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August 9, 2001

Mr. Kerry Watson, Assistant Manager
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COPY

SUBJECT: TRANSMITTAL OF THE DRAFT *WIPP WASTE INFORMATION SYSTEM USERS MANUAL FOR USE BY SHIPPERS/GENERATORS, DOE/CAO 97-2273, REVISION 4*

Dear Mr. Watson:

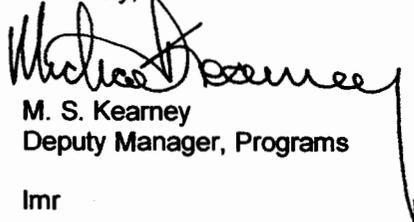
Attached for CBFO review is a draft of the *WIPP Waste Information System Users Manual for Use by Shippers/Generators, DOE/CAO 97-2273, Revision 4*, which incorporates changes recently made to the WIPP Waste Information System (WWIS). An electronic version of this draft document can be accessed on the Quality Management & Information System (Q&MIS) under CAO/WIPP Documents.

The major changes to this document include: (1) Revision of all WWIS screen views; (2) addition of a new quality assurance section; and (3) new forms used for the purpose of proposing design changes to the database and for data change. All other changes implemented in the revision to this document are minor editorial changes.

Also attached is the DOE/CBFO Review and Approval Matrix, which requires your signature prior to implementation of document review within the CBFO organization in accordance with DOE/CBFO Management Procedure MP 4.2. Document Review Record forms have been prepared for the reviewers.

Please contact me at (505) 234-7693 or Dave Speed at (505) 234-7490, if you have any questions.

Sincerely,


M. S. Kearney
Deputy Manager, Programs

lmr

Attachments

cc: DOE/CBFO Mailroom with attachments
J. D. VandeKraats without attachments



| UNIQUE # | DOE UFC | DATE REC'VD | ADDRESSEES |
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| 0103632 | 5822.00 | AUG 10 2001 | K. Watson J. D. VandeKraats |

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Mr. K. Watson

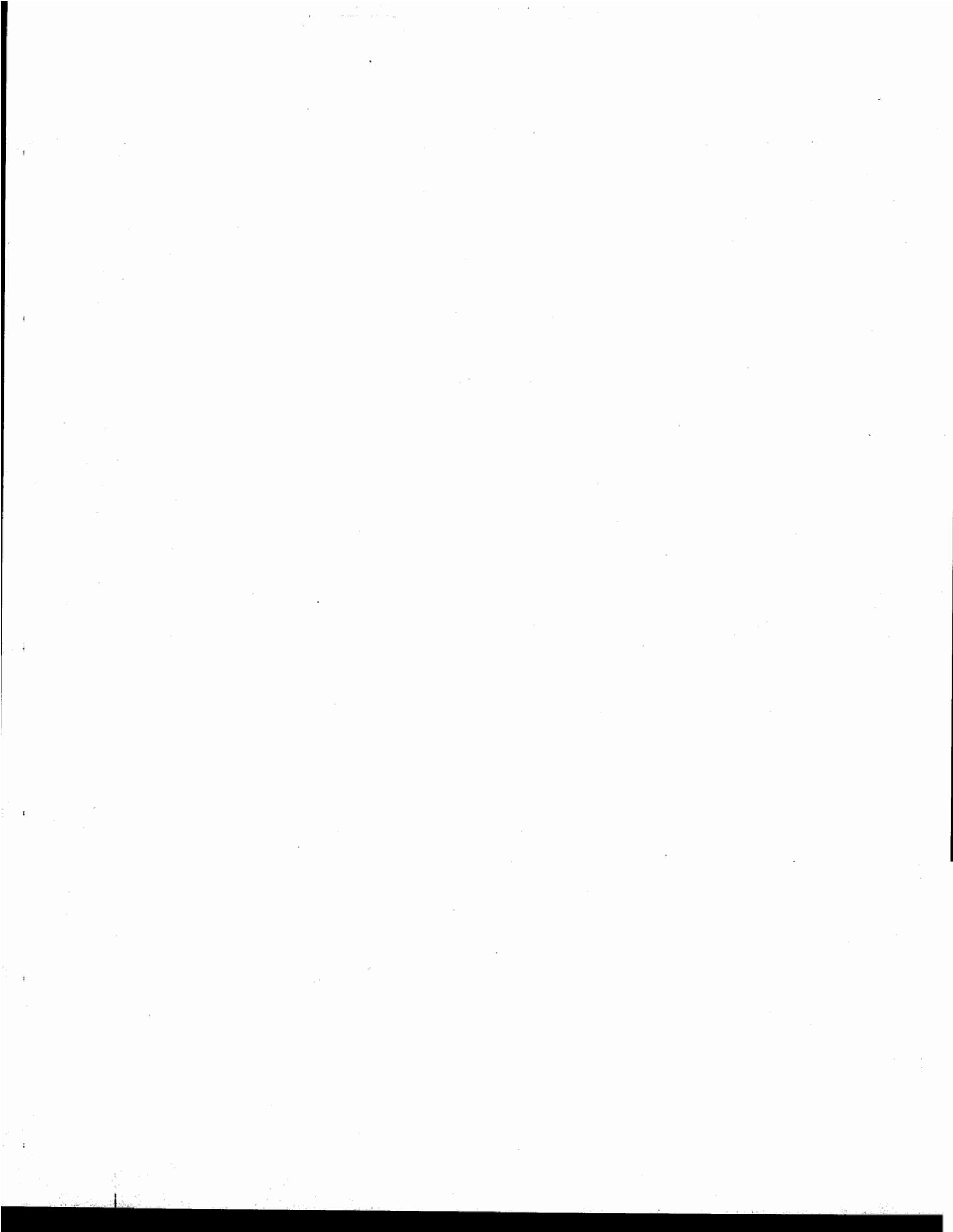
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**WIPP Waste Information System
User's Manual for Use by
Shippers/Generators**

WWIS Version 4.8



Original Signature on file



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1.0 INTRODUCTION

The WIPP Waste Information System (WWIS) database is a computerized data management system used by WIPP to gather, store, and process information pertaining to TRU waste destined for or disposed of at WIPP. The WWIS supports those organizations who have responsibility for managing TRU waste by collecting information into one source and ensuring that waste container data is complete and in a uniform format so it can be easily evaluated.

The WWIS is specified and required by Environmental Protection Agency (EPA) Compliance Certification for the Waste Isolation Pilot Plant (Title 40, *Code of Federal Regulations* [CFR], Subparts 191/194); the Hazardous Waste Facility Permit (HWFP); and the Waste Acceptance Criteria (DOE/WIPP-069). Data received by WIPP for waste acceptance purposes is used to determine compliance with the Permit and EPA Compliance Certification requirements. The data management, review, and approval processes are critical to ensure WIPP's regulatory compliance.

The WWIS is an on-line database system used to:

- Record waste container characterization and certification data supplied by transuranic (TRU) waste shipper/generator/certifier site (as required by the WIPP Waste Acceptance Criteria (WAC) and the Permit) for acceptance for disposal at WIPP.
- Produce reports that provide waste container characterization data for use in review of Waste Stream Profile Forms (WSPF).
- Provide computerized edit and limit checks regarding WIPP acceptance of container characterization and certification data supplied by the shipper/generator/certifier sites.
- Communicate via e-mail, the approval/rejection status of characterization and certification data and the approval/rejection status of proposed shipments to the shipper/generator/certifier sites.
- Record shipment configuration details from the shipper/generator/certifier for containers that have received WIPP approval.
- Provide a hold and approval point for the WIPP Data Administrators (DAs) to approve or reject any proposed shipment.
- Provide a Shipment Summary Report used by WIPP transportation engineers (TEs) and Waste Handling (WH) personnel to verify each incoming shipment against the information listed on the Hazardous Waste Manifest of Bill of Lading and to verify that the waste containers received are those preapproved for shipment and disposal.

- Record the disposal location of the containers when they are placed in the underground Hazardous Waste Disposal Units.
- Automatically record any deletions of WWIS data, record changes made to the Administrative Tables, and provide a Change Log Report when requested.
- Provide required reports, which are entered into the facility operating record and maintained in accordance with Records Inventory and Disposition Schedule (RIDS).

The above functions require interaction between several WIPP organizations, shipper/generator sites, and others, such as internal and external review/oversight groups. This manual provides the information needed by TRU waste shippers/generators to perform tasks associated with transmittal of waste container characterization, certification, and shipment information to WIPP. WIPP will not accept any waste container shipments for disposal if the waste container information has not been correctly submitted to the WWIS and approved for shipment by a WWIS DA.

Waste container information received by the WWIS is subject to both electronic edit/limit checks and manual inspection by WIPP personnel to ensure that the data representing the waste containers are in compliance with the WIPP WAC and the Permit. WIPP personnel make entries to the WWIS after waste containers are received at WIPP to record information concerning the shipment arrival and the disposal location of each container.

The WWIS is a client/server application. The client application runs on personal computers using Windows 95 or Windows NT, and the database runs on a UNIX® server. The client software is served by an application server to facilitate dissemination and configuration control of client software. The WWIS application has been developed using the Oracle Procedure Language/Structured Query Language (PL/SQL), Oracle Designer/2000, and Developer/2000 tool sets which utilize the Computer-Aided Software Engineering (CASE) methodology in design and implementation of the application. The WWIS uses the traditional Windows user interface, so operation will be largely familiar to experienced computer users. The program is designed so that each shipper/generator/certifier site has read/write access to only the container and shipping data applicable to that site. The program has a standard menu bar interface with pull-down menus.

1.1 User Characteristics



WWIS users come from a technically diverse population. Many different types of users interact with the WWIS during the operation and maintenance phase of the software life cycle. Users vary in technical expertise, educational levels, and experience. Users are, however, knowledgeable in the business activities of waste management and use computer systems to perform their job functions. Categories of WWIS users are detailed below. These categories are not mutually exclusive.

Shipper/Generator/Certifier - Originates and transfers waste container data to WIPP through the WWIS.

WIPP Operations - Uses the system for inventory purposes.

Remote Site Query Only - Use the WWIS for data queries.

DA - Manages the WWIS, including input of information to the Administrative Tables and approval of shipper/generator site waste data input; approves waste container and shipment data from shipper/generator.

Database Administrator (DBA) - Provides system maintenance, backup, and recovery.

Information Systems Security Manager - Provides WWIS security supervision.

System Administrator - Maintains the WWIS server, operating system, and access to the WIPPNET.

Read Only Users - Access the WWIS for information about waste containers and shipments.

WIPP Query - Provides access to information about waste containers and shipments.

Some users may need basic system indoctrination to operate the WWIS properly. The WWIS Cognizant Engineer (CE), DBA, and DA will be available to assist users who do not have the necessary tools or expertise to properly utilize the system or obtain data/reports for special requests.

2.0 WWIS PROGRAM DESIGN

All shipper/generator/certifier sites planning to ship TRU mixed waste to WIPP must supply the required data to the WWIS. The WWIS DAs use the WWIS to verify that the supplied data meet the edit and limit checks prior to the shipment of any TRU mixed waste to WIPP. By definition, all data entered into the WWIS has undergone the appropriate Quality Assurance (QA) checks by designated site personnel prior to submittal for approval at WIPP. If any of the supplied data fails to meet the requirements of the edit and limit checks, the WWIS automatically notifies the individual who supplied the data via an appropriate error message. The shipper/generator/certifier site is required to correct the discrepancy with the waste or the waste data and re-transmit the corrected data. A DA reviews data reported for each container of each shipment prior to providing notification to the shipping shipper/generator/certifier site that the shipment is acceptable.

The WWIS Data Change Log requires a reason for the change from the DA prior to accepting the change. The data change information, the user ID of the authorized DA making the change, and the date of the change will be recorded in the data change log

automatically. The data change log is subject to internal and external audits and provides an auditable trail for all changes made to previously approved data.

2.1 Modular Design

The WWIS is designed with various modules to provide the data control required for container acceptance, shipping, and disposal processes. These modules are represented as pull-down menus on the program menu bar. Some program features are related only to WIPP functions and shipper/generators are not allowed access to some of these modules and menu features. Modules that are used by shipper/generator/certifiers are titled:

- Admin
- Characterization
- Certification
- Shipping
- Query



As the container data progresses through the data input and approval stages, the WIPP DA will enter characterization module data approvals, waste stream profile approvals, certification module data approvals, shipping module data approvals, etc., into the database effectively moving the data from module to module. The major features of these modules are described in the following sections.

2.1.1 Administration Module

The Administration (Admin) module allows the user to preview reference data reports on screen or to print them to be used as the comparison data set for edit/limit checks. All data submitted to the WWIS, whether manually or electronically, that is subject to edit/limit checks, will not be accepted by the WWIS unless a corresponding entry is found in the applicable reference data table that exactly matches the data submitted. Prior to entering data into the certification module, the administrative reference tables must be updated by the DA. The user shall notify a DA when changes are required. Typically, the following tables must be reviewed for update prior to submittal of data for each waste stream: WSPF Number, Hazardous Waste Codes by site, Shipping Category, Assay Methods by site, Assay Methods, Analytes, and Characterization Methods by site. The WIPP DA must input information into the WWIS Administrative Reference Tables to support programmed edit/limit checks for the information supplied by the user.

In the manual data entry mode, the reference data for applicable fields is provided to users interactively, i.e. in the event an invalid entry is made, a popup list of valid values appears from which the user may make a selection. The user should ensure that prior to submitting any data electronically, data have corresponding entries in the reference tables.

The reference data is accessible to the shipper/generator users through the use of look-up tables known as "lists of values" (LOV) when the data is input manually to the WWIS. However for an electronic data transfer to be accepted, the user must ensure that each of the data fields to be transferred exactly match the corresponding information in the WWIS reference data tables.

Refer to section 5.0 for additional information regarding updates to the administrative reference tables.

2.1.2 Characterization Module

The Permit requires each generator to submit Waste Stream Profile Forms (WSPF) for each waste stream to be sent to WIPP. The WSPFs provide summary information about each waste stream. The WWIS Characterization module is designed to accept the container specific data that is the basis for the summary information included on the WSPF. This data is subjected to electronic edit/limit checks during the submittal process.

Container data is submitted through the Characterization module only if the WSPF for the associated waste stream has not yet been approved by the CBFO. Once the WSPF is approved, additional waste container information must be submitted through the Certification module, because after WSPF approval, the WWIS will no longer allow submittal of data into the Characterization module for that Waste Stream.

Since waste stream profile information is collated against a waste stream profile number, the user must provide the WIPP DA with a WSPF number prior to submitting Characterization module data to the WWIS. The WSPF Administrative table is then configured to recognize the WSPF numbers. The WWIS will not accept any container data until the WIPP DA has entered the associated WSPF number(s) into the administrative table.

Once a WSPF is approved, the WIPP DA enters the approval date into the WWIS reference table. The WWIS program uses the WSPF approval status information to "determine" which module (Characterization or Certification) will accept the container information. Records entered into the Characterization module are subjected to edit/limit checks and if accepted by the program are automatically assigned the status, "Pending Characterization Data Approval".

The WIPP DA must review the container data, utilizing the Review/Approval screen. If acceptable, the DA will approve the Characterization data records by making an entry into the WWIS that changes the record status to "Characterization Data Approved By WIPP." If the record is rejected, it is deleted from the database. The WWIS Change Log does not record the rejection of the (Characterization) data since the record was never formally accepted by WIPP.

The Characterization module also allows the user to view or print:

- A Waste Container Data Report showing container data input to the Characterization module.
- A Container Approval/Rejection Report showing the review/approval status of waste containers.

A report showing the acceptance or rejection status of records submitted using the electronic transfer option of the WWIS. The report includes error messages explaining the reason(s) for record rejections.

2.1.3 Certification Module

The Certification module is designed to allow two different data input functions:

- Input of additional fields of information for container records that were originated in the Characterization module.
- Input of all waste container data for waste containers belonging to a waste stream profile form number that already has been approved.

The WSPF must be approved before the WWIS Certification module will accept any data associated with that profile form number. For example, the WWIS will accept required data for a container which was initially entered in the Characterization module only if the WSPF has been approved, as indicated by entry of the approval date in the WWIS administrative reference tables by the WIPP DA.

Records entered into the Certification module are subjected to edit/limit checks and if accepted by the program are automatically given a status, "Pending Certification Data Approval".

As required in the Characterization module, the WIPP DA must review the container certification data, utilizing the Review/Approval screen. Once the WIPP DA accepts the Certification data, the record status is automatically changed to "Certification Data Approved By WIPP". If the record is rejected, the program will cue the DA to input the reason for the rejection. At this point the record is deleted from the database and a copy of the original record and the reason for the rejection become a permanent record in the Change Log. The user who supplied the data is automatically notified by e-mail when a container is rejected.

The Certification module also allows the user to view or print:



- A Waste Container Data Report showing container data input to the Certification module.
- A Container Approval/Rejection Report showing the review/approval status of waste containers.

- A report showing the acceptance or rejection status of records submitted using the electronic transfer option of the WWIS. The report includes error messages explaining the reason(s) for record rejections.

2.1.4 Shipping Module

After the DA approves the Certification records, the user is able to "build" a shipment from containers with a status of "Certification Data Approved by WIPP" and submit the proposed waste shipment details to WIPP for approval. At this point, the status of the containers automatically changes from "Certification Data Approved by WIPP" to "Pending Shipment Data Approval by WIPP." The Shipping module is designed to provide limited edit/limit checks for proposed shipment details and has ten data fields that can be left blank up to the time of the shipment, but which must be completed before the shipment is physically sent to WIPP. These fields are:

- Shipment send date
- Packaging Number
- Outer containment assembly (OCA) lid number
- Inner containment vessel (ICV) closure date
- Radiation dose rate at surface (contact)
- Radiation dose rate at 1m
- Radiation dose rate at 2m
- Transporter Name
- Certification Date
- DOT Description

The DA reviews the proposed shipment and utilizes the Review/Approval feature to approve records that pass the edit/limit checks. Once the DA approves a proposed shipment, the status of that submittal is automatically changed from "Pending Shipment Data Approval by WIPP" to "Shipment Data Approved by WIPP."

The Shipping module has an input screen feature which is designed to allow the user to input required information for any dunnage containers used in the shipment.

The Shipping module also allows the user to view or print:

- A Shipment Summary Report showing shipment data input to the Shipment module.
- A report showing the acceptance/rejection status for electronic transfer information and the reasons for any proposed shipment rejections by shipment number.
- A Shipment 741 Report which consists of the shipment number, shipment date, receipt date, isotopes and isotope mass for Nuclear Materials Management and Safeguard System (NMMSS). Element Summary Information which



consists of elements, element weights, percent isotope, and isotope weights are also included in the 741 Report for each shipment.

2.1.5 Query Module

A query module is provided to allow users to access WWIS records in a read-only mode. Container, shipment, and waste emplacement (disposal) information may be viewed on screen or printed. The query module is designed so that shippers/generators can only access records applicable to their sites. In the container query mode, the container status codes that are available for checking are:

- Pre-Submittal to Characterization Data Approval
- Pending Characterization Data Approval by WIPP
- Characterization Data Approved by WIPP
- Pre-submittal to Certification Data Approval by WIPP
- Pending Certification Data Approval by WIPP
- Certification Data Approved by WIPP
- Pending Shipment Data Approval by WIPP
- Shipment Data Approved by WIPP
- Shipment Has Been Received at WIPP
- Container Emplaced at WIPP
- WIPP Site Derived Waste

The query module allows the user to toggle between screens that show container, shipment, and emplacement information associated with a waste container.

Queries may also be performed on specific container and shipment data input to the modules. In the shipment query mode, the shipment status codes that are available for checking are:

- New Shipment
- Pending Approval
- Approved Shipment
- Shipment Complete
- Shipment Received



The Data Status Code is representative of the approval status of the data in the applicable module. For example, data input into the certification module that has not yet been approved by the DA will display the "Pending Certification Approval by WIPP" status; after approval by the DA, it will display the "Certification Data Approval by WIPP."

2.2 Methods of Data Input

The user may input data to the WWIS by either manual/interactive input or by electronic transfer. Data submitted by electronic transfer must be formatted to be consistent with the WWIS data structures. Regardless of the method of input used, it is the user's

responsibility to ensure that site fields agree with WWIS records. The edit/limit checks imposed on the data in the WWIS are the same for either method of input. If a container data entry is rejected because the record did not pass edit/limit checks, a report is generated and the reason(s) for the data rejection given so that the user can correct and resubmit the data entry.

2.3 User Access and Data Control

Prior to obtaining access to the WWIS, the shipper/generator site must have a WWIS client computer meeting the following recommended minimum requirements. (This computer is to be supplied by the shipper/generator site):

- Pentium-class IBM-compatible personal computer
- 64 MB memory
- 100 MB free hard disk space
- 4X CD-ROM drive
- SVGA monitor and video card
- Microsoft-compatible mouse
- Windows 95, 98, 2000 and/or NT operating system
- Oracle Designer/2000 and/or Developer/2000 Runtime license (supplied by the WWIS)
- DOE Business Network access (or 28.8Kbps modem and WIPP-supplied SecureNet key, or alternate)
- WWIS client software (supplied by WIPP)

A prospective user must submit the following information via e-mail or fax to the WIPP DA, DBA, or CE: name, mailing address, e-mail address, telephone number, fax number, organization/title and reason for access. The DA will review and approve/reject the request. If approved, the DA then assigns and records a username and password.

When a WWIS user logs on to the WWIS, a dialog box warning message is displayed stating, "This is a private system not for public use. No classified or sensitive unclassified information such as UCNI, NNPI, FOUO, or similar information is to be placed on this system."

When assigning the username and password, the WIPP DA assigns an access authorization level that provides predetermined read/write privileges to the WWIS. The

user has the privileges discussed above but is denied write access to the administrative reference tables.

The WWIS is designed to ensure that only the user can input data relating to characterization, certification, and shipping details of the shipper/generator's waste. Changing a record that has been submitted to the WWIS and approved is accomplished by the DA deleting the record from the database and the user resubmitting it. Changing a record after a shipment has been either received or after containers have been emplaced, may be accomplished upon approval of a WWIS Data Change Request Sheet.

The WIPP DA may delete records from the active database for two reasons: (1) the record is reviewed by the WIPP DA and found to be unacceptable based on reasons not included in the computerized edit/limit checks or (2) the user requests via fax or e-mail that the record be deleted so it may be modified and re-submitted through the normal data-entry procedure.

After requesting the deletion of a record, the user may re-submit the revised container information through the normal WWIS input process at which time it must undergo the acceptance process once again. The purpose of this process is to ensure that waste container and shipping data contained in the WWIS are input entirely by the user. The user is required to ensure that any changes made to data in the WWIS are also reflected in the user's own local waste tracking system and/or documentation.

2.4 WIPP Notification of Acceptance or Rejection of Generator Submittals

The WWIS automatically generates and sends an electronic mail message to the shipper/generator user who submitted the data each time a container or shipment record is reviewed and accepted or rejected. The message is sent to the e-mail address supplied by the shipper/generator user when access to the WWIS is initially requested. Any authorized shipper/generator user may then generate and print a "Container Approval/Rejection Report" for specifics regarding container or shipment approvals/rejections.



2.5 WIPP Input to the WWIS

Upon physical receipt of the waste at WIPP, Waste Handling Operations personnel input additional information into the WWIS including:

- Shipment receipt date
- Container disposal/storage date and location information

NOTE

The shipment status must be "shipment complete" prior to receipt by WIPP Waste Handling Operations.

3.0 OBTAINING ACCESS TO THE WWIS

Each prospective user must contact the WWIS DA to establish a user account and privileges to access the WWIS. The DA will assign a username and password to each approved user of the WWIS. Appropriate read/write privileges on the WWIS will be assigned to the shipper/generator user at that time. Other users are assigned read only or read/write access based upon the requirements necessary to perform their duties. New users must be provided a WWIS orientation and/or any site-mandated WWIS training. Any WWIS user who is knowledgeable about WWIS data entry functions may provide orientation to a new user.

3.1 Requirements for Data Transfer to the WWIS

Each user wishing to use the WWIS must have an IBM-compatible personal computer (PC) loaded with Oracle Developer/2000 Runtime (Forms and Reports) which meets the requirements set forth in Section 2.3. The client machine must also be configured using SQL*Net to communicate with the WWIS. WIPP will provide approved users with the necessary client software and assist sites in configuring their machines for this communication.

Users who plan to make electronic data transfers to the WWIS are responsible for loading the container and/or shipment data into the WWIS temporary data tables. The site-developed data tables must be compatible with the WWIS data file format and structure. The structure of the WWIS temporary tables is set forth in Section 4.3.

3.2 Access Testing

Each user must perform a test connection to the WWIS prior to submitting "real" data. During the test phase, the user transmits data to WIPP to ensure that container and shipment data can be successfully and accurately transmitted. Testing also provides the user with a chance to become familiar with WWIS operation. The data transmitted using the "Test Instance" will NOT become a permanent record in the WWIS database.

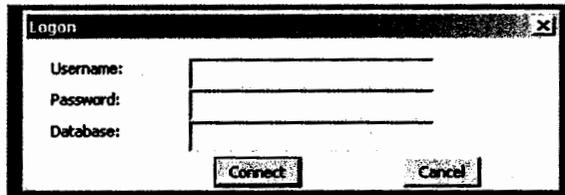
Testing will be re-performed periodically, as required. Generally, this will occur at the following times: (1) following modifications to the generator site or the WWIS hardware/software and/or database table structures, (2) to ensure that the electronic data entry temporary data tables are being populated properly, and (4) to ensure that manual data entry functions are operating correctly so that the data continues to be received and processed correctly by the WWIS, as deemed necessary by WIPP personnel.

It is highly recommended that the sites maintain backup systems and alternate communication links such as Alta Vista tunnel, modem dial-up, etc. in order to have the capability to maintain WWIS access at all times.

4.0 PROCEDURES

4.1 Logging Into the WWIS

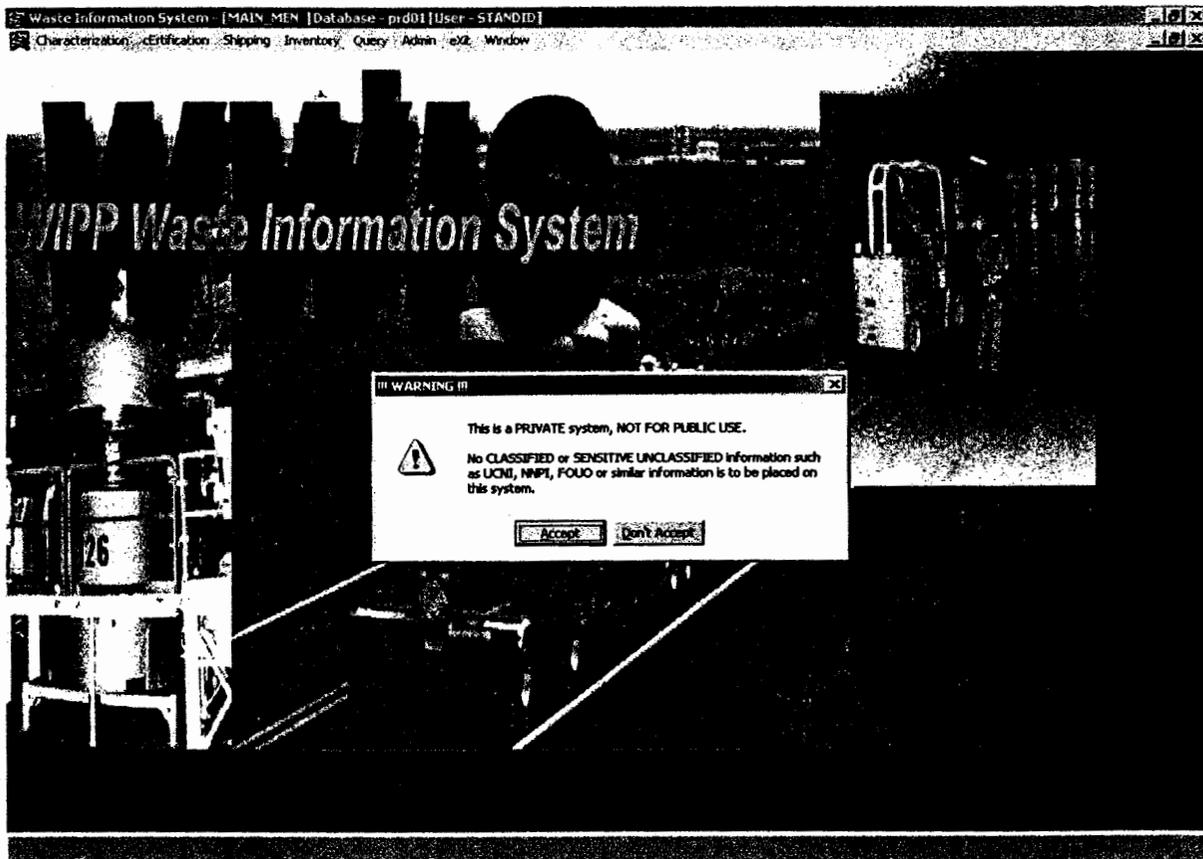
- 4.1.1 Verify that the current version of the client software is loaded into the computer and operating properly. Initiate the WWIS program by double-clicking the WWIS shortcut. The WWIS Logon Box will appear. At the Logon Box, input the username, password, and database codes assigned by the WIPP DA, and select the connect button.



The screenshot shows a window titled "Logon" with a close button (X) in the top right corner. Inside the window, there are three input fields labeled "Username:", "Password:", and "Database:". Below these fields are two buttons: "Connect" and "Cancel".

- 4.1.2 The WWIS Main Menu Screen and Security Warning dialog box will appear, as shown below. Select Accept Button when the Security Warning dialog box appears if you agree to the conditions stated in the security dialog box (if you select the Don't Accept Button, you will be logged off the WWIS.) These codes may be found on the approved WWIS Access Request Form returned to the user after the application was approved.



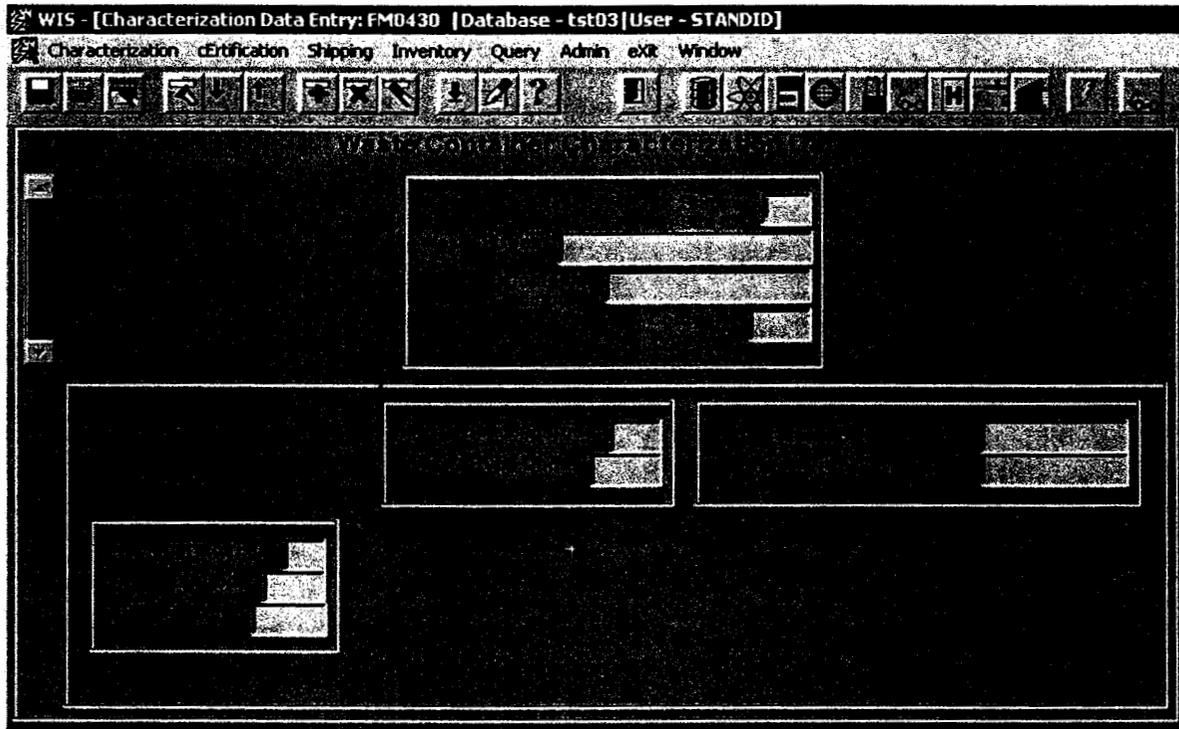


- 4.1.3 When the user selects the Accept Button, the initial WWIS menu screen will become available. The user will use this screen to navigate through the various program modules.
- 4.1.4 Upon login, the main application prompts the user for a password change if either of the following conditions are true:
 - 4.1.4.1 When WIPP initially establishes the user account, the password should be changed to a unique password known only to the user to assure that adequate security is maintained for the WWIS.
 - 4.1.4.2 The password has not been changed in 60 days – The WWIS will check to see when the password was last changed. If the period of time exceeds 60 days, the user will be encouraged to change the password.

The password may also be changed at any time from the main menu by holding down the Ctrl key and striking the (lowercase) "p" key. The change password dialog box will then appear and the user will be prompted to enter the new password twice for verification.

4.2 Manual Entry of Container Records

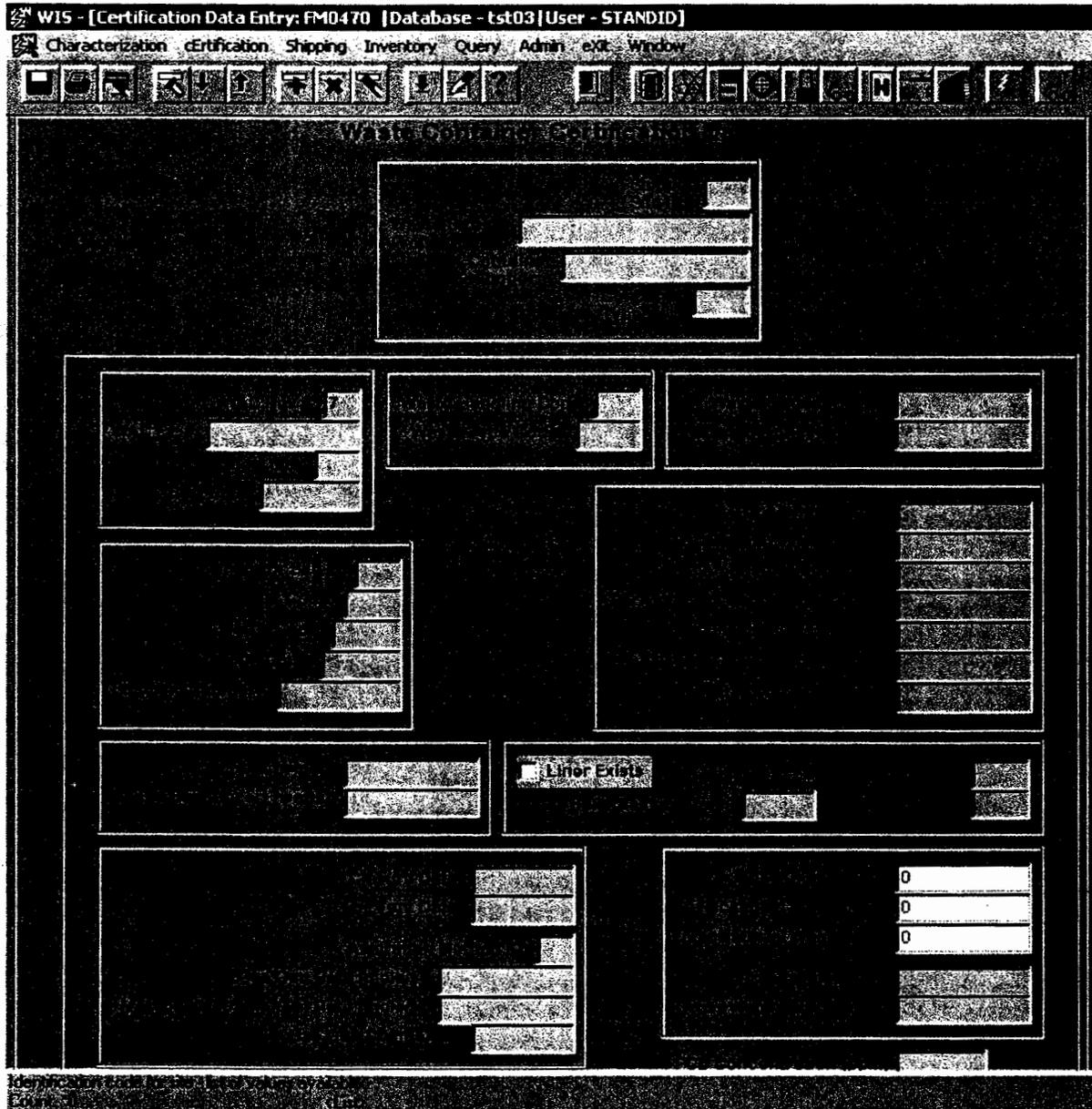
- 4.2.1 To input container records, go to the menu bar and select the applicable menu (Characterization or Certification).
- 4.2.2 Select the data entry option for the module selected (Characterization Data Entry or Certification Data Entry). The first Waste Container data entry screen will be displayed. (Note: The screens are different for the two modules.)



Characterization Data Entry Screen



4.2.3 Begin by entering container information in the screen provided. Note that the



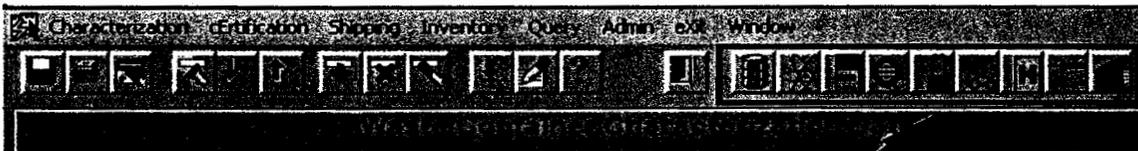
Certification Data Entry Screen

message bar at the bottom of the input screen will indicate if a List of Values (LOV) is available for the field. When available, the LOV may be accessed by selecting the List button on the button bar at the top of the screen or by simply double-clicking the data entry field. If available, the applicable LOV will automatically appear any time an invalid entry is made, thereby allowing the user to select from among the valid reference entries. When the entry is complete, press the Tab key or the Enter key to move to the next field. Selecting the List button while the cursor is on a Date-type field will pop up a scrollable monthly calendar from which a date may be selected for entry in the field.



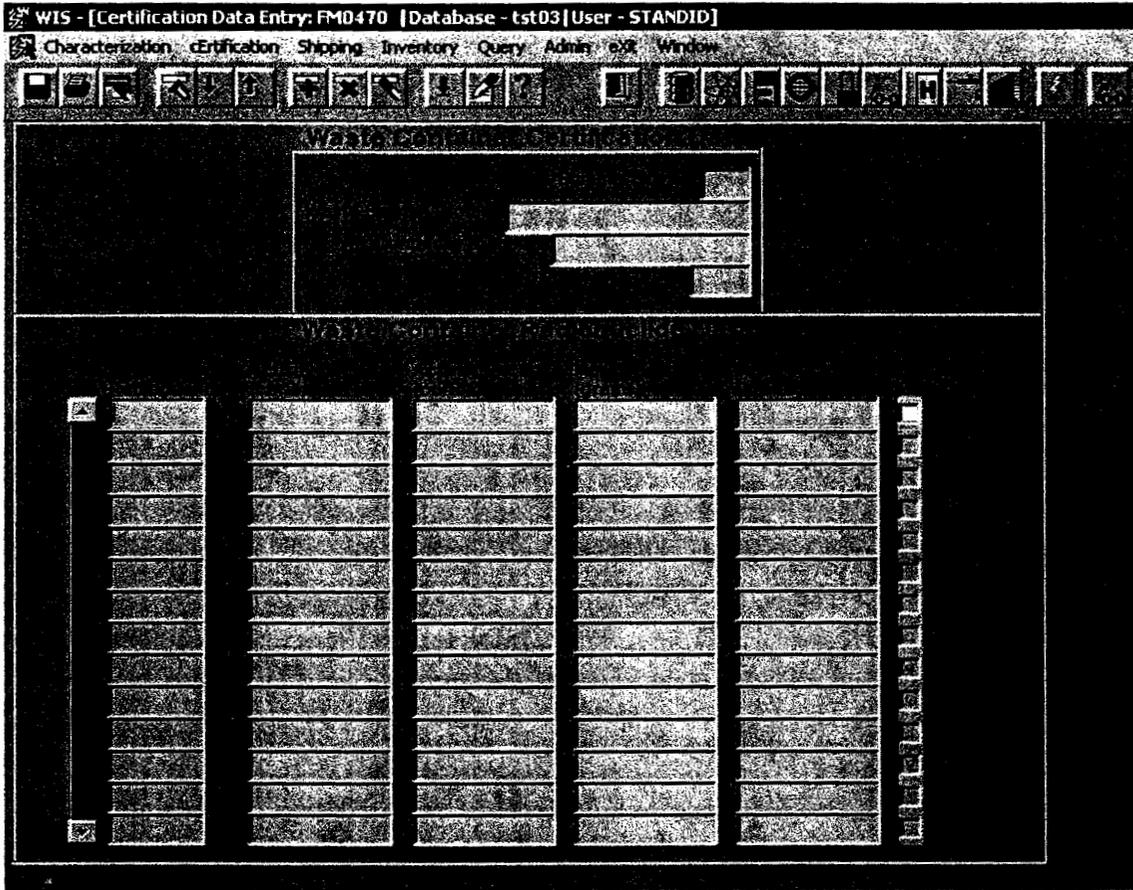
- 4.2.4 Continue entry to each field until reaching the last entry on the screen. You may hit <Shift><Tab> to move the cursor backward to a previously entered field if it is necessary to change any entries.
- 4.2.5 Any time after the first four fields (Shipper Site ID, Waste Stream Profile, Container Number, and Container Type) have been entered, the container record may be saved by selecting the Save button (floppy disk icon) at the left end of the button bar. A previously saved (but not yet submitted) container record may then be queried up at any time to continue data entry using the General Query Techniques described in Section 4.7.
- 4.2.6 Proceed to the next data entry screen by sequentially selecting the buttons for each screen located on the right side of the menu bar as shown below.

When the mouse pointer is allowed to rest on each button, the name of the associated entry screen will be displayed. Complete the information in the same fashion as done



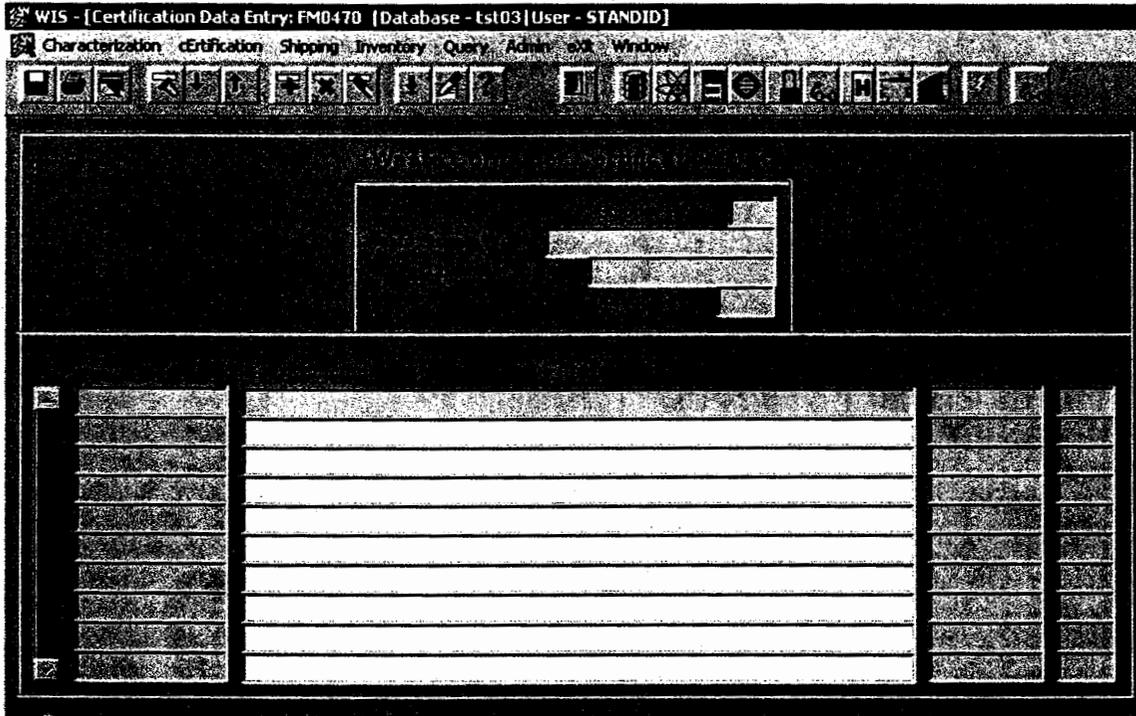
in the first screen. (Note: There are a total of nine screens - Waste Container, Radionuclides, Material Parameters, filters, Assay Methods, Characterization Methods, Hazardous Codes, Samples and Amounts, and Comments. The Hazardous Codes screen is not applicable if the waste type code is TRU (as opposed to MTRU). Input to the Comment Screen is optional, but all others must be completed before the WWIS will accept the container record, when it is submitted.





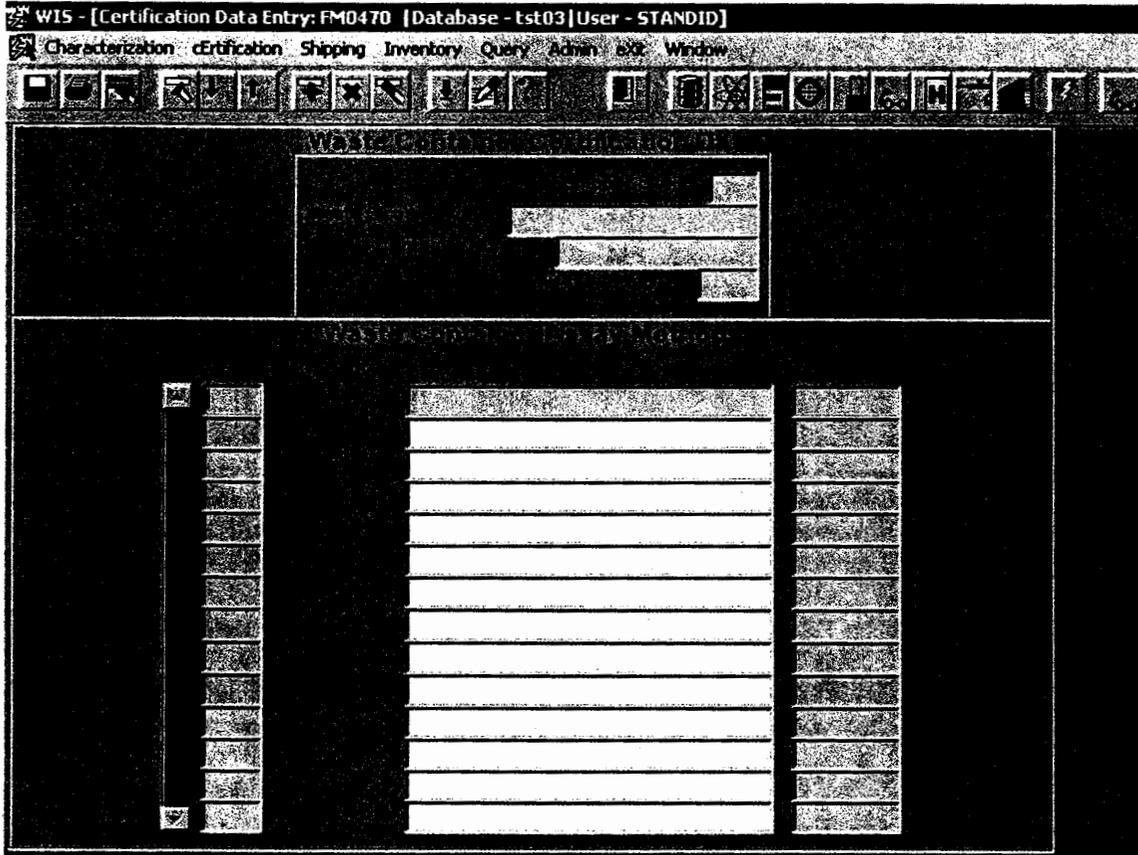
Radionuclide Data Entry Screen





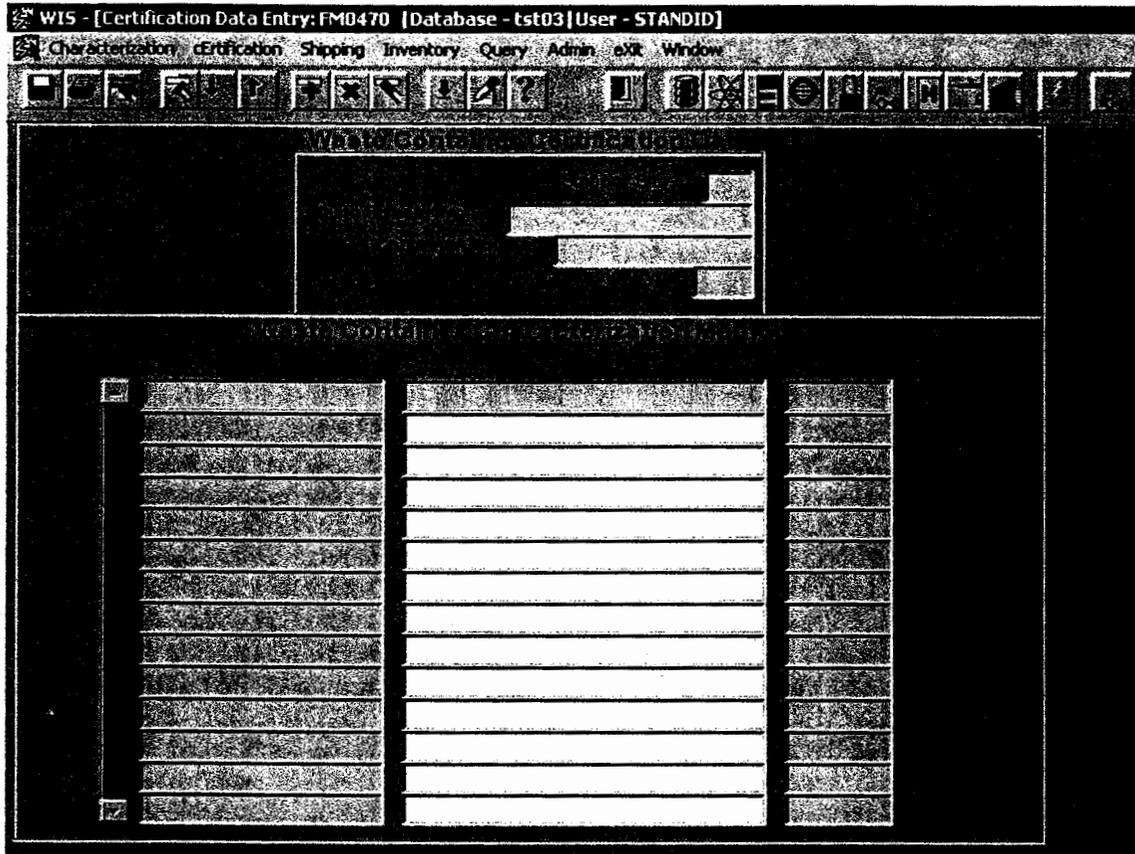
Filter Data Entry Screen





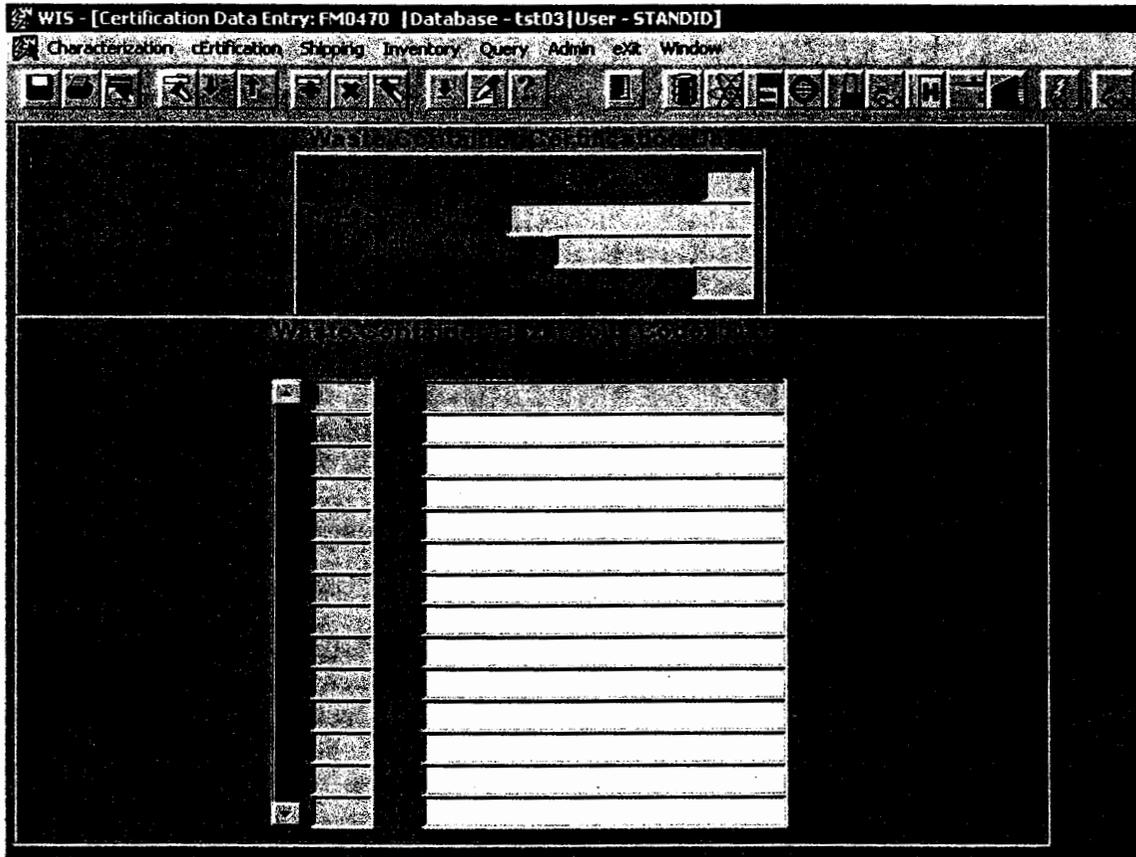
Assay Methods Data Entry Screen





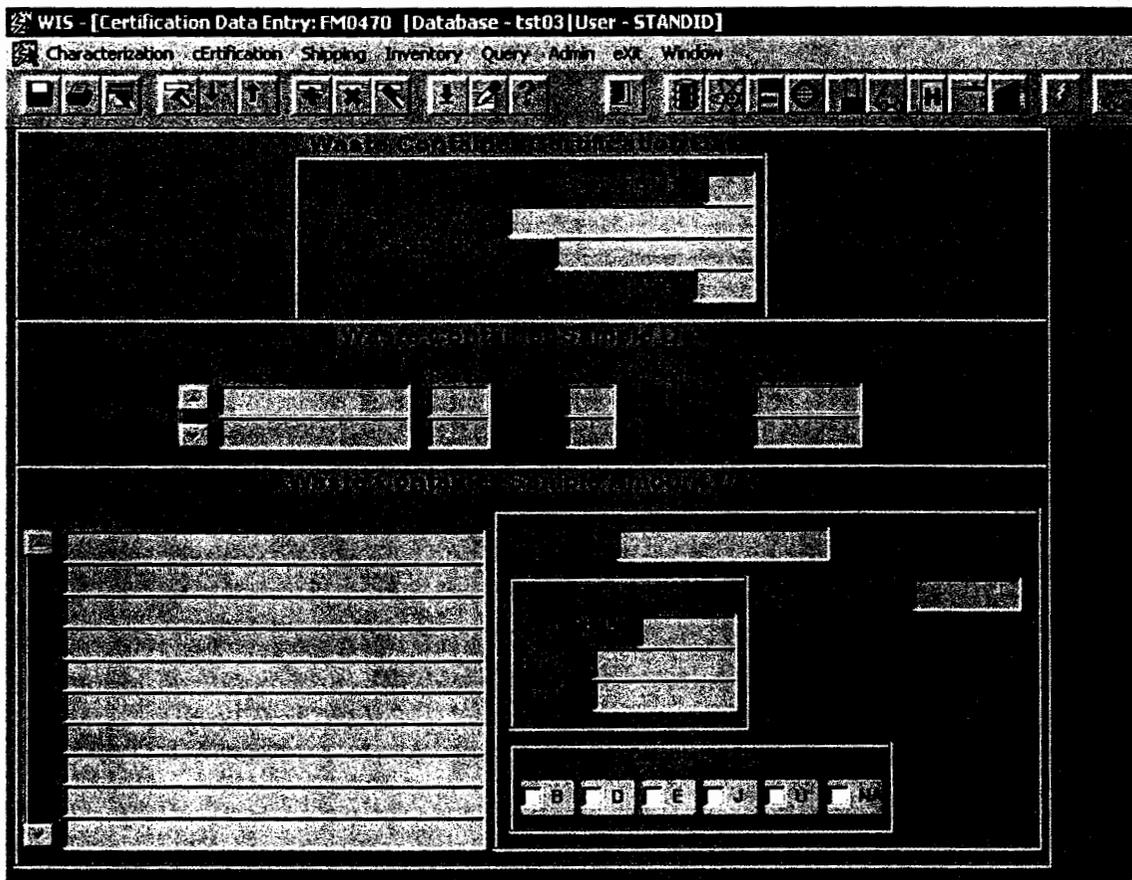
Characterization Methods Data Entry Screen





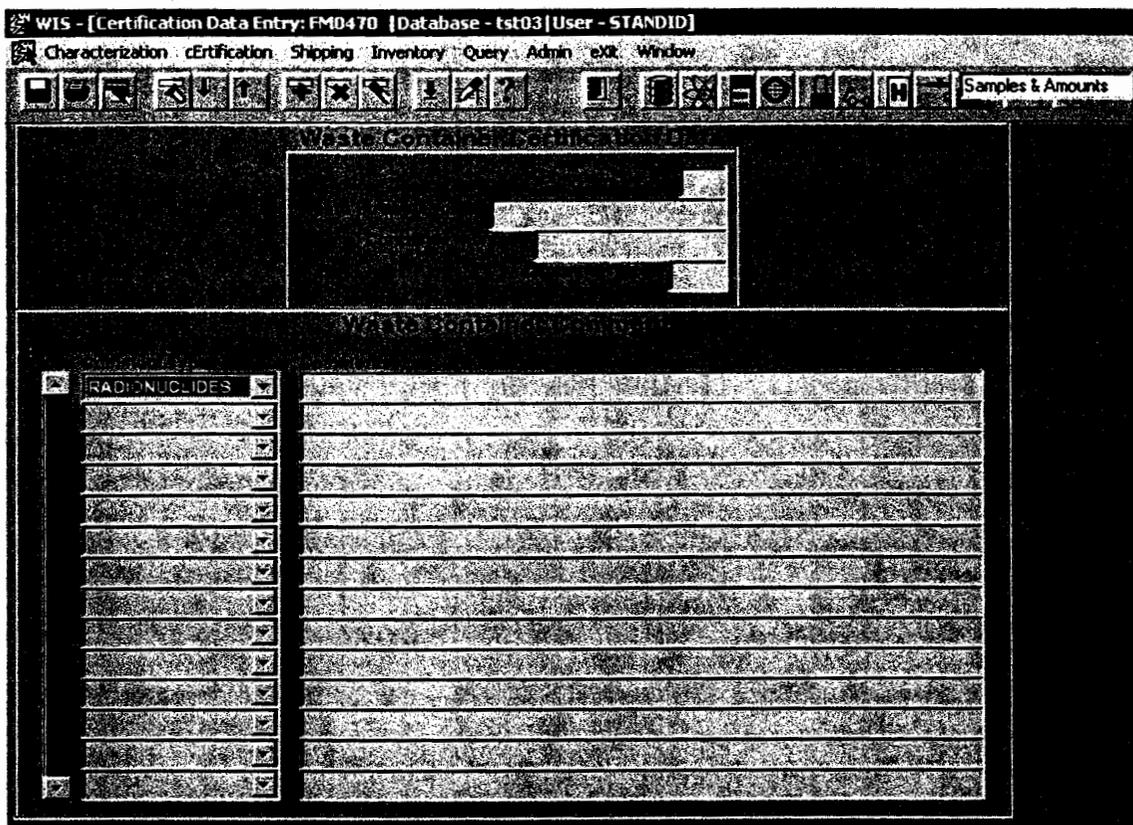
Hazardous Waste Codes Data Entry Screen





Sample Data Entry Screen





Comments Data Entry Screen

- 4.2.7 Continue to access and fill in each of the required data screens until all are completed.
- 4.2.8 When all screens are completed, the record (all eight screens represent a single waste container data set) may be submitted by selecting the Submit button (lightning bolt icon) located near the right end of the button bar.
- 4.2.9 Upon submitting the record, the WWIS will perform a number of edit and limit checks and then respond with a message indicating whether or not the container was successfully submitted.
- 4.2.10 If the submittal was unsuccessful, select the Detail Errors button (eyeglasses icon) at the right end of the button bar for a list of errors that need to be corrected before the container will be accepted.
- 4.2.11 Exit the data input session by selecting the Exit button (door icon).

4.3 Electronic Entry of Container Records

As explained in Section 2.1 data may be entered into the WWIS in different stages, depending on whether the data is initiated in the Characterization modules or in the Certification module.

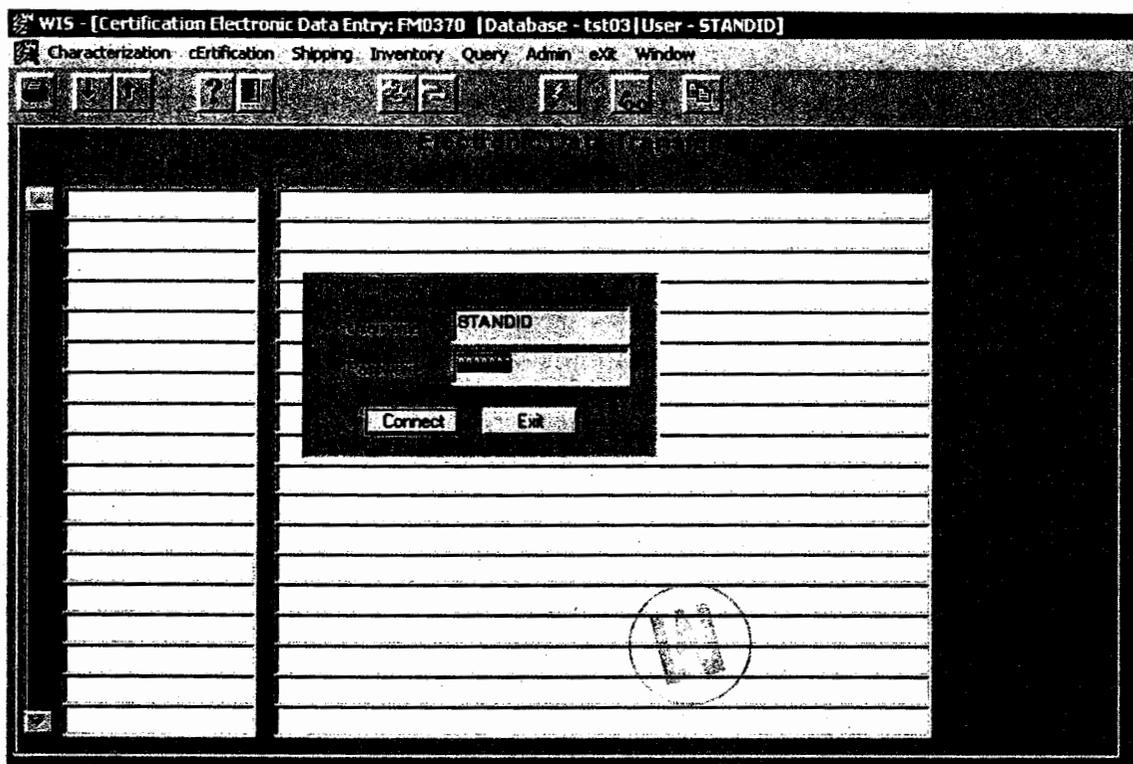
To enter data electronically, the shipper/generator must populate temporary files with waste container data which are formatted to be compatible with the WWIS data file structures. This allows use of the programmed electronic data entry feature of the WWIS. A description of the required electronic data entry fields and their respective formats for both the Characterization module and the Certification module is given in Attachment 1. Attachment 1 identifies nine tables that must be transmitted to WIPP for each waste container to be considered for receipt.

The same nine temporary tables are used for data entry in the Characterization module and the Certification module. The table columns labeled "Charz Data" and "Cert Data" specify which fields must have an entry for an electronic transfer to be successfully completed under the respective Characterization or Certification module. Fields that are required to have an entry in the temporary transfer table have a "not null" designation in the respective column.

The Copy button provides the user with the ability to transfer a partial set of container data into the WWIS electronically and then subsequently enter additional data at a later date before submitting it for approval. Although the edit and limit checks are not applied to data transferred via the Copy button, the data is checked for conditions that would violate database integrity constraints, cause invalid foreign key relationships, etc. Any errors encountered during the copy process are captured and may be viewed via the same "Detail Errors" button used to report problems with data submitted for approval.

- 4.3.1 To initiate the electronic data transfer of records resident on the client server, go to the WWIS main menu and select the applicable menu (Characterization or Certification).
- 4.3.2 Select the data transfer option of the module (Characterization Data Transfer or Certification Data Transfer). A login screen will be displayed.





Electronic Data Transfer System

- 4.3.3 Enter the Username and Password to allow access to the client schema in which the temporary tables reside. (Note: the temporary tables will normally reside in the shipper/generator's schema on the WWIS server at WIPP. In this case, the Username and Password will be the same as those used to login to the WWIS.)
- 4.3.4 Select the Connect button on the screen. The connection to the client server will be completed or an error message will be displayed. The electronic data transfer screen will appear with the numbers of the container records that are available for transfer from the temporary tables.
- 4.3.5 Select the container record(s) to be transferred. (Note: If a record is selected which has already been submitted and accepted by the WWIS, a message will appear stating that the record already exists and the WWIS will not transfer the record.) All of the records may be marked by selecting the Select All button or the selection may be reversed using the Unselect All button. Individual records may be selected or unselected by double-clicking a record with the mouse pointer. The selected records will turn red.
- 4.3.6 The data transfer is initiated by selecting the Transfer Data button (lightning bolt icon) on the button bar at the top of the screen.
- 4.3.7 The transfer screen will provide a real-time indication as records are accepted or rejected. Once the entire transfer is complete, each record of interest may

be highlighted and the Detail Errors button (eyeglasses icon) selected to view the specific reasons why a container was rejected.

- 4.3.8 A printout of the accepted and rejected container numbers may be obtained, complete with a detailed listing of the reasons for rejection of any of the containers, by selecting the Print button (printer icon).
- 4.3.9 The electronic data transfer session may be exited by selecting the Exit button (door icon).

4.4 Manual Entry of Proposed Shipment Information

- 4.4.1 To input proposed shipment information, go to the menu bar and select the Shipping menu.
- 4.4.2 Select the Shipping Data Entry option. The Shipment Entry Screen (the first of two entry screens) will be displayed.

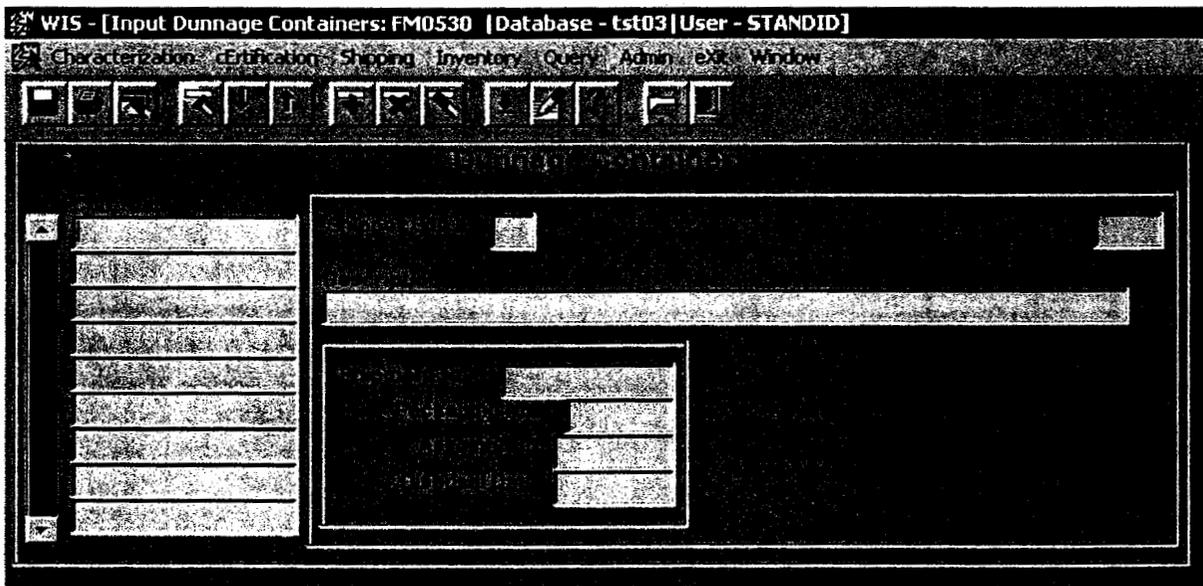
Shipment Data Entry Screen

- 4.4.3 Begin by entering data into the Shipment Information section of the screen provided.
- 4.4.4 After completing the Shipment portion of the screen, identify a Package Type (TRUPACT or RH CASK) and provide the required information for that package. Refer to Section 2.1.4 for a list of fields may be left blank initially, but must be completed before the shipment physically embarks on its trip to WIPP.
- 4.4.5 After completing the Packaging portion of the screen, input the Assembly number(s) assigned to the package. (Like a 7-drum assembly, each SWB and TDOP will have an assigned to the package. For SWBs and TDOPs, this number may be the same or different from the waste container number, as long as it is a unique assembly number to the WWIS.)
- 4.4.6 Place the cursor in the Assembly field to which waste container numbers are to be assigned and select the Containers button (waste drum icon) to toggle to the Container Assembly Data Screen shown below.
- 4.4.7 Assign the containers belonging to the assembly by placing the cursor in the Container Number field and selecting the List button to bring up a list of available waste containers of the appropriate type that have been approved in the certification module.



submission process to the WWIS and to acknowledge that the shipment information is correct. All data may be changed up to the point of the final submission. Any errors trapped by the WWIS edit/limit checks will be identified at the time of submission and must be corrected before the shipment information will be accepted.

- 4.4.12 Dunnage containers may be added to the available list while keeping the Shipment window open. Select the Shipping module from the main menu bar and then select Dunnage Cntr Entry from the Shipping menu. The screen for entering dunnage container information will be displayed.
- 4.4.13 Complete the applicable information for dunnage containers to be included in the shipment and save the dunnage records using the Save button (floppy disk icon).
- 4.4.14 Exit the dunnage container screen by selecting the Exit button (door icon). Upon returning to the Shipment Data Entry screen, the newly entered dunnage containers will be available for selection from the container selection lists (as long as they have a compatible container type).



Dunnage Container Data Entry Screen



4.5 Electronic Entry of Proposed Shipment Information

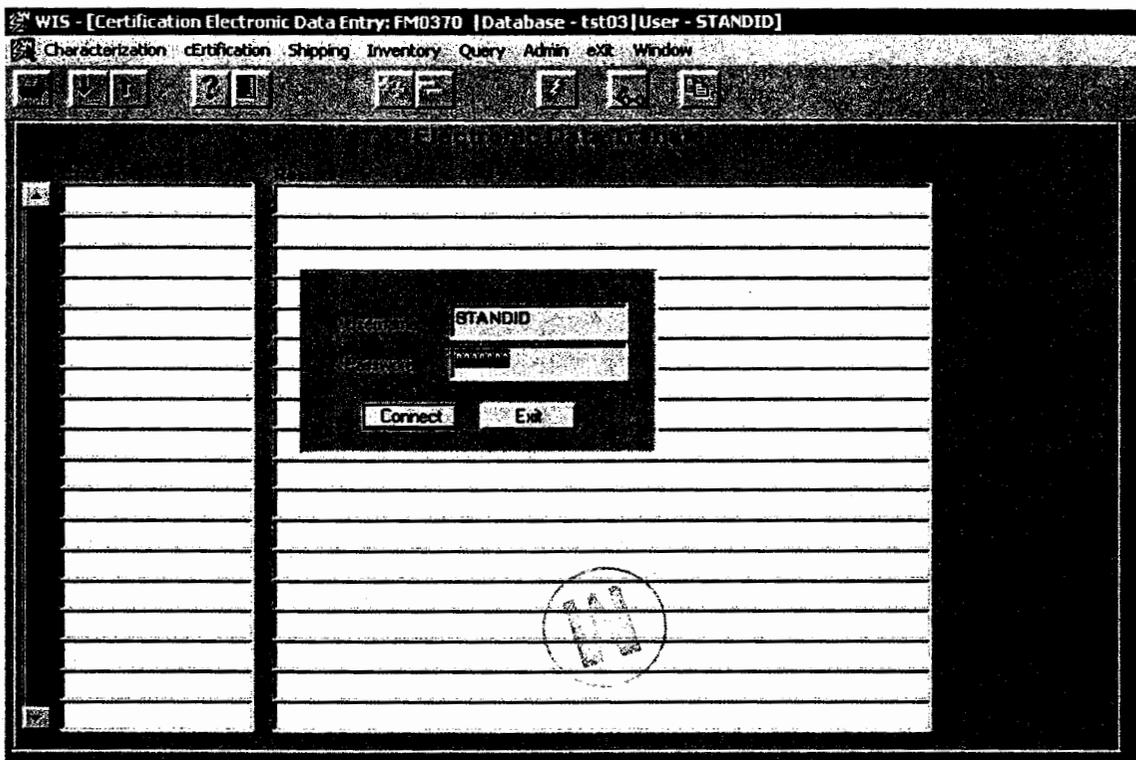
Attachment 1 identifies the five tables of information that must be transmitted for each proposed shipment to WIPP. The tables show the required data entry fields and their respective formats.

- 4.5.1 Initiate the electronic data transfer of records resident on the client computer by going to the menu bar and selecting the Shipping module.
- 4.5.2 Select the Shipping Data Transfer option of the module. A login screen will be displayed.
- 4.5.3 Enter the Username and Password to allow access to the client schema in which the temporary tables reside. (Note: The temporary tables will normally reside in the shipper/generator's schema on the WWIS server at WIPP. In this case, the Username and Password will be the same as those used to log on the WWIS.)
- 4.5.4 Select the Connect button on the screen. The connection to the WWIS will be completed or an error message will be displayed. The screen shown below will appear with the numbers of the proposed shipments that are available for transfer from the temporary data files.
- 4.5.5 Shipment numbers may be marked and transferred in the same manner as used to transfer electronic Characterization and Certification container data.
- 4.5.6 Error messages are displayed by selecting the Detail Errors button (eyeglasses icon) and may be printed by selecting the Print button (printer icon) while the list of Detailed Errors is still displayed.
- 4.5.7 Exit the data input session by selecting the Exit button (door icon).

4.6 Procedure to Correct Errors on Records Accepted by the WWIS

Once a record has been entered into the WWIS and has passed the computerized edit/limit checks, the record data fields are "protected" and cannot be changed. The only exception to this are the ten shipment data fields that may be submitted up to the time of shipment as identified in Section 2.1.4. If submitted, these fields become "protected" when the WIPP DA approves the shipment. Therefore, if any of the ten fields are subject to change, it is recommended that this information be left blank until near the time of the actual shipment. With only these allowable exceptions, the only way that a shipper/generator may revise an accepted WWIS record is to request the WIPP DA to delete the record via email or fax with an explanation for the deletion. This activity results in a copy of the deleted record being saved in the Change Log. The entire record must then be re-entered with any desired corrections.





Electronic Shipment Transfer

4.7 Utilizing General Query Techniques

A special query module is provided in the WWIS with features to access all available data easily. The query module allows the user to shift easily between container data and shipping information screens. Data may be queried from the data input screens (such as the Characterization Data Entry screen), but the user is limited to the Data Status Code applicable to the information originally input on the screen. The query module provides features to move from container information to related shipping information and vice versa.

The method of executing a query is the same for all screens within the WWIS. To initiate a query, perform the following steps.

- 4.7.1 Press F7 or select the Find button (flashlight icon) on the button bar. A message will appear in the screen footer saying "Entry a query."
- 4.7.2 Input any criteria into any data field that must be met in the query. For example, to request all containers with Container Numbers beginning with "RFD" an entry of "RFD%" would be made in the Container Num field. ("% " is the wildcard character.) If no search criteria are entered, all available records for the shipper/generator's site will be retrieved when the query is executed.

- 4.7.3 Press F8 or re-select the Find button to execute the query. In the case of the example above, all containers with container numbers beginning with the characters "RFD" will become accessible for viewing.
- 4.7.4 Navigate through the records retrieved by the query by using the keyboard arrows or by using the "Up" and "Down" buttons (arrow icons) on the button bar.
- 4.7.5 In order to determine the number of records that will be retrieved by the query, press Shift-F2 after the selection criteria have been entered but before the query is executed. The screen footer will display the number of records that will be retrieved.
- 4.7.6 To exit from the query screen, press Ctrl-Q or select the Exit button (door icon). If the screen is in "Query Mode," i.e., the screen footer is displaying "Enter a query," at the time the Exit button is selected, this action will simply discontinue the query. In this case, the Exit button must be selected one more time to exit from the screen.

4.8 Utilizing the Query Module

The query module may be used to review data in the WWIS database. Viewers can determine the approval status of container and shipping records by querying the different status codes to see which container or shipments hold that code. For example, querying all records having a container status code of "Certification Data Approved by WIPP" will determine if a Certification data record has been approved or disapproved by WIPP. If the record is not found in that query, it should be found by querying records with the container status code "Pending Certification Data Approval by WIPP." Container records that have been saved, but not yet submitted, will have the status of "Pre-submittal to Characterization or Certification Approval" depending upon whether the containers were saved in the Characterization or Certification module.

- 4.8.1 To review the records in the WWIS utilizing the query menu, go to the Menu Bar and select the query menu.
- 4.8.2 Select the Container Query or Shipment Query option. The screens that will appear are shown below.



WWIS - [Review Shipping Data: FM0560] [Database - tst03] [User - STANDID]

Characterization Certification Shipping Inventory Query Admin Window

Reportable
Highway Route Control

Review Shipping Data Screen



The screenshot shows a graphical user interface for reviewing container data. It features a title bar at the top, a large central area with several rectangular input fields, and a status bar at the bottom. A checkbox labeled "Liner Punctured" is located in the lower right portion of the main data entry area.

Review Container Data Screen

(Note: this graphic is incomplete at present - awaiting copy of complete screen.)

- 4.8.3 If the screen is not cleared, clear the screen (as described in Section 4.7) by pressing F7 or selecting the Find button. A message will appear in the screen footer saying, "Enter a query."
- 4.8.4 Enter the search criteria as outlined in Section 4.7. Note that the query screen has a selection menu for the Container Status Codes or Shipment Status (dependent upon the query screen). Include the desired status code in the selection criteria.
- 4.8.5 Execute the query using the general query techniques described in Section 4.7.
- 4.8.6 Toggle between the Shipment and Container screens as desired, by selecting the Shipment and Container buttons at the right end of the button bar on each of the screens.

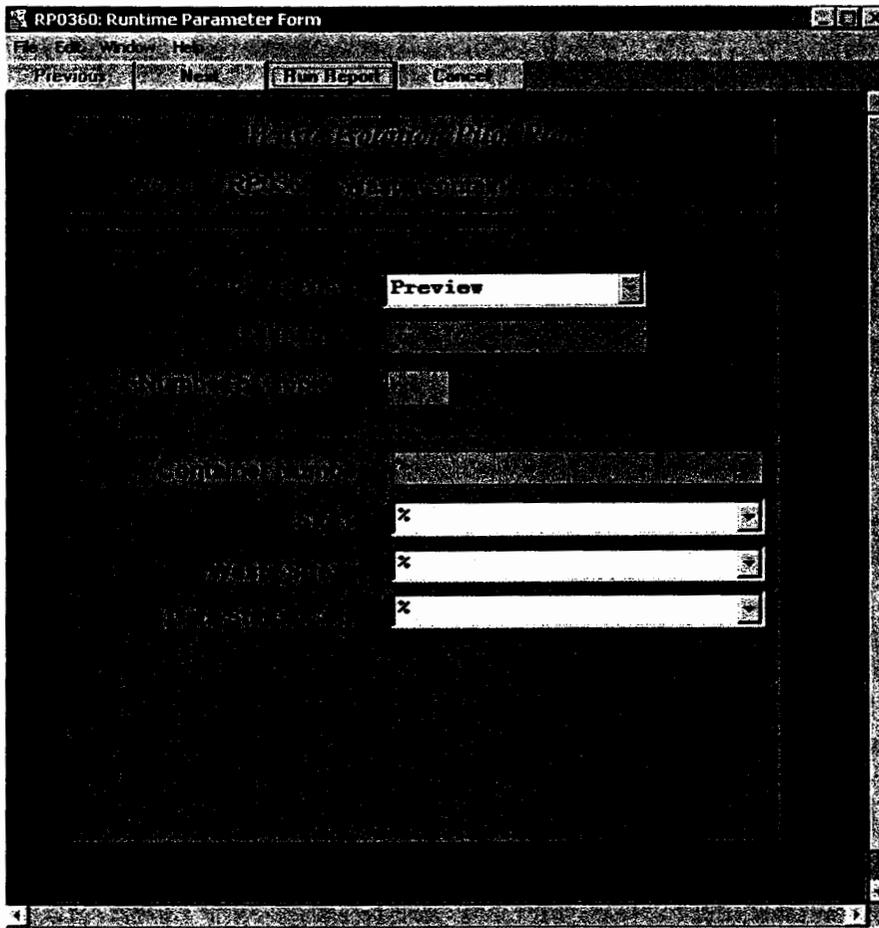
4.8.7 Exit the module by selecting the Exit button.

4.9 Viewing and Printing Reports

Standardized reports are available from each module of the WWIS as a menu option. As noted in the above procedures, electronic data transfer error reports may be printed by selecting the Print button while utilizing the electronic transfer screen.

4.9.1 Go to the WWIS menu bar and select the module that has the desired report.

4.9.2 Select the desired report on the menu and a screen will be presented (as shown below) which includes output device options (screen, file, printer, mail, or preview) and applicable selection criteria (such as waste stream profile number or container status depending upon the report selected).



4.9.3 Enter the desired output device and selection criteria and then select the Run Report button. The report will print on the output device selected.

4.9.4 To preview the report, leave the output device selection criterion at its default value of "Preview." The report may then be navigated via the provided "Prev," "Next," "First," "Last," and "Page" buttons.

4.9.5 The report may be printed directly from within the Report Previewer, by selecting the provided "Print" button.

4.9.6 Select the "Close" button to exit from the Report Previewer.

5.0 UPDATING ADMINISTRATIVE REFERENCE DATA

The WWIS DA must input data to the administrative reference data tables that are used as comparison files for edit checks performed by the WWIS. Shipper/generator data input to data fields that have corresponding look-up tables must exactly match the entry in the look-up table or the record will be rejected.

5.1 Review reference data tables by selecting the Admin module from the menu bar and then selecting Reference Data Reports.

5.2 Select the desired reference table and then view or print the list using the standardized report menu.

5.3 If additional site-specific data is identified that needs be included in the reference data tables, contact and work with the WIPP DA to get the applicable tables updated. Note: If changes to site specific characterization methods or assay methods are required, the user making the request must provide documentation that audits have been performed or other necessary approvals have been obtained prior to initiation of the change. For example: When a new assay method or system is to be used, CAO must perform an adequacy review of procedures and an audit of system performance in order for the method or system to be used in the program.

5.4 Once the WIPP DA has updated the tables, the shipper/generator site may reprint the Reference Data Report to confirm that the tables have been correctly updated and that the WWIS should now accept any newly entered values.

6.0 QUALITY ASSURANCE

The configuration management portion of the WWIS program provides a systematic approach to configuration management of the WWIS and all identified configuration items, including application software, system software, hardware, and documentation. By following the appropriate policies, directives, and procedures, the WWIS will be maintained as a quality product.

This section specifies the recommended method to be utilized by the shipper/generator users for identifying configuration items and for proposing changes. The WIPP WWIS

team is responsible for controlling and implementing changes, and documenting the results. The WWIS team evaluates, coordinates, approves or disapproves, and implements changes to configuration items.

The CE is responsible for the technical management and configuration control of the WWIS. The CE is responsible for configuration control of the WWIS application, system software, WWIS hardware, and the maintenance, control, and modification of the database. The CE performs design verifications to ensure the WWIS design is technically adequate to meet the applicable requirements for quality, safety, and performance. The CE also ensures that appropriate engineering information is incorporated into design and regulatory documentation at WIPP. The CE serves as chairperson for the WWIS Software Configuration Control Board (WSCCB) at WIPP.

The data administrators (DAs) are responsible for ensuring that changes made to WWIS data have valid reasons and that the reasons are entered into the WWIS change logs. The DAs serve as members of the WSCCB, and provide the board with the information necessary to make data management decisions.

The Software Quality Assurance Specialist (SQAS) at WIPP is an independent reviewer of WWIS software documentation. To provide the required degree of objectivity during the verification and validation tasks, the SQAS verifies that applicable SQA guidelines are followed. As a member of the WSCCB, the SQAS reviews program changes, procedural changes, analyzes and evaluates requirements, design specifications and test documentation.

Changes to the WWIS software will be evaluated against the baseline configuration items.

6.1 WWIS Software Configuration Control Board

A WSCCB is established for the software configuration management of the system. This board is responsible for monitoring, reviewing, and concurring with additions and requested changes to the WWIS. The board is also responsible for the review of and concurrence with documentation based on software quality assurance (SQA) activities which includes test plans, procedures and test cases.

The WSCCB reviews baseline changes to determine whether a change will be necessary in associated documentation in order to maintain traceability to the revised code.

Changes to the WWIS software will be concurred with by the cognizant manager at WIPP and others as requested. Changes will be evaluated against the baseline configuration items listed below.

A new version of a baselined item is created when a major revision is requested for application software and/or when the system software or hardware is modified in a manner which may impact the production system activities. The following configuration

item categories contain items that need to be controlled and changes evaluated for impact on baselines:

Application Software - Includes the developed applications, database structures, code, scripts, and objects used to maintain the physical database structure.

System Software - Includes the operating system and any supporting software such as database management software and communication software.

Hardware - Includes the configuration and setup of the equipment used by the WWIS.

Documentation - Includes any and all documentation supporting the WWIS project and software development. This includes the following:

- WIPP procedures governing design and testing of WWIS hardware and software
- Test plans and associated test cases and procedures
- WWIS User's Manual for Generators/Shippers
- Other associated control documents

Subsequent validation testing of modified WWIS software modules will be documented on WWIS Software Modification Request (WSMR) sheets, approved by the WSCCB and concurred with by cognizant management. Regression testing will be performed as appropriate.

6.2 Configuration Change Control

The configuration of application and system software will be controlled. Modifications to the WWIS software will be initiated using the WWIS Software Modification Request (WSMR) sheet (see Attachment 2). All WSMRs will be reviewed by the WSCCB. WSMRs will be concurred with by the cognizant management. CBFO may be requested to concur with major software changes, such as removal of reference tables and data fields. Any WWIS user may initiate a WSMR and submit it to the WIPP WWIS team lead or one of the DAs.

Configuration of the hardware will be maintained by the CE. The baselined hardware configuration will be identified prior to integration testing of the WWIS. Any upgrades and changes to configuration must be concurred with by the WSCCB.

User documents will be controlled. Changes must undergo evaluation and be concurred with by the WSCCB.

Testing plans, procedures, and tests cases will be controlled by review and concurrence by the WSCCB as described in this program.

The WWIS data configuration will be maintained as described in WWIS program documents at WIPP. Deletion and change of data for waste containers and shipments which have been shipped, received, or emplaced will be performed by the DBA and must be preceded by an approved Data Change Request Sheet (Attachment 3). All data, either WWIS internal or other external data considered to be relevant to the data change, shall be attached to the Data Change Request Sheet.

6.3 WWIS Software Modifications

All modifications made to the WWIS software will be documented as comments in the source code of the affected software modules. Each entry will include :

- The date the modification was made
- The initials of the developer making the modification
- A description of, and/or reason for, the modification

All WWIS software modifications will be implemented in accordance with the process as prescribed in WWIS program documents at WIPP.

Prior to implementing changes in the WWIS software, changes will be tested. Testing will be documented in a formal test plan which is reviewed by the WSCCB.

WWIS software test plan elements will include:

- Computer program tested
- Computer hardware used, when applicable
- Date tests were performed
- Testers and data recorder (may be the same individual)
- Results and acceptability, including acceptance criteria
- Action taken in correcting any deviations
- Person evaluating test results



Test plans shall be developed to test the modified functions for minor revisions and will include version testing for major revisions. Documentation created during the test plan performance shall be attached to the completed test plan. Completed WWIS tests shall be reviewed by the WSCCB and the cognizant manager. The completed test plan will be incorporated into the WIPP Design Documentation by the WWIS CE.

6.4 Problem Reporting and Corrective Action

Problems and associated corrective actions identified for WWIS software modules will be documented by the WIPP WWIS team using the WWIS Quality Problem Reporting/Corrective Action Tracking Log. The log shall include the following items, at a minimum:

- Identification

- Problem Description
- Who Found
- Where Found (module, screen, field)
- Result of Defect (crashed, etc.)
- WWIS Team Evaluation - The evaluation shall include classification of the error in terms of significance to the integrity of the database, and impact on completed work. Problems which endanger software operability must be addressed immediately. Problems which inhibit or pose a potential danger to software functionality must be addressed immediately. Minor software latent defects or ergonomic enhancements will be corrected as needed.
- Remedial Action - Remedial action shall include prompt reporting of problems to affected organizations.
- Testing Needed (include regression testing)
- Corrective Action Needed
- Due Date/Completion Date

Resulting WWIS software modifications will be implemented in accordance with approved WWIS program documents and tracked in accordance with applicable WIPP engineering procedures.

6.5 Records

Record copies of required documentation will be retained with other project records as required by codes, standards, specifications, plans, or procedures.

Specific Records

- WWIS Data Change Request Sheet
- WWIS Software Modification Request Sheet
- WWIS Quality Problem Reporting/Corrective Action Tracking Log
- WWIS Software Configuration Control Log
- WWIS Initial Baseline
- WWIS Revisions

6.6 Definitions

Application Software - Developed or procured software designed for a specific purpose or purposes (see System Software).

Audit - An independent examination of a work product or set of work products to assess compliance with specifications, standards, contractual agreements, or other criteria.

Baseline - software that has been formally reviewed and agreed upon, and that can only be changed through formal change control procedures. Note: Baselines, plus approved changes from those baselines, constitute the current configuration identification.

Change Control - The process by which a change is proposed, evaluated, approved or rejected, scheduled, and tracked (see also Configuration Control).

Code - one or more computer programs, or part of a computer program.

Computer Program - a sequence of instructions suitable for processing by a computer. Processing may include the use of an assembler, a compiler, an interpreter, or a translator to prepare the program for execution as well as to execute it.

Configuration Control - (1) An element of configuration management, consisting of the evaluation, coordination, approval or disapproval, and implementation of changes to configuration items after formal establishment of their configuration identification. (2) the process of identifying and defining the configuration items in a system, controlling the release and change of these items throughout the system life cycle, recording and reporting the status of configuration items and change requests.



Configuration Identification - An element of configuration management, consisting of selecting the configuration items for a system and recording their functional and physical characteristics in technical documentation.

Configuration Item - a collection of hardware or software elements treated as a unit for the purpose of configuration control.

Configuration Management - A discipline applying technical and administrative direction and surveillance to identify and document the functional and physical characteristics of a configuration item; control changes to those characteristics; record and report change processing and implementation status; and verify compliance with specified requirements.

Error - a discrepancy between a computed, observed, or measured value or condition and the true, specified, or theoretically correct value or condition.

Records - (1) A set of related data items treated as a unit. (2) All documents associated with a particular project, including agreements and/or contracts, correspondence, specifications, design documents, user documentation, training plans and procedures, test plans and procedures, and configuration control documentation (i.e., software configuration management plans, software trouble reports, change requests and orders, change reports, and software status reports).

Regression Testing - any repetition of tests (usually after software or data change) intended to show that the software's behavior is unchanged except insofar as required by the change to the software or data.

Release - The formal notification and distribution of an approved version.

Requirement - (1) A condition or capability needed by a user to solve a problem or achieve an objective. (2) A condition or capability that must be met or possessed by a system or system component to satisfy a contract, standard, specification, or other formally imposed documents.

Review - A process or meeting during which a work product, or set of work products, is presented to project personnel, managers, users, customers, or other interested parties for comment or approval.

Software - computer programs, procedures, rules, and associated documentation and data pertaining to the operation of a computer system.

Software Life Cycle - the period of time that starts when a software product is conceived and ends when the software product is no longer available for routine use. The software life cycle typically includes a requirements phase, a design phase, an implementation phase, a test phase, an installation and checkout phase, an operation and maintenance phase, and sometimes a retirement phase.

Software Quality Assurance Plan - a plan for the development of software products necessary to provide adequate confidence that the software conforms to established requirements.

Software Validation - the test and evaluation of the completed software to ensure compliance with software requirements.

Software Verification - the process of determining whether or not the product of a given phase of the software development cycle fulfills the requirements imposed by the previous phase.

Systems Software - software designed for a specific computer system or family of computer systems to facilitate the operation and maintenance of the computer system and associated programs, for example, operating systems, compilers, and utilities. Examples include UNIX®, Windows, Oracle®, Designer 2000, etc.

Testing - the process of exercising or evaluating a system or system component by manual or automated means, to verify that it satisfies specified requirements or to identify differences between expected and actual results.

Test Case - a specific set of test data and associated procedures developed for a particular objective, such as to exercise a particular program path or to verify compliance with a specific requirement.

Test Plan - a document describing the approach to be taken for intended testing activities. The plan typically identifies the items to be tested, the testing to be performed, and test sequences

User - The person or organization who operates or interacts with the product, or who takes delivery of the product.

Version - (1) An initial release or re-release of a computer software configuration item, associated with a complete compilation or recompilation of the computer software configuration item. (2) An initial release or complete re-release of a document, as opposed to a revision resulting from issuing change pages to a previous release. A version creates a new baseline.

7.0 REFERENCES

Title 40 CFR, Subparts 191/194, Compliance Certification for the Waste Isolation Pilot Plant

Hazardous Waste Facility Permit, Waste Isolation Pilot Plant, Permit No. NM489139088-TSDF, issued by the New Mexico Environment Department, October 27, 1999

DOE/WIPP-069, Waste Acceptance Criteria for the Waste Isolation Pilot Plant



Title 40 *Code of Federal Regulations* (CFR) 191, Environmental Radiation Protection Standards for Management and Disposal of Spent Nuclear Fuel, High-Level and Transuranic Radioactive Wastes

Title 40 CFR 194, Criteria for the Certification and Recertification of the Waste Isolation Pilot Plant's Compliance with 40 CFR 191 Disposal Regulations

DOE/CAO [U.S. Department of Energy/Carlsbad Area Office] 1994-1012, Quality Assurance Program Description

DOE/CAO 1996-2184, Compliance Certification for the Waste Isolation Pilot Plant

IEEE-830, Recommended Criteria for Software Requirements Specifications

IEEE-1016, Recommended Criteria for Software Design

ANSI/IEEE Standard 610.12-1990, IEEE Standard Glossary of Software Engineering Terminology, Institute of Electrical and Electronics Engineers.

ANSI/IEEE Standard 828-1990, IEEE Standard for Software Configuration Plans, Institute of Electrical and Electronics Engineers

ANSI/IEEE Standard 1042-1987, IEEE Guide to Software Configuration Management,
Institute of Electrical and Electronics Engineers

ASME NQA-2-1989, Subpart 2.7, Quality Assurance Requirements for Computer
Software for Nuclear Facility Applications



ATTACHMENT 1

**DATA FIELDS AND FORMAT REQUIREMENTS FOR THE CHARACTERIZATION,
CERTIFICATION, AND SHIPPING MODULES**



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| Table Name | Field Name | Definition | Reqd? | Field Format | Units | Edit/Limit Checks | Driver(s) |
|---------------|-------------------|---|---------------------|--------------|-------|---|--|
| TWP_WST_CNTRS | SITE_ID | Electronic transfer temporary table used to transfer waste containers. 2 digit identification code assigned to the site which ships the waste. | YES | VARCHAR2(2) | n/a | LOV of shipper sites | 40 CFR 264.73 Required for Operating Record Primary DB Key field |
| TWP_WST_CNTRS | CNTR_NUM | A unique identification number assigned to each container. | YES | VARCHAR2(16) | n/a | unique | 40 CFR 264.73 Required for Operating Record Primary DB Key field |
| TWP_WST_CNTRS | HANDLING_CODE | The code is "CH" for contact handled or "RH" for remote handled TRU waste. | YES | VARCHAR2(2) | n/a | LOV of handling codes | Stores CH and RH information that is used by the database and provides information for queries. |
| TWP_WST_CNTRS | BG_DOSE_RATE | Beta/gamma contact dose rate at the surface of the Type A container. | YES; Req'd for Cert | NUMBER(7) | mR/hr | <= ref_wc_dose_rate_limits.bg_dose_rate_limit, bg_dose_rate + neu_dose_rate <= ref_wc_dose_rate_limits.total_dose_rate_limit | Information is used by Waste Handling to minimize radiation exposures ALARA. Compliance with WAC and WIPP TSR 5.9.10 |
| TWP_WST_CNTRS | NEUT_DOSE_RATE | Neutron contact dose rate at the surface of the Type A container. | YES; Req'd for Cert | NUMBER(7) | mR/hr | <= ref_wc_dose_rate_limits.neut_dose_rate_limit, bg_dose_rate + neut_dose_rate <= ref_wc_dose_rate_limits.total_dose_rate_limit | Information is used by Waste Handling to minimize radiation exposures ALARA. Compliance with WAC and WIPP TSR 5.9.10 |
| TWP_WST_CNTRS | CLOSURE_DATE | Date the container was closed. | YES; Req'd for Cert | DATE | n/a | none | WAP Table B.8. Compliance with Drum Age Criteria |
| TWP_WST_CNTRS | DECAY_HEAT | The rate of deposition of thermal energy within the container associated with the decay of radionuclides. The terms "decay heat," "watts" and "thermal power" are synonymous. | YES | NUMBER(10,6) | watt | <= ref_wac_limits.max_n_decay_heat if handling_code="RH" | Compliance with WIPP SAR 3.2.10 requirements for repository thermal loading. 10KW per acre. |
| TWP_WST_CNTRS | DECAY_HEAT_UNCERT | Uncertainty associated with the decay heat value for the container as required by the WAC. | YES; Req'd for Cert | NUMBER(10,6) | watt | none | No regulatory reporting driver. Transportation use. Listed in Appendix A of the WAC as reportable data. |
| TWP_WST_CNTRS | LINER_HOLE_SIZE | Size of Rigid Liner Hole Identifies whether the rigid 90-rill container liner was punctured (if applicable). | NO | NUMBER(6,3) | n/a | 7.62 Millimeters or greater if LINER_EXISTS is 'Y', otherwise null | WAP Compliance with Drum Age Criteria for headspace gas sampling and analysis |
| TWP_WST_CNTRS | VENT_DATE | The date when the container was first vented and, if applicable, the date that the rigid liner was punctured. | YES | DATE | n/a | None | WAP Compliance with Drum Age Criteria for headspace gas sampling and analysis |
| TWP_WST_CNTRS | GENERATOR_SITE_ID | 2 digit identification code assigned to the site which generated the waste. | YES | VARCHAR2(2) | n/a | LOV of generator sites | WAP Table B.8. |
| TWP_WST_CNTRS | IDC_CODE | A specific Item Description Code (IDC) assigned to individual waste forms. | NO | VARCHAR2(4) | n/a | WAP Table B.8. | WAP Table B.8. |
| TWP_WST_CNTRS | TRUCON_CODE | The TRUCON code which describes the contents of the container based on the site item description code. | YES | VARCHAR2(6) | n/a | LOV of TRUCON codes | No regulatory reporting driver. Transportation use only. TRUCON Codes required for soft check against the reference table entries. |
| TWP_WST_CNTRS | MATRIX_CODE | Numerical codes used to classify mixed wastes at DOE facilities. | YES | VARCHAR2(5) | n/a | None | WAP Table B.8. |
| TWP_WST_CNTRS | CERT_SITE | 2-digit identification code assigned to the site that certifies the waste. | YES; Req'd for Cert | VARCCHAR2(2) | n/a | LOV of certifier sites | No regulatory reporting driver. Required for check of site certification authority. |



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| Table Name | Field Name | Definition | Reqd? | Field Format | Units | Edit/Limit Checks | Driver(s) |
|---------------|-------------------------|---|---------------------|---------------|------------|--|---|
| TWP_WST_CNTRS | CERT_DATE | The date the container was certified. | YES; Req'd for Cart | DATE | n/a | None | WAP Table B. 8. |
| TWP_WST_CNTRS | FILL_FACTOR | Estimated percentage of the waste container volume occupied by the waste. | YES; Req'd for Cart | NUMBER(3) | % | 0_100 | Required for Biennial Report. Information is used for queries of quantities of waste volume emplaced in the repository. |
| TWP_WST_CNTRS | GROSS_WEIGHT | The gross weight of a container. | YES; Req'd for Cart | NUMBER(10,2) | kg | <= ref_container_types.gross_wgt_limit | Class 1. Compliance with WIPP WAC and WIPP Waste Handling limits. Contained in WAP Table B. 8 |
| TWP_WST_CNTRS | GROSS_WEIGHT_UNCE | The uncertainty associated with the gross weight value of the container. | NO | NUMBER(10,2) | kg | none | No regulatory reporting driver. Transportation use. TRUPACT_II SAR. |
| TWP_WST_CNTRS | LAYERS_OF_PACKAGING | Identifies the number of layers of plastic confinement within a container. | NO | NUMBER(3) | n/a | none | No regulatory reporting driver. Transportation use only. TRUPACT_II SAR |
| TWP_WST_CNTRS | PCB_CONC | The concentration of polychlorinated biphenyls. | YES; Req'd for Cart | NUMBER(6) | ppm | <= ref_wac_limits_max_pcb_conc | Compliance with WIPP WAC and WAP Table B. 8. |
| TWP_WST_CNTRS | PU239_EQ_ACT | The Pu_239 equivalent activity per container. | YES; Req'd for Cart | NUMBER(18,12) | PE_ci | <= ref_container_types.pu_239_eq_act_lim | Section 5.9.12 of the TSR. Included in the WIPP WAC. |
| TWP_WST_CNTRS | PU239_FISS_GM_EQ | The Pu_239 fissile gram equivalent per container. | YES | NUMBER(5,2) | FGE | <= ref_container_types.pu_239_fiss_gm_eq_q_limit | Section 5.9.12 of the TSR. Included in the WIPP WAC. |
| TWP_WST_CNTRS | PU239_FISS_GM_EQ_UNCERT | The Pu_239 fissile gram equivalent uncertainty per container. | YES | NUMBER(5,2) | FGE | none | No regulatory reporting driver. Transportation use only. However, listed in Appendix A of the WAC as reportable data. |
| TWP_WST_CNTRS | ALPHA_SURF_CONT | The removable alpha emitting radionuclide surface contamination on the waste container. | YES; Req'd for Cart | NUMBER(4) | dpm/100cm2 | <= ref_wac_limits_max_alpha_surf_cont | Section 5.9.12 of the TSR. Included in the WIPP WAC. |
| TWP_WST_CNTRS | BETA_GAMMA_SURF_CONT | The removable beta/gamma emitting radionuclide surface contamination on the waste container. | YES; Req'd for Cart | NUMBER(5) | dpm/100cm2 | <= ref_wac_limits_max_bg_surf_cont | Section 5.9.12 of the TSR. Included in the WIPP WAC. |
| TWP_WST_CNTRS | TRU_ALPHA_ACT | Summation of the alpha activities of the transuranic isotopes per container. | YES | NUMBER(18,12) | ci | | No regulatory reporting driver. However, listed in Appendix A of the WAC as reportable data. |
| TWP_WST_CNTRS | TRU_ALPHA_ACT_CONC | Summation of the alpha activities of the transuranic isotopes divided by the mass of the waste within a container (excluding the mass of the container, liner, and any shielding). The reported value does not include any uncertainty. | YES | NUMBER(18,12) | ci/g | tru_alpha_act_conc > ref_wac_limits_min_tru_alpha_act_conc | Compliance with WIPP WAC, EPA Compliance Certification, Land Withdrawal Act and regulatory minimum limit of 100 nCi/g. |
| TWP_WST_CNTRS | TRU_ALPHA_ACT_UNCERT | Uncertainty associated with the reported TRU alpha activity concentration. | YES | NUMBER(18,12) | ci/g | None | No regulatory reporting requirement. However, listed in Appendix A of the WAC as reportable data. |
| TWP_WST_CNTRS | TRU_ALPHA_ACT_UNCE | Uncertainty associated with the reported TRU alpha activity per container. | YES; Req'd for Cart | NUMBER(18,12) | ci | None | No regulatory reporting requirement. However, listed in Appendix A of the WAC as reportable data. |
| TWP_WST_CNTRS | WAC_REV_NUM | Revision number of the WIPP WAC to which the waste was certified. | YES | VARCHAR2(2) | n/a | LOV of WAC revisions | No regulatory reporting driver. |

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| Table Name | Field Name | Definition | Reqd? | Field Format | Units | Edit/Limit Checks | Driver(s) |
|-----------------|-----------------------|---|---|---------------|---------|--|---|
| TMP_WST_CNTRS | WST_STRM_PROFILE | The number assigned to the Waste Stream Profile Form associated with the waste stream. (Concatenating a period and additional numeric value to the end of the waste stream number designates a waste stream lot.) | YES | VARCHAR2(20) | n/a | LOV of WSPFs. CHARZ: WSPF must be unapproved. CERT: WSPF must be approved. | WAP Table B_8. |
| TMP_WST_CNTRS | SHIPPING_CATEGORY | The shipping category assigned to the container. | YES; Req'd for Cert | VARCHAR2(10) | n/a | LOV of shipping categories | No regulatory reporting driver. Required for edit check against the reference table entries. |
| TMP_WST_CNTRS | ASPIRATION_METHOD_ID | Method used for aspirating the container prior to shipment per Appendix 1.3.7 of the TRUPACT II SAR. Method is to be identified as either Option N, 1, 2, or 3. | YES | VARCHAR2(2) | n/a | LOV of aspiration methods | No regulatory reporting driver. Transportation use only. TRUPACT II SAR. Can also be used to verify compliance with Drum Age Criteria requirements for headspace gas sampling of newly generated waste. |
| TMP_WST_CNTRS | TYPE_CODE | A 3 digit container type code. | YES | VARCHAR2(3) | n/a | LOV of container types | WAP Table B_8; WIPP WAC and WIPP TSR. |
| TMP_WST_CNTRS | LINER_EXISTS | Identifies the presence of container liner if applicable. | No; See Edit/Limit | CHAR(1) | n/a | Y or N | No regulatory reporting driver. Transportation use only. TRUPACT II SAR |
| TMP_WST_CNTRS | WAC_EXCEPT_NUM | A number granted to the shipper for an exception to the WAC. The number consists of a 2 character site code plus the last two numbers of the year the request was made plus a sequential number beginning with one each year. | No; Only for approved Exception on a container basis. | VARCHAR2(13) | n/a | LOV of approved exception numbers | No regulatory driver. Currently planned for approval of containers which exceed room_based VOC limits. |
| TMP_WST_CNTRS | WST_STRM_BIR_ID | The waste stream BIR identification number. | NO | VARCHAR2(15) | n/a | none | No regulatory reporting driver. |
| TMP_WST_CNTRS | WST_STRM_MWIR_ID | The waste stream MWIR identification number. | NO | VARCHAR2(15) | n/a | none | No regulatory reporting driver. May be needed by DOE HQ to adjust MWIR database. |
| TMP_WST_CNTRS | GAS_GEN_RATE | Measured total gas generation rate for a container. | No; See Driver(s) | NUMBER(18,12) | moles/s | none | No regulatory reporting driver. Transportation use only. TRUPACT II SAR. Required if Aspiration Method is "T" for Test Category Waste. |
| TMP_WST_CNTRS | GAS_GEN_COMP_DATE | The date of last completion for a container. | No; See Driver(s) | DATE | n/a | none | No regulatory reporting driver. Transportation use only. TRUPACT II SAR. Required if Aspiration Method is "T" for Test Category Waste. |
| TMP_WST_CNTRS | GAS_HYD METH_GEN_RATE | Measured hydrogen and methane gas generation rate for a container. | No; See Driver(s) | NUMBER(18,12) | moles/s | none | No regulatory reporting driver. Transportation use only. TRUPACT II SAR. Required if Aspiration Method is "T" for Test Category Waste. |
| TMP_WC_NUCLIDES | CNTR_NUM | Electronic transfer temporary table used to identify the radionuclides associated with each waste container. | YES | VARCHAR2(16) | n/a | none | 40CFR 264.73 Required for Operating Record Primary DB key field |
| TMP_WC_NUCLIDES | SITE_ID | 2 digit identification code assigned to the site which ships the waste. | YES | VARCHAR2(2) | n/a | LOV of sites | 40CFR 264.73 Required for Operating Record |
| TMP_WC_NUCLIDES | RADIONUCLIDE | The radionuclide present in the waste container. | YES | VARCHAR2(7) | n/a | LOV of radionuclides | EPA Compliance Certification |
| TMP_WC_NUCLIDES | ACTIVITY | Activity of the individual radionuclide. | YES | NUMBER(18,12) | d | none | EPA Compliance Certification |
| TMP_WC_NUCLIDES | ACTIVITY_UNCERT | Uncertainty in the reported value of the activity of the individual radionuclide. | YES | NUMBER(18,12) | d | none | No regulatory reporting requirement. However, listed in Appendix A of the WAC as reportable data. |
| TMP_WC_NUCLIDES | MASS | Mass of the individual radionuclide. | YES | NUMBER(18,12) | g | none | EPA Compliance Certification |





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| Table Name | Field Name | Definition | Reqd? | Field Format | Units | Edit/Limit Checks | Driver(s) |
|----------------------|---------------------|--|-------|---------------|-------|---|---|
| TWP_WC_NUCLIDES | MASS_UNCERT | Uncertainty in the reported value of the mass of the individual radionuclide. | YES | NUMBER(18,12) | g | none | No regulatory reporting requirement. However, listed in Appendix A of the WAC as reportable data. |
| TWP_WC_NUCLIDES | DISPLAYED_SHIP | Flag to identify whether or not the associated radionuclide will be included on the shipment manifest. | NO | CHAR(1) | n/a | Y or NULL | No regulatory reporting driver. |
| TWP_WC_FILTERS | | Electronic transfer temporary table used to identify the filter models installed in each waste container. | | | | | |
| TWP_WC_FILTERS | CNTR_NUM | A unique identification number assigned to each container. | YES | VARCHAR(16) | n/a | unique | 40 CFR 264.73. Required for Operating Record. Primary DB Key Field |
| TWP_WC_FILTERS | SITE_ID | 2 digit identification code assigned to the site which ships the waste. | YES | VARCHAR(2) | n/a | LOV of Shipper Sites | 40 CFR 264.73. Required for Operating Record. Primary DB Key Field |
| TWP_WC_FILTERS | FILTER_MODEL | Vendor model number of the filter(s) used to vent the container. | NO | VARCHAR(6) | n/a | LOV of Filter Models | No regulatory reporting driver. Transportation use only. Approved filter list included in the WAC. To be used for future emissions reporting at WIPP. |
| TWP_WC_FILTERS | QTY | Number of filters installed. | NO | NUMBER(2) | n/a | none | No regulatory reporting driver. Transportation use only. Approved filter list included in the WAC. To be used for future emissions reporting at WIPP. |
| TWP_WC_FILTERS | FILTER_INSTALL_DATE | Installation date of the specified filter. | NO | DATE | n/a | none | WAP. Compliance with Drum Age Criteria for head space gas sampling and analysis |
| TWP_WC_MAT_PARAMS | | Electronic transfer temporary table used to identify the material parameters associated with each waste container. | | | | | |
| TWP_WC_MAT_PARAMS | CNTR_NUM | A unique identification number assigned to each container. | YES | VARCHAR(16) | n/a | none | 40CFR 264.73 Required for Operating Record Primary DB Key field Contained in WAP Table B.8 |
| TWP_WC_MAT_PARAMS | SITE_ID | 2 digit identification code assigned to the site that ships the waste. | YES | VARCHAR(2) | n/a | LOV of sites | 40CFR 264.73 Required for Operating Record Primary DB Key field Contained in WAP Table B.8 |
| TWP_WC_MAT_PARAMS | WASTE_MATL_PARM | Waste materials having the potential of impacting the performance assessment. The sum of these parameters will be added and is equal to the waste weight (which excludes the weight of the drum, rigid liner and other packaging materials). | YES | VARCHAR(40) | n/a | LOV of waste material parameters | EPA Compliance Certification Contained in WAP Table B.8 |
| TWP_WC_MAT_PARAMS | WGHT_OF_MAT_PARAMS | The estimated weight of the waste material parameter. | YES | NUMBER(10,2) | kg | Sum of wgt. of mat_parms + ref_container_types.cntr_wgt + ref_liners.wgt = tmp_wgt.cntrs.gross_weight +/ ref_wsc_limits.mat_parm_diff % | EPA Compliance Certification Contained in WAP Table B.8 |
| TWP_WC_ASSAY_METHODS | | Electronic transfer temporary table used to identify the assay methods associated with each waste container. | | | | | |
| TWP_WC_ASSAY_METHODS | CNTR_NUM | A unique identification number assigned to each container. | YES | VARCHAR(16) | n/a | none | 40CFR 264.73 Required for Operating Record Primary DB Key field Contained in WAP Table B.8 |
| TWP_WC_ASSAY_METHODS | SITE_ID | 2 digit identification code assigned to the site which ships the waste. | YES | VARCHAR(2) | n/a | LOV of sites | 40CFR 264.73 Required for Operating Record Primary DB Key field Contained in WAP Table B.8 |
| TWP_WC_ASSAY_METHODS | RADIO_ASSAY_METHOD | Identifies the site specific approved characterization method(s) or system(s) that was used to identify and quantify the radionuclide masses. | YES | VARCHAR(4) | n/a | LOV of assay methods | No regulatory reporting driver. However, information used at WIPP to confirm approved assay method is used. |
| TWP_WC_ASSAY_METHODS | ASSAY_DATE | The date the assay was completed at the certification site. | YES | DATE | n/a | none | No regulatory driver. However, a start date for decay calculations of future repository source term |
| TWP_WC_CHARZ_METHODS | | Electronic transfer temporary table used to identify the characterization methods associated with each waste container. | | | | | |



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| Table Name | Field Name | Definition | Reqd? | Field Format | Units | Edit/Limit Checks | Driver(s) |
|-----------------------|-------------------|---|-------|--------------|-------|--|--|
| TMP_WC_CHARZ_METHODS | METHOD_ID | Identifies the characterization methods or systems that were used to obtain the waste characterization data. | YES | VARCHAR(20) | n/a | LOV of characterization methods | WAP Table B_8. Includes ID of VE and RTR. |
| TMP_WC_CHARZ_METHODS | SITE_ID | 2 digit identification code assigned to the site which ships the waste. | YES | VARCHAR(2) | n/a | LOV of sites | 40CFR 264.73 WAP Table B_8. |
| TMP_WC_CHARZ_METHODS | CNTR_NUM | A unique identification number assigned to each container. | YES | VARCHAR(16) | n/a | none | 40CFR 264.73 WAP Table B_8. |
| TMP_WC_CHARZ_METHODS | CHARZ_METHOD_DATE | The date the characterization was completed prior to shipment to WIPP. | YES | DATE | n/a | none | 40CFR 264.73 WAP Table B_8. |
| TMP_WC_HAZ_CODES | | Electronic transfer temporary table used to identify the hazardous codes associated with each waste container. | | | | | |
| TMP_WC_HAZ_CODES | CNTR_NUM | A unique identification number assigned to each container. | YES | VARCHAR(16) | n/a | none | 40CFR 264.73 Required for Operating Record Primary DB Key field |
| TMP_WC_HAZ_CODES | SITE_ID | 2-digit identification code assigned to the site which ships the waste. | YES | VARCHAR(2) | n/a | LOV of sites | 40CFR 264.73 Required for Operating Record Primary DB Key field |
| TMP_WC_HAZ_CODES | HAZ_CODE | Hazardous waste EPA codes listed for the container. This is a multiple occurring field. | YES | VARCHAR(4) | n/a | LOV of hazardous waste codes | WAP Table B_8. If mixed waste _ not required otherwise |
| TMP_WC_SAMPLES | | Electronic transfer temporary table used to identify the samples associated with each waste container. | | | | | |
| TMP_WC_SAMPLES | CNTR_NUM | A unique identification number assigned to each container. | YES | VARCHAR(16) | n/a | none | 40CFR 264.73 Required for Operating Record Primary DB Key field Contained in WAP Table B_8 |
| TMP_WC_SAMPLES | SITE_ID | 2, digit identification code assigned to the site that ships the waste. | YES | VARCHAR(2) | n/a | LOV of sites | 40CFR 264.73 Required for Operating Record Primary DB Key field Contained in WAP Table B_8 |
| TMP_WC_SAMPLES | SAMPLE_ID | The identification number assigned to the sample. | YES | VARCHAR(15) | n/a | none | Used by the database to establish a unique I.D. for the sample. |
| TMP_WC_SAMPLES | SAMPLE_TYPE | An acronym for the type of sample being taken (e.g., head space = HS). | YES | VARCHAR(4) | n/a | LOV of sample types | WAP Table B_8. |
| TMP_WC_SAMPLES | DATE_SAMPLED | The date the sample was taken. | YES | DATE | n/a | <= tmp_wc_sample_amounts.date_analyze >= tmp_wc_sample_amounts.date_analyze d_date_sampled <= ref_wc_smp_lmts.date_analyzed_l mth | WAP Table B_8. |
| TMP_WC_SAMPLES | LAYER_NO_SAMPLED | A number assigned to each layer with the headspace being assigned the number 0 and each sequential layer given the next higher number (1, 2, etc.). | NO | NUMBER(2) | n/a | none | No regulatory reporting driver. |
| TMP_WC_SAMPLE_AMOUNTS | | Electronic transfer temporary table used to identify the sample amounts associated with each waste container. | | | | | |
| TMP_WC_SAMPLE_AMOUNTS | CNTR_NUM | A unique identification number assigned to each container. | YES | VARCHAR(16) | n/a | none | 40CFR 264.73 Required for Operating Record Primary DB Key field |
| TMP_WC_SAMPLE_AMOUNTS | SITE_ID | 2, digit identification code assigned to the site that ships the waste. | YES | VARCHAR(2) | n/a | LOV of sites | 40CFR 264.73 Required for Operating Record Primary DB Key field |
| TMP_WC_SAMPLE_AMOUNTS | SAMPLE_ID | The identification number assigned to the sample. | YES | VARCHAR(15) | n/a | none | Used by the database to establish a unique I.D. for the sample. |

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| Table Name | Field Name | Definition | Reqd? | Field Format | Units | Edit/Limit Checks | Driver(s) |
|-----------------------|--------------------|---|-------|--------------|-------|---|---|
| TMP_WC_SAMPLE_AMOUNTS | SAMPLE_TYPE | An acronym for the type of sample being taken (e.g., head space = HS). | YES | VARCHAR2(4) | n/a | LOV of sample types | No regulatory driver for WWIS reporting. However, used at WIPP to correlate analysis results (i.e. HS Gas vs. Total sample) |
| TMP_WC_SAMPLE_AMOUNTS | CAS_NUMBER | The chemical abstract number of the element, ion, or compound an analysis seeks to determine; the element of interest. | Yes | VARCHAR2(20) | n/a | LOV of analyses | WAP Table B.8. |
| TMP_WC_SAMPLE_AMOUNTS | DATE_SAMPLED | The date the analyte sample was taken. | YES | DATE | n/a | none | WAP Table B.8. |
| TMP_WC_SAMPLE_AMOUNTS | METHOD_ID | Identifies the approved characterization methods that were used to obtain the waste analyte data. | YES | VARCHAR2(20) | n/a | LOV of analysis methods | WAP Table B.8. |
| TMP_WC_SAMPLE_AMOUNTS | DATE_ANALYZED | The date the analyte analysis was completed. | YES | DATE | n/a | >= tmp_wc_samples.date_sampled, date_analyzed - tmp_wc_samples.date_sampled <= ref_wc_smp_amt_lims.date_analyzed - init | WAP Table B.8. |
| TMP_WC_SAMPLE_AMOUNTS | REPORTING_FLAG_N/A | Designator which was used by the analytical laboratory to indicate that reporting flags were not applicable to the sample. | NO | VARCHAR2(2) | n/a | none | No regulatory driver for WWIS reporting. |
| TMP_WC_SAMPLE_AMOUNTS | REPORTING_FLAG_B | Designator which was used by the analytical laboratory to indicate analyte detected in sample blank (headspace Gases) or that the analyte blank concentration was greater than or equal to 20 percent of sample concentration prior to dilution corrections (Metals). | NO | VARCHAR2(2) | n/a | none | No regulatory driver for WWIS reporting. |
| TMP_WC_SAMPLE_AMOUNTS | REPORTING_FLAG_E | Designator which was used by the analytical laboratory to indicate that the analyte exceeds the calibration curve. | NO | VARCHAR2(2) | n/a | none | No regulatory driver for WWIS reporting. |
| TMP_WC_SAMPLE_AMOUNTS | REPORTING_FLAG_J | Designator which was used by the analytical laboratory to indicate that the analyte concentration is less than PROL but greater than or equal to MDL. | NO | VARCHAR2(2) | n/a | none | No regulatory driver for WWIS reporting. |
| TMP_WC_SAMPLE_AMOUNTS | REPORTING_FLAG_U | Designator which was used by the analytical laboratory to indicate analyte was not detected and value is reported as the MDL. | NO | VARCHAR2(2) | n/a | none | No regulatory driver for WWIS reporting. |
| TMP_WC_SAMPLE_AMOUNTS | REPORTING_FLAG_D | Designator which was used by the analytical laboratory to indicate that the analyte was quantitated from a secondary dilution or reduce sample aliquot. | NO | VARCHAR2(2) | n/a | none | No regulatory driver for WWIS reporting. |
| TMP_WC_SAMPLE_AMOUNTS | REPORTING_FLAG_CMB | For future use. Currently not used. | NO | VARCHAR2(20) | n/a | none | No regulatory driver for WWIS reporting. |
| TMP_WC_SAMPLE_AMOUNTS | CONC_MG_KG | The analyte concentration in mg/kg. | YES | NUMBER(10,3) | mg/kg | One of the three conc_ fields must contain a value. The other two must be NULL. | WAP Table B.8. Applicable only to concentrations of total metals homogeneous wastes. |



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| Table Name | Field Name | Definition | Reqd? | Field Format | Units | Edit/Limit Checks | Driver(s) |
|-----------------------|--------------|---|-------|---------------|-------|--|---|
| TWP_WC_SAMPLE_AMOUNTS | CONC_PPM | The analyte concentration in ppm. | YES | NUMBER(10,3) | ppm | One of the three conc_ fields must contain a value. The other two must be NULL. | WAP Table B_8. Applicable to headspace gas analysis. |
| TWP_WC_SAMPLE_AMOUNTS | CONC_VOL_PCT | The analyte concentration in terms of volume percentage. | YES | NUMBER(7,4) | vol% | One of the three conc_ fields must contain a value. The other two must be NULL. | Applicable only to hydrogen and methane concentrations. No regulatory driver for WWIS reporting |
| TWP_WC_COMMENTS | | | | | | | |
| TWP_WC_COMMENTS | CNTR_NUM | Electronic transfer temporary table used to identify the comments associated with each waste container. | YES | VARCHAR2(16) | n/a | none | 40CFR 264.73 Required for Operating Record Primary DB Key field |
| TWP_WC_COMMENTS | SITE_ID | A unique identification number assigned to each container. | YES | VARCHAR2(2) | n/a | LOV of sites | 40CFR 264.73 Required for Operating Record Primary DB Key field |
| TWP_WC_COMMENTS | COMMENTS | 2 digit identification code assigned to the site which ships the waste. Data field to be used to provide additional information. | NO | VARCHAR2(200) | n/a | none | No regulatory reporting driver. Data Field is made available to users for the purpose of providing information not captured in other data fields. |
| TWP_WC_COMMENTS | COMMENT_TYPE | A general category field for comments. | NO | VARCHAR2(25) | n/a | LOV of comment types | No regulatory reporting driver. Data Field is made available to users for the purpose of categorizing information input to the comment field. |

References for the WWIS Field Name Drivers:

- 40CFR262_ Standards Applicable to Generators of Hazardous Wastes
- CCA_ Compliance Certification Application (and subsequent Compliance Determination by the EPA)
- SAR_ WIPP Safety Analysis Report
- SARP_ TRUPACT_II Safety Analysis Report for Packaging
- WAC_ Waste Acceptance Criteria for the WIPP
- WAP_ Waste Analysis Plan, Attachment B, WIPP Hazardous Waste Permit



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| Table Name | Field Name | Definition | Reqd? | Field Format | Units | Edit/Limit Check | Driver(s) |
|---------------|-------------------|---|-----------------------------|---------------|-------|---------------------------|---|
| TMP_SHIPMENTS | SHIPMENT_NUM | Electronic transfer temporary table used to transfer shipment records. | YES | VARCHAR2(12) | n/a | unique | 40CFR264.73 Required for Operating Record |
| TMP_SHIPMENTS | SITE_ID | Letters and numbers assigned to uniquely identify the shipment. Must be the Manifest number for mixed waste shipments | YES | VARCHAR2(2) | n/a | LOV of shipper sites | 40CFR264.73 Required for Operating Record |
| TMP_SHIPMENTS | SEND_DATE | 2 digit identification code assigned to the site which ships the waste. | YES; can be null until ship | DATE | n/a | none | Contained in Table B_8 of the WAP |
| TMP_SHIPMENTS | CERT_DATE | The date that the shipment left the shipper site. | YES; can be null until ship | DATE | n/a | none | No regulatory reporting driver |
| TMP_SHIPMENTS | VEHICLE_TYPE | The date when the shipment was certified for transport to the WIPP. | NO | VARCHAR2(1) | n/a | LOV of vehicle types | No regulatory reporting driver |
| TMP_SHIPMENTS | TRANSPORTER_NAME | The type of vehicle used to transport the waste. | YES; can be null until ship | VARCHAR2(25) | n/a | LOV of transporters | Contained in Table B_8 of the WAP |
| TMP_PACKAGING | PACKAGING_NUM | The name of the transport company of the waste shipment. | YES; can be null until ship | VARCHAR2(7) | n/a | LOV of available packages | Wap Table B_8 |
| TMP_PACKAGING | SHIPMENT_NUM | Electronic transfer temporary table used to identify the shipping packages included in a shipment. | YES | VARCHAR2(12) | n/a | none | 40CFR264.73 Required for Operating Record |
| TMP_PACKAGING | TYPE_CODE | Letters and numbers assigned to uniquely identify the shipment. Must be the Manifest number for mixed waste shipments | YES | VARCHAR2(3) | n/a | LOV of container types | Required for check of approved container shipping configurations in the TRUPACT_II |
| TMP_PACKAGING | DECAY_HEAT | A 3 digit container group code. | NO | NUMBER(10,6) | wait | none | No regulatory reporting driver. Transportation use only. DOT & TRUPACT_II SAR. |
| TMP_PACKAGING | DECAY_HEAT_UNCERT | Sum of decay heats of containers within the package. | NO | NUMBER(10,6) | wait | none | No regulatory reporting driver. Transportation use only. DOT & TRUPACT_II SAR |
| TMP_PACKAGING | DOSE_RATE_1M | Squares root of the sum of the squares of decay heat uncertainties of containers within the package. | YES; can be null until ship | NUMBER(7) | mR/hr | none | No regulatory reporting driver. Used to establish Transportation Index per DOT. Currently required for "Complete Ship" status |
| TMP_PACKAGING | DOT_DESC | Total dose rate at 1 meter from the surface of the Type B packaging (required to assign a transport index). | NO | VARCHAR2(160) | n/a | none | No regulatory reporting driver. Transportation use only. DOT |
| TMP_PACKAGING | DOSE_RATE_2M | U.S. Dept. of Transportation description for the Uniform Hazardous Waste Manifest. | YES; can be null until ship | NUMBER(7) | mR/hr | none | No regulatory reporting driver. Transportation use only. DOT & TRUPACT_II SAR. Currently required for "Complete Ship" status |
| TMP_PACKAGING | DOSE_RATE_SURF | Total dose rate at 2 meters from the surface of the Type B packaging. | YES; can be null until ship | NUMBER(7) | mR/hr | none | No regulatory reporting driver. Transportation use only. DOT & TRUPACT_II SAR. Currently required for "Complete Ship" status |



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| Field Name | Field Description | Yes, can be null until ship | DATE | n/a | none | TRUPACT II 60 Day clock start date. Currently required for "Complete Ship" status | |
|--------------------|-------------------------------|---|------------------------------|----------------------------------|------|---|---|
| TMP_PACKAGING | ICV_CLOSURE_DATE | The date when the inner containment vessel was closed. | | | | | |
| TMP_PACKAGING | OCA_LID_NUM | The serial number of the lid of the outer containment vessel. | NO | VARCHAR2(8) | n/a | none | No regulatory reporting driver |
| TMP_PACKAGING | RADIONUC_RPT_QTY | Does the quantity of radioactive material in a Type B package equal or exceed the quantity listed in 49 CFR 172.1017? | NO | VARCHAR2(1) | n/a | Y or NULL | No regulatory reporting driver. Transportation use only. DOT |
| TMP_PACKAGING | RADIONUC_HMV_ROUT_E_CONTR_QTY | Does the quantity of normal form radioactive material in a Type B package exceed 3,000 times the A2 value of the radionuclides as specified in 49 CFR 173.443 or 30,000 curies, which ever is less? | NO | VARCHAR2(1) | n/a | Y or NULL | No regulatory reporting driver. Transportation use only. DOT |
| TMP_ASSEMBLIES | | Electronic transfer temporary table used to identify the waste assemblies contained in each shipping package of a shipment. | | | | | |
| TMP_ASSEMBLIES | ASSEMBLY_ID | A unique number assigned by the shipper to an assembly. | YES | VARCHAR2 (Maximum 8 characters) | n/a | unique | WAP Table B_8. |
| TMP_ASSEMBLIES | PACKAGING_NUM | The TRUPACT II, cask or other Type B shipping package number. | YES | VARCHAR2 (Maximum 7 characters) | n/a | none | WAP Table B_8. |
| TMP_ASSEMBLIES | SHIPMENT_NUM | Letters and numbers assigned to uniquely identify the shipment. Must be the Manifest number for mixed waste shipments | YES | VARCHAR2 (Maximum 12 characters) | n/a | none | 40CFR264.73 Required for Operating Record |
| TMP_SHIP_WST_CNTRS | | Electronic transfer temporary table used to identify the assembly, shipping package, and shipment associated with each waste container. | | | | | |
| TMP_SHIP_WST_CNTRS | CNTR_NUM | A unique identification number assigned to each container. | YES | VARCHAR2(16) | n/a | none | 40CFR264.73 Required for Operating Record. Primary DB Key field Contained in WAP Table B_8 |
| TMP_SHIP_WST_CNTRS | SHIPMENT_NUM | Letters and numbers assigned to uniquely identify the shipment. Must be the Manifest number for mixed waste shipments | YES | VARCHAR2(12) | n/a | none | 40CFR264.73 Required for Operating Record Contained in WAP Table B_8 |
| TMP_SHIP_WST_CNTRS | PACKAGING_NUM | The TRUPACT II, cask or other Type B shipping package number. | YES | VARCHAR2(7) | n/a | none | Contained in Table B_8 of the WAP |
| TMP_SHIP_WST_CNTRS | ASSEMBLY_ID | A unique number assigned by the shipper to an assembly. | YES | VARCHAR2(6) | n/a | none | 40CFR264.73 Required for Operating Record. Used at WIPP to document emplacement locations of waste containers. Contained in WAP Table B_8 |
| TMP_DUNNAGE_CNTRS | | Electronic transfer temporary table used to identify the dunnage containers included in a shipment. | | | | | |
| TMP_DUNNAGE_CNTRS | CNTR_NUM | A unique identification number assigned to each dunnage container which is part of an assembly of waste containers. | YES, if used in waste assay. | VARCHAR2(6) | n/a | unique | 40CFR 264.75 Required for Operating Record and Biennial Report. |
| TMP_DUNNAGE_CNTRS | PACKAGING_NUM | The TRUPACT II, cask or other Type B shipping package number. | YES | VARCHAR2(7) | n/a | none | WIPP Land Withdrawal Act WAP Table B_8 |



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| Field Name | Field Type | Description | Required | Default | Notes |
|--------------|------------|---|----------|---------|---|
| SHIPMENT_NUM | NUMERIC | Letters and numbers assigned to uniquely identify the shipment. Must be the highest number for mixed waste shipments | YES | | 40CFR264.73 Required for Operating Record |
| ASSEMBLY_ID | NUMERIC | A unique number assigned by the shipper to an assembly. The number consists of the 2 letter site identification code followed by the last two digits of the year and the 4 digit package assembly number. | YES | | WAP Table B.8. |
| TYPE_CODE | CHAR(3) | A 3 digit container type code. | YES | | No regulatory driver. However, a needed field for DB construct and facilitates container related queries and reports of emplaced container types. |

References for the WVIS Field Name Drivers:

40CFR262 Standards Applicable to Generators of Hazardous Wastes

CCA Compliance Certification Application

SAR WIPP Safety Analysis Report

SARP TRUPACT II Safety Analysis Report for Packaging

WAC Waste Acceptance Criteria for the WIPP

WAP Waste Analysis Plan, Attachment B: WIPP Hazardous Waste Permit



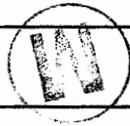
ATTACHMENT 2 - WWIS SOFTWARE MODIFICATION REQUEST SHEET

| | | |
|---|-----------|--------------------|
| WSMR Number: _____ | | |
| Title of Request: _____ | | |
| Description of Request (use additional sheets as necessary): | | |
| Requester Name | Signature | Date |
| Approvals: | | |
| WWIS Data Administrator Name | Signature | Date |
| WWIS Cognizant Engineer Name | Signature | Date |
| WWIS Software QA Specialist Name | Signature | Date |
| WWIS Database Administrator | Signature | Date |
| Concurrence: | | |
| Cognizant Manager | Signature | Date |
| | Signature | Date |
| Description of Modification (to be completed by Database Administrator) | | |
| WWIS Version Number (Implementation): _____ | | |
| Test Plan Section Number: _____ | | Date Tested: _____ |
| Name/Title of Individual who Performed the Test: _____ | | |



ATTACHMENT 3 - WWIS DATA CHANGE REQUEST SHEET

| | | |
|---|-----------------------------|-------------------|
| Data Change Number: _____ | | |
| Brief Description of Data Change: _____ | | |
| Detailed Description of (use additional sheets as necessary): | | |
| (Fill in the Blanks) | | |
| Container #: _____ | Date of Receipt: _____ | Shipment #: _____ |
| Date Emplaced: _____ | Emplacement Location: _____ | |
| Shipper Site: _____ | Technical Contact: _____ | |
| Requester Name _____ | Signature _____ | Date _____ |
| Approvals: | | |
| WWIS Data Administrator Name _____ | Signature _____ | Date _____ |
| WWIS Cognizant Engineer Name _____ | Signature _____ | Date _____ |
| WWIS Software QA Specialist Name _____ | Signature _____ | Date _____ |
| WWIS Database Administrator _____ | Signature _____ | Date _____ |
| Concurrence: | | |
| Cognizant Manager _____ | Signature _____ | Date _____ |
| _____ | Signature _____ | Date _____ |



WTS REVIEW SHEET

SUBJECT: Transmittal of draft WWIS User manual for use by

ORIGINATOR: Shippers/Generators, Rev 4, DOE/CAO 97-2073 ADDRESSEE: Watson

DEPARTMENT LETTER NUMBER: Kearney TP01 00050 UFC NUMBER: 5822.00

STAR NUMBER: _____ DUE DATE: _____ ACTION PARTY: _____

REVIEW

REVIEWER: J Cotton ORGANIZATION: NTP Busmgt SIGNATURE: [Signature]
APPROVED: YES NO DATE: 7/31/01

REVIEWER: M. KEARNEY ORGANIZATION: Programs SIGNATURE: [Signature]
APPROVED: YES NO DATE: 09 Aug 2001

REVIEWER: _____ ORGANIZATION: _____ SIGNATURE: _____
APPROVED: YES NO DATE: _____

REVIEWER: _____ ORGANIZATION: _____ SIGNATURE: _____
APPROVED: YES NO DATE: _____

COMMENTS: _____

COGNIZANT PROFESSIONAL: _____ Date: _____

SIGNATURE OF AUTHOR: _____ Date: _____



