data Screen

Container Log Book Data	
Container ID :	Container Type Code :
Location Code :	Size(L)/Material :
Location :	
Log Book Number :	Container Status :
Labeling User ID :	HMC Letter Number :
Labeling Date :	RWP/HWP Number :
Weight (kg) :	Drum CIN :
Weighing User ID :	Disposition :
Weighing Date :	Comments :
<input type="button" value="Waste Stream"/> <input type="button" value="Waste Sample"/>	
<input type="button" value="First"/> <input type="button" value="Previous"/> <input type="button" value="Next"/> <input type="button" value="Last"/> <input type="button" value="Close"/>	
<input type="button" value="Search"/> <input type="button" value="Edit"/> <input type="button" value="Insert"/> <input type="button" value="Delete"/> <input type="button" value="Print"/> <input type="button" value="Cancel"/>	
<input type="button" value="Previous Menu"/> <input type="button" value="Main Menu"/> <input type="button" value="HELP"/>	

Waste Stream Data			
Waste Stream Code :			
Waste Stream Description :			
Hazard Class :			
Waste Procedure Number :			
Waste Code :			
Physical State :			
Waste Status :			
Chemical ph :			
Flash Point (C) :			
Boiling Point (C) :			
Density (gms/cc) :			
<div style="text-align: right;">☒ Done</div>			

Figure 47. Container Waste Sample Data Screen

Waste Sample Data

Container ID:

Waste Stream Code:

Sample Number:

Sampling User ID:

Sampling Date:

Analysis Type:
TOC
TOC ACT
VISUAL

Note: If you want to update sample data associated with this container, go to Sample Menu.

Done

The data processing screen for the Waste Sample option is shown in Figure 48. This screen allows the user to view, search, edit, insert, delete or print Waste Sample data. An authorized user can choose any of these options, return to the main or previous menu, or choose help.

Figure 48. Waste Sample Data Screen

The screenshot displays the 'Waste Sample Data' screen. It features several input fields on the left: 'Container ID' (value: 8481), 'Waste Stream Code' (value: 11), 'Sample Number' (value: 23112), 'Sampling User ID' (value: 8481), and 'Sampling Date' (value: 03/23/93). To the right of these fields is a dropdown menu for 'Analysis Type' with options 'TOC', 'TOC ACT', and 'VISUAL'. Below the dropdown is a 'Go Back' button. On the far right, there is a vertical column of buttons: 'Search', 'Edit', 'Insert', 'Delete', 'Print', and 'Cancel'. At the bottom of the screen, there are three buttons: 'Previous Menu', 'Main Menu', and 'HELP'. A row of navigation icons (back, forward, etc.) and a 'Close' button are located between the input fields and the bottom buttons.

4.2.4 WS Drum Menu Screens

The Drum Menu Screen is shown in Figure 49. This screen is displayed if the user chooses the "drum" option on the Main Menu (by pressing the button labelled "DRUM"). This allows the user to access Drum "Log book", "Checklist", and "Inventory" data. An authorized user can choose either of these options, return to the main menu, or choose help.

Figure 49. Drum Menu Screen

The image shows a computer screen with a title bar at the top that reads "WICS DRUM MENU". Below the title bar is a prompt: "Please select one of the following options". There are five rectangular buttons arranged in a grid-like fashion. The top row contains "Log Book" and "Checklist". The middle row contains "Inventory". The bottom row contains "Main Menu" and "HELP". All buttons have a shaded, textured appearance.

WICS DRUM MENU	
Please select one of the following options	
Log Book	Checklist
Inventory	
Main Menu	HELP

The data processing screen for the Drum Log Book option is shown in Figure 50. This screen allows the user to view, search, edit, insert, delete or print Drum Log Book data. An authorized user can choose any of these options, return to the main or previous menu, or choose help.

Figure 50. Drum Log Book Data Screen

The screenshot displays the 'Drum Log Book Data' screen. It features a central area with two columns of data entry fields. Each field consists of a label followed by a text input box. The fields are: Drum CIN, Drum Type, Drum Size (L), Drum Type Code, RWP or HWP Number, Manifest Number, Radioactive Shipment No, Shipment Number, Waste Type, Mixed Waste?, QC Date, Packing User ID, Packing Date, Location Code, Gross Weight(kg), Preparation Date, Closing Date, and Ship Date. To the right of these fields is a vertical stack of six buttons: Search, Edit, Insert, Delete, Print, and Cancel. Below the main data entry area is a row of five navigation buttons: a left arrow, a double left arrow, a right arrow, a double right arrow, and a 'Close' button. At the bottom of the screen are three large buttons: 'Previous Menu', 'Main Menu', and 'HELP'.

Drum Log Book Data	
Drum CIN :	<input type="text"/>
Drum Type :	<input type="text"/>
Drum Size (L) :	<input type="text"/>
Drum Type Code :	<input type="text"/>
RWP or HWP Number :	<input type="text"/>
Manifest Number :	<input type="text"/>
Radioactive Shipment No :	<input type="text"/>
Shipment Number :	<input type="text"/>
Waste Type :	<input type="text"/>
Mixed Waste ? :	<input type="text"/>
QC Date :	<input type="text"/>
Packing User ID :	<input type="text"/>
Packing Date :	<input type="text"/>
Location Code :	<input type="text"/>
Gross Weight(kg) :	<input type="text"/>
Preparation Date :	<input type="text"/>
Closing Date :	<input type="text"/>
Ship Date :	<input type="text"/>

Navigation buttons: Search, Edit, Insert, Delete, Print, Cancel

Bottom navigation: Previous Menu, Main Menu, HELP

The data processing screens for the Drum Checklist option are shown in Figures 51 through 54. These screens allow the user to view, search, edit, insert, delete or print Drum Checklist data. An authorized user can choose any of these options, return to the main or previous menu, or choose help. The "Preparing", "Closing", and "Shipping" buttons in Figure 51 allow the user access to additional drum checklist data.

Figure 51. Drum Checklist (General) Data Screen

Drum Checklist Data

Drum CIN : [REDACTED]

Location Code : [REDACTED]

Location : [REDACTED] / [REDACTED] / [REDACTED] / [REDACTED]

Liner Type Code : [REDACTED] Absorbent Type Code : [REDACTED]

Liner Quantity : [REDACTED] Absorbent Quantity (kg) : [REDACTED]

Liner Weight (kg) : [REDACTED] Absorbent Density (kg/L) : [REDACTED]

Liner Thickness(mils) : [REDACTED] Absorbent Description : [REDACTED]

Liner Volume (L) : [REDACTED]

Liner Description : [REDACTED]

Preparing Closing Shipping

Search Edit

Delete Print Cancel

Previous Menu Main Menu HELP

Close

Figure 52.. Drum Packing Preparation Checklist Data Screen

Drum Packing Preparation Checklist	
Drum CIN:	2257213111
QC Status:	☒ Yes
RWP Reviewed:	☒ Yes
Liner Placement:	☒ Yes
Absorbent Placement:	☒ Yes
Warning Stickers:	☒ Yes
Preparation Date:	01/01/09
Preparation User ID:	61231

Figure 53. Drum Closing/Weighing Checklist Data Screen

Drum Closing/Weighing Checklist

Drum CIN:	2225-22-111111
Liner Closed:	☒ Yes
Lock-Ring Bolt Tightened:	☒ Yes
Weight Labeled:	☒ Yes
Gross Weight (kg):	5.49
RAM Tag Dose Rate:	0.00
Closing Date:	05/09/2004
Closing User ID:	000001

Done

Figure 54. Drum Shipping Preparation Checklist Data Screen

Drum Shipping Preparation Checklist

Drum CIN: 223-22-112-111

Torque Wrench Number: 8888888

Lock Ring Bolt Torqued: ☒ Yes

Labeled: ☒ Yes

Shipping Prep Date: 09/27/2001

Shipping Prep User ID: 88888

Done

The data processing screens for the Drum Inventory option are shown in Figures 55 through 57. These screens allow the user to view, search, edit, insert, delete or print Drum Inventory data. An authorized user can choose any of these options, return to the main or previous menu, or choose help. The screen shown in Figure 55 allows the user to process drum packing material inventory and to indicate whether the waste is mixed. The "Waste Inventory" button in Figure 55 allows the user access the drum's waste inventory data. If the waste is mixed the user is presented the screen shown in Figure 56. If the waste is not mixed he is shown the screen in Figure 57.

Figure 55. Drum Inventory Data Screen

<u>Drum Inventory Data</u>			
Drum CIN:			
Solid or Liquid Mixed Waste?			
Drum Type:		Drum Size (L):	
Liner Description:		Liner Quantity:	
Absorbent Description:		Absorbent Quantity(kg):	
Packing Pad Description:		Packing Pad Quantity:	
<u>Waste Inventory</u>		◀ ◁ ▷ ▶ Close	
<div>Previous MenuMain MenuHELP</div>			

Search
Edit
Insert
Delete
Print
Cancel

Figure 56. Drum Solid or Liquid Mixed Waste Inventory Data Screen

Solid or Liquid Mixed Waste Inventory

Drum CIN: 2228-22-1111

Container ID
A111
A112
A113
A114
A115

Done

4.2.5 Master Data Management Menu Screens

The Master Data Management Screen is shown in Figure 58. This screen is displayed if the user chooses the "MASTER DATA" option on the Main Menu. This screen allows the user to select the Master Data set which he wishes to process. Each of these options may have more than one database table supporting the data set accessible. Depending on the access level of the user one or more options may be inaccessible. The user can choose any of these options, return to the main menu, or choose help.

The Master Data processing screens are shown in Figures 59 through 74. These screens allow the user to view, search, edit, insert, delete or print the Master Data shown in each.

Figure 58. Master Data Management Menu Screen

WICS MASTER DATA MANAGEMENT MENU

Please select one of the following options:

Users	Location	Container Type	Drum Type
Waste Type	Hazard Class	Waste Status	Special Analysis
Container Status	Liner	Absorbent	Packing Pad
Component Density	Waste Stream	Setup / Config	
Main Menu		HELP	

Figure 59. User Data Screen

User/Employee Data

Employee ID: 10000

Password: 000000

Privilege: SYSADMIN ↓

<< < > >> Close

Search

Edit

Insert

Delete

Print

Cancel

Previous Menu

Main Menu

HELP

Figure 60. Container Type Data Screen

Container Type Data

Container Type Code:

Material:

Size (L):

Material Volume (L):

Tare Weight (kg):

<< < > >> Close

Search

Edit

Insert

Delete

Print

Cancel

Previous Menu

Main Menu

HELP

Figure 61. Drum Type Data Screen

The screenshot displays the 'Drum Type Data' screen. It features a central form with four input fields: 'Drum Type Code', 'Drum Type', 'Drum Size (L)', and 'Tare Weight (kg)'. Below these fields is a set of navigation buttons: a left arrow, a right arrow, a double left arrow, a double right arrow, and a 'Close' button. To the right of the form is a vertical column of action buttons: 'Search', 'Edit', 'Insert', 'Delete', 'Print', and 'Cancel'. At the bottom of the screen are three buttons: 'Previous Menu', 'Main Menu', and 'HELP'.

Figure 62. Waste Type Data Screen

The screenshot displays the 'Waste Type Data' screen. It features a central form with two input fields: 'Waste Type Code' and 'Waste Type Description'. Below these fields is a set of navigation buttons: a left arrow, a right arrow, a double left arrow, a double right arrow, and a 'Close' button. To the right of the form is a vertical column of action buttons: 'Search', 'Edit', 'Insert', 'Delete', 'Print', and 'Cancel'. At the bottom of the screen are three buttons: 'Previous Menu', 'Main Menu', and 'HELP'.

Figure 63. Hazard Class Data Screen

Hazard Class Data

Hazard Class : [icon] [dropdown arrow]

Hazard Class Description : Hazardous Waste Disposal
(Press F2 to see whole field)

[Previous Menu] [Main Menu] [HELP] [Close]

[Search] [Edit] [Insert] [Delete] [Print] [Cancel]

Figure 64. Waste Status Data Screen

Waste Status Data

Waste Status : [icon] [dropdown arrow]

Waste Status Description : Waste Status Description
(Press F2 to see whole field)

[Previous Menu] [Main Menu] [HELP] [Close]

[Search] [Edit] [Insert] [Delete] [Print] [Cancel]

Figure 65. Special Analysis Data Screen

Special Analysis Data

Special Analysis Type : ↓

Analysis Type Description :

Navigation: [Previous Menu] [Main Menu] [HELP]

Control: [Left Arrow] [Right Arrow] [Up Arrow] [Down Arrow] [Close]

Actions: [Search] [Edit] [Insert] [Delete] [Print] [Cancel]

Figure 66. Location Data Screen

Location Data

Location Code :

Level 1 :

Level 2 :

Level 3 :

Level 4 :

Navigation: [Previous Menu] [Main Menu] [HELP]

Control: [Left Arrow] [Right Arrow] [Up Arrow] [Down Arrow] [Close]

Actions: [Search] [Edit] [Insert] [Delete] [Print] [Cancel]

Figure 67. Container Status Data Screen

Container Status Data

Container Status Data : [Dropdown Arrow]

Container Status Description : [Text Entry Field]

[<<] [<] [>] [>>] [Close]

[Search] [Edit] [Insert] [Delete] [Print] [Cancel]

[Previous Menu] [Main Menu] [HELP]

Figure 68. Liner Type Data Screen

Liner Type Data

Liner Type Code : [Text Entry Field]

Liner Weight (kg) : [Text Entry Field]

Liner Thickness (mils) : [Text Entry Field]

Liner Volume (L) : [Text Entry Field]

Liner Description : [Text Entry Field]

[<<] [<] [>] [>>] [Close]

[Search] [Edit] [Insert] [Delete] [Print] [Cancel]

[Previous Menu] [Main Menu] [HELP]

Figure 69. Absorbent Type Data Screen

[illegible]

Figure 70. Packing Pad Type Data Screen

Packing Pad Type Data	
Packing Pad Type Code :	<input type="text"/>
Pad Weight (kg) :	<input type="text"/>
Pad Volume (L) :	<input type="text"/>
Pad Description :	<input type="text"/>
<input type="button" value="⏮"/> <input type="button" value="⏪"/> <input type="button" value="⏩"/> <input type="button" value="⏭"/> <input type="button" value="Close"/>	

Figure 71. Waste Component Density Data Screen

Waste Component Density	
Paper Density (kg/L) :	<input type="text"/>
Rubber Density (kg/L) :	<input type="text"/>
Plastic Density (kg/L) :	<input type="text"/>
Cloth Density (kg/L) :	<input type="text"/>
Glass Density (kg/L) :	<input type="text"/>
Metal Density (kg/L) :	<input type="text"/>
Note: Only one record in this table.	
<div><div>Previous Menu</div><div>Main Menu</div><div>HELP</div></div>	

Edit

Print

Cancel

Figure 72. Mixed Waste Stream Data Screen

Mixed Waste Stream Data			
Waste Stream Code :	<input type="text"/>	Hazard Class :	<input type="text"/>
Stream Description :	<input type="text"/>		
Procedure Number :	<input type="text"/>	Chemical ph :	<input type="text"/>
Waste Code :	<input type="text"/>	Flash Point (C) :	<input type="text"/>
Physical State :	<input type="text"/>	Boiling Point (C) :	<input type="text"/>
Waste Status :	<input type="text"/>	Density (gms/cc) :	<input type="text"/>
Chemical Component Data		<div><div>◀</div><div>◀</div><div>▶</div><div>▶</div><div>Close</div></div>	
<div><div>Previous Menu</div><div>Main Menu</div><div>HELP</div></div>		<div><div>Search</div><div>Edit</div><div>Insert</div><div>Delete</div><div>Print</div><div>Cancel</div></div>	

Figure 73. Chemical Component Data Screen

Chemical Component Data

Waste Stream Code:

Component Code	Component	Composition %	MSDS No.
1000	1208111111111111	50.3%	11111
1001	1208111111111111	10.3%	11111
1002	1208111111111111	40.3%	11111

Total %:

Figure 74. System Setup/Configuration Data Screen

System Setup/Configuration

Printer Port: ↓

Hcu Port: ↓

Note: Only one record in this table.

4.2.6 HCU Menu Screen

The HCU Menu Screen is shown in Figure 75. This screen is displayed if the user chooses the "HCU" option on the Main Menu. This allows the user to send or receive data back and forth to the HCU. For the "send" and "receive" operations to be performed, the ports have to be initialized for transfer and the hand-held computer unit must be connected. Error messages shall be displayed if any of the initialization routines fail. The user can choose either of these options, return to the main menu, or choose help.

Figure 75. HCU Menu Screen

4.2.7 WICS Reports Screens

The WICS Reports Menu Screen is shown in Figure 76. This screen is displayed if the user chooses the "REPORTS" option on the Main Menu. This allows the user to select reports for generation. - At this level there are two options available to the user: Generate Request Report -- this is the most common report ; and Generate Other Report -- this transfers control to another screen where other reports can be chosen. The user can choose either of these options, return to the main menu, or choose help.

Figure 76. WICS Reports Menu Screen

WICS REPORTS MENU

Please select one of the following options:

Disposal Request	Other
Main Menu	HELP

The Other Reports Menu Screen is shown in Figure 77. This allows the user to select other reports for generation. At this level there are two options available to the user: Generate Request Report -- this is the most common report ; and Generate Other Report -- this transfers control to another screen where other reports can be chosen. The user can choose either of these options, return to the main menu, or choose help.

Figure 77. Other Reports Menu Screen

OTHER REPORTS MENU		
Please select one of the following options:		
<u>C</u> ontainer Log	<u>W</u> aste <u>S</u> ample	<u>W</u> aste Inventory
<u>D</u> rum Log	<u>P</u> ackaging Checklist	<u>D</u> isposal <u>R</u> ecord
<u>M</u> aster Data	<u>L</u> ab Packed Inventory	<u>W</u> aste Manifest
	<u>S</u> pecial <u>A</u> nalysis	
<u>M</u> ain Menu	<u>P</u> revious Menu	<u>H</u> ELP

4.2.8 Help Menu Screen

The Help Menu Screen is shown in Figure 78. This screen is displayed if the user chooses the "HELP" option on the Main Menu or other WICS screens. The user can choose either of the help options provided, return to the previous screen (the screen that called help), or return to the main menu. The two help options which are currently available are "About" and "System Change Request". The "About" option displays an information box (see Figure 79) about the WICS version and copyright information. The "System Change Request" option displays an information box which contains the data items in the System Change Request Data Table.

Figure 78. Help Menu Screen

Figure 79. About Information Box

5.0 DETAILED DESIGN

This section contains the logical data and physical data models for WICS.

5.1 LOGICAL DATA MODEL

The logical data model illustrates the logical relationships between data tables (logical entities). The WICS logical data model is shown in Figures 80 - 82. All the WICS data tables are related to the Waste Container Data Table, the Waste Drum Data Table, or are overall system administrative data tables. Figure 80 presents the logical relationships of all the data tables which relate to the Waste Container Data Table. Figure 81 presents the logical relationships of all the data tables which relate to the Waste Drum Data Table. Figure 82 presents the logical relationships of all the system administrative tables.

Figure 80. Waste Container - Logical Data Model

Figure 81. Waste Drum - Logical Data Model

Figure 82. WICS System Administration Data Tables - Logical Data Model

5.2 PHYSICAL DATA MODEL

The WICS physical data model is shown in Tables 42 - 69. These tables provide the details of each data table and its associated data elements. Each data element's character type, length, and index are identified.

Table 42. Waste Container Data Model

Element	Type	Length	Index
Container ID	Alphanumeric	4	Key
Log Book Number	Integer	8	
Labeling User ID	Alphanumeric	5	
Labeling Date	Date	8	
Container Type Code	Alphanumeric	3	Foreign Key
Weight	Numeric	5	
Weighing User ID	Alphanumeric	5	
Weighing Date	Date	8	
Location Code	Alphanumeric	5	Foreign Key
Container Status	Alpha (upper case only)	2	Foreign Key
RWP or HWP Number	Alphanumeric	14	
Sample Number	Alphanumeric	6	Foreign Key
Waste Stream Code	Integer	3	Foreign Key
Drum CIN	Alphanumeric	7 or 14	Foreign Key
Disposition	Alphanumeric	25	
Comments	Alphanumeric	25	
HMC Letter Number	Alphanumeric	8	

Table 43. Container Type Data Model

Element	Type	Length	Index
Container Type Code	Alphanumeric	3	Key
Material	Alpha	7	
Size	Numeric	3	
Material Volume	Numeric	5	
Tare Weight	Numeric	5	

Table 44. Solid or Liquid Mixed Waste Stream Data Model

Element	Type	Length	Index
Waste Stream Code	Integer	3	Key
Waste Stream Description	Alphanumeric	50	
Hazard Class	Alpha	4	Foreign Key
Waste Procedure Number	Alphanumeric	10	
Waste Code	Alphanumeric	4	
Physical State	Alpha (upper case only)	1	
Waste Status	Alpha	2	Foreign Key
Chemical ph	Numeric	5	
Flash Point	Integer	5	
Boiling Point	Integer	5	
Density	Numeric	5	

Table 45. Waste Sample Data Model

Element	Type	Length	Index
Sample Number	Alphanumeric	6	Key
Special Analysis Type	Alpha	8	Secondary/ Foreign Key
Sampling User ID	Alphanumeric	5	
Sampling Date	Date	8	

Table 46. Waste Drum Data Model

Element	Type	Length	Index
Drum CIN	Alphanumeric	7 or 14	Key
QC Date	Date	8	
Packing User Id	Alphanumeric	5	
Packing Date	Date	8	
Location Code	Alphanumeric	5	Foreign Key
Drum Type Code	Alphanumeric	3	Foreign Key
Mixed Waste	Logical	1	
Waste Type	Alpha (upper case only)	2	Foreign Key
RWP or HWP Number	Alphanumeric	14	
Liner Type Code	Integer	2	Foreign Key
Liner Quantity	Integer	2	
Absorbent Type Code	Integer	2	Foreign Key
Absorbent Quantity	Numeric	4	
Packing Pad Type Code	Integer	2	Foreign Key
Packing Pad Quantity	Integer	2	
Manifest Number	Integer	5	
Radioactive Shipment Number	Integer	5	
Shipment Number	Alphanumeric	8	
Ship Date	Date	8	

Table 47. Drum Type Data Model

Element	Type	Length	Index
Drum Type Code	Alphanumeric	3	Key
Drum Type	Alphanumeric	20	
Drum Size	Numeric	7	
Tare Weight	Numeric	5	

Table 48. Preparation Checklist Data Model

Element	Type	Length	Index
Drum CIN	Alphanumeric	7 or 14	Key
Preparation User ID	Alphanumeric	5	
Preparation Date	Date	8	
QC Status	Logical	1	
RWP Reviewed	Logical	1	
Liner Placement	Logical	1	
Absorbent Placement	Logical	1	
Warning Stickers	Logical	1	

Table 49. Closing Checklist Data Model

Element	Type	Length	Index
Drum CIN	Alphanumeric	7 or 14	Key
Closing User ID	Alphanumeric	5	
Closing Date	Date	8	
Liner Closed	Logical	1	
Lock-Ring Bolt Tightened	Logical	1	
Gross Weight	Numeric	7	
Weight Labeled	Logical	1	
RAM Tag Dose Rate	Numeric	5	

Table 50. Shipping Preparation Checklist Data Model

Element	Type	Length	Index
Drum CIN	Alphanumeric	7 or 14	Key
Shipping Prep User ID	Alphanumeric	5	
Shipping Prep Date	Date	8	
Lock-Ring Bolt Torqued	Logical	1	
Torque Wrench Number	Alphanumeric	12	
Labeled	Logical	1	

Table 51. Solid or Liquid Mixed Waste Inventory Data Model

Element	Type	Length	Index
Drum CIN	Alphanumeric	7 or 14	Key
Container ID	Alphanumeric	4	Secondary Key

Table 52. Compactible or Non-Compactible Solid Waste Inventory Data Model

Element	Type	Length	Index
Drum CIN	Alphanumeric	7 or 14	Key
Package ID	Integer	4	Secondary Key
Package Volume	Numeric	7	
Package Weight	Numeric	7	
Paper %	Integer	3	
Rubber %	Integer	3	
Plastic %	Integer	3	
Cloth %	Integer	3	
Glass %	Integer	3	
Metal %	Integer	3	
Miscellaneous %	Integer	3	
Miscellaneous Description	Alphanumeric	20	
Miscellaneous Density	Numeric	5	

Table 53. Liner Type Data Model

Element	Type	Length	Index
Liner Type Code	Integer	2	Key
Liner Weight	Numeric	5	
Liner Thickness	Integer	2	
Liner Volume	Numeric	5	
Liner Description	Alphanumeric	20	

Table 54. Absorbent Type Data Model

Element	Type	Length	Index
Absorbent Type Code	Integer	2	Key
Absorbent Density	Numeric	5	
Absorbent Description	Alphanumeric	20	

Table 55. Packing Pad Type Data Model

Element	Type	Length	Index
Packing Pad Type Code	Integer	2	Key
Pad Weight	Numeric	5	
Pad Volume	Numeric	5	
Pad Description	Alphanumeric	20	

Table 56. Location Data Model

Element	Type	Length	Index
Location Code	Alphanumeric	5	Key
Level 1	Alphanumeric	10	
Level 2	Alphanumeric	10	
Level 3	Alphanumeric	10	
Level 4	Alphanumeric	10	

Table 57. Location Barcode Data Model

Element	Type	Length	Index
Location Code	Alphanumeric	5	Key

Table 58. Chemical Component Data Model

Element	Type	Length	Index
Waste Component Code	Integer	5	Key
Waste Stream Code	Integer	3	Foreign Key
Chemical Component	Alphanumeric	20	
Chemical Composition Percentage	Integer	3	
MSDS Number	Integer	5	

Table 59. Waste Package Component Density Data Model

Element	Type	Length	Index
Paper Density	Numeric	5	
Rubber Density	Numeric	5	
Plastic Density	Numeric	5	
Cloth Density	Numeric	5	
Glass Density	Numeric	5	
Metal Density	Numeric	5	

Table 60. Waste Type Data Model

Element	Type	Length	Index
Waste Type	Alpha (upper case only)	2	Key
Waste Type Description	Alphanumeric	20	

Table 61. Hazard Class Data Model

Element	Type	Length	Index
Hazard Class	Alpha	4	Key
Hazard Class Description	Alphanumeric	40	

Table 62. Waste Status Data Model

Element	Type	Length	Index
Waste Status	Alpha	2	Key
Waste Status Description	Alphanumeric	20	

Table 63. Special Analysis Type Data Model

Element	Type	Length	Index
Special Analysis Type	Alpha	8	Key
Analysis Type Description	Alphanumeric	20	

Table 64. Container Status Data Model

Element	Type	Length	Index
Container Status	Alpha (upper case only)	2	Key
Container Status Description	Alphanumeric	20	

Table 65. WICS Log-On Data Model

Element	Type	Length	Index
Employee ID	Alphanumeric	5	Key
Password	Alphanumeric (upper case only)	6	
Privilege Level	Integer	1	Foreign Key

Table 66. Privilege Name Data Model

Element	Type	Length	Index
Privilege Level	Integer	1	Key
Privilege Name	Alphanumeric (upper case only)	8	

Table 67. WS Port Setup/Configuration Data Model

Element	Type	Length	Index
Printer Port	Integer	1	
HCU Port	Integer	1	

Table 68. Revision Data Model

Element	Type	Length	Index
Revision Number	Alphanumeric	5	Key
Revision Date	Date	8	
Revision Name	Alphanumeric	50	
Revision Acronym	Alphanumeric (upper case only)	4	

Table 69. System Change Requests Data Model

Element	Type	Length	Index
SCR Number	Integer	3	Key
SCR Type	Alphanumeric	11	
Submitted By	Alphanumeric	30	
SW Program Name	Alphanumeric	30	
Date Submitted	Date	8	
TPCN, W/O	Alphanumeric	30	
Project Name	Alphanumeric	30	
Current Revision	Alphanumeric	5	
Submitter's Priority	Alphanumeric	14	
Requested Completion Date	Date	8	
Task/Change/Problem Title	Alphanumeric	128	
Detailed Description	Memo	5 (min. for display)	
Decision By	Alphanumeric	30	
Decision	Alphanumeric	6	
Element	Type	Length	Index
Assigned To	Alphanumeric	30	

Target Release Date	Date	8	
Solution Comments/Impact	Memo	5 (min. for display)	
Programs, Files, Documents Affected	Memo	5 (min. for display)	
Task Completed By	Alphanumeric	30	
Date Completed	Date	8	
Verified By	Alphanumeric	30	
Date Verified	Date	8	
Actual Release Version	Alphanumeric	5	
Date Released	Date	8	
Closed By	Alphanumeric	30	
Date Closed	Date	8	
ATP	Memo	5 (min. for display)	

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