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Revision 0
Page 1

**SYSTEM REQUIREMENTS SPECIFICATION
FOR
WASTE INFORMATION AND CONTROL SYSTEM**

Prepared by:

Automation and Simulation Engineering

Revision 0 September 1994

Prepared for:

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

MASTER

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**SYSTEM REQUIREMENTS SPECIFICATION .
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 Requirements Specification.

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 Requirements Specification 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 Design, implementation and testing of 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

1.3 OVERVIEW

This System Requirements Specification (SRS) defines the requirements for the WICS. These requirements have been gathered through interviews with the users of WICS and reviewing their current procedures. The SRS has been prepared following the WHC-CM-3-10, "Software Practices,". This SRS defines the functions, constraints, and objectives that pertain to WICS. The SRS will serve as the baseline document to ensure the needs of HMC are met with regard to assurance of the accuracy and quality of data taken with WICS. This SRS describes what is required in the product.

The remainder of this SRS is divided into two main sections, Section 2.0 General Description describing the general factors which affect the overall system and Section 3.0 Specific Requirements which details the specific requirements for this project. Factors which affect the overall system include the general user characteristics, any general constraints, and any assumptions and dependencies that are assumed during the development.

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
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
SWITS	Solid Waste Information Tracking System
WHC	Westinghouse Hanford Company
WICS	Waste Information and Control System
WS	WICS Workstation

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 WHC-CM-3-5, section 12.7 (see references).

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 GENERAL DESCRIPTION

This section provides an overview of WICS, summarizes its functions, describes general user characteristics, and lists system constraints, assumptions and dependencies.

2.1 PRODUCT PERSPECTIVE

WICS partially automates much of the information collection, verification, tracking and reporting that is presently accomplished manually. WICS shall be a localized and specialized tool for those involved in the field data collection, verification, tracking and reporting. This system shall not replace the need to keep track of containers, drums, or waste nor shall it replace procedures to perform the data collection. Figure 1 shows the context diagram of the WICS.

This system shall automate the manual procedure of data acquisition for hazardous waste tracking, controlling, and monitoring by utilizing lightweight handheld computers with integrated barcode readers. Specifically, WICS shall automate the data sheets the technicians complete during preparation, packaging, shipping, etc. of waste.

WICS shall provide a method of printing hard copies of data sheets for review and approval by authorized personnel as is defined to be necessary. These reports shall be quality records. This system shall not replace the need for having data sheets, logbooks, or other quality records but shall partially automate the process of keeping the information current.

The handheld computers with integrated barcode reader shall allow the data associated with each user, waste container, drum, and location to be captured from encoded barcode labels and keyboard entry, thus minimizing the amount of handwritten field data. The integrated handheld computers shall automatically date/time-stamp the data record.

Figure 1. WICS - Context Diagram

2.2 PRODUCT FUNCTIONS

The WICS Functional Hierarchy Charts are presented in Figures 2 - 4. The top level chart, Figure 2, shows that the WICS has two primary functions:

- o Collect or Transfer Laboratory Data with HCU
- o Process or Print Data with WS

2.2.1 Collect or Transfer Laboratory Data with HCU

Figure 3 shows the functions which shall be performed by the HCU. The HCU shall perform four main functions:

- o Label/sample/weigh container - The HCU shall enable the user to collect data at several stages of waste container data processing including logging a new container, filling a container, sampling the waste, weighing the container, and dispositioning the container.
- o Package drum - The HCU shall enable the user to collect waste drum data including logging a new drum and packaging a drum. The packaging of the drum shall include preparing the drum for packing, inventorying the waste, packing the drum, and preparing the drum for shipping.
- o Send or receive WS data - This function shall send or receive data to or from the WS.
- o Log-on users - The HCU shall require that users log-on in order to gain access to the HCU functions.

Figure 2. WICS - Functional Hierarchy Chart

Figure 3. Handheld Computer Unit - Functional Hierarchy Chart

Figure 4. Workstation - Functional Hierarchy Chart

2.2.2 Process or Print Data with WS

Figure 4 illustrates the functions which shall be performed by the WS. The WS shall be used to:

- o Add, modify, delete, or print waste container data collected by the HCU.
- o Add, modify, delete, or print waste drum data collected by the HCU.
- o Add, modify, delete, or print WICS master data.
- o Send or receive HCU data - This function shall send or receive data to or from the HCU.
- o Generate reports - The WS shall generate all required reports.
- o Log-on users - The WS shall require that users log-on in order to gain access to the WS functions.
- o Manage database - The WS shall archive data records and modify access privileges as required.

2.3 USER CHARACTERISTICS

It is anticipated that the average user will be from one of four categories. These categories are:

Audit/Outside Personnel--Shall be responsible for viewing data and generating reports.

Laboratory Personnel--Shall have the same responsibilities as above plus all HCU functions and adding or modifying container and drum data.

Data Supervisor--Shall have the same responsibilities as above plus entry and maintenance of all WS data excluding the employee data and WICS password.

System Administrator--Shall have the same responsibilities as above plus entry and maintenance of the employee data and the WICS password.

The personnel using WICS are expected to have a working knowledge of PC operation. WICS will be self explanatory and simple to use. Personnel will receive initial orientation and training on WICS. If questions arise, personnel using WICS can refer to the User's Manual for assistance.

NOTE: A caution is labeled on the HCU by the vendor that states "LASER LIGHT DO NOT STARE INTO BEAMS." Users should avoid looking directly into the laser light.

2.4 GENERAL CONSTRAINTS

The following general constraints are imposed on the project and thereby affect its design.

2.4.1 Simplicity and Cost

The data collected, stored, and transferred from a HCU to the WS database are relatively simple data files. The WS database structure has the potential to grow beyond the scope of this system. To ensure impact to costs and project schedule is kept to a minimum, the following are imposed:

- o The WICS shall be limited to the necessary data for tracking, reporting and controlling inventory.
- o The WICS shall be designed such that appropriate technical staff members with normal knowledge of personal computers can operate and maintain the WICS.
- o The WICS shall be such that a non technical staff member, if need be, can receive, report and collect data using the HCU.

2.4.2 Overall Responsibility

The HMC assumes overall responsibility for the entire WICS. HMC personnel are responsible for acquiring, entering, maintaining and reporting the data stored in the WS databases. Continued maintenance was outside the original scope of work as described in the "Work Plan For Waste Information and Control System", WHC-SD-WM-WP-269.

2.5 ASSUMPTIONS AND DEPENDENCIES

The following assumptions affect the design of the WICS system:

- o It is assumed that if any equipment or software delivery dealing with this project is delayed, it could impact the schedule. To minimize the possibility of schedule impact due to a late or delayed delivery, procurement for HCU equipment, keyboard wedge equipment, and software have been started in the procurement cycle.
- 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). This HCU has proved useful in other field data acquisition projects.
- o It is assumed that the database will be based on a standard database package. The package chosen for this task is the Paradox database by Borland. This database software is supported by the Hanford Computer Store.

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- o It is assumed that users have an IBM compatible 386SX processor or higher with EGA or better monitor, 4 megabytes of expanded memory, QEMM loaded, and space available on the hard-drive to store the database, data, associated software, available RS-232 port for communication to HCU cradle, and an available port for the printer, as a minimum.
- o It is assumed that the users have a Hewlett-Packard LaserJet connected to the WS for printing reports.
- o It is assumed that all data transfers from the HCU will be by direct connect RS-232 lines from the HCU cradle into a PC.
- o It is assumed that PCXfer, a previously developed in-house communications software package, will be used by the WSs. The HCU vendor shall supply the communications package for communications between the HCU and the WS.
- o It is assumed initial input of some data shall be identified with user ID and date. Changes to data will not be traceable to user ID and date, only initial input of some data.
- o It is assumed that users must enter a valid employee ID and password to access the WS or HCU.
- o It is assumed the database will reside on the Hanford Local Area Network (HLAN), in a multi-user configuration.
- o It is assumed that access to the database is controlled by passwords with associated privileges.
- o Paradox is the chosen database software package for the WS subsystem. As with any software packages, it has some inherent limitations. If any limitations are encountered that affect this implementation, compromises will have to be made. Any changes that may be required will be documented via ECN to the appropriate document(s).
- o It is assumed that the keyboard wedge is transparent to the application and information received from it appears as though it was typed in via the keyboard.

3.0 SPECIFIC REQUIREMENTS

This section states the specific requirements that shall be satisfied by the WICS software. Each requirement is completely described and stated such that its achievement can be validated objectively.

Requirements that evolve during the remainder of the WICS development will be evaluated to determine if they should be incorporated immediately or added to the system as an enhancement. In either case, if new requirements are defined, they will be included in future revisions to this SRS.

3.1 FUNCTIONAL REQUIREMENTS

This section defines the functions that shall be accomplished by the WICS software.

3.1.1 Business Models

This section presents business information models developed to describe WICS. Business process, data, and event models were developed. These business models were selected to describe the most significant aspects of the WICS information flow.

3.1.1.1 Business Process Models

WICS business process models are presented in Figures 5 through 7.

The WICS top level business process model is shown in Figure 5. This model shows the information flow between the primary business processes and also shows the information input and output for each primary business process.

Figure 6 shows the business process model for the HCU process of "label/sample/weigh waste container". This model presents the information flow for the HCU data collection activities for a waste container.

The business process model for the HCU function of "package drum" is presented in Figure 7. All data collection activities performed by the HCU involving a waste drum are modeled.

3.1.1.2 Business Data Models

Business data models are presented in Figures 8 through 11 . These figures show the data models for the WICS WS and HCU. They show the relationships between the primary objects of interest to WICS and list the information attributes which characterizes these objects in WICS. Attributes are identified as being key (identifying), mandatory or optional. Relationships between objects are described by the text in the diamond shapes between objects. For example, in Figure 8, the relationship between solid or liquid mixed waste and a waste container is as follows:

- o A waste container contains zero - many solid or liquid mixed wastes
- o Solid or liquid mixed waste is contained by one and one only waste container

3.1.1.3 Business Event Models

Figures 12 and 13 show business event models for a waste container and drum, respectively. The waste containers and drums change state as they are processed through the 222-S laboratory. These event models describe the different states that these WICS fundamental objects encounter in their life cycle in the 222-S laboratory and the processes which occur in the transition between these states.

Figure 5. WICS - Business Process Model

Figure 6. Label/Sample/Weigh Waste Container with HCU - Business Process Model

Figure 7. Package Drum with HCU - Business Process Model

Figure 8. Waste Container - WS Business Data Model

Figure 8 (cont'd). Waste Container - WS Business Data Model

Solid or Liquid Mixed Waste Stream

Attribute	Type
Waste Stream Code	I
Waste Stream Description	M
Hazard Class	M
Waste Procedure Number	O
Waste Code	O
Physical State	O
Waste Status	O
Flash Point	O
Chemical pH	O
Boiling Point	O
Density	O

Chemical Component

Attribute	Type
Waste Component Code	I
Waste Stream Code	M
Chemical Component	M
Chemical Composition %	O
MSDS Number	O

Container Type

Attribute	Type
Container Type Code	I
Material	M
Size	M
Material Volume	M
Tare Weight	M

Location

Attribute	Type
Location Code	I
Level 1	M
Level 2	O
Level 3	O
Level 4	O

Waste Container

Attribute	Type
Container ID	I
Labeling User ID	M
Labeling Date	M
Log Book Number	M
Container Type Code	M
Location Code	M
Weight	O
Weighting User ID	O
Weighting Date	O
Container Status	O
RWP or HWP Number	O
Sample Number	O
Drum CIN	O
Waste Stream Code	O
Disposition	O
Comments	O
HMC Letter Number	O

Waste Sample

Attribute	Type
Sample Number	I
User ID	M
Date	M
Special Analysis Type	O

Key to Attributes

I - Identifying
M - Mandatory
O - Optional

Figure 9. Waste Container - HCU Business Data Model

Figure 9 (cont'd). Waste Container - HCU Business Data Model

Container Type

Attribute	Type
Container Type Code	I
Material	O
Size	O

Location	Type
Level 1	O
Location Code	I
Level 1	O
Level 2	O
Level 3	O
Level 4	O

Waste Container

Attribute	Type
Container ID	I
Labeling User ID	M
Labeling Date	M
Log Book Number	M
Container Type Code	M
Location Code	M
Weighing User ID	O
Weighing Date	O
Weight	O
Sample Number	O
Drum CIN	O

Waste Sample

Attribute	Type
Sample Number	I
User ID	M
Date	M

Key to Attributes

I - Identifying
M - Mandatory
O - Optional

Figure 10. Waste Drum - WS Business Data Model

Figure 10 (cont'd). Waste Drum - WS Business Data Model

Preparation Checklist

Attribute	Type
Drum CIN	I
Preparation User ID	M
Preparation Date	M
QC Status	M
RWP Reviewed	M
Liner Placement	M
Absorbent Placement	M
Warning Stickers	M

Packaging Checklist

Attribute	Type
Drum CIN	I
Closing User ID	M
Closing Date	M
Liner Closed	M
L-R Bolt Tightened	M
Gross Weight	M
Weight Labeled	M
RAM Tag Dose Rate	M

Shipping Preparation Checklist

Attribute	Type
Drum CIN	I
Shipping Prep User ID	M
Shipping Prep Date	M
L-R Bolt Torqued	M
Torque Wrench Number	M
Drum Labeled	M

Location

Attribute	Type
Location Code	I
Level 1	M
Level 2	O
Level 3	O
Level 4	O

Waste Drum

Attribute	Type
Drum CIN	I
Drum Type Code	M
QC Date	M
Location Code	O
Waste Type	O
Liner Type Code	O
Liner Quantity	O
Absorbent Type Code	O
Absorbent Quantity	O
Packing Pad Type Code	O
Packing Pad Quantity	O
Manifest Number	O
RSR Number	O
Shipment Number	O
Ship Date	O
Packing User ID	O
Packing Date	O
Mixed Waste	O
RWP or HWVP #	O

Solid or Liquid Mixed Waste Inventory

Attribute	Type
Drum CIN	I
Container ID	M

Compactable or Non-Compactable Solid Waste Inventory

Attribute	Type
Drum CIN	I
Package ID	M
RWP or HWVP Number	M

Waste Package

Attribute	Type
Drum CIN	I
Package ID	I
Package Volume	M
Package Weight	M
Paper %	M
Rubber %	M
Plastic %	M
Cloth %	M
Glass %	M
Metal %	M
Miscellaneous %	M
Miscellaneous Description	O
Miscellaneous Density	O

Drum Type

Attribute	Type
Drum Type Code	I
Drum Type	M
Drum Size	M
Tare Weight	M

Waste Container

Attribute	Type
For Data See Figure 8	

Liner Type

Attribute	Type
Liner Type Code	I
Liner Weight	M
Liner Thickness	M
Liner Volume	M
Liner Description	M

Absorbent Type

Attribute	Type
Absorbent Type Code	I
Absorbent Density	M
Absorbent Description	M

Packing Pad Type

Attribute	Type
Packing Pad Type Code	I
Pad Weight	M
Pad Volume	M
Pad Description	M

Key to Attributes

I - Identifying
M - Mandatory
O - Optional

Figure 11. Waste Drum - HCU Business Data Model

Figure 11 (cont'd). Waste Drum - HCU Business Data Model

Preparation Checklist

Attribute	Type
Drum CIN	I
Preparation User ID	M
Preparation Date	M
QC Status	M
RWP Reviewed	M
Liner Placement	M
Absorbent Placement	M
Warning Stickers	M

Packaging Checklist

Attribute	Type
Drum CIN	I
Closing User ID	M
Closing Date	M
Liner Closed	M
L-R Bolt Tightened	M
Gross Weight	M
Weight Labeled	M
RAM Tag Dose Rate	O

Shipping Preparation Checklist

Attribute	Type
Drum CIN	I
Shipping Prep User ID	M
Shipping Prep Date	M
L-R Bolt Torqued	M
Torque Wrench Number	M
Drum Labeled	M

Location

Attribute	Type
Location Code	I
Level 1	M
Level 2	O
Level 3	O
Level 4	O

Waste Drum

Attribute	Type
Drum CIN	I
Drum Type Code	M
Location Code	M
Waste Type	O
Liner Type Code	O
Liner Quantity	O
Absorbent Type Code	O
Absorbent Quantity	O
Packing Pad Type Code	O
Packing Pad Quantity	O
Manifest Number	O
RSR Number	O
Shipment Number	O
Ship Date	O
Packing user ID	O
Packing Date	O
Mixed Waste	O

Solid or Liquid Mixed Waste Inventory

Attribute	Type
Drum CIN	I
Container ID	M

Compatible or Non-Compatible Solid Waste Inventory

Attribute	Type
Drum CIN	I
Package ID	I
Package Volume	M
Package Weight	M
Paper %	M
Rubber %	M
Plastic %	M
Cloth %	M
Glass %	M
Metal %	M
Miscellaneous %	M
Miscellaneous Description	O
Miscellaneous Density	O

Drum Type

Attribute	Type
Drum Type Code	I
Drum Type	O
Drum Size	O

Waste Container

Attribute	Type
For Data See Figure 9	

Liner Type

Attribute	Type
Liner Type Code	I
Liner Description	O

Absorbent Type

Attribute	Type
Absorbent Type Code	I
Absorbent Description	O

Packing Pad Type

Attribute	Type
Packing Pad Type Code	I
Pad Description	O

Key to Attributes

I - Identifying
M - Mandatory
O - Optional

Figure 12. WICS - Business Event Model -- Events for Object: Waste Container

Figure 13. WICS - Business Event Model -- Events for Object: Waste Drum

3.1.2 Collect or Transfer Laboratory Data with HCU

This section generically describes the functional requirements of the HCU. The HCU must be programmable to prompt the user for the information required for collecting WICS laboratory data. Prompts will be data driven where applicable. All data gathered must be stored in the HCU and then transferred to the WS. The HCU must provide four basic capabilities: 1) Collecting laboratory data for labeling, sampling the waste from, and weighing the waste container; 2) Packaging the waste drum; 3) Sending or receiving WICS data to or from the WS; and 4) Allowing only authorized users to access the system.

The HCU display screen is 20 columns by 8 rows in size. The HCU prompt design is set up to minimize user interaction with the alphanumeric portion of the keyboard. Choices which are usually expected for entry are called default values. They are designated on the display screen, where appropriate, by a value enclosed in brackets (e.g. [1=Yes]). The default is entered by pressing the [Enter] key or by entering the value shown.

Other prompts require barcode label scanning. If the barcode label is damaged or missing, the information printed textually on the barcode label or physically at the location/container may be entered via the HCU keyboard. Scanned data is validated for the appropriate data identifiers, data qualifiers and data length. If these are missing or invalid, then the input is rejected. Keyboard entered data is validated for data length.

Other HCU data input can be selected from data lists. These data lists are part of the WICS master data files which are uploaded to the HCU from the WS each time HCU data is downloaded to the WS. The master data files are maintained on the WS. The user will be able to scroll down the list and can select a data entry by entering the number which corresponds to the entry or by pushing the HCU [Enter] key when the appropriate entry is highlighted on the HCU screen. The user will also be able to enter the data using the HCU keyboard. Keyboard entered master data will be validated by comparison to the master data files. If the keyboard entry does not match a data value in the master data file the entry is rejected and the user is asked to try again.

3.1.2.1 Label/Sample/Weigh Container

The "Label/Sample/Weigh Container" function will allow the user to select one of three functions for collecting waste container data. The HCU will prompt the user to enter his selection to log a new container, sample waste, or weigh a container.

3.1.2.1.1 Label Container

The "Label Container" function will allow the user to enter a waste container into the container database. The HCU will prompt the user to enter the log book container identification number. The HCU will then prompt the user to enter the container barcode ID. The user will attach a barcode label to the waste container and enter the barcode ID by scanning the barcode or by using the HCU keyboard. The HCU will automatically record the user ID and date when a container barcode ID is entered. The HCU shall then prompt the user to enter the location code. The location code can be entered by scanning the location barcode at the Storage Accumulation Area (SAA) or by entering the location code using the keyboard. The HCU shall verify the location code by comparison to the master data list. If the location code is not in the master data list, an error message shall be displayed to the user. A location barcode shall be placed at each SAA location. The user will then be asked to enter the container type code. If the user wishes he can select the container type code from a list of master data which shall display the container type code and the corresponding container size and material.

3.1.2.1.2 Sample Waste

The "Sample Waste" function will allow the user to record the removal of a waste sample from a container. The HCU will prompt the user to enter the container barcode ID. Again the user can scan the barcode or enter it with the HCU keyboard. The user will then be prompted to enter the sample number. The HCU will automatically record the user ID and date when a container barcode ID is entered.

3.1.2.1.3 Weigh Container

The "Weigh Container" function will allow the user to record the weight of a waste container. The HCU will prompt the user to enter the container barcode ID. The user will then be prompted to enter the container weight in Kg. The HCU will automatically record the user ID and date when a container barcode ID is entered.

3.1.2.2 Package Drum

The "Package Drum" function will allow the user to select one of four functions for collecting waste drum data. The HCU will prompt the user to enter his selection to prepare a drum for packing, pack a drum with waste, close/weigh a drum, or prepare a drum for shipping.

3.1.2.2.1 Prepare Drum for Packing

The "Prepare Drum for Packing" function will allow the user collect the data required to document the preparation of a drum to contain waste. The HCU will prompt the user to enter the drum Container Identification Number (CIN). The CIN is encoded onto a barcode which is attached to the drum by the drum supplier. The user will then be asked to enter the drum type code. If the user wishes he can select the drum type code from a list of master data which shall display the drum type code and the corresponding drum type. The HCU will then prompt the user through the drum preparation checklist. For each prompt the user will be asked to enter yes or no. If the user enters no, the HCU will stop going through the checklist and will notify the user that the drum preparation cannot be completed. Checklist prompts will also require the user to enter data identifying the drum liner and absorbent. Liner and absorbent types and quantities will be required input. Liner and absorbent types will be master data, which can be input by selection from lists. When the user completes all the data entry, the user ID and date will automatically be recorded by the HCU.

3.1.2.2.2 Pack Drum with Waste

The "Pack Drum with Waste" function will allow the user to collect waste inventory data during the packing of the drum. The HCU will prompt the user to enter the drum CIN. The HCU shall then prompt the user to enter the location code. The location code can be entered by scanning the location barcode at the packaging site or by entering the location code using the keyboard. The HCU shall verify the location code by comparison to the master data list. If the location code is not in the master data list, an error message shall be displayed to the user. A location barcode shall be placed at each packaging site.

Next the user will be prompted to enter the waste type. Waste type is master data and so can be entered from a list. Next the HCU will prompt the user to enter packing pad type and quantity. Packing pad type will be master data. The user is then asked if the waste to be packed into the drum is mixed waste. If the waste is mixed, the user will be prompted as describes in section 3.1.2.2.3 below. If the waste is not mixed, the user will be prompted as described on section 3.1.2.2.4. The following paragraphs summarize the drum packing process for mixed waste and compactible and non-compactible solid waste.

3.1.2.2.3 Pack Liquid or Solid Mixed Waste

The HCU will prompt the user to enter a container ID. The container ID can be scanned from the barcode or entered by the keyboard. The HCU will then prompt the user to enter another container ID until the user has entered all the containers packed in the drum. The HCU will automatically record the user ID and date when the user finishes this function.

3.1.2.2.4 Pack Compactible or Non-Compactible Solid Waste

The HCU will prompt the user to enter the volume, weight, and material content volume percentage for each package of waste packed into the drum. For each waste package the HCU will prompt the user to enter a volume, weight and a volume percentage for each material type. The material types will include paper, rubber, plastic, cloth, glass, metal, and miscellaneous. The default for all material type volume percentages shall be zero. If the user enters a non-zero value for % miscellaneous, the user will be asked to enter the type of miscellaneous material description and a miscellaneous material density. The HCU will automatically record the user ID and date when the user finishes this function.

3.1.2.2.5 Close/Weigh Drum

The "Close/Weigh Drum" function will allow the user to complete the drum packaging checklist. The HCU will prompt the user to enter the Drum CIN. The HCU will then prompt the user through the drum packaging checklist. For each prompt the user will be asked to enter yes or no. If the user enters no, the HCU will stop going through the checklist and will notify the user that the drum packaging cannot be completed. Checklist prompts will also require the user to enter the drum weight. Finally, the HCU will prompt the user to enter their RAM tag dose rate. The RAM tag dose rate is optional data, but is required for drums packed with mixed waste. The HCU will automatically record the User ID and date when the user finishes this function.

3.1.2.2.6 Prepare Drum for Shipping

The "Prepare Drum for Shipping" function will allow the user to complete the drum shipping checklist. The HCU will prompt the user to enter the Drum CIN. The HCU will then prompt the user through the drum shipping checklist. For each prompt the user will be asked to enter yes or no. If the user enters no, the HCU will stop going through the checklist and will notify the user that the drum shipping preparation cannot be completed. Checklist prompts will also require the user to enter the torque wrench number which is used to torque the drum lock-ring bolt. The HCU will automatically record the User ID and date.

3.1.2.3 Send or Receive WS Data

The "Send or Receive WS Data" function will allow the user to send the WICS laboratory data collected on the HCU to the WS or to receive the WS master validation data from the WS. This function shall detect success or failure of the transfer. A failed transmission should be retried by the user before seeking assistance from the WICS support staff. (The user's manual that will be written for the WICS project will address the recovery from this failure.) Once a transfer is successfully completed, the HCU shall rename its copies of the WICS field data to backup files, replacing the previous backup files.

3.1.2.3.1 Requirements for HCU Laboratory Data Files

The following is a description of the HCU laboratory data files. There shall be nine data files each corresponding to a WICS data record. The data items in the files are fully described in Section 3.6.1 Data. 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". The name of each HCU laboratory data file, the corresponding WICS data record, and the data fields for each data file are shown below:

Filename: WCON.TXT	WICS Data Record: Waste Container
<u>Field</u>	<u>Name</u>
1	Container ID
2	Log Book Number
3	Container Type Code
4	Location Code
5	Labeling User ID
6	Labeling Date
7	Weight
8	Weighing User ID
9	Weighing Date
10	Sample Number
Filename: WSAM.TXT	WICS Data Record: Waste Sample
<u>Field</u>	<u>Name</u>
1	Sample Number
2	User ID
3	Date
Filename: WDRMPR.TXT	WICS Data Record: 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: WDRMPK.TXT	WICS Data Record: Waste Drum
<u>Field</u>	<u>Name</u>
1	Drum CIN
2	Packing User ID
3	Packing Date
4	Location Code
5	Waste Type
6	Packing Pad Type Code
7	Packing Pad Quantity
8	Mixed Waste

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Filename: PREP.TXT

Field

1
2
3
4
5
6
7
8

WICS Data Record: Preparation Checklist

Name

Drum CIN
Preparation User ID
Preparation Date
QC Status
RWP Reviewed
Liner Placement
Absorbent Placement
Warning Stickers

Filename: CLOS.TXT

Field

1
2
3
4
5
6
7
8

WICS Data Record: Packaging Checklist.

Name

Drum CIN
Packaging User ID
Packaging Date
Liner Closed
Lock-Ring Bolt Tightened
Gross Weight
Weight Labeled
RAM Tag Dose Rate

Filename: SHIP.TXT

Field

1
2
3
4
5
6

WICS Data Record: Shipping Prep. Checklist

Name

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

Filename: MXWS.TXT

Field

1
2

WICS Data Record: S or L Mixed Waste Invt.

Name

Drum CIN
Container ID

Filename:	SLWS.TXT	WICS Data Record:	Waste Package
	<u>Field</u>		<u>Name</u>
	1		Drum CIN
	2		Package ID
	3		Package Volume
	4		Package Weight
	5		Paper %
	6		Rubber %
	7		Plastic %
	8		Cloth %
	9		Glass %
	10		Metal %
	11		Miscellaneous %
	12		Miscellaneous Description
	13		Miscellaneous Density

3.1.2.3.2 WS Master Data Validation File Requirements

The following is a description of the WS master data validation files. There shall be eight data files each corresponding to a WICS data record. The data items in the files are fully described in Section 3.6.1 Data. 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". The name of each WS master data validation file, the corresponding WICS data record, and the data fields for each data file are shown below:

Filename:	USER.TXT	WICS Data Record:	WICS Log-On
	<u>Field</u>		<u>Name</u>
	1		User ID
	2		Password
	3		Privilege
Filename:	CTYP.TXT	WICS Data Record:	Container Type
	<u>Field</u>		<u>Name</u>
	1		Container Type Code
	2		Material
	3		Size
Filename:	LOCA.TXT	WICS Data Record:	Location
	<u>Field</u>		<u>Name</u>
	1		Location Code
	2		Level 1
	3		Level 2
	4		Level 3
	5		Level 4

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Filename: DTYP.TXT	WICS Data Record: Drum Type
<u>Field</u>	<u>Name</u>
1	Drum Type Code
2	Drum Type
3	Drum Size
Filename: WTPY.TXT	WICS Data Record: Waste Type
<u>Field</u>	<u>Name</u>
1	Waste Type
2	Waste Type Description
Filename: LTYP.TXT	WICS Data Record: Liner Type
<u>Field</u>	<u>Name</u>
1	Liner Type Code
2	Liner Description
Filename: ATYP.TXT	WICS Data Record: Absorbent Type
<u>Field</u>	<u>Name</u>
1	Absorbent Type Code
2	Absorbent Description
Filename: PTYP.TXT	WICS Data Record: Packing Pad Type
<u>Field</u>	<u>Name</u>
1	Packing Pad Type Code
2	Packing Pad Description

3.1.2.4 Log-On Users

The "Log-On Users" function shall prompt the HCU user to enter an employee ID and a password. The employee ID and password entered shall be used to determine the access level the user has. There shall be a minimum of four access levels provided with privileges associated with each. See section 3.6.1.23 WICS Log-On Data for a list of the access levels and associated privileges. After Log-On has been accomplished, the HCU shall display the HCU date and time to the user. The HCU shall then ask the user to verify that they are correct and update them if they are incorrect.

3.1.3 Process or Print Data with WS

This section generically describes the functional requirements of the WS. The WS shall include the database user interface and an option to import the field data from the HCU. All laboratory data access is controlled by the privilege associated with the password entered into the system.

The WS shall provide these basic functions:

- o View, Add, Modify, Delete or Print WS Data
- o Send or Receive HCU Data
- o Generate Reports
- o Log-on Users
- o Manage Database

3.1.3.1 View, Add, Modify, Delete or Print WS Data

The WS data consists of six primary sets of data. These are:

- o Container Log Book Data
- o Container Waste Sample Data
- o Drum Log Book Data
- o Drum Checklists
- o Drum Inventory
- o Master Data

The user can view, add, modify, delete, or print WS data dependent on their privilege attribute. The following sections briefly describe these functions for each of the WICS data sets.

3.1.3.1.1 Container Log Book Data

The container log book data consists of all the data associated with all the unique Container IDs which are in the WS database, i.e., before archiving. This data consists of the following data items:

- o All data items in the Waste Container data record (see section 3.6.1.1).
- o All data items in the Solid or Liquid Mixed Waste Stream data record (see section 3.6.1.3).
- o All data items in the Waste Sample data record (see section 3.6.1.4).
- o The Level 1, 2, 3, and 4 data items from the Location data record (see section 3.6.1.15).
- o All data items from the Chemical Component data record (see section 3.6.1.16).
- o The following data items from the Container Type data record (see section 3.6.1.2):
 - Material
 - Size

To access this data set the user enters a Container ID. If the Container ID does not currently exist in the database, then the user is prompted to enter all the required data for a Waste Container data record. If the Container ID exists in the database, the existing data for this Container ID is displayed to the user. To add, modify, or delete data items the user shall position their cursor to the data field of interest and enter the data item value. The system will validate the user input for correct field length and character format. If the input is invalid an appropriate error message shall be displayed to the user. When the user is finished entering data, the user shall indicate either to update the database or to ignore data entered and return to the menu.

The user can also choose to print the data record.

3.1.3.1.2 Container Waste Sample Data

The container waste sample data consists of all the waste sample data associated with all the unique Container IDs which are in the WS database, i.e., before archiving. This data consists of the following data items:

- o The following data items from the Waste Container data record (see section 3.6.1.1):
 - Container ID
 - Waste Stream Code
- o All data items in the Waste Sample data record (see section 3.6.1.4).

To access this data set the user enters a Container ID. If the Container ID does not currently exist in the database, then the user is prompted to enter all the required data for a Waste Container data record (see section 3.1.3.1.1). The user is then prompted to enter in the required data for the Waste Sample data record. If the Container ID exists in the database, the existing waste sample data for this Container ID is displayed to the user. To add, modify, or delete data items the user shall position their cursor to the data field of interest and enter the data item value. The system will validate the user input for correct field length and character format. If the input is invalid an appropriate error message shall be displayed to the user. When the user is finished entering data, the user shall indicate either to update the database or to ignore data entered and return to the menu.

The user can also choose to print the data record.

3.1.3.1.3 Drum Log Book Data

The drum log book data consists of all the data associated with all the unique Drum CINs which are in the WS database, i.e., before archiving. This data consists of the following data items:

- o The following data items from the Waste Drum data record (see section 3.6.1.5):
 - Drum CIN
 - Waste Type
 - Manifest Number
 - RSR Number
 - Shipment Number
 - Ship Date
 - RWP or HWP Number
 - Drum Type Code
 - Packing User ID
 - Packing Date
 - Location Code
 - QC Date
 - Mixed Waste
- o The Preparation Date from the Preparation Checklist data record (see section 3.6.1.7).
- o The following data items from the Packaging Checklist data record (see section 3.6.1.8):
 - Packaging Date
 - Gross Weight
- o The following data items from the Drum Type data record (see section 3.6.1.6):
 - Drum Type
 - Drum Size

To access this data set the user enters a Drum CIN. If the Drum CIN does not currently exist in the database, then the user is prompted to enter all the required data for a Waste Drum data record. If the Drum CIN exists in the database, the existing data for this Drum CIN is displayed to the user. To add, modify, or delete data items the user shall position their cursor to the data field of interest and enter the data item value. The system will validate the user input for correct field length and character format. If the input is invalid an appropriate error message shall be displayed to the user. When the user is finished entering data, the user shall indicate either to update the database or to ignore data entered and return to the menu.

The user can also choose to print the data record.

3.1.3.1.4 Drum Checklist

The drum checklist data consists of all the data associated with all the unique Drum CIN checklists which are in the WS database, i.e., before archiving. This data consists of the following data items:

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- o All data items from the Preparation Checklist data record (see section 3.6.1.7):
 - Drum CIN
 - Preparation User ID
 - Preparation Date
 - QC Status
 - RWP Reviewed
 - Liner Placement
 - Absorb Placement
 - Warning Stickers
- o All data items from the Packaging Checklist data record (see section 3.6.1.8):
 - Drum CIN
 - Closed User ID
 - Packaging Date
 - Liner Closed
 - L-R Bolt Tightened
 - Gross Weight
 - Weight Labeled
 - RAM Tag Dose Rate
- o ALL data items from the Shipping Preparation Checklist data record (see section 3.6.1.9):
 - Drum CIN
 - Shipping Prep User ID
 - Shipping Prep Date
 - L-R Bolt Torqued
 - Torque Wrench Number
 - Drum Labeled
- o All data items from the Waste Drum data record (see section 3.6.1.5):
 - Drum CIN
 - Location Code
 - Liner Type Code
 - Liner Quantity
 - Absorbent Type Code
 - Absorbent Quantity
- o The liner description data item from the Liner Type data record (see section 3.6.1.12).
 - Liner Thickness
 - Liner Weight
 - Liner Volume
- o The absorbent description data item from the Absorbent Type data record (see section 3.6.1.13).
 - Absorbent Density
- o The following data items from the Location data record (see section 3.6.1.15):
 - Level 1
 - Level 2
 - Level 3
 - Level 4

To access this data set the user enters a Drum CIN. If the Drum CIN does not currently exist in the database, then the user is notified that this Drum CIN does not exist and therefore no checklist data exists. If the Drum CIN exists in the database, the existing checklist data for this Drum CIN is displayed to the user. To add, modify, or delete data items the user shall position their cursor to the data field of interest and enter the data item value. The system will validate the user input for correct field length and character format. If the input is invalid an appropriate error message shall be displayed to the user. When the user is finished entering data, the user shall indicate either to update the database or to ignore data entered and return to the menu.

The user can also choose to print the data record.

3.1.3.1.5 Drum Inventory

The drum inventory data consists of all the data associated with a unique Drum CINs waste inventory, including drum liners, absorbent, and packing pads. There are two different sets of drum inventory data, Solid or Liquid Mixed Waste Inventory or Compactible or Non-Compactible Solid Waste Inventory. Note, a Drum CIN will only have one type of waste inventory associated with it. The Solid or Liquid Mixed Waste Inventory data consists of the following data items:

- o All data items in the Solid or Liquid Mixed Waste Inventory data record (see section 3.6.1.10).
- o The following data items from the Waste Drum data record (see section 3.6.1.5):

- Drum CIN
 - Mixed Waste
 - Liner Quantity
 - Absorbent Quantity
 - Packing Pad Quantity

- o The liner description data item from the Liner Type data record (see section 3.6.1.12).
- o The absorbent description data item from the Absorbent Type data record (see section 3.6.1.13).
- o The packing pad description data item from the Packing Pad Type data record (see section 3.6.1.14).
- o The following data items from the Drum Type data record (see section 3.6.1.6):

- Drum Type
 - Drum Size

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The Compactible or Non-Compactible Solid Waste Inventory data consists of the following data items:

- o All data items in the Compactible or Non-Compactible Solid Waste Inventory data record (see section 3.6.1.11).
- o The following data items from the Waste Drum data record (see section 3.6.1.5):
 - Drum CIN
 - Mixed Waste
 - Liner Quantity
 - Absorbent Quantity
 - Packing Pad Quantity
- o The liner description data item from the Liner Type data record (see section 3.6.1.12).
- o The absorbent description data item from the Absorbent Type data record (see section 3.6.1.13).
- o The packing pad description data item from the Packing Pad Type data record (see section 3.6.1.14).
- o The following data items from the Drum Type data record (see section 3.6.1.6):
 - Drum Type
 - Drum Size

To access this data set the user enters a Drum CIN. If the Drum CIN does not currently exist in the database, then the user is notified that this Drum CIN does not exist and therefore no inventory data exists. If the Drum CIN exists in the database, the existing inventory data for this Drum CIN is displayed to the user. To add, modify, or delete data items the user shall position their cursor to the data field of interest and enter the data item value. The system will validate the user input for correct field length and character format. If the input is invalid an appropriate error message shall be displayed to the user. When the user is finished entering data, the user shall indicate either to update the database or to ignore data entered and return to the menu.

The user can also choose to print this data.

3.1.3.1.6 Master Data

The WICS master data are defined as follows:

- o All the data items in the WICS Log-On data record (see section 3.6.1.23).
- o All the data items in the Container Type data record (see section 3.6.1.2).
- o All the data items in the Drum Type data record (see section 3.6.1.6).
- o All the data items in the Location data record (see section 3.6.1.15).
- o All the data items in the Liner Type data record (see section 3.6.1.12).

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- o All the data items in the Absorbent Type data record (see section 3.6.1.13).
- o All the data items in the Packing Pad Type data record (see section 3.6.1.14).
- o All the data items in the Waste Type data record (see section 3.6.1.18).
- o All the data items in the Hazard Class data record (see section 3.6.1.19)
- o All the data items in the Waste Status data record (see section 3.6.1.20)
- o All the data items in the Special Analysis Type data record (see section 3.6.1.21)
- o All the data items in the Container Status data record (see section 3.6.1.22)
- o All the data items in the Waste Package Component Density data record (see section 3.6.1.17)
- o All the data items in the Solid or Liquid Mixed Waste Stream data record (see section 3.6.1.3).
- o All the data items in this Chemical Component data record (see Section 3.6.1.17)

To access the master data set the user enters the SYSADMIN menu option. A list of the master data shall be displayed for the user to select one from the list. The user shall be able to enter and change data in a displayed field to any valid value for that field. The user shall indicate either they are done entering data and to update the database or to ignore data entered and return to the menu.

One of the available selections shall allow the user to change the configuration data. The user shall be able to select the default ports for the report printer and communications with the HCU cradle. The user shall be responsible for changing the configuration information as necessary.

The user can also choose to print this data.

3.1.3.2 Send or Receive HCU Data

The "Send or Receive HCU Data" function will allow the user to exercise the options to receive the WICS laboratory data collected on the HCU or to send the WS master validation data to the HCU. The WS shall invoke a communications package to perform the importing of files to the PC and the uploading of the master validation files to the HCU. This function shall detect success or failure of the transfer. A message shall be displayed to the user stating that the files were not transferred. A failed transmission should be retried by the user before seeking assistance from the WICS support staff. (The user's manual that will be written for the WICS project will address the recovery from this failure).

The imported HCU data files (see Section 3.1.2.3.1) shall be placed in a working subdirectory on the PC workstation's disk drive. The HCU data files shall not exist if the transfer is unsuccessful. This is to ensure that an incomplete data file is not used to update the database. The user shall be prompted to retry importing the data files or quit and return to the menu. When the import is completed successfully, a message shall be displayed to the user stating the HCU laboratory data files were received. There shall be a back-up copy of each HCU laboratory data file on the HCU that is overwritten after a successful transfer. This removes the need for a second copy on the PC workstation disk drive of the imported HCU data files. Once the HCU laboratory data files are successfully transferred, the WS shall automatically process the data and update the database appropriately. After processing is complete the user shall be returned to the menu.

If the user chooses the option of sending a new set of master validation files to the HCU, the WS will send all the files (see Section 3.1.2.3.2) to the HCU and the new files will overwrite the existing master data files on the HCU.

3.1.3.3 Generate Reports

The "Generate Reports" function shall allow the user to select one of several types of reports available. Two types of reports are available, the Disposal Request Report and Other WICS Reports. The Other Reports function allows the user to select one of ten reports:

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

The user shall be able to select where to send the report that was selected to be generated. The user shall select from screen, printer, or file. The screen option displays the report on the screen. The printer option allows the user to send the report to one of the acceptable ports (LPT1, LPT2, COM1, COM2, and COM3) to be printed. The file option allows the user to enter a drive and file name to send the report for storage. Each individual page of a report shall contain the date which it was printed and the software name and the current revision.

The fields for each of these reports are listed in the sections below. The reports shall be able to be printed on a Hewlett-Packard LaserJet in an appropriate mode. The fields in each report shall be space delimited.

3.1.3.3.1 Generate Disposal Request

This section describes the Disposal Request Report. This report shall contain all the data required to generate Attachment B of a "Waste Storage/Disposal Request" form. The user generates this report by inputting a list of Container IDs which will be included in the report. The user shall be able to select containers from a list of valid container IDs. This list of valid container IDs will be all the containers which have a weight, do not have a HMC letter number, and do not have a RWP or HWP number associated with them. All necessary data will be printed in the report for each indicated Container ID. The data records shall be arranged in ascending order by Container ID.

The format for this report is shown in Figure 14. The header for each page of the report shall include all rows through "Item No." and "Container Description".

For each Container ID indicated, the following data items shall be included in the Disposal Request Report:

- o The following data items from the Waste Container data record (see section 3.6.1.1):
 - Container ID
 - Weight
 - Container Status
 - HMC Letter Number
- o The container Size and Material data items from the Container Type data record (see section 3.6.1.2).
- o The following data items from the Solid or Liquid Mixed Waste Stream data record (see section 3.6.1.3):
 - Waste Stream Description
 - Physical State
 - Chemical pH
 - Flash Point
 - Boiling Point
 - Density
 - Hazard Class
 - Waste Status
- o The following data items from the Chemical Component data record (see section 3.6.1.16):
 - Chemical Component
 - Chemical Composition Percentage
 - MSDS Number

3.1.3.3.2 Generate Other Reports

This section describes the other reports that shall be available for printing by the WS user. Each report is briefly described including its purpose and format. The WICS data items that shall be printed in each of these reports is also listed.

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3.1.3.3.3 Container Log Book Report

The Container Log Book Report shall 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. If a subset of Container IDs is desired the user shall be able to select the desired Container IDs. The data records shall be arranged in ascending order by Container ID.

The format for this report is shown in Figure 15. Each Container ID printed will start a new page in this report. The page header, for each page, will include all information in the "report-date" line.

For each Container ID indicated, the following data items shall be included in the Container Log Book Report:

- o All data items in the Waste Container data record (see section 3.6.1.1).
- o All data items in the Solid or Liquid Mixed Waste Stream data record (see section 3.6.1.3).
- o All data items in the Waste Sample data record (see Section 3.6.1.4).
- o The Level 1, 2, 3, and 4 data items from the Location data record (see section 3.6.1.15).
- o The following data items from the Chemical Component data record (see section 3.6.1.16):
 - Chemical Component
 - Composition Percentage
 - MSDS Number
- o The following data items from the Container Type data record (see section 3.6.1.2):
 - Material
 - Size

3.1.3.3.4 Waste Sample Report

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

The format for this report is shown in Figure 16. The page header, for each page, shall include all data through the "Container ID" rows.

For each Container ID indicated, the following data items shall be included in the Waste Sample Report:

- o The following data items from the Waste Container data record (see section 3.6.1.1):
 - Container ID

- o All data items in the Waste Sample data record (see section 3.6.1.4).
- o The Waste Stream Description from the Solid or Liquid Mixed Waste Stream data record (see section 3.6.1.3)

3.1.3.3.5 Drum Log Book Report

The Drum Log Book Report shall 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 shall be able to specify their selection. The data records shall be arranged in ascending order by Drum CIN.

The format for this report is shown in Figure 17. The page header, for each page, shall include all data through the "Drum CIN" and "Location Code" rows.

For each Drum CIN indicated, the following data items shall be included in the Drum Log Book Report:

- o The following data items from the Waste Drum data record (see section 3.6.1.5):

- Drum CIN
- Waste Type
- Manifest Number
- RSR Number
- Shipment Number
- Ship Date
- QC Date
- Packing Date
- Location Code
- RWP or HWP Number

- o The following data items from the Drum Type data record (see section 3.6.1.6):

- Drum Type
- Drum Size

Figure 15. Container Log Book Report Format

report-date

Container Log Book Report

Page x

Container ID - xxxx

Container Data

Log Book Number	xx-xx-xx
Labeling User ID	xxxxxx
Labeling Date	mm/dd/yy
Container Type Code	xxx
Container Size (l)/Material	x.x/xxxxxxxx
Weight (kg)	xx.xx
Weighing User ID	xxxxxx
Weighing Date	mm/dd/yy
Location Code	xxxxxx
Location	xxxxxxxxxx/xxxxxxxxxx/xxxxxxxxxx/xxxxxxxxxx
Container Status	xx
HMC Letter Number	HMC-xx-xxx
RWP Number	xx-xx-xxx-xxxx
Drum CIN	xxxxxxx or 2225-xx-xxxxxx
Disposition	xxxxxxxxxxxxxxxxxxxxxxxxxx
Comments	xxxxxxxxxxxxxxxxxxxxxxxxxx

Waste Data

Waste Stream Code	xxx		
Waste Stream Description	XXX		
Hazard Class	XXXX		
Waste Procedure Number(s)	XX-XXX-XXX XX-XXX-XXX	*NOTE: Repeat and scroll as necessary	
Waste Code(s)	XXXX XXXX	*NOTE: Repeat and scroll as necessary	
Waste Status	XX		
Physical State	X		
Chemical pH	xx.xx		
Flash Point (F)	xxxxx		
Boiling Point (F)	xxxxx		
Density (gm/cc)	xxx.x		
Chemical Component(s)	XXXXXXXXXXXXXXXXXXXX	Chemical Composition %	MSDS No.
	XXXXXXXXXXXXXXXXXXXX	xxx	xxxxx

***NOTE: Repeat as necessary for these three data items**

Waste Sample Data

Sample Number	Wxxxxx		
Sampling User ID	xxxxx		
Sampling Date	mm/dd/yy		
Analysis Type(s)	XXXXXXXX	XXXXXXXX	*NOTE: Repeat and scroll as necessary

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Figure 16. Waste Sample Report Format

report-date	Waste Sample Report					Pa	x
Container ID	Waste Stream Description	Sample Number	Sampling User ID	Sampling Date	Analysis Type(s)		
xxxx	xxxxxxxxxxxxxxxxxxxxxxxxxxxxx Scroll at 25 characters	Wxxxxx	xxxxx	mm/dd/yy	xxxxxxxx xxxxxx Repeat as neces		
xxxx	xxxxxxxxxxxxxxxxxxxxxxxxxxxxx Scroll at 25 characters	Wxxxxx	xxxxx	mm/dd/yy	xxxxxxxx xxxxxx Repeat as neces		
:	:	:	:	:	:		
:	:	:	:	:	:		
:	:	:	:	:	:		

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Figure 17. Drum Log Book Report Format

report-date

Waste Drum Log Book Report

Drum CIN	Location Code	QC Date	Drum Type	Drum Size (m ³)	Waste Type	RWP Number	Gross Weight(kg)	Date Packed	Manifest Number	RSR No.	Shipment Number	Ship Date
222S-xx-xxxxxx	xxxxx	mm/dd/yy	xxxxxxxxxxxxxxxxxxxx	xxxx.xx	xx	xx-xx-xxx-xxxx	xxxx.xx	mm/dd/yy	xxxxx	xxxxx	xx-x-xxx	mm/dd/yy
or xxxxxxxx	xxxxx	mm/dd/yy	xxxxxxxxxxxxxxxxxxxx	xxxx.xx	xx	xx-xx-xxx-xxxx	xxxx.xx	mm/dd/yy	xxxxx	xxxxx	xx-x-xxx	mm/dd/yy
:	:	:	:	:	:	:	:	:	:	:	:	:
:	:	:	:	:	:	:	:	:	:	:	:	:

3.1.3.3.6 Drum Checklist Report

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

The format for this report is shown in Figure 18. Note, the checklist for each drum CIN shall be on a separate page. The page header for, for each page, shall include all data through the "report-date" row. The data items included in this report are as follows:

- o The following data items from the Preparation Checklist data record (see section 3.6.1.7): Preparation User ID
Preparation Date
- o The following data items from the Packaging Checklist data record (see section 3.6.1.8): Packaging User ID
Packaging Date
Gross Weight
RAM Tag Dose Rate
- o The following data items from the Shipping Preparation Checklist data record (see section 3.6.1.9):
Shipping Prep User ID
Shipping Date
Torque Wrench Number
- o The following data items from the Waste Drum data record (see section 3.6.1.5):
Drum CIN
Liner Quantity
Absorbent Quantity
- o The liner description data item from the Liner Type data record (see section 3.6.1.12).
- o The absorbent description data item from the Absorbent Type data record (see section 3.6.1.13).
- o The following data items from the Location data record (see section 3.6.1.15):
Level 1
Level 2
Level 3
Level 4

3.1.3.3.7 Drum Lab Packed Inventory Report

The Drum Lab Packed Inventory Report shall contain all the data associated with a specific drum's mixed waste inventory. The user shall 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 shall be provided with an appropriate error message.

The format for this report is shown in Figure 19. The page header, for the second and subsequent pages, shall include the data through "Drum CIN" and the three lines starting with "Container ID".

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Figure 18. Drum Checklist Report Format

report-date Drum Packaging Checklist Page x

Drum CIN 222S-xx-xxxxxx or xxxxxxxx

<u>ACTIVITY</u>	<u>USER ID</u>	<u>DATE</u>
A. <u>Preparation</u>		
1. Drum inspected and accepted for use	xxxxxx	mm/dd/
2. Applicable SDAR reviewed	xxxxxx	mm/dd/
3. <u>xx</u> Liner(s) placed in drum according to SDAR Liner -- xxxxxxxxxxxxxxxxxxxxxxxxxxxx	xxxxxx	mm/dd/
4. <u>xx.x kg</u> Absorbent placed between liner and drum Absorbent -- xxxxxxxxxxxxxxxxxxxxxxxxxxxx	xxxxxx	mm/dd/
5. Hazardous and/or radiation stickers attached to drum	xxxxxx	mm/dd/
B. <u>Packaging</u>		
1. Liner satisfactorily closed	xxxxxx	mm/dd/
2. Drum lock-ring bolt tightened	xxxxxx	mm/dd/
3. Gross Weight -- xxxx.xx kg		
4. Gross weight labeled on drum	xxxxxx	mm/dd/
5. Accumulation date on hazardous waste label (if applicable) RAM Tag dose rate at contact (if applicable) -- xx.xx		mm/dd/
6. Location packaged -- xxxxxxxxxxx/xxxxxxxx/xxxxxxxx/xxxxxxxx		
C. <u>Shipping</u>		
1. Drum lock-ring bolt torqued to 40 ± 4 ft-lbs. Torque Wrench number -- xxxxxxxxxxx	xxxxxx	mm/dd/
2. Drum labeled per SDAR	xxxxxx	mm/dd/

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RWP Number	xx-xx-xxx-xxxx
Accumulation Start Date	mm/dd/yy
RAM Tag Dose Rate at Contact	xx.xx
Location Packed	xxxxxxxxxx/xxxxxxxxxx/xxxxxxxxxx/xxxxxxxxxx
Date Packed	mm/dd/yy
Packed by	xxxxx

[illegible]

Container ID	Container Material	Material Volume (qts)	Container Size (l)	Gross Weight (kg)	Tare Weight (kg)	Waste Stream Description	Sample Number
XXXX	XXXXXXXX	XX.XX	X.X	XX.XX	XX.XX	XXXXXXXXXXXXXXXXXXXXXXXXXXXX Scroll at 25 characters	WXXXXX
XXXX	XXXXXXXX	XX.XX	X.X	XX.XX	XX.XX	XXXXXXXXXXXXXXXXXXXXXXXXXXXX Scroll at 25 characters	WXXXXX
:	:	:	:	:	:	:	:
:	:	:	:	:	:	:	:
:	:	:	:	:	:	:	:

Material	Weight (kg)	Volume (qts)
Container Material	xx.xx	xx.xx
Hazardous Constituent	xx.xx	xx.xx
Liner	xx.xx	xx.xx
Absorbent	xx.xx	xx.xx
Packing Pad	xx.xx	xx.xx

The data items included in this report are as follows:

- o All the Container IDs in the Solid or Liquid Mixed Waste Inventory data record for the Drum CIN of interest (see section 3.6.1.10).
- o The following data items for each Container ID in the Solid or Liquid Mixed Waste Inventory data record. These data items are from the Waste Container data record (see section 3.6.1.1):
 - Weight
 - Sample Number
- o The Waste Stream description data item for each Container ID in the Solid or Liquid Mixed Waste Inventory data record. (see section 3.6.1.3):
- o The following data items for each Container ID in the Solid or Liquid Mixed Waste Inventory data record. These data items are from the Container Type data record (see section 3.6.1.2):
 - Size
 - Material
 - Material Volume
 - Tare Weight
- o The following data items from the Waste Drum data record (see section 3.6.1.5):
 - Drum CIN
 - Liner Quantity
 - Absorbent Quantity
 - Packing Pad Quantity
 - RWP or HWP Number
 - Packing Date
 - Packing User ID
- o The liner description data item from the Liner Type data record (see section 3.6.1.12).
- o The absorbent description data item from the Absorbent Type data record (see section 3.6.1.13).
- o The packing pad description data item from the Packing Pad Type data record (see section 3.6.1.14).
- o The following data items from the Location data record (see section 3.6.1.15):
 - Level 1
 - Level 2
 - Level 3
 - Level 4
- o The following data items from the Drum Type data record (see section 3.6.1.6):
 - Drum Type
 - Drum Size
- o The following data items from the Packaging Checklist data record (see section 3.6.1.8):
 - Packaging Date
 - RAM Tag Dose Rate

This report also shall contain the following calculated data items:

- o Total Container Material Weight -- Sum of all container tare weights
- o Total Container Material 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, but expressed in quarts.
- 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

3.1.3.3.8 Drum Waste Inventory Report

The Drum Waste Inventory Report shall contain all the data associated with a specific drum's compactible or non-compactible solid waste inventory. The user shall 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 shall be provided with an appropriate error message.

The format for this report is shown in Figure 20. The page header, for the second and subsequent pages, shall include the data through "Drum CIN" and the two lines starting with "Package ID".

The data items included in this report are as follows:

- o All data items in the Compactible or Non-Compactible Solid Waste Inventory data record (see section 3.6.1.11).
- o The following data items from the Waste Drum data record (see section 3.6.1.5):
 - Drum CIN
 - Liner Quantity
 - Absorbent Quantity
 - Packing Pad Quantity
 - RWP or HWP Number
 - Packing Date
 - Packing User ID
- o The liner description data item from the Liner Type data record (see section 3.6.1.12).

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RWP or HWP Number	xx-xx-xxx-xxxx
Accumulation Start Date (if applicable)	mm/dd/yy
RAM Tag Dose Rate at Contact (If applicable)	xx.xx
Location Packed	xxxxxxxxxx/xxxxxxxxxx/xxxxxxxxxx/xxxxxxxxxx
Date Packed	mm/dd/yy
Packed by	xxxxx

[illegible][illegible]

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Figure 20 (cont'd). Drum Waste Inventory Report Format

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Drum Waste Inventory

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Drum CIN 222S-xx-xxxxxx or xxxxxxxx

Drum Inventory Total Weight and Volume

Material	Weight (kg)	Volume (qts)
Paper	xx.xx	xx.xx
Rubber	xx.xx	xx.xx
Plastic	xx.xx	xx.xx
Cloth	xx.xx	xx.xx
Glass	xx.xx	xx.xx
Metal	xx.xx	xx.xx
Miscellaneous	xx.xx	xx.xx
Liner	xx.xx	xx.xx
Absorbent	xx.xx	xx.xx
Packing Pad	xx.xx	xx.xx

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- o The absorbent description data item from the Absorbent Type data record (see section 3.6.1.13).
- o The packing pad description data item from the Packing Pad Type data record (see section 3.6.1.14).
- o The following data items from the Location data record (see section 3.6.1.15):
 - Level 1
 - Level 2
 - Level 3
 - Level 4
- o The following data items from the Drum Type data record (see section 3.6.1.6):
 - Drum Type
 - Drum Size
- o The following data items from the Packaging Checklist data record (see section 3.6.1.8):
 - Packaging Date
 - RAM Tag Dose Rate

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 -- Sum for all Package IDs the quantity (% Rubber times (Package Weight divided by Rubber Density)).
- o Total Plastic Volume -- Sum for all Package IDs the quantity (% Plastic times Package Volume)
- o Total Plastic Weight -- Sum for all Package IDs the quantity (% Plastic times (Package Weight divided by Plastic Density)).
- o Total Cloth Volume -- Sum for all Package IDs the quantity (% Cloth times Package Volume)
- o Total Cloth Weight -- Sum for all Package IDs the quantity (% Cloth times (Package Weight divided by Cloth Density)).
- o Total Glass Volume -- Sum for all Package IDs the quantity (% Glass times Package Volume)
- o Total Glass Weight -- Sum for all Package IDs the quantity (% Glass times (Package Weight divided by Glass Density)).
- o Total Metal Volume -- Sum for all Package IDs the quantity (% Metal times Package Volume)
- o Total Metal Weight -- Sum for all Package IDs the quantity (% Metal times (Package Weight divided by Metal Density)).
- o Total Miscellaneous Volume -- Sum for all Package IDs the quantity (% Miscellaneous times Package Volume)

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

3.1.3.3.9 Master Data Report

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

The format for this report is shown in Figure 21. The page header, for each page, shall include the "report-date" row of data.

The master data sets are defined as follows:

- o All the data items in the WICS Log-On data record (see section 3.6.1.23).
- o All the data items in the Container Type data record (see section 3.6.1.2).
- o All the data items in the Drum Type data record (see section 3.6.1.6).
- o All the data items in the Location data record (see section 3.6.1.15).
- o All the data items in the Liner Type data record (see section 3.6.1.12).
- o All the data items in the Absorbent Type data record (see section 3.6.1.13).
- o All the data items in the Packing Pad Type data record (see section 3.6.1.14).
- o All the data items in the Waste Type data record (see section 3.6.1.18)
- o All the data items in the Hazard Class data record (see section 3.6.1.19)
- o All the data items in the Waste Status data record (see section 3.6.1.20)
- o All the data items in the Special Analysis Type data record (see section 3.6.1.21)
- o All the data items in the Container Status data record (see section 3.6.1.22)
- o All the data items in the Waste Package Component Density data record (see section 3.6.1.17)
- o All the data items in the Solid or Liquid Mixed Waste Stream data record (see section 3.6.1.3)

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Figure 21. Master Data Report Format

report-date Master Data Report Page x

WICS User Data

Employee ID	Password	Privilege
xxxxx	xxxxxx	xxxxxxxx
:	:	:

Location Data

Location Code	Level 1	Level 2	Level 3	Level 4
xxxxx	xxxxxxxxxx	xxxxxxxxxx	xxxxxxxxxx	xxxxxxxxxx
:	:	:	:	:

Container Type Data

Type Code	Size	Tare Weight (kg)	Material (kg)	Material Volume (liters)
xxx	x.x	xx.xx	xxxxxxx	xx.xx
:	:	:	:	:

Drum Type Data

Type Code	Type	Size (m ³)	Tare Weight (kg)
xxx	xxxxxxxxxxxxxxxxxxxxxx	xxxx.xx	xxx.x
:	:	:	:

Waste Type Data

Waste Type	Waste Type Description
xx	xxxxxxxxxxxxxxxxxxxxxx
:	:

Hazard Class Data

Hazard Class	Hazard Class Description
xxxx	xx
:	:

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Figure 21 (cont'd). Master Data Report Format

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Master Data Report

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Waste Status Data

Waste Status	Waste Status Description
xx	xxxxxxxxxxxxxxxxxxxxxx
:	:

Special Analysis Type Data

Analysis Type	Analysis Type Description
xxxxxxx	xxxxxxxxxxxxxxxxxxxxxx
:	:

Container Status Data

Container Status	Container Status Description
xx	xxxxxxxxxxxxxxxxxxxxxx
:	:

Liner Type Data

Type Code	Description	Weight (kg)	Volume (liters)	Thickness (mm)
xx	xxxxxxxxxxxxxxxxxxxxxx	xx.xx	xx.xx	xx
:	:	:	:	:

Absorbent Type Data

Type Code	Description	Density (kg/qt)
xx	xxxxxxxxxxxxxxxxxxxxxx	xx.xx
:	:	:

Packing Pad Type Data

Type Code	Description	Weight (kg)	Volume (qts)
xx	xxxxxxxxxxxxxxxxxxxxxx	xx.xx	xx.xx
:	:	:	:

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Figure 21 (cont'd). Master Data Report Format

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Master Data Report

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Waste Package Component Density Data

Paper Density (kg/qt)	xx.xx
Rubber Density (kg/qt)	xx.xx
Plastic Density (kg/qt)	xx.xx
Cloth Density (kg/qt)	xx.xx
Glass Density (kg/qt)	xx.xx
Metal Density (kg/qt)	xx.xx

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Figure 22. Disposal Record Report Format

report-date

Disposal Record Report
for
Drum CIN 222S-xx-xxxxxx or xxxxxxxx

Pa x

References

RWP or HWP Number	xx-xx-xxx-xxxx
RSR Number	xxxxx
Manifest Number	xxxxx

Drum Data

Type	xxxxxxxxxxxxxxxxxxxxxx
Size (m ³)	xxxx.xx
Tare Weight (kg)	xxx.x
Gross Weight (kg)	xxxx.xx
Date Packaged	mm/dd/yy

Waste Data

Waste Type xx

(Note, if drum contains mixed waste containers the following data will be included for each container):

Container Waste Description	Weight (kg)	Waste Code(s)
xx	xx.xx	xxxx xxxx xxxx
		Repeat as necess
:	:	:
:	:	:

3.1.3.3.10 Disposal Record Report

The Disposal Record Report shall 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 shall indicate the Drum CIN of interest. If the indicated Drum CIN was not packed yet, then the user shall be provided with an appropriate error message.

The format for this report is shown in Figure 22. The page header, for the second and subsequent pages, shall include the data through "Drum CIN" and the line starting with "Container Waste Description". The data items included in this report are as follows:

- o The following data items from the Waste Drum data record (see section 3.6.1.5):
 - Drum CIN
 - Radioactive Shipment Record Number
 - Manifest Number
 - Waste Type
 - RWP or HWP Number
 - Packing Date
- o The following data items from the Drum Type data record (see section 3.6.1.6):
 - Drum Type
 - Drum Size
 - Tare Weight
- o The Gross Weight data item from the Packaging Checklist data record (see section 3.6.1.8)
- o The RWP or HWP Number from either the Waste Container data record (see section 3.6.1.1) or from the Compactible or Non-Compactible Solid Waste Inventory data record (see section 3.6.1.11), depending on the type of waste packed into the drum.

If the drum contains mixed waste the following data items shall be included in the report for each Container ID packed into the drum:

- o The Weight data item from the Waste Container data record (see section 3.6.1.1)
- o The following data items from the Solid or Liquid Mixed Waste Stream data record (see section 3.6.1.3).
 - Waste Code
 - Waste Stream Description

3.1.3.3.11 Waste Manifest Report

The Waste Manifest Report shall contain all WICS data for a specific waste shipment which 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 shall indicate the Shipment Number of interest. The report will include information for each Drum CIN that has the indicated Shipment Number.

The format for this report is shown in Figure 23. The page header, for each page, shall include the data through "Radioactive Shipment Record Number". The data items included in this report are as follows:

- o The following data items from the Waste Drum data record (see section 3.6.1.5):
 - Drum CIN
 - Waste Type
 - Shipment Number
 - Radioactive Shipment Record Number
- o The following data items from the Drum Type data record (see section 3.6.1.6):
 - Drum Type
 - Drum Size
- o The Gross Weight data item from the Packaging Checklist data record (see section 3.6.1.8).
- o The Liner Description data item from the Liner Type data record (see section 3.6.1.12).

If the drum contains mixed waste the following data items shall be included in the report for each Container ID packed into the drum:

- o The following data items from the Solid or Liquid Mixed Waste Stream data record (see section 3.6.1.3):
 - Waste Code
 - Waste Stream Description

3.1.3.3.12 Request for Special Analysis Report

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

The format for this report is shown in Figure 24. Note, this report is only one page.

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report-date Waste Manifest Report Pa x
for
Shipment Number xx-x-xxx
Radioactive Shipment Record Number (if applicable) xxxxx

Drum CIN	Drum Type	Drum Size (m ³)	Weight (kg)	Waste Type	Liner Description
222S-xx-xxxxxx or xxxxxxxx	xxxxxxxxxxxxxxxxxxxxxx	xxxx.xx	xxxx.xx	xx	xxxxxxxxxxxxxxxxxxxxxxxxxxxxxx

Container Waste Description	Waste Code(s)
XX	xxxx xxxx xxxx xxxx xxxx
	Repeat as necessary
:	:
:	:
:	:

Drum CIN	Drum Type	Drum Size (m ³)	Weight (kg)	Waste Type	Liner Description
222S-xx-xxxxxx or xxxxxxxx	xxxxxxxxxxxxxxxxxxxxxx	xxxx.xx	xxxx.xx	xx	xxxxxxxxxxxxxxxxxxxxxxxxxxxxxx

Container Waste Description	Waste Code(s)
XX	xxxx xxxx xxxx xxxx xxxx
	Repeat as necessary
:	:
:	:
:	:

(Note, repeat above drum data for each drum in shipment)

The data items included in this report are as follows:

- o The Container ID data item from the Waste Container data record (see section 3.6.1.1)
- o The Analysis Type data item from the Waste Sample data record (see section 3.6.1.4.
- o The Waste Stream Description data item from the Solid or Liquid Mixed Waste Stream data record (see section 3.6.1.3)

3.1.3.4 Log-On Users

The "WS Log-On" function shall prompt the user to enter an employee ID and a password. The employee ID and password entered shall be used to determine the access level the user has. There shall be a minimum of four access levels provided with privileges associated with each. See section 3.6.1.24 for a list of the access levels and associated privileges.

3.1.3.5 Manage Database

The "Manage Database" function 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 data consists of five sets of data (see section 3.1.3.1 for a complete listing of this data). The Container ID data set consists of the following data:

- Container Log Book Data
- Container Waste Sample Data

The Drum CIN data set consists of the following data:

- Drum Log Book Data
- Drum Checklists
- Drum Inventory

The WS will remove old Container ID and Drum CIN data sets from the working WICS database files and add them into Container and Drum archive data files. These archive files will be named CsMMDDYY.OLD and DsMMDDYY.OLD. The "MMDDYY" in these file names refers to the date which the data files were archived. The "s" is a number which identifies the sequence records are archived on the same day.

Container ID data sets shall 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".

Drum CIN data sets shall 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 record. The Drum CIN data set will be archived six months after the "Ship Date".

3.2 EXTERNAL INTERFACE REQUIREMENTS

This section describes the external interface requirements for WICS. External interfaces include those with the user, hardware interfaces, and software interfaces. User interfaces describe the characteristics of the human interface to the system. Hardware interfaces describe the interface of the application software with the hardware, such as devices to be supported and protocols to be used.

3.2.1 User Interfaces

The user will interface to WICS through the HCU and the WS. Both the HCU and WS shall have user menus and user prompts.

3.2.1.1 User Menus

The HCU primary user interface will be via menus. The menus shall be vertical style. Each menu option will have a number associated with it. A menu option is chosen by entering the number. The HCU menu format is shown in Figure 25. The descriptive text for the HCU menu options is presented in Table 1.

The WS primary user interface will be via menus. The menus will be buttons in a MS-Windows environment.

Figure 25. HCU Menu Format

Table 1. HCU Menu Option Descriptions

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

An option is chosen by clicking the mouse at the desired option. An option can be highlighted by using the mouse or by entering the hot-key for an option shown by the highlighted letter in the option. Since entering the hot-key of the option is a way of quickly positioning to an option, the highlighted letters of the options in a menu shall be unique. The WS menu format is shown in Figure 26. The descriptive text for the WS menu options is presented in Table 2.

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Figure 26. WS Menu Format

Table 2. WS Menu Option Descriptions

CONTAINER	Select a function to perform on a waste container: View, add, modify, delete or print Log Book or Waste Sample
Log Book	View, add, modify, delete or print Container Log Book Data
Sample	View, add, modify, delete or print Container Waste Sample Data
DRUM	Select a function to perform on a waste drum: View, add, modify, delete or print Log Book, Checklist or Waste Inventory
Log Book	View, add, modify, delete or print Drum Log Book Data
Checklist	View, add, Modify, delete or print Drum Checklist Data
Inventory	View, add, Modify, delete or print Drum Inventory Data
SYSADMIN	Select a system administration function: View, add, modify, delete of print Master Data or modify setup/configuration
Users	View, add, modify, delete or print User Data
Location	View, add, modify, delete or print Location Data
Container Type	View, add, modify, delete or print Container Type Data
Drum Type	View, add, modify, delete or print Drum Type Data
Waste Type	View, add, modify, delete or print Waste Type Data
Hazard Class	View, add, modify, delete or print Hazard Class Data
Waste Status	View, add, modify, delete or print Waste Status
Waste Stream	View, add, modify, delete or print Waste Stream Data
Special Analysis	View, add, modify, delete or print Special Analysis Data
Container Status	View, add, modify, delete or print Container Status Data
Liner	View, add, modify, delete or print Liner Type Data
Absorbent	View, add, modify, delete or print Absorbent Data
Packing Pad	View, add, modify, delete or print Packing Pad Data
Component Density	View, add, modify, delete or print Component Density Data
Setup/Config	View, add, modify, delete or print Setup/Configuration Data
HCU	Select to send or receive WS Data
Send	Send WS Master Data to the HCU
Receive	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 Checklist	Print Drum 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	Display information about software name and current version
System Change Requests	Listing of System Change Requests
EXIT	Select to exit or continue running WICS application
No	Return to menu, continue running WICS application
Yes	Quit WICS application

3.2.1.2 User Prompts

Some of the prompts require the user to answer questions. If a question can be answered by entering a single character, this character will be displayed in parentheses within the text of the question. If a question has a default answer, this default will be displayed in square brackets at the end of the question. For example:

OK (0=No/[1=Yes])?

In this example, either 1 (for yes data OK) or 0 (for no data not OK) could be entered. This question also indicates the default answer is 1. If the user simply presses the [Enter] key in response to this question, the data will be confirmed as being OK. If there is no default displayed for the question, pressing the [Enter] key will cause the question to be redisplayed.

3.2.1.3 User Log-On

The system shall provide a dialog box to obtain a user employee ID and password. The system shall validate the employee ID and password against a maintained authorized list, and automatically retrieve the privilege level attributes based on the user.

3.2.2 Hardware Interfaces

Both the HCU and WS utilize hardware to accomplish their functions. The hardware interface is as described in the following sections.

3.2.2.1 Hardware Description

WICS shall operate with individual user PCs and handheld computers. The minimal hardware configuration that is required to be in place, shall be comprised of a PC, one handheld computer with integrated non-contact laser scanners (HCUs), and one 4 slot cradle (base stations) for power, charging and communications between the HCUs and PC.

WICS software shall be capable of operating in a password protected partition on an HLAN file server. The file server where the WICS application and data files reside can be changed and its location will be transparent to the user, except for the system administrator.

3.2.2.2 PC Specifications

The WS personal computer shall have the following minimum configuration:

- o IBM compatible 386 SX processor or higher
- o EGA or better monitor
- o 4 MB RAM minimum
- o Hard drive, configured as "C" with 10 MB free disk space

- o DOS 3.3 or higher
- o Hanford Standard Core
- o QEMM 386
- o RS-232 port for connection to HCU cradle
- o Access to HLAN

3.2.2.3 HCU Specifications

The HCU to be used is the Symbol LDT 3805 Extended Temperature Range (ETR) unit. The LDT 3805 ETR is a handheld, portable unit with an integrated laser scanner, keyboard for data entry, and a display for output. The unit communicates to the WS PC workstation via an optical/RS-232 interface (through the cradle) connected to the RS-232 port of the PC. It has an operating temperature range of -4 to 104 Degrees F (-20 to 40 Degrees C).

3.2.3 Software Interfaces

Both the HCU and WS utilize software to accomplish their functions. The software interface is as described in the following sections.

3.2.3.1 WS Software Description

The WS will be a special purpose application program using the Paradox programming language. It shall provide a user interface to the database software.

3.2.3.2 HCU Software Description

The HCU will be a special purpose application program using the "C" programming language. It shall provide a user interface to the data collection software.

3.2.4 Communication Interfaces

The HCU slides into the HCU cradle for communication and charging. The HCU cradle shall connect to the PC using an RS-232 interface. This will support communications between the HCU and PC workstation.

3.2.5 Barcode Label Specifications

The barcode symbology used on labels for WICS shall be Code 3 of 9. The labels shall be printed on label material that shall resist heat, smudge, scratch, chemical and harsh environments. The barcode labels for the locations shall be attached near the location and current location name plate if applicable. The barcode labels for the waste containers shall be attached to each individual container. The barcode data identifiers and data qualifiers listed for the location and the waste container labels have been registered by the Data Standards and Administration.

3.2.5.1 Location

Definition: This label is the waste container location or of the drum packaging location. Each one of these labels contain a code used to look-up in the database. The locations are as specific as the shelf in a cabinet

Conventions: Character.

Limits: Location codes for the site are assigned by the Data Standards Administration. The WICS project has been assigned an initial block starting at "B2051" and ending at "B2150". The length of the code is 5 characters.

Barcode Label: The location code shall be printed below the barcode to allow the user to manually input the code if the barcode is unreadable.

Data Identifier: 1L

Data Qualifier: None used

3.2.5.2 Waste Container

Definition: This field is the identification number used by WICS for tracking waste containers.

Conventions: Character.

Limits: The length of this field is a maximum of 4 characters. It shall be a unique sequence code. The unique sequence number shall be in base 30. This prevents words from being the container ID and still allows for a very large number of container labels to be printed before the sequence starts over. Base 30 includes all digits (0-9) and all upper case non-vowel letters:

0,1,2,3,4,5,6,7,8,9,B,C,D,F,G,H,J,K,L,M,N,P,Q,R,S,T,V,W,X,Z

Barcode Label: The waste container identification number shall be printed below the barcode to allow the user to manually input the code if the barcode is unreadable.

Data Identifier: S

Data Qualifier: LW

3.2.5.3 Waste Drum

Definition: This field is the waste drum container identification number (CIN) used by WICS for tracking waste drums.

Conventions: Character.

Limits: Drum codes for the site are assigned by the Data Standards Administration. WICS will not generate these drum codes. The length of the code is 7 digits with the first two digits representing the year.

Barcode Label: The waste drum container identification number should be printed below the barcode to allow the user to manually input the code if the barcode is unreadable.

Data Identifier: S

Data Qualifier: None used

3.3 PERFORMANCE REQUIREMENTS

As with any software running on HLAN, response time will depend on network traffic, the computer platform being used, amount of main disk and memory available, etc. It is expected that, given the minimum specifications of the WS PC and the relative simplicity of the WS database, that good response times will be achieved. However, performance shall be considered during design and development.

3.4 DESIGN CONSTRAINTS

3.4.1 Standards Compliance

The work delineated in this document shall be controlled by applicable WHC policies or procedures. Specifically, software designed/developed shall be done per WHC-CM-4-2, Quality Assurance Manual, QR-19.0 "Software Quality Assurance Requirements"; WHC-CM-6-1, Standard Engineering Practices, EP 2.1 "Software Configuration Management"; and WHC-CM-3-10, Software Practices, SP 3.1, "Development Management", as applicable. Any changes to WICS will be performed according to WHC-CM-3-10, Software Practices, SP 6.1, "Document Control" and SP 6.2 "Software Control". In addition, WICS must comply with appropriate sections of DOE orders.

3.4.2 Resource Limitations

See section 3.2.2.2, PC Specifications, for the minimum WS PC requirements and section 3.2.2.3, HCU Specifications, for the HCU requirements.

3.5 ATTRIBUTES

This section describes any additional attributes that shall be considered in WICS.

3.5.1 Software Application Security Requirements

The system shall be designed and the configuration control plan implemented to ensure compliance with all applicable computer protection and security requirements, including those contained in DOE Order 1360.2, "Computer Security Program For Unclassified Computer Systems".

Access to the HCU and WS menu options requires a valid employee ID and password to be entered. This will protect the data in the database from unauthorized access and modification. Access to the database structure shall be password protected from unauthorized access and modification using Paradox.

3.5.2 Maintainability

The system shall be designed such that a technical staff member with normal knowledge of personal computers, programming languages (i.e. "C"), and database packages (i.e. Paradox) can operate and maintain the system, including the implementation of nominal changes.

3.5.3 Data Error Detection and Correction

All communications between the HCU and the WS shall use error detection.

The HCU and WS database will enforce the field formats and required information as specified in Section 3.6.1 Data Requirements.

3.5.4 System Configuration Control

The final application software and all related files and documentation shall be released via an Engineering Data Transmittal (EDT). Any changes made subsequent to the approval of this SRS shall be documented via an Engineering Change Notice (ECN).

3.6 OTHER REQUIREMENTS

3.6.1 Data

The following sections describe the data that must be stored by WICS. The descriptions reflect what information needs to be stored. They do not necessarily reflect the actual database(s) design.

3.6.1.1 Waste Container Data

The following is a listing of data items specific to an individual waste container. The relationships between a waste container data record and other WICS data records are shown in Figures 8 through 11.

Container ID

- o This is the identification code for a waste container. It is the identifying data field for the waste container data record. The code is unique to the specific container and is used as a key to locate data within the database.
- o The container ID input by the HCU or WS user.
- o The container ID (e.g. 0001) is encoded (Code 39) on the barcode label on the container.
- o This shall be a unique sequence number in base 30. This prevents words from being the container ID and still allows for the sequence starts over. Base 30 includes all digits (0-9) and all upper case non-vowel letters:
0,1,2,3,4,5,6,7,8,9,B,C,D,F,G,H,J,K,L,M,N,P,Q,R,S,T,V,W,X,Z
- o This is a 4 character field.
- o A unique alphanumeric serial number is assigned to each individual container as its ID. It is of the form:
AAAA
where
A = Digits (0-9) and upper case non-vowel letters (B-Z)

Log Book Number

- o This is the number assigned to the waste container by the person who logged it into the laboratory log book.
- o It is input by the HCU or WS user when he/she is labeling a container.
- o This is a required input.
- o There shall be only one Log Book Number for each waste container record.
- o It is a eight character field of the form:
99-99-99
where
9 = numeric

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Labeling User ID

- o This is the User ID of the user who labeled the waste container.
- o It is automatically input by the HCU or WS when the user enters a new Container ID.
- o This is a required input.
- o There shall be only one Labeling User ID for each waste container record.
- o It is a five character field of the form:
AAAAA
where
A = alphanumeric

Labeling Date

- o This is the date when the user labeled a waste container.
- o The date is stored internally by Paradox in Julian date. This means the year 2000 can be handled.
- o It is automatically input by the HCU or WS when the user enters a new Container ID.
- o This is a required input.
- o There shall be only one Labeling Date for each waste container record.
- o It is a eight character field of the form:
mm/dd/yy
where
mm = month, numeric
dd = day, numeric
yy = year, numeric

Container Type Code

- o This is the identification code for the waste container type.
- o It is input by the HCU or WS user.
- o This is a required input.
- o There shall be only one Container Type for each waste container record.
- o It is a 3 character field of the form:
AAA
where
A = alphanumeric

Weight

- o This is the weight of the filled waste container.
- o It is input by the HCU or WS user.
- o This is an optional input.
- o This data item value shall be greater than zero.
- o There shall be zero or one Container Weight for each waste container record.
- o It is a five character field of the form:
99.99
where
9 = numeric
- o Unit of measure is Kg.

Weighing User ID

- o This is the User ID of the user who weighed the waste container.
- o It is automatically input by the HCU or WS when the user weighs a container.
- o This is an optional input.
- o There shall be zero or one Weighing User ID for each waste container record.
- o It is a five character field of the form:

AAAAA

where

A = alphanumeric

Weighing Date

- o This is the date when the user weighed a waste container.
- o The date is stored internally by Paradox in Julian date. This means the year 2000 can be handled.
- o It is automatically input by the HCU or WS when the user weighs a container.
- o This is an optional input.
- o There shall be zero or one Weighing Date for each waste container record.
- o It is a eight character field of the form:

mm/dd/yy

where

mm = month, numeric

dd = day, numeric

yy = year, numeric

Location Code

- o This is the identification code for the storage location of the container. The code is unique to the location and is used as a shorthand key for data identification.
- o The location code is input by the HCU or WS user.
- o This is a required input.
- o There shall be only one Location Code for each waste container record.
- o This data item is a required entry that must be in the valid range.
- o The location code is encoded (Code 39) on the barcode label in the field.
- o This code is used in place of the location name in the printed reports.
- o This is a 5 character field.
- o A unique location code is assigned to a distinct storage location. It is of the form:

A9999

where

A = Alpha (upper case only)

9 = Numeric

Container Status

- o The container status describes how full the container is with waste, i.e., full, partially full, etc.
- o It is input by the WS user.
- o It is an optional data item.
- o There shall be zero or one container status for each waste container record.
- o It is a two character field of the form:
AA
where
A = Alpha (upper case only)
- o List of initial values at this time:
F = Full
PF = Partially Full
MT = Empty
TR = Triple Rinsed

RWP or HWP Number

- o This data item is the identifying number of the Disposal Approval Record which provides direction and approval to dispose of waste.
- o It is input by the WS user.
- o It is an optional data field.
- o There is zero or one of this data item for each waste container record.
- o It is a 14 character field of the form:
99-9A-9A(A)-9999
where
9 = numeric
A = alpha (upper case only)
- o Note data shown inside the parenthesis "(" ")" is optional.

Sample Number

- o This is the number which identifies a waste sample.
- o It is input by the HCU or WS user.
- o It is an optional data item.
- o There is zero or one of this data item for each waste container record.
- o It is a six character field of the form:
W99999
where
W = W
9 = numeric

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Waste Stream Code

- o This data item is the identifying number of the waste stream contained within a waste container.
- o It is input by the HCU or WS user.
- o It is an optional data item.
- o There is zero or one of this data item for each waste container record.
- o It is a 3 character field of the form:

999

where

9 = integer

Drum CIN

- o This data item is the identifying number for a waste drum.
- o It is input by the HCU or WS user.
- o It is an optional data item, but when assigned a value the associated waste container record can be started on its six month waiting period until archiving.
- o There is zero or one of this data item for each waste container record.
- o It is a seven or a 14 character field of the form:

9999999 or 222S-99-999999

where

9 = numeric

2 = 2

S = S

Disposition

- o This is a data item which describes the disposition of a waste container if it is not packed into a waste drum.
- o It is input by the WS user.
- o It is an optional data item, but when assigned a value the associated waste container record can be started on its six month waiting period until archiving.
- o There is zero or one of this data item for each waste container record.
- o It is a 25 character field of the form:

AAAAAAAAAAAAAAAAAAAAAAAAA

where

A = alphanumeric

Comments

- o This is a field where the WS user may enter comments regarding a specific waste container.
- o It is input by the WS user.
- o This is an optional data item.
- o There is zero or one for each waste container record.
- o It is a 25 character field of the form:

AAAAAAAAAAAAAAAAAAAAAAAAA

where

A = alphanumeric

HMC Letter Number

- o This data item is the number which identifies the letter that HMC prepares to send with a waste disposal request.
- o It is input by the WS user.
- o This is an optional data item.
- o There shall zero or one of this data items for each waste record.
- o It is an eight character field of the form:

HMC-9A-AAA

where

HMC = HMC
9 = numeric
A = alpha

3.6.1.2 Container Type Data

The following is a listing of data items specific to a waste container type. The relationships between a container type data record and other WICS data records are shown in Figures 8 and 9.

Container Type Code

- o This is the identification code for the waste container type.
- o It is input by the WS user.
- o This is the identifying data item for the container type data record and therefore is a required input.
- o There shall be only one Container Type for each container type record.
- o It is a 3 character field of the form:

AAA

where

A = alphanumeric

Material

- o This is the material type of the waste container.
- o It is input by the WS user.
- o This is a required input.
- o There shall be only one Material for each container type record.
- o It is a seven character field of the form:

AAAAAAA

where

A = alpha

- o List of initial values at this time:

Glass
Poly
Metal
Paper

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Size

- o This is the volume of the waste container.
- o It is input by the WS user.
- o This is a required input.
- o There shall be only one Size for each container type record.
- o Unit of measure is liters.
- o It is a three character field of the form:

9.9

where

9 = numeric

- o List of initial values at this time:

4.0

2.0

1.0

0.5

Material Volume

- o This is the volume of the container material, e.g., the volume of glass from a container made of glass.
- o It is input by the WS user.
- o This is a required input.
- o This data item value shall be greater than zero.
- o There shall be only one Material Volume for each container type record.
- o Unit of measure is liters.
- o It is a five character field of the form:

99.99

where

9 = numeric

Tare Weight

- o This is the weight of the empty waste container.
- o It is input by the WS user.
- o This data item value shall be greater than zero.
- o This is a required input.
- o There shall be one Tare Weight for each container type record.
- o Unit of measure is Kg.
- o It is a five character field of the form:

99.99

where

9 = numeric

3.6.1.3 Solid or Liquid Mixed Waste Stream Data

The following is a listing of data items specific to a solid or liquid mixed waste stream. The relationships between a mixed waste stream data record and other WICS data records are shown in Figures 8 and 9.

Waste Stream Code

- o This data item is the identifying number of the waste stream contained within a waste container.
- o It is input by the HCU or WS user.
- o This is the identifying data item for the Solid or Liquid Mixed Waste Stream data record and therefore is required.
- o There is zero or one of this data item for each waste container record.
- o It is a 3 character field of the form:

999

where

9 = integer

Waste Stream Description

- o This data item consists of a description of the waste stream contained within a waste container.
- o It is input by the WS user.
- o This is a required input.
- o There is one of this data item for each waste record.
- o It is a 50 character field of the form:

AAAAAA.....

where

A = alphanumeric

Hazard Class

- o This data item describes the hazards of the mixed waste stream.
- o It is input by the WS user.
- o It is a required data field.
- o There shall be one to many of these data items for each mixed waste stream data record.
- o It is a four character field of the form:

AAAA

where

A = alpha

- o List of initial values at this time:

C = Corrosive

I = Ignitable

R = Reactive

T = Toxic

E = Explosive

P = Persistent

C = Carcinogenic

Ox = Oxidizer

TCLP = Toxic Characteristic Leaching Procedure

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Waste Procedure Number

- o This data item identifies the waste procedures associated with the mixed waste stream.
- o It is input by the WS user.
- o It is an optional entry.
- o There shall be zero to one of these data items for each mixed waste stream data record.
- o It is a 10 character field of the form:
AA-999-999
where
 - A = alpha
 - 9 = numeric

Waste Code

- o This data item identifies the waste codes associated with the mixed waste stream.
- o It is input by the WS user.
- o It is an optional entry.
- o There shall be zero to many of these data items for each mixed waste stream data record.
- o It is a four character field of the form:
AA99
where
 - A = alphanumeric
 - 9 = numeric

Physical State

- o This data item describes the physical state of the mixed waste stream.
- o It is input by the WS user.
- o It is an optional entry, but is required before a disposal request can be generated.
- o There shall be zero to one of these data items for each mixed waste stream data record.
- o It is a one character field of the form:
A
where
 - A = alpha (upper case only)
- o List of accepted values at this time:
 - S = Solid
 - L = Liquid
 - G = Gas

Waste Status

- o This data item describes the waste status of the mixed waste stream.
- o It is input by the WS user.
- o It is an optional entry, but is required before a disposal request can be generated.
- o There shall be zero to many of these data items for each mixed waste stream data record.
- o It is a two character field of the form:
AA
where
A = alpha
- o List of initial values at this time:
Rx = Reacted
T = Treated
U = Used
S = Spill Material
O = Old
N = New (or expired)

Chemical pH

- o This data item is the chemical pH of the mixed waste stream.
- o It is input by the WS user.
- o It is an optional entry.
- o There shall be zero to one of these data items for each mixed waste stream data record.
- o It is a five character field of the form:
99.99
where
9 = numeric

Flash Point

- o This data item is the flash point of the mixed waste stream.
- o It is input by the WS user.
- o It is an optional entry.
- o There shall be zero to one of these data items for each mixed waste stream data record.
- o Unit of measure is degrees C.
- o It is a five character field of the form:
99999
where
9 = numeric

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Boiling Point

- o This data item is the flash point of the mixed waste stream.
- o It is input by the WS user.
- o It is an optional entry.
- o There shall be zero to one of these data items for each mixed waste stream data record.
- o Unit of measure is degrees C.
- o It is a five character field of the form:
99999
where
9 = numeric

Density

- o This data item is the density of the mixed waste stream.
- o It is input by the WS user.
- o It is an optional entry.
- o There shall be zero to one of these data items for each mixed waste stream data record.
- o Unit of measure is grams/cc.
- o It is a five character field of the form:
999.9
where
9 = numeric

3.6.1.4 Waste Sample Data

The following is a listing of data items specific to a waste sample data record. The relationships between a waste sample data record and other WICS data records are shown in Figures 8 and 9.

Sample Number

- o This is the number which identifies a waste sample.
- o It is input by the HCU or WS user.
- o It is the identifying data item for a waste sample.
- o There is one of this data item for each waste container record.
- o It is a six character field of the form:
W99999
where
W = W
9 = numeric

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User ID

- o This is the User ID of the user who removes a waste sample from a container.
- o It is automatically input by the HCU or WS when the user weighs a container.
- o This is a required data item.
- o There shall be only one User ID for each waste sample record.
- o It is a five character field of the form:

AAAAA

where

A = alphanumeric

Date Sampled

- o This is the date when the user removes a sample from a waste container.
- o The date is stored internally by Paradox in Julian date. This means the year 2000 can be handled.
- o It is automatically input by the HCU or WS when the user removes a sample from a container.
- o This is a required data item.
- o There shall be only one Date Sampled for each waste container record.
- o It is an eight character field of the form:

mm/dd/yy

where

mm = month, numeric

dd = day, numeric

yy = year, numeric

Analysis Type

- o This data item is the laboratory analysis that is requested for a given waste sample.
- o It is input by the WS user.
- o This is an optional data item.
- o There shall one or many analysis type data items for each waste sample record.
- o It is an eight character field of the form:

AAAAAAAA

where

A = alpha

- o List of initial values at this time:

VISUAL

GEA

AT-ORG

AT-SOLID

TOC

PH

TOT-ACT

3.6.1.5 Waste Drum Data

The following is a listing of data items specific to an individual waste drum. The relationships between a waste drum data record and other WICS data records are shown in Figures 10 and 11.

Drum CIN

- o This data item is the identifying number for a waste drum data record.
- o It is input by the HCU or WS user.
- o It is a required data item.
- o There is one of Drum CIN for each waste drum record.
- o It is a seven or a 14 character field of the form:
9999999 or 222S-99-999999

where

9	= numeric
2	= 2
S	= S

Drum Type Code

- o This is the identification code for the waste drum type.
- o It is input by the HCU or WS user.
- o This is a required input.
- o There shall be only one Drum Type Code for each waste drum record.
- o It is a 3 character field of the form:

AAA

where

A	= alphanumeric
9	= Numeric

QC Date

- o This is the date Quality Control checked the drum.
- o It is input by the WS user.
- o This is an optional input.
- o There shall be zero or one QC Date for each waste drum record.
- o It is an eight character field of the form:

mm/dd/yy

where

mm	= month, numeric
dd	= day, numeric
yy	= year, numeric

Location Code

- o This is the identification code for the packaging location of the waste drum. The code is unique to the location and is used as a shorthand key for data identification.
- o The location code is input by the HCU or WS user.
- o This is a required input.
- o There shall be only one Location Code for each packaging checklist data record.
- o This data item is a required entry that must be in the assigned range.
- o The location code is encoded (Code 39) on the barcode label in the field.
- o This code is used in place of the location name in the printed reports.
- o This is a 5 character field.
- o A unique location code is assigned to a distinct storage location.
- o It is of the form:

A9999

where

A = Alpha (upper case only)

Packing User ID

- o This data item shall contain the User ID of the user who completes the packaging check list
- o It is automatically input by the HCU or WS.
- o It is automatically input by the HCU or WS.
- o This is a required data item.
- o There shall be one User ID.
- o It is a five character field of the form:

AAAAA

where

A = alphanumeric

Packing Date

- o This data item shall contain the date when a user enters completed the Packaging check lists.
- o The date is stored internally by Paradox in Julian date. This means the year 2000 can be handled.
- o It is automatically input by the HCU or WS.
- o This is a required data item.
- o There shall be one Date corresponding to each of the three data fields listed above.
- o It is an eight character field of the form:

mm/dd/yy

where

mm = month, numeric

dd = day, numeric

yy = year, numeric

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Mixed Waste

- o This identifies if the waste is mixed waste or not.
- o It is input by the HCU or WS user.
- o This is a required data item.
- o There is one of this data item for each data record.
- o This field is initially set to "Y".
- o It is a logical field of length one, with the form of:

Y

where

Y = Y or N (upper case only)

RWP or HWP Number

- o This data item is the identifying number of the Disposal Approval Record which provides direction and approval to dispose of waste.
- o It is input by the WS user.
- o It is a required data field.
- o There is only one of this data item for each data record.
- o It is a 14 character field of the form:

99-9A-9A(A)-9999

where

9 = numeric

A = alpha (upper case only)

- o Note data shown in "(" ")" is optional.

Waste Type

- o This data item describes the type of waste which is packed into the drum.
- o It is input by the HCU or WS user.
- o This is an optional input.
- o There shall be only one Waste Type for each waste drum record.
- o It is a two character field of the form:

AA

where

A = alpha (upper case only)

- o List of initial values at this time:

AH = Hazardous, Admin Hold

CM = Moratorium Controlled

H = Hazardous

HP = Hazardous Waste PCB

M = Mixed

MP = Mixed PCB

N = Non-regulated

P = PCB

R = Radioactive

RP = Radioactive PCB

U = Unknown

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Liner Type Code

- o This is the type of the liner placed into the waste drum.
- o It is input by the HCU or WS user.
- o This is an optional data item.
- o There is one of this data item for each data record.
- o It is a two character data field of the form:

99

where

9 = numeric

Liner Quantity

- o This is the number of liners placed into the waste drum.
- o It is input by the HCU or WS user.
- o This is an optional data item.
- o This is an optional data item.
- o There is one of this data item for each data record.
- o It is a two character data field of the form:

99

where

9 = numeric

Absorbent Type Code

- o This is the type of the absorbent placed into the waste drum.
- o It is input by the HCU or WS user.
- o This is an optional data item.
- o There is one of this data item for each data record.
- o It is a two character data field of the form:

99

where

9 = numeric

Absorbent Quantity

- o This is the quantity of absorbent placed into the waste drum.
- o It is input by the HCU or WS user.
- o This is an optional data item.
- o There is one of this data item for each data record.
- o It is a four character data field of the form:

99.9

where

9 = numeric

- o Unit of measure is Kg.

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Packing Pad Type Code

- o This is the type of the packing pad placed into the waste drum.
- o It is input by the HCU or WS user.
- o This is an optional data item.
- o There is one of this data item for each data record.
- o It is a two character data field of the form:

99

where

9 = numeric

Packing Pad Quantity

- o This is the number of packing pads placed into the waste drum.
- o It is input by the HCU or WS user.
- o This is an optional data item.
- o There is one of this data item for each data record.
- o It is a two character data field of the form:

9

where

99 = numeric

Manifest Number

- o This is the Uniform Hazardous Waste Manifest document number.
- o It is input by the WS user.
- o This is an optional input.
- o There shall be zero or one Manifest Number for each waste drum record.
- o It is a five character field of the form:

99999

where

9 = numeric

Radioactive Shipment Record (RSR) Number

- o This is the RSR document number.
- o It is input by the WS user.
- o This is an optional input.
- o There shall be zero or one RSR Number for each waste drum record.
- o It is a five character field of the form:

99999

where

9 = numeric

Shipment Number

- o This is the shipment number for the waste drum shipment.
- o It is input by the WS user.
- o This is an optional input.
- o There shall be zero or one Shipment Number for each waste drum record.
- o It is an eight character field of the form:
99-A-999

where

- 9 = numeric
- A = alpha (upper case only)

Ship Date

- o This is the date of the waste drum shipment.
- o It is input by the WS user.
- o This is an optional input. This date starts the 6 month waiting period before the data record is archived. At this date the data record changes to a view only status.
- o There shall be zero or one Ship Date for each waste drum record.
- o It is an eight character field of the form:
mm/dd/yy

where

- mm = month, numeric
- dd = day, numeric
- yy = year, numeric

3.6.1.6 Drum Type Data

The following is a listing of data items specific to a waste drum type. The relationships between a drum type data record and other WICS data records are shown in Figures 10 and 11.

Drum Type Code

- o This is the identification code for the waste drum type.
- o It is input by the WS user.
- o This is the identifying data item for the drum type data record and therefore is a required input.
- o There shall be only one Drum Type for each drum type record.
- o It is a 3 character field of the form:
AAA

where

- A = alphanumeric

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Drum Type

- o This is the type designation for the waste drum.
- o It is input by the WS user.
- o This is a required input.
- o There shall be only one Drum Type for each waste drum record.
- o It is a 20 character field of the form:

AAAAAAAAAAAAAAAAAAAA

where

A = alphanumeric

Drum Size

- o This is the volume of the waste drum.
- o It is input by the WS user.
- o This is a required input.
- o This data item value shall be greater than zero.
- o There shall be only one Drum Size for each drum type record.
- o It is a seven character field of the form:

9999.99

where

9 = numeric

- o Unit of measure is cubic meters (m³).

Tare Weight

- o This is the weight of the empty waste drum.
- o It is input by the WS user.
- o This is a required input.
- o This data item value shall be greater than zero.
- o There shall be one Tare Weight for each drum type record.
- o It is a five character field of the form:

999.9

where

9 = numeric

- o Unit of measure is Kg.

3.6.1.7 Preparation Checklist Data

The following is a listing of data items specific to a drum preparation checklist. The relationships between a preparation checklist data record and other WICS data records are shown in Figures 10 and 11.

Drum CIN

- o This data item is the identifying number for a preparation checklist data record.
- o It is input by the HCU or WS user.
- o It is a required data item.
- o There is one of Drum CIN for each preparation checklist record.
- o It is a seven or a 14 character field of the form:
9999999 or 222S-99-999999

where

9	= numeric
2	= 2
S	= S

Preparation User ID

- o This data item shall contain the User ID of the user who completed the Preparation Checklist.
- o It is automatically input by the HCU or WS.
- o This is a required data item.
- o There shall be one User ID.
- o It is a five character field of the form:

AAAAA

where

A = alphanumeric

Preparation Date

- o This data item shall contain the date when a user completed the Preparation Check list.
- o The date is stored internally by Paradox in Julian date. This means the year 2000 can be handled.
- o It is automatically input by the HCU or WS.
- o This is a required data item.
- o There shall be one Preparation Date.
- o It is an eight character field of the form:

mm/dd/yy

where

mm	= month, numeric
dd	= day, numeric
yy	= year, numeric

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QC Status

- o This is a data field which is used to record the verification that a drum has been inspected and approved by quality assurance personnel.
- o It is input by the HCU or WS user.
- o This is a required data item.
- o There is one of this data item for each data record.
- o This field is initially set to "Y".
- o It is a logical field of length one, with the form of:

Y
where
Y = Y or N (upper case only)

RWP Reviewed

- o This a data field which is used to record the verification that the applicable RWP has been reviewed (the RWP which applies to packing the waste for which the drum is being prepared).
- o It is input by the HCU or WS user.
- o This is a required data item.
- o There is one of this data item for each data record.
- o This field is initially set to "Y".
- o It is a logical field of length one, with the form of:

Y
where
Y = Y or N (upper case only)

Liner Placement

- o This a data field which is used to record the verification that a liner has been placed into the waste drum.
- o It is input by the HCU or WS user.
- o This is a required data item.
- o There is one of this data item for each data record.
- o This field is initially set to "Y".
- o It is a logical field of length one, with the form of:

Y
where
Y = Y or N (upper case only)

Absorbent Placement

- o This a data field which is used to record the verification that approved absorbent has been placed into the waste drum.
- o It is input by the HCU or WS user.
- o This is a required data item.
- o There is one of this data item for each data record.
- o This field is initially set to "Y".
- o It is a logical field of length one, with the form of:

Y
where
Y = Y or N (upper case only)

Warning Stickers

- o This a data field which is used to record the verification that hazardous and/or radiation stickers have been attached to the waste drum.
- o It is input by the HCU or WS user.
- o This is a required data item.
- o There is one of this data item for each data record.
- o This field is initially set to "Y".
- o It is a logical field of length one, with the form of:

Y

where

Y = Y or N (upper case only)

3.6.1.8 Packaging Checklist Data

The following is a listing of data items specific to a drum packaging checklist. The relationships between a packaging checklist data record and other WICS data records are shown in Figures 10 and 11.

Drum CIN

- o This data item is the identifying number for a packaging checklist data record.
- o It is input by the HCU or WS user.
- o It is a required data item.
- o There is one of Drum CIN for each packaging checklist record.
- o It is a seven or a 14 character field of the form:

9999999 or 222S-99-999999

where

9 = numeric

2 = 2

S = S

User ID

- o This data item shall contain the User ID of the user who completes the packaging checklist.
- o It is automatically input by the HCU or WS.
- o This is a required data item.
- o There shall be one User ID.
- o It is a five character field of the form:

AAAAA

where

A = alphanumeric

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Date

- o This data item shall contain the date when a user completes the packaging checklist.
- o The date is stored internally by Paradox in Julian date. This means the year 2000 can be handled.
- o It is automatically input by the HCU or WS.
- o This is a required data item.
- o There shall be one Date corresponding to each of the three data fields listed above.
- o It is an eight character field of the form:
mm/dd/yy
where
mm = month, numeric
dd = day, numeric
yy = year, numeric

Liner Closed

- o This a data field which is used to record the verification that the drum liner has been satisfactorily closed.
- o It is input by the HCU or WS user.
- o This is a required data item.
- o There is one of this data item for each data record.
- o This field is initially set to "Y".
- o It is a logical field of length one, with the form of:
Y
where
Y = Y or N (upper case only)

Lock-Ring Bolt Tightened

- o This a data field which is used to record the verification that the drum lock-ring bolt has been tightened.
- o It is input by the HCU or WS user.
- o This is a required data item.
- o There is one of this data item for each data record.
- o This field is initially set to "Y".
- o It is a logical field of length one, with the form of:
Y
where
Y = Y or N (upper case only)

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Gross Weight

- o This is the weight of the packaged (full) waste drum.
- o It is input by the HCU or WS user.
- o This data item value shall be greater than zero.
- o This is a required input.
- o There shall be one Gross Weight for each packaging checklist data record.
- o It is a seven character field of the form:
9999.99
where
9 = numeric
- o Unit of measure is Kg.

Weight Labeled

- o This a data field which is used to record the verification that the gross weight of the drum has been labeled on the drum.
- o It is input by the HCU or WS user.
- o This is a required data item.
- o There is one of this data item for each data record.
- o This field is initially set to "Y".
- o It is a logical field of length one, with the form of:
Y
where
Y = Y or N (upper case only)

RAM Tag Dose Rate

- o This is the RAM tag dose rate of the user who is packing the drum.
- o It is input by the HCU or WS user.
- o This is an optional data item, but is required for drums packed with mixed waste.
- o There is zero or one of this data item for each data record.
- o It is a five character data field of the form:
99.99
where
9 = numeric

3.6.1.9 Shipping Preparation Checklist Data

The following is a listing of data items specific to a drum shipping preparation checklist. The relationships between a shipping preparation checklist data record and other WICS data records are shown in Figures 10 and 11.

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Drum CIN

- o This data item is the identifying number for a shipping preparation checklist data record.
- o It is input by the HCU or WS user.
- o It is a required data item.
- o There is one of Drum CIN for each shipping preparation checklist record.
- o It is a seven or a 14 character field of the form:
9999999 or 222S-99-999999

where

9	= numeric
2	= 2
S	= S

Shipping Prep User ID

- o This data item shall contain the User ID of the user who completes the Shipping Preparation checklist.
- o It is automatically input by the HCU or WS.
- o This is a required data item.
- o There shall be one User ID.
- o It is a five character field of the form:
AAAAA

where

A = alphanumeric

Date

- o This data item shall contain the date when a user completes the Shipping Preparation checklist.
- o The date is stored internally by Paradox in Julian date. This means the year 2000 can be handled.
- o It is automatically input by the HCU or WS.
- o This is a required data item.
- o There shall be one Date.
- o It is an eight character field of the form:
mm/dd/yy

where

mm	= month, numeric
dd	= day, numeric
yy	= year, numeric

Ring Bolt Torqued

- o This a data field which is used to record the verification that the drum lock-ring bolt has been properly torqued.
- o It is input by the HCU or WS user.
- o This is a required data item.
- o There is one of this data item for each data record.
- o This field is initially set to "Y".
- o It is a logical field of length one, with the form of:

Y

where

Y = Y or N (upper case only)

Torque Wrench Number

- o This the torque wrench number used to torque the lock-ring bolt.
- o It is input by the HCU or WS user.
- o This is a required data item.
- o There is one of this data item for each data record.
- o It is a 12 character field of the form:

AAAAAAAAAAAA

where

A = alphanumeric

Labeled

- o This a data field which is used to record the verification that the drum has been labeled according to the RWP.
- o It is input by the HCU or WS user.
- o This is a required data item.
- o There is one of this data item for each data record.
- o This field is initially set to "Y".
- o It is a logical field of length one, with the form of:

Y

where

Y = Y or N (upper case only)

3.6.1.10 Solid or Liquid Mixed Waste Inventory

The following is a listing of data items specific to the solid or liquid mixed waste inventory for a specific drum. The relationships between a solid or liquid mixed waste inventory data record and other WICS data records are shown in Figures 10 and 11.

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Drum CIN

- o This data item is the identifying number for a solid or liquid mixed waste inventory data record.
- o It is input by the HCU or WS user.
- o It is a required data item.
- o There is one of Drum CIN for each data record.
- o It is a seven or a 14 character field of the form:
9999999 or 222S-99-999999

where

9 = numeric

Container ID

- o This is the identification code for a waste container. It is the identifying data field for the waste container data record. The code is unique to the specific container and is used as a key to locate data within the database.
- o The container ID input by the HCU or WS user.
- o It is a required data item.
- o There shall be one or many Container IDs for each solid or liquid mixed waste inventory data record.
- o The container ID (e.g. 0001) is encoded (Code 39) on the barcode label on the container.
- o This shall be a unique sequence number in base 30. This prevents words from being the container ID and still allows for the sequence starts over. Base 30 includes all digits (0-9) and all upper case non-vowel letters:

0,1,2,3,4,5,6,7,8,9,B,C,D,F,G,H,J,K,L,M,N,P,Q,R,S,T,V,W,X,Z

- o This is a 4 character field.
- o A unique alphanumeric serial number is assigned to each individual container as its ID. It is of the form:

AAAA

where

A = Digits (0-9) and upper case non-vowel letters (B-Z)

3.6.1.11 Compactible or Non-Compactible Solid Waste Inventory

The following is a listing of data items specific to the compactible or non-compactible solid waste inventory for a specific drum. The relationships between a compactible or non-compactible solid waste inventory data record and other WICS data records are shown in Figures 10 and 11.

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Drum CIN

- o This data item is the identifying number for a compactible or non-compactible solid waste inventory data record.
- o It is input by the HCU or WS user.
- o It is a required data item.
- o There is one of Drum CIN for each data record.
- o It is a seven or a 14 character field of the form:

9999999 or 222S-99-999999

where

9 = numeric
2 = 2
S = S

Package ID

- o This is the identifying number for the compactible or non-compactible solid waste package which is packed into the waste drum.
- o It is automatically input by the HCU or WS.
- o It is the secondary key for the Compactible or Non-Compactible Solid Waste Inventory (C-N/C SWI) record and therefore is required.
- o There shall be one to many Package IDs for each C-N/C SWI data record.
- o It is a four character data field of the form:

9999

where

9 = numeric

Package Volume

- o This is the volume of the waste package which is packed into the drum.
- o It is input by the HCU or WS user.
- o It is a required data item.
- o There is only one Package Volume for each C-N/C SWI data record.
- o It is a seven character data field of the form:

9999.99

where

9 = numeric

- o Unit of measure is liters.

Package Weight

- o This is the weight of the waste package which is packed into the drum.
- o It is input by the HCU or WS user.
- o This data item value shall be greater than zero.
- o It is a required data item.
- o There is only one Package Weight for each C-N/C SWI data record.
- o It is a seven character data field of the form:

9999.99

where

9 = numeric

- o Unit of measure is Kg.

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Paper %

- o This is the percentage by volume of the waste package which is paper.
- o It is input by the HCU or WS user.
- o It is a required data item.
- o This data item value shall be greater than or equal to zero.
- o There is only one Paper % for each C-N/C SWI data record.
- o It is a three character data field of the form:

999

where

9 = numeric

- o This data item has a default value of zero

Rubber %

- o This is the percentage by volume of the waste package which is rubber.
- o It is input by the HCU or WS user.
- o This data item value shall be greater than or equal to zero.
- o It is a required data item.
- o There is only one Rubber % for each C-N/C SWI data record.
- o It is a three character data field of the form:

999

where

9 = numeric

- o This data item has a default value of zero

Plastic %

- o This is the percentage by volume of the waste package which is plastic.
- o It is input by the HCU or WS user.
- o This data item value shall be greater than or equal to zero.
- o It is a required data item.
- o There is only one Plastic % for each C-N/C SWI data record.
- o It is a three character data field of the form:

999

where

9 = numeric

- o This data item has a default value of zero

Cloth %

- o This is the percentage by volume of the waste package which is cloth.
- o It is input by the HCU or WS user.
- o This data item value shall be greater than or equal to zero.
- o It is a required data item.
- o There is only one Cloth % for each C-N/C SWI data record.
- o It is a three character data field of the form:

999

where

9 = numeric

- o This data item has a default value of zero

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Metal %

- o This is the percentage by volume of the waste package which is metal.
- o It is input by the HCU or WS user.
- o This data item value shall be greater than or equal to zero.
- o It is a required data item.
- o There is only one Metal % for each C-N/C SWI data record.
- o It is a three character data field of the form:

999

where

9 = numeric

- o This data item has a default value of zero.

Miscellaneous %

- o This is the percentage by volume of the waste package which is miscellaneous.
- o It is input by the HCU or WS user.
- o This data item value shall be greater than or equal to zero.
- o It is a required data item.
- o There is zero or one Miscellaneous % for each C-N/C SWI data record.
- o It is a three character data field of the form:

999

where

9 = numeric

- o This data item has a default value of zero.

Miscellaneous Description

- o This is the description of the waste package which is not comprised of paper, rubber, plastic, cloth, glass, or metal.
- o It is input by the HCU or WS user.
- o It is an optional data item, but is required if a Miscellaneous % data item is greater than zero.
- o There is zero or one Miscellaneous Description for each C-N/C-SWI data record.
- o It is a 20 character data field of the form:

AAAAAAAAAAAAAAAAAAAA

where

A = alphanumeric

Miscellaneous Density

- o This is the density of the waste package which is not comprised of paper, rubber, plastic, cloth, glass, or metal.
- o It is input by the HCU or WS user.
- o This data item value shall be greater than zero.
- o It is an optional data item, but is required if a Miscellaneous % data item is greater than zero.
- o There is zero or one Miscellaneous Density for each waste package data record.
- o It is a five character data field of the form:
99.99
where
9 = numeric
- o Unit of measure is Kg/quart.

3.6.1.12 Liner Type Data

The following is a listing of data items specific to a drum liner. The relationships between a liner type data record and other WICS data records are shown in Figures 10 and 11.

Liner Type Code

- o This is the type of waste drum liner.
- o It is input by the WS user.
- o This is the identifying data item for the liner type data record and therefore is required.
- o There is one of this data item for each liner type data record.
- o It is a two character data field of the form:
99
where
9 = numeric

Liner Weight

- o This is the weight of the waste drum liner.
- o It is input by the WS user.
- o This is a required data item.
- o This data item value shall be greater than zero.
- o There is one of this data item for each liner type data record.
- o It is a five character data field of the form:
99.99
where
9 = numeric
- o Unit of measure is Kg.

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Liner Thickness

- o This is the thickness of the waste drum liner.
- o It is input by the WS user.
- o This is a required data item.
- o This data item value shall be greater than zero.
- o There is one of this data item for each liner type data record.
- o It is a two character data field of the form:

99

where

9 = numeric

- o Unit of measure is millimeters (mm).

Liner Volume

- o This is the volume of material which comprises the waste drum liner.
- o It is input by the WS user.
- o This is a required data item.
- o This data item value shall be greater than zero.
- o There is one of this data item for each liner type data record.
- o It is a five character data field of the form:

99.99

where

9 = numeric

- o Unit of measure is liters.

Liner Description

- o This is the description of the waste drum liner.
- o It is input by the WS user.
- o This is a required data item.
- o There is one of this data item for each liner type data record.
- o It is a 20 character data field of the form:

AAAAAAAAAAAAAAAAAAAA

where

A = alphanumeric

3.6.1.13 Absorbent Type Data

The following is a listing of data items specific to an absorbent used when waste is packed in a drum. The relationships between an absorbent type data record and other WICS data records are shown in Figures 10 and 11.

Absorbent Type Code

- o This is the type of the absorbent placed into the waste drum.
- o It is input by the WS user.
- o This is the identifying data item for the absorbent type data record and therefore is required.
- o There is one of this data item for each absorbent type data record.
- o It is a two character data field of the form:

99

where

9 = numeric

Absorbent Density

- o This is the mass density of the absorbent.
- o It is input by the WS user.
- o This data item value shall be greater than zero.
- o This is a required data item.
- o There is one of this data item for each absorbent type data record.
- o It is a five character data field of the form:

99.99

where

9 = numeric

- o Unit of measure is Kg/liter.

Absorbent Description

- o This is the description of the waste drum absorbent.
- o It is input by the WS user.
- o This is a required data item.
- o There is one of this data item for each absorbent type data record.
- o It is a 20 character data field of the form:

AAAAAAAAAAAAAAAAAAAA

where

A = alphanumeric

3.6.1.14 Packing Pad Type Data

The following is a listing of data items specific to a packing pad. Packing pads are sometimes used to pack waste into a drum. The relationships between a packing pad type data record and other WICS data records are shown in Figures 10 and 11.

Packing Pad Type Code

- o This is the type of the packing pad placed into the waste drum.
- o It is input by the WS user.
- o This is the identifying data item for the packing pad type data record and therefore is required.
- o There is one of this data item for each data record.
- o It is a two character data field of the form:

99

where

9 = numeric

Pad Weight

- o This is the weight of the packing pad.
- o It is input by the WS user.
- o This is a required data item.
- o This data item value shall be greater than zero.
- o There is one of this data item for each packing pad type data record.
- o It is a five character data field of the form:

99.99

where

9 = numeric

- o Unit of measure is Kg.

Pad Volume

- o This is the volume of material which comprises the packing pad.
- o It is input by the WS user.
- o This is a required data item.
- o This data item value shall be greater than zero.
- o There is one of this data item for each packing pad type data record.
- o It is a five character data field of the form:

99.99

where

9 = numeric

- o Unit of measure is liters.

Pad Description

- o This is the description of the packing pad.
- o It is input by the WS user.
- o This is a required data item.
- o There is one of this data item for each packing pad type data record.
- o It is a 20 character data field of the form:

AAAAAAAAAAAAAAAAAAAA

where

A = alphanumeric

3.6.1.15 Location Data

The following is a listing of data items specific to a location. The relationships between a mixed waste data record and other WICS data records are shown in Figures 8 through 11.

Location Code

- o This is the identification code for the storage location of a waste container or a packaging location of a waste drum. The code is unique to the location and is used as a shorthand key for data identification.
- o The location code is input by the WS user.
- o This is the identifying data item for the location data record and is therefore required input.
- o There shall be only one Location Code for each location record.
- o This data item is a required entry that must be in the assigned range.
- o The location code is encoded (Code 39) on the barcode label in the field.
- o This code is used in place of the location name in the printed reports.
- o This is a 5 character field.
- o A unique location code is assigned to a distinct location. It is of the form:

A9999

where

A = Alpha (upper case only)
9 = Numeric

Level 1

- o This is the description of the first level of a location.
- o It is input by the WS user.
- o This data item is a required entry.
- o There shall be only one Level 1 for each location record.
- o This field is displayed to the user on the screen.
- o This is a 10 character field of the form:

AAAAAAAAAA

where

A = alphanumeric

Level 2

- o This is the description of the second level of a location.
- o It is input by the WS user.
- o This data item is an optional entry.
- o There shall be only one Level 2 for each location record.
- o This field is displayed to the user on the screen.
- o This is a 10 character field of the form:

AAAAAAAAAA

where

A = alphanumeric

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Level 3

- o This is the description of the third level of a location.
- o It is input by the WS user.
- o This data item is an optional entry.
- o There shall be only one Level 3 for each location record.
- o This field is displayed to the user on the screen.
- o This is a 10 character field. It is of the form:

AAAAAAAAAA

where

A = alphanumeric

Level 4

- o This is the description of the fourth level of a location.
- o It is input by the WS user.
- o This data item is an optional entry.
- o There shall be only one Level 4 for each location record.
- o This field is displayed to the user on the screen.
- o This is a 10 character field of the form:

AAAAAAAAAA

where

A = alphanumeric

3.6.1.16 Chemical Component Data

The following is a listing of data items specific to the chemical components which form a waste stream. This data record is master data.

Waste Component Code

- o This data item identifies the chemical component record for a Waste Stream Code.
- o It is input by the WS user.
- o It is required output.
- o There is only one for each data record.
- o It is a 3 character field of the form:

999

Where

9 = numeric

Waste Stream Code

- o This data item is the identifying number for the waste stream contained within a waste container.
- o It is input by the WS user.
- o This is a required input.
- o There is one of this data item for each data record.
- o It is a 50 character field of the form:

AAAAAA.....

where

A = alphanumeric

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Chemical Component

- o This data item identifies the chemical components of the mixed waste.
- o It is input by the WS user.
- o It is a required entry.
- o There shall be zero to many of these data items for each mixed waste stream data record.
- o It is a 20 character field of the form:

AAAAAAAAAAAAAAAAAAAA

where

A = alphanumeric

Chemical Composition Percentage

- o This data item is the percentage by weight of each chemical component of the mixed waste stream.
- o It is input by the WS user.
- o It is a required entry.
- o There shall be one of these data items corresponding each Chemical Component data item (see above).
- o It is a three character field of the form:

999

where

9 = numeric

MSDS Number

- o This data item identifies the Material Safety Data Sheet number associated with the chemical components of the mixed waste.
- o It is input by the WS user.
- o It is an optional entry.
- o There shall be zero to many of these data items for each Chemical Component data record.
- o It is a five character field of the form:

99999

where

9 = numeric

3.6.1.17 Waste Package Component Density Data

The following is a listing of data items specific to the density of the materials which make up waste packages which are packed into a waste drum. This data record is master data.

Paper Density

- o This is the density of the portion of a waste package which is comprised of paper.
- o It is input by the WS user.
- o This data item value shall be greater than zero.
- o It is a required data item.
- o There is only one Paper Density for each Waste Package Component Density data record.

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- o It is a five character data field of the form:
99.99
where
9 = numeric
- o Unit of measure is Kg/liter.

Rubber Density

- o This is the density of the portion of a waste package which is comprised of rubber.
- o It is input by the WS user.
- o This data item value shall be greater than zero.
- o It is a required data item.
- o There is only one Rubber Density for each Waste Package Component Density data record.
- o It is a five character data field of the form:
99.99
where
9 = numeric
- o Unit of measure is Kg/liter.

Plastic Density

- o This is the density of the portion of a waste package which is comprised of plastic.
- o It is input by the WS user.
- o This data item value shall be greater than zero.
- o It is a required data item.
- o There is only one Plastic Density for each Waste Package Component Density data record.
- o It is a five character data field of the form:
99.99
where
9 = numeric
- o Unit of measure is Kg/liter.

Cloth Density

- o This is the density of the portion of a waste package which is comprised of cloth.
- o It is input by the WS user.
- o This data item value shall be greater than zero.
- o It is a required data item.
- o There is only one Cloth Density for each Waste Package Component Density data record.
- o It is a five character data field of the form:
99.99
where
9 = numeric
- o Unit of measure is Kg/liter.

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Glass Density

- o This is the density of the portion of a waste package which is comprised of glass.
- o It is input by the WS user.
- o This data item value shall be greater than zero.
- o It is a required data item.
- o There is only one Glass Density for each Waste Package Component Density data record.
- o It is a five character data field of the form:
99.99
where
9 = numeric
- o Unit of measure is Kg/liter.

Metal Density

- o This is the density of the portion of a waste package which is comprised of metal.
- o It is input by the WS user.
- o This data item value shall be greater than zero.
- o It is a required data item.
- o There is only one Metal Density for each Waste Package Component Density data record.
- o It is a five character data field of the form:
99.99
where
9 = numeric
- o Unit of measure is Kg/liter.

3.6.1.18 Waste Type Data

The following is a listing of data items specific to the waste type for waste packed into a waste drum. This data record is master data.

Waste Type

- o This data item describes the type of waste which is packed into the drum.
- o It is input by the WS user.
- o This is the identifying data item for the Waste Type data record and therefore is a required input.
- o There shall be only one Waste Type for each waste type record.
- o It is a two character field of the form:
AA
where
A = alpha (upper case only)

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- o List of initial values at this time:
 - AH = Hazardous, Admin Hold
 - CM = Moratorium Controlled
 - H = Hazardous
 - HP = Hazardous Waste PCB
 - M = Mixed
 - MP = Mixed PCB
 - N = Non-regulated
 - P = PCB
 - R = Radioactive
 - RP = Radioactive PCB
 - U = Unknown

Waste Type Description

- o This data item describes the waste type data item.
- o It is input by the WS user.
- o It is a required data field.
- o There shall be only one of these data items for each Waste Type data record.
- o It is a twenty character field of the form:

AAAAAAAAAAAAAAAAAAAA

where

A = alpha

- o List of initial values at this time:
 - Hazardous, Admin Hold
 - Moratorium Controlled
 - Hazardous
 - Hazardous Waste PCB
 - Mixed
 - Mixed PCB
 - Non-regulated
 - PCB
 - Radioactive
 - Radioactive PCB
 - Unknown

3.6.1.19 Hazard Class Data

The following is a listing of data items specific to the hazard class of a waste stream. This data record is master data.

Hazard Class

- o This data item describes the hazards of the mixed waste stream.
- o It is input by the WS user.
- o It is the identifying data field for the Hazard Class data record and is therefore required.
- o There shall be only one of these data items for each Hazard Class data record.

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- o It is a four character field of the form:

AAAA

where

- o List of initial values at this time:
 - A = alpha
 - C = Corrosive
 - I = Ignitable
 - R = Reactive
 - T = Toxic
 - E = Explosive
 - P = Pervistent
 - C = Carcinogenic
 - Ox = Oxidizer
 - TCLP = Toxic Characteristic Leaching Procedure

Hazard Class Description

- o This data item describes the hazard class data item.
- o It is input by the WS user.
- o It is a required data field.
- o There shall be only one of these data items for each Hazard Class data record.
- o It is a forty character field of the form:

AAAA.....

where

- o List of initial values at this time:
 - A = alpha
 - Corrosive
 - Ignitable
 - Reactive
 - Toxic
 - Explosive
 - Pervistent
 - Carcinogenic
 - Oxidizer
 - Toxic Characteristic Leaching Procedure

3.6.1.20 Waste Status Data

The following is a listing of data items specific to the waste status of a waste stream. This data record is master data.

Waste Status

- o This data item describes the waste status of the mixed waste stream.
- o It is input by the WS user.
- o It is the identifying data item for the Waste Status data record and therefore is required.
- o There shall be only one of these data items for each mixed Waste Status data record.

- o It is a two character field of the form:

AA

where

A = alpha

- o List of initial values at this time:

Rx = Reacted

T = Treated

U = Used

S = Spill Material

O = Old

N = New (or expired)

Waste Status Description

- o This data item describes the waste status data item.
- o It is input by the WS user.
- o It is a required data field.
- o There shall be only one of these data items for each Waste Status data record.
- o It is a twenty character field of the form:

AAAAAAAAAAAAAAAAAAAA

where

A = alpha

- o List of initial values at this time:

Reacted

Treated

Used

Spill Material

Old

New (or expired)

3.6.1.21 Special Analysis Type Data

The following is a listing of data items specific to the special analysis type of a waste sample. This data record is master data.

Analysis Type

- o This data item is the special laboratory analysis that is requested for a given waste sample.
- o It is input by the WS user.
- o It is the identifying data item for the Special Analysis Type data record and therefore is required.
- o There shall only one analysis type data item for each Special Analysis Type data record.
- o It is an eight character field of the form:

AAAAAAA

where

A = alpha

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- o List of initial values at this time:

VISUAL
GEA
AT-ORG
AT-SOLID
TOC
PH
TOT-ACT

Analysis Type Description

- o This data item describes the analysis type data item.
- o It is input by the WS user.
- o It is a required data field.
- o There shall be only one of these data items for each Special Analysis Type data record.
- o It is a twenty character field of the form:
AAAAAAAAAAAAAAAAAAAAA
where
A = alpha

3.6.1.22 Container Status Data

The following is a listing of data items specific to the container status of a waste container. This data record is master data.

Container Status

- o The container status describes how full a waste container is with waste, i.e., full, partially full, etc.
- o It is input by the WS user.
- o It is the identifying data item for the Container Status data record and therefore is required.
- o There shall be only one container status for each Container Status data record.
- o It is a two character field of the form:
AA
where
A = Alpha (upper case only)
- o List of initial values at this time:
F = Full
PF = Partially Full
MT = Empty
TR = Triple Rinsed

Container Status Description

- o This data item describes the container status data item.
- o It is input by the WS user.
- o It is a required data field.
- o There shall be only one of these data items for each Container Status data record.

- o It is a twenty character field of the form:

AAAAAAAAAAAAAAAAAAAA

where

A = alpha

- o List of initial values at this time:

Full

Partially Full

Empty

Triple Rinsed

3.6.1.23 WICS Log-On Data

A list of employee IDs and passwords for users that have access to WICS will be maintained on the WS. The information in this list shall be updated (information added, deleted, or modified) periodically by the users. This list is used to determine if a person logging in is a valid WICS user for the WS and the HCU and what operations the user can perform. Access to this employee ID, password, and privilege data requires the "SYSADMIN" privilege. The information to be maintained in this list consists of:

Employee ID

- o This is the employee ID of the individual who has access to the system.
- o This is required for logging onto the HCU and WS.
- o This is a 5 character field. It is of the format:

AAAAA

where

A = alphanumeric

Password

- o This is the password related to the employee ID.
- o This is required for any employee ID logging on.
- o It is input by the HCU or WS user.
- o This is an 6 character field. It is of the format:

AAAAAA

where

A = alphanumeric (upper case only)

Privilege

- o This is the privilege allowed to this employee ID.
- o This is an 8 character field. It is of the format:

AAAAAAAA

where

AAAAAAAA =

READONLY

User can only perform the functions associated with WS menu options:
Generate Reports,
View and Print Container, Drum, and Master data, (except. user data)

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GENERAL	READONLY plus User can perform the functions associated with all HCU menu options and the following WS menu options: Add or modify container data, Add or modify drum data, Send or Receive HCU data
LIMITED	GENERAL plus User can perform the functions associated with WS menu options: Delete container and drum data, Modify or delete Master Data (except the user data)
SYSADMIN	LIMITED plus User can perform the functions associated with WS menu options: Modify or delete Master User data,

3.6.2 Operations

The system will normally be installed on a HLAN file server. An authorized user will access the system through the HLAN using a PC with the minimum configuration specifications listed in Section 3.2.2.2. HCU users will access HCUs which will be located in the 222-S laboratory.

WICS shall be capable of operating, with limited functionality, as a stand alone system, in cases of extended HLAN outage. The master data files and the existing waste container and waste drum data files will be on the HLAN file server and will be unavailable to the stand alone user. Limited WICS functionality will include all the HCU functions to collect and transfer data to the WS. WS functionality will be limited to accepting HCU collected data and printing reports with the data collected since the HLAN went down.

Start-up is initiated by an initialization procedure that provides an initialization banner which displays the application name and current version number. Next the user is asked to provide a user ID and a password. This attributes are validated against a maintained authorized list. If the user ID and password are valid the system will retrieve the corresponding privilege level attribute and allow the user into the system with the access privilege indicated.

Shutdown is provided through an exit function.

Data backup is provided by the HLAN nightly backup procedures.

3.6.3 Site Adaptation

WICS will be designed and built for compatible installation on the HLAN environment. No special or unusual circumstances are anticipated if hardware and software platform requirements are met on each computer accessing WICS.

3.6.4 Options

There are no alternative proposals as options to WICS as described in this document.

3.6.5 Scheduling

WICS will be available to the same extent that HLAN is available.

3.6.6 Reliability and Recovery

WICS reliability will be managed through adherence to standard Verification & Validation practices and change control.

Error detection will be performed for certain user inputs, as discussed in Section 3.1. Inputs will be checked for validity and if are found to be invalid, an error message will be displayed to the user. Appropriate error messages and recovery logic will be defined during system design. As in the previously WHC developed communication package, error detection will also be performed for communications between the HCU and the WS.

Data recovery will be dependent on HLAN nightly backup procedures. System design shall allow limited WICS functionality on stand alone installations on individual computers to respond to an extended network outage situation.

3.6.7 Audit

Initial input of some data will be flagged with user ID and date. This data is described in Section 3.6.1. Changes to data will not be traceable to user ID and date, only initial input.

3.6.8 Priorities

There are no preceding systems developed or succeeding systems to be developed that require setting priorities with respect to WICS.

3.6.9 Transferability

WICS may be applicable to other Hanford site facilities or to other DOE sites. Transferability will be conditional on the potential site having a compatible operating environment. The system design will avoid as much as possible the incorporation of installation-specific characteristics in software code, but some modifications may be required to adapt WICS to a new location.

3.6.10 Conversion

No existing data or software conversions are required.

3.6.11 Testing and Acceptance Criteria

The testing required for verification and validation of the WICS software includes both an Acceptance Test and an Operability Test. The document WHC-SD-WM-TS-005, "Test Specifications for the Waste Information and Control System" contains acceptance criteria for each test case specified. The test cases and their acceptance criteria are based upon the functional and data requirements specified in this requirements document.

3.6.11.1 Verification and Validation for WICS Software Acceptance

The primary method of verification of the constructed and integrated product to the design, and validation of its performance to requirements, shall be through an Acceptance Test. An Acceptance Test Procedure (ATP) shall be written that both verifies that the integrated hardware/software product meets the design, and validates the product against the requirements. The ATP shall be written by the developers, but shall be critically reviewed by users and an independent test person(s). Reviewers shall be chosen by the Cognizant Project Engineering Manager (with input from the customer's representative and Project Cognizant Engineer) for their independence and technical expertise. Formal comments shall be solicited and resolved on Review Comment Record (RCR) (form A-6400-090.1, WEF011). Reviewers shall evaluate the test procedure to ensure it provides:

- o validation of the product performance to the requirements
- o verification of the product to the approved design
- o verification of the calculations
- o correctness, consistency, completeness, accuracy and readability.

Once an approved ATP has been provided, the test shall be performed. Record of the performance shall be provided in an Acceptance Test Report (ATR). The acceptance test performers, plus management shall review and analyze the test results to ensure the product satisfies the objectives, and approve the ATR.

3.6.11.2 Validation for Operational Readiness

The primary method of validation for operational readiness shall be through an Operability Test. An Operability Test Procedure (OTP) shall be written that validates the product's readiness for operational use. The OTP shall be written by the developers and operations people, and shall be critically reviewed by users and an independent test person(s) as outlined in the Work Plan, WHC-SD-WM-WP-269. Reviewers shall be chosen by the Cognizant Manager (with input from the System and Project Cognizant Engineers) for their independence and technical expertise. Formal comments shall be solicited and resolved on RCR (form A-6400-090.1, WEF011).

Once an approved OTP has been provided, the test shall be performed. Record of the performance shall be provided in an Operability Test Report (OTR). The operational test performers, plus management shall review and approve the OTR.

3.6.12 Documentation

WICS documentation will be developed in accordance with WHC-CM-3-10, Software Practices, which fulfills ANSI/IEEE software engineering standards.

3.6.12.1 Quality Assurance and Safety Considerations

This system involves the acquisition, and transmission of quality record information on hazardous waste found at the 222-S HAS facility. The information is historical and legal primary data used for regulatory compliance. The system does not provide real time annunciation of health hazards, and its failure would not preclude existing safety class systems. Based on the described use of the system and WHC-CM-1-3, Management Requirements and Procedures, MRP 5.46, "Safety Classification of Systems, Components and Structures," this system shall be developed as a Non safety Class 4.

Based on the described use of the system, documentation which would affect or define safety, environmental or quality assurance requirements associated with the specification, design, procurement, installation, inspection, testing, operating, maintaining or repairing shall be Approval Designator Q.

All other documentation (e.g., status reports) that have no effect and do not define safety, environmental, or quality assurance requirements associated with the project shall be Approval Designator NA.

Anticipated computer/barcode reader, language compiler/interpreter, database language, and computer operating system(s) are commercial off-the-shelf software provided by the manufacturers. Proper operation of the language(s) and operating system shall be validated as components of the complete system using test data. The risk of a significant undetected failure (either in complete system testing or normal operation) or error propagation by the language(s) interpreter/compiler or operating system software is very low. This exclusion does not extend to in-house or custom developed software, including configuration instructions or other application implementations. Therefore, the procurement documentation of the language(s) and operating system, and any future procured updates shall be Approval Designator NA.

The computers are anticipated to be personal computers, both file servers and workstations, either existing or procured. The handheld computers with integrated barcode reading equipment shall be procured as off-the-shelf equipment from commercial equipment vendors. Proper operation of the equipment shall be validated as components of the complete system using test data. The risk of a significant undetected failure (either in complete system testing or normal operation) or error propagation by the commercial off-the-shelf equipment is very low. This exclusion does not extend to in-house or custom developed equipment. Therefore, the procurement, and any future procured updates or replacements shall be Approval Designator Q.

The Safety Classes and Approval Designators addressed herein have been assessed using WHC-CM-1-3, Management Requirements and Procedures, MRP 5.46, "Safety Classification of Systems, Components and Structures", and WHC-CM-3-5, Document Control and Records Management Manual, section 12.7, "Approval of Environmental, Safety, and Quality Affecting Documents", respectively.

3.6.13 Training

All users will receive orientation and initial training on the use of WICS and its supporting software.

3.6.14 Security and Privacy

In order to maintain security into WICS, the user shall have a valid user ID and password to log-on to both the WS and HCU. Users shall also be assigned a privilege which shall allow access only to the specific functions which correspond to the assigned privilege level. As discussed in Section 2.3, User Characteristics, users will be assigned one of four privilege attributes.

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4.0 REFERENCES

1. DOE Order 1360.2, "Computer Security Program For Unclassified Computer Systems".
2. WHC-CM-1-3, Management Requirements and Procedures.
MRP 5.46, Rev. 4, "Safety Classification of Systems, Components, and Structures," August 28, 1991.
3. WHC-CM-3-5, Document Control and Records Management Manual.
Section 12.7, Rev. 0, "Approval of Environmental, Safety, and Quality Affecting Documents", February 1, 1994.
4. WHC-CM-3-10, Software Practices.
SP-6.1, Rev. 0, "Document Control," January 31, 1993.
SP-6.2, Rev. 0, "Software Control," January 31, 1993.
SP-6.3, Rev. 0, "Change Request and Problem Report," January 31, 1993.
5. WHC-CM-4-2, Quality Assurance Manual.
QR-3.0, Rev. 5, "Design Control," September 30, 1994.
QR-19.0, Rev. 1, "Software Quality Assurance Requirements," September 30, 1994.
6. WHC-CM-6-1, Standard Engineering Practices.
EP-2.2, Rev. 7, "Engineering Document Change Control", May 27, 1994.
EP-4.1, Rev. 5, "Design Verification Requirements", May 27, 1994.
EP-5.2, Rev. 3, "Cognizant Engineer Responsibilities", February 7, 1992.
7. WHC-SD-WM-WP-269, Work Plan for Waste Information and Control System,
Rev. 0, R.R. Harris, April 12, 1994.