WIPP Waste Information System
User's Manual

WWIS Software Version 6.2

May 2008

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WIPP Waste Information System
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WWIS Software Version 6.2

Original Signed by   May 15, 2008
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Office of the National TRU Program

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WWIS ABBREVIATIONS AND ACRONYMS

AFGC	Allowable Flammable Gas Concentration
AFGGR	Allowable Flammable Gas Generation Rate
AK	acceptable knowledge
ATGRR	Allowable Total Gas Release Rate
BDR	Batch Data Report
C of C	Certificate of Compliance
CAR	corrective action report
CASE	Computer-Aided Software Engineering
CBFO	Carlsbad Field Office
CE	Cognizant Engineer
CH	contact-handled
CHTES	CH-TRAMPAC Evaluation Software
Ci	Curie
CPR	cellulose, plastic, rubber
DA	Data Administrator
DAC	drum age criteria
DOE	U.S. Department of Energy
DOE-NET	DOE Network
DOT	U.S. Department of Transportation
EPA	U.S. Environmental Protection Agency
ETSG	Enterprise Technology Solution Group
FGE	fissile gram equivalent
FGGR	flammable gas generation rate
FGVC	Flammable Gas/VOC Concentration
FI	flammability index
HAC	Hypothetical Accident Conditions
HRCQ	highway route control quantity
ICL	Inner Confinement Layer
ICV	Inner Containment Vessel
INL	Idaho National Laboratory
ISSM	Information Systems Site Security Manager
Kg	kilogram
LLD	lower limit of detection
MixCat	Mixed Category algorithm for shipping categories
MLEL	mixture lower explosive limit
mrem/hr	milliroentgen equivalent man per hour

NCR	nonconformance report
NIC	network interface card
NRC	U.S. Nuclear Regulatory Commission
OJT	on-the-job training
OPCTCD	Overpack Payload Container Transportation Certification Document
PATCD	Payload Assembly Transportation Certification Document
PCB	polychlorinated biphenyl
PCTCD	Payload Container Transportation Certification Document
PE-Ci	Pu-239 equivalent Curie
PF	Prediction Factor
PL/SQL	Procedure Language/Structured Query Language
PPM	parts per million
PWR	Plant Work Request
QA	Quality Assurance
RH	remote-handled
RH-TRAMPAC	Remote-Handled Transuranic Waste Authorized Methods for Payload Control
RHTES	RH-TRAMPAC Evaluation Software
RIS	Reporting Identification Symbol
RMS	root mean square
RQ	reportable quantity
RSS	Root-Sum-Square or Square root of the sum of the squares
RTMA	RH-TRUCON Maintenance Application
RTR	real-time radiography
SA	System Administrator
SAR	Safety Analysis Report
SIMEX	Secure Information Management and Exchange Network
SPM	Site Project Manager
SWB	standard waste box
TAA	TRU alpha activity
TAAC	TRU alpha activity concentration
TBO	to-be-overpacked
TCO	Transportation Certification Official
TDOP	ten-drum overpack
TFGC	Total Flammable Gas Concentration
TFGVC	Total Flammable Gas and Flammable VOC Concentration
TGRR	total gas generation release rate
TMU	total measurement uncertainty
TRAMPAC	Transuranic Waste Authorized Method for Payload Control
TRU	transuranic (waste)
TRUCON	TRUPACT-II Content Code

TRUPACT-II   Transuranic Package Transporter Model II
TSAC   Terminal Server Advanced Client
TWCP   Transuranic Waste Characterization Program

VE   visual examination
VOC   volatile organic compound
VPN   virtual private network

WAC   Waste Acceptance Criteria
WAP   Waste Analysis Plan
WCO   Waste Certification Official
WIPP   Waste Isolation Pilot Plant
WSPF   Waste Stream Profile Form
WTES   WIPP TRAMPAC Evaluation Software
WWIS   WIPP Waste Information System

WWIS DEFINITIONS

Acceptable Knowledge – (a) Any information about the process used to generate waste, material inputs to the process, and the time period during which the waste was generated, as well as the data resulting from analysis of the waste, conducted prior to or separate from the waste certification process authorized by the EPA's Certification Decision, to show compliance with Condition 3 of the certification decision; (b) Knowledge used for waste characterization, which is based on the materials and process used to generate the waste. Acceptable knowledge includes information about the physical form of the waste, the base materials composing the waste (especially hazardous and radioactive materials), and the process that generated the waste. Acceptable knowledge is used to define waste streams, assign summary categories, assign EPA hazardous waste numbers, and estimate the weight fraction of cellulosic, plastic, and rubber (CPR).

Allowable Flammable Gas Concentration – Calculated as the difference between the MLEL and the sum of the flammable gas concentrations in the innermost confinement layer in a payload container.

Assembly – A group of waste containers, such as seven 55-gallon drums or pipe overpacks (seven-pack), three 100-gallon drums, one standard waste box (SWB), or one ten-drum overpack (TDOP) that are packed for placement in a transportation package (Transuranic Package Transporter Model II (TRUPACT-II, HalfPACT, RH-TRU 72-B or CNS 10-160B).

Base Type Code – The TRUPACT-II Authorized Method for Payload Control (TRAMPAC) addresses a certain set of container types (55-gallon drum, 85-gallon drum, SWB, TDOP, and several pipe overpacks). The WIPP Waste Information System (WWIS), however, in several cases has more than one container type code that meet the definition of each of these TRAMPAC container types. For example, there is a 55-gallon drum (type code 1), 55-gallon drum to be overpacked - good condition (16), 55-gallon drum to be overpacked - damaged (17), and 55-gallon drum to be overpacked - solid/vitrified – good (18), and 55-gallon drum to be overpacked - solid/vitrified - damaged (19). All five of these containers meet the TRAMPAC definition of "55-gallon drums." Therefore, the Base Type Code is used to identify the type code of the container type recognized by TRAMPAC. In this example, all five container type codes have a Base Type Code of '1' identifying them all as a "55-gallon drum" for TRAMPAC evaluation.

Beta Testing – Release and test of software, made available to the users to try in the environment in which it will be used. The Beta version is intended for external testing in order to identify configurations that cause problems, as well as to collect requirements and suggestions from the users. This is done before the final version is released to give the program a "real-world" test and partly to provide a preview of the next release. The experiences of users are forwarded back to the developers who define and make final changes before releasing the software.

Canister – The RH-TRU waste canister, which is authorized for transport within the RH-TRU 72-B shipping package.

Characterization – Sampling, monitoring, and analysis – whether by review of AK, nondestructive examination, NDA, headspace gas sampling and analysis, or chemical analysis of the volatile or semi-volatile organic compounds or metals – to identify and quantify the constituents of a waste material.

Characterization Information Summary – Summarized characterization information required to be submitted to the Carlsbad Field Office (CBFO) of the U.S. Department of Energy (DOE) accompanying the Waste Stream Profile Form (WSPF).

Content Code – Codes found in the TRUCON documents that identify the generated waste and track the process and packaging history.

Database – The electronic storage of data in such a way that the data can be manipulated and retrieved by an end user. Databases comprise a series of elements including tables, fields, and records.

Direct Loaded – Direct loaded waste is untreated waste loaded directly into a waste container for disposal at WIPP. Overpacked damaged drums are treated as direct loaded waste.

Exit Code – Values returned by the application to assist the user in discovering the source of an evaluation failure and to inform the user more specifically of the available shipment options in case of a "conditional" evaluation status.

Field – A single fact or data item. It is the smallest unit of named data that has meaning in a database. In a database table, the fields are commonly referred to as columns.

Inter-Site Shipment – A shipment of certified transuranic (TRU) waste containers that meets U.S. Department of Transportation (DOT) and other applicable requirements of the Certificate of Compliance (C of C) for the shipping package used by the shipper. Inter-site shipments are those originate at a TRU waste site and have a final destination other than Waste Isolation Pilot Plant (WIPP).

Layers of Confinement – Number of packaging layers users to encapsulate the waste in the payload container. Value includes number of inner bags, filtered inner bags, liner bags, filtered liner bags, and whether or not a rigid drum liner is present.

Lower Limit of Detection – The level of radioactivity which, if present, will yield a measured value greater than the critical limit with a 95 percent probability. The critical limit s defined as that value which measurements of the background will exceed with a 5 percent probability.

Machine Compacted Waste – Waste whose volume has been reduced using a mechanical process.

Mixed Lower Explosive Limit (MLEL) – The maximum allowable concentration of flammable gas and flammable VOCs in the innermost confinement layer.

Overpack Container – A payload container (85-gallon drum, standard waste box, TDOP) that is used to package one or more filtered waste containers, prior to placement of the configuration in a Type B shipping container. The overpacked containers must meet a subset of the regulatory requirements outlined by the CH-TRAMPAC, WAC, and WAP.

Overpack Container Group – Identifies the WWIS container type codes that can be placed together in an overpack container. All four of the 55-gallon "to be overpacked" container types can be combined in an overpack. Therefore, they are all assigned the same Overpack Container Group value.

Payload Assembly Spreadsheet – Microsoft Excel® file used for data entry and checks for each payload assembly. It contains multiple worksheets for each waste container in a payload assembly.

Payload – Two assemblies (e.g., two 55-gallon drum seven packs or two SWBs) or one TDOP placed in a TRUPACT-II for shipment.

Package – (1) A packaging plus its contents. (2) Packaging together with its radioactive contents as presented for transport.

Packaging – (1) The assembly of components necessary to ensure compliance with the packaging requirements of 10 CFR Part 71. It may consist of one or more receptacles, absorbent materials, spacing structures, thermal insulation, radiation shielding, and devices for absorbing mechanical shock. The vehicle, tied-down system, and auxiliary equipment may be designated as part of the packaging. (2) The reusable Type B shipping container that is used for transport of TRU waste payload containers.

Packaging Container Group – Identifies the WWIS container type codes that can be placed together in a shipping package.

Prediction Factor – A variable with a unique value for each volatile organic compound (VOC) and packaging configuration that, when multiplied by the measured VOC concentration in the container headspace, determines the concentration of the VOC in the innermost confinement layer. The prediction factors are applicable in cases where the headspace flammable VOC concentration exceeds 500 parts per million (ppm).

Record – A collection of related data that is treated as a unit. Records are collections of fields. One record contains data that pertain to a single thing (e.g., container). In a database table, the records are commonly referred to as rows.

Remote-Handled Transuranic (RH TRU) Waste – Transuranic Waste with an external radiation dose rate greater than or equal to 200 millirem/hr and less than or equal to 1,000 rem/hr at the waste container's surface.

RH 72-B Canister – Container that is transported in the RH 72-B Cask.

RH 72-B Cask – An NRC-certified Type B transportation packaging used for transportation of RH TRU wastes.

Report – An organized method of presenting data in a printable format. CH-TRAMPAC Evaluation Software (CHTES) and RH-TRAMPAC Evaluation Software (RHTES) reports include the Payload Container Transportation Certification Document (PCTCD), the Payload Assembly Transportation Certification Document (PATCD), the Ineligible Containers Report, and the List of Containers Requiring New Shipping Categories. WWIS reports include the Waste Container Data Report, Shipment Summary Report, and Container/Approval Rejection Report.

Secondary Waste Container – A container (e.g., 55-gallon drum, 30-gallon drum) that is placed inside of a RH-TRU 72-B canister.

Shipment – A group of up to three reusable Type B shipping containers (TRUPACT-II, HalfPACT, RH-TRU 72-B Cask or CNS 10-160B Cask) that will be shipped with one truck.

Shipment Confirmation – Performance of waste confirmation on a representative subpopulation of each waste stream shipment after certification and prior to shipment as described in Permit Attachment B7. The Permittees will use radiography, review of radiography audio/video recordings, and VE, or review of VE records (e.g., VE data sheets or packaging logs to examine at least 7 percent of each waste stream in each shipment to confirm that the waste contains no ignitable, corrosive, or reactive waste), that the summary category group and waste matrix code are correct, and that all hazardous waste numbers are acceptable at WIPP. Waste confirmation will be performed by the Permittees prior to shipment of waste from the generator/storage site to WIPP.

Shipment Summary Report – A report that may be generated from the WWIS upon demand for any shipment that has been submitted to the WWIS. The report contains the container IDs of every container in the shipment, listed by TRUPACT-II number and by assembly ID number. The report also provides the certification date, ship date and receipt date for each shipment, as well as a summary of radionuclides, dose rates, and weights for all the containers and each assembly and TRUPACT-II. The report contains a summary of the WSPFs and hazardous waste codes that are applicable to the containers in each TRUPACT-II.

Terminal Services – A web-based method of delivering the WWIS software.

Waste Container Data Report – A report that may be generated from the WWIS upon demand for any individual container that has been submitted to the WWIS. When requested, these reports may also be generated on a waste stream basis, or on a site basis. Each WWIS waste container data report provides a summary of the data that was supplied to the WWIS and the most current container status.

Waste Stream Profile Form (WSPF) – Form required to be submitted to and approved by the Permittees prior to shipment and disposal of waste containers in a given waste stream or waste stream lot.

1.0   INTRODUCTION

The WWIS database is a computerized data management system used by WIPP to gather, store, and process information pertaining to contact-handled (CH) and remote-handled (RH) 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 for easy evaluation.

Each software version of the WWIS is tested in accordance with the WIPP Quality Assurance (QA) Program Document (DOE/CBFO-94-1012) and implementing WWIS software QA procedures prior to its release to the users. Once each software version has been installed, and prior to its use, sites are required to perform beta testing to verify functional capability and the acceptability of supporting documentation. At a minimum, acceptance testing will be performed prior to each major release of the software.

The CHTES performs waste container and payload evaluations in compliance with the rules and regulations defined in the CH-TRAMPAC document. The CHTES evaluates the waste container and/or payload to validate if it meets the guidelines and assigns an evaluation status and denotes areas in which the data is not in compliance.

The RHTES performs evaluations for RH waste container data, and the 72-B Cask and 10-160B Cask shipment packages in compliance with the rules and regulations defined in the RH-TRAMPAC document and the 10-160B SAR.

The CH-TRUCON Maintenance Application and the RH-TRUCON Maintenance Application (RTMA) are web-based applications that facilitate the submission, approval, and maintenance of TRUCON Code information, which includes numerous data elements and transportation limits.

2.0   PURPOSE

This user's manual describes the interface between the sites and the WWIS, specifies how to obtain access to the WWIS, and describes how data is entered into the WWIS using Microsoft Excel® spreadsheets or manual data entry. At sites where technically advanced Oracle® databases have been implemented to collect and evaluate data to be transmitted to the WWIS, the spreadsheet data collection methods and examples described in this document do not need to be performed or may not be applicable.

3.0   SCOPE

This manual is targeted primarily at personnel authorized to transmit data into the WWIS for TRU defense waste payload containers and payload assemblies that are intended for disposal in WIPP. The WWIS is required for the operation of WIPP. The WWIS Test Instance may be used for input of container and shipment data to enable shippers to obtain the required documentation from the CHTES or RHTES for inter-site shipments.

Beta testing is performed by the sites with the assistance of WIPP personnel and support contractors as needed. Testing activities shall meet the established requirements for comprehensiveness and testing acceptability as approved by the CBFO. The testing activity will be considered complete when all test cases have been executed and all outstanding database interface issues have been tested and verified to be closed.

The WWIS Data Dictionary (Appendix F) provides the Oracle$^{®}$ format and definition for each data field. The shipper/generator site Waste Certification Official (WCO) certifies each container for submittal to the WWIS. The Transportation Certification Official (TCO) who transmits shipment data to the WWIS must ensure that the data have been approved by a WWIS Data Administrator (DA) and the Confirmation Team before the waste containers are shipped. WIPP will not accept any waste container shipments for disposal if the waste container information has not been submitted correctly to the WWIS and approved for shipment by the WWIS.

Any site requiring the transportation of TRU waste that is not described in an approved content code must request the revision or addition of a content code by submitting a request through the CTMA or RTMA software application to the WIPP RH-TRU Packaging Engineer. The CTMA and RTMA Software User Guides contain complete information about the functionality of the CTMA and RTMA. To obtain an electronic copy of either the CTMA Software User Guide or the RTMA Software User Guide, contact a WWIS Data Administrator or the cognizant Packaging Engineer at WIPP.

For developers, this manual includes the CHTES Data Dictionary and the WWIS Data Dictionary. The data dictionaries provide descriptions of the database table structures, field names, and formats for each data field.

The WWIS Team has developed a Programmer's Reference Guide that describes the interface between the CHTES, RHTES, and the WWIS. The Programmer's Reference Guides also describe the relationship between the CTMA, CHTES, RTMA, RHTES, and the WWIS reference tables. As part of the WWIS Software Implementation Description (SID), the WWIS Team has also developed a RHTES and RTMA Software Implementation Description. The SIDs for the RHTES and RTMA specify the "as-built" software design for these applications. The Programmer's Guide and SIDs are maintained as separate documents by the WWIS Team.

Refer to Appendix G for a complete history of changes that have been made to this document.

4.0   RESPONSIBILITIES

The Site Project Manager (SPM) provides the WWIS DA with proposed WSPF numbers and any newly-approved characterization methods prior to submittal of the WSPF and prior to entry of container data in the WWIS Characterization Module. The SPM submits completed WSPFs to WIPP for review and approval.

Prior to implementing a new version of the WWIS, a test instance of the database will be made available to the sites for the purpose of conducting beta testing. Guidance for conducting testing activities will be provided to the sites by the WWIS Team, as authorized by the CBFO. Notifications of test instance availability will be made by email. The SPM, or designee, will be responsible for the coordination and completion of testing of each beta-version of the WWIS software within the timeframe identified for each release. Upon completion of testing, the SPM or designee shall provide the corresponding information and results by email at Site.Documents@wipp.ws. The WWIS Team will use the responses to correct system errors, bugs, and anomalies prior to the release of production instance of WWIS. Other results and information that does not affect performance may be considered for future versions.

If used, the WCO validates the WWIS Data Entry Summary spreadsheet (Appendix C, *Instructions for Database/Spreadsheet Operation*) and validates data entry into WWIS.

The TCO documents payload characteristics by completing and verifying the Payload Assembly data using the WWIS Shipping Module. The signed PCTCDs [Payload Container Transportation Certification Document] or OPCTCDs [Overpack Payload Container Transportation Certification Document] for containers and the PATCD [Payload Assembly Transportation Certification Document] for shipments kept at the shipper site are the controlling documents that are used to verify compliance with the C of C that is applicable to the package offered for shipment. WWIS, CHTES, and RHTES data evaluations shall not be used as a substitute for, or in lieu of, the signed PCTCDs for containers, OPCTCD for overpacks, or the PATCD for inter-site and WIPP shipments.

The SPM, TCO, or other designated individual at the shipper site provides the necessary data inputs to CTMA or RTMA in order to revise or add TRUCON Code(s) and obtain the required approvals of TRUCON Codes prior to submittal of waste container certification data to the database. Contact a WWIS Data Administrator or the cognizant Packaging Engineer at WIPP for instructions that may be required to obtain access privileges for the CTMA and RTMA applications or for any problems or questions concerning the software.

Shipper/generator sites' QA personnel provide assistance in verifying data, completion of documentation and review requirements, coordination with the WIPP Packaging Engineer for inputs to RTMA before container data is submitted to the WWIS. Shipper/generator sites' Software QA personnel provide assistance to the SPMs, WCOs, and TCOs in the development of programs, test cases, and procedures for conducting beta testing of WWIS software.

WWIS data entry personnel obtain and maintain access to the WWIS from WIPP and enter data that has undergone the required QA reviews and provided by the SPM, WCO, and TCO for each TRU waste container.

Shipper/generator sites' information resource management personnel maintain WWIS temp tables by ensuring that data is periodically removed after the waste is emplaced or when data residing in the temp tables are no longer needed.

Shipper/generator sites' Microsoft system administrators serve as the primary interface with the WWIS system administrators for setting up accounts on the WIPPNet and/or Microsoft Windows® 2003 Terminal Server.

Support of the WWIS is delivered by the WWIS Team. The WWIS Team consists of five DAs, one Database Administrator/Developer (DBA), and one System Administrator (SA). This team supports approximately 180 users at 10 locations. User support from the WWIS team is nominally provided between the hours of 0630 and 1730 Mountain Time. A WWIS DA is available during off-hours to provide service in the event of an emergency. The DA "On-Call" cellular phone number is 575-706-0033. Container data submitted during off-hours will be evaluated for approval on the following business day.

Routine container reviews and shipment reviews are conducted by the DAs on a first-come/first-served basis. For data queries and other data requests WWIS users are directed to contact a DA when these services are required. DO NOT contact the DBA or SA directly in order to obtain these services. Requests for WWIS support are required to be accompanied by an e-mail message requesting the service to be performed. These messages should be sent to: DL_WWIS_DA@wipp.ws.

4.1 Shipment Confirmation

Prior to final approval of each shipment to WIPP, waste confirmation is performed by WIPP personnel. For additional information regarding the waste confirmation program or the confirmation status of a shipment, contact a member of the Confirmation Team. Refer to Sections 10.3 and 10.4 of this manual for additional details about database functionality regarding shipment confirmation and the confirmation process as applicable to shipment approvals in the WWIS.

5.0 HARDWARE AND SOFTWARE SPECIFICATIONS

5.1 Software Specification

The WWIS is a client/server application. The client application runs on personal computers using Microsoft Windows®.

5.2 Hardware Specification

Prior to obtaining access to the WWIS, each user must have a personal computer that meets the following minimum hardware requirements:

- IBM-compatible personal computer running a supported version of Microsoft Windows

- Oracle Forms Runtime Version 6i Patch Level 17 or access to the WWIS terminal server

- 100 MB free hard disk space

- 10/100 Network Interface Card (NIC)

- SVGA monitor and video card (800 x 600)

6.0 ACCESS AND LOGON PROCEDURE

6.1 Obtaining Access to WWIS

Personnel who need access to WWIS using the DOE Network (DOE-NET) should send an e-mail request to a WWIS DA and supply information listed in Section 6.1.1 below. Personnel needing access to WWIS from the Internet need to complete an application form and submit it to a WWIS DA for approvals and processing. Refer to Appendix D, *Remote Connection Instructions*, for the application form and instructions for completing the form. Prior to being granted access to the WWIS, each new user shall be required to read the WWIS security information. A signed acknowledgement that the security information has been read and understood shall be returned with the completed application form.

6.1.1 Access Request

For access using DOE-NET, the e-mail request should contain the following information: User Name, Street Address or P.O. Box, City, State, Zip Code, Telephone Number, Fax Number, Cell Phone Number (if applicable), Pager Number (if applicable), e-mail address, and justification of the need for access to the WWIS. For users who perform data entry and submittals, the WWIS DA will clear the request with the SPM. After the user account is set up in the WWIS, the DA will notify the new user either by telephone or e-mail that actions to set up the account have been completed.

6.2 Changing Access to WWIS

When personnel who have received access approval are no longer required to have access to WWIS or need to change the type of access to WWIS, the SPM or designee shall send an e-mail notification to a WWIS DA.

6.2.1 WWIS Logon Dialog Box

As shown in Figure 6-1: WWIS Logon Dialog Box, when the Logon Box appears, enter the WWIS username, password, and the database instance. Instances used are subject to change on a periodic basis and users are provided with updated information regarding usage of database the production instance and test instance via email.

Figure 6-1: WWIS Logon Dialog Box
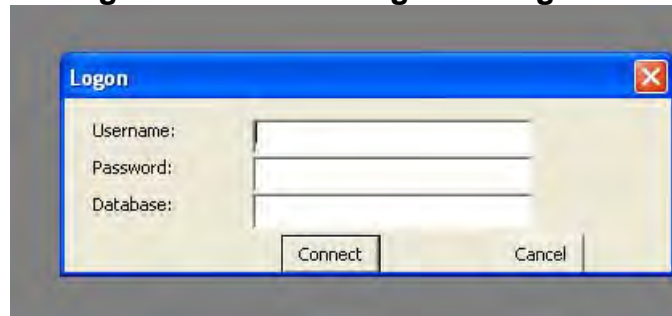
6.2.2   WWIS Security Warning Dialog Box

When a WWIS user logs onto the WWIS, a dialog box message, as shown in
Figure 6-2: WWIS Security Warning Dialog Box, is displayed. Select the Accept Button
to agree to the conditions stated in the security dialog box (if the Don't Accept Button is
selected, the user will be logged off the WWIS).

Figure 6-2: WWIS Security Warning Dialog Box
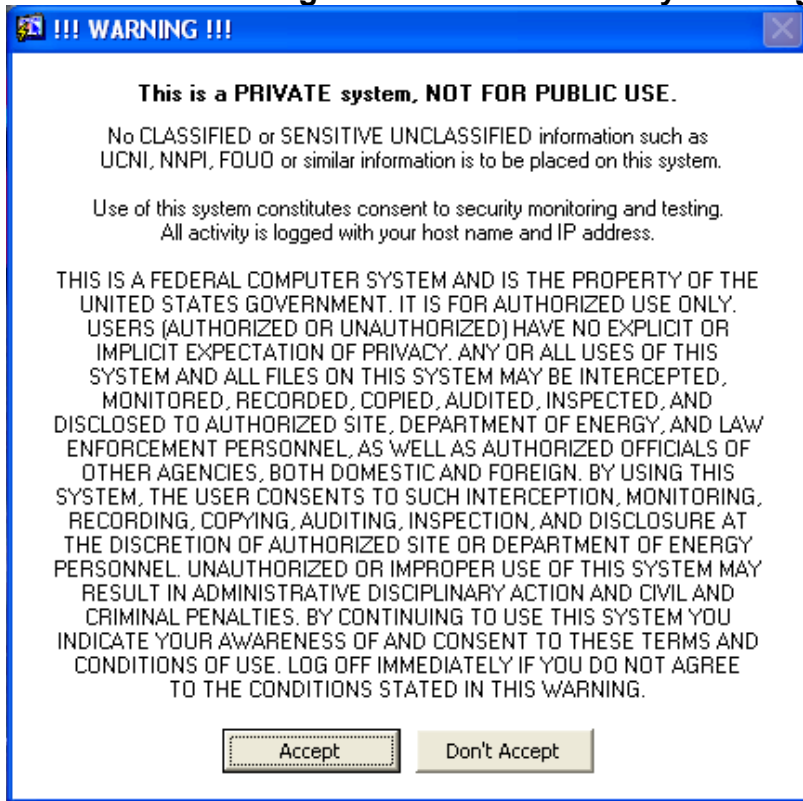
The initial menu screen, as shown in Figure 6-3: WWIS Menu Screen, will appear. Use
the menu bar at the top of the screen to navigate through the various database
modules.

Figure 6-3: WWIS Menu Screen

Upon first logon, the main application prompts the user for a password change if either of the following conditions is true:

- WIPP has initially established the user's 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. The password must align with DOE computer security requirements for development of passwords. Passwords must be a minimum of eight characters and must consist of one lowercase letter, and one number.

NOTE: Oracle does not allow uppercase letters or certain symbols to be used in passwords. Specifically, the symbols % or @ may not be used.

- The password has not been changed in 180 days (six months). The WWIS will check to see when the password was last changed. If the period of time exceeds 180 days, users will receive a pop-up message to prompt the user to change the password.

Figure 6-4: WWIS Change Password Dialog Box

NOTE: If the user encounters any problems logging onto the WWIS, they must contact a WWIS DA at WIPP.

7.0   WWIS DATABASE MODULES

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 DOE/WIPP-02-3122, *Transuranic Waste Acceptance Criteria for the Waste Isolation Pilot Plant* (WAC). 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.

This module provides functionality that allows the user to query a container record or shipment record and to copy and paste data contained from a selected field to another program such as Notepad, WordPad, or Microsoft Word. This module provides a copy and paste pull-down menu that may be used to copy and paste instead of the control functions.

The WWIS is designed with various modules to provide the data control required for container acceptance, shipping, and disposal processes. As shown in **Error! Reference source not found.**, these modules are represented as pull-down menus on the program menu bar. Some WWIS database 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 the Shipper/Generator WWIS users are:

- Characterization
- Certification
- Shipping
- Query
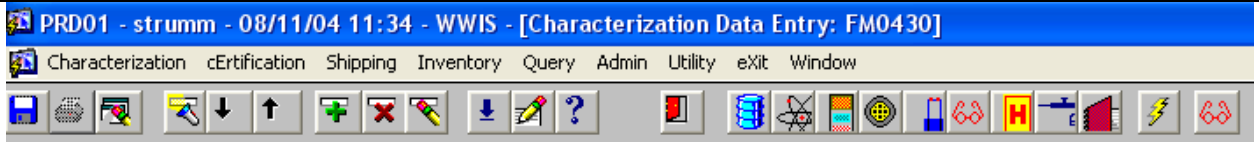
- Administrative Reference Tables
- Utility
- Edit

Examples that show the entry screens and dropdown menus for the WWIS modules are provided in various sections throughout this User's Manual and in Appendix F, *WWIS Data Dictionary and Screen Views*. Refer to Appendix F, Table F.2 for a summary of edit and limit checks that are conducted by the database when container records are submitted to the Characterization and Certification Modules. The information in Table F.2 may be useful as a reference for users when resolving an error message that is returned when a container record is not successfully submitted to the database.

7.1   Navigational Buttons in WWIS Characterization and Certification Modules

Refer to **Error! Reference source not found.** below, which depicts and describes functionality of the buttons that are available to be used when navigating the WWIS Characterization and Certification Modules.

Figure 7-1: WWIS Navigational Buttons

Button	Function	Button	Function
	Save Record		Go to Waste Containers (WST_CNTRS) Form
	Print		Go to Radionuclide (WC_RADIONUCLIDES) Form
	Clear Form		Go to Waste Material Parameters (WC_WASTE_MAT_PARMS) Form
	Select Query Mode		Go to Filters (WC_FILTERS) Form
	Scroll to Next Record		Go to Assay Methods (WC_ASSAY_METHODS) Form
	Scroll to Previous Record		Go to Characterization Methods (WC_CHARZ_METHODS Form
	Add New Record		Go to Hazardous Waste Codes (WC_HAZ_CODES) Form
	Delete Current Record		Go to Samples & Sample Amounts (WC_SAMPLES) Form
	Clear Record		Go to Comments (WC_COMMENTS) Form
	View List of Values		Submit Container Record to the WWIS
	Edit		View Errors when submitted record did not pass edit/limit checks

Figure 7-1: WWIS Navigational Buttons

?	Help (Currently nonfunctional)	e	Preliminary CHTES Container Evaluation with results dialog box
	Close Form & Return to Main Menu		Add record using electronic data transfer function
	Delete record using electronic data transfer function		
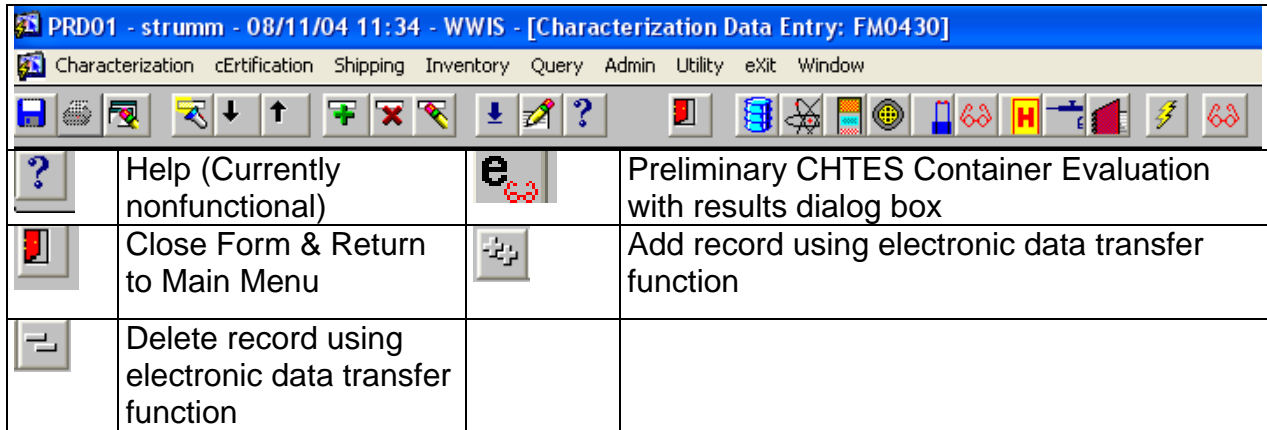
NOTE: There are three buttons (pencil icons) that are available for use to manually delete data that has not been submitted. The Clear Form and Clear Record Icons do not delete data that was already saved. When the user clicks the Clear Form Icon, all information entered onto the screen will be deleted, but the container record can be queried at a later time. The Clear Record Icon can be used when the user wants to delete data from a row on a form.

The Edit Icon can be used when the user wants to change data in a field on a form. When the curser is placed in the field to be edited and when the Edit Icon is clicked, a Notepad screen, as shown in Figure 7-2: Edit Function – Notepad Dialog Box, will appear. The user can then change the data in the field or make a correction to the data as needed.

Figure 7-2: Edit Function – Notepad Dialog Box
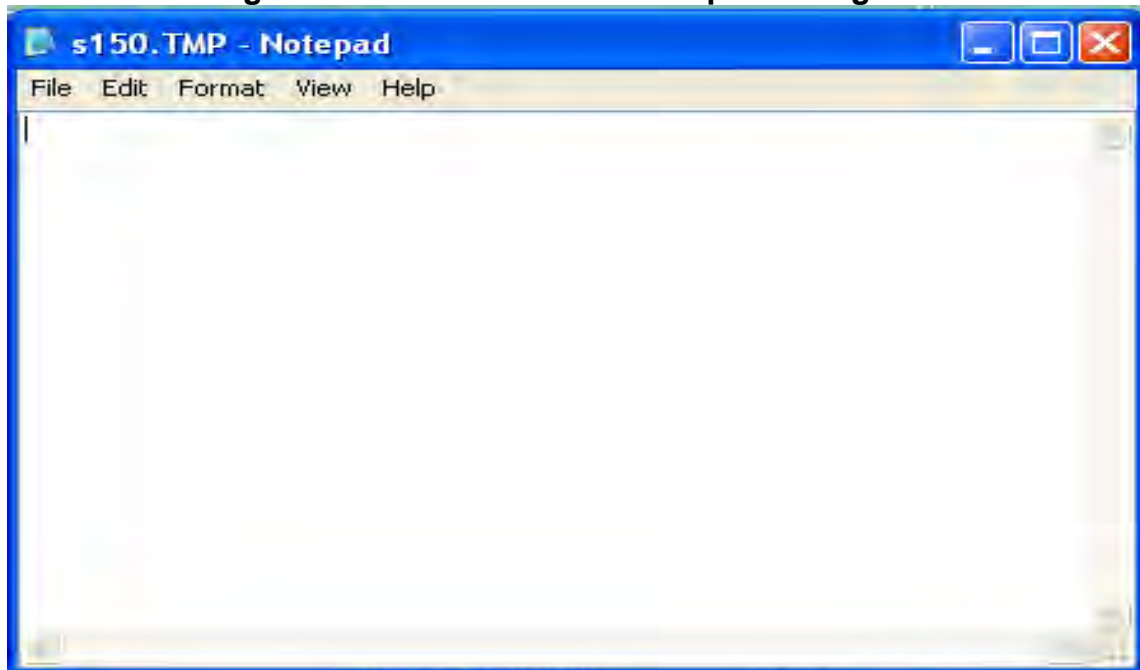
As shown in Figure 7-3: Edit Function – Notepad Change Confirmation Dialog Box, when exiting the Notepad screen, a dialog box will then appear and the user may confirm the change by clicking the Yes button. If No or Cancel is clicked, the change will not be made.

Figure 7-3: Edit Function – Notepad Change Confirmation Dialog Box
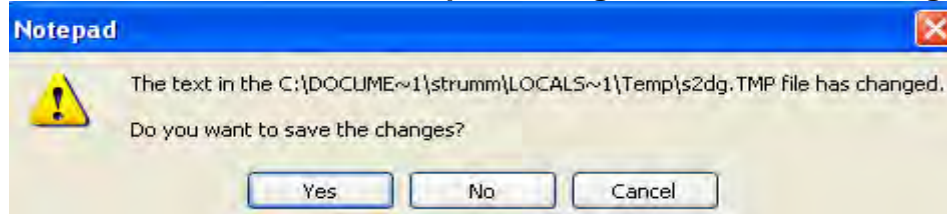
The WWIS has several function keys that are available for use. Refer to Figure 7-4: WWIS Function Keys below for a listing of function keys that may be used when navigating among screens in the database.

Figure 7-4: WWIS Function Keys
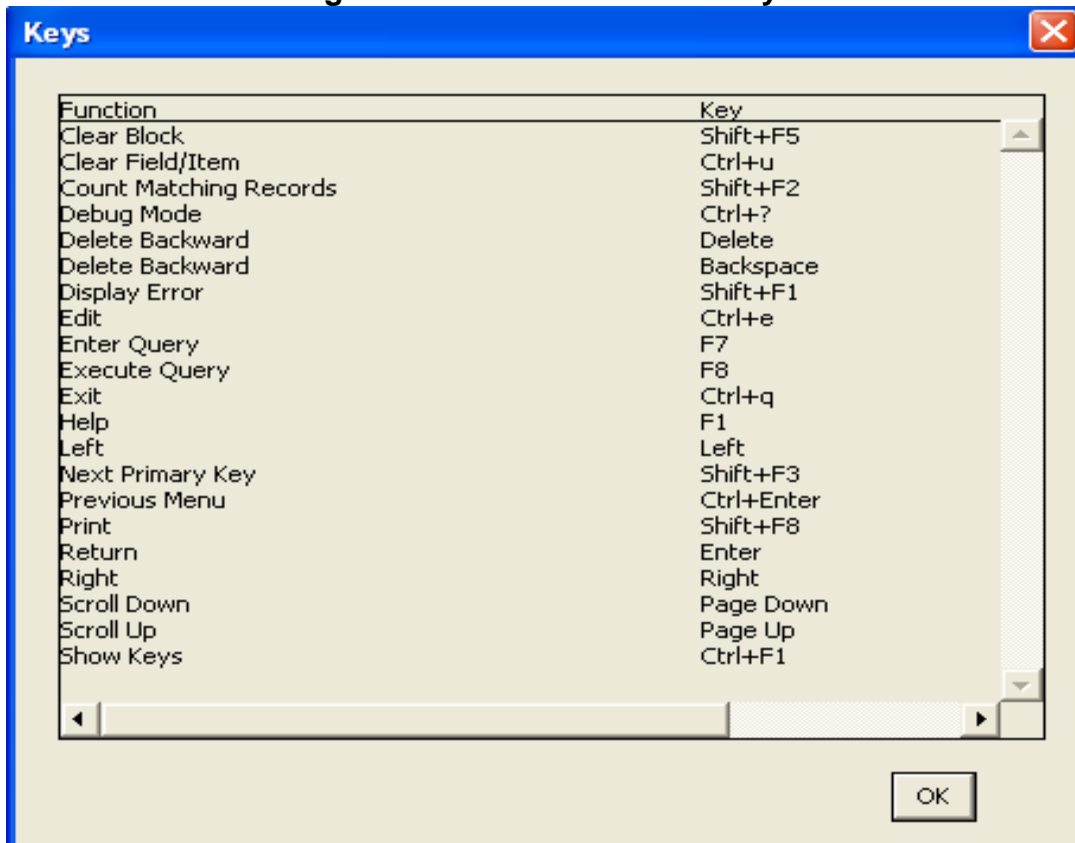
7.2   Summary of WWIS Data Statuses

The following statuses are applicable to WWIS container and shipment data:

Data Transfer in Progress - In the event that the electronic transfer of data for a container is interrupted and the transmission does not complete successfully, the status for the container is automatically set to Data Transfer in Progress. A WWIS DA would need to delete the partial container data from the WWIS, and the user may then resubmit the container data.

Pre-Submittal to Characterization Approval (PRESUB_CHARZ) - Initial status for containers to be submitted for evaluation before a Waste Profile is approved. The data have been "saved" (but not yet "submitted") to the WWIS database.

Four data fields (Shipper Site ID, Container Number, Container Type, and Waste Stream Profile), are required before a container record may be "saved" in the WWIS. Data may be added, deleted, and modified by the user while in pre-submittal status.

When a container record is initially entered in the WWIS, and if container data is never "saved," but "submitted" instead, the pre-submittal status will never be assigned to that container. When a "submit" function is performed, a "save" function is also automatically performed.

Pending Characterization Data Approval (PENDING_CHARZ) - When the user "submits" a container record to the WWIS for Characterization Approval, and the container data passes the WWIS edit/limit checks, this status is automatically assigned to the container. The container record is now available to the WWIS DAs for potential Characterization Data Approval, and cannot be modified by the user.

Holding for Characterization Data Approval (HOLDING_CHARZ) - A WWIS DA has placed the container record "on hold" while the shipper/generator is investigating a container data issue. The user who submitted the container record will receive a notification from the database whenever the hold status is applied. Depending on the results of the investigation, the WWIS DA will approve or reject the container data. Data cannot be modified by the user when this status is assigned to the container. The database design incorporates functionality for the DAs to describe data issues and resolutions. Refer to Section 9.12.2 for additional information.

Characterization Data Approved (APPROVED_CHARZ) - This status is assigned by the WWIS to a container record after a WWIS DA has reviewed and approved the data, and after the new Waste Stream Profile is approved.

Pre-Submittal to Certification Approval (PRESUB_CERT) - This is the initial status for waste containers that have been entered into the WWIS and "saved" (but not yet "submitted") to the database. This status would be applicable to waste containers that were not part of the characterization submittal and containers that were successfully submitted for Certification Approval and subsequently reset by a WWIS DA. Resetting container records from APPROVED_CERT to PRESUB_CERT is normally done at the

request of the generator to allow for correction of data entry errors that are discovered as part of the data quality checks conducted by the sites.

Four data fields (Shipper Site ID, Container Number, Container Type, and Waste Stream Profile), are required before a container may be "saved" in the WWIS. Container data may be added, deleted, and modified by the user while this status is assigned to the container.

When container data is initially entered in the WWIS, and if container data is never "saved," but "submitted" instead, this status will never be assigned to that container. When a "submit" function is performed, a "save" function is also automatically performed. A container that has a Pending Certification Data Approval or Certification Data Approved status can be reset by the WWIS DA to Pre-Submittal to Certification Approval status.

Pending Certification Data Approval (PENDING_CERT) - This status is assigned by the WWIS to a container record when the shipper/generator user "submits" a complete set of container data to the database for approval. When the container record is submitted, the data is evaluated by the automated WWIS edit/limit checks and the CHTES or RHTES container evaluation checks. This status is automatically assigned to the container record after the data has passed all automated edit/limit checks. The container record is now available to the WWIS DAs for potential Certification Data Approval, and cannot be modified by the user.

Holding for Certification Data Approval (HOLDING_CERT) - The database design allows the WWIS DAs to place containers "on hold" to allow the shipper/generator to investigate a container data issue that may have been identified during the data review without deleting the container record from the database. Depending on the results of the investigation, the WWIS DA will approve or reject the container data. Data cannot be modified by the user when this status is assigned to the container. The database design incorporates functionality for the DAs to describe data issues and resolutions. The user who submitted the container record will receive a notification from the database whenever the hold status is applied. Refer to Section 9.12.2 for additional information.

Certification Data Approved (APPROVED_CERT) -This status is assigned by the WWIS to a container record after a WWIS DA has reviewed and approved the data reviewed. The WWIS will automatically send an e-mail message to the WWIS User who entered the certification data, to provide notification/confirmation that the container has been approved. Approved waste containers then become available for selection for assignment into shipment assemblies in the WWIS Shipping Module.

If a certified waste container such as a damaged 55-gallon drum is designated to be overpacked into a larger payload container such as a Standard Waste Box or TDOP, the APPROVED_CERT status will be the final status for those inner containers, and the WWIS container status for the overpack will be modified further during the shipping and WIPP emplacement processes.

New Shipment (NEW_SHIP) - This is the initial status for shipments that have been "saved" (but not yet "submitted") in the WWIS.

Data must be entered into the Shipper Site ID and Shipment Number data fields before a shipment may be "saved." Shipment data may be added, deleted, and modified by the user while the status of the shipment is NEW_SHIP.

When a complete set of shipment data initially is entered in the WWIS, and the shipment data is never "saved," but "successfully submitted" instead, the NEW_SHIP status will never be assigned to that shipment. When the "submit" function is performed by the user, a "save" function is also automatically performed by the database. The following data fields may be empty when a shipment is submitted: Manifest Number, Certification Date, Shipment Send Date, Tractor ID, Trailer ID, Transporter Name, Package Numbers, OCA/OC Lid Numbers, ICV/IV Closure Dates, Dose Rates, Surface Contamination measurement results, and DOT Description. There is a general expectation that these data fields will be populated by the shipper within one (1) hour after the shipment departs the site. The database design will not allow shipments that have not been finalized to be received at WIPP.

Pending Shipment Data Approval (PENDING_SHIP) - When a user "successfully submits" a shipment in the WWIS, the shipment status becomes Pending Approval. The container status for each waste container assigned to that shipment will automatically be set to Pending Shipment Data Approval by the database. The shipment data is now available to the WWIS DAs for potential approval and an email message is automatically sent to the Confirmation Team stating that the shipment is ready to undergo waste stream shipment confirmation.

Shipment Approved (APPROVED_SHIP) - This status will be automatically assigned to a shipment, after waste confirmation has been performed and a WWIS DA has reviewed and approved the shipment data. The WWIS will automatically send an e-mail message to the WWIS user who entered the shipment data, to provide notification/confirmation that the waste containers have undergone waste stream shipment confirmation and the shipment has been approved in the WWIS.

If the required number of waste containers have undergone waste stream shipment confirmation and all of the shipment data has been entered into the WWIS, the WWIS shipment status will automatically be assigned as Shipment Complete. If an approved shipment arrives at WIPP that has not been finalized, the WIPP DAs will initiate actions to resolve data management issues with the shipper.

Shipment Complete (COMPLETE_SHIP) - This status will be automatically assigned to a shipment after all of the required shipment data fields have been entered and submitted in the WWIS, and after a WWIS DA and the Confirmation Team have reviewed and approved all of the shipment data. It is imperative that each shipment be finalized prior to its actual arrival at WIPP in order to enable WIPP operations personnel to perform their functions in accordance with procedures for shipment receipt.

Shipment Has Been Received (RECEIVED_SHIP) - When a shipment is received at WIPP, operations personnel enter the receipt date into the appropriate field on the Shipment form in the WWIS. When the date is saved, the status for each waste container in that shipment will automatically be set by the database to "Shipment Received." Note that data for a shipment with a status of RECEIVED_SHIP cannot be modified. An approved WWIS Data Change Request (DCR) is required before a WWIS Database Administrator (DBA) may modify the shipment data using an SQL script.

Container Emplaced at WIPP (EMPLACED_CNTR) - A WIPP Waste Operations user enters the emplacement location data and the disposal date for an assembly when it is emplaced. At that time, the WWIS container status for each waste container in the assembly is set to Container Emplaced at WIPP.

8.0 CHARACTERIZATION MODULE

To access the WWIS Characterization module for purposes of entering container characterization data or for obtaining a waste container data report for a container that resides in this module, select Characterization from the menu bar and a dropdown menu will appear as depicted in Figure 8-1: Characterization Module and Dropdown Menu.

Figure 8-1: Characterization Module and Dropdown Menu
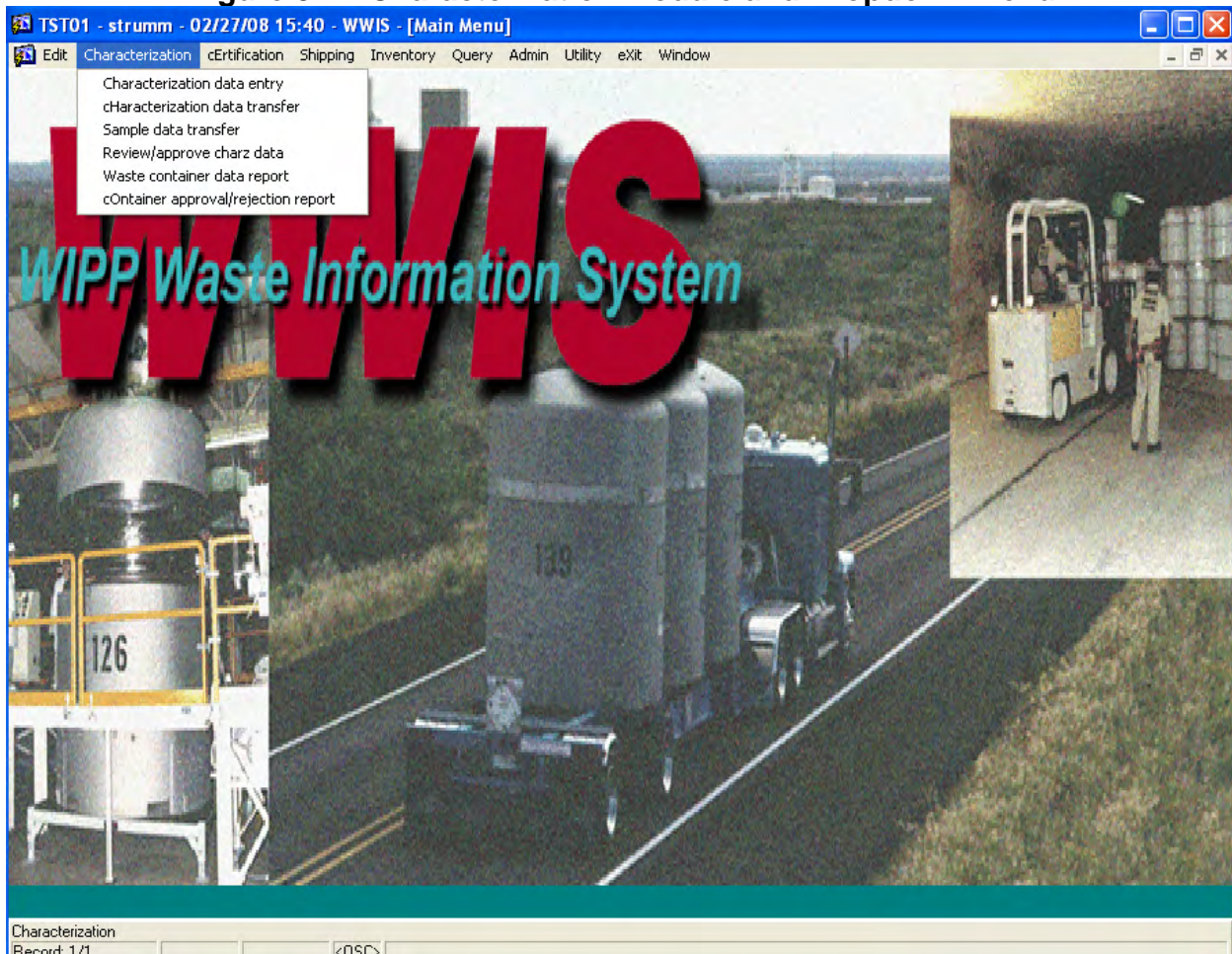
Generators are required to submit the WSPF for each waste stream to be sent to WIPP. The WSPFs provide summary information about each waste stream. This summary information is needed by the DAs in order to populate the WSPF reference table, which allows the waste container data to be successfully submitted to the WWIS.

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 by the WWIS during the submittal process. This data is not subjected to CHTES or RHTES checks.

Container data is submitted through the Characterization Module using FM0430, the Characterization Data Entry Form as shown in Figure 8-2: Waste Container Characterization Data Form. Container records can be successfully submitted to the Characterization Module only if the WSPF for the associated waste stream has not yet been approved.

Figure 8-2: Waste Container Characterization Data Form

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, a shipper/generator user who has sufficient knowledge about the waste stream and the WSPF 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 number, hazardous waste codes, analytes, and waste matrix code. The WSPF Administrative Table may be configured at any time to accommodate submittal of container data. Formal submittal of the entire WSPF package to WIPP is not required for purposes of submitting characterization data to the WWIS.

NOTE: For waste streams BNINW216 and BNINW218, the CBFO requires WSPF review and approval of waste stream lots. The generator/shipper site creates a list of waste containers that are associated with each lot and submits the container list in Microsoft Excel format to the WIPP WSPF review team with the sampling report for the lot being reviewed. The container list is then inserted into a table and each container is then verified to be on the approved container list when submitted to certification prior to shipment approval. The generator site is responsible for ensuring that containers are not duplicated in lots and are managed in accordance with approved procedures prior to shipment to WIPP. Data queries may be performed on container lots from other waste streams as requested by the CBFO.

Entry and submittal of data for inner cans in RH waste containers in characterization. Refer to
Figure 8-3: Inner Cans, below. Refer also to Section 9.14 of this manual for complete instructions about populating inner can data fields.

Figure 8-3: Inner Cans

Functionality is available to allow shipper generator users to access the Sample Data Transfer Form from the WWIS Characterization menu. Refer to Section 12.1 for complete instructions about submitting sample data using the form. Use of this form is mandatory when required by site procedures for submittal of container data to the WWIS characterization and certification modules.

The capability to submit container data using the Electronic Data Transfer Form is also available which shows the acceptance or rejection status of container records submitted using the electronic transfer option of the WWIS. The report includes error messages explaining the reason(s) for record rejections, which will allow the user to correct the errors or request updates to administrative table(s) prior to submitting the data to the WWIS. The electronic transfer function is described in detail in Section 12.0, *Electronic Data Transfer*.

Once a WSPF is approved and upon receipt of a copy of a signed CBFO letter approving the waste stream, the WIPP DA enters the approval date into the WSPF 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 reviews the container data, using the Review/Approval screen. Upon approval of the WSPF, 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.

As shown in Figure 8-1, the Characterization Module also allows the user to view or print:

- Waste Container Data Report showing container data input to the Characterization Module

- Container Approval/Rejection Report showing the review/approval status of waste containers

9.0   CERTIFICATION MODULE

To access the WWIS Certification Module for purposes of entering container data or for obtaining a waste container data report for a container that resides in this module, select Certification from the menu bar and a dropdown menu will appear as depicted in Figure 9-1: Certification Module and Dropdown Menu.

Figure 9-1: Certification Module and Dropdown Menu
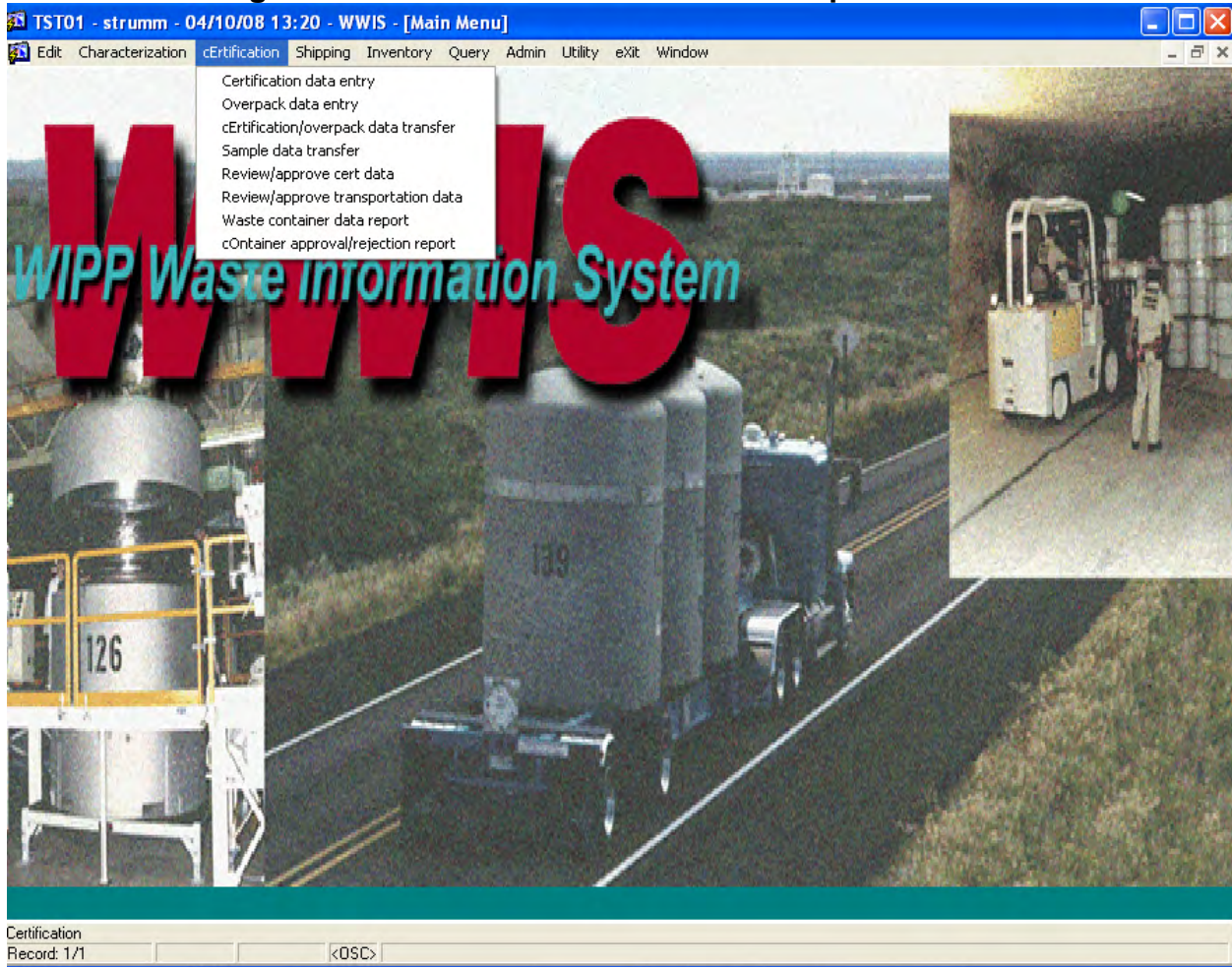
The Certification Module is designed to allow two different data input functions:

- 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 WSPF number that already has been approved.

The Certification Module also allows users 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.

The Data Status Code is representative of the approval status of the container data in the applicable module. For example, container data input into the Certification Module that have not yet been approved by the DA will display the "Pending Certification Approval by WIPP" status. After approval by the DA, each container data report will display the status as "Certification Data Approved by WIPP."

Records entered into the Certification Module are subject to WWIS edit/limit checks and CHTES or RHTES container evaluation checks upon submittal to the WWIS database. Refer to Appendix E, *WIPP TRAMPAC Evaluation Software Data Dictionary,* for additional details concerning container evaluations. When the data have passed all automated checks, the data is accepted by the program and automatically given the status "Pending Certification Data Approval."

Identification/Labeling: The *WIPP Waste Acceptance Criteria*, DOE/WIPP-02-3122, Section 3.2.5, Identification and Labeling, requires that payload container identification numbers be site-specific (i.e., contain a unique site-specific prefix). WWIS users may refer to the Sites Reference Table for a listing of prefixes that may be used to demonstrate compliance with the WAC requirement.

The WIPP DA reviews 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." The WWIS will then automatically send an e-mail message, which provides notification to the WWIS user who supplied the container certification data that the container is approved. If the record is reset to PRESUB_CERT or rejected, the program will cue the DA to input the reason for the rejection. A record that shows the rejected container number and the reason for the rejection becomes a permanent record in the Change Log. The user who supplied the data is automatically notified by e-mail when a container is rejected. Any time after the first four fields (Shipper Site ID, Waste Stream Profile, Container Number, and Container Type) have been entered using FM0470, the Certification Data Screen as depicted in
Figure 9-2: Waste Container Certification Data Form*, the container record may be saved by selecting the Save button (floppy disk icon) at the left end of the toolbar. A previously saved (but not yet submitted) container record may then be queried at any time to continue data entry using the General Query Techniques described in Section 11.0, Query Mode.

NOTE: There are a total of nine screens:

- Waste Container -

- Radionuclides -

- Material Parameters -

- Filters -

- Assay Methods -

- Characterization Methods -

- Hazardous Codes -

- Samples and Amounts -

- Comments -

NOTE: The Hazardous Codes screen is not applicable if the waste type code is TRU (as opposed to MTRU). However, all hazardous waste codes that are listed in the WSPF Administrative table for each waste stream must be reported for every container from that waste stream when submitted to the WWIS for approval. Input to the Comments screen is optional, but all others must be completed before the WWIS will accept the container record, when it is submitted. All forms are associated with the certification data form. Examples of the forms are shown in Appendix F.

Figure 9-2: Waste Container Certification Data Form

When container data that have previously undergone the required QA reviews in accordance with site procedures are submitted to the WWIS, edit/limit checks are automatically performed to compare all of the DATE fields against the current date. If an entered certification date, assay date, characterization date or sample date is later than the current date, the user submitting the container data will receive an error message and the data entry error may then be corrected to reflect the correct date.

9.1   CHTES and RHTES Container Evaluations

The CHTES and RHTES Container Evaluation applications are invisible to the user. The Container Evaluation software is a Java® application embedded in the Oracle® database.

The WWIS user has two options for running the Container Evaluation:

- Preliminary Evaluation -

- Formal Evaluation -

NOTE: For RH drums placed inside a canister, the RHTES performs the TRAMPAC evaluation at the canister level and, in this case, no TRAMPAC evaluations are performed at the container level (i.e., 30-galllon and 55-gallon drums).

9.1.1   Preliminary Evaluation

After all required WWIS container certification data fields have been populated using either manual or electronic data entry, the user may click the Save button (disk icon) and press the **e** button to run a preliminary container evaluation for each waste container. If the container fails to pass any of the container evaluation checks, the database will return a list of error messages. The user who inputs and submits the data may then initiate necessary actions as required to correct the container data prior to submitting the data to the WWIS. When the preliminary container evaluation is run, the user will receive a summary of the results of the evaluation as shown in Figure 9-3: CHTES Container Evaluation Results, below.

Figure 9-3: CHTES Container Evaluation Results

9.1.2   Formal Evaluation

When the user clicks the Submit button to submit waste container data to the Certification Module, the Container Evaluation application will be run. The application will analyze the user-supplied container data for compliance with TRAMPAC requirements. Containers determined to be compliant with all TRAMPAC requirements will then be included on a list of containers from which the user may assemble assemblies and payloads.

9.2   Container Types

For submittal of container data to the WWIS, functionality is limited to the following payload container types:

• 55-gallon drums;

• RH 30-gallon drum;

• RH 30-gallon drum – To Be Overpacked;

• 85-gallon drums (either direct loaded or containing one 55-gallon drum);

• 100-gallon drums;

• Standard waste boxes (either direct loaded or containing up to four 55-gallon drums);

• TDOPs (either direct-loaded, containing up to ten 55-gallon drums, up to six 85-gallon drums, or one standard waste box);

• RH canister with removable lid – direct loaded;

- RH canister with removable lid – overpack;

- RH facility canister – overpack;

- RH canister with fixed lid – direct loaded; and

- RH canister with fixed lid – overpack.

Using the Admin Menu, refer to the Container Type Reference Table for a listing of valid container types, container limits, and container characteristics. Container characteristics for the various payload containers, pipe overpacks, and 85-gallon drums (tall and short) typically include the empty container weight, volume (m^3), Base Type Code and Packaging Container Group, and an indication of whether a container type may be overpacked.

Other information stored in the Container Types Reference Table includes the following TRAMPAC limits for each container type:

- Gross Weight Limit
- Fissile Gram Equivalent (FGE) Limits for Beryllium Waste
- Minimum Filter Diffusivity
- Maximum Dose Rate (at the surface of the container in mrem/hr)
- Waste Type IV Allowable Total Gas Generation Rate (TGRR)
- Beryllium Quantity Threshold in kilogram (kg) or percent
- FGE Limits/Thresholds for Beryllium and Compacted Waste
- Waste Type IV Allowable Total Gas Release Rate (TGRR)
- Overpack Attributes (i.e., outer container, inner container, NA or damaged)
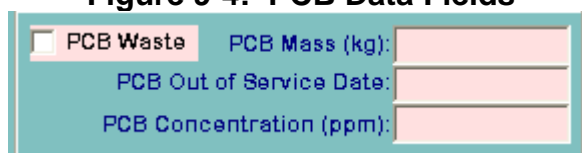
NOTE: The limits in this table may be edited by designated payload engineers whose permissions allow them to edit the limits.

It is recommended that all WWIS Users having shipper/generator privileges and responsibility for submitting container data to the database become familiar with all of the information and limits that are contained in the Container Type Reference Table. It is also recommended that users having responsibility for data submittal have a printout of this information available at all times when creating container records and when submitting data to the WWIS.

Certification data for waste containers that will be included in an inter-site shipment may be submitted to the WWIS Test Instance. The certification data will be subjected to all edit/limit checks.

9.3 Reporting PCB Concentrations

Figure 9-4: PCB Data Fields

In the Waste Containers Table and as shown in Figure 9-4: PCB Data Fields, there is a checkbox labeled PCB Waste. A check mark in this checkbox indicates the presence of polychlorinated biphenyls (PCBs) in the waste container in concentrations greater than 50 ppm. The PCB Mass (kg) field is to be used to indicate the weight in kgs of the PCB waste. The PCB Out of Service Date field is to be used to identify the date that the PCBs within the waste container were removed from service for disposal. The WIPP WAC defines the date of removal from service for disposal as the earliest date of waste generation. If the PCB Waste checkbox is checked, a date must be entered into the PCB Out of Service Date field and a value must be entered in the PCB mass (kg) field. If the user checks the PCB Waste checkbox but do not enter a PCB Out of Service Date or a value in the PCB mass (kg) field, the user will receive an error message when attempting to submit the container data to the WWIS. Conversely, if a date is entered in the PCB Out of Service Date field and the PCB Waste checkbox is unchecked, the user will receive an error message when attempting to submit the container data to the WWIS. The PCB concentration (ppm) field is optional (range 0 to 999999.999). The PCB mass (when required) must be > 0 and < = the gross weight of the container.

To achieve consistency in reporting among all sites, report PCB concentrations in waste containers that are known to contain PCB-contaminated nonliquid material and PCB articles in accordance with instructions provided in the WIPP WAC and any supplemental guidance that may be subsequently provided by the CBFO. The WIPP WAC includes a requirement for generators to report a description of the type of PCB waste. The WWIS does not have a specific data field to enable sites to meet this requirement. However, the PCB waste description may be reported using the WC_COMMENTS form.

Three fields (PCB_WASTE, PCB_MASS, and PCB_OUT_OF_SERVICE) are included in the TMP_WST_CNTRS Table to accommodate PCB data for waste container electronic transfer. A value of "Y" or "N" is required for PCB_WASTE. As with the manual data entry, a valid date is required in PCB_OUT_OF_SERVICE when PCB_WASTE="Y", and PCB_WASTE must be "Y" if a date is present in PCB_OUT_OF_SERVICE.

9.4 Radionuclides

The WIPP WAC requires that the activities and masses of Am-241, Pu-238, Pu-239, Pu-240, Pu-242, U-233, U-234, U-238, Sr-90, and Cs-137 shall be established on payload container basis for purposes of tracking their contributions to the total WIPP radionuclide inventory. These radionuclides represent the primary sources of all activity for waste emplaced at WIPP. The estimated activities and masses, including their

associated total measurement uncertainties (TMU) expressed in terms of one standard deviation for these ten radionuclides shall be reported to the WWIS on a payload container basis. The WWIS has a built-in edit/limit check to ensure that these radionuclides are reported for each waste container when submitted to the WWIS database for WIPP approval.

For any of these ten radionuclides whose presence can be substantiated from acceptable knowledge (AK), direct measurement, computations, or a combination thereof, and whose measured data is determined to be below the lower limit of detection (LLD) for that radionuclide, the site shall report the character string <LLD to the WWIS for the activity and mass of that radionuclide; otherwise, a value of zero shall be reported. Refer to the WIPP WAC for requirements prohibiting use of quantitative estimates for LLD in calculating related radiological properties of the waste such as TRU Alpha Activity Concentration. Do not report quantitative LLD estimates to the WWIS.

For all radionuclides reported to the WWIS, methodology for the sites to report <LLD has been developed. Sites using electronic data entry to WWIS may use the code –1 in their database or spreadsheet to report <LLD. When –1 is manually input to the Activity or Mass field or their associated uncertainty fields in TMP_WC_NUCLIDES, <LLD is displayed. At sites where manual data entry is used, the user who performs WWIS data entry may input –1 or double-click the activity or mass fields or their associated uncertainty fields and <LLD will be displayed. Radionuclide values reported to WWIS as <LLD are not included in WWIS reports that provide data roll-ups and WIPP inventory totals.

NOTE: The following reporting guidelines are applicable:

- If any of the ten radionuclides whose presence <u>cannot</u> be substantiated from AK, direct measurement, computations, or a combination thereof, the radionuclide still needs to be reported to the WWIS and the corresponding mass and activity values need to be reported as 0.

- If any of the ten radionuclides whose presence can be substantiated from AK, direct measurement, computations, or a combination thereof, and whose measured data is below LLD, the radionuclide needs to be reported to the WWIS and the corresponding mass and activity values need to be reported as <LLD.

- The activities and masses of radioisotopes other than the ten WIPP-tracked radionuclides that contribute to 95 percent of the radioactive hazard for the payload container shall also be reported to the WWIS.

If U-235 is present in the waste, the corresponding mass and activity values must be reported to the WWIS for purposes of accounting for all nuclides that contribute the calculated FGE prior to shipment.

9.5   TRU Alpha Activity

When container data is submitted to the WWIS, an automated edit/limit check will be performed by the database to compare the reported TRU Alpha Activity (TAA) with the calculated TAA and return an error if the percent difference is greater than the limit established by the CBFO (currently 5 percent). The source of this edit/limit check resides in the WAC Limits Reference Table. Refer to Section 9.8, Figure 9-6: TRU Alpha Activity and TAAC Data Fields, to see an example of the reference table. The calculated TAA is defined as the sum of the reported alpha activity of the TRU radionuclides. TRU radionuclides are identified on the Radionuclides Reference Data Report with a "Y" in the TRU column. When the user inputs data into WC_NUCLIDES, the TRU column is automatically populated with a checkmark if the nuclide is a TRU nuclide. The percent difference is calculated as the absolute value of the difference between the reported value and the calculated value divided by the calculated value times 100. After the user has finished inputting data in WC_NUCLIDES, the calculated TAA (curies) will be shown at the bottom of the page as shown in Figure 9-5: Radionuclide Data Fields. If the WWIS-calculated TAA does not agree with the data from the Batch Data Report (BDR), data entry spreadsheet, or site database, the user will have an opportunity to investigate the problem and make corrections before an attempt is made to submit or transmit the container data to the WWIS.

Figure 9-5: Radionuclide Data Fields

9.6   TRU Alpha Activity Concentration

When container data is submitted to the WWIS, an automated edit/limit check will be performed by the database to compare the reported TRU Alpha Activity Concentration (TAAC) with the calculated TAAC and return an error if the percent difference is greater than the limit established by the CBFO (currently 5 percent). Refer to Figure 9-7: WIPP Limits Reference Table. The calculated TAAC used in the comparison is defined as the

sum of the reported activity of the TRU radionuclides divided by 1,000 times the waste weight. The waste weight is defined as the sum of the weights in kilograms of the material parameters that are designated as waste. Refer to Table 9-1: Waste Material Parameter Types. The percent difference is calculated as the absolute value of the difference between the reported value and the calculated value divided by the calculated value times 100.

Figure 9-6: TRU Alpha Activity and TAAC Data Fields

9.7   Mass and Fissile Gram Equivalent

When container data is submitted to the WWIS, an automated edit/limit check will be performed by the database to compare the reported mass of each radionuclide with the calculated mass and return an error if the percent difference is greater than the limit established by the CBFO (currently 5 percent). Calculated mass is defined as the reported activity divided by specific activity identified on the Radionuclides Reference Data Report. The percent difference is calculated as the absolute value of the difference between the reported value and the calculated value divided by the calculated value times 100.

When container data is submitted to the WWIS, an automated edit/limit check will be performed by the database to compare the reported FGE with the calculated FGE and return an error message if the percent difference is greater than the limit established by the CBFO (currently 5 percent). Refer to Figure 97.

In Version 6.0, fields have been added to the Certification Data Entry Form and the Excel Temp Table Loader form to allow sites to report the U-235 Fissile Equivalent Mass (FEM) and U-235 Fissile Equivalent Mass Uncertainty on an individual container basis for RH waste containers. In accordance with the WIPP-WAC, Section 4.9.2, edit/Limit checks have been designed to ensure that values cannot be inserted into the FEM and FEM uncertainty data fields.

9.8   Material Parameters

Each shipper/generator site may report a different standard nominal weight for a given type of container and/or liner.

For CH waste, the waste material parameters are documented on a container basis during waste characterization activities. The estimated weight for each material parameter is then reported to the WWIS.

For RH waste, the WIPP WAC requires the following:

- Debris waste (S5000) shall be reported in WWIS as plastic using the volume of the waste container multiplied by 620 kg/m3, up to the net weight of the waste.

NOTE: The WWIS does not automatically perform this conversion. The site must perform the conversion prior to submitting the container data to the WWIS.

NOTE: Waste weight values above the derived value shall be reported as material parameter type appropriate for the waste physical form.

- Soils and gravel (S4000) shall be reported to WWIS as the net weight of the waste with the waste material parameter type of Soil (Material Parameter #12).

- Homogeneous Solids (S3000) shall be reported to the WWIS as the net weight of the waste with the waste material parameter type appropriate to the waste.

- Debris waste that is included in containers of S3000 or S4000 waste shall be reported as plastic (Material Parameter #8) with an estimated weight.

- Plastic packaging is required to be reported to the WWIS as packaging (Material Parameter #14)

The material parameter weights are reported in kg and are automatically checked, as follows.

The sum of the entered weights of the waste material parameters plus the entered weights of the steel packaging materials (parameter 13), plastic packaging materials (parameter 14), and cellulosic packaging materials (parameter 15) must equal the entered gross weight of the waste container (plus or minus a tolerance of 5 percent). This tolerance may be adjusted to accommodate successful transfer of container data on a case-by-case basis.

As shown in Figure 9-7, an automated comparison is performed between the entered weights of the steel packaging materials and the tare weight from the reference table for the specified container type. This comparison has a tolerance of 50 percent and is intended primarily to catch gross typographical errors such as the decimal point being in the wrong place, etc. This tolerance may be adjusted when the drum tare weight does not fall within the established range. To request an adjustment in the tolerance, send an e-mail message to a WWIS DA with an explanation to justify adjustment of the 50 percent tolerance.

Figure 9-7: WIPP Limits Reference Table

As an additional aid, the three calculated values for Waste Material Weight, Packaging Material Weight, and Total Material Weight are displayed on both the Waste Container and Material Parameters forms. Ideally, the Total Material Weight will exactly equal the container's Gross Weight. Refer to Table 9-1 for a listing of allowed material parameters that are available for reporting by shipper/generator users.

NOTE: The following Waste Material Parameters are not listed in Table 9-1.

- 16 – Magnesium Oxide
- 17 – Steel Emplacement Materials
- 18 – Cellulosic Emplacement Materials
- 19 – Rubber Emplacement Materials
- 20 – Plastic Emplacement Materials

These material parameters are available for reporting of materials that are associated with the waste emplacement process at WIPP.

Table 9-1: Waste Material Parameter Types

LABEL	DESCRIPTION	WASTE
1	Iron-based metals/alloys	Y
2	Aluminum-based metals/alloys	Y
3	Other metals	Y
4	Other inorganic materials	Y
5	Vitrified	Y
6	Cellulosic	Y
7	Rubber	Y
8	Plastics	Y
9	Solidified inorganic material	Y
10	Solidified organic material	Y
11	Cement (solidified)	Y
12	Soils/Gravel	Y
13	Steel container materials	N
14	Plastic/liners container materials	N
15	Cellulosic Packaging	N
21	Steel Liner Materials	N
NOTE: Vitrified waste (#5) and cement (solidified waste) (#11) material parameters have been expired and cannot be reported. Refer to WAP Table B3-1 for detailed waste material parameter descriptions.		

9.9   Liners

Figure 9-8: Rigid Liner Data Fields

For CH waste, the CHTES needs to know whether or not the waste container has a rigid liner, and if so, the nominal diameter of the liner's puncture. For RH waste, the RHTES needs to know whether or not the waste container has a rigid liner, and if so, the nominal diameter of the liner's puncture. As shown in Figure 9-8: Rigid Liner Data Fields, the Liner Exists field, which is required to pass the certification edit/limit checks, has two allowable values: Y or N. On the manual certification data entry form, it appears as a checkbox. If the checkbox is checked, the Liner Hole Size field will be enabled with a default value of 7.62 millimeters (0.3 inches). If the rigid liner's puncture diameter is known to be greater than 7.62 millimeters, the value may be adjusted accordingly. If not, it will be left with the more conservative value. Likewise, for electronic data transfers, if the LINER_EXISTS field is 'Y,' the LINER_HOLE_SIZE field must contain a value of 7.62 or greater. If LINER_EXISTS is 'N,' LINER_HOLE_SIZE must be null. If the waste container has a rigid liner, the LAYER_NUMBER_SAMPLED field in WC_SAMPLES must be populated with a value of 1 to signify that the headspace gas sample was taken from the headspace under the rigid liner. If the waste container does not have a rigid liner, the LAYER_NUMBER_SAMPLED field in

WC_SAMPLES must be populated with a value of 0 to signify that the headspace gas sample was taken from the headspace under the drum lid. The number of layers of packaging refers only to the layers of plastic confinement of the waste and does not include metal cans or the rigid liner.

9.10   Assay Methods and Characterization Methods

Assay Methods and Characterization Method IDs and descriptions in the WWIS originate from the CBFO certification letters that are issued upon final approval of the initial and annual certification audits that are conducted at each site. After the appropriate entries are made to the WWIS Reference Tables, the database conducts automated edit/limit checks on a container basis to verify that the methods and procedures were approved on the specified dates that are input to the database by the WWIS users. Additional details about the WWIS Assay Methods and Characterization Methods Reference Tables are described in Appendix A, *Automated Tracking Functions for Certified Assay Methods, Characterization Methods, and Approved Procedures*. When waste container data is submitted to the WWIS, and the assay date or characterization method date is out of range with the reference table entries as described in the WWIS, the user will receive an error message. To resolve the error message, print out the report for the assay method that is applicable to the container data and compare the date range(s) on the report with the container data. Contact a DA to discuss the issue and to develop a path forward if it is determined that it is appropriate to change the reference table entries to allow the container data to be transmitted to the WWIS and approved for shipment to WIPP. At sites where the services provided by the Idaho National Laboratory (INL) for characterization of waste are used, the Method IDs for the INL can be assigned for purposes of reporting characterization results to the WWIS.

9.11   Overpacking/Payload Management

Generally, payload management entails placement of individual waste containers from a single waste stream into a larger container that will be shipped to WIPP for disposal. Data associated with containers selected for payload management and destined as "To-Be-Overpacked" (TBO) may be entered into the WWIS and submitted to the database prior to submittal of data for the overpack. Refer to Table 9-2: Containers to be Overpacked, for a listing of TBO waste containers. To facilitate recognition of data associated with individual waste containers that are selected for payload management by the WWIS, the user assigns a valid container type and populates all of the required data fields on the Certification data entry form. Upon successful submittal of the waste container data and when the edit/limit checks are simultaneously performed by the database, the containers become available for overpacking through the WWIS. The user may then use the Overpack Data Entry screen to assemble individual waste containers into overpacks and to submit the data for each overpack to the database for review and approval. For assembly into an SWB, a TDOP, or RH canister, valid Overpack Configurations are listed in the WWIS Packaging/Container Reference Table. Each waste container selected for payload management and submitted to the WWIS must have a minimum of one TRU radionuclide reported with measured activity and mass values >0 and >LLD. The container type code of a TBO container assigned to an

overpack cannot be modified to a non-TBO Type Code. Refer to Appendix B, *Consolidation of Data for Drums Overpacked in a Standard Waste Box or Ten-Drum Overpack*, for additional details about edit/limit checks, data fields, and automated data roll-up functions that are performed by the database.

Table 9-2: Containers to be Overpacked

CONTAINER TYPE CODE	DESCRIPTION
16	55-Gallon Drum TBO – Good Condition
17	55-Gallon Drum TBO – Damaged Condition
18	55-Gallon Drum TBO – Solidified/Vitrified Waste – Good Condition
19	55-Gallon Drum TBO – Solidified/Vitrified Waste – Damaged Condition
27	SWB – TBO
28	85-Gallon Drum – TBO – Tall
29	85-Gallon Drum – TBO – Short
30	SWB TBO – Damaged
31	85-Gallon Drum – TBO – Tall – Damaged
32	85-Gallon Drum – TBO – Short – Damaged
39	RH 55-Gallon Drum – TBO
40	RH 30-gallon drum – TBO
Refer to the WWIS Container Types Reference Table for updates to this list as added, and limits and characteristics associated with each authorized container type.	

9.12   Container Reset and Hold Functions

9.12.1 Container Reset Function

In an effort to streamline the process for users to make corrections to waste container data, the DA may reset a waste container to pre-submittal status at the user's request. A container which is in "Characterization Approved" status cannot be reset to "Pre-Submittal to Characterization Approval" status. A container which is in either "Pending Certification Approval" status or "Certification Approved" status and not yet assigned to an assembly or payload can be reset to "Pre-Submittal to Certification Approval" status. Inner containers can only be reset if the overpack container that it is assigned to is in "Pre-Submittal to Certification Approval" status. Otherwise, the overpack container must be reset first and then the inner container can be reset. As part of the reset process, the DA is prompted for and required to enter the reason for the resetting a container. Once the container is reset, an e-mail is sent to the e-mail address specified in the Users Reference Table for the user ID that entered the waste container stating that the container has been reset to pre-submittal status. When a container is reset to pre-submittal status, the reason for resetting the container data is documented in the WWIS Data Change Log. The user can then make the necessary data corrections and resubmit the container data to the WWIS for reevaluation and approval.
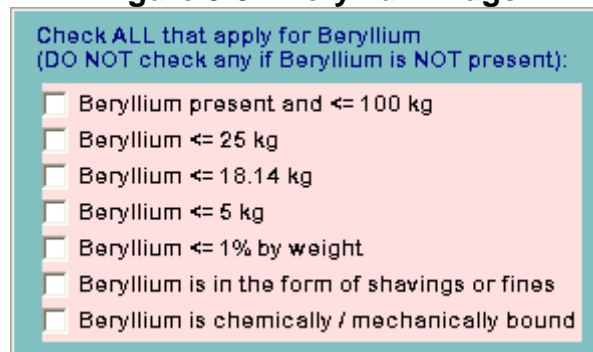
9.12.2 Container Hold Function

In an effort to streamline the process of issue resolution concerning container data, functionality is available to allow the DA to place a container "on hold" during the review and approval process. The DA is prompted for and required to enter the reason for placing a container "on hold." This allows the shipper/generator adequate time to resolve an identified issue while other container data is being evaluated and approved. After the data issue is resolved, notify the DA to release the hold. If it is necessary to correct any data, instruct the DA to either reject the container data or reset the data to pre-submittal status. The DA releasing the hold is required to enter the reason for releasing the hold when the container is rejected, reset, or approved. When a container is placed "on hold," the reason is documented in the WWIS Data Change Log.

9.13   WAC FGE Edit Limit Checks for Beryllium and Compacted Waste

Functionality is available for reporting the presence of beryllium in the waste. Refer to Figure 9-9 for a listing of the various flags that may be checked when beryllium is present in the waste.

Figure 9-9: Beryllium Flags
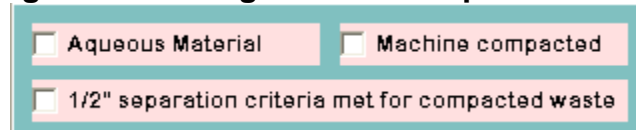
NOTE 1: Implementation of the 20 percent density limit for polyethylene in containers where beryllium is present is not covered on a container basis in the WWIS. Compliance with the polyethylene density limit will be implemented on a waste stream basis as necessary.

Shavings or Fines: Shavings or fines mean that the beryllium in the waste is not large-shaped or classified, and is distributed in the waste such that beryllium does not exceed 75 percent (1.3875 gram per cubic centimeter [g/cm^3]) of its full theoretical density.

Machine-Compacted Waste: For CH waste, if the waste is machine-compacted, both the Compacted Waste checkbox and the ½" Separation checkbox must be checked. Refer to Figure 9-10 for an illustration of these checkboxes.

Figure 9-10: Flags for CH Compacted Waste

For RH waste, do not submit container data to WWIS if the waste is machine-compacted.

Beryllium Mechanically or Chemically Bound to the Waste Matrix Checkbox: If beryllium is present in a CH waste container or RH TRU canister and is mechanically or chemically bound to the waste matrix, the checkbox may be checked. Refer to the WWIS Container Types Reference Data Report for FGE limits that are applicable if beryllium is present in the waste and is bound to the waste matrix.

The following criticality safety requirements shall be met before CH waste is approved for disposal at WIPP:

- Fissile loading shall not exceed 100 FGE, including two times the measurement error for a submitted 55-, 85-, or 100-gallon drum at greater than 5 kg and up to a maximum of 100 kg of beryllium. The density for polyethylene shall not exceed 20 percent (0.184 g/cm^3) of its theoretical full density.

- Fissile loading shall not exceed 200 FGE, including two times the measurement error for a submitted 55-, 85-, or 100-gallon drum containing up to 5 kilograms (kg) beryllium. If drums are used to overpack CH waste that has been compacted, the waste must conform to one of the following conditions:

  - The packing fraction of the CH waste contents shall not exceed 70 percent, or

  - The fissile loading for the overpacking drum shall not exceed 170 FGE, or

  - The internal and external height dimensions of the overpacking drum shall ensure a minimum ½ in. separation between the contents of the drums containing compacted CH waste and other CH waste containers when stacked. For example, drums that meet the internal and external height dimensions of British Nuclear Fuels Ltd. Drawing 53-9840, Revision 8 (BNFL 53-9840), ensure that the vertical separation between contents of drums containing compacted CH waste and other CH waste containers, when stacked is at least ½ in. The use of steel spacers in the top and bottom of the overpacking drum is also an acceptable method of achieving design separation.

- Fissile loading shall not exceed 325 FGE, including two times the measurement error for non-compacted CH TRU Waste Direct Loaded in a SWB or TDOP, beryllium shall not exceed 18.14 kg and the beryllium must be shavings or fines and the density for polyethylene distributed in the SWB or TDOP shall not exceed 20 percent (0.184 g/cm^3 of its theoretical full density.

For compacted CH TRU waste direct loaded into a SWB or TDOP in which the density of polyethylene exceeds 20 percent (0.184 g/cm^3) of its theoretical full density, fissile

loading shall not exceed 185 FGE, including two times the measurement error, beryllium shall not exceed 18.4 kg and beryllium must be shavings or fines.

Pipe overpacks are limited to no greater than 200 FGE, including two times the measurement error, and 5 kg of beryllium.

A drum overpacked in a TDOP or SWB requires that the FGE and beryllium mass be restricted to the limits of the direct loaded SWB or TDOP. A damaged or open SWB, overpacked in a TDOP requires that the TDOP FGE and beryllium mass be restricted to the direct loaded TDOP limit.

For non-machine-compacted RH waste, the maximum fissile loading shall not exceed the limits shown in WIPP WAC Table 4.9.2.1.

The maximum fissile loading for any 55-gallon drum shipped in a 10-160B shipping cask shall not exceed 200 FGE including measurement uncertainty, and a maximum beryllium content to 5 kg. If greater than 5 kg up to a maximum of 100 kg beryllium is present in an 55-gallon drum containing RH waste, fissile mass shall not exceed 100 FGE including measurement uncertainty.

The maximum fissile loading for any 30-gallon drum shipped in a 10-160B shipping cask shall not exceed 200 FGE, including measurement uncertainty, with no beryllium or graphite. This configuration is unauthorized.

9.14   Data Entry for Inner Cans in RH Waste Containers

Sites may submit data for Inner Cans in 55-gallon drums, 30-gallon drums, or RH canisters. This functionality is available only for RH waste. The RHTES will mathematically evaluate the can layer depth and quantity of cans at each layer against the specification outlined in the content code associated with the drum (when cans are placed in drums) or the canister (when cans are placed directly in the canister). When the reported Handling Code for a waste container is designated as RH, data for Inner Cans may be entered into a table that is accessible from the Filters subscreen. This table is not available when the Handling Code is designated as CH. Refer to the example in Figure 9-11: Certification Data Entry - RH Inner Cans below.

The table will allow input of data for Inner cans that have RH waste packaged directly into the can as well as input of inner cans (Parent Cans) that have smaller cans (Inner Cans) nested inside of them.

A unique Can ID number must be entered for each can inside the waste container. The Can ID number must be an alphanumeric value up to 16 characters. The Can ID must be unique for the Site ID and cannot be the same as any existing container number for the same Site ID. If the can is nested inside another can, the Can ID number of the exterior can is entered as the Parent Can ID for the interior can. In addition to the Can ID Number and the Parent Can ID number for nested cans, the table allows for entry of Decay Heat, Decay Heat Uncertainty, Closure Date, Vent Date, Filter Diffusivity, Flammable Gas Generation Rate, Hydrogen Concentration, and Sample Date for each

Inner Can. When data is entered into the Can ID Number field on the right hand side of the form and/or the Parent Inner Can ID field and saved, the Can ID Number and Level (Hierarchy) columns on the left hand side of the form will be populated automatically by the database. The Hierarchy fields on the left are display-only fields and cannot be entered or updated.

NOTE 1: If submittal of an RH waste container with Inner cans is unsuccessful, perform a check of the source data form or spreadsheet to verify that all can numbers are unique and correct. The cans may be removed from the right-hand side of the form when necessary, but only when the container record is at presubmittal status. If it can be verified that the can numbers are correct, perform a check to ensure that no limitations imposed by the approved TRUCON Code have been exceeded and verify that decay heat data, closure and vent dates, and filter diffusivity values have been entered correctly. If it is found that any Can ID Numbers are not are not unique or if any values are incorrect, change the incorrect value to the correct value and attempt to resubmit the container data again. Container data can be successfully submitted when the correct data has been entered into the container record. Contact the Payload Engineer if containers cannot be successfully submitted.

NOTE 2: Additional information about data interfaces with approved Content Codes in the RTMA must be obtained from the Packaging Engineer.

Figure 9-11: Certification Data Entry - RH Inner Cans

10.0 SHIPPING MODULE AND DUNNAGE CONTAINTERS

For shipments of CH and RH waste, the user will use the WWIS Shipping Module, as shown in Figure 10-1: Shipping Module and Pull-Down Menu, to create dunnage container records, "build" subassemblies, payloads, and shipments from containers with a status of "Certification Data Approved by WIPP." After the subassemblies and payloads are built, submitted, and electronically approved, the CH shipments can be built using a single form prior to being submitted to WIPP for approval by a DA.

Figure 10-1: Shipping Module and Pull-Down Menu
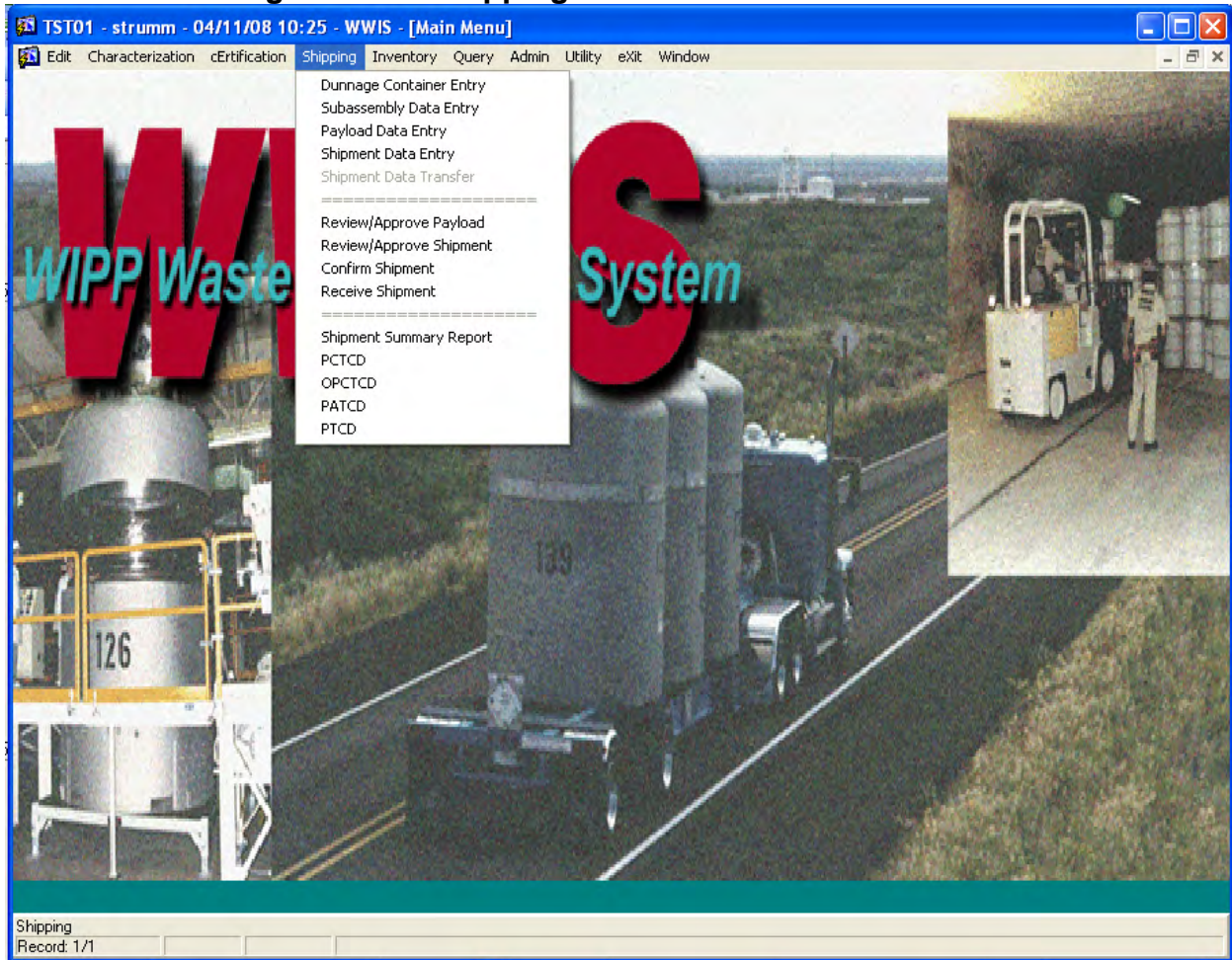
For inter-site shipments, the user will build assemblies, payloads, and shipments in the WWIS Test Instance.

NOTE: The Shipment Menu allows Shipper/Generator Users to create subassemblies, payloads, and shipments. The menu allows the Confirmation Team to provide indication that confirmation activities have been completed prior to approval of each waste stream shipment. The menu includes a function to allow the DAs to review and approve shipments and to allow WIPP Operations personnel to receive shipments when they arrive at WIPP. The menu allows Shipper/Generator users to generate reports that may be used to demonstrate compliance with transportation parameters as applicable to each shipment. These reports can also be generated and viewed by other users

whose database access privileges allow access to the reports. All users are permitted access to the Shipment Summary Report for each shipment.

10.1   Dunnage Containers

The following guidelines apply to creation of dunnage containers:

- For shipments of CH waste, dunnage containers may be added to the assemblies as necessary in order to meet TRAMPAC requirements. Select the Shipping Module from the WWIS main menu bar and then select "Dunnage Cntr Entry" from the Shipping pull-down menu. The screen for entering dunnage container information will be displayed as shown in Figure 10-2: Dunnage Container Form.

Figure 10-2: Dunnage Container Form

- To create a new dunnage container record, enter the container number, site ID, and container type in the appropriate fields. When the Container Type field is populated, the Description Field will be automatically populated. All remaining fields on the form will be automatically populated when the shipment is submitted and when the dunnage container is emplaced at WIPP. Save the dunnage records using the Save button.

- Exit the dunnage container screen by selecting the Exit button. Dunnage containers entered into the WWIS, as described above, will appear in the list of containers on the subassembly screen.

- Dunnage drums do not need to be created for placement into SWB Overpacks or TDOPs. For example, if three waste drums are shipped in an SWB, WWIS automatically accounts for the fourth drum as a dunnage drum. The number of dunnage containers allowed in an RH canister is specified in the approved content code. If dunnage is placed in a canister, the type and quantity must match as specified in the content code.

10.1.1   Subassemblies Form

As shown in Figure 10-3: Shipment Assemblies Form, this form allows the user to create a new subassembly, work with an existing subassembly, or delete a subassembly. To create a new assembly, enter the SITE_ID and an assembly ID in the appropriate fields. Double-click the CONTAINER_NUM field to bring up the list of available containers. The list of available containers will appear as shown in Figure 10-5: Containers Available for Shipment View. If a subassembly is submitted that does not pass all of the internal edit and limit checks, a screen will appear that shows the list of error messages as shown in Figure 10-4: Data Submittal Errors – Shipment Assemblies.

Figure 10-3: Shipment Assemblies Form

Figure 10-4: Data Submittal Errors – Shipment Assemblies

Figure 10-5: Containers Available for Shipment View
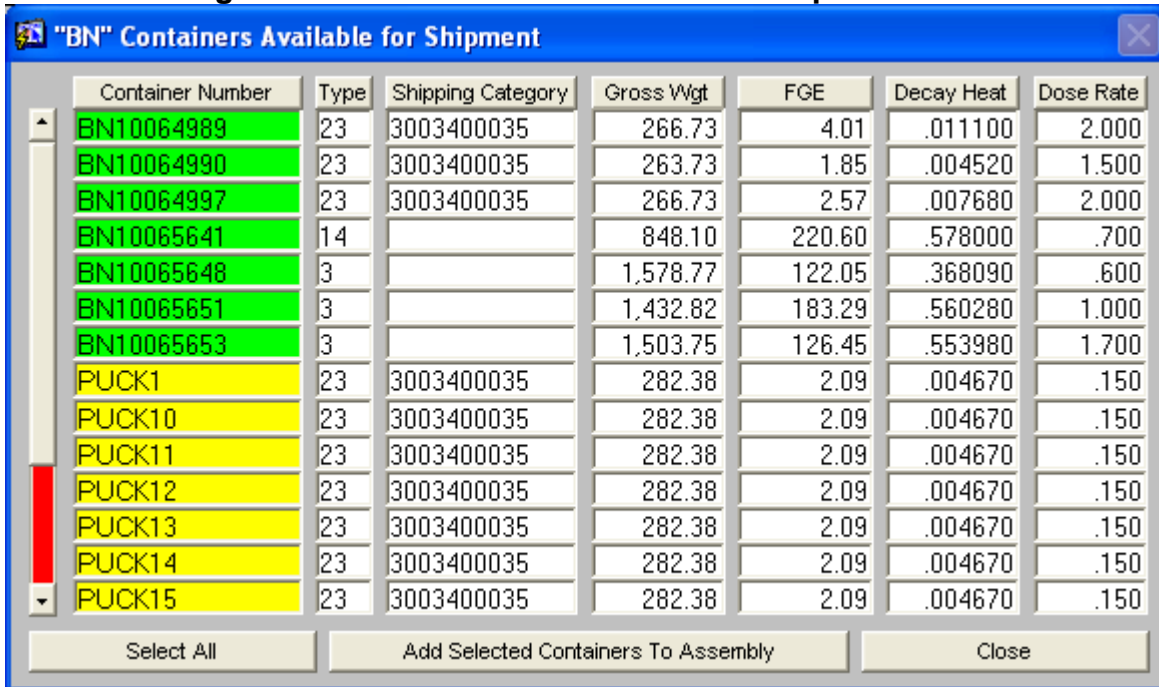
To build a subassembly by selecting one container at a time, place the cursor on the container number that is to be included in the subassembly. Double-click the container

number. The WWIS will then automatically remove the container from the List of Available containers view and populate the subassembly data fields on the Shipment Assemblies form.

Waste containers that have a status of Pending Certification Data Approval may be included in the list of Available Containers to build a subassembly. This means that the TCOs and other users who assemble payloads and shipments will be able to assemble payloads using container records that have been successfully submitted to the WWIS. Container records that are used to build payloads prior to shipment will include those container records that have been approved by WIPP as well as those container records that have not been approved. Edit/limit checks have been instituted to ensure that a shipment may not be approved in the WWIS until all waste containers are approved by WIPP DA.

As shown in Figure 10-5, the Assemblies data entry form shows the user visual attributes to distinguish containers (and their associated assemblies and/or payloads if applicable) in Pending Certification Data Approval status from those in Certification Data Approved status. The list of available containers is limited to waste containers that match the Handling Code for the assembly and dunnage containers. That means if a CH subassembly is being built, only CH waste containers will be included in the list of available containers. Conversely, if an RH subassembly is being built, only RH waste containers will be included in the list. If the Assembly ID field is green, then all containers in the assembly are approved. If the field is yellow, this is an indicator that there are unapproved containers in the assembly. When the cursor is placed on an assembly, the blue data fields, indicate the active record, but have no significance with regard to the approval status of the containers.

NOTE: If a user were to inadvertently select a waste container that is not to be included in the subassembly, double-click the container number and the WWIS will automatically remove the container number from the form. The removed container will then be included in the List of Available containers for selection and inclusion in a subassembly at a later time.

To insert more than one container into a subassembly at one time, click each container number that is to be included in the assembly. The container numbers will then be highlighted in yellow. After the desired containers have been selected and highlighted, click [Add Selected Containers To Assembly] to populate the subassembly fields on the form.

After it has been verified that the correct container numbers have been selected for each subassembly as shown in Figure 10-6: Complete Subassembly Example, close the List of Available Containers view by clicking [Close]. Click the submit button on the toolbar to run the container evaluation checks for the submitted subassembly. After the subassembly has passed the edit/limit checks, the user will receive an indication that the subassembly is acceptable and the ASSEMBLY_COMPLETE checkbox will automatically be checked. The Handling Code

field cannot be updated if the waste container is included in an assembly. The waste container must be removed from the assembly in order to update the Handling Code.

To delete a subassembly, click the flashlight icon on the toolbar to get into query mode. Enter the SITE_ID and Assembly Number on the form or select the subassembly number from the dropdown menu. Click the on the toolbar to delete the selected assembly and click the save icon on the toolbar.

Figure 10-6: Complete Subassembly Example

A subassembly may be saved without being submitted. When the appropriate number of containers, according the container type, has been added, click the Save icon on the toolbar. The user will then receive a message at the bottom of the page to indicate Transaction Complete: Applied Records Saved. The user may then submit the completed (saved) subassemblies by clicking the Submit button on the toolbar at a later time.

NOTE: Use caution when selecting 55-gallon container records to build each subassembly. A TRUPACT or HalfPACT assembly can only accommodate seven drums per subassembly.

To work with an existing assembly or to delete an assembly, place the cursor in the ASSEMBLY_ID Field and get into the query mode by clicking the flashlight icon on the

toolbar. Select the existing subassembly from the pull-down menu and initiate any changes by adding or removing containers as needed.
Unsaved assemblies may be lost when the user leaves the page. Save the assemblies that have been built before leaving the Shipment Subassemblies data entry page.

The WWIS database does not optimize payload assemblies. The CHTES evaluates the container configuration to ensure that it meets one of the configurations listed in the CH-TRAMPAC.

When it is deemed necessary to institute a control to prevent shipment of a completed subassembly, the TCO may uncheck the "assembly complete" checkbox. When the checkbox is unchecked, the subassembly cannot be included in a payload or shipment.

10.2   Payload Assemblies Form

For a TRUPACT-II payload, two subassemblies must be inserted into the Shipment Payloads Form as shown in Figure 10-7: Shipment Payloads Form, to be included as part of a shipment. For a HalfPACT payload, only one subassembly of drums or a subassembly comprised of one SWB must be inserted into this form. To create a payload, enter the SITE_ID and a payload number in the PAYLOAD_ID block. Containers with different shipping categories may be mixed to achieve gas generation compliance, or for other purposes (e.g., weight limit compliance). The Package Type field cannot be updated if one or more assemblies are assigned to the payload.

In the Payload Data Entry Screen, if the Payload ID field is green, then all containers in the assemblies that make up the payload are approved. If the field is yellow, there are unapproved containers in the payload. When the cursor is placed on a payload, the blue data fields will indicate the active record, but have no significance with regard to the approval status of the containers.

Figure 10-7: Shipment Payloads Form

Place cursor in the Assembly ID block and select a subassembly from the dropdown menu or from the List of Approved subassemblies. The list of Available Assemblies will be limited to those assemblies that match the Handling Code assigned to the payload's packaging type in the Packaging Types Reverence Table. For RH shipments, when an assembly is assigned to a payload the appropriate abbreviations for RH canisters will be displayed in the payload type field.

The shipper/generator user can also delete an existing payload that has not been assigned to a shipment by selecting the payload ID and clicking the delete current record icon on the toolbar. When a payload is deleted, the assemblies that had been assigned to that payload are automatically reset in the application, making them available to be added to a new payload.

The edit/limit checks evaluate the payload against TRAMPAC requirements. If a payload fails the evaluation, the user will have the ability to select a different combination of assemblies or remove and replace noncompliant payload containers on the selected assemblies in an attempt to create a payload that complies with all TRAMPAC requirements. Once a payload is constructed that passes the payload evaluation, the user can generate a PATCD for the payload. A printable PCTCD, or OPCTCD, may also be generated for each container on the payload.

When it is deemed necessary to prohibit shipment of a completed payload, the TCO may uncheck the "Payload Complete" checkbox. This will prevent the payload from being included in a shipment.

10.3   Shipment Form

A payload must be included as part of a shipment. To create a shipment, select Shipment Data Entry from the pull-down menu on the menu bar as shown in Figure 10-1, above. The Shipment Data Entry Form will then appear as depicted in Figure 10-8: Shipments Data Entry Form, below.

In the Shipment Data Entry Screen, if the Payload ID fields are all green, then all containers in the assemblies and payloads that make up the shipment payload are approved. If the Payload ID field is yellow, there are unapproved containers in the shipment. When the cursor is placed on a Payload ID, the user will see blue data fields which indicate the active record, but have no significance with regard to the approval status of the containers.

Functionality is available to enable sites to report the estimated weight of handling material (i.e., slip sheets, spacers) in packages offered for transport. If the handling material weight is left null, the database will automatically insert the value that is stored in the Packaging/Container Types Reference Table when the shipment is finalized. Refer to the reference table for standard material handling weights that have been assigned to the various types of payload configurations.

The shipper/generator users may initiate a check of the maximum shipment weight for each shipment prior to submitting the data to WIPP for approval. The user may toggle between "Use Actual Weights" [Use Actual Weights] and "Use Maximum Weights." [Use Maximum Weights] When "Use Actual Weight" is selected, the WWIS will calculate and display the maximum shipment gross weight in either kilograms [Display Weights in Kilograms] or pounds [Display Weights in Pounds] as the sum of the weight of the specified tractor, the weight of the specified trailer, the weight of the package specified for each payload and payload gross weights (including material handling weight weights and uncertainties). When "Use Maximum Weight" is selected, if a tractor is not specified, the calculation will use the maximum tractor weight as designated in the Tractors/Trailers reference table. If a trailer is not specified, the calculation will use the maximum trailer weight as designated in the Tractors/Trailers reference table.

NOTE: The values shown in the Handling Material Weight and the Payload Weight fields do not include the addition of the square root of the sum of the squares. The values shown include uncertainty expressed in terms of one standard deviation. The values shown in the Shipment Weight fields for each payload includes the uncertainty plus the square root of the sum of the squares for all of the weight values associated with each payload. For purposes of determining the total Maximum Shipment Weight, do not attempt to correlate totals shown on the shipment form with values shown on the Shipment Summary Report or the PATCDs because these reports include values for the waste assemblies and payloads only.

Figure 10-8: Shipments Data Entry Form

To submit a shipment, provide the following data in the appropriate fields on the form:

- Shipper Site ID: Enter the SITE_ID.

- Shipment Number: Enter a unique shipment number. The shipment number should align with the format shown on the WIPP Eight-Week Rolling Schedule. Only letters and numbers may be used. No special characters are allowed.

- Vehicle Type: Select either "TRUCK" or "RAILCAR" from the drop-down list.

- Package Type: Place the cursor in the PACKAGE_TYPE field and use the dropdown list to select the type of shipping package that will be used to transport the payload.

- Package Number: Place the cursor in the PACKAGE_NUMBER field and use the dropdown list to select the shipping package that will be used to transport the payload. Shippers are advised to check the Trailer ID and shipping package numbers available for loading and verify the correctness of the trailer and shipping package numbers before submitting this information to the WWIS.

NOTE: If less than three TRUPACT-IIs are selected for a shipment or if dunnage is present in any payload assembly, the user must select at least one of four checkboxes indicating the reason for use of dunnage: FGE Limited, Weight Limited, Gas Generation, or Other. If the Other checkbox is checked or if more than one checkbox is checked, the user is required to enter a comment describing why dunnage was used.

When a shipment is successfully submitted for shipment approval, the WWIS will then automatically send an email message to the Confirmation Team distribution list stating that the shipment is ready to undergo waste stream shipment confirmation. The WWIS DA will review the shipment and provide DA approval. The designated individual from Confirmation Team accesses the Shipment Confirmation Form to query the shipment and provides indication in the WWIS that waste confirmation has been performed and completed by changing the confirmation status flag on the form from NULL to "C." When waste stream shipment confirmation activities have been completed, the shipment will be automatically approved in the WWIS and the appropriate notifications will be sent electronically to the Shipper/Generator user who submitted the shipment and personnel who are included on the distribution list for the WWIS Shipment Approval Notification. Refer to Section 10.4, Figure 10-12: Shipment Confirmation Form.

To finalize a shipment, provide the following data in the appropriate field on the form.

- Certification Date: Enter the shipment certification date.

- Manifest: Enter the manifest number in the manifest field.

- Trailer ID: Place the cursor in the TRAILER_ID field and use the dropdown list to select and populate the field with one trailer ID per shipment.

- Tractor ID: Place the cursor in the TRACTOR_ID field and use the dropdown list to select and populate the field with one trailer ID per shipment.

- Transporter: Place the cursor in the TRANSPORTER_ID field and use the dropdown list to select and populate the field with one transporter per shipment.

- Payload: Place the cursor in the PAYLOAD_ID field and use the dropdown list to select a payload to go in each shipping package. When the PAYLOAD_ID field is populated, other fields associated with the payload, such as weight, FGE, and decay heat will be automatically populated.

- Beta/Gamma Surface Contamination: Enter the beta/gamma contamination measurement result for the shipping package.

- Alpha Surface Contamination: Enter the alpha contamination measurement result for the shipping package.

- OCA Lid Number: Enter the OCA lid number.

- ICV Closure Date: Enter the ICV closure date.

- Dose Rate Surface (mrem/hr): Enter the measured dose rate at the surface of the shipping package.

- Dose Rate 1M (mrem/hr): Enter the measured dose rate at 1 meter from the surface of the shipping package.

- Dose Rate 2M (mrem/hr): Enter the measured dose rate at 2 meters from the surface of the shipping package.

- DOT Description Field Selection: Place the cursor in the DOT_DESCRIPTION field and either manually enter a DOT Description or use the dropdown list to select the appropriate DOT Description for each shipping package.

- Send Date: Enter the send date.

NOTE: As shown in Figure 10-8: Shipments Data Entry Form, the RQ and HRCQ are still available for checking on the shipments form. However, Transportation personnel who need the RQ and HRCQ determinations for development of DOT shipping papers, manifests, etc., should obtain these data from another source (outside the WWIS) in accordance with site procedures. The default value for these checkboxes is "No." The shipper/generator user must check the RQ and HRCQ checkboxes manually if either or both are applicable to the waste being shipped. The WWIS DAs are not required to perform any checks with regard to the validity of the DOT Description chosen or the validity of checked/unchecked RQ and HRCQ checkboxes.

- "Display Weights in Pounds" button: Clicking this button will automatically calculate the total shipment weight, including the weights of the selected tractor and trailer.

- Shipper/generator users may choose to view an existing shipment by selecting the shipment number. The page will display the information listed above, but with the stored information for the selected shipment. Shipper/generator users may edit the information if the shipment has not been submitted.

If the shipment status is NEW_SHIP, the shipper/generator user may also delete the shipment by clicking the delete current record icon.

Once all data has been entered, click the Submit button. When the Submit button is pressed, the database checks to verify that all required data is present (i.e., no fields are null).

NOTE: In the case of an unanticipated shipment delay, the data for a shipment may be automatically updated when a DA updates a shipment's "Send Date" at the request of the shipping site using the Shipment Query form.

10.3.1 DOT Description Field

For purposes of providing input to the DOT Description field, there are eight basic variations of shipping names that are available to be selected using the pull-down menu. The DOT Description field is editable. Other DOT Descriptions may be manually input and saved prior to submittal of shipment data.

- RQ, Radioactive material, Type B(U) package, fissile 7 UN3328
- RQ, Radioactive material, Type B(U) package, non-fissile 7 UN2916
- RQ, Waste Radioactive material, Type B(U) package, fissile 7 UN3328
- RQ, Waste Radioactive material, Type B(U) package, non-fissile 7 UN2916
- Radioactive material, Type B(U) package, fissile 7 UN3328
- Radioactive material, Type B(U) package, non-fissile 7 UN2916
- Waste Radioactive material, Type B(U) package, fissile 7 UN3328
- Waste Radioactive material, Type B(U) package, non-fissile 7 UN2916

10.3.2 PCTCD or OPCTCD (CH Waste)

This report is a representation of TRAMPAC Tables 6.1-1, 6.1-2, and 6.1-3. This report can be printed for a single compliant container, Payload, or Shipment. To run this report, type in or enter the Site ID, Container Number, Payload ID, or Shipment Number and press the green traffic light on the menu bar.

Figure 10-9: PCTCD/OPCTCD

10.3.3 PATCD (CH Waste)

This report is a representation of TRAMPAC Table 6.2-1 and is accessible only from the Shipping Menu. Access to these reports is limited to users who are assigned Data Administrator, Shipper Generator, and WIPP Operations roles. This report can be printed for a single Payload ID or Shipment number. To run this report, type in or enter the Site ID, Payload ID or Shipment Number and press the green traffic light on the menu bar.

Figure 10-10: PATCD

10.3.4 PTCD for RH TRU Canister

This report is a representation of Table 6.2-1 as shown in the RH-TRAMPAC Document. This report also includes transportation parameters for the RH-TRU 72-B Package.

Figure 10-11: RH PTCD

10.4   Miscellaneous Information – Shipping Module

The Shipping module also allows the user to view or print a Shipment Summary Report showing shipment data input to the Shipment module and status.

NOTE 1: If a shipment is rejected using the "Reset" option, the status will be reset to "NEW_SHIP." This will allow the shipper to make corrections and resubmit the shipment to the WWIS for approval. The payloads and subassemblies will still be available for inclusion in the shipment. If the shipment has undergone waste stream shipment confirmation, the confirmation flag will be cleared to indicate that the confirmation needs to be reevaluated and an email message will be automatically sent to the Confirmation Team distribution list stating that the shipment was rejected.

NOTE 2: If a shipment is rejected using the "Reject" option, the shipment will be deleted but the subassemblies and payload will still be available for inclusion in a new shipment. If the shipment has undergone waste stream shipment confirmation, the confirmation flag will be cleared to indicate that waste confirmation needs to be

reevaluated. An email message will be automatically sent from the WWIS to the Confirmation Team distribution list stating that the shipment was rejected.

Off-Normal Situations: When a shipment is reset or rejected, the database design allows the WWIS DAs to provide indication that waste confirmation has been performed and that the requirements outlined in Permit Attachment B7 have been met based on communications with the Confirmation Team when the shipment is resubmitted. In off-normal situations and isolated events, the DA may change the confirmation status flag on the Shipment form from NULL to "C" and provide a reason in the dialog box when requested to do so and reapprove the shipment. When the DA provides assistance to the Confirmation Team in off-normal situation, the reason for change is automatically stored in the database.

Figure 10-12: Shipment Confirmation Form

NOTE 3: An approved container may not be rejected from the WWIS if it has been assigned to an assembly or a payload in the Shipping Module. If an approved container has been assigned to a subassembly, the subassembly must be deleted before the container can be rejected from the WWIS. When a subassembly is deleted, the containers will then be available to be reassembled into new subassemblies and payloads.

There is an alternate method for WWIS users to obtain documentation that a shipment has been approved. Print a Shipment Summary report. If the information from the Shipment Summary report is insufficient to meet a specific need, contact a WWIS DA. The DA can forward the shipment approval notice e-mail message generated by the WWIS that provides a summary of information about each shipment. The message is distributed internally at WIPP for purposes of waste/shipment receipt.

11.0   QUERY MODE

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
- Holding for Characterization Data Approval by WIPP
- Characterization Data Approved by WIPP
- Pre-Submittal to Certification Data Approval by WIPP
- Pending Certification Data Approval by WIPP
- Holding for 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 pull-down menu allows access to screens that show container data, shipment data, and emplacement information.

Queries may also be performed on specific container and shipment data input to the WWIS shipment module. 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 WWIS DA uses the Query Module when it is necessary to reject or delete an approved container or an approved shipment from the WWIS. Deletions of containers and shipments are documented in the WWIS change log. By design, it is not possible for the WWIS DA to delete containers that have been received at WIPP nor is it possible to delete a shipment after it has been received at WIPP.

The following guidelines apply to container and shipment deletions:

- Any approved container or approved shipment can be deleted by a WWIS DA prior to receipt at WIPP. The shipper/generator user sends an e-mail message to the WWIS DA to request each container or shipment deletion. Each request must be accompanied by a reason that does not require further explanation or clarification.

- Any container record with a status of PRESUB_CERT may be deleted by a shipper/generator user. To delete a container record from the Certification Module, select Certification Data Entry from the main menu. Click the flashlight icon to get into query mode. Enter the Container Number that needs to be deleted in the CNTR_NUM field and click the flashlight icon again. The container data will then appear on the screen. Click on the red x at the top of the menu bar and click the save icon.

- Upon correction of the container or shipment data, the shipper/generator user may resubmit the data to the WWIS for approval. Resubmitted data will be subject to all required edit/limit checks as applicable.

12.0   ELECTRONIC DATA TRANSFER

When the Electronic Data Transfer function is to be utilized prior to submittal of waste container records, the user loading the data must have a set of temp tables set up by the Database Administrator or other individual who has the knowledge and privileges to set up temp tables for users. When the user makes electronic data transfers of waste container records to the WWIS, the user is responsible for loading the container data into the WWIS temporary data tables. The site-developed data tables that may be used to facilitate electronic data transfer of container records must be compatible with the WWIS data field formats and structure. Currently, functionality for electronic data transfer of shipment records does not exist.

At TRU waste sites where electronic data entry is used, the WWIS Temp Tables, spreadsheets, and other electronic databases that interface with the WWIS need to be configured in such a manner so as to facilitate successful transfer of TBO drum data, the overpack container numbers, and type codes to the WWIS when the Certification/Overpack Data Transfer submenu, as shown in Figure 12-1: WWIS Utility Module and Pull-Down Menu, is used.

Figure 12-1: WWIS Utility Module and Pull-Down Menu
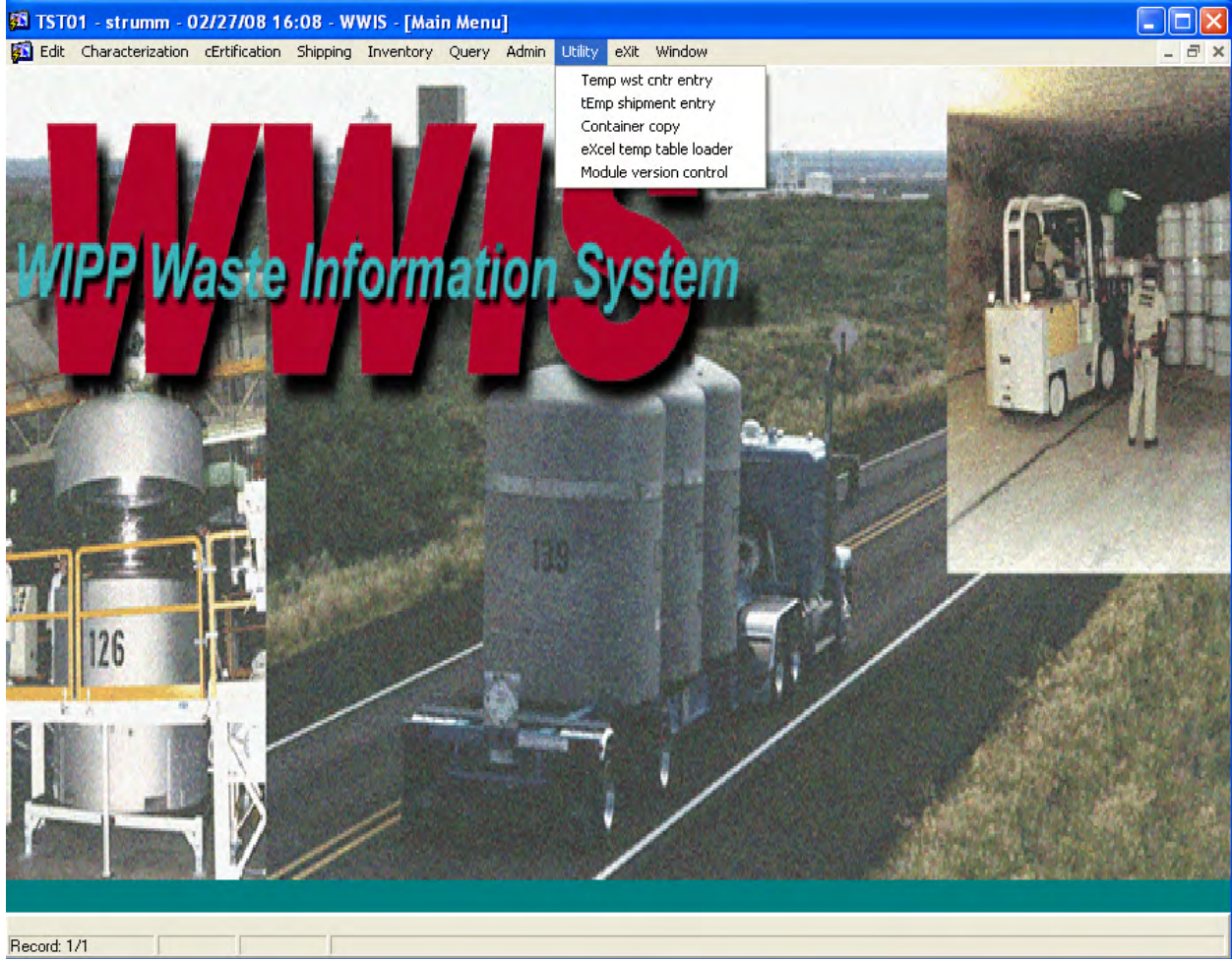
Refer to Figure 12-5 for a complete listing of the temp tables that are used for waste container data entry in the Characterization Module and the Certification Module. The table columns labeled "Charz Data" and "Cert Data" specify which fields must have an entry for an electronic transfer to be successfully 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 and are identified with an asterisk as shown in the Figure 12-2: TMP_WST_CNTRS Form, below. Alternatively, data may be entered manually into the WWIS tables directly without using the temp tables.

Figure 12-2: TMP_WST_CNTRS Form

The Container Copy utility function, as shown in Figure 12-3: Container Copy Utility, provides users with the ability to copy a container record that exists in the database, change the container number, change data as needed, and then subsequently enter additional data at a later date before submission for approval.

Figure 12-3: Container Copy Utility

Although the edit/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.

The newly created container is assigned a "Pre-Submittal" status based on the status of the copied container. If the copied container is in a characterization status (Pre-Submittal to Characterization Data Approval, Pending Characterization Data Approval by WIPP, Holding for Characterization Data Approval by WIPP, Characterization Data Approved by WIPP) the newly created container record will be assigned a status of "Pre-Submittal to Characterization Data Approval." If the copied container is in any other status, the newly created container will be assigned a status of "Pre-Submittal to Certification Data Approval." Container records created via this function can be edited and submitted via either the Characterization Data Entry or the Certification Data Entry function, depending on the assigned container status.

After the container data has been copied, close the Utility function and return to Characterization Data Entry or Certification Data Entry to run the edit/limit checks and to submit the container data.

To initiate the electronic data transfer of records, go to the WWIS main menu and select the applicable menu (Characterization or Certification).

Select the data transfer option from the submenu (Characterization Data Transfer or Certification/Overpack Data Transfer). A form, as shown in Figure 12-4: Certification/Overpack Data Transfer Screen, will appear on the screen.

Figure 12-4: Certification/Overpack Data Transfer Screen
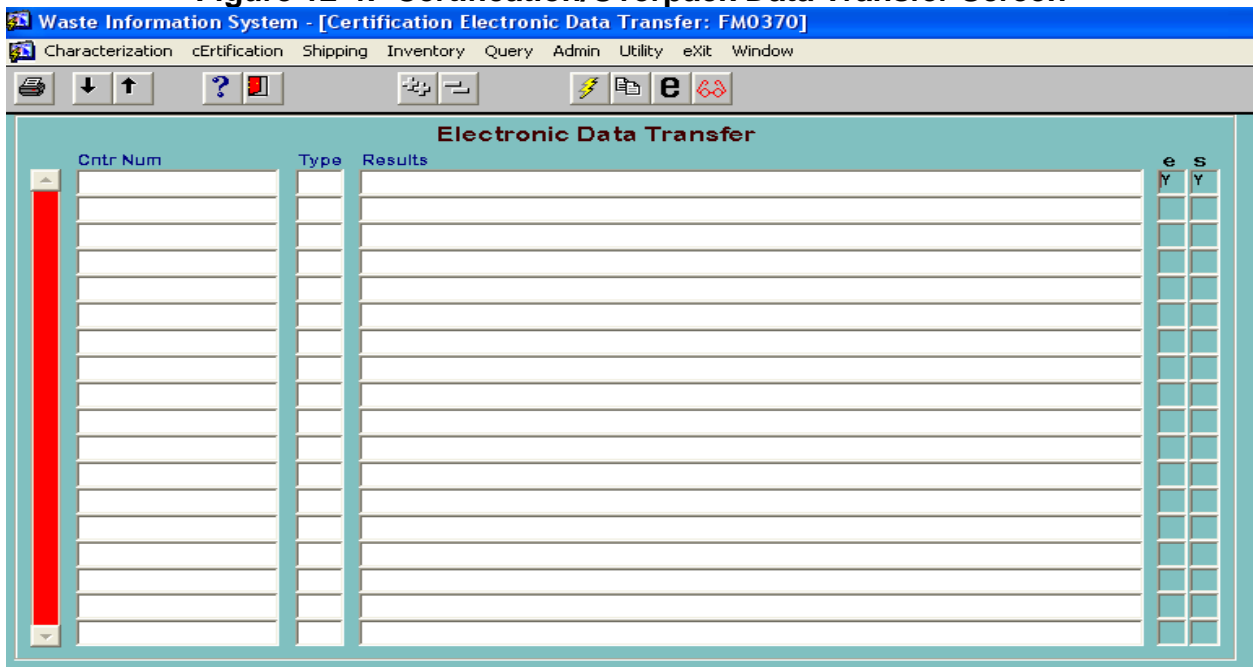
Select the container record(s) to be transferred. (**NOTE:** If a record is selected which has already been submitted and accepted by the WWIS, a message will appear stating

that the record already exists in the WWIS and show the container status code. Depending on the status of the container, it may or may not be allowed to be transferred again. For example, a container with APPROVED_CHARZ status can be transferred to Certification. However, a container with a status of APPROVED_CERT cannot be transferred again.) 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.

The data transfer is initiated by selecting the Submit button (flashlight icon) on the toolbar at the top of the screen.

The transfer screen will provide a real-time indication as records are accepted or rejected.

If a container submittal is unsuccessful, select the Detail Errors button (eyeglasses icon) for a list of errors that need to be corrected before the container will be accepted by the WWIS database. Refer to Table 12-1: WWIS Error Messages and Solutions, for a listing of error messages and solutions. If an error message that is not listed in Table 12-1 is listed on the report, refer to Appendix E for additional error messages and solutions. 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).

Table 12-1: WWIS Error Messages and Solutions

ERROR MESSAGE	SOLUTION
Duplicate Record in Temporary Tables not allowed (electronic transfer only).	Remove record and replace or contact WIPP DBA.
Shipper Site must be provided.	Refer to LOV pull-down menu and initiate change, as necessary.
Shipper Site <value> is invalid or expired.	Refer to LOV pull-down menu and initiate change, as necessary.
Waste Stream Profile must be provided.	Refer to LOV pull-down menu and initiate change, as necessary.
Waste Stream Profile <value> is invalid or expired.	Refer to LOV pull-down menu and initiate change, as necessary.
Waste Stream Profile <value> has not been approved.	Contact WIPP DA for assistance.
Container Number <value> must be unique.	Refer to LOV pull-down menu and initiate change, as necessary.
Container Type must be provided.	Refer to LOV pull-down menu and initiate change, as necessary.
Container type <value> is invalid or expired.	Refer to LOV pull-down menu and initiate change, as necessary.
Handling Code must be provided.	Refer to LOV pull-down menu and initiate change, as necessary.

Table 12-1: WWIS Error Messages and Solutions

ERROR MESSAGE	SOLUTION
Handling Code <value> must be CH or RH.	Refer to LOV pull-down menu and initiate change, as necessary.
Waste Stream BIR Id must be provided.	Refer to WSPF.
Waste Stream MWIR Id must be provided.	Refer to WSPF or use N/A if not applicable.
Generator Site must be provided.	Refer to LOV pull-down menu and initiate change, as necessary.
Generator Site <value> is invalid or expired.	Contact WIPP DA for assistance.
IDC Code must be provided.	Refer to WSPF or use N/A if not applicable.
Matrix Code must be provided.	Refer to WSPF.
WAC Revision Number must be provided.	Refer to WAC.
WAC Revision Number <value> is invalid or expired.	Contact WIPP DA for assistance.
WAC Exception Number <value> is invalid.	Contact WIPP DA for assistance.
Certification Site must be provided.	Refer to LOV pull-down menu and initiate change, as necessary.
Certification Site <value> is invalid or expired.	Refer to LOV pull-down menu and initiate change, as necessary.
Certification Date must be provided.	Contact Site Waste Certification Official.
TRU Alpha Activity must be provided.	Refer to Radioassay BDR.
Container Volume not provided Container Type - <container type code> (needed to check TRU Alpha Activity).	Refer to Radioassay BDR.
The TRU Alpha Activity <value> divided by Container Volume <cntr volume value> exceeds <limit> Ci/Liter.	Refer to Radioassay BDR.
TRU Alpha Activity Uncertainty must be provided.	Refer to Radioassay BDR.
TRU Alpha Activity Concentration must be provided.	Refer to Radioassay BDR.
Min TRU Alpha Activity Concentration must be provided in WAC limits table for WAC Revision No. - <wac rev num>.	Refer to Radioassay BDR.
TRU Alpha Activity Concentration <value> must be > than <limit> Ci/gram.	Refer to Radioassay BDR.
MIN and MAX Fill Factors % must be provided in the WAC limit table for WAC revision no. - <wac rev num>.	Refer to Packaging records or RTR BDR.
Fill Factor <value> must be between <min limit> and <max limit>.	Refer to Packaging records or RTR BDR.
PCB Concentration amount must be provided.	Refer to WSPF or Solid Sampling Reports.

Table 12-1: WWIS Error Messages and Solutions

ERROR MESSAGE	SOLUTION
PCB Concentration limit must be provided in WAC limit table for WAC revision no. - <wac rev num>.	Contact WIPP DA for assistance.
PCB Concentration <value> must be < than <limit> 50 ppm.	Remove record and replace when PCB concentration limit will allow container to be shipped to WIPP.
Alpha Surface Contamination must be provided.	Refer to RCT report.
Alpha Surface Contamination limit must be provided in WAC limits table for WAC revision no. - <wac rev num>.	Contact WIPP DA for assistance.
Alpha Surface Contamination <value> must be below <limit> 20 dpm/cm2.	Contact Transportation Certification Official.
Beta Gamma Surface Contamination must be provided.	Refer to RCT report.
Beta Gamma Surface Cont must be provided in WAC limits table for WAC revision no. - <wac rev num>.	Contact WIPP DA for assistance.
Beta Gamma Surface Contamination <value> must be below <limit> 200 dpm/cm2.	Contact Transportation Certification Official.
Neutron Dose Rate must be provided.	Refer to RCT report.
Neutron Dose Rate <value> exceeds limit of <limit> 200 mrem/hr.	Contact Transportation Certification Official.
Beta Gamma Dose Rate must be provided.	Refer to RCT report.
Beta/Gamma Dose Rate limit not provided this Handling Code - <handling code>.	Contact Transportation Certification Official.
Beta/Gamma Dose Rate <value> exceeds limit of <limit> 200 mrem/hr.	Contact Transportation Certification Official.
No Radionuclide Data Found!	Refer to Radioassay BDR.
No Hazardous Code Data Found!	Refer to WSPF.
No Assay Methods Data Found!	Refer to Radioassay BDR.
No Characterization Methods Data Found!	See Table 2.
No Sample Data Found!	Refer to HGAS BDR and insert sample data.
No Sample Amount Data for sample - <sample id> Found!	Refer to HGAS BDR and insert sample data.
Date Sampled must be provided.	Refer to HGAS BDR and insert the date that the sample was taken.
Duplicate Row in Samples – [Sample ID #]	Sample ID number already exists in the database. Refer to HGAS BDR and change the Sample ID.

Table 12-1: WWIS Error Messages and Solutions

ERROR MESSAGE	SOLUTION
Sample Type must be provided.	Refer to HGAS BDR and insert the Sample Type (i.e., HGVO-T, HGHM-T)
Sample Type is invalid or expired	Refer to HGAS BDR, look for misspelling or missing characters and insert the correct Sample Type (i.e., HGVO-T, HGHM-T)
ALL target analytes must be reported	Refer to HGAS BDR, look for analytes that were reported but not submitted with the container data from the spreadsheet or database.
Date Sampled cannot be later than submittal date.	Refer to HGAS BDR, look for an error in reporting the sample date, correct the date and resubmit the container data.
Date Analyzed must be provided for Sample [followed by Sample ID # & CAS #]	Refer to HGAS BDR, look for an error in reporting the Date Analyzed for the given analyte. Correct the date and resubmit the container data.
Method ID [Method ID #] is invalid or expired for this site.	Refer to HGAS BDR, look for an error in reporting the Method ID used to collect the sample. Correct the Method ID and resubmit the container data.
Method ID must be provided [followed by Sample ID # & CAS #]	Refer to HGAS BDR, look for an error in reporting the Method ID used to collect the sample. Correct the Method ID and resubmit the container data.
Concentration Value must be provided [followed by Sample ID # & CAS #]	Refer to HGAS BDR, look for the missing value. Insert the correct value in ppm into spreadsheet or database and resubmit the container data.
Reporting Flags must be provided [followed by Sample ID # & CAS #]	Refer to HGAS BDR, look for the missing reporting flag. Insert the missing flag information into spreadsheet or database and resubmit the container data.
Analysis Method was not approved for this site at the time of Date Analyzed	Refer to HGAS BDR, look for an error in reporting the both the analysis method and the date analyzed. If the information is correct, contact management to ascertain whether the process has been audited. (Refer also to Appendix A of this manual).
There are no valid procedures assigned to Analysis Method ID [number] for this site.	Refer to HGAS BDR, look for an error in reporting the analysis method, the procedure associated with the method and the date analyzed. If the information is correct, contact management to ascertain whether the process has been audited. (Refer also to Appendix A of this manual).

Table 12-1: WWIS Error Messages and Solutions

ERROR MESSAGE	SOLUTION
The Procedures assigned to Analysis Method ID for this site were not approved at the time of analysis date	Refer to HGAS BDR, look for an error in reporting the analysis method, the procedure associated with the method and the date analyzed. If the information is correct, contact management to ascertain whether the process has been audited. (Refer also to Appendix A of this manual).
There must be <= 180 days between date sampled and date analyzed for sample [followed by Sample ID # & CAS #]	Refer to HGAS BDR, look for an error in reporting the date sample and date analyzed. If an error is identified, insert the correct date into spreadsheet or database and resubmit the container data. If the 180 day limit is exceeded, contact a HSG subject matter expert to discuss the feasibility for an adjustment to the reference table to facilitate successful data transfer.
Date Analyzed [Date] must be greater than or equal to date sampled [followed by Sample ID # & CAS #]	Refer to HGAS BDR, look for an error in reporting the date sampled and date analyzed. Insert the correct date into spreadsheet or database and resubmit the container data.
Analyte [CAS #] is invalid, expired, or not associated with waste stream [Waste Stream Profile #]	If the analyte is not a target analyte but is identified in the approved TRUCON Appendix B list of flammable VOCs, contact a DA to add the analyte to the waste stream. If the analyte is not listed in the TRUCON Appendix B list, contact a Payload Engineer to have it evaluated for future inclusion on the list.
Potential VOC Concentration limit must be provided in WAC limit tables for WAC revision no. - <wac rev num>.	Contact WIPP DA for assistance.
No Material Parameter Data Found!	Refer to RTR BDR.
No Filter Models Found!	Contact Transportation Certification Official.
Container Weight not provided for Container Type "<value>."	Refer to RTR BDR.
Weight of steel packaging material <value> is outside allowable range of container weight (<value>) +/- <differential> of 5%.	Contact Waste Certification Official or Refer to RTR BDR.
Waste weight (<value>) + steel packaging (<value>) + plastic packaging (<value>) is outside allowable range of gross weight (<value>) +/- <differential> of 25%.	Contact Waste Certification Official or Refer to RTR BDR.
Unsuccessful Transfer	Contact Site IT staff or WIPP DBA for assistance.

Table 12-1: WWIS Error Messages and Solutions

ERROR MESSAGE	SOLUTION
Manual shipment already entered must be maintained manually.	Insert additional information manually.
Shipment already a completed/received shipment.	Contact WIPP DA if information needs to be changed.
Handling Code could not be determined.	Refer to LOV and initiate change, as necessary.
Site ID must be provided.	Refer to LOV and initiate change, as necessary.
Site <value> is invalid or expired.	Refer to LOV and initiate change, as necessary.
Vehicle Type must be provided.	Refer to LOV and initiate change, as necessary.
Vehicle Type <value> must be a T-Truck or R-Rail.	Refer to LOV and initiate change, as necessary.
Transporter name <value> is invalid or expired.	Refer to LOV and initiate change, as necessary.
Container Type Code must be provided.	Refer to LOV and initiate change, as necessary.
Container Type Code <value> is invalid or expired.	Refer to LOV and initiate change, as necessary.
Packaging Type for Packaging Num <value> /	Refer to LOV and initiate change, as necessary.
Container Type Code <value> is an invalid combination.	Refer to LOV and initiate change, as necessary.
Decay Heat uncertainty must be provided (not required for RH).	Refer to PATCD and initiate change, as necessary.
OCA Lid Number must be provided (not required for RH).	Refer to Packaging LOV and initiate change, as necessary.
Decay Heat must be provided.	Refer to PATCD and initiate change, as necessary.
Radionuclide Reportable Quantity must be provided.	Radionuclide Reportable Quantity must be Y or N.
Radionuclide Reportable Quantity <value> must be Y or N.	Determine whether Radionuclide Reportable Quantity must be Y or N.
Radionuclide Highway Route Control Quantity must be provided.	Radionuclide Highway Route Control Quantity must be Y or N.
Radionuclide Highway Route Control Quantity <value> must be Y or N.	Determine whether Radionuclide Highway Route Control Quantity must be Y or N.
Assembly Id <value> must be unique.	Change value to unique number.
Assembly already exists.	Change value to unique number.

Table 12-1: WWIS Error Messages and Solutions

ERROR MESSAGE	SOLUTION
Container <value> Packaging Number must be provided.	Refer to LOV and initiate change, as necessary.
Container <value> Assembly Number must be provided.	Insert unique Assembly number.
Container Number must be provided.	Refer to LOV and initiate change, as necessary.
Container Number <value> has not been approved in Certification.	Enter container data in certification or call WIPP DA to get container approved.
Container Number <value> has already been assigned to a shipment.	Verify correctness against site records and make changes, as needed.
Container Number <value> does not have correct handling code.	Verify correctness against site records and make changes, as needed.
Container Number <value> does not exist.	Verify correctness against site records and make changes, as needed.
Container Number too many rows.	Call WIPP DBA for guidance.
Packaging Number must be provided (from dunnage check).	Contact Transportation Certification Official.
Assembly Number must be provided (from dunnage check).	Contact Transportation Certification Official.
Dunnage Container Number must be provided.	Insert unique dunnage container number.
Dunnage Container <value> has already been assigned to a shipment.	Change value to unique number.
Dunnage Container already exists.	Change value to unique number.
Dunnage Container type code must be provided.	Refer to LOV and initiate change, as necessary.
Dunnage Container type code <value> is invalid or expired.	Refer to LOV and initiate change, as necessary.
Shipment <value> must have Packages of all the same type.	Verify correctness against site records and make changes, as needed.
Shipment <value> has invalid Package Number.	Verify correctness against site records and make changes, as needed.
Shipment <value> must have Packages.	Refer to LOV and initiate change, as necessary.
Shipment <value> can only have <limit> Packages.	Contact Transportation Certification Official.
Package <value> must have Assemblies.	Insert unique assembly number.
Package <value> can only have <limit> Assemblies.	Contact Transportation Certification Official.
Assembly <value> must have <limit> containers.	Remove or add containers.

Table 12-1: WWIS Error Messages and Solutions

ERROR MESSAGE	SOLUTION
Assembly <value> must have same container types.	Refer to LOV and initiate change, as necessary.
Assembly <value> must have same dunnage and waste container types.	Refer to LOV and initiate change, as necessary.
Container <value> has already been assigned to a shipment.	Remove duplicate container number from assembly.
Container <value> is not in the WWIS database.	Enter container data in certification and have it approved or select another container.
Dunnage container <value> has already been assigned to a shipment.	Choose another dunnage container.
Successful Transfer	No action required; submit shipment to WWIS for approval.
Data Transfer Error	Address and fix any identified errors and submit to WIPP DA for review and approval.
There is no shipment identified.	Identify a Shipment Number using WIPP Eight Week Rolling Schedule.
This shipment has no containers assigned. Cannot submit until completed.	Assign containers to shipment or call WIPP DA for assistance.
Shipment <value> not found.	Enter a shipment number.
Shipment <value> must have Packages.	Enter the correct Package number (i.e., TRUPACT-II.
Shipment <value> can only have <limit> Packages.	Contact Transportation Certification Official.
Package <value> must have Assemblies.	Contact Transportation Certification Official.
Package <value> can only have <limit> Assemblies.	Contact Transportation Certification Official.
Assembly <value> must have <limit> UNIQUE containers.	Contact Waste Certification Official.
Assembly <value> must have same container types in it.	Contact Waste Certification Official and Transportation Cert. Official.
Container and Dunnage Types don't match.	Refer to LOV and initiate changes as necessary.
Plutonium content of Package Number <value> exceeds limit of 20 curies for a 10-160B Cask (RH only).	Contact Transportation Certification Official.

Exit the electronic data transfer session by selecting the Exit button (door icon).

The Excel® Temp Table Loader function, as shown in Figure 12-5: Utility Module – Excel® Spreadsheet Temp Table Loader, allows users to load data for multiple waste containers into their waste container temp tables from a spreadsheet format.

Figure 12-5: Utility Module – Excel® Spreadsheet Temp Table Loader
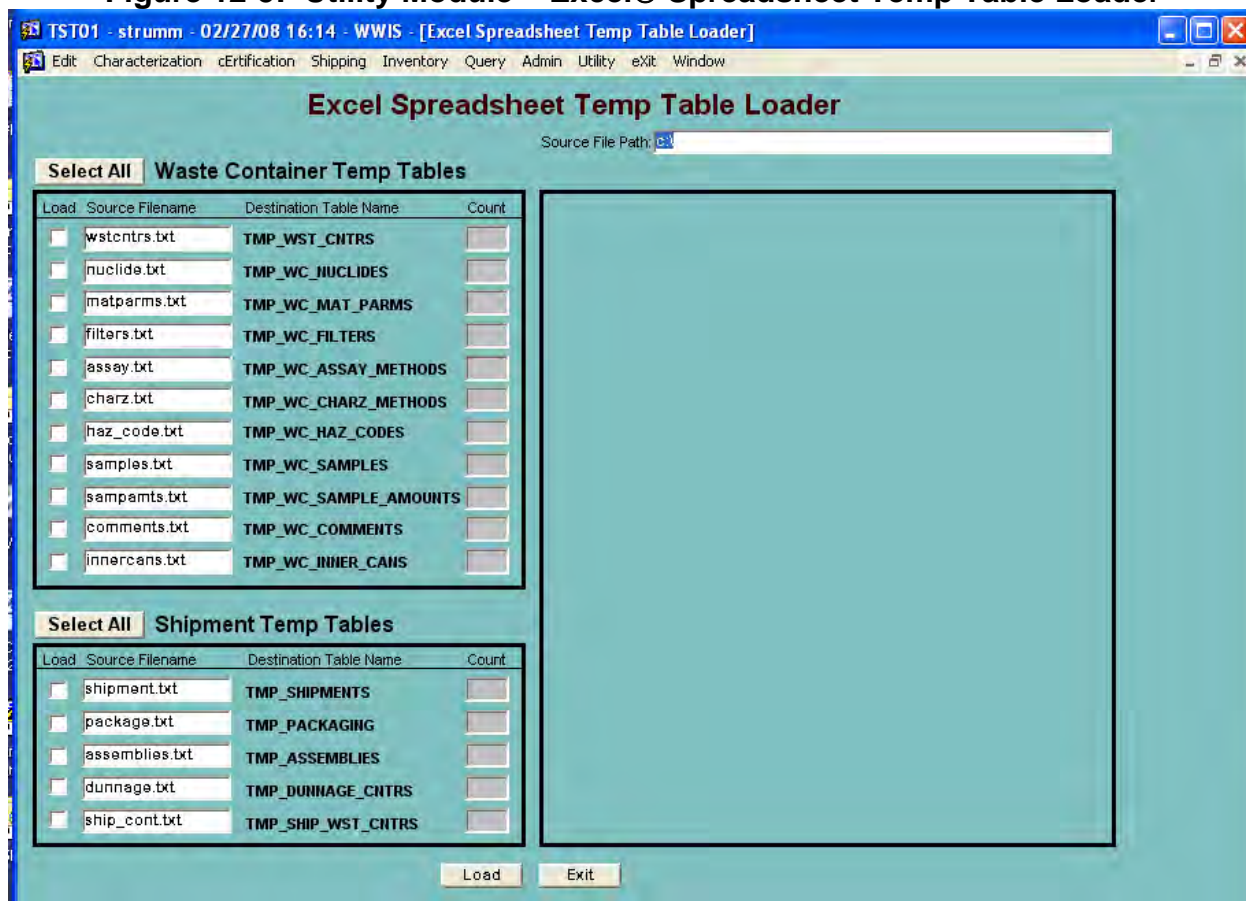
12.1   Sample Data Transfer

When the Sample Data Transfer function is initiated for a sample record, data must be loaded into the tmp_wc_samples table and the tmp_wc_sample_amounts table. To load the data into the tmp_wc_samples table, check the load checkboxes as shown in Figure 12.6: *Excel Spreadsheet Temp Table Loader – Samples and Sample Amounts.*

The following data for each analyte must be loaded into the tmp_wc_sample_amounts table:

CAS_NUMBER
SAMPLE_ID
DATE_ANALYZED
METHOD_ID
CONC_PPM

The reporting flags listed below are to be reported when applicable and in accordance with site procedures.

Non-Required Fields
REPORTING_FLAG_B
REPORTING_FLAG_E
REPORTING_FLAG_D
REPORTING_FLAG_U
REPORTING_FLAG_J
REPORTING_FLAG

Figure 12-6: Excel Spreadsheet Temp Table Loader – Samples and Sample Amounts
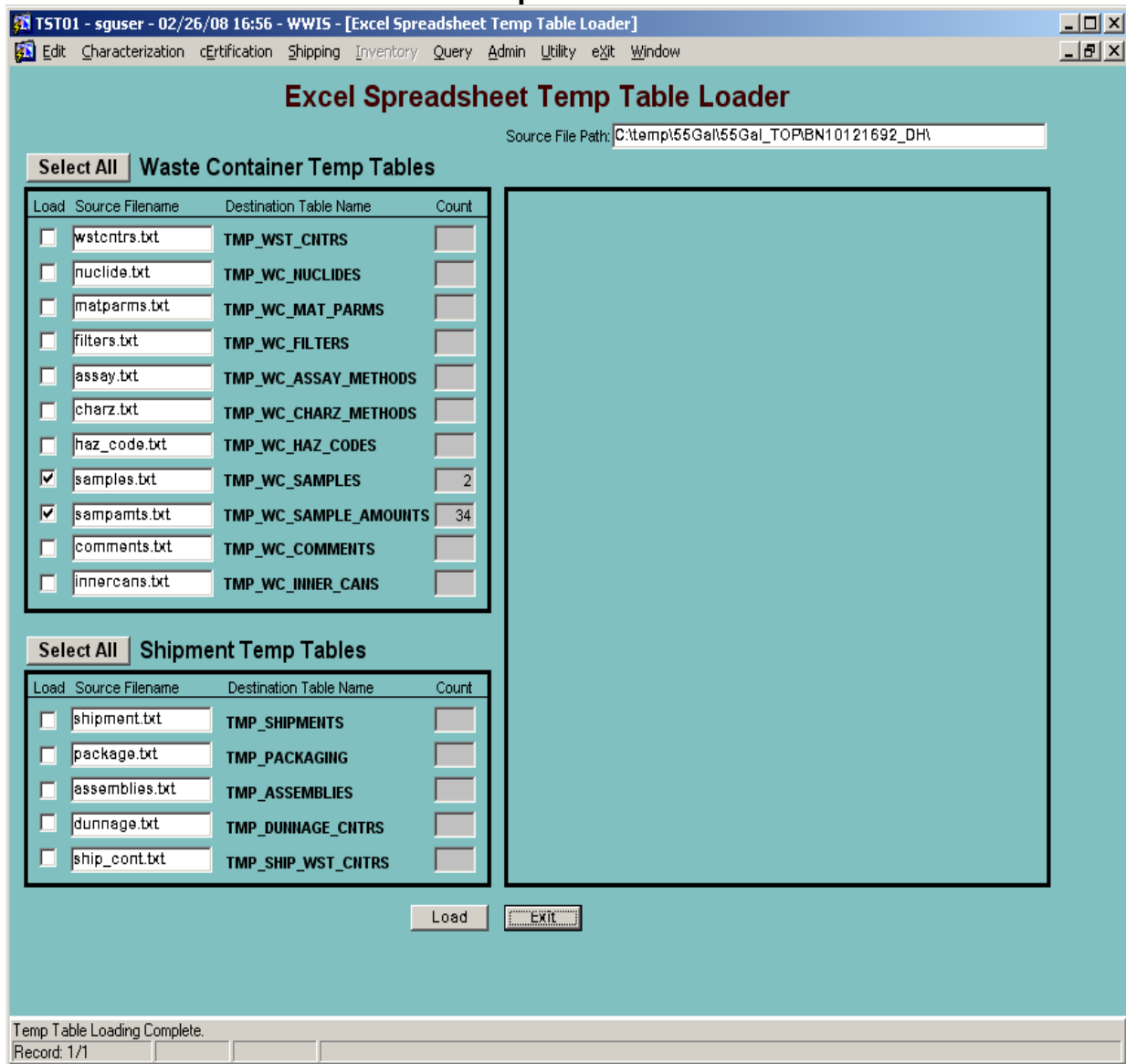
Once the sample data is loaded into the Sample and Sample Amounts temp tables, the sample records are displayed on the Sample Data Transfer form as shown in

Figure 12.7: *Electronic Sample Data Transfer Example*. The Sample Data Transfer form is available from both the Characterization and the Certification menus and is accessible to users with Shipper/Generator or Data Administrator roles.

Figure 12-7: Electronic Sample Data Transfer Example

Note: In the example shown above, the results for Sample ID H-BN10116900, does not mean that the container was evaluated by CHTES and had a high TGGR or FGGR that passed with conditions. It means that the data copied successfully and that target analytes that were expected to be reported were not reported. To obtain a list of target analytes, run the Analytes report from the Admin Table menu. Refer to Figure 13-1.

The Sample Data Transfer form displays the Sample ID for each sample record as well as the Container Number to which that the sample data is to be copied. When the copy function is initiated for a selected sample record, the form verifies that the specified container record exists in either Characterization or Certification (depending on which menu the Sample Data Transfer form was selected) and the container record must be at Pre-Submittal status. If the container record is found in the WWIS in the correct status, the form will verify that all required sample and sample amounts data was loaded into the temp tables and that the data meets the WAC sample data edit limit check requirements. If any of the required fields are null or if the data does not pass the edit/limit checks as applicable to electronic data transfer, the user will receive an error message and the sample data will not be copied from the temp tables into the WWIS

database. The source data will need to be corrected and then reloaded into the Sample and Sample Amounts table as described above.

The sample and sample amount edit limit checks performed by the Sample Data Transfer form are the same performed when the container is submitted for Characterization or Certification.

The Sample ID must be unique. If a sample is transferred to the table and the Sample ID is found to exist in the database, the sample data transfer will be unsuccessful and the user will be required to enter a Sample ID that does not already exist in the database. If the Sample Type is invalid, the data transfer will be unsuccessful and the user will be required to enter a valid sample type. Valid Sample Types are as follows:

HGHM   Headspace Gas Hydrogen and Methane (both HWFP and Transportation)
HGHM-P   Headspace Gas Hydrogen and Methane (HWFP only)
HGHM-T   Headspace Gas Hydrogen and Methane (Transportation only)
HGVO   Headspace Gas VOCs (both HWFP and Transportation)
HGVO-P   Headspace Gas VOCs (HWFP only)
HGVO-T   Headspace Gas VOCs (Transportation only)
HG   Headspace Gas (both HWFP and Transportation)
HG-P   Headspace Gas (HWFP only)
HG-T   Headspace Gas (Transportation only)
SPCB   Solid Waste PCBs
SWMT   Solid Waste Metals
SWSV   Solid Waste Semi-VOC
SWVO   Solid Waste VOC
UCL9   Statistical Headspace Gas or Solid Sampling and Analysis

If the sample date is later than the current date, the data transfer will be unsuccessful and the user will be required to enter a valid date.

If the headspace gas sample results for a waste container was derived from flammable gas analysis and the user receives an error message that all target analytes must be reported, contact a data administrator to make a reference table correction to facilitate successful transmittal to the temp table. The date analyzed cannot be later than the current date. When the user receives an error message that states that an analyte is invalid, expired, or not associated with the waste stream, refer to the List of Flammable VOCs in Appendix B of the TRUCON Document and the List of Flammable VOCs in the TRAMPAC. If the analyte is not included in either list, the waste is unacceptable for transport to WIPP and the analyte will need to be evaluated, approved and added to the List by WTS Packaging Engineering before resubmittal of the container data to the WWIS.

If the sample record selected for transfer passes all of the sample data WAC edit limit checks, the data is transferred into a container record, and the user will receive indication of successful copy as shown in Figure 12.7. If the sample record passes all of the sample data WAC edit limit checks with the exception of the "missing target analytes" edit limit check, the data will be transferred into the container record, and the

user will receive indication of a successful copy "with conditions" as shown in Figure 12.7. The missing target analytes must be provided for the container before the container can be successfully submitted.

Once all the sample data for a container has been successfully transferred into the WWIS, the container can be submitted via the Characterization or Certification Data Entry form (whichever is applicable).

13.0   ADMINISTRATIVE REFERENCE TABLES

Users may access data in the administrative tables by selecting the Report function and printing out reports as needed. Refer to Figure 13-1: Admin Module – Entry Screen and Dropdown Menu for a listing of administrative table categories. If a user recognizes that data needs to be added to an administrative table, contact a WWIS DA.

Figure 13-1: Admin Module – Entry Screen and Dropdown Menu
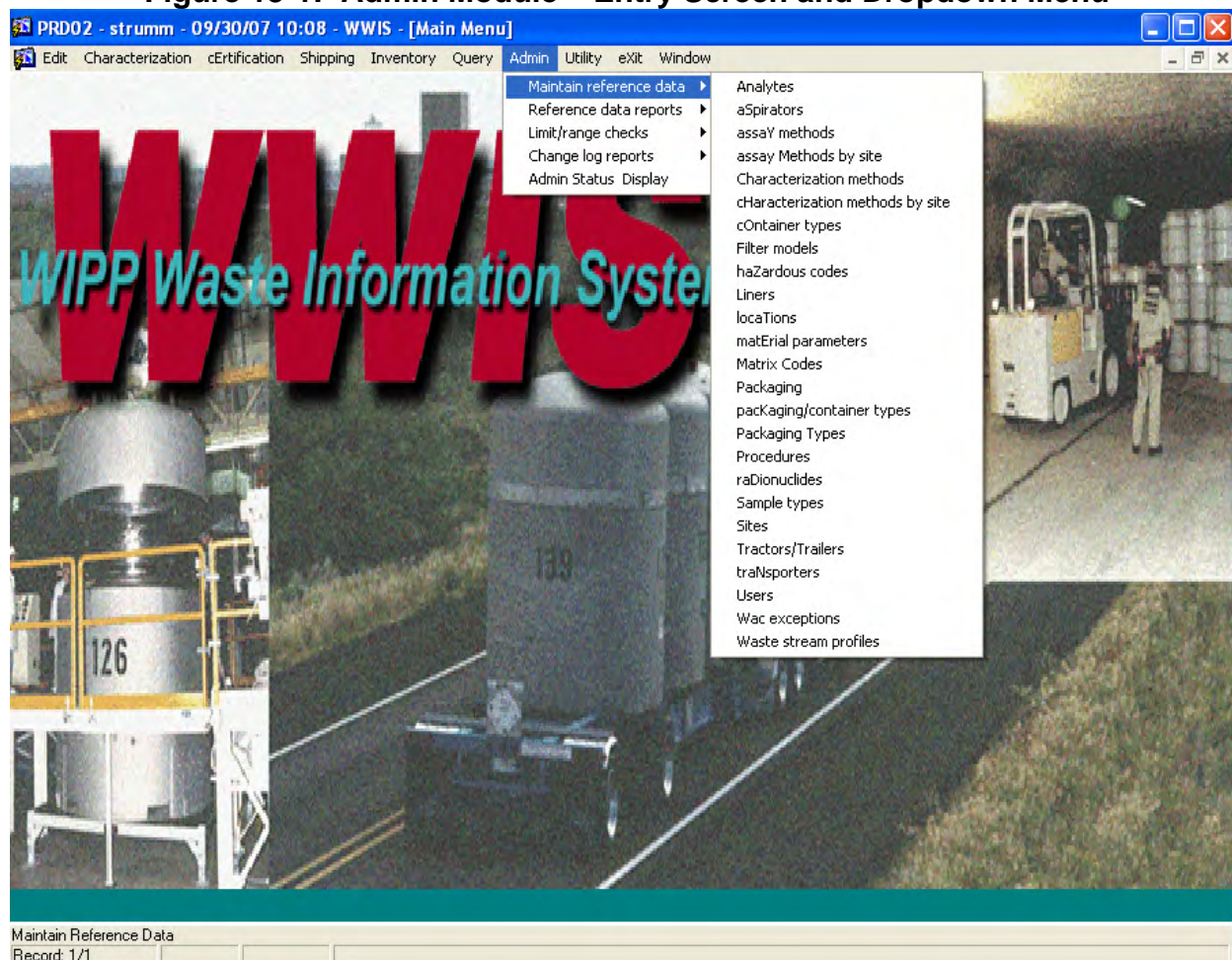
13.1   WWIS Data Dictionary

The WWIS Data Dictionary in Appendix F shows the table and field format for each WWIS data field. The regulatory bases for WWIS data fields are derived from the WIPP CH-WAC, the U.S. Environmental Protection Agency compliance certification, the CH-TRAMPAC, and the Hazardous Waste Facility Permit Waste Analysis Plan (WAP).

There are some data fields that are necessary only for database construct purposes or to maintain referential integrity among the Waste Container Tables and Shipment Tables.

14.0   RECORDS

The records listed below that are generated as a result of implementing this guide are considered QA records and shall be identified, classified, and maintained in accordance with DOE/CBFO-94-1012, U.S. Department of Energy Carlsbad Field Office *Quality Assurance Program Document* (QAPD) and other implementing program documents/procedures at the sites. The following documents are filed as QA Records:

- WIPP WSPF and Characterization Information Summary

- Transuranic Waste Characterization Program (TWCP) WWIS Data Entry Summary Spreadsheet worksheets (Include formula copies of worksheets and supporting documentation of formula calculation validations, if any formulas were used in data entry.)

- WWIS Container Approval/Rejection Report, a copy of the e-mail notification from the WWIS, or both (Other correspondence explaining the rejection of a waste container should also be filed.)

The following documents should be filed, retained, and dispositioned in accordance with established site records management program requirements and procedures:

- PCTCD/OPCTCD/PATCD/PTCD (generated from the Shipment Module)
- WWIS Payload Assembly Approval/Rejection Report
- WWIS Shipment Summary Report

15.0   ACCEPTANCE CRITERIA

Proper completion and submittal of the records in Section 14.0 provides evidence of satisfactory implementation of QA record requirements.

16.0   TRAINING

All WWIS users shall receive on-the-job training (OJT) specific to the WWIS. Other personnel who have access to the WWIS will be provided training to support the work they are assigned to perform in accordance with site-specific procedures.
Training on the contents of this procedure is provided as a required reading OJT activity.

An excellent resource on using the WWIS is this WWIS User's Manual. Routine training/orientation for new users should be provided by experienced users at the Shipper/Generator site. Training for major modifications will be provided on an as-needed basis. Special training will be available on a case-by-case basis.

Appendix A: Automated Tracking Functions for Certified Assay Methods, Characterization Methods, and Approved Procedures

A.1   Introduction

The WWIS tracks and automatically checks assay methods, characterization methods, and the operating procedure associated with each method. The purpose is to assure that the required external regulatory approvals, as well as CBFO certification of each method, have been obtained when container data is submitted to the WWIS. For functionality of the automated checks, no additional data entries by WWIS client users are required when submitting container data to the WWIS. Some methods and associated procedures may be deactivated, but are not expired. These methods are retained in the database to allow continued successful transmittal of container data to the WWIS.

A.2   Assay Methods by Site Reference Data – Reference Table

The Assay Methods by Site Reference Data Form allows input of approved date ranges for each Assay Method ID in the WWIS. The WWIS DAs or an authorized WWIS User may input the data to the form as shown in Figure A-1: Assay Methods by Site Reference Data – Reference Table.

Figure A-1: Assay Methods by Site Reference Data Form

A.3   Data Source for Assay Methods by Site Reference Data

The source(s) of the Assay Method IDs are derived from the CBFO certification letters that are issued to each site. The site certification audit reports and CBFO certification letters are the sources of the date range(s) associated with each Assay Method ID. In cases where a certified assay system has undergone recertification as indicated in an approved audit report, the date range for that assay system may be expanded to facilitate continued successful submittal of container data. New Assay Method IDs will not be entered into the reference table unless there is information contained in a CBFO certification letter or audit report that supports the entry of the Assay Method ID and date range into the database.

Exception: The CBFO Assistant Manager – National TRU Program or designee may request entry of an Assay Method ID to facilitate successful submittal of container data into the WWIS prior to issuance of a certification letter.

A.4   Date Ranges for Assay Methods by Site Reference Data

The standard date range for each entry is 13 months, which is generally considered to be the period of time for site recertification. Site recertification generally includes recertification of each assay system or method. Two exceptions are:

- Buffer for Initial Certification of Assay Equipment: If it is recognized that a buffer needs to be entered into the reference table to cover assays of waste containers that produced useable assay data collected before the initial certification audit, contact one of the WWIS DAs or an authorized WWIS User if it can be demonstrated that useable assay data exists and should be deemed transmittable to the WWIS.

- Deactivated Assay Methods: Exceptions to the 13-month date range are those cases when a CBFO site certification letter that indicates that the Assay Method ID is deactivated. When an Assay Method ID is deactivated, the DAs or an authorized WWIS User updates this reference table to document the date of deactivation.

A.5   Procedures Associated with Assay Methods by Site Reference Data

The Assay Methods by Site Reference Data form includes a procedure block to allow the DAs to select the procedure number(s) that apply to each assay method in the WWIS. The sources for the procedures are audit reports and/or procedure list attachments to the CBFO site certification letters. If a buffer has been entered into the assay methods by site reference table, then a similar entry is made in the procedure reference table when appropriate.

A.6 Printing Assay Methods by Site Reference Data Reports

To print a report for a specific assay method, select the reference data reports submenu, enter the Method ID in the appropriate block, select the green light icon to run the report, and print the report after it has been run.

A.7 Characterization Methods by Site Reference Data – Reference Table

Sites may elect to characterize their waste containers using their CBFO-approved methods and procedures or sites may contract with a CBFO-certified vendor to characterize the waste. Sites may also elect to perform their own sampling activities and send samples to the vendor for analysis or sites may ship waste containers to the vendor for sampling and analysis. If the site is using the INL laboratories to perform waste characterization, contact a WWIS DA or an authorized WWIS User to arrange input of the WWIS IDs for certified methods to the Characterization Methods by Site Reference Table. The Characterization Methods by Site Reference Data form allows input of Method IDs that are also contained in the Characterization Methods Reference Table, Approved Date Ranges and associated Procedures from the Procedures Reference Table. Characterization Methods include: Real-Time Radiography (RTR), Visual Examination (VE) to Confirm RTR, VE Technique for newly generated waste, headspace gas analysis, solid sampling - SVOCs and VOCs, and solid sampling - Total Metals. The WWIS DAs input the data to the form as shown in Figure A-2, Characterization Methods by Site Reference Data Form.

Figure A-2: Characterization Methods by Site Reference Data Form

A.7.1 Data Source for Characterization Methods by Site Reference Data

Except for VE characterization methods, the source(s) of the Characterization Method IDs are the CBFO site certification letters. Using information contained in the CBFO certification letters regarding VE, Method IDs for VE are developed through discussion with the site. In cases where a certified method has undergone recertification as indicated in an approved audit report, the date range for that method may be expanded to facilitate continued successful submittal of container data.

New Characterization Method IDs will not be entered into either the Characterization Methods reference table or the Characterization Methods by Site reference table unless there is a CBFO certification letter that supports the entry of the Characterization Method ID into the database. On a case-by-case basis, the exception that is described in A.2 above may also apply to characterization methods.

A.7.2 Date Ranges for Characterization Methods by Site Reference Data

The standardized date range for each entry is 13 months. The two exceptions that apply to date ranges for characterization methods are as follows:

- Buffer for initial certification of characterization methods: In order to assure successful transmittal of useable data that was obtained prior to WIPP WAP certification of each characterization method, a buffer may be entered into the reference table to cover characterization activities that produced useable RTR, VE, headspace gas, or solid sampling data that were collected before the initial WIPP WAP certification audit.

- Deactivated characterization methods: Exceptions to the 13-month date range are those cases when information in a CBFO site certification letter indicates that the Method ID is deactivated. When a Method ID is deactivated, a separate entry is made into the reference table by the DAs or an authorized WWIS User to document the date of deactivation.

A.7.3 Procedures Associated with Characterization Methods by Site Reference Data

The Characterization Methods by Site Reference Data form includes a procedure block to allow the DAs or an authorized WWIS User to select the procedure number(s) that apply to each characterization method in the WWIS. The sources for the procedures are the procedure lists that are included as attachments to the CBFO site certification letters. If a buffer has been entered into the characterization methods by site reference table, then a similar entry is made in procedure reference table when appropriate.

A.7.4   Printing Characterization Methods by Site Reference Data Reports

To print a report for a specific characterization method, select the reports submenu, enter the Method ID in the appropriate block, select the green light icon to run the report, and print the report after it has been run.

A.8   Procedures Reference Data – Reference Table

To adequately implement the automated checks of the date ranges associated with assay and characterization methods, the Procedures Reference Data form allows the input of Procedure Number, Procedure Name, Site ID and Approved Date Ranges for a procedure by the WWIS DAs. An example of the Procedure Reference Data form is shown in Figure A-3: Procedures Reference Data Form.

Figure A-3: Procedures Reference Data Form

To print a report for a specific procedure, select the reports submenu, enter the procedure number in the appropriate block, select the green light to run the report, and print the report after it has been run. The Procedures Reference Data report displays the information in the reference table, as well as a listing of all procedures that are due to expire within 30 days.

Appendix B: Consolidation of Data for Drums Overpacked in a Standard Waste Box, Ten-Drum Overpack, or RH Canister

B.1   Introduction

Drums that are not individually certifiable on the basis of container integrity or TRU Alpha Activity Concentration may be selected for load management and combined in an SWB or TDOP, resulting in the entire SWB or TDOP package being certifiable for shipment to WIPP for disposal. This appendix summarizes the steps necessary for WWIS data entry when two or more waste containers (i.e., drums) are packaged into an SWB TDOP or RH canister. Before any overpack data is submitted to the WWIS, the SPM or designee must assure that any plans or procedures for making TRU waste determinations based on payload management practices that involve overpacking of waste containers have been approved by the CBFO. The container type code of a TBO container assigned to an overpack cannot be modified to a non-TBO Type Code.

Before a drum can be considered for overpacking in an SWB, TDOP, or RH canister, each drum must undergo characterization and meet the WIPP -WAC requirements for radioassay, radiography or VE, and headspace gas analysis. The individual drums must not contain any prohibited items and must meet the flammability limits that are applicable to the package when offered for shipment. Limits for decay heat and flammability are automatically checked by the container evaluations when the containers to be overpacked are submitted to the WWIS and when the final SWB, TDOP, or RH canister payload configuration is submitted to the WWIS.

The Overpack Data Entry form will perform the following actions if an overpack container overpacking all undamaged to-be-overpack containers exceeds the PE-Ci limit but passes all other edit/limit checks:

*   Return a message to the screen
*   Send an email to a designated distribution list, and
*   Place the overpack in "Holding for Certification Approval" status with a reason for hold, all stating that the overpack exceeds the PE-Ci limit and requires an Unreviewed Safety Question Determination.

If an overpack meeting the same conditions fails the submittal, there will be a message in the Container Errors form stating that the overpack exceeds the PE-Ci limit and requires completion of an Unreviewed Safety Question screening and evaluation at WIPP.

B.2   Overpack Data Submittal Options

There are two options that sites may use for submission of payload container data for overpacks to the WWIS.

Option 1: For data submittal, the site may elect to perform the required data roll-ups outside of the WWIS using their own procedures that are approved by the CBFO.

Option 2: The site may submit container data for individual waste drums that will be rolled-up within the WWIS. If the option to have the WWIS roll up the data before submitting an overpack to the WWIS is chosen, the waste material parameter data and

the radionuclide data, as well as the remaining container data (the data items not required to be entered for the overpack container) for the drums inside the overpack will be rolled-up automatically in the WWIS. Refer to Section B.3 for data entry guidelines.

If the final overpack configuration is an SWB overpack, the WWIS user designates Container Type 14.

If the overpack is a TDOP, the user designates Container Type 3.

Characterization Data – Waste Stream Profile Form (WSPF) Review and Approval: Container data submitted to the WWIS characterization module that are evaluated in conjunction with WSPF approval shall continue to be submitted on an individual container basis, not on an overpack basis. Drums having a container type of 16, 17, 18, 19, 27, 28, 29, 39, or 40 may be submitted to characterization but they cannot be assembled into overpacks until the WSPF is approved and after they are transferred to the certification module.

B.3   Overpack Container Data Entry and Submittal

Functionality is summarized in Table B-1. The WWIS overpack data entry functions are detailed below:

Certification Data Entry: Two data fields are shown on the Overpack Certification Data Entry Screen, OVERPK_CNTR_NUM and OVERPACK_CNTR_TYPE.

Figure B-1: Overpack Container Certification Data Entry Screen

NOTE: OVERPK_CNTR_TYPE is not a required field. Data for TBO drums may be submitted to the Certification Module manually using the Certification Data Entry submenu or electronically using the Certification/Overpack Data Transfer submenu.

When submitting TBO container data, either manually or electronically, the overpack container number may be submitted to the database at the same time if it is available at the time that the TBO drums are submitted to the WWIS. If the overpack container number is not included when the TBO containers are initially submitted, the TBO containers can be resubmitted via the Certification/Overpack Data Transfer function when the overpack container number becomes available. The WWIS will recognize the container as a resubmittal and update only the overpack container number (all other data will remain as originally submitted) in TBO container records. Alternatively, when an overpack is configured at a later time using the Overpack Data Entry submenu as described below, the overpack container number will be automatically updated for each approved TBO drum that is selected for the overpack.

Overpack Configurations: To configure an overpack from the Overpack Data Entry submenu, a list of TBO drums will be available in a pull-down list to be manually assembled into an SWB or TDOP by the shipper/generator user. Double-click on the Containers field in the Overpack box to select TBO drums from the pull-down list that will be included in the overpack. When each TBO drum is selected, the overpack container number (OVERPK_CNTR_NUM) will automatically be populated in the TBO container record. In the waste container record for the overpack container, populate the following required fields (pink data fields) with correct data:

- WAC REV NUMBER
- SITE ID
- CERT DATE
- CLOSURE DATE
- VENT DATE
- ALPHA SURF CONT
- BETA/GAMMA SURF CONT
- NEUTRON DOSE RATE
- BETA/GAMMA DOSE RATE
- Applicable flags for quantities of beryllium (when required)
- Applicable flag for ½-inch separation of waste containers that contain compacted waste (when required)

Filter data must be entered for the overpack container, and comments may be entered, but are not required.

Alternatively, overpack data may be entered via the Certification/Overpack Data Transfer function. A submitted overpack container must include data in each of following fields in WST_CNTRS:

- BETA/GAMMA DOSE RATE
- CNTR_NUM
- SITE_ID
- BG_DOSE_RATE
- NEUT_DOSE RATE
- CLOSURE_DATE
- VENT_DATE
- CERT_SITE
- CERT_DATE
- ALPHA_SURF_CONT
- BETA_GAMMA_SURF_CONT
- WAC_REV_NUM

A submitted overpack container must also include at least one record in the WC_FILTERS.

NOTE: When the overpack container record is saved, the GROSS_WEIGHT and GROSS_WEIGHT_UNCERT will be calculated by the database and these two data entry fields will be automatically populated. These "rolled-up" values can be overwritten by entering data in these fields.

B.4   TBO Container Types

The container types that must be used for TBO drums have been entered into the WWIS Container Type Reference Table. These container types will be recognized by the WWIS as drums designated "To-Be-Overpacked." TBO drums are available for overpacking in the WWIS before or after they are approved. If TBO drums are submitted to the WWIS before they are configured into an overpack, each drum will be placed in a "pool" that makes it available to be configured into an overpack.

NOTE: When a drum is submitted to the WWIS with Container Type 1, approved by a DA and then it is later discovered that the drum needs to be overpacked prior to shipment, send an e-mail message to the DAs to request reset of the container data to presubmittal status. Due to differences in edit/limit checks that are run for Type 1 and TBO drums, requests for a WWIS DA to change the container type using a SQL script are not permitted. Container records may then be resubmitted and re-approved prior to inclusion in an overpack payload container.

B.5   CHTES and RHTES Overpack Modules

The modules are Java stored procedures that will be called by the WWIS to perform an evaluation of the most current requirements pertaining to overpacking. Specifically, the software will not allow successful submittal of an evaluated overpack container if any of the TRAMPAC limits that are applicable to the package to be offered for shipment are exceeded. An overpack container is considered evaluated only if the software is able to execute all TRAMPAC evaluations given the data inputs. If an Overpack container is missing required data the user will receive an error message and the data cannot be successfully submitted to the database. Parameters calculated in the module will be returned to support creation of the Overpack Payload Container Transportation Certification Document (OPCTCD) and PTCD for RH Canisters, which is described in the CH and RH TRAMPAC documents and the CH-TRU and RH-TRU Payload Appendices. The CHTES and RHTES provide the following functional capabilities:

B.5.1   Evaluation of the internal and external container types provided to assure the following requirements are met):

- No more than four 55-gallon drums are inside an SWB.

- No more than ten 55-gallon drums are inside a TDOP.

- No more than six 85-gallon drums are inside a TDOP.

- No more than one SWB is inside a TDOP.

- No more than one 55-gallon drum is inside an 85-gallon payload container.

- No more than three 55-gallion drums are inside an RH canister.

- No more than three 30-gallon drums are inside an RH canister.

- No more than three 55-gallon drums and 30-gallon drums are inside an RH canister.

B.5.2   Evaluation of the filter data concerning filters placed on the external container to assure that the requirements that are applicable to the package when offered for shipment are met:

- Each SWB has the equivalent of two filters of 3.7×10^{-6} [mol/s/mol fraction] diffusivity each or greater.

- Each TDOP has the equivalent of nine filters of 3.7×10^{-6} [mol/s/mol fraction] diffusivity each or greater.

- Each RH canister has the equivalent of one filter of 1.48×10^{-5} [mol/s/mol fraction] diffusivity or greater.

B.5.3   The container evaluation software performs evaluation of the overpack weight data (total weight plus uncertainty) provided to assure that the following requirements are met):

- An SWB shall not exceed 4,000 pounds total weight.
- A TDOP shall not exceed 6,700 pounds total weight.
- An 85-gallon drum shall not exceed 1,000 pounds total weight.
- An RH canister shall not exceed 8,000 pound total weight.

NOTE: Refer to the WIPP-WAC and the Container Types Reference Data for more stringent weight limits that have been applied to removable lid and welded lid RH canisters.

B.5.4   The container evaluation software performs an evaluation of the overpack FGE data (total FGE plus two times RMS FGE uncertainty) provided to assure that the requirements as authorized in the Certificate of Compliance as applicable to the package offered for shipment are met:

B.5.5   The container evaluation software performs an evaluation of the overpack decay heat data (total decay heat plus RMS decay heat uncertainty) provided to ensure that the overpack total decay heat does not exceed the limits imposed in the CH-TRAMPAC. Overpacks not meeting the decay heat requirements or the flammability evaluation and may not be submitted successfully to the database.

Table B-1: Summary Overpack Requirements and Functionality

REQUIREMENT #	REQUIREMENT STATEMENT	REQUIREMENT COMMENT
WWIS-REQ-1296	The software assigns the overpack the Waste Stream Profile Number shared by the inner containers.	Inner containers must have same waste stream profile number in the limit checks.
WWIS-REQ-1297	The software assigns the overpack the Waste Handling Code shared by the inner containers.	
WWIS-REQ-1299	The software assigns the overpack the Waste Stream BIR ID of the inner container with the largest waste volume.	
WWIS-REQ-1300	The software assigns the overpack the Waste Stream MWIR ID of the inner container with the largest waste volume.	
WWIS-REQ-1301	The software assigns the overpack the Generator Site ID shared by the inner containers.	
WWIS-REQ-1302	The software assigns the overpack the IDC Code of the inner container with the largest waste volume.	
WWIS-REQ-1303	The software assigns the overpack the Waste Matrix Code of the inner container with the largest waste volume.	
WWIS-REQ-1304	The software calculates the TRU alpha activity (Ci) for the overpack by summing the TRU Alpha Activity values for the inner containers.	
WWIS-REQ-1305	The software calculates the TRU alpha activity uncertainty (Ci) for the overpack as the square root of the sum of the squares of the TRU alpha activity uncertainties of the inner containers.	
WWIS-REQ-1307	The software calculates the TRU alpha activity concentration for overpack containers as the overpack TRU alpha activity (see WWIS-REQ-1304) divided by the overpack waste weight.	WAC-REQ-0068 Appendix E and WAC Rev. 2, Section 3.3.3. See Appendix 5 for a listing of the alpha-emitting TRU isotopes with half-lives greater than twenty years.
WWIS-REQ-1308	The software calculates the TRU alpha activity concentration uncertainty for overpack containers as the square root of the sum of the squares of the inner container TRU alpha activity concentration uncertainties.	
WWIS-REQ-1310	The software calculates the total overpack Pu-239 FGE as the sum of the Pu-239 FGE values for the inner containers of an overpack container.	WAC-REQ-0044
WWIS-REQ-1311	The software calculates the total overpack Pu-239 FGE uncertainty as the RSS of the Pu-239 FGE uncertainty values for the inner containers of an overpack container.	WAC-REQ-0045
WWIS-REQ-1312	The software calculates the total overpack Pu-239 Equivalent Activity as the sum of the Pu-239 Equivalent Activity values for the inner containers.	

Table B-1: Summary Overpack Requirements and Functionality

REQUIREMENT #	REQUIREMENT STATEMENT	REQUIREMENT COMMENT
WWIS-REQ-1313	The software calculates the total overpack Decay Heat as the sum of the decay heats recorded for the inner containers.	
WWIS-REQ-1314	The software calculates the total overpack Decay Heat Uncertainty as the square root of the sum of the squares of the decay heat uncertainties recorded for the inner containers.	
WWIS-REQ-1315	The software assigns a value for Layers of Packaging for the overpack equal to the largest value recorded for the inner containers.	
WWIS-REQ-1316	The software calculates the overpack Fill Factor (%) based on the inner container fill factors and the volume of the overpack: $FF_o = [sum (FF_i * V_i)] / V_o$ where, FF_o = Fill factor (%) for the overpack FF_i = Fill factor (%) for the inner container V_i = Volume (L) of inner container based on reference table V_o = Volume (L) of overpack container based on reference table	
WWIS-REQ-1317	The software calculates the overpack total gross weight as the sum of the gross weight of the inner containers, the tare weight of the implicit dunnage containers, the tare weight of the overpack container, and the overpack packaging material weight.	WAC-REQ-0021 Additional packaging material may be entered for overpacks on the material parameter form.
WWIS-REQ-1318	The software calculates the overpack total gross weight measurement error as the square root of the sum of the squares of the gross weight uncertainties of the inner containers (including actual containers and implicit dunnage containers) and the gross weight uncertainty of the overpack tare weight.	WAC-REQ-0022
WWIS-REQ-1319	The software assigns the value for PCB Waste as follows: • 'Y' if one or more inner containers have PCB Waste 'Y'. • 'N' if all inner containers have PCB Waste = 'N'.	WWIS Release 4.14
WWIS-REQ-1320	The software assigns the value for PCB Out of Service Date when overpack PCB Waste = 'Y' as the earliest date of the inner container PCB Out of Service Dates.	WWIS Release 4.14 –
WWIS-REQ-1321	The software assigns the value for PCB Mass when overpack PCB Waste = 'Y' as the sum of the inner container PCB Mass fields.	WWIS Release 4.14
WWIS-REQ-1381	The software assigns the value for PCB Concentration as the maximum inner container PCB Concentration.	

Table B-1: Summary Overpack Requirements and Functionality

REQUIREMENT #	REQUIREMENT STATEMENT	REQUIREMENT COMMENT
WWIS-REQ-1322	The software assigns the value for beryllium is in the form of shavings or fines as follows: • 'Y' if one or more inner containers have beryllium in the form of shavings or fines = 'Y', or • 'N' if one or more inner containers have beryllium in the form of shavings or fines = 'N', or • Null if all inner containers have a null value or 'N' for Beryllium Present and <= 100 kg.	WWIS Release 5.0
WWIS-REQ-1323	The software assigns the value for Aqueous Material for the overpack as follows: • 'Y' if one or more inner containers have Aqueous Material = 'Y'. • 'N' if all inner containers have Aqueous Material = 'N'.	WWIS Release 5.0
WWIS-REQ-1324	The software assigns the value for Machine Compacted for the overpack as follows: • 'Y' if one or more inner containers have Machine Compacted = 'Y'. • 'N' if all inner containers have Machine Compacted = 'N'.	WWIS Release 5.0
WWIS-REQ-1382	The software assigns the value for Gas Generation Rate for the overpack as the sum of the gas generation rates of all inner containers.	
WWIS-REQ-1383	The software assigns the Gas Generation Completion Date for the overpack as the latest inner container Gas Generation Completion Date.	
WWIS-REQ-1384	The software assigns the Hydrogen/Methane Gas Generation Rate for the overpack as the maximum inner container Hydrogen/Methane Gas Generation Rate times the number of drums.	Note: This value has no relevance to any checks, as this is NOT how the flammability of an overpack is analyzed by the system.
WWIS-REQ-1385	The software assigns Liner Exists = 'Y' for the overpack if one or more inner containers have Liner Exists = 'Y'. The software shall assign Liner Exists = 'N' for the overpack if all inner containers have Liner Exists = 'N'.	
WWIS-REQ-1386	The software assigns the Liner Hole Size for the overpack as the maximum inner container Liner Hole Size.	

Table B-1: Summary Overpack Requirements and Functionality

REQUIREMENT #	REQUIREMENT STATEMENT	REQUIREMENT COMMENT
WWIS-REQ-1387	The software assigns Process Knowledge = 'Y' for the overpack if one or more inner containers have Process Knowledge = 'Y'. The software assigns Process Knowledge = 'N' for the overpack if all inner containers have Process Knowledge = 'N'.	
Radionuclides		
WWIS-REQ-1325	The software assigns all radionuclides present in the inner containers to the overpack.	
WWIS-REQ-1326	The software calculates the activity (Ci) for each radionuclide assigned to the overpack as the sum of the activities recorded for the radionuclide in the inner container records (not including negative values).	
WWIS-REQ-1327	The software calculates the activity uncertainty (Ci) for each radionuclide assigned to the overpack as the square root of the sum of the squares of the activity uncertainties recorded for the radionuclide in the inner container records (not including negative values).	
WWIS-REQ-1328	The software calculates the mass (g) for each radionuclide assigned to the overpack as the sum of the masses recorded for the radionuclide in the inner container records (not including negative values).	
WWIS-REQ-1329	The software calculates the mass uncertainty (g) for each radionuclide assigned to the overpack as the square root of the sum of the squares of the mass uncertainties recorded for the radionuclide in the inner container records (not including negative values).	
Waste Material Parameters		
WWIS-REQ-1330	The software assigns all waste material parameters present in the inner containers to the overpack.	
WWIS-REQ-1331	The software calculates the waste material parameter weight for each waste material parameter identified for the overpack by summing the associated material weight for each inner container. For the steel container material parameter, the software shall include the weight of the overpack container and the weight of the dunnage containers (if present).	
WWIS-REQ-1332	The software calculates the Waste Weight by summing the overpack total parameter weights associated with the material parameters identified as waste parameters in the database.	These three values are needed to populate the Overpack Data Entry screen. They are populated on the waste material parameter screen as well.
WWIS-REQ-1333	The software calculates the Packaging Weight by summing the overpack total parameter weights associated with the material parameters identified as packaging material parameters in the database.	

Table B-1: Summary Overpack Requirements and Functionality

REQUIREMENT #	REQUIREMENT STATEMENT	REQUIREMENT COMMENT
WWIS-REQ-1334	The software calculates the Total Material Weight by summing the overpack total parameter weights for all identified material parameters.	
Hazardous Codes		
WWIS-REQ-1335	The software assigns all hazardous codes assigned to the inner containers to the overpack.	

B.6   Reporting Waste Material Parameters

Functionality is available to facilitate the reporting of additional materials that are added to Overpack Containers. This will allow for reporting of packaging materials that are used for blocking and bracing when SWBs are Overpacked in TDOPs and for other unique situations where blocking and bracing materials are added to the payload. By design, Waste Material Parameters #13, 14, and 15 are the only materials that can be selected from the List of Values (LOV) for reporting of additional materials added to directly overpack containers. When 55-gallon drums are used as dunnage to complete a payload within an overpack container, sites have the option to report dunnage drums in the upper portion of the Overpack Material Parameter section form or as additional materials that are added directly to the overpack container in the lower portion of the form. Site procedures should prescribe how material parameters are reported in overpacks for purposes of maintaining consistency of data reporting as it applies to processes involved in these reporting functions.
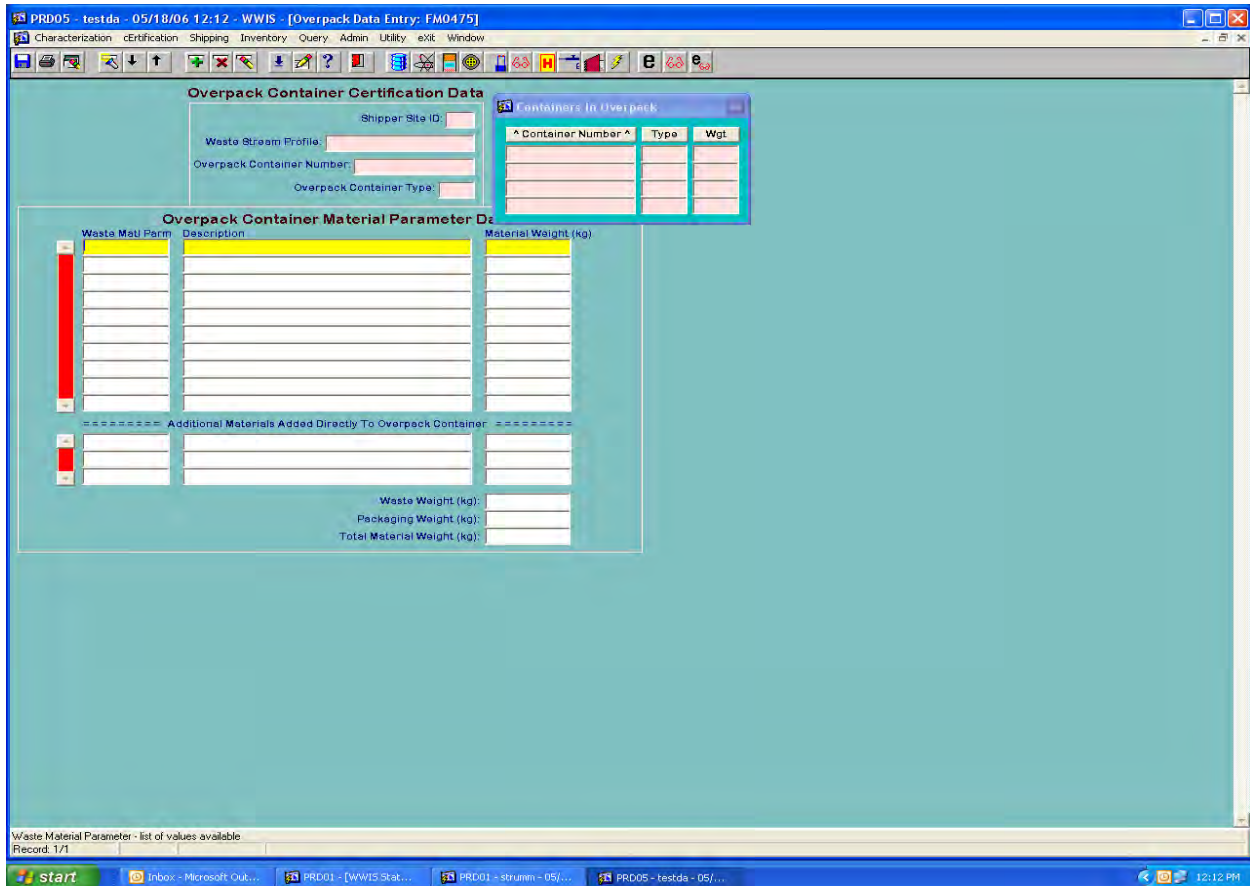
B.7 Error Messages and Container Approval Process

Approvals – TBO Drums: If the data for a TBO drum fail the automated edit/limit checks, a list of errors will be generated and available to the user. The result will be unsuccessful submittal of the TBO drum data to the WWIS. If the data for the TBO drum pass the automated checks, the data will be added to the pool of approved/available TBO drums and await a WWIS DA approval.

Approvals – Overpack Configurations: If the data for the overpack fail the automated edit/limit checks, a list of errors will be generated and available to the user. The result will be unsuccessful transmittal of the overpack data to the WWIS. The TBO drums that were included in the overpack configuration will remain available as drums to be overpacked. If the data for the overpack pass the automated checks, the TBO waste drums that were included in the overpack configuration will be removed from the pool of approved/available TBO drums. After all required WWIS container certification data fields have been populated the user may click the Save button (disk icon) and press the **e** button to run a preliminary container evaluation for each waste container. If the container fails to pass any of the container evaluation checks, the database will return a list of error messages. The user who inputs and submits the data may then initiate necessary actions as required to correct the container data prior to submitting the data to the WWIS. When the preliminary container evaluation is run, the user will receive a summary of the results of the evaluation as shown in the example below.

The overpack container must be approved by a WWIS DA. Once approved, the container ID for the overpack will be shown on the list of available containers that have been approved for shipment.

Disassembly of an Overpack Configuration and Rejection of Data: The WWIS overpack function does not contain logic for the users to disassemble overpacks once the data has been submitted to the database. If the need to change an overpack configuration that has been submitted and approved arises, send an e-mail message to a WWIS DA and request to have the overpack deleted. When the overpack is deleted, the status of the inner containers will be automatically reset to TBO and the deleted overpack container number will be removed from the TBO container.

Error Messages: A listing of error messages related to overpack containers is shown in Appendix E. When a shipper/generator user receives one of the error messages when submitting container data, it is recommended that a data review be conducted to determine if there are actions that may be taken to clear the error for successful transmittal of the container data to the database. If the data review does not result in a path forward that results in successful data transmittal, contact a WWIS DA for further assistance. Many overpack evaluation errors are valid and cannot be cleared by any action other than reconfiguring the overpack.

Appendix C: Instructions for Database/Spreadsheet Operation

C.1   Data Entry Methods Using Microsoft Excel® Spreadsheets or Manual Data Entry

The Site Project Manager (SPM) or designee provides one of the WWIS DAs with proposed WSPF numbers. The WWIS DA will then enter the WSPF numbers and other required information into the WSPF reference tables in the WWIS.

Using the appropriate data sources for information (Table 1), the WWIS data entry person enters characterization data into the WWIS Data Entry Summary spreadsheet If data need to be consolidated (i.e., if two or more waste containers are packaged into an SWB or TDOP), the WWIS user responsible for entering the data follows the instructions in Appendix B, *Consolidation of Data for Drums Overpacked In A Standard Waste Box or Ten-Drum Overpack*. If a spreadsheet is used, information such as the initials of the person who will be verifying the data and the dates for traceability, verification, and audits of the data is entered in the comment column.

NOTE: Data collection can occur at any time, but must be completed and approved in accordance with approved procedures prior to submittal of container records and shipment documentation to WWIS.

The WCO or designee ensures that the TRU activity plus uncertainty is greater than 100 nCi/g. If so, then the TRU activity values are entered on the WWIS Data Entry Summary spreadsheet. If not, initiate a report in accordance with established site procedures on the non-TRU waste container.

If used, the data entered in the WWIS Data Entry Summary spreadsheet for each waste container record are verified by the WCO or designee against data sources (see Table 1). The data sources are checked to confirm accuracy of the data entered into the worksheet. The TRUCON code assignment is reviewed by the WCO at this time.

The SPM or designee ensures, by signature and in accordance with applicable site procedures, that each waste container entered into the WWIS Data Entry Summary spreadsheet (if used) is compared to lists of unresolved Nonconformance Reports (NCRs), Plant Work Requests (PWRs), and Corrective Action Reports (CARs) with the assistance of Quality Assurance (QA) personnel. Completion of technical, supervisor, management and QA reviews and sign-offs on these reports are also verified.

If applicable, each waste container worksheet from the WWIS Data Entry Summary spreadsheet, for which no unresolved deficiencies, NCRs, PWRs, or CARs were found, is printed and then signed off and dated by the WCO in accordance with site procedures.

When applicable, if data source deficiencies or unresolved NCRs, PWRs, or CARs have been identified, they are documented on the signed and dated printout of the waste container data spreadsheet. This waste container worksheet is then moved to the hold directory or deleted.

C.2 Transferring Data to the Characterization Module

For manual data transmittal to the WWIS, as the WWIS user is entering data into the WWIS, the WCO or designee checks the data on the screen, comparing them against the data on the spreadsheet. This data entry and verification check is documented by having the WCO sign and date the spreadsheet. If the values being entered into the WWIS are taken directly from the BDRs or other sources the WWIS user may print out the Waste Container Data Report and have it reviewed before submitting the data to WIPP for approval.

For automated data transmittal to the WWIS, the WWIS user executes the database and utility processes and provides reports to the WCO in accordance with site procedures.

Generation of tab-delimited text files corresponding to WWIS temporary database tables is the first operation in this process. This operation uses a macro (CreateTempTables) and ancillary worksheets that are part of the WWIS Data Entry Summary spreadsheet.

Automated submission to the WWIS involves a two-step process (transfer to temporary database tables, then transfer from temporary tables to WWIS tables). Transfer of text file information to WWIS temporary tables uses a WWIS Utility Menu option. Temporary table entries can be checked using the manual table entry function of the WWIS Utility Menu. The transfer of temporary tables into WWIS uses a WWIS Menu option and selection of the appropriate waste containers from a table listing. The temporary tables are cleared when a new set of waste container records is loaded, or when all waste container records have been successfully transferred to WWIS. Errors reported during either step in this process are first checked for local sources, which can be corrected by correcting data files and reloading. In general, this operation moves sequentially back through the automated process using the reported errors as a guide, but any of these steps may be skipped. Temporary table entries can be checked using the manual table entry function of the WWIS Utility Menu and searching for container records or groups of container records. Then the tab-delimited text files generated by the WWIS Data Entry Summary spreadsheet macro are checked. Lastly, the data contained in the WWIS Data Entry Summary spreadsheet are checked and reverified. Errors in one container record can interact with other records in the temporary tables, requiring the tables to be cleared and reloaded. If error messages are received and the WWIS user cannot correct the situation, one of the WWIS DAs shall be contacted to resolve the problem.

Once the characterization data for a waste container are complete and are verified, the WWIS user is notified of the WWIS DA's acceptance or rejection of the waste container characterization data via e-mail notification from the WWIS. The decision is also documented in the WWIS Approval/Rejection Report.

C.3   Transferring Data to the WWIS Certification Module

Prior to entering data into the Certification Module, the WSPF must be approved by WIPP. The WWIS user signs onto the WWIS database in accordance with the OJT instructions in accordance with established site procedures.

For manual data transmittal to the WWIS, as the WWIS user is entering data into the WWIS, the WCO or designee checks the data on the screen, comparing them against the data on the spreadsheet. This data entry and verification check is recorded by having the WCO sign and date the spreadsheet. If the values being entered into the WWIS are taken directly from the BDRs or other sources as listed in Table 1, the WWIS user may print out the Waste Container Data Report and have it reviewed before submitting the data to WIPP for approval.

For automated data transmittal to WWIS, the WWIS user executes the database and utility processes and provides reports to the WCO in accordance with site procedures.

Generation of tab-delimited text files corresponding to WWIS temporary database tables is the first operation in this process. This operation uses a macro (CreateTempTables) and ancillary worksheets that are part of the WWIS Data Entry Summary spreadsheet.

Automated submission to the WWIS involves a two-step process, transfer to temporary database tables, and then transfer from temp tables to WWIS tables. Transfer of text file information to WWIS temporary tables uses a WWIS Utility Menu option. Temporary table entries can be checked using the manual table entry function of the WWIS Utility Menu. The transfer of temporary tables into WWIS uses a WWIS Menu option and selection of the appropriate waste containers from a table listing. The temporary tables are cleared when a new set of waste container records is loaded, or when all waste container records have been successfully transferred to WWIS. Errors reported during either step in this process are checked for local sources, which can be corrected by correcting data files and reloading. In general, this operation moves sequentially back through the automated process using the reported errors as a guide, but any of these steps may be skipped. Temporary table entries can be checked using the manual table entry function of the WWIS Utility Menu and searching for container records or groups of container records. Then the tab-delimited text files generated by the WWIS Data Entry Summary spreadsheet macro are checked. Lastly, the data contained in the WWIS Data Entry Summary spreadsheet are checked and reverified. Errors in one container record can interact with other records in the temporary tables, requiring the tables to be cleared and reloaded. If error messages are received and the WWIS user cannot correct the situation, one of the WWIS DAs should be contacted to help resolve the problem.

Once the certification data for a waste container are complete and are verified, the WWIS user who supplied the data is notified of the WWIS DA's acceptance or rejection of the waste container certification data via either an electronic mail message or the WWIS Approval/Rejection Report. If data for a container approved in the certification module of WWIS need to be changed prior to shipment, the WCO must follow these steps:

- Initiate an NCR or use another reporting mechanism in accordance with site procedures to document the data change.

- Provide e-mail notification to the WWIS DAs and request that the container record be deleted.

- If applicable, immediately remove the WWIS Data Entry Spreadsheet from the Approved folder and delete the WIPP approval date. Note on the spreadsheet when and why the approval was removed.

- Notify the TCO by phone and e-mail that the container record(s) have been recalled. Request a written reply from the TCO (e-mail is acceptable) that the recalled container(s) are not included on any PC/ATCD.

For a prospective payload assembly set, the TCO selects only those payload containers that meet the following criteria:

- Payload containers that have been approved in the WWIS certification module.

NOTE: If during the process of payload container selection a container exceeds any TRAMPAC limits, initiate an NCR or other documentation in accordance with site procedures, and tag and segregate the container for further evaluation.

NOTE: For all uncertainties sites must report 1 sigma.

WWIS DATA ENTRY SUMMARY										
CCP SRS - Version 3 WWIS Data Entry Summary - Charz & Cert © University of California David R. Janecky Thomas R. Canfield Matt J. Riggs	Units	Data	Comments						Initial	Date
Shipper Site ID										
Waste Stream Profile			repack	original		repackaging data package number				
Container Number										
Container Type			drum, swb, tdop, etc., see WWIS labels for valid types.							
WAC Rev #		0								
WAC Ex. #										
Cert Site										
Cert Date										
Waste Handling Code			CH, RH							
Waste Type Code			TRU, MTRU							
Waste Stream BIR ID				p(CI):	choose	1sigma	2sigma	95%CI		
Waste Stream MWIR ID			default to 0 for TRU	0.6827	1sigma	1.0000	0.5000	0.5102		
Generator Site ID				0.9545	2sigma	2.0000	1.0000	1.0204		
IDC Code				0.9500	95%CI	1.9600	0.9800	1.0000		
Matrix Code										
Trucon Code										
Shipping Category				WWIS Req'd CI:	1sigma	1.0000	0.5000	0.5102		
TRU Alpha Act	Ci		0.000E+00	Fraction of MDL Reported on HGAS		1.0000				
TRU Alpha Act Uncert	2sigma Ci	0.000E+00	TRU Alpha Act + 2sigma (Ci)							
TRU Alpha Act Conc	nCi/g		0.00E+00							
TRU Alpha Act Conc Uncert	2sigma nCi/g	0.000E+00	TRU Alpha Act Conc + 2sigma (Ci)							
Pu239 Fiss Gm Eq	g		0.000E+00							

WWIS DATA ENTRY SUMMARY										
CCP SRS - Version 3 WWIS Data Entry Summary - Charz & Cert © University of California David R. Janecky Thomas R. Canfield Matt J. Riggs	Units	Data	Comments						Initial	Date
Pu239 Fiss Gm Eq Uncert	2sigma g		0.000E+00	Pu239 Fiss Gm Eq + 2sigma (Ci)			Fiss Gm Eq Limit			
Pu239 Eq Act	Ci			0.000E+00		Ci 2 sigma uncert				
Decay Heat	watts		0.000E+00							
Decay Heat Uncert	2sigma watts		0.00E+00	Decay Heat + 1sigma (watts)			Decay Heat Limit			
Layers of Packaging										
Fill Factor			percentage							
Liner Type			1 = plastic drum liner							
Liner Punctured										
PCB Conc										
Closure Date			Watt-years							
Vent Date										
Filter Install Date										
Filter Manufacturer										
Filter Serial Number(s)										
Filter Model Number	NF012,NF013,NF020,NF9026									
Number of Filters Installed										
Aspiration Method ID										
Gas Gen Rate			0.000E+00	<<Gas Gen Rate Calculated.	Avagdro's Number:	6.022142E+23	NIST			
Hydrogen/Methane Gen Rate					Electron Charge	1.602176E-19	J/eV	NIST		
Gas Gen Comp Date			Waste (kg)	Packaging (kg)	Total (kg)					
Gross Weight	kg		0.0	0.0	0.0					
Gross Weight	1sigma kg		max.	mda						

WWIS DATA ENTRY SUMMARY											
CCP SRS - Version 3 WWIS Data Entry Summary - Charz & Cert © University of California David R. Janecky Thomas R. Canfield Matt J. Riggs	Units	Data	Comments							Initial	Date
Uncert				reported							
Alpha Surf Cont	dpm/100 cm^2	0			Minimum Detectable Activity		Shipping Calcs				
Beta/Gamma Surf Cont	dpm/100 cm^2	0			Minimum Detectable Activity			Total TBq	0.00E+00		
Neutron Dose Rate	mrem/hr	0			Minimum Detectable Activity			Fraction	0.00E+00		
Beta/Gamma Dose Rate	mrem/hr	0			Minimum Detectable Activity			Highway Route Control?	No		
Radionuclide											
Activity	Ci										
Activity Uncert	2sigma Ci										
Mass	grams	NULL	NULL	NULL	NULL	NULL	NULL	NULL	NULL	NULL	
Mass Uncert	2sigma grams	NULL	NULL	NULL	NULL	NULL	NULL	NULL	NULL	NULL	
calc TRU Alpha Act	Ci	NULL	NULL	NULL	NULL	NULL	NULL	NULL	NULL	NULL	
calc TRU Alpha Act Conc	nCi/g	NULL	NULL	NULL	NULL	NULL	NULL	NULL	NULL	NULL	
calc Act	Ci	NULL	NULL	NULL	NULL	NULL	NULL	NULL	NULL	NULL	
calc Act Conc	nCi/g	NULL	NULL	NULL	NULL	NULL	NULL	NULL	NULL	NULL	
calc Pu239 FGE	g	NULL	NULL	NULL	NULL	NULL	NULL	NULL	NULL	NULL	
calc Pu239 Eq Act	Ci	NULL	NULL	NULL	NULL	NULL	NULL	NULL	NULL	NULL	
calc Decay Heat	watts	NULL	NULL	NULL	NULL	NULL	NULL	NULL	NULL	NULL	
uncert TRU Alpha Act	Ci	NULL	NULL	NULL	NULL	NULL	NULL	NULL	NULL	NULL	
uncert TRU Alpha Act Conc	nCi/g	NULL	NULL	NULL	NULL	NULL	NULL	NULL	NULL	NULL	
uncert Act	Ci	NULL	NULL	NULL	NULL	NULL	NULL	NULL	NULL	NULL	
uncert Act Conc	nCi/g	NULL	NULL	NULL	NULL	NULL	NULL	NULL	NULL	NULL	
uncert Pu239 FGE	g	NULL	NULL	NULL	NULL	NULL	NULL	NULL	NULL	NULL	

WWIS DATA ENTRY SUMMARY											
CCP SRS - Version 3 WWIS Data Entry Summary - Charz & Cert © University of California David R. Janecky Thomas R. Canfield Matt J. Riggs	Units	Data	Comments							Initial	Date
uncert Pu239 Eq Act	Ci	NULL	NULL	NULL	NULL	NULL	NULL	NULL	NULL	NULL	
uncert Decay Heat	watts	NULL	NULL	NULL	NULL	NULL	NULL	NULL	NULL	NULL	
Shipping Calcs	0.00E+00	NULL	NULL	NULL	NULL	NULL	NULL	NULL	NULL	NULL	
49CFR173.433f		NULL	NULL	NULL	NULL	NULL	NULL	NULL	NULL	NULL	
Radionuclide											
Activity	Ci										
Activity Uncert	2sigma Ci										
Mass	grams	NULL	NULL	NULL	NULL	NULL	NULL	NULL	NULL	NULL	
Mass Uncert	2sigma grams	NULL	NULL	NULL	NULL	NULL	NULL	NULL	NULL	NULL	
calc TRU Alpha Act	Ci	NULL	NULL	NULL	NULL	NULL	NULL	NULL	NULL	NULL	
calc TRU Alpha Act Conc	nCi/g	NULL	NULL	NULL	NULL	NULL	NULL	NULL	NULL	NULL	
calc Act	Ci	NULL	NULL	NULL	NULL	NULL	NULL	NULL	NULL	NULL	
calc Act Conc	nCi/g	NULL	NULL	NULL	NULL	NULL	NULL	NULL	NULL	NULL	
calc Pu239 FGE	g	NULL	NULL	NULL	NULL	NULL	NULL	NULL	NULL	NULL	
calc Pu239 Eq Act	Ci	NULL	NULL	NULL	NULL	NULL	NULL	NULL	NULL	NULL	
calc Decay Heat	watts	NULL	NULL	NULL	NULL	NULL	NULL	NULL	NULL	NULL	
uncert TRU Alpha Act	Ci	NULL	NULL	NULL	NULL	NULL	NULL	NULL	NULL	NULL	
uncert TRU Alpha Act Conc	nCi/g	NULL	NULL	NULL	NULL	NULL	NULL	NULL	NULL	NULL	
uncert Act	Ci	NULL	NULL	NULL	NULL	NULL	NULL	NULL	NULL	NULL	
uncert Act Conc	nCi/g	NULL	NULL	NULL	NULL	NULL	NULL	NULL	NULL	NULL	
uncert Pu239 FGE	g	NULL	NULL	NULL	NULL	NULL	NULL	NULL	NULL	NULL	
uncert Pu239 Eq Act	Ci	NULL	NULL	NULL	NULL	NULL	NULL	NULL	NULL	NULL	
uncert Decay Heat	watts	NULL	NULL	NULL	NULL	NULL	NULL	NULL	NULL	NULL	
Shipping Calcs		NULL	NULL	NULL	NULL	NULL	NULL	NULL	NULL	NULL	
49CFR173.433f		NULL	NULL	NULL	NULL	NULL	NULL	NULL	NULL	NULL	

WWIS DATA ENTRY SUMMARY											
CCP SRS - Version 3 WWIS Data Entry Summary - Charz & Cert © University of California David R. Janecky Thomas R. Canfield Matt J. Riggs	Units	Data	Comments							Initial	Date
Waste Material Parameter											
Wgt of Mat Parms (kg or lb)	kg										
Radio Assay Method			PAN, FRAM, TGS, HENC								
Data Package Number							kg				
Assay Date						Lbs	0.4536				
Charz Method ID			RTRM, VISUAL		kg	1.0000					
Data Package Number											
Charz Method Date											
Haz Codes											
Haz Codes											
Haz Codes											
Haz Codes											
Sample ID	Headspace Gas H/M										
Sample Type			HGHM								
Layer No. Sampled			0								
Date Sampled											
Method ID			DTP-1.2-041								
Data Package Number											
CAS #		NULL	NULL								
Analyte											
Concentration											
units	%vol, ppmv, mg/kg										

WWIS DATA ENTRY SUMMARY										
CCP SRS - Version 3 WWIS Data Entry Summary - Charz & Cert © University of California David R. Janecky Thomas R. Canfield Matt J. Riggs	Units	Data	Comments						Initial	Date
Date Analyzed			NULL							
B Detectable Flag										
D Detectable Flag										
E Detectable Flag										
J Detectable Flag										
U Detectable Flag										
NA Detectable Flag	NA	NA								
Sample ID	Headspace Gas VOC	ID error								
Sample Type		HGVO								
Layer No. Sampled				SARP-Flammable VOCs (ppmv)	0					
Date Sampled										
Method ID		DTP-1.2-041								
Data Package Number										
CAS #										
Analyte		NULL	NULL	NULL	NULL	NULL	NULL	NULL	NULL	
Concentration										
units	ppmv									
Date Analyzed			NULL	NULL	NULL	NULL	NULL	NULL	NULL	
B Detectable Flag										
D Detectable Flag										
E Detectable Flag										
J Detectable Flag										
U Detectable Flag										
NA Detectable Flag		NA	NA	NA	NA	NA	NA	NA	NA	

WWIS DATA ENTRY SUMMARY											
CCP SRS - Version 3 WWIS Data Entry Summary - Charz & Cert © University of California David R. Janecky Thomas R. Canfield Matt J. Riggs	Units	Data	Comments							Initial	Date
SARP-Flammable Calc		NULL	NULL	NULL	NULL	NULL	NULL	NULL	NULL		
CAS #											
Analyte		NULL	NULL	NULL	NULL	NULL	NULL	NULL	NULL		
Concentration											
units	ppmv										
Date Analyzed			NULL	NULL	NULL	NULL	NULL	NULL	NULL		
B Detectable Flag											
D Detectable Flag											
E Detectable Flag											
J Detectable Flag											
U Detectable Flag											
NA Detectable Flag		NA	NA	NA	NA	NA	NA	NA	NA		
SARP-Flammable Calc		NULL	NULL	NULL	NULL	NULL	NULL	NULL	NULL		
CAS #											
Analyte		NULL	NULL	NULL	NULL	NULL	NULL	NULL	NULL		
Concentration											
units	ppmv										
Date Analyzed			NULL	NULL	NULL	NULL	NULL	NULL	NULL		
B Detectable Flag											
D Detectable Flag											
E Detectable Flag											
J Detectable Flag											
U Detectable Flag											
NA Detectable Flag		NA	NA	NA	NA	NA	NA	NA	NA		
SARP-Flammable		NULL	NULL	NULL	NULL	NULL	NULL	NULL	NULL		

WWIS DATA ENTRY SUMMARY											
CCP SRS - Version 3 WWIS Data Entry Summary - Charz & Cert © University of California David R. Janecky Thomas R. Canfield Matt J. Riggs	Units	Data	Comments							Initial	Date
Calc											
CAS #											
Analyte		NULL	NULL	NULL	NULL	NULL	NULL	NULL	NULL		
Concentration											
units	ppmv										
Date Analyzed			NULL	NULL	NULL	NULL	NULL	NULL	NULL		
B Detectable Flag											
D Detectable Flag											
E Detectable Flag											
J Detectable Flag											
U Detectable Flag		U	U								
NA Detectable Flag				NA	NA	NA	NA	NA	NA		
SARP-Flammable Calc		NULL	NULL	NULL	NULL	NULL	NULL	NULL	NULL		
CAS #											
Analyte		NULL	NULL	NULL	NULL	NULL	NULL	NULL	NULL		
Concentration											
units	ppmv										
Date Analyzed			NULL	NULL	NULL	NULL	NULL	NULL	NULL		
B Detectable Flag											
D Detectable Flag											
E Detectable Flag											
J Detectable Flag											
U Detectable Flag											
NA Detectable Flag		NA	NA	NA	NA	NA	NA	NA	NA		
SARP-Flammable Calc		NULL	NULL	NULL	NULL	NULL	NULL	NULL	NULL		

WWIS DATA ENTRY SUMMARY										
CCP SRS - Version 3 WWIS Data Entry Summary - Charz & Cert © University of California David R. Janecky Thomas R. Canfield Matt J. Riggs	Units	Data	Comments						Initial	Date
		type	comment							
Comment										
Comment										
Comment										
Comment										
Comment										
Comment										
Comment										
Comment										
Comment										
Comment										
		Requirements Met?								
Free liquids <1% by volume										
No non-rad. pyrophorics										
Chemical compatibility										
No explosives										
No corrosives										
No pressurized containers										
No sealed Containers >4 liters										
Liner punctured/ filtered										
Flammable VOCs <500ppmv										
Container is in Approved Waste Stream Profile Form?										

WWIS DATA ENTRY SUMMARY											
CCP SRS - Version 3 WWIS Data Entry Summary - Charz & Cert © University of California David R. Janecky Thomas R. Canfield Matt J. Riggs	Units	Data	Comments							Initial	Date
Can it be established through Process Knowledge that the concentration of flammable VOCs present in the headspace of the container is <= 500 ppm?.											
	CCP Certification Official				Date			WIPP Approval Date			

Appendix D: Remote Connection Instructions

D.1   Purpose

The purpose of this section is to convey instructions regarding remote access into the WIPPNet.

D.2   General Guidelines

The WIPP help desk, keeper of the Virtual Private Network (VPN), must reevaluate the system privileges every six months for users who have remote access to WIPPNet. Related policies appear in DOE/WIPP 99-3107, *Unclassified Network Computing Environment General Support System Security Plan*.

Third-party users may only be given in-bound connection privileges (dial-up, Internet, etc.) when the ETSG manager determines that they have a legitimate business need. These privileges will be enabled only for the time required to accomplish the defined and approved tasks.

Before third party users are permitted to reach the DOE, its contractors, or subcontractor's internal systems via real-time computer connections (dial-up lines, the Internet, value added networks, etc.), specific written approval of the Information System Site Security Manager (ISSM) must be obtained.

As a condition of gaining access to the DOE, its contractors, or subcontractors' computer network, each third party must secure its own connected systems in a manner consistent with DOE requirements. The WIPP ISSM reserves the right to audit the security measures in effect on third party connected systems without prior warning. The WIPP ISSM also reserves the right to immediately terminate network connections with all third party systems not meeting such requirements.

The password must be a minimum of eight characters and must consist of one lowercase letter, one uppercase letter, and one number, and is to be changed every six months.

User ID and passwords are unique and assigned to individuals. Individuals are requested not to share the user ID and password with anyone. Information residing on WIPP servers is considered sensitive and needs to be protected as such. Data must be protected regardless of the storage media on which information is recorded, the locations where the information is stored, the systems used to process the information, or the processes by which the information is handled.

Request for remote connection access must be submitted to WWIS Team Lead on a WIPPNet Remote Access Request Form. No other connections may be established via modem or local area network. The user or WIPP will provide no other services without express written consent of the WIPP ISSM. WIPP help desk personnel may revoke access at any time.

There must be no additional connections made to other systems (nodes, sub-networks, etc.) without prior discussion between the sites. Each site must notify the other of any proposed security significant changes, or if/when the network certification expires or is revoked.

Users must not leave their computers unattended while connected to the WIPPNet. Users at remote work locations must promptly report to their manager and to the WIPP ISSM any damage to or loss of computer hardware, software, or sensitive information including compromised passwords.

Software downloaded from the Internet is not acceptable. The client may only be loaded on the system specified on the WIPPNet Remote Access Request Form.

Without prior authorization, users must not download software from the WIPPNet, the Internet, or other systems outside the WIPP network. This prohibition is necessary because such software may contain viruses, worms, Trojan horses, and other routines that may damage DOE information and systems.

The monitors for systems used to handle DOE sensitive information must be positioned such that unauthorized persons cannot readily view them over a shoulder, through a window, or by similar means. Efforts to destroy or disrupt operations of WIPPNet include but are not limited to:

- Crashing systems

- Deleting files that are not the property of the user deleting them

- Accessing protected files without permission

- Alteration of files to which the user has no explicit authority to make modifications

- Deliberate overloading of facilities including CPU time, memory space, disk space, telephone lines, modems, or other operations adversely affecting the operation of the system(s)

Other unacceptable use of the Internet includes:

- Personal use not related to the conduct of work on behalf of the DOE

- Commercial or for-profit usage not in direct support of DOE activities
- Unsolicited advertising of for-profit products and services

- Lobbying Congress or the Administrative branch for purposes of supporting or not supporting various issues, legislation, programs, or projects

Security Briefing: The WWIS Security Briefing/Acknowledgment includes a brief system overview and a brief security overview that summarize object permissions and privileges assigned to shipper/generator users and read-only users. The briefing also provides details regarding interfaces between these sites and WIPP, as well as contact phone numbers of key individuals with cognizance over security programs and policies. Before users are granted access to the WWIS, a signed acknowledgment that the security briefing has been read and understood must be submitted with the WIPPNET Remote Access Form.

INSTRUCTIONS FOR COMPLETION OF THE WIPP REMOTE
ACCESS REQUEST FORM

Requesting a connection to WIPPnet is obtained by the following:

1. The user requesting remote access: completes the WIPPnet Remote Access Request Form. The user must complete the User Information area of the form, and then sign acknowledging their understanding of the use of Government property.

2. Sponsoring WIPP Manager: assures the User Information section is complete, including the justification of need, and then approves the request for a WIPPnet account by signing the WIPPnet Remote Access Request Form.

3. Sponsoring WIPP Manager: sends the completed WIPPnet Remote Access Request Form to NCI Technical Support. Dave Kump, Manager-WWIS, is the sponsoring WIPP manager.

   NCI Information Systems, Inc. - Technical Support
   4021 National Parks Highway - GSA-208
   techsupport@wipp.ws
   Office: 575-234-7422
   Fax: 575-234-7107

4. NCI Technical Support: logs the request and forwards to the ISSM, Brandon Storment, for approval.

5. NCI Technical Support: after receiving the ISSM approval, contacts the user to determine the best method of connectivity to WIPPnet.

6. NCI Technical Support: creates the access account and provides the end user with the username, password, and connection training.

If a user has questions, comments, or concerns, please contact one of the following:

NCI Information Systems, Inc. - Technical Support
4021 National Parks Highway - GSA-208
Office: 575-234-7422
Fax: 575-234-7107
techsupport@wipp.ws

Brandon Storment, ISSM
4021 National Parks Highway
Carlsbad, NM 88220
Office: 575-234-7368
Fax: 575-234-7426
john.angelis@wipp.ws

WIPPNET REMOTE ACCESS REQUEST FORM	
USER INFORMATION	
Division / Location:	
Full Name of Computer User:	
Last four digits of User Driver License #:	
Email Address:	
Government Employee/Org:	
Office Telephone and Fax:	
Mailing Address:	
Length of Connection[1]:	
Sponsoring WIPP Manager:	
Statement of Need/Justification for access:	
Internet Service Provider or IP Address (if known)	
United States Citizen? (yes/no)	

I understand that using the WIPP (Waste Isolation Pilot Plant, United States Department of Energy) computer systems, products, services or equipment for personal use constitutes misuse/non-official use of Government property. I understand that all computer files are subject to review for the purpose of ensuring Official Use Only of Government property. I understand that I am responsible for protecting my assigned password for confidentiality, and ensuring that no one except me gains access to WIPP/DOE computer systems with my assigned USER ID and password. I will report any change in my duties. I understand that disclosure of or failure to safeguard sensitive data is prohibited. I have read the security plan or have attended the annual security briefing, and I understand that users failing to comply with policies and procedures described therein may be subject to disciplinary action.

I understand that I have no expectation of privacy (implied or otherwise) and that the use of DOE computer resources is subject to monitoring and review by authorized personnel. I understand that unauthorized use of Government property is prohibited by Law (Section 641, Title 18 U.S.C.) and could result in disciplinary action.

---

[1] Default length of External User Accounts is set at six months from time of activation.

WIPPNET REMOTE ACCESS REQUEST FORM	
External connection to WIPPnet requires the use or implementation of a FIREWALL[2]. I agree that all communications with WIPPnet will be from behind a firewall.	
User Signature:	Date:
Sponsoring WIPP Manager Signature:	Date:
Sponsoring WIPP Manager Name (printed):	
OFFICIAL USE ONLY – DO NOT FILL OUT THE INFORMATION BELOW	
ISSM Authorization:	Date:
ETSG Distribution:	Date:

---

[2] A system designed to prevent unauthorized access to or from a private network. Firewalls can be implemented in both hardware and software, or a combination of both.

WIPPNET REMOTE ACCESS REQUEST FORM		
Method of Connectivity		
Method	Username	Password
Neoteris		
Citrix		
Tunnel		
Dialup		

Appendix E: WIPP TRAMPAC Evaluation Software Data Dictionary

E.1   WTES Data Dictionary

This appendix provides a description of the database tables and views that are directly used by the WIPP TRAMPAC Evaluation Software (WTES). In conjunction with the most current revision of the CH-TRAMPAC, the TRUPACT-II Safety Analysis Report (SAR), and the HalfPACT SAR, the CHTES has been developed for use by CH-TRU waste sites as part of the WWIS. The CHTES performs compliance evaluations required by the TRAMPAC. The RHTES evaluates container, payload, canister, and cask data for compliance with the transportation regulatory requirements outlined in the RH-TRAMPAC and RH-TRU Payload Appendices for RH-TRU waste shipments. The RHTES evaluations are dependent upon a comprehensive set of reference tables that assist in providing data relating to evaluation limits, limits calculation, and definition of waste properties and their associated confinement enclosures or layers. Each RHTES (72-B and 10-160B) evaluation maintains its own independent set of reference tables. For most evaluations, the waste properties are compared directly against the limits and constraints as defined by the governing TRUCON Code.

The software will evaluate containers for transportation compliance at the same time the WWIS is evaluating the containers for compliance with WIPP CH-WAC. The integration with the WWIS allows the sites to transmit container data to one centralized location where the container data for transportation and disposal will be evaluated at the same time.

For ease in locating specific tables or views in this document, they are divided into three general categories: Reference Tables, Input Tables, and Output Tables. The Reference Tables are used to store information used by the software in performing the evaluations.

The Input Tables provide the input data used by the code. These tables are presently implemented as views that obtain data from WWIS tables and are populated with the specific information that is used by the software in performing the evaluations.

The Output Tables are used to store the results of TRAMPAC evaluations. These tables provide a record of each of the evaluations that have been performed.

For each of the tables or views described in this document, the columns that make up the table are identified. The data type or field format for each of the columns is identified and a brief description of the data contained in the column is provided. The column name(s) for each table that are identified with an asterisk make up the primary key for the table.

E.2   Gas Generation Requirements Evaluation for CH Waste

The gas generation requirements may be met through several methods including the mixing of shipping categories to allow containers with high hydrogen gas generation potential to take credit for being mixed with containers of low hydrogen gas generation potential in a payload.

E.2.1   Wattage Limit

If the flammable VOC concentration is known to be less than or equal to 500 ppm, the software compares the container wattage to the wattage limit as determined by the container shipping category. This wattage value is determined by calculations that are described in TRAMPAC, Section 5.2. If a container does not meet the wattage limit, the data analysis proceeds to the H2/CH4 measurement evaluation.

E.2.2   Drum Age Criteria

Headspace sampling for VOCs is required for payload containers that have flammable VOC concentrations > 500 ppm if compliance with the flammable VOC limit cannot be ascertained. If there is no process knowledge supporting the absence of VOCs, the application must have VOC data available. The VOC data used in the TRAMPAC container evaluation is taken from the values reported in the WWIS TMP_WC_SAMPLE_AMOUNTS table. For the VOC data to be valid, the software application verifies that the container meets drum age criteria (DAC), which are estimates of time required for VOCs in a drum to reach 90 percent of the equilibrium steady-state concentration in the innermost layer of confinement by the use of prediction factors If a container does not meet the DAC under any option, the container will fail with the reason "Container failed drum age criteria – wait or mitigate."

NOTE 1: A 'Samples Required' checkbox is available in the Waste Stream Profiles Reference Table which will allow successful submittal of container data to the WWIS for containers that have not undergone headspace gas sampling and analysis. This feature also allows containers that meet the wattage limit for the shipping category to be shipped using process knowledge that supports the absence of VOCs.

NOTE 2: The use of concentration multipliers as an option for DAC is not included in the software to be consistent with the WIPP RCRA permit.

NOTE 3: The software uses the following assumptions when evaluating DAC: Packaging configurations 4 through 6 (as defined in TRAMPAC) are considered newly generated waste (i.e., the vent date equals the closure date).

DAC Option 2, Scenarios 1 and 2 apply only to packaging configurations 1 through 3 in the TRAMPAC.

DAC Option 2, Scenario 3 applies to all packaging configurations (1 through 6) in the TRAMPAC.

Each heat-sealed bag is counted as a single inner bag.

E.2.3   Flammable VOC Data

If the container meets the DAC, the software evaluation determines compliance with flammable VOC limits. If there is no process knowledge supporting the absence of

flammable VOCs, data must be present in the WWIS Samples table for all VOCs (i.e., null values are not allowed).

If the summed total of flammable VOCs in the container is less than or equal to 500 ppm, the container passes. If the summed total of flammable VOCs is greater than 500 ppm, the software applies prediction factors to determine the concentration of the innermost layer of confinement, and the container is evaluated for gas generation according to the process described in this section. If the container fails flammable gas/VOC concentration limits or gas generation requirements, it may be evaluated for compliance under the payload assembly option, wherein containers of different payload shipping categories or dunnage may be included in the assembly to meet the TRAMPAC gas generation limits.

NOTE 1: The Flammable VOC data evaluation assumes that the reported flammable VOC values were from a single headspace gas sample that was analyzed in accordance with DOE/WIPP 06-3345, *Waste Isolation Pilot Plant Flammable Gas Analysis.*

If the flammable VOC concentration is greater than 500 ppm or the container decay heat is greater than the wattage limit, compliance with gas generation requirements must be determined by flammable gas measurement. The following information is required for H_2/CH_4 Measurement:

- The location of gas measurement (within drum headspace or rigid liner headspace)

- The date of measurement

- The H_2 concentration (ppm)

- The CH_4 concentration (ppm)

Using values reported either in ppm or volume percent (vol%) for H_2 and CH_4 in the WWIS TMP_WC_SAMPLE_AMOUNTS table, the CHTES determines whether the CH_4 concentration is less than or equal to 1,250 ppm. If the CH_4 concentration is greater than 1,250 ppm, the container fails with the reason "Container failed methane concentration limit – mitigate." If the container CH_4 concentration is less than or equal to 1,250 ppm and flammable VOCs are present in concentrations greater than 500 ppm, the container may proceed to headspace flammable gas/VOC measurement. Drums that can demonstrate compliance with gas generation requirements only through full-drum testing (e.g., Waste Type IV) bypass the headspace flammable gas/VOC measurement and go directly to 55-Gallon Drum Testing (with or without VOCs).

NOTE 2: The CHTES H_2/CH_4 Measurement data evaluation assumes that the reported values were from a single headspace gas sample. If the reported values for H_2 and CH_4 in a payload container are from a group of headspace gas samples that were composited in the analytical laboratory, then it is the responsibility of the shipper to

interface with the waste certification officials who supply H_2/CH_4 sample data to the WWIS and to perform the necessary calculations in accordance with methods described in the site-specific TRAMPAC to qualify the container for shipment. If results from composite sampling are used, sites should enter the conservative value (composited sample results times the number of containers sampled) for the container headspace gas into WWIS. The data evaluation counts each heat-sealed bag as a single inner bag.

E.2.4   Headspace Flammable Gas Measurement

The container must undergo headspace flammable gas measurement if flammable VOCs are not present in concentrations greater than 500 ppm and the container waste type is I, II, or III and has failed the analytic decay heat limits. The flammable gas generation rate (FGGR) is calculated based on a headspace measurement of the flammable gases (H_2 and CH_4) and compared to the allowable FGGR determined from TRAMPAC Table 5.2-1, if the shipping category is present in the table, or by calculating as described in TRAMPAC Appendix 5.2. If the calculated FGGR is greater than the allowable FGGR and the container is a 55-gallon drum or pipe overpack, the drum proceeds to 55-gallon Drum Testing (no VOCs). If the container is not a 55-gallon drum or pipe overpack, the payload assembly evaluation must be relied upon to evaluate compliance with gas generation requirements.

NOTE: The dates that are input to the WST_CNTRS CLOSURE_DATE, WST_CNTRS VENT DATE and WC_SAMPLES SAMPLE DATE fields must follow a logical order to enable the CHTES to successfully perform the FGGR evaluation. Specifically, the container closure date and vent date must precede the sample date. If a user were to receive an error message: FGGR=999 the user inputting the data should recheck the dates that were input to the WWIS, make any required changes and resubmit the container data in an effort to clear the error message.

E.2.5   Headspace Flammable Gas/VOC Measurement

The container must undergo headspace flammable gas/VOC measurement if VOCs are present in concentrations greater than 500 ppm, and the container waste type is I, II, or III and has failed the analytic decay heat limits. When the mixture lower explosive limit (MLEL) is calculated, the sum of the flammable gas and flammable VOC concentrations in the innermost confinement layer is calculated and compared to the MLEL. If the sum of flammable gas and VOC concentrations in the innermost confinement layer is greater than the MLEL and if the container is a 55-gallon drum or pipe overpack, the container proceeds to 55-Gallon Drum Testing (with VOCs). If the container is not a 55-gallon drum or pipe overpack, the payload assembly evaluation must be relied upon to evaluate compliance with gas generation requirements.

NOTE: The Flammable Gas/VOC Measurement data evaluation assumes that the reported flammable gas and flammable VOC values were from a single headspace gas sample that were analyzed in accordance with DOE/WIPP 06-3345, *Waste Isolation*

Pilot Plant Flammable Gas Analysis. The data evaluation counts each heat-sealed bag as a single inner bag.

E.2.6   55-Gallon Drum Testing (no VOCs)

The container is evaluated under 55-gallon drum testing (no VOCs) if the container waste type is IV. For other waste types, the drum may be evaluated if the drum has failed the analytic decay heat limits and has failed gas generation requirements by headspace flammable gas measurement. If the measured FGGR obtained through 55-gallon drum testing is less than or equal to the allowable flammable gas generation rate, the drum is eligible for payload assembly if all other transportation requirements are met. Compliance with the total gas generation rate (TGGR) is also checked for drums belonging to Waste Type IV or drums belonging to Waste Type III with wattage greater than 7 and less than 20. To perform this evaluation, the CHTES uses data from the WWIS SHIPPING_CATEGORY, DECAY_HEAT, and GAS_GEN_RATE data fields. Containers failing gas generation requirements can still be shipped if they pass payload assembly requirements when mixed with containers of different payload shipping categories or dunnage containers.

E.2.7   55-Gallon Drum Testing (with VOCs)

The container is evaluated under 55-gallon drum testing (with VOCs) if the container waste type is IV and the flammable VOC concentration > 500 ppm. For other waste types, this evaluation is conducted if the drum has failed the analytic decay heat limits and the drum has failed gas generation requirements by flammable gas/VOC measurement. The sum of the flammable gas and VOC concentration in the innermost layer is compared to the MLEL. The flammable gas concentration in the innermost confinement layer is calculated based on measured FGGR through 55-gallon drum testing. Compliance with TGGR is also checked for CH drums belonging to Waste Type IV or drums belonging to Waste Type III with wattage greater than 7 and less than 20. Containers failing gas generation requirements can still be shipped if they pass payload assembly requirements when mixed with containers of different payload shipping categories or dunnage containers.

E.3   Aspiration

The CHTES evaluates all containers for compliance with aspiration requirements. The program reads the aspiration option entered by the user for the container under evaluation and the dates of closure, venting, sampling, and analysis for the container. From this information, the software determines which aspiration table (TRAMPAC Tables 5.3-1 through 5.3-12) is applicable and defines the number of days the container must be vented. The software application calculates the number of days the container has been vented, compares the elapsed time to the required vent time from the appropriate TRAMPAC table, and displays the results.

NOTE 1: If the waste container being submitted for approval is newly-generated or if the waste was repackaged to meet WIPP transportation and disposal requirements, the

letter "N" may be entered into the WWIS Aspiration Method field in TMP_WST_CNTRS. This will not impact the aspiration evaluation as long as the closure date = vent date. If the closure date and vent dates in the WWIS are not the same date, the container will fail the container evaluation.

NOTE 2: If the waste container being submitted for approval has undergone gas generation testing, the letter "T" may be entered into the WWIS Aspiration Method field in TMP_WST_CNTRS. Containers may undergo Gas Generation Testing to demonstrate that the TRAMPAC Hydrogen/Methane gas generation limit as applicable to the shipping category is met. If those waste containers are assigned Aspiration Method "T" in WWIS, they are excluded from the aspiration evaluation.

NOTE 3: Each heat-sealed bag is counted as seven inner bags.

The allowable aspiration options are summarized in Table E-1, *Aspiration Options*.

Table E-1: Aspiration Options

Option	Description
Option 1	Aspiration time based on date of payload container closure.
Option 2A	Headspace gas sampling at time of venting from the container headspace.
Option 2B	Headspace gas sampling at time of venting from the rigid liner headspace.
Option 3	Headspace gas sampling during aspiration.

E.4 Filter Requirements

The WWIS user enters the required filter information into the WWIS. The software evaluation verifies that filters on each payload container meet the minimum diffusivity requirements in accordance with TRAMPAC Table 2.5-1. WWIS performs an automated check to assure that an approved filter vent(s) is installed on each payload container.

Table E-2, *Minimum Filter Diffusivity Requirements*, lists the minimum diffusivity required by payload container type. The approved filter models are shown in the List of CBFO-Approved Filter Vents and are flagged as approved filters in the WWIS Filter Models reference table. Refer also to the WWIS Container Types Reference Table where these minimum diffusivities are also listed for purposes of performance of edit/limit checks when container data is submitted to the database.

Table E-2: Minimum Filter Diffusivity Requirements

Payload Container Type	Minimum Diffusivity
55-Gallon Drum	1.9 E-06
85-Gallon Drum (Tall or Short)	3.7E-06
100-Gallon Drum	3.7E-06
Pipe Component (all)	1.9E-06
Standard Waste Box	7.4E-06
Ten Drum Overpack	3.33E-05
Fixed Lid Canister	1.48E-05
Removable Lid Canister	1.48E-05
Filtered Bag	1.075E-05

Payload containers that do not meet the minimum filter diffusivity requirement will require resubmittal for evaluation after diffusivity issues are addressed and resolved. The "Filter Model Number" is automatically populated on the PCTCD report from the WWIS container record.

E.5   Watt*Year Criteria

The CHTES edit/limit checks will perform an evaluation to determine whether containers of Waste Type II and III meet a watt*year criterion of 0.012 (i.e., the wattage of the waste multiplied by its age in years is greater than 0.012).

E.6   Container Weight

The software will perform an evaluation to verify that the container gross weight plus gross weight error complies with container weight limits listed in the TRAMPAC and in the WIPP-WAC. Containers, assemblies, payloads and shipments that exceed weight limits as shown in both the TRAMPAC and the WIPP-WAC will require resubmittal after issues regarding weights are addressed and resolved.

E.7   Nuclear Criticality

The Pu-239 FGE and FGE Uncertainty values are entered into the WWIS WST_CNRS Table. The FGE Uncertainty should be entered into the WWIS at one standard deviation or one sigma in accordance with the terminology used by site statisticians.

The software will automatically recalculate the error value and verify that the container FGE plus twice the FGE error complies with container FGE limits listed in the CH-TRAMPAC and in the WIPP-WAC, Table 3.3.2.1, ^{239}Pu *FGE Limits for Payload Containers.*

E.8   S100/S200 Activity Evaluation

If the container is an S100 or S200 pipe overpack, the CHTES verifies that the container meets the radionuclide activity limits specified in the CH-TRAMPAC If the container is an S100 pipe overpack and exceeds the limit of 28 Curies (Ci), the container will fail with no path forward. If the container is an S200 pipe overpack and any radionuclide exceeds the limit specified in TRAMPAC Table 2.4-2, the container evaluation will sum the partial fractions to determine pre-shipment acceptability for any combination of the radionuclides present in the waste.

For the S200 pipe overpack/TRUPACT-II shipping configuration, the sum of the partial fractions for any combination of the nuclides must be less than or equal to unity, or:

$$\sum_{i=1}^{n} \frac{s_i}{S_i} \leq 1$$

where, for a particular payload mix, s_i is the actual Ci content of nuclide "i," and S_i is the limiting Ci content of nuclide "i" based on the shielding calculations.

Using the S200-A configuration as an example, 0.0191 Ci of 60Co (SCo-60 = 0.0191), 0.1248 Ci of 95Zr (SZr-95 = 0.1248), and 0.2060 Ci of 137mBa (SBa-137m = 0.2060) each result in a limiting dose rate not exceeding their respective dose rate requirements. The sum of the partial fractions for a payload containing 0.0105 Curies of 60Co (sCo-60 = 0.0105), 0.0087 Ci of 95Zr (sZr-95 = 0.0087), and 0.0268 Ci of 137mBa (sBa-137m = 0.0268) is:

$$\frac{s_{Co60}}{S_{Co60}} + \frac{s_{Zr95}}{S_{Zr95}} + \frac{s_{Ba137m}}{S_{Ba137m}} = \frac{0.0105}{0.0191} + \frac{0.0087}{0.1248} + \frac{0.0268}{0.2060} = 0.55 + 0.07 + 0.13 = 0.75 \leq 1.0$$

Thus, the combination of nuclides for the above example will not exceed the limiting dose rate. If the S200 pipe overpack fails the container evaluation, the container will fail with no path forward.

E.9   Radiation Dose Rates

If dose rate information is provided by the user, the software evaluates the container to verify that the dose rate is less than or equal to 200 millirem per hour (mrem/hr) at the surface. The surface dose rate limits for the S100 and S300 pipe overpacks are 179 mrem/hr and 155 mrem/hr, respectively. The waste certification program for a particular site may not require the dose rate to be measured until immediately prior to shipping the container. Dose rate information applicable to the shipping package is required to be provided to the WWIS prior to shipment.

E.10   Valid TRUCON Code/Shipping Category Combinations

The software verifies that the TRUCON code/shipping category combination for a container is valid in accordance with the most current revision of the TRUCON. If the TRUCON code/shipping category combination is invalid the container will fail with no path forward.

E.10.1   FGE

The software verifies that the total payload FGE plus the RMS of twice the FGE error complies with assembly FGE limits. Payloads that exceed FGE limits will not be allowed. Refer to the Container Type Reference Table for TRAMPAC FGE limits for containers with less than 1 percent beryllium by weight and TRAMPAC FGE limits for containers with greater than 1 percent beryllium by weight.

E.10.2   Radiation Dose Rates

The software does not evaluate the dose rate for the TRUPACT-II or HalfPACT. However, when container data is submitted to the WWIS, the application performs an edit/limit check to assure that the Maximum Dose Rate as identified in the Container Type Reference Table is not exceeded. When a shipment is submitted to the WWIS, the application performs an edit/limit check to assure that the maximum dose rate for the shipping package is not exceeded.

E.10.3   Flammability Index Calculation

When containers belonging to different payload shipping categories are assembled, the flammability index (FI) is calculated. If the FI of any one container is greater than 50,000 the payload fails. The assembly with the noncompliant container must be reconfigured and the payload reevaluated. Reconfiguring an assembly involves replacing one or more of the waste containers with different waste containers or dunnage containers on the assembly screen.

CHTES REFERENCE TABLES

Table: E_REF_AREA_THICKNESS

Confinement layer reference information

FIELD	TYPE	DESCRIPTION
LAYER_CODE*	VARCHAR2(3)	The type of confinement layer
SURFACE_AREA	NUMBER(10,2)	The minimum surface area of the layer in sq cm
THICKNESS	NUMBER(12,10)	The maximum thickness of the layer in cm
TYPE_CODE*	VARCHAR2(3)	The WIPP container type code
WASTE_TYPE*	NUMBER	A numeric value representing the waste type

Table: E_REF_ASP_DC

Reference data for required aspiration time based on drum age

FIELD	TYPE	DESCRIPTION
WASTE_TYPE*	NUMBER	A numeric value representing the waste type
AGE*	NUMBER	The drum age in months
LOC_0	NUMBER	The required aspiration time in days for 0 layers of confinement
LOC_1	NUMBER	The required aspiration time in days for 1 layer of confinement
LOC_2	NUMBER	The required aspiration time in days for 2 layers of confinement
LOC_3	NUMBER	The required aspiration time in days for 3 layers of confinement
LOC_4	NUMBER	The required aspiration time in days for 4 layers of confinement
LOC_5	NUMBER	The required aspiration time in days for 5 layers of confinement
LOC_6	NUMBER	The required aspiration time in days for 6 layers of confinement
LOC_7	NUMBER	The required aspiration time in days for 7 layers of confinement
LOC_8	NUMBER	The required aspiration time in days for 8 layers of confinement
LOC_9	NUMBER	The required aspiration time in days for 9 layers of confinement
LOC_10	NUMBER	The required aspiration time in days for 10 layers of confinement
LOC_11	NUMBER	The required aspiration time in days for 11 layers of confinement
LOC_12	NUMBER	The required aspiration time in days for 12 layers of confinement

Table: E_REF_ASP_HGS_VENT

Reference data for required aspiration time based on hydrogen concentration

FIELD	TYPE	DESCRIPTION
WASTE_TYPE*	NUMBER	A numeric value representing the waste type
MOL*	NUMBER(6,3)	The measured headspace concentration of hydrogen in mole percent
ASPIRATION_METHOD*	VARCHAR2(6)	The aspiration method used
LOC_0	NUMBER	The required aspiration time in days for 0 layers of confinement
LOC_1	NUMBER	The required aspiration time in days for 1 layer of confinement
LOC_2	NUMBER	The required aspiration time in days for 2 layers of confinement
LOC_3	NUMBER	The required aspiration time in days for 3 layers of confinement
LOC_4	NUMBER	The required aspiration time in days for 4 layers of confinement
LOC_5	NUMBER	The required aspiration time in days for 5 layers of confinement
LOC_6	NUMBER	The required aspiration time in days for 6 layers of confinement
LOC_7	NUMBER	The required aspiration time in days for 7 layers of confinement
LOC_8	NUMBER	The required aspiration time in days for 8 layers of confinement
LOC_9	NUMBER	The required aspiration time in days for 9 layers of confinement
LOC_10	NUMBER	The required aspiration time in days for 10 layers of confinement
LOC_11	NUMBER	The required aspiration time in days for 11 layers of confinement
LOC_12	NUMBER	The required aspiration time in days for 12 layers of confinement

Table: E_REF_BAG_LAYER

Lookup data for bag layer types

FIELD	TYPE	DESCRIPTION
LAYER_CODE*	VARCHAR2(3)	The code representing a layer type
DESCRIPTION	VARCHAR2(60)	The description of the layer type

Table: E_REF_COMPACTED_FGE

Lookup data for FGE limits for containers

FIELD	TYPE	DESCRIPTION
TYPE_CODE*	VARCHAR2(3)	The code representing a container
MACHINE_ COMPACTED	VARCHAR2(1)	Indicator of whether there is machine/non-machine compacted waste
SIGNIFICANT_BE	VARCHAR2(1)	Indicator of whether the container has significant Be or not
FGE_LIMIT	NUMBER(10.2)	FGE limit for the container type
WORSE_CASE_FGE_LIMIT	NUMBER(10.2)	FGE limit used for worse case evaluation for overpack containers

Table: E_REF_CONC_MULT

Reference data for VOC concentration multipliers

FIELD	TYPE	DESCRIPTION
CAS_NUMBER*	VARCHAR2(10)	The Chemical Abstracts Service Registry Number for the compound
MINIMUM_DAYS_VENT_TO_SAMPLE*	NUMBER(10,2)	The minimum number of days from venting to sampling
PACKAGING_CONFIG_ID*	NUMBER	A numeric value representing the waste packaging configuration
MIN_INNER_CNTR_DIFFUSIVITY*	NUMBER(12,10)	The minimum diffusivity of the inner container in m/s/mf
MIN_OUTER_CNTR_DIFFUSIVITY*	NUMBER(12,10)	The minimum diffusivity of the outer container in m/s/mf
MULTIPLIER	NUMBER(10,2)	The value of the multiplier to be applied

Table: E_REF_CONFIGURATION

Reference data for packaging configurations

FIELD	TYPE	DESCRIPTION
TYPE_CODE*	VARCHAR2(3)	The WIPP container type code
ICV_VOID_VOLUME_MXCT	NUMBER(10,3)	The ICV void volume used in mixed category analyses in cu m
ICV_VOID_VOLUME_TGRR	NUMBER(10,3)	The ICV void volume used in total gas release rate analyses in cu m
INNER_CNTR_ALLOWABLE_TGRR	NUMBER(12,8)	The maximum total gas release rate for Type IV containers in cu m
MAX_CONTAINERS	NUMBER	The maximum number of containers in the configuration
MXCT_NUM_CONTAINERS	NUMBER	The number of containers used in mixed category analyses
MXCT_USE_OVERPACK	VARCHAR2(1)	A flag (Y/N) indicating if the mixed category analysis accounts for the effective resistance of the overpack
OPK_GROUP_ID	NUMBER	The Overpack Group ID
PACKAGING_MATERIAL_WEIGHT	NUMBER(10,2)	The weight of the packaging material
PSC_GROUP_ID	NUMBER	The Payload Group ID
PIPE_OVERPACK_FGE_LIMIT	NUMBER(10,2)	The payload FGE limit for pipe overpacks

Table: E_REF_CONFINEMENT_CONFIG

Reference data for confinement configurations

FIELD	TYPE	DESCRIPTION
AGE_CRITERIA_OPTION	NUMBER	The option number used for the calculation
PACKAGING_CONFIG_ID*	NUMBER	A numeric value representing the waste packaging configuration
TYPE_CODE*	VARCHAR2(3)	The WIPP container type code
WASTE_TYPE*	NUMBER	A numeric value representing the waste type
INNER_DIFFUSIVITY_LAYER	NUMBER	The inner diffusivity layer used for determination of equilibrium age in m/s/mf
MAXIMUM_INNER_BAGS	NUMBER(10,2)	The maximum number of inner bags
MAXIMUM_LINER_BAGS	NUMBER(10,2)	The maximum number of liner bags
MAXIMUM_TOTAL_BAGS	NUMBER(10,2)	The maximum number of total bags
MAXIMUM_METAL_CANS	NUMBER(10,2)	The maximum number of metal can components
MINIMUM_SAMPLE_LAYER	NUMBER(10,2)	The minimum layer at which the sample is taken
RIGID_LINER	VARCHAR2(1)	A flag indicating if a rigid liner is present

Table: E_REF_CONTAINER

Reference data for container types

FIELD	TYPE	DESCRIPTION
TYPE_CODE*	VARCHAR2(3)	The WIPP container type code
CNTR_CATEGORY	VARCHAR2(1)	The category of the container
DESCRIPTION	VARCHAR2(60)	The description of the container
DUNNAGE_VOID_VOLUME	NUMBER(10,3)	The empty volume of the container
FGE_LIMIT_GT_1BE	NUMBER(10,2)	The FGE limit with greater than 1% special reflector materials
FGE_LIMIT_LE_1BE	NUMBER(10,2)	The FGE limit with less than 1% special reflector materials
MIN_FILTER_DIFFUSIVITY	NUMBER (12,8)	The minimum filter diffusivity required in m/s/mf
OPK_GROUP_ID	NUMBER	The Overpack Group ID
PSC_GROUP_ID	NUMBER	The Payload Group ID
MAX_RAD_DOSE_RATE	NUMBER (10,3)	The maximum dose rate for the container
TARE_WEIGHT	NUMBER(10,4)	The empty weight of the container
WASTE_TYPE_4_ALLOWABLE_TGRR	NUMBER(12,8)	The allowable Total Gas Release Rate for waste type 4
WEIGHT_LIMIT	NUMBER(10,4)	The weight limit for the container
ACTIVITY_LIMIT	NUMBER	The activity limit for the container

Table: E_REF_CONTAINER_RESISTANCE

Reference data for container release resistance

FIELD	TYPE	DESCRIPTION
TYPE_CODE*	VARCHAR2(3)	The WIPP container type code
FILTER_DIFFUSIVITY*	NUMBER(10,8)	The minimum container filter diffusivity in m/s/mf
RESISTANCE_FACTOR	NUMBER(10,2)	The resistance factor for the container in m/s/mf
WASTE_MATERIAL_GROUP*	NUMBER	A numeric value representing the waste material group
OPK_GROUP_ID*	NUMBER	The Overpack Group ID

Table: E_REF_EXIT_CODES

Exit codes returned by the CHTES

FIELD	TYPE	DESCRIPTION
EXIT_CODE*	VARCHAR2(10)	The value of the exit code
DESCRIPTION	VARCHAR2(128)	A textual description of the conditions associated with the exit code

Table: E_REF_FLAMMABLE_VOC

Reference data for flammable volatile organic compounds

FIELD	TYPE	DESCRIPTION
CAS_NUMBER*	VARCHAR2(16)	The Chemical Abstracts Service Registry Number for the compound
DIFFUSIVITY_IN_AIR	NUMBER(10,6)	The diffusivity of the chemical in air in m/s/mf
DIFFUSIVITY_RATIO	NUMBER(12,10)	The ratio of the diffusivity of the VOC in H2 by the diffusivity of H2 in air
GROUP_CONTRIBUTION_FACTOR	NUMBER(10,2)	The Group Contribution Factor for the compound
PERMEABILITY	NUMBER(10,2)	The permeability of the compound

Table: E_REF_PACKAGING_DECAY_HEAT

Reference data for packaging decay heat limits

FIELD	TYPE	DESCRIPTION
TYPE_CODE*	VARCHAR2(3)	The WIPP container type code
WASTE_TYPE*	NUMBER	A numeric value representing the waste type
PACKAGING_DECAY_HEAT_LIMIT	NUMBER(5,2)	The decay heat limit for the container waste type combination in watts
PSC_GROUP_ID*	NUMBER	The Payload Group ID

Table: E_REF_PU240_CREDIT

Reference data for credit for PU-240 poisoning

FIELD	TYPE	DESCRIPTION
TYPE_CODE*	VARCHAR2(3)	The WIPP container type code
MIN_PU240_CONTENT*	NUMBER	The minimum percentage of Pu-240
FGE_LIMIT	NUMBER	The container FGE limit in grams

Table: E_REF_RADIONUCLIDE_LIMITS

Radionuclide limits for S200 packaging

FIELD	TYPE	DESCRIPTION
RADIONUCLIDE*	VARCHAR2(7)	The radionuclide identifier
S200A	NUMBER(18,9)	The limit for an S200A package
S200B	NUMBER(18,9)	The limit for an S200B package

Table: E_REF_RIGID_LINER

Reference data for container rigid liners

FIELD	TYPE	DESCRIPTION
HOLE_SIZE*	NUMBER(10,3)	The minimum liner hole size in mm
RESISTANCE_FACTOR	NUMBER(10,2)	The resistance factor for the liner in m/s/mf
SURFACE_AREA	NUMBER(10,3)	The minimum surface area of the liner in sq cm
THICKNESS	NUMBER(10,2)	The maximum thickness of the liner in cm
RELEASE_RATE	NUMBER(12,8)	The hydrogen release rate for the liner in m/s/mf

Table: E_REF_SHIP_TIME_RESISTANCE

Reference data for release resistance based on container age

FIELD	TYPE	DESCRIPTION
TYPE_CODE*	VARCHAR2(3)	The WIPP container type code
SHIPPING_PERIOD*	NUMBER(10,2)	The age of the container in days
RESISTANCE_FACTOR	NUMBER(10,2)	The resistance factor for the container in m/s/mf
OPK_GROUP_ID*	NUMBER	The Overpack Group ID

Table: E_REF_SPECIAL_ASSEMBLY

Special case assembly configurations

FIELD	TYPE	DESCRIPTION
TYPE_CODE*	VARCHAR2(3)	The type code of the special case assembly
MIXED_TYPE_CODE*	VARCHAR2(3)	The type code of the assembly that can be mixed with the first column

Table: E_REF_SPECIAL_CASE_LIMIT

Special case limits for specific content codes

FIELD	TYPE	DESCRIPTION
TRUCON_CODE*	VARCHAR2(8)	The TRUCON code for which a special limit is identified
FGGR_LIMIT	NUMBER(12,11)	The Flammable Gas Generation Rate Limit per Drum in moles per second
DECAY_HEAT_LIMIT	NUMBER(12,8)	The Decay Heat Limit per Drum in watts
PSC_GROUP_CODE	VARCHAR2(8)	The Payload Group ID

Table: E_REF_TRAMPAC_VALUES

A list of constants used in the code

FIELD	TYPE	DESCRIPTION
FIELD_NAME*	VARCHAR2(25)	The name of the constant
DESCRIPTION	VARCHAR2(255)	The textual description of the constant
VALUE	NUMBER(18,10)	The value of the constant

Table: E_REF_TYPECODE_EXITCODE

FIELD	TYPE	DESCRIPTION
TYPE_CODE*	VARCHAR2(3)	The WIPP container type code
EXIT_CODE*	VARCHAR2(10)	The value of the exit code returned by the evaluation
EVALUATION*	VARCHAR2(10)	The type of evaluation that was performed

Table: E_REF_VALID_SAMPLE_AGE

Reference data for minimum valid sample age

FIELD	TYPE	DESCRIPTION
WASTE_TYPE*	NUMBER	A numeric value representing the waste type
MIN_OUTER_CNTR_DIFFUSIVITY*	NUMBER(10,8)	The minimum diffusivity of the outer container in m/s/mf
MIN_INNER_CNTR_DIFFUSIVITY*	NUMBER(10,8)	The minimum diffusivity of the inner container in m/s/mf
MIN_RIGID_LINER_HOLE_SIZE*	NUMBER(10,3)	The minimum rigid liner hole size in mm
PACKAGING_CONFIG_ID*	VARCHAR2(10)	A numeric value representing the waste packaging configuration
RIGID_LINER_PRESENT*	VARCHAR2(1)	A flag indicating if a rigid liner is present
SCENARIO*	NUMBER	The option number used for the calculation
MINIMUM_ AGE	NUMBER(10,2)	The minimum sample age in days

Table: E_REF_VOID_VOLUMES

Reference data for packaging volumes

FIELD	TYPE	DESCRIPTION
TYPE_CODE*	VARCHAR2(3)	The WIPP container type code
WASTE_TYPE*	NUMBER	A numeric value representing the waste type
INNERMOST_VOLUME	NUMBER(10,2)	The volume of the inner liner
RIGID_LINER_VOLUME	NUMBER(10,2)	The volume of the rigid liner
CNTR_HEADSPACE_VOLUME	NUMBER(10,2)	The volume of the container headspace

Table: E_REF_WASTE_MATERIAL_TYPE

Reference data on basic waste material types

FIELD	TYPE	DESCRIPTION
WASTE_MATERIAL_TYPE*	VARCHAR2(10)	The identifier for the waste material type
DESCRIPTION	VARCHAR2(128)	The description of the waste material type
G_NETGAS	NUMBER(10,2)	The net gas generation potential from all contributions
G_VALUE	NUMBER(10,2)	The gas generation potential of the waste material type
MATRIX_DEPLETED_G_VALUE	NUMBER(10,2)	The matrix depleted gas generation potential of the waste material type
MATERIAL_GROUP	NUMBER	A numeric value representing the waste material group

CHTES INPUT TABLES

View: E_CONTAINER

Basic data for each container being evaluated

FIELD	TYPE	DESCRIPTION
CNTR_NUM	VARCHAR2(16)	The site specific container identification number
SITE_ID	VARCHAR2(2)	The site code for the waste generating site
AQUEOUS_MATERIAL	VARCHAR2(1)	A flag indicating if liquids exist
ASPIRATION_METHOD	VARCHAR2(2)	The aspiration method used for the container
ASSEMBLY_ID	NUMBER(38)	The packaging assembly to which the container is assigned
CLOSURE_DATE	DATE	The date the container was sealed
COMPACTED	VARCHAR(1)	A flag if the container contains compacted waste
COMPLIANCE_DATE	DATE	The date the container was evaluated for compliance with TRAMPAC criteria
DECAY_HEAT	NUMBER(10,6)	The decay heat of the container in watts
DECAY_HEAT_UNCERT	NUMBER(10,6)	The decay heat error of the container in watts
FGE	NUMBER(5,2)	The fissile gram equivalent of the container in grams
FGE_UNCERT	NUMBER(5,2)	The fissile gram equivalent error of the container in grams
FILTER_DIFFUSIVITY	NUMBER(12,8)	The total diffusivity of all installed filters in m/s/mf
GAS_GENERATION_RATE	NUMBER(18,12)	The total gas generation rate in moles/sec
GAS_HYD_GENERATION_RATE	NUMBER(18,12)	The hydrogen gas generation rate in moles/sec
GROSS_WEIGHT	NUMBER(10,2)	The gross weight of the container
GROSS_WEIGHT_UNCERT	NUMBER(10,2)	The gross weight error for the container
LINER_EXISTS	VARCHAR2(1)	A flag indication if a liner exists
LINER_HOLE_SIZE	NUMBER(10,2)	The total liner hole size
NUM_OP_DUNNAGE	NUMBER	The number of dunnage containers in an overpack
PARENT_CNTR_NUM	VARCHAR2(16)	The parent container number for a container in an overpack
PAYLOAD_ID	VARCHAR2(10)	The identifier for the payload that includes the container
PROCESS_KNOWLEDGE	VARCHAR2(1)	A flag indicating if Process Knowledge exists for the container
SHIPPING_CATEGORY	VARCHAR2(10)	The Shipping Category assigned to the container
SIGNIFICANT_BE	VARCHAR2(1)	A flag indicating if the container contains greater than 1% special reflector material
TRUCON_CODE	VARCHAR2(8)	The TRUCON code assigned to the container
TYPE_CODE	VARCHAR2(3)	The WIPP container type code
VENT_DATE	DATE	The date the container was vented

FIELD	TYPE	DESCRIPTION
TOTAL_DOSE_RATE	NUMBER(10,3)	The total dose rate for the container
TRUNC_FGGR	VARCHAR2(1)	Flag (Y or N) indicating whether or not the FGGR test was truncated.
TRUNC_FGGR_PERIOD	NUMBER	The duration in days of the truncated FGGR test.

View: E_CONTAINER_SAMPLES

Detailed sample data for each container. One or more records will exist for each container.

FIELD	TYPE	DESCRIPTION
CNTR_NUM	VARCHAR2(16)	The site specific container identification number
SITE_ID	VARCHAR2(2)	The site code for the waste generating site
CAS_NUMBER	VARCHAR2(20)	The Chemical Abstracts Service Registry Number for the compound
CONCENTRATION_PPM	NUMBER(10,3)	The chemical concentration in ppm
LAYER_SAMPLED	NUMBER	The confinement layer that was sampled
SAMPLE_DATE	DATE	The date the sample was taken

View: E_CONTAINER_RADIONUCLIDES

Detailed radionuclide data for each container. One or more records will exist for each container.

FIELD	TYPE	DESCRIPTION
CNTR_NUM	VARCHAR2(16)	The site specific container identification number
SITE_ID	VARCHAR2(2)	The site code for the waste generating site
RADIONUCLIDE	VARCHAR2(7)	The radionuclide identifier
ACTIVITY	NUMBER(12,8)	The radionuclide activity
ACTIVITY_UNCERT	NUMBER(12,8)	The radionuclide activity error

View: E_PAYLOAD

Detailed information for each payload

FIELD	TYPE	DESCRIPTION
PAYLOAD_ID	VARCHAR2(16)	The site specific payload identification number
SITE_ID	VARCHAR2(2)	The site code for the waste generating site
DUNNAGE_CONTAINERS	NUMBER	The number of dunnage containers in the payload
TYPE_CODE	VARCHAR2(3)	The WIPP container type code for containers included in the payload
MATERIAL_WEIGHT	NUMBER(5,2)	The packaging material weight in kg. (Optional, if not provided the default from the E_REF_CONFIGURATION table will be used. A NULL value will indicate to use the default configuration value.)
CONTROLS_MET	VARCHAR2(1)	A flag indicating if the specified controls were met for compacted waste.

Table: E_EVALUATION_STATUS

Summary of evaluations that have been performed

FIELD	TYPE	DESCRIPTION
CNTR_NUM	VARCHAR2(16)	The site specific container identification number
SITE_ID	VARCHAR2(2)	The site code for the waste generating site
PAYLOAD_ID	VARCHAR2(10)	The site specific payload identification number
STATUS	VARCHAR2(4)	The status (PASS/FAIL) of the evaluation
EVALUATION	VARCHAR(10)	The type of evaluation that was performed
LAST_UPDATE_DATE	TIMESTAMP(3)	The date and time the record was last updated

Table: E_RESULT

Detailed results from an evaluation

FIELD	TYPE	DESCRIPTION
CNTR_NUM	VARCHAR2(16)	The site specific container identification number
SITE_ID	VARHCAR2(2)	The site code for the waste generating site
ALLOWABLE_FLAM_GAS_GEN_RATE	NUMBER(20,15)	The allowable flammable gas generation rate for the container
ALLOWABLE_FLAM_GAS_VOC_CONC	NUMBER(12,8)	The allowable volatile organic compound concentration for the container
COMPLIANCE_METHOD	VARCHAR(20)	The compliance method used for the evaluation
DECAY_HEAT_LIMIT	NUMBER(10,6)	The decay heat limit for the container
FLAM_GAS_GENERATION_RATE	NUMBER(20,15)	The flammable gas generation rate for

FIELD	TYPE	DESCRIPTION
		the analysis
FLAM_GAS_VOC_CONC	NUMBER(12,8)	The volatile organic compound concentration for the analysis
FLAMMABILITY_INDEX	NUMBER(6)	The flammability measurement of the container
GOVERNING_SHIPPING_PERIOD	NUMBER	The most restrictive shipping period for any of the inner containers
LAST_UPDATE_DATE	TIMESTAMP(3)	The date and time the record was last updated
MDP_SHIPPING_CATEGORY	VARCHAR2(10)	The matrix depleted shipping category
OVERPACK_DECAY_HEAT_LIMIT	NUMBER(12,8)	The decay heat limit for an overpack evaluation
OVERPACK_FGGR_LIMIT	NUMBER(12,8)	The flammable gas generation rate limit for an overpack evaluation
OVERPACK_SHIPPING_CATEGORY	VARCHAR2(10)	The shipping category assigned to the overpack container
PARENT_CNTR_NUM	VARCHAR2(16)	The parent container number for a container in an overpack
PAYLOAD_DECAY_HEAT	NUMBER(10,6)	The total decay heat for a payload evaluation
PAYLOAD_DECAY_HEAT_UNCERT	NUMBER(11,7)	The total decay heat error for a payload evaluation
PAYLOAD_FGE	NUMBER(5,2)	The total fissile gram equivalent for a payload evaluation
PAYLOAD_FGE_UNCERT	NUMBER(5,2)	The total fissile gram equivalent error for a payload evaluation
PAYLOAD_GROSS_WEIGHT	NUMBER(10,2)	The total gross weight for a payload evaluation
PAYLOAD_GROSS_WEIGHT_UNCERT	NUMBER(15,7)	The total gross weight error for a payload evaluation
PAYLOAD_ID	VARCHAR2(10)	The site specific payload identification number
TOTAL_GAS_RELEASE_RATE	NUMBER(20,15)	The release rate for all gasses

Table: E_RETURN_CODE

Exit codes returned as the result of evaluations

FIELD	TYPE	DESCRIPTION
CNTR_NUM	VARCHAR2(16)	The site specific container identification number
SITE_ID	VARHCAR2(2)	The site code for the waste generating site
PAYLOAD_ID	VARCHAR2(10)	The site specific payload identification number
EXIT_CODE	VARCHAR2(10)	The value of the exit code returned by the evaluation
LAST_UPDATE_DATE	TIMESTAMP(3)	The date and time the record was last updated

Table: E_ERROR_CODE

EXIT CODE	DESCRIPTION	PROBABLE SOURCE
CE_ACT_APP	Activity Evaluation did not complete due to an application error.	Software-level difficulties, most likely not associated with the input data.
CE_ACT_NRE	Container is missing needed radionuclide data.	Input data entry error.
CE_ACT_PEL	The sum of partial fractions for the nuclides in the container exceeds the limit.	Currently applicable only to S200 and S300 pipe overpacks. Contact WIPP Packing Engineer for further investigation and issue resolution.
CE_ACT_RNL	Container includes a nuclide that is not in the reference list of nuclides.	Nuclide is not included in the TRAMPAC table and may not have been included in regulatory compliance evaluations for safe transport of the waste as authorized under the applicable C of C. Contact WIPP Packaging Engineer to have nuclides added to the WWIS reference table.
CE_ASP_APP	Aspiration Evaluation did not complete due to an application error.	Software-level difficulties, most likely not associated with the input data.
CE_ASP_INC	Aspiration data is incomplete – missing aspiration method, dates, gas generation rates or gas sample dates.	Input data entry error.
CE_ASP_INV	Aspiration data is invalid – method 2A or 2B requires sample date = vent date.	Input data entry error.
CE_ASP_LKP	Aspiration time was not found in the lookup tables.	Input data entry error.
CE_ASP_MTH	Aspiration method is not a recognized method (1, 2A, 2B, 3, N or T).	Input data entry error.
CE_ASP_NEW	Newly generated container has different values for vent and closure dates.	Input data entry error.
CE_ASP_NSF	Elapsed time from venting to compliance date is insufficient to meet the aspiration requirement.	Input data entry error. Recheck reported filter model, vent date, closure date and filter install date.
CE_ASP_SMP	Method 3 aspiration sample date too early.	Input data entry error. If headspace gas sampling was conducted during aspiration, the sample date cannot precede the vent date.
CE_DDH_APP	Decay Heat evaluation did not complete due to an application error.	Software-level difficulties, most likely not associated with the input data.
CE_DDH_DEL	Container exceeds the maximum packaging design decay heat limit.	Input data entry error. Refer to TRAMPAC and TRUCON documents to obtain correct decay limits and perform comparison to reported decay heat value.

EXIT CODE	DESCRIPTION	PROBABLE SOURCE
CE_DDH_HP	"Container is eligible for consideration in a HalfPACT payload as a non-overpacked container."	This exit code is returned for all containers where the decay heat does not exceed 30W for Waste Types I, II, and III, and does not exceed 3.5W for Waste Type IV.
CE_DDH_NULL	Waste container decay heat or decay heat uncertainty is null.	Data entry input incomplete. Insert correct values for decay heat or decay heat uncertainty in the appropriate fields.
OP_DDH_TP	"Container is eligible for consideration in a TRUPACT-II payload in an approved configuration for the payload container type."	This exit code is returned for all container that do not exceed the packaging design decay heat limits of 40W (Waste Types I, II, and III) or 7W (Waste Type IV). Eighty-five-gallon drum overpacks are not eligible for shipment in a TRUPACT-II.
CE_FGE_APP	FGE evaluation did not complete due to an application error.	Software-level difficulties, most likely not associated with the input data.
CE_FGE_FEL	Container Pu-239 FGE plus two times the measurement error exceeds applicable FGE limit.	Input data entry error. Recheck reported FGE and FGE uncertainty values and compare with information from the NDA data package.
CE_FGE_MCC	Container configuration with machine-compacted waste is not authorized.	Input data entry error – Machine Compacted checkbox. Recheck authorized content code, uncheck checkbox, or contact WIPP Packaging Engineer for assistance.
CE_FGE_SWB	Container is eligible for evaluation as part of an SWB Overpack.	Input data entry error – TRUCON Code & Shipping Category. If a revision to the content code is required, contact WIPP Packaging Engineer for assistance.
CE_FGE_TDOP	Container is eligible for evaluation as part of a TDOP Overpack.	Input data entry error – TRUCON Code & Shipping Category. If a revision to the content code is required, contact WIPP Packaging Engineer for assistance.
CE_FIL_APP	"Filter evaluation did not complete due to an application error."	Software-level difficulties, most likely not associated with the input data.
CE_FIL_CON	Container filter total hydrogen diffusivity < minimum required filter diffusivity for the container type.	Input data entry error. Recheck reported filter model. If the filter installed on the waste container is correct but does not meet diffusivity requirements, direct operations to change the filter prior to shipment of the container.
CE_FIL_NULL	Waste container filter is null.	Incomplete data entry. Report filter model and install date as required.
CE_FIL_TRU	Container filter total hydrogen diffusivity < minimum required filter diffusivty for the TRUCON Code.	Input data entry error. Recheck reported filter model. If the filter installed on the waste container is correct but does not meet diffusivity requirements for the TRUCON Code, direct operations to change the filter prior to shipment of the container. If assistance is needed with reference TRUCON data, contact a WIPP Packaging Engineer.
CE_GVE_APP	"Flammable Gas Evaluation did not complete due to an application error."	Software-level difficulties, most likely not associated with the input data.

EXIT CODE	DESCRIPTION	PROBABLE SOURCE
CE_GVE_CH4	"Container exceeded the methane screening limit."	This exit code is returned for containers qualifying for the Measurement or Testing compliance methods, where the measured methane value exceeds 1250 ppm.
CE_GVE_COM	"Insufficient data for compliance evaluation."	This exit code is returned for containers where essential data has not been provided: methane measurement, decay heat, or decay heat error.
CE_GVE_DAC	Container does not meet the requirements to satisfy the DAC.	Probable input data entry error. Recheck aspiration method, vent date, closure date, sample date, filter model and filter install date. If all dates are correct, resample the container after the specified number of days has elapsed which would satisfy DAC requirements.
CE_GVE_FDP	Container full drum test period was truncated and is less than the specified shipping period.	Possible input data entry error. Recheck reported truncated test period to ensure number of days is correct. If correct, contact WIPP Packaging Engineer for assistance.
CE_GVE_FGC	"Container exceeded the allowable flammable gas/VOC concentration within the innermost confinement layer."	This exit code is returned for Test Category containers where the headspace flammable VOCs > 500pm, and where the total flammable gas/VOC concentration in the innermost confinement layer exceeded the allowable concentration. To view intermediate and end-result calculations, see the following table.field values for the container: In E_RESULT: FLAM_GAS_VOC_CONC – total flammable gas/VOC concentration in the innermost confinement layer (calculated using FAMP – prediction factors) ALLOWABLE_FLAM_GAS_VOC_CONC – allowable flammable gas/VOC concentration in the innermost confinement layer (aka MLEL) In E_WTES_CONTAINER_LOG: TOTAL_FLAM_VOCS: total flammable VOC concentration in the headspace. TFVC_INNERMOST_LAYER: total flammable VOC concentration in the innermost layer of confinement. TFGC_INNERMOST_LAYER: total flammable gas (hydrogen and methane) concentration in the innermost layer of confinement
CE_GVE_FDT	Container full drum test data (FGGR and/or TGRR) is ≤ 0.	Probable data input error. Recheck reported sample data for incomplete data or errors in reported sampling data.

EXIT CODE	DESCRIPTION	PROBABLE SOURCE
CE_GVE_FGR	"Container exceeded the allowable flammable gas generation rate."	This exit code is returned for Test Category containers where the headspace flammable VOCs ≤ 500pm, and where the measured or calculated FGGR exceeds the limit based on the shipping category. Both pertinent values are reported in the E_RESULT table: FLAM_GAS_GENERATION_RATE and ALLOWABLE_FLAM_GAS_GEN_RATE.
CE_GVE_FTE	"Container Failed Trucon evaluation."	The TRUCON and shipping category evaluation is a prerequisite evaluation for the flammable gas/VOC concentration evaluation. If the TRUCON and shipping category fails, then the flammable gas/VOC concentration evaluation is not performed and a fail status is returned.
CE_GVE_GRR	"Container exceeds the maximum allowed total gas release rate."	This exit code is associated with the Total Gas Release Rate sub-evaluation, and is returned for all Waste Type IV containers that fail their associated container-level TGRR limit. Failing the total gas release rate sub-evaluation results in a conditional status for the flammable gas/VOC concentration evaluation (if all other sub-evaluations pass) for all containers with the exception of direct-load TDOPs. Direct-load TDOPs containing waste type IV are not acceptable for shipment in this revision, and will therefore always receive a 'hard' fail for the flammable gas/VOC concentration evaluation.
CE_GVE_HP	"Container is eligible for consideration in a HalfPACT payload assembly."	This exit code is returned for containers that have failed the container-level flammable gas/VOC concentration evaluation, have passed the MixCat worst-case analysis (the software predicts if a payload containing the container and all dunnage is acceptable for shipment), and where the container can only be shipped in a HalfPACT. This exit code is only returned for tall 85-gallon drums at this time.
CE_GVE_HST	"Container has an invalid time history between closure, vent, and sample dates."	This exit code is returned for Measurement method containers (i.e., containers for which the AltMeth algorithm must be utilized to calculate the FGGR) if the closure, vent, and sample dates are not in the correct time-order sequence (i.e., a container will not pass if its vent date is recorded as being before its closure date).

EXIT CODE	DESCRIPTION	PROBABLE SOURCE
CE_GVE_ISL	"Invalid sample layer for the packaging configuration."	This exit code is returned from the AltMeth algorithm for measurement method containers where the sample layer at which the gas samples were taken does not make sense based on the container's packaging configuration laid out by the shipping category. For example, if the shipping category defines the container as having no layers of confinement (no bags of any kind and no rigid liner), and the gas sample was reportedly taken at layer 1, the software will fail the container and report this exit code.
CE_GVE_IVD	Vent date is null, cannot determine the validity of measured VOC data.	Probable data input error, incomplete data submittal. Recheck reported vent date.
CE_GVE_IVS	"DAC Option 3 (Specific Packaging Configurations) cannot apply due to insufficient elapsed time between venting and sampling for applications of concentration multipliers."	For containers with metal cans or pipe components (DAC Option 3), the time span between the container vent date and the VOC sample date must meet or exceed 75 days. This exit code is returned when the time span is not sufficient.
CE_GVE_LKP	"There is a problem in the lookup tables for age criteria under flammable gas/VOC evaluation."	If the input values to the DAC evaluation are out of range for the TRAMPAC DAC tables (see Tables 5.2-5, 5.2-6, 5.2-7, 5.2-8 in the CH-TRAMPAC, and Tables 3.9-8 through 3.9-11 in the CH-TRU Payload Appendices), the software returns this exit code. DAC Option 2, Scenario 2: Check the liner hole size and filter diffusivity values. Recall also that this scenario applies exclusively to 55-gallon drums. DAC Option 2, Scenario 3: Check the liner hole size and filter diffusivity.
CE_GVE_MCT	"Container is eligible for consideration as a part of a mixed category payload."	When a container fails the flammable gas/VOC concentration due to its exceeding the flammable gas generation rate limit or flammable gas/VOC concentration limit (CE_GVE_FGR or CE_GVE_FGC), the software analyzes whether the container would be shippable at the payload level as part of a TRUPACT containing the maximum amount of dunnage containers. The software performs this analysis using the MixedCategory algorithm. If the payload designed as described passes the MixedCategory analysis, then the container receives a 'COND' flammable gas/VOC concentration evaluation status and the GE_GVE_MCT exit code.

EXIT CODE	DESCRIPTION	PROBABLE SOURCE
CE_GVE_NVG	"Container flammable gas data missing or invalid."	This exit code is returned from the AltMeth algorithm (applicable to Measurement compliance method containers). If container data or necessary reference data is NULL, this exit code is returned (see the gas sample dates, and verify that no one has altered reference table date).
CE_GVE_PKG	"Container is not bound by a currently defined packaging configuration."	This exit code is returned when the container has been assigned a TRUCON Code/Shipping Category combination that does not meet the requirements for common packaging configurations or metal can/pipe component configurations. Check the E_REF_TRUCON table to ensure that the TRUCON Code/Shipping Category record has been populated correctly.
CE_GVE_PKI	Process knowledge flag invalid-VOCs exceed 500 ppm.	Probable data input error. Recheck reported values for VOCs and correct any errors found. If there are no errors in the reported values for VOCs, uncheck the process knowledge checkbox.
CE_GVE_SHP	"Container is missing its shipping category."	Since the TRUCON and Shipping Category evaluation is a prerequisite to this evaluation, it is unlikely that this exit code will be displayed for a container. It has been included for completeness.
CE_GVE_TP	"Container is eligible for consideration in a TRUPACT-II payload assembly."	This exit code is associated with the Total Gas Release Rate sub-evaluation, and is returned for all Waste Type IV containers (with the exception of direct-load TDOPs) that fail their associated container-level TGRR limit. If the failed container is placed in a payload with low-gas generating containers, then the container may be eligible for shipment when the total gas release rate is analyzed at the payload level
CE_GVE_UNK	"Container does not have process knowledge and does not have valid VOC measurement data."	This exit code is returned for containers where essential data has not been provided: process knowledge flag or flammable VOC measurements (analyte data).
CE_GVE_WOR	"Container fails the worst-case MixCat evaluation."	When a container fails the flammable gas/VOC concentration due to its exceeding the flammable gas generation rate limit or flammable gas/VOC concentration limit (CE_GVE_FGR or CE_GVE_FGC), the software analyzes whether the container would be shippable at the payload level as part of a TRUPACT containing the maximum amount of dunnage containers. The software performs this analysis using the MixedCategory algorithm. If the payload designed as described fails the MixedCategory analysis, then the container receives a 'FAIL' flammable gas/VOC concentration evaluation status and the GE_GVE_WOR exit code.

EXIT CODE	DESCRIPTION	PROBABLE SOURCE
CE_RDR_85T	Container is eligible for consideration in an 85-gallon drum overpack.	Container is eligible for intersite shipment only. Eighty-five-gallon drum overpacks are not permitted to be shipped to WIPP.
CE_RDR_APP	"Radiation Dose Rate evaluation did not complete due to an application error."	Software-level difficulties, most likely not associated with the input data.
CE_RDR_NRD	Radiation Dose Rate data were null.	Incomplete data input. Recheck radiation dose rate data for the container and input the correct values into the beta/gamma and neutron dose rate data fields.
CE_RDR_REL	Container radiation dose rate exceeds limit.	Probable data input error. Recheck radiation dose rate data for the container and input the correct values into the beta/gamma and neutron dose rate data fields. If data is correct and exceeds the limit, the container is not shippable.
CE_RDR_SWB	Container is eligible for consideration in a SWB Overpack.	Recheck radiation dose rate data for the container and input the correct values into the beta/gamma and neutron dose rate data fields. If radiation dose rate data is correct and exceeds the limit, the container may be included in an SWB payload. The SWB may be shipped to WIPP only if inclusion of the noncompliant inner container will not result in WAC dose rate limits being exceeded.
CE_RDR_TDOP	Container is eligible for consideration in a TDOP Overpack.	Recheck radiation dose rate data for the container and input the correct values into the beta/gamma and neutron dose rate data fields. If radiation dose rate data is correct and exceeds the limit, the container may be included in a TDOP payload. The TDOP may be shipped to WIPP only if inclusion of the non-compliant inner container will not result in exceedance of WIPP- WAC dose rate limits.
CE_TGRR_85T	Container is eligible for consideration in an 85-gallon drum overpack to meet the TGRR limit.	Container is eligible for intersite shipment only. Eighty-five-gallon drum overpacks are not permitted to be shipped to WIPP.
CE_TGRR_HP	Container is eligible for consideration in a HalfPACT payload to meet the TGRR limit.	Probable data entry error. Enter the correct TRUCON Code and Shipping category that is applicable to the waste container if shipped in a HalfPACT payload.
CE_TGRR_SWB	Container is eligible for consideration in a SWB Overpack payload to meet the TGRR limit.	Probable data entry error. Enter the correct TRUCON Code and Shipping category that is applicable to the waste container if shipped in a SWB Overpack payload.
CE_TGRR_TDOP	Container is eligible for consideration in a TDOP Overpack payload to meet the TGRR limit.	Probable data entry error. Enter the correct TRUCON Code and Shipping category that is applicable to the waste container if shipped in a TDOP Overpack payload.

EXIT CODE	DESCRIPTION	PROBABLE SOURCE
CE_TGRR_TP	Container is eligible for consideration in a TRUPACT payload to meet the TGRR limit.	Probable data entry error. Enter the correct TRUCON Code and Shipping category that is applicable to the waste container if shipped in a TRUPACT payload.
CE_TRU_APP	"TRUCON Evaluation did not complete due to an application error."	Software-level difficulties, most likely not associated with the input data.
CE_TRU_CLT	Container rigid liner hole size < TRUCON/Shipping category liner hole size.	Probable data entry error. Enter the liner hole size that is authorized under the approved TRUCON Code/Shipping category. If there is no data entry error and the entered hole size is correct, contact a WIPP Packaging Engineer to see if it is feasible to update the TRUCON Code tables to accommodate the desired hole size.
CE_TRU_FCD	TRUCON evaluation failed due to container can filter diffusivity.	Probable data entry error. If the payload container contains a pipe component, the TRUCON evaluation will perform an evaluation to ensure that the diffusivity of the filter is the same as the diffusivity value associated with the TRUCON Code/Shipping category. If a case can be made to show that the diffusivity of the entered filter is adequate for safe shipment, contact the WIPP Packaging Engineer to see if it might be feasible to update the TRUCON Code tables to accommodate the diffusivity value associated with the filter as installed.
CE_TRU_FTF	TRUCON hydrogen filter diffusivity < minimum total hydrogen filter diffusivity for the container type.	Probable data entry error. Verify that the diffusivity associated with the installed filter is incorrect. Correct the filter model if necessary. If the filter data is correct, either direct operations to install a compliant filter or contact a WIPP Packaging Engineer to see if it might be feasible to update the TRUCON reference table in order to accommodate a new diffusivity value for the installed filter.
CE_TRU_IBE	Incorrect use of significant beryllium (greater than 1%) flag; this does not match the expected value specified by the TRUCON Code.	Probable data input error. If there is no specified or expected beryllium value associated with the TRUCON Code, re-characterize the waste to verify whether there is beryllium present in the waste of not. If there is no beryllium present in the waste, uncheck the beryllium (greater than 1%) flag. If beryllium is re-verified to present in the waste. Contact a WIPP Packaging Engineer to negotiate the feasibility of updating the TRUCON Code/Shipping Category to correctly recognize the presence of the beryllium.

EXIT CODE	DESCRIPTION	PROBABLE SOURCE
CE_TRU_IMD	Matrix depleted shipping category is not valid due to either an invalid time history or the watt-year criteria is not satisfied.	Probable data input error. If there is no acceptable option other than input of the matrix depleted shipping category, review the container closure date, vent date, filter install date and sample date to see if errors can be identified. Correct any identified date errors. If no errors can be identified, insert a non-matrix depleted shipping category and notify operations that they will be required to ship the container using the non-matrix depleted shipping category.
CE_TRU_ITE	TRUCON Code is not valid for the specified SITE_ID.	Probable data input error. Enter the correct SITE_ID or contact the WIPP Packaging Engineer to negotiate the feasibility of updating the TRUCON Code/Shipping Category reference data to recognize the desired SITE_ID.
CE_TRU_NCT	Null Container or TRUCON rigid liner hole size.	Data entry error. Enter the liner hole size that is authorized under the approved TRUCON Code/Shipping category.
CE_TRU_NPC	No packaging configurations were found for the TRUCON code and shipping category combinations.	Data entry error. Enter the correct TRUCON Code and shipping category that matches the packaging configuration associated with the waste to be offered for transport in a Type B package.
CE_TRU_RTM	Container specifies rigid liner but no rigid liner is specified in the associated TRUCON record.	Possible data entry error. Re-verify whether a rigid liner is present or not. If a rigid liner is not present in the drum, uncheck the rigid liner checkbox. If a rigid liner is actually present in the drum, contact the WIPP Packaging Engineer to negotiate the feasibility of updating the TRUCON Code/Shipping Category reference data to recognize the presence of a rigid liner.
CE_WGT_APP	"Weight Evaluation did not complete due to an application error."	Software-level difficulties, most likely not associated with the input data.
CE_WGT_SWB	Container is eligible for evaluation as part of a SWB Overpack.	Data Entry Error. Recheck the reported container type. Change the container type to an overpack container type.
CE_WGT_TDOP	Container is eligible for evaluation as part of a TDOP Overpack.	Data Entry Error. Recheck the reported container type. Change the container type to an overpack container type.
CE_WGT_WEL	Container gross weight + gross weight error > gross weight limit.	Any container exceeding the gross weight limit cannot be offered for shipment in a Type B shipping package. Review reported weights of waste materials and packaging materials for data entry errors. Correct any identified data entry errors.
CE_WGT_WNE	Container gross weight or gross weight error is null of less than 0.	Data Entry Error. Review reported weights of waste materials and packaging materials for data entry errors. Review report gross weight error. If fields are blank, correct any identified data entry errors by populating the data fields with the correct value.

EXIT CODE	DESCRIPTION	PROBABLE SOURCE
CE_ALL_APP	"Overall Evaluation did not complete due to an application error."	Software-level difficulties, most likely not associated with the input data.
OP_ALL_APP	"Overpack overall evaluation did not complete due to an application error."	Software-level difficulties, most likely not associated with the input data.
OP_CFG_APP	"Overpack configuration evaluation did not complete due to an application error."	Software-level difficulties, most likely not associated with the input data.
OP_CFG_CCM	One or more inner containers have been assigned an incorrect shipping category for the overpack configuration.	Error associated with selection of inner containers that were inserted into a SWB Overpack or TDOP. Perform a check to ensure that all containers belong to the same shipping category and/or attempt to identify any inner containers that may have been assigned a shipping category that is not approved for shipment in a SWB Overpack or TDOP.
OP_CFG_ICF	Inner configuration failure. One of more containers does not have a valid configuration TRUCON Code and Shipping Category.	Error associated with reporting of TRUCON Code and Shipping Category combination associated with inner containers that were inserted into a SWB Overpack or TDOP. Perform a check to ensure that all TRUCON Codes and Shipping Categories reported for inner containers are correct and approved for shipment in a SWB Overpack or TDOP.
OP_CFG_IOC	"Invalid overpack configuration. Configuration does not exist, or inner container overpack group IDs do not match or overpack has invalid number of containers."	The following overpack configurations are currently processed by the WTES: • • 85-gallon drum Overpack – one 55-gallon drum • SWB Overpack – four 55-gallon drums • TDOP Overpack – ten 55-gallon drums, six 85-gallon drums, one direct-load SWB
OP_CFG_ITC	There is an invalid TRUCON combination in the overpack.	Data entry error/selection of inner containers. Remove non-compliant inner containers from the overpack, make corrections to the reported TRUCON Codes if a data entry error can be identified or replace noncompliant containers with compliant containers.
OP_CFG_NIC	"The overpack contains no inner containers."	This exit code is returned when invalid or incomplete data is submitted to the system. Check the input view, E_CONTAINER.

EXIT CODE	DESCRIPTION	PROBABLE SOURCE
OP_CFG_NMX	Overpack has inner containers with mixed special case shipping categories – This configuration is not currently allowed.	Error associated with selection of inner containers that were inserted into a SWB Overpack or TDOP. Containers that have been assigned special case shipping categories (e.g., Quick-to-WIPP) can only be shipped as a Type 1 container in a 7-pack assembly. Perform a check to ensure that all containers belong to a shipping category that is approved for shipment in an overpack. Identify any inner containers that may have been assigned a shipping category that is not approved for shipment in a SWB Overpack or TDOP. If feasible, revise the reported TRUCON Code and Shipping Category to allow shipment in an overpack.
OP_SHP_APP	"Overpack shipping period evaluation did not complete due to an application error."	Software-level difficulties, most likely not associated with the input data.
OP_SHP_CN	"One or more of the containers in the overpack has a null shipping period."	This exit code is returned if the shipping period field associated with one or more of the inner container TRUCON Code/shipping category records in the E_REF_TRUCON table is NULL. Check this table for accuracy.
OP_SHP_DATA	"Complete data set could not be retrieved to complete overpack shipping period evaluation."	The TRUCON Code/Shipping Category combination for the container is not an approved combination, and/or is not in the E_REF_TRUCON reference table. Another possibility is that the function was called with the incorrect Site ID for the container.
OP_SHP_OCF	"Overpack Configuration Failed."	The configuration evaluation is the prerequisite evaluation for all of the other overpack evaluations. If the configuration is invalid, no other evaluations are performed.
OP_SHP_SN	"A valid shipping period could not be set for the overpack."	This exit code is returned in rare instances where the governing shipping period cannot be determined for a reason other than those listed above. The governing shipping period for an overpack is assigned based on the minimum shipping period associated with the inner container TRUCON Code/shipping category records.
OP_WGT_APP	"Overpack Weight Data for inner containers is incomplete."	Software-level difficulties, most likely not associated with the input data.
OP_WGT_DATA	"Complete data set could not be retrieved to complete overpack weight evaluation."	The TRUCON Code/Shipping Category combination for the container is not an approved combination, and/or is not in the E_REF_TRUCON reference table. Another possibility is that the function was called with the incorrect Site ID for the container.
OP_WGT_IDI	"Overpack Weight Data for inner containers is incomplete."	Verify that the overpack inner container data set is complete in terms of the weight data in the E_CONTAINER input view.

EXIT CODE	DESCRIPTION	PROBABLE SOURCE
OP_WGT_NIC	"Description: Overpack has no inner containers."	Verify that the overpack and its inner containers are populated properly in the E_CONTAINER input view.
OP_WGT_ODI	"Weight Data for the overpack container is incomplete."	Verify that the overpack container tare weights are present and accurate in the E_REF_CONTAINER reference table.
OP_WGT_WEL	"Overpack weight exceeds overpack weight limit."	This exit code is returned when the overpack exceeds the designated weight limits: 85-gallon drum overpacks: 1,000 lb SWB overpacks: 4,000 lb TDOP overpacks: 6,700 lb Note: The CH-TRAMPAC lists weight limits in pounds; however, the WTES expects input values to be in kgs.
OP_FIL_APP	"Overpack filter evaluation did not complete due to an application error."	Software-level difficulties, most likely not associated with the input data.
OP_FIL_DATA	"Complete data set could not be retrieved to complete overpack filter evaluation."	The TRUCON Code/Shipping Category combination for the container is not an approved combination, and/or is not in the E_REF_TRUCON reference table. Another possibility is that the function was called with the incorrect Site ID for the container.
OP_FIL_FFL	"Overpack failed the filter limit."	The WTES enforces the following minimum filtration standards for overpacks: 85-gallon drum overpacks: 3.7E-6 mol/s/mf SWB overpacks: 7.4E-6 mol/s/mf TDOP overpacks: 3.33E-5 mol/s/mf
OP_FGE_APP	"Overpack fge evaluation did not complete due to an application error."	Software-level difficulties, most likely not associated with the input data.
OP_FGE_FEL	"Overpack fge exceeds fge limit."	The WTES enforces the following FGE limits: 1. All overpack types with >1% by weight Be or BeO: 100g 2. Eighty-five-gallon drum overpacks with <=1% by weight Be or BeO: 200g 3. SWB or TDOP overpacks with machine compacted waste: 250g 4. SWB or TDOP overpacks with non-machine compacted waste: 325g 5. All overpack types with >1% by weight Be or BeO *and* machine compacted waste: shipments prohibited
OP_RDR_APP	"Overpack radiation dose rate evaluation did not complete due to an application error."	Software-level difficulties, most likely not associated with the input data.

EXIT CODE	DESCRIPTION	PROBABLE SOURCE
OP_RDR_REL	"Overpack external surface radiation dose rate exceeds the radiation dose rate limit."	This exit code is returned if the overpack exceeds the radiation dose rate limit of 200 mrem/hr. The beta/gamma dose rate and neutron dose rate measurements (for the external overpack container) are summed to perform the comparison.
OP_DDH_APP	"Overpack Decay Heat Evaluation did not complete due to an application error."	Software-level difficulties, most likely not associated with the input data.
OP_DDH_DEL	"Overpack exceeds the decay heat limit."	For Waste Types I, II, and III, the packaging design decay heat limit per container is 40W. For Waste Type IV, the packaging design decay heat limit per container is 7W.
OP_DDH_TP	"Overpack is eligible for shipment in a TRUPACT-II."	This exit code is returned for all SWB and TDOP overpacks that do not exceed the packaging design decay heat limits of 40W (Waste Types I, II, and III) or 7W (Waste Type IV). Eighty-five-gallon drum overpacks are not eligible for shipment in a TRUPACT.
OP_GVE_APP	"Overpack flammable gas evaluation did not complete due to an application error."	Software-level difficulties, most likely not associated with the input data.
OP_GVE_HP	"Overpack is eligible for shipment in a HalfPACT."	This exit code is returned for 85-gallon drum overpacks that pass the flammable gas/VOC concentration evaluation. To perform a flammable gas/VOC evaluation for an 85-gallon drum overpack, the software validates that a HalfPACT shipment containing the overpack and 3 dunnage containers is acceptable using the MixCat algorithm and analysis (i.e., the flammability index of the inner container is between 0 and 50,000).
OP_GVE_INR	"Overpack inner containers AFGC cannot be determined."	This exit code is returned when there is a problem calculating the AFGC of the inner containers. It is unlikely that this error will occur if the inner containers have each passed the container-level evaluations.
OP_GVE_MIX	"Overpack has mixed category containers - shipping category, decay heat limit, and FGGR limit are not applicable."	This exit code is returned for SWB and TDOP overpacks that contain inner containers with differing shipping categories.

EXIT CODE	DESCRIPTION	PROBABLE SOURCE
OP_GVE_NPC	"Overpack fails flammable gas/VOC evaluation for all possible payload configurations."	This exit code is returned when the overpack fails the flammable gas evaluation (i.e., one or more of the inner containers has a flammability index that is out of the 0 to 50,000 range). The MixCat algorithm is used for all overpack types to calculate an adjusted allowable FGGR based on the overpack/package configuration, and the flammability index is calculated for each inner container by dividing the inner container FGGR by the adjusted allowable FGGR and multiplying the outcome by 50,000.

Inner container results can be viewed in the E_RESULT table (for flammability indices) and in the E_WTES_CONTAINER_LOG table (for MixCat intermediate values). Other MixCat intermediate values can be viewed in the E_WTES_OVERPACK_LOG table. |
OP_GVE_SHP	"One or more inner containers missing shipping category."	This exit code is returned when there is data missing for the inner containers. It is unlikely that this error will occur if the inner containers have each passed the container-level evaluations.
OP_GVE_TP	"Overpack is eligible for shipment in a TRUPACT-II."	This exit code is returned for SWB and TDOP overpacks that pass the flammable gas/VOC concentration evaluation. The overpack flammable gas/VOC evaluation for these overpack types is performed with the TRUPACT-II package considerations (void volume, maximum dunnage, etc.).
OP_SHIP_APP	"Overpack shipping period evaluation did not complete due to an application error."	Software-level difficulties, most likely not associated with the input data.
OP_WGT_APP	"Overpack shipping period evaluation did not complete due to an application error."	Software-level difficulties, most likely not associated with the input data.
OP_WGT_IDI	Overpack Weight Data for inner containers is incomplete	Data input error. Recheck reported weight values for the overpack and inner containers.
OP_WGT_WEL	Overpack Weight exceeds overpack weight limit.	Data input error or inner container selection error. Recheck reported weight values for the overpack and inner containers. Identify heaviest container and substitute with a lighter container.
PA_CFG_5SM	At least one 55-gallon drum in the payload does not have a 55-gallon drum shipping category,	Data input error or inner container selection error. Recheck reported shipping categories for the inner containers. Identify noncompliant container, correct the shipping category or remove the container from the overpack and substitute with a compliant container.
PA_CFG_APP	"Payload configuration evaluation did not complete due to an application error."	Software-level difficulties, most likely not associated with the input data.

EXIT CODE	DESCRIPTION	PROBABLE SOURCE
PA_CFG_ASB	"Invalid payload assembly type configuration."	This exit code is returned when container types are mixed within an assembly. The only container types that can be mixed within an assembly are S200A and S200B pipe overpacks.
PA_CFG_ICF	Inner configuration failure. One or more inner containers does not have a valid configuration (TRUCON Code and Shipping Category).	Data input error or inner container selection error. Recheck reported TRUCON Codes and shipping categories for the inner containers. Identify noncompliant container, correct the TRUCON Code/Shipping category or remove the container from the overpack and substitute with a compliant container.
PA_CFG_IPC	"This configuration is not in the list of authorized payload configurations."	The following configurations are currently processed by the WTES: TRUPACT-II: Fourteen 55-gallon drums or pipe overpacks Eight short 85-gallon drums Six 100-gallon drums Two SWBs One TDOP HalfPACT: Seven 55-gallon drums or pipe overpacks Four short or tall 85-gallon drums Three 100-gallon drums One SWB Seven-packs of 6-inch standard pipe overpacks may be mixed with seven-packs of 55-gallon drums or 12-inch standard pipe overpacks. S200A and S200B pipe overpacks may be mixed within an assembly and/or within a payload.
PA_CFG_ITC	"There is an invalid trucon combination in the payload."	In general TRUCON Codes from within a single site may be freely mixed within a payload. However, for special content codes, such as LA154, special rules may apply: LA154A and LA154B containers may be mixed within a payload. LA154C and LA154D containers may not be mixed with other TRUCON Codes.
PA_CFG_NIC	"Payload has no inner containers."	This exit code is returned when there is an error in the input data – see the E_CONTAINER and E_PAYLOAD input views.
PA_SHP_APP	"Payload shipping period evaluation did not complete due to an application error."	Software-level difficulties, most likely not associated with the input data.
PA_WGT_APP	"Payload weight evaluation did not complete due to an application error."	Software-level difficulties, most likely not associated with the input data.

EXIT CODE	DESCRIPTION	PROBABLE SOURCE
PA_WGT_IWD	"Payload weight could not be determined due to insufficient data for the containers in the payload."	This exit code is returned for payloads where there is missing weight data for the containers in the payload. Verify the data for the containers in the payload by checking the E_CONTAINER input view.
PA_WGT_WEL	"Payload exceeds weight limit."	This exit code is returned for TRUPACT-II payload assemblies that exceed 7265 lb, and for HalfPACT payload assemblies that exceed 7600 lb. The WTES calculates the payload weight by summing the gross weight of each container in the payload, the sum of the dunnage tare weights, the payload securing materials, and the RSS of the container and dunnage container gross weight uncertainty values. The total payload gross weight and gross weight uncertainty may be viewed in the E_RESULT table (see Section 5.4).
PA_FGE_APP	"Payload FGE evaluation did not complete due to an application error."	Software-level difficulties, most likely not associated with the input data.
PA_FGE_FEL	"Payload total fge exceeds its associated limit."	This exit code is returned when the payload exceed its payload FGE limit. The payload FGE limit depends upon the beryllium content, compacted waste content, Pu-240 content, and payload configuration type. The applicable FGE limit value for the payload is returned to the E_RESULT table in the FGE Limit field. The total payload FGE and FGE uncertainty values are also returned to the E_RESULT table.
PA_FGE_IPC	"Payload configuration is invalid and inner container data could not be retrieved."	This exit code is not currently used by the system.
PA_FGE_PBC	"Payload contains significant amount of Be and compacted waste."	Payloads that contain both compacted waste and >1% by weight Be or BeO are unacceptable for shipment.
PA_FGE_PCC	"Payload contains compacted waste."	This exit code is returned for pipe overpack payloads that contain machine compacted waste. This type of payload is unacceptable for shipment.
PA_ACT_AEL	"Total payload activity exceeds limit."	The WTES only checks the total activity of payloads comprised of S100 or S300 pipe overpacks. This exit code is returned for S100 or S300 pipe overpack payloads that exceed the 406 Ci activity limit.
PA_ACT_APP	"Payload activity evaluation did not complete due to an application error."	Software-level difficulties, most likely not associated with the input data.
PA_ACT_NIC	"No inner containers in payload."	This exit code is not currently used by the system.

EXIT CODE	DESCRIPTION	PROBABLE SOURCE
PA_DH_APP	"Payload decay heat evaluation did not complete due to an application error."	Software-level difficulties, most likely not associated with the input data.
PA_DH_DEL	"Payload failed the packaging decay heat limit."	This exit code is returned for a payload that exceeds the applicable packaging design decay heat limit: TRUPACT-II: 40W for Waste Types I, II, III 7W for payloads where one or more containers is a Waste Type IV container HalfPACT: 30W for Waste Types I, II, III 7W for 55-gallon drum/pipe overpack payloads, with one or more Waste Type IV containers 3.5 for 85-gallon drum, 100-gallon drum, or SWB payload configurations, with one or more Waste Type IV containers
PA_DH_IPC	"Payload failed the packaging decay heat limit because the configuration does not allow valid data to be retrieved."	This exit code is not currently used by the system.
PA_TGR_APP	"Payload total gas release rate evaluation did not complete due to an application error."	Software-level difficulties, most likely not associated with the input data.
PA_TGR_GEL	"Payload total gas release rate fails to satisfy the total gas release rate limit."	The total gas release rate evaluation is only performed for payloads that contain one or more Waste Type IV containers. The payload total gas release rate limit is calculated as 2.26E-8 x void volume. This exit code is returned when the sum of the total gas release rates of the containers in the payload exceeds the calculated limit.
PA_GVE_APP	"Payload flammable gas evaluation did not complete due to an application error."	Software-level difficulties, most likely not associated with the input data.
PA_GVE_FIO	"Flammability Index out of specified range."	This exit code is returned when one or more of the containers in the payload has a calculated flammability index that is out of the range 0 to 50,000. All payloads are evaluated using the MixCat algorithm. The MixCat algorithm calculates an adjusted allowable FGGR for each container, and the flammability index is calculated by dividing the container FGGR by the adjusted allowable FGGR and multiplying the result by 50,000.

EXIT CODE	DESCRIPTION	PROBABLE SOURCE
PA_GVE_INR	"Payload inner containers AFGC cannot be determined."	This exit code is returned when there is a problem calculating the AFGC of the containers in the payload. It is unlikely that this error will occur if the containers have each passed the container-level evaluations.
PA_GVE_SHP	"One or more inner containers missing shipping category."	This exit code is returned when there is a problem identifying the shipping category for each of the containers in the payload. It is unlikely that this error will occur if the containers have each passed the container-level evaluations.
PA_ALL_APP	"Payload overall evaluation did not complete due to an application error."	Software-level difficulties, most likely not associated with the input data.
PA_SHIP_APP	"Payload shipping period evaluation did not complete due to an application error."	Software-level difficulties, most likely not associated with the input data.
SH_ALL_APP	"Shipment evaluation did not complete due to an application error."	Software-level difficulties, most likely not associated with the input data.
SH_RDR_NRD	Packaging Radiation Dose Rate data were null.	Data Input Omission. Enter dose rate data into the appropriate blocks on the Shipment form.
SH_RDR_R2L	One or more packaging 2m radiation dose rates exceed the limit.	Data Input Error. Identify noncompliant package and correct 2 m dose rate data error on the Shipment form. If the data is correct, remove payload from the package and replace it with a compliant payload that meets WIPP-WAC dose rate limit.
SH_RDR_R2L	One or more packaging surface radiation dose rates exceed the limit.	Data Input Error. Identify noncompliant package and correct surface dose rate data error on the Shipment form. If the data is correct, remove payload from the package and replace it with a compliant payload that meets WIPP-WAC dose rate limit.
SH_WGT_SWN	A shipment weight or weight limit was null.	Data Input Omission. Enter shipment weight data into the appropriate blocks on the Shipment form. If a package weight limit or shipment weight limit is exceeded, remove the heaviest payload and substitute with a lighter payload that will comply with established weight restrictions.
SH_WGT_TEL	The shipment total exceeds the weight limit.	Data Input Error. If the shipment weight limit is exceeded, remove the heaviest payload and substitute with a lighter payload that will comply with established weight restrictions or contact WIPP Transportation Operations to switch to a lighter tractor to transport the shipment.
SH_WGT_WEL	One or more packages exceed the weight limit.	Data Input Error. If a package weight limit is exceeded, remove the heaviest payload and substitute with a lighter payload that will comply with established weight restrictions.

EXIT CODE	DESCRIPTION	PROBABLE SOURCE
SH_WGT_SWN	A package weight or weight limit was null.	Data Input Omission. Enter package weight data into the appropriate blocks on the Shipment form.

E.11   RH-TRU 72-B Exit Codes and RH-TRU 10-160B Evaluation Exit Codes

The following exit codes or error messages may appear in the Container Errors Report when a container record for an RH waste container does not successfully transmit. This section includes the displayed text for each error message, along with a description of the error and actions that can be implemented by the shipper/generator user to resolve the error.

E.11.1   RH-TRU 72-B Evaluation Exit Codes

72-B Canister General Exit Codes

Exit Code:CANISTER_72B_ERR_OBJ
Displayed Text: An object creation error occurred while creating the Canister 72-B object.
Description: This error is returned when the canister record has missing or incorrect information.
Resolution: **(a)** Confirm that the canister record has valid entries for canister ID, site and content code; and **(b**) confirm that the site reference in the canister record matches the site reference in the associated content code.

72-B Canister All Evaluations

Exit Code:CANISTER_72B_ALL_APP
Displayed Text: An application error occurred while performing all evaluation functions.
Description: This exit code is returned when a problem occurs that does not yet have an associated exit code.
Resolution: **(a)** Confirm that the data is correct; and **(b)** try to perform individual evaluations instead of the "All" evaluation to narrow down the problem.

Exit Code:CANISTER_72B_ALL_PCF
Displayed Text: The prerequisite evaluation failed prior to the 72-B ALL evaluations.
Description: The overall evaluation calls the content code evaluation as a prerequisite evaluation. This canister record has failed the content code evaluation.
Resolution: Perform the content code evaluation on this canister, correct any issues brought to light by the returned exit codes, and then resubmit the canister record again.

72-B Canister Content Code Evaluation

Exit Code: CANISTER_72B_CNT_APP
Displayed Text: An application error occurred while performing the canister content code evaluation.

Description: This exit code is returned when a problem occurs that does not yet have an associated exit code.
Resolution: Confirm that the data is correct.

Exit Code:CANISTER_72B_CNT_CDM
Displayed Text: The canister content code must equal the content code shared by the secondary waste containers.
Description: The content code associated with the canister record does not match the content code associated with the associated waste container records.
Resolution: Change the content code value for the canister to the content code associated with the waste containers.

Exit Code:CANISTER_72B_CNT_CTC
Displayed Text: The container content codes are not in the list of approved content codes associated with the canister site.
Description: The content code listed in the canister record is available and approved, but it is not associated with the same shipper/generator site as the canister record.
Resolution: **(a)** Confirm that the site associated with the canister is correct; **(b)** change the content code to one associated with the site in the canister record (if available); and **(c)** if an update to the approved content code is required, contact the Packaging Engineer.

Exit Code:CANISTER_72B_CNT_CTN
Displayed Text: The canister type is NULL.
Description: The canister type field in the canister record does not have an entered value.
Resolution: Enter a valid canister type in the appropriate field.

Exit Code:CANISTER_72B_CNT_DUN
Displayed Text: The number of dunnage containers within the canister does not match the number of dunnage containers specified by the content code.
Description: The program assumes dunnage when there are fewer then three waste containers in a 72-B canister. The number of expected dunnage drums is associated with the content code record. If the number of waste containers in the container is more or less then the content code record expects, the number of assumed dunnage containers will not match the content code and this exit code will be generated. Example:
Assume that a content code specifies that a 72-B canister must have 1 dunnage.
Assume that a user enters a canister associated with this content code and includes only 1 waste container in the canister. The program will assume that the canister has 2 dunnage containers in it to fill it to its capacity. This exit code will be generated because 2 dunnage containers are not equal to the 1 dunnage listed in the content code record.
Resolution: **(a)** Review the content code record associated with the canister to determine how many dunnage containers the content code expects. Add or remove waste containers from the canister until this number of dunnage containers is met;

(b) change the canister record to associate with another valid content code that matches the number of dunnage containers in the canister (if available).

Exit Code:CANISTER_72B_CNT_EXP
Displayed Text: The reported canister content code is not in the list of approved content codes.
Description: The content code associated with the canister record exists, but is either not yet approved or has been expired.
Resolution: If the content code is still under review or has not been approved, wait until the content code has been approved or associate the canister record with another valid/approved content code (if one is available)

Exit Code:CANISTER_72B_CNT_ILM
Displayed Text: The inner confinement layer data (metal cans) for the canister does not correspond to the inner confinement layer (metal cans) specifications associated with the canister content code.
Description: The metal cans associated with the canister confinement records do not match the content code record.
Resolution: **(a)** Confirm that the canister confinement records include at least one metal can; **(b)** confirm that the number of canister confinement records for the metal cans do not exceed the number of metal cans listed in the content code record for that layer of confinement.

Exit Code:CANISTER_72B_CNT_NAT
Displayed Text: The reported canister type is not an acceptable canister type for the content code.
Description: The canister type in the canister record (Fixed lid or Removable lid) does not match the canister type in the content code record.
Resolution: **(a)** Change the canister type in the canister record to match the content code record; **(b)** change the content code associated with the canister record to a content code that supports the type of canister in the canister record (if available); and **(c)** contact the Packaging Engineer to initiate the process to add the canister type to the content code.

Exit Code:CANISTER_72B_CNT_NUL
Displayed Text: The canister content code is NULL.
Description: No content code has been specified in this canister record.
Resolution: Specify a valid approved content code in the canister record.

Exit Code:CANISTER_72B_CNT_NUM
Displayed Text: The number of secondary waste containers associated with the canister does not match the number of secondary waste containers associated with the content code.
Description: The canister confinement records include either fewer or more waste container records than the content code record specifies.
Resolution: Confirm that the number of waste containers associated with the canister record matches what the content code expects. The number of expected waste

containers is equal to three minus the number of dunnage listed in the content code record.

Exit Code:CANISTER_72B_CNT_SWC
Displayed Text: The canister content code must equal the content code of the secondary waste container with the most restrictive gas generation limits.
Description: The waste container record content codes are not the same, and the canister record is not associated with a content code that matches the waste container's most restrictive decay heat and FGGR limits.
Resolution: Review the content code records associated with the waste container confinement records, and confirm that the canister record content code is associated with the content code with the most restrictive decay heat and FGGR limits.

Exit Code:CANISTER_72B_CNT_TYP
Displayed Text: The type of secondary waste containers associated with the canister does not correspond with the type of secondary waste container specified for the content code.
Description: The content code specifies a waste container type (i.e., 55-gallon drums), and the waste containers associated with the canister record are of a different type.
Resolution: **(a)** Confirm that the waste container records are associated with the same type of waste containers specified in the associated content code; and **(b)** change the associated canister content code to one that specifies the type of waste containers associated with the canister record (if available)
72-B Canister Weight Evaluation

Exit Code:CANISTER_72B_WGT_APP
Displayed Text: An application error occurred while performing the weight evaluation.
Description: This exit code is returned when a problem occurs that does not yet have an associated exit code.
Resolution: Confirm that the data is correct.

Exit Code:CANISTER_72B_WGT_EWN
Displayed Text: The total canister gross weight error is NULL.
Description: This error is generated when a gross weight error field associated with the listed 72-B canister was either left empty or contains improper data. Improper data in this case may include entries such as "Five" instead of "5" or unacceptable characters such as '3,000' instead of '3000.'
Resolution: Review the canister gross weight error field associated with the listed canister and replace the current value in the field with the correct value using only numeric characters.

Exit Code:CANISTER_72B_WGT_LIM
Displayed Text: The total canister Gross Weight plus the total canister gross weight error exceeds the gross weight limit.
Description: The gross weight and gross weight error fields associated with the canister record exceed 8,000 lb.

***Resolution*:** Confirm that the gross weight and gross weight error fields associated with the canister record are correct.

Exit Code:CANISTER_72B_WGT_TWN
***Displayed Text*:** The total canister gross weight is NULL.
***Description*:** This error is generated when a gross weight field associated with the listed 72-B canister was either left empty or contains improper data. Improper data in this case may include entries such as 'Five Hundred' instead of '500' or unacceptable characters such as '3,000' instead of '3000.'
***Resolution*:** Review the canister gross weight field associated with the listed canister and replace the current value in the field with the correct value, using only numeric characters.

72-B Canister Filter Evaluation

Exit Code:CANISTER_72B_FIL_APP
***Displayed Text*:** An application error occurred while performing the canister filter evaluation.
***Description*:** This exit code is returned when a problem occurs that does not yet have an associated exit code.
***Resolution*:** Confirm that the data is correct.

Exit Code:CANISTER_72B_FIL_CAN
***Displayed Text*:** The minimum hydrogen diffusivity limit specified in the content code assigned to the canister is not met.
***Description*:** The filter diffusivity associated with the canister record is less than the filter diffusivity associated with the content code record.
***Resolution*:** Review the associated content code and confirm that the canister filter diffusivity is greater or equal to the value entered in the content code record.

Exit Code:CANISTER_72B_FIL_CON
***Displayed Text*:** The minimum hydrogen diffusivity limit specified in the content code assigned to the secondary waste container is not met.
***Description*:** The filter diffusivity associated with the canister record is less than the filter diffusivity associated with the content code record.
***Resolution*:** Review the associated content code and confirm that the canister filter diffusivity is greater or equal to the value entered in the content code record.

Exit Code:CANISTER_72B_FIL_RCAN
***Displayed Text*:** The minimum hydrogen diffusivity limit specified in the content code assigned to the RH can is not met.
***Description*:** The filter diffusivity associated with an RH can confinement record is less than the filter diffusivity associated with the content code record.
***Resolution*:** Review the associated content code and confirm that all of the RH can filter diffusivities is greater or equal to the value entered in the content code record.

72-B Canister Nuclear Criticality Evaluation

Exit Code:CANISTER_72B_ NUC_APP
***Displayed Text*:** An application error occurred while performing the canister Nuclear Criticality evaluation.
***Description*:** This exit code is returned when a problem occurs that does not yet have an associated exit code.
***Resolution*:** Confirm that the data is correct.

Exit Code:CANISTER_72B_ NUC_ENUL
***Displayed Text*:** The Pu-239 FGE Error is NULL for the canister.
***Description*:** There is no entry in the FGE error field for this canister record.
***Resolution*:** Confirm that the FGE error field has a valid entry for this canister record.

Exit Code:CANISTER_72B_ NUC_FEM_LIM
***Displayed Text*:** The total canister U-235 Fissile Equivalent Mass exceeds the limit.
***Description*:** The FEM value listed in the content code record associated with this canister record is > 0.96 weight percentage
***Resolution*:** Confirm that the content code associated with this canister is correct. If the content code is correct, no waste containers associated with this content code will be shippable.

Exit Code:CANISTER_72B_ NUC_LIM
***Displayed Text*:** The total canister Pu-239 FGE + total canister Pu-239 FGE error exceeds the limit: [LIMIT].
***Description*:** The values in the canister record for FGE and FGE error sum to be higher than the FGE limit in the content code record.
***Resolution*:** Confirm that the FGE value plus the FGE error value recorded in the canister record is less than or equal to the FGE value specified in the associated content code record.

Exit Code:CANISTER_72B_ NUC_MCB
***Displayed Text*:** The canister with machine compacted waste >1% by weight Be/BeO is unauthorized.
***Description*:** The content code record specifies >1% Be/BeO.
***Resolution*:** Confirm that the content code specified in the canister record or waste container confinement layer record is correct.

Exit Code:CANISTER_72B_ NUC_NUL
***Displayed Text*:** The Pu-239 FGE is NULL for the canister.
***Description*:** There is no entry in the FGE field for this canister record.
***Resolution*:** Confirm that the FGE field has a valid entry for this canister record.

72-B Canister HAC Dose Rate Evaluation

Exit Code:CANISTER_72B_RDR_APP
Displayed Text: An application error occurred while performing the radiation dose rate evaluation.
Description: This exit code is returned when a problem occurs that does not yet have an associated exit code.
Resolution: Confirm that the data is correct.

Exit Code:CANISTER_72B_RDR_LIM
Displayed Text: The sum of the dose rate partial fractions exceeds the specified limit.
Description: The radionuclide partial fractions have exceeded the limits for the content code hypothetical accident condition case.
Resolution: Confirm that all radionuclides and associated values associated with this canister are correct.

Exit Code:CANISTER_72B_RDR_NOISO
Displayed Text: Unlisted Isotopes found during evaluation.
Description: Radionuclide records associated with this canister record are not recognized. The database does not have a radionuclide record to provide needed limit information.
Resolution: Confirm that all radionuclides associated with this canister are correct.

72-B Canister Venting and Aspiration Evaluation

Exit Code:CANISTER_72B_ASP_APP
Displayed Text: An application error occurred while performing the Venting and Aspiration evaluation.
Description: This exit code is returned when a problem occurs that does not yet have an associated exit code.
Resolution: Confirm that the data is correct.

Exit Code:CANISTER_72B_ASP_ATF
Displayed Text: The aspiration time for a container is < required for the Aspiration evaluation.
Description: A waste container's vent date is not old enough to exceed the aspiration time required by the associated content code.
Resolution: Remove or replace the specific waste container(s) that have not yet exceeded their aspiration time from the canister. Wait until the waste container(s) have vented beyond the aspiration time specified in the content code record and attempt the evaluation again.

Exit Code:CANISTER_72B_ASP_ATU
Displayed Text: The reported vent date for the container is > than the report closure date, and no aspiration time has been specified for the container content code.
Description: A waste container can pass an aspiration evaluation in either of two ways. It passes automatically if its closure date is equal to its vent date. If this is not

the case, the waste container may pass the aspiration evaluation by having its vent date older than the aspiration time associated with the content code record. In this case the closure date and vent date do not match and there has been no aspiration time specified in the associated content code record, leaving no way to pass the evaluation.
Resolution: Confirm that the content code associated with the canister record is correct.

Exit Code:CANISTER_72B_ASP_CDN
Displayed Text: The closure and/or vent date was null for one or more secondary waste containers.
Description: The closure date or vent date associated with either the container record or its subordinate waste container confinement records was not entered into the container record.
Resolution: Confirm that a closure date and/or valid vent date is entered into the appropriate field within the secondary container record identified as being a problem.

Exit Code:CANISTER_72B_ASP_PCF
Displayed Text: The prerequisite evaluation failed prior to the 72-B Venting and Aspiration evaluations.
Description: The venting and aspiration evaluation calls the content code evaluation as a prerequisite evaluation. This canister record has failed the content code evaluation.
Resolution: Perform the content code evaluation on this canister, correct any issues brought to light by the returned exit codes, and than resubmit the canister record.

Exit Code:CANISTER_72B_ASP_VDN
Displayed Text: The vent date was null for the canister.
Description: The vent date associated with either the canister record or its subordinate waste container confinement records was not entered into the container record.
Resolution: Confirm that a valid vent date is entered into the appropriate field.

Exit Code:CANISTER_72B_ASP_VGC
Displayed Text: The vent time is greater than the closure time for the Aspiration Evaluation.
Description: The vent date associated with either the canister record or its subordinate waste container confinement records is earlier then its related closure date. Closure dates should always be earlier than vent dates.
Resolution: Confirm that all vent dates are later than their related closure dates.

72-B Canister Packaging Design Decay Heat Evaluation

Exit Code:CANISTER_72B_PDH_APP
Displayed Text: An application error occurred while performing the package decay heat evaluation.
Description: This exit code is returned when a problem occurs that does not yet have an associated exit code.
Resolution: Confirm that the data is correct.

Exit Code:CANISTER_72B_PDH_CENULL
Displayed Text: The canister package decay heat error was null.
Description: There is no entry in the package decay heat error field for this canister record.
Resolution: Confirm that the package decay heat error field has a valid entry for this canister record.

Exit Code:CANISTER_72B_PDH_CNULL
Displayed Text: The canister package decay heat was null.
Description: There is no entry in the package decay heat field for this canister record.
Resolution: Confirm that the package decay heat field has a valid entry for this canister record.

Exit Code:CANISTER_72B_PDH_LIM
Displayed Text: The canister package decay heat limit exceeds the decay heat limit.
Description: The decay heat limits are 50W for organic waste and 300W for inorganic waste. If the canister is direct-load, then the canister decay heat + decay heat error is greater than the appropriate limit. If waste containers are present, the sum of the decay heats + the RSS of the decay heat errors is greater than the appropriate limit.
Resolution: Confirm that all decay heats and decay heat errors associated with the canister record and it related waste container confinement records are correct.

Exit Code:CANISTER_72B_PDH_SENULL
Displayed Text: The package decay heat error was null for a secondary waste container.
Description: There is no entry in the package decay heat error field for one of the waste container confinement records associated with this canister record.
Resolution: Confirm that the package decay heat error approval field has a valid entry for all waste container confinement records associated with this canister record.

Exit Code:CANISTER_72B_PDH_SNULL
Displayed Text: The package decay heat was null for a secondary waste container.
Description: There is no entry in the package decay heat field for one of the waste container confinement records associated with this canister record.
Resolution: Confirm that the package decay heat field has a valid entry for all waste container confinement records associated with this canister record.

72-B Canister Flammable Gas/VOC Concentration Evaluation

Exit Code:CANISTER_72B_GVE_APP
Displayed Text: An application error occurred while performing the Flammable Gas evaluation.
Description: This exit code is returned when a problem occurs that does not yet have an associated exit code.
Resolution: Confirm that the data is correct.
If this does not correct the problem, contact the respective support group.

Exit Code:CANISTER_72B_GVE_DHL

Displayed Text: The confinement layer decay heat + decay heat error > decay heat limit.

Description: The decay heat plus the decay heat error associated with the innermost confinement layer record is greater than the decay heat limit specified in the associated content code (either the content code associated with the canister if the canister is specified as a direct load, or the content code of the related waste container if not).

Resolution: Confirm that the decay heat and decay heat error values associated with the confinement layer record are correct.

Exit Code:CANISTER_72B_GVE_DHL_NDA

Displayed Text: The confinement layer does not have valid decay heat and/or decay heat error values specified.

Description: The values associated with the decay heat and/or the decay heat error fields in this confinement layer record are not understandable by the software.

Resolution: Confirm that the decay heat and decay heat error values associated with this confinement layer record are filled in and correct.

Exit Code:CANISTER_72B_GVE_FGR_CVI

Displayed Text: The closure and/or vent date are invalid for the confinement layer.

Description: The closure date and vent date associated with this confinement layer are either empty or do not relate appropriately. Vent dates should always be greater than or equal to closure dates.

Resolution: Confirm that the date information associated with the canister record and all confinement records are valid and correct.

Exit Code:CANISTER_72B_GVE_FGR_FLE

Displayed Text: The FGGR exceeds the FGGR Limit.

Description: Either the measured FGGR associated with the innermost confinement layer record is greater than the FGGR limit specified in the associated content code (either the content code associated with the canister if the canister is specified as a direct load, or the content code of the related waste container if not) or the software-calculated FGGR is greater than the content code limit.

Resolution: **(a)** If the confinement layer record has a value listed for Measured FGGR, confirm that this value is correct; and **(b)** if the confinement layer record does not have a Measured FGGR value, confirm that the filter diffusivities and hydrogen samples for this and all interior layers are correct.

Exit Code:CANISTER_72B_GVE_FGR_FTC

Displayed Text: The FGGR calculation failed to converge.

Description: This error can be generated when the FGGR calculation is fed invalid data, which drives the calculation to not find a solution. No combination of valid data should ever generate this error.

Resolution: Confirm that all void volumes, filter diffusivities, closure dates, vent dates, and waste packaging information in associated canister, confinement layer, and content code records is correct.

Exit Code:CANISTER_72B_GVE_FGR_HYD
Displayed Text: A hydrogen sample must be provided in order to perform the flammable gas generate rate calculation and evaluation.
Description: The measured FGGR field associated with this confinement or canister record is empty and no hydrogen sample is found.
Resolution: **(a)** Confirm that the measured FGGR field associated with this container or canister record is empty intentionally; and **(b)** confirm that a hydrogen sample exists that is associated with this canister or container record.

Exit Code:CANISTER_72B_GVE_FGR_IVS
Displayed Text: The hydrogen sample data is invalid.
Description: The dates on the hydrogen sample associated with the canister or confinement record do not make sense.
Resolution: **(a)** Confirm that the closure date on the corresponding canister or container record is earlier than the vent date; and **(b)** confirm that the sample date on the hydrogen sample associated with the canister or confinement record is greater than the canister or container record vent date.

Exit Code:CANISTER_72B_GVE_FGR_ZERO
Displayed Text: The measured FGGR for the confinement layer is zero.
Description: The confinement layer or canister record reported has a 0 entered for the measured FGGR field.
Resolution: Change the appropriate measured FGGR field to a value > 0. If a hydrogen gas sample exists for this canister or container record, delete the Measured FGGR entry and allow the software to calculate the FGGR automatically.

Exit Code:CANISTER_72B_GVE_MDP_GDI
Displayed Text: The waste generation date for the canister is > compliance date.
Description: The waste generation date associated with this canister record is set in the future.
Resolution: Confirm that the closure date associated with the canister record is set correctly.

Exit Code:CANISTER_72B_GVE_MDP_GDN
Displayed Text: The waste generation date for the canister is NULL and a valid closure date has not been provided.
Description: The waste generation and closure date fields associated with this canister record have been left empty.
Resolution: Confirm that either a valid waste generation date or closure date entry is associated with this canister record.

Exit Code:CANISTER_72B_GVE_MDP_DHL
Displayed Text: The canister maximum decay heat limit for the content code is not available.
Description: The content code associated with this canister record is missing decay heat limit values.
Resolution: Contact the Packaging Engineer.

Exit Code:CANISTER_72B_GVE_MDP_DHN
Displayed Text: The decay heat for the canister is NULL.
Description: The decay heat field associated with this canister record has been left empty.
Resolution: Confirm that a valid decay heat entry is associated with this canister record.

Exit Code:CANISTER_72B_GVE_MDP_FGGRL
Displayed Text: The canister flammable gas generation rate limit for the content code is not available.
Description: The content code associated with this canister record is missing FGGR limit information.
Resolution: Contact the Packaging Engineer.

Exit Code:CANISTER_72B_GVE_MDP_NBG
Displayed Text: A bounding G value has not been established for the canister content code.
Description: The content code record does not have a bounding G value listed. This may be a perfectly valid situation. While it will prevent the canister from qualifying for matrix depletion, it is not enough to cause the evaluation to fail on its own.
Resolution: Correct all other exit code issues and rerun the evaluation or resubmit the canister record to the database for approval.

Exit Code:CANISTER_72B_GVE_MDP_SAM
Displayed Text: The content code indicates the presence of solidified aqueous materials.
Description: The content code record reports the presence of solidified aqueous materials. This may be a perfectly valid situation. While it will prevent the canister from qualifying for matrix depletion, it is not enough to cause the evaluation to fail on its own.
Resolution: Correct all other exit code issues and rerun the evaluation or resubmit the canister record to the database for approval.

Exit Code:CANISTER_72B_GVE_PCF
Displayed Text: The prerequisite eval failed prior to the GVE evaluation.
Description: This canister record has failed the prerequisite content code evaluation.
Resolution: **(a)** Perform the content code evaluation on this canister individually; and **(b)** correct all exit code issues and rerun this evaluation or resubmit the canister record to the database for approval.

Exit Code:CANISTER_72B_GVE_VOC_BSE
Displayed Text: The sum of the headspace flammable VOC measurements is > the flammable bounding VOC sum specified in the canister content code.
Description: The sum of VOC concentrations in the canister headspace exceed the content code limit.
Resolution: Confirm that the gas sample associated with the canister record reports any VOC values correctly.

E.11.2   72-B Cask General Exit Codes

Exit Code:CASK_72B_ERR_OBJ
Displayed Text: An object creation error occurred while creating the Cask 72-B object.
Description: This exit code is returned when a problem occurs that does not yet have an associated exit code.
Resolution: Confirm that the data is correct.

72-B Cask Weight Evaluation

Exit Code:CASK_72B_WGT_EWN
Displayed Text: The total CASK gross weight error is NULL.
Description: There is no entry in the gross weight error field associated with this cask record.
Resolution: Confirm that the gross weight error field associated with this cask record is not empty and/or is populated with the correct value.

Exit Code:CASK_72B_WGT_LIM
Displayed Text: The total CASK gross weight plus the total CASK gross weight error exceeds the gross weight limit.
Description: The cask gross weight added to the cask gross weight error exceeds 45,000 lb.
Resolution: Confirm that the values for gross weight and gross weight error associated with this cask record are correct.

Exit Code:CASK_72B_WGT_TWN
Displayed Text: The total CASK gross weight is NULL.
Description: There is no entry in the gross weight field associated with this cask record.
Resolution: Confirm that the gross weight field associated with this cask record is not empty and/and or is populated with the correct value.

72-B Cask Radiation Dose Rate Evaluation

Exit Code:CASK_72B_RDR_2MDRWN
Displayed Text: The 2-meter dose rate is NULL.
Description: There is no entry in the 2-meter dose rate field associated with this cask record.
Resolution: Confirm that the 2-meter dose rate field associated with this cask record is not empty.

Exit Code:CASK_72B_RDR_2MR
Displayed Text: The 2-meter dose rate exceeds the 2-meter dose rate limit.
Description: The 2-meter dose rate value associated with this cask record exceeds 10 mrem/hour.
Resolution: Confirm that the value for 2-meter dose rate associated with this cask record is correct.

Exit Code:CASK_72B_RDR_SDR
Displayed Text: The surface dose rate exceeds the surface dose rate limit.
Description: The surface dose rate value associated with this cask record exceeds 200 mrem/hour.
Resolution: Confirm that the value for surface dose rate associated with this cask record is correct.

Exit Code:CASK_72B_RDR_SDRWN
Displayed Text: The surface dose rate is NULL.
Description: There is no entry in the surface dose rate field associated with this cask record.
Resolution: Confirm that the surface dose rate field associated with this cask record is not empty.

E.11.3   RH-TRU 10-160B Evaluation Exit Codes

160B Container General Exit Codes

Exit Code:CONTAINER_10160B_ERR_OBJ
Displayed Text: An object creation error occurred while creating the Container 10-160B object.
Description: This error is returned when the container record has missing or incorrect information.
Resolution: **(a)** Confirm that the container record has valid entries for container ID, site and content code; and **(b)** confirm that the site reference in the canister record matches the site reference in the associated content code.

160B Container All Evaluations

Exit Code:CONTAINER_10160B_ALL_PCF
Displayed Text: The prerequisite evaluation failed prior to the 10-160B ALL evaluations.
Description: The content code evaluation is called a prerequisite evaluation whenever the overall evaluation is called. The content code evaluation has failed.
Resolution: Run the content code evaluation individually on this container record, correct any exit code issues and then rerun this evaluation or resubmit the container record to the database for approval.

160B Container Content Code Evaluation

Exit Code:CONTAINER_10160B_CONT_NIL
Displayed Text: The reported container content code is not in the list of approved content codes for the site.
Description: The content code referenced in the container record does not exist.
Resolution: **(a)** Confirm that the content code associated with the container record is correct; and **(b)** contact the Packaging Engineer to add the content code if needed.

Exit Code:CONTAINER_10160B_CONT_TYP

Displayed Text: The reported container type is not an acceptable container type for the content code.

Description: The container is a 55-gallon drum and the content code record specifies 30-gallon drums, or vice versa.

Resolution: Confirm that the container type associated with the container record is correct. If the container type is correct, associate a new content code (if available) with the container record.

Exit Code:CONTAINER_10160B_CONT_TYP_NUL

Displayed Text: The container type is NULL.

Description: There is no entry in the container type field associated with this container record.

Resolution: Confirm that the container type field associated with this container record is not empty.

160B Container Filter Evaluation

Exit Code:CONTAINER_10160B_FIL_LIM

Displayed Text: The Minimum Hydrogen Diffusivity limit of the 10-160B canister is not met.

Description: The filter diffusivity associated with the container record is less than the associated content code record's filter diffusivity.

Resolution: Confirm that the filter diffusivity associated with the container record is correct.

Exit Code:CONTAINER_10160B_FIL_PCF

Displayed Text: The prerequisite evaluation failed prior to the FIL evaluation.

Description: The content code evaluation is called as a prerequisite evaluation whenever the filter evaluation is called individually. The content code evaluation has failed.

Resolution: Run the content code evaluation individually on this container record, correct any exit code issues and then rerun this evaluation or resubmit the container record to the database for approval.

160B Container Packaging Design Decay Heat Evaluation

Exit Code:CONTAINER_10160B_PDH_LIM

Displayed Text: The container decay heat exceeds the packaging design decay heat limit.

Description: The decay heat associated with this container record exceeds the associated content code records decay heat limit.

Resolution: Confirm that the decay heat value associated with the container record is correct.

Exit Code:CONTAINER_10160B_PDH_PCF
Displayed Text: The prerequisite evaluation failed prior to the PDH evaluation.
Description: The content code evaluation is called as a prerequisite evaluation whenever the packaging design decay heat evaluation is called individually. The content code evaluation has failed.
Resolution: Run the content code evaluation individually on this container record, correct any exit code issues and then rerun this evaluation or resubmit the container record to the database for approval.
160B Container Flammable Gas/VOC Concentration Evaluation

Exit Code:CONTAINER_10160B_GVE_DHL
Displayed Text: The container decay heat > decay heat limit.
Description: The decay heat associated with this container record exceeds the associated content code records decay heat limit.
Resolution: Confirm that the decay heat value associated with the container record is correct.

Exit Code:CONTAINER_10160B_GVE_DHL_NDA
Displayed Text: The container does not have a valid decay heat value specified.
Description: There is no entry in the decay heat field associated with this container record or the associated decay heat value is invalid.
Resolution: Confirm that the decay heat field associated with this container record is not empty and valid.

Exit Code:CONTAINER_10160B_GVE_FGR_FLE
Displayed Text: The FGGR exceeds the FGGR Limit.
Description: The FGGR associated with this container record exceeds the associated content code records FGGR limit.
Resolution: Confirm that the FGGR value associated with the container record is correct. Empty values will drive the software to determine the FGGR for the container using one of the approved FGGR calculation methodologies in the associated content code record.

Exit Code:CONTAINER_10160B_GVE_FGR_IVS
Displayed Text: The hydrogen sample data is invalid.
Description: The dates on the hydrogen sample associated with this container record are incorrect.
Resolution: Confirm that the closure date is less than or equal to the vent date and the vent date is equal to or less than the sample date.

Exit Code:CONTAINER_10160B_GVE_FGR_IVT
Displayed Text: The time history for the container is incomplete.
Description: Any combination of closure date, vent date, and sample date is empty or invalid. All of these values must exist. The closure date must be less then or equal to the vent date. The vent date must be less then or equal to the sample date.
Resolution: Confirm that all of the date fields associated with the container record have valid entries.

Exit Code:CONTAINER_10160B_GVE_FGR_NFC
Displayed Text: The container is not authorized for FGGR calculation. Check the content code record.
Description: The software is trying to execute the FGGR sub-evaluation on this waste container, and the FGGR sub-evaluation is not an approved compliance method in the associated content code record.
Resolution: Confirm the compliance methods available with the associated content code record, and confirm that the data required for the approved methods of compliance are correct.

Exit Code:CONTAINER_10160B_GVE_FGR_NHS
Displayed Text: There is no hydrogen sample data for the container.
Description: A hydrogen sample record associated with this container does not exist.
Resolution: Confirm that a hydrogen sample associated with this container exists. Confirm that the container cannot pass FGGR based on decay heat values alone.

Exit Code:CONTAINER_10160B_GVE_FGR_ZERO
Displayed Text: The measured FGGR for the container is zero.
Description: The measured FGGR field associated with this container has a value of 0.
Resolution: Confirm that the measured FGGR field is either set to a reasonable value or is left empty if no value exists so that the software may calculate the FGGR.

Exit Code:CONTAINER_10160B_GVE_MDP_CDI
Displayed Text: The closure date for the container is > compliance date.
Description: The date information associated with the container record is invalid. While it will prevent the canister from qualifying for matrix depletion, it is not enough to cause the evaluation to fail on its own.
Resolution: **(a)** Confirm that the closure date associated with the container record is earlier then today; and **(b)** correct all other exit code issues and rerun the evaluation or resubmit the container record to the database for approval.

Exit Code:CONTAINER_10160B_GVE_MDP_CDN
Displayed Text: The closure date for the container is NULL.
Description: There is no entry in the closure date field associated with this container record. While it will prevent the canister from qualifying for matrix depletion, it is not enough to cause the evaluation to fail on its own.
Resolution: **(a)** Confirm that the closure date field associated with this container record is not empty; and **(b)** correct all other exit code issues and rerun the evaluation or resubmit the container record to the database for approval.

Exit Code:CONTAINER_10160B_GVE_MDP_DHL
Displayed Text: The container maximum decay heat limit for the content code is not available.
Description: The content code record has an empty value for the decay heat limit. While it will prevent the canister from qualifying for matrix depletion, it is not enough to cause the evaluation to fail on its own.

Resolution: Correct all other exit code issues and rerun the evaluation or resubmit the container record to the database for approval.

Exit Code:CONTAINER_10160B_GVE_MDP_DHN
Displayed Text: The decay heat for the container is NULL.
Description: There is no entry in the decay heat field associated with this container record. While it will prevent the canister from qualifying for matrix depletion, it is not enough to cause the evaluation to fail on its own.
Resolution: Confirm that the decay heat field associated with this container record is not empty

Exit Code:CONTAINER_10160B_GVE_MDP_FGGRL
Displayed Text: The container flammable gas generation rate limit for the content code is not available.
Description: The content code record has an empty value for the FGGR limit. While it will prevent the container from qualifying for matrix depletion, it is not enough to cause the evaluation to fail on its own.
Resolution: Correct all other exit code issues and rerun the evaluation or resubmit the container record to the database for approval.

Exit Code:CONTAINER_10160B_GVE_MDP_NBG
Displayed Text: A bounding G value has not been established for the container content code.
Description: The content code record has an empty value for the bounding G value. While it will prevent the container from qualifying for matrix depletion, it is not enough to cause the evaluation to fail on its own.
Resolution: Correct all other exit code issues and rerun the evaluation or resubmit the container record to the database for approval.

Exit Code:CONTAINER_10160B_GVE_NCM
Displayed Text: No Flammable Gas/VOC Concentration evaluation compliance methods are approved for the container content code.
Description: The content code record does not have any approved ways to pass the FGVC evaluation.
Resolution: Contact the Packaging Engineer to determine a path forward to obtain approval of compliance methods for the associated content code.

Exit Code:CONTAINER_10160B_GVE_PCF
Displayed Text: The prerequisite evaluation failed prior to the GVE evaluation.
Description: The content code evaluation is called as a prerequisite evaluation whenever the FGVC evaluation is called individually. The content code evaluation has failed.
Resolution: Run the content code evaluation individually on this container record, correct any exit code issues and then rerun this evaluation or resubmit the container record to the database for approval.

Exit Code:CONTAINER_10160B_GVE_VOC_INC

Displayed Text: Headspace flammable VOC measurements have not been provided and process knowledge is N or NULL.

Description: The evaluation can pass only if the process knowledge field associated with the container record is set to Y or the software can evaluate VOC values against content code limits. None of this data is available.

Resolution: **(a)** Confirm that a gas sample record exists that is associated with this container record; and **(b)** confirm that the process knowledge field associated with this container record cannot be set to 'Y.'

Exit Code:CONTAINER_10160B_GVE_VOC_LIM

Displayed Text: The sum of the headspace flammable VOC measurements is > the limit.

Description: The VOC measurements associated with this container record exceeds the associated content code records VOC Limit.

Resolution: Confirm that the gas sample data associated with the container record are correct.

160B Payload General Exit Codes

Exit Code:PAYLOAD_10160B_ERR_OBJ

Displayed Text: An object creation error occurred while creating the Payload 10-160B object.

Description: This error is returned when the payload record has missing or incorrect information.

Resolution: **(a)** Confirm that the payload record has valid entries for Payload ID and site; **(b)** confirm that the payload has associated waste container records that are associated with valid content codes and that their site references match that of the payload record; and **(c)** confirm that the site reference in the container records matches the site reference in the associated content code.

160B Payload Overall Evaluation

Exit Code:PAYLOAD_10160B_ALL_PCF

Displayed Text: The prerequisite evaluation failed prior to the 10-160B ALL evaluations.

Description: The content code evaluation is called as a prerequisite evaluation whenever the payload evaluation is called individually. The content code evaluation has failed.

Resolution: Run the content code evaluation individually on this payload record, correct any exit code issues and then rerun the evaluation or resubmit the payload to the database.

160B Payload Configuration Evaluation

Exit Code:PAYLOAD_10160B_CONF_LIM
Displayed Text: The total number of containers exceeds the payload limit.
Description: The number of container records associated with this payload record exceeds 10.
Resolution: Confirm that 10 or fewer waste container records are associated with this payload record.

Exit Code:PAYLOAD_10160B_CONF_TMIS
Displayed Text: A container in the payload does not match the payload type.
Description: The payload type specifies either 55-gallon or 30-gallon waste containers. One or more waste container records associated with this payload record are of the invalid type.
Resolution: Confirm that all of the waste container records associated with this payload record are of the appropriate container type.

10-160B Payload Weight Evaluation

Exit Code:PAYLOAD_10160B_WGT_LIM
Displayed Text: The total Gross Weight of the payload contents exceeds the 10-160B Payload gross weight limit.
Description: The payload exceeds 14,500 lb.
Resolution: **(a)** Confirm that the sum of all the waste container weights associated with this payload is less than or equal to 14,500 lb; and **(b)** consider swapping drums in this payload by replacing a heavy waste container with a lighter waste container.

Exit Code:PAYLOAD_10160B_WGT_PCF
Displayed Text: The prerequisite evaluation failed prior to the weight evaluation.
Description: The content code evaluation is called as a prerequisite evaluation whenever the payload weight evaluation is called individually. The content code evaluation has failed.
Resolution: Run the content code evaluation individually on this payload record, correct any exit code issues and then rerun this evaluation or resubmit the container record to the database for approval.

Exit Code:PAYLOAD_10160B_WGT_TWN
Displayed Text: The total PAYLOAD gross weight is NULL.
Description: The gross weight fields for all of the waste container records associated with this payload record are empty.
Resolution: Confirm that all waste container records associated with this payload record have valid entries for gross weight.

10-160B Payload Nuclear Criticality Evaluation

Exit Code:PAYLOAD_10160B_ NUC_ACT
Displayed Text: A nuclide activity value of the payload exceeds the limit.
Description: The summation of radionuclide activities amongst the drums in this payload record exceeds the limit specified in the associated content code record.
Resolution: **(a)** Confirm that the FGE activities associated with the waste container records that are included in the payload are valid; and **(b)** consider swapping drums in this payload with other certified drums that have lower FGE values.

Exit Code:PAYLOAD_10160B_ NUC_AWN
Displayed Text: A nuclide activity value of a container in the payload was NULL.
Description: One or more of the nuclide activity values associated with waste container records in this payload are empty.
Resolution: Confirm that all of the radionuclides associated with the waste containers in this payload record have valid activities.

Exit Code:PAYLOAD_10160B_ NUC_FWN
Displayed Text: The payload FGE gross is NULL.
Description: The FGE field for all of the waste container records associated with this payload record are empty.
Resolution: Confirm that all waste container records associated with this payload record have valid entries for FGE.

Exit Code:PAYLOAD_10160B_ NUC_LIM
Displayed Text: The total FGE of the payload contents exceeds the 10-160B Payload FGE limit.
Description: The summation of FGE values associated with waste container records in this payload exceeds 15 grams.
Resolution: **(a)** Confirm that the FGE values associated with the waste container records are valid; and **(b)** consider swapping drums in this payload with other certified drums that have lower FGE values.

Exit Code:PAYLOAD_10160B_ NUC_PCF
Displayed Text: The prerequisite evaluation failed prior to the FGE evaluation.
Description: The content code evaluation is called as a prerequisite evaluation whenever the payload FGE evaluation is called individually. The content code evaluation has failed.
Resolution: Run the content code evaluation individually on this payload record, correct any exit code issues and then rerun this evaluation or resubmit the container record to the database for approval.

Exit Code:PAYLOAD_10160B_ NUC_PLIM
Displayed Text: The total plutonium of the payload contents exceeds the 10-160B Payload plutonium limit.
Description: The summation of plutonium content associated with waste container records in this payload exceeds 20 Ci.

Resolution: **(a)** Confirm that the plutonium activities associated with the waste container records are valid; and **(b)** consider swapping drums in this payload with other drums that have lower activity values.

Exit Code:PAYLOAD_10160B_ NUC_PWN
Displayed Text: A plutonium activity value of a container in the payload was NULL.
Description: One or more of the plutonium activity values associated with waste container records in this payload are empty.
Resolution: Confirm that all of the plutonium radionuclides associated with the waste containers in this payload record have valid activities.

10-160B Container Decay Heat Evaluation

Exit Code:CONTAINER_10160B_PDH_LIM
Displayed Text: The container heat limit exceeds the packaging design decay heat limit.
Description: The summation decay heat values associated with this waste container records in exceeds 100W.
Resolution: Confirm that the decay heat values associated with the waste container records are valid.

Exit Code:CONTAINER_10160B_PDH_PCF
Displayed Text: The prerequisite evaluation failed prior to the Package Decay Heat evaluation.
Description: The content code evaluation is called as a prerequisite evaluation whenever the payload packaging design decay heat evaluation is called individually. The content code evaluation has failed.
Resolution: Run the content code evaluation individually on this payload record, correct any exit code issues and then rerun this evaluation or resubmit the container record to the database for approval.

10-160B Payload Flammable Gas/VOC Concentration Evaluation

Exit Code:PAYLOAD_10160B_GVE_FGGRL
Displayed Text: A container in the payload is not bounded by the payload governing FGGR limit.
Description: A waste container record associated with this payload record exceeds the determined governing payload FGGR limit.
Resolution: **(a)** Confirm that the FGGR values or calculated FGGR values for the waste containers associated with the payload do not exceed the returned governing FGGR limit; and **(b)** consider swapping drums in this payload with certified containers that have lower FGGR values.

Exit Code:PAYLOAD_10160B_GVE_GDHL
Displayed Text: A container in the payload is not bounded by the payload governing decay heat limit.

Description: A waste container record associated with this payload record exceeds the determined governing payload decay heat limit.

Resolution: **(a)** Confirm that the decay heat values for the waste containers associated with the payload do not exceed the returned governing FGGR limit; and **(b)** consider swapping drums in this payload with other certified waste containers that have lower decay heat values and FGGR.

Exit Code:PAYLOAD_10160B_GVE_INR

Displayed Text: One or more containers in the payload fail the container flammable gas evaluation.

Description: Waste container records that would not pass their individual FGVC evaluation have been added to this payload.

Resolution: Consider swapping drums in this payload with other certified waste containers that would not cause the payload to fail the flammable gas evaluation.

Exit Code:PAYLOAD_10160B_GVE_PCF

Displayed Text: The prerequisite evaluation failed prior to the Flammable Gas VOC Concentration evaluation.

Description: The content code evaluation is called as a prerequisite evaluation whenever the payload FGVC evaluation is called individually. The content code evaluation has failed.

Resolution: Run the content code evaluation individually on this payload record, correct any exit code issues and then rerun this evaluation or resubmit the container record to the database for approval.

Exit Code:PAYLOAD_10160B_GVE_PDHL

Displayed Text: The payload exceeds the governing total payload decay heat limit.

Description: The sum of decay heats from waste container records associated with this payload record exceeds the total payload decay heat limit specified by the content code.

Resolution: **(a)** Confirm that the decay heat values associated with the waste container records in this payload are correct; and **(b)** consider swapping drums in this payload.

10-160B Cask General Exit Codes

Exit Code:CASK_10160B_ERR_OBJ

Displayed Text: An object creation error occurred while creating the Cask 10-160B object.

Description: This error is returned when the cask record has missing or incorrect information.

Resolution: **(a)** Confirm that the payload record has valid entries for cask ID, shipment ID and site; **(b)** confirm that there is a valid payload record that shares the shipment ID and site of the cask; **(c)** confirm that there are valid waste container records associated with the payload record that have valid content code references and shares the site of the cask; and **(d)** confirm that the site reference in the container records matches the site reference in the associated content code.

10-160B Cask Weight Evaluation

Exit Code:CASK_10160B_WGT_LIM
Displayed Text: The total CASK Gross Weight exceeds the gross weight limit.
Description: The gross weight associated with this cask record exceeds 72,000 lb.
Resolution: Confirm that the gross weight value associated with the cask record is valid.

Exit Code:CASK_10160B_WGT_TWN
Displayed Text: The total CASK gross weight is NULL.
Description: The gross weight field associated with this cask record is empty.
Resolution: Confirm that the gross weight value associated with this cask record has a valid entry.

10-160B Cask Radiation Dose Rate Evaluation

Exit Code:CASK_10160B_RDR_2MDRWN
Displayed Text: The 2-meter dose rate is NULL.
Description: The 2-meter dose rate field associated with this cask record is empty.
Resolution: Confirm that the 2-meter dose rate value associated with this cask record has a valid entry.

Exit Code:CASK_10160B_RDR_2MR
Displayed Text: The 2-meter dose rate exceeds the 2-meter dose rate limit.
Description: The 2-meter dose rate associated with this cask record exceeds 10 mrem/hour.
Resolution: Confirm that the 2-meter dose rate value associated with the cask record is valid.

Exit Code:CASK_10160B_RDR_SDR
Displayed Text: The surface dose rate exceeds the surface dose rate limit.
Description: The surface dose rate associated with this cask record exceeds 200 mrem/hour.
Resolution: Confirm that the surface dose rate value associated with the cask record is valid.

Exit Code:CASK_10160B_RDR_SDRWN
Displayed Text: The surface dose rate is NULL.
Description: The surface dose rate field associated with this cask record is empty.
Resolution: Confirm that the surface dose rate value associated with this cask record has a valid entry.

Appendix F: WWIS Data Dictionary and Screen Views

F.1   WWIS Data Dictionary

Table Name	Field Name	Definition	Field Format	Units
TMP_WST_CNTRS	SITE_ID	Two-digit identification code assigned to the site, which ships the waste.	VARCHAR2(2)	n/a
TMP_WST_CNTRS	CNTR_NUM	A unique identification number assigned to each container.	VARCHAR2(16)	n/a
TMP_WST_CNTRS	HANDLING_CODE	The code is "CH" for contact-handled or "RH" for remote-handled TRU waste.	VARCHAR2(2)	n/a
TMP_WST_CNTRS	BG_DOSE_RATE	Beta/gamma contact dose rate at the surface of the waste container.	NUMBER(10,3)	mR/hr
TMP_WST_CNTRS	NEUT_DOSE_RATE	Neutron contact dose rate at the surface of the waste container.	NUMBER(10,3)	mR/hr
TMP_WST_CNTRS	CLOSURE_DATE	Date the container was closed.	DATE	n/a
TMP_WST_CNTRS	DECAY_HEAT	The calculated 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. (Ref: TRAMPAC Document, Appendix 5.5)	NUMBER(10,6)	watts
TMP_WST_CNTRS	DECAY_HEAT_UNCERT	Uncertainty reported as 1 Sigma or 1 x error associated with the calculated decay heat value for the container.	NUMBER(10,6)	watts
TMP_WST_CNTRS	VENT_DATE	The date when the container was first vented and, if applicable, the date that the rigid liner was punctured.	DATE	n/a

F.1   WWIS Data Dictionary

Table Name	Field Name	Definition	Field Format	Units
TMP_WST_CNTRS	GENERATOR_SITE_ID	Two-digit identification code assigned to the site that generated the waste.	VARCHAR2(2)	n/a
TMP_WST_CNTRS	IDC_CODE	A specific Item Description Code (IDC) assigned to individual waste forms.	VARCHAR2(4)	n/a
TMP_WST_CNTRS	TRUCON_CODE	The TRUCON code that is used to describe the container contents based on information from the approved WSPF and the TRUCON document.	VARCHAR2(8)	n/a
TMP_WST_CNTRS	MATRIX_CODE	Waste Matrix Code Group # or Waste Matrix Code applied to waste containers from a given waste stream.	VARCHAR2(5)	n/a
TMP_WST_CNTRS	CERT_SITE	Two-digit identification code assigned to the site that certified the waste for and inter-site shipment or for shipment to WIPP for disposal.	VARCHAR2(2)	n/a
TMP_WST_CNTRS	CERT_DATE	The date the container data were certified for an inter-site shipment or for shipment to WIPP for disposal.	DATE	n/a
TMP_WST_CNTRS	FILL_FACTOR	Estimated percentage of the waste container volume occupied by the waste (i.e., the fill factor for a 55-gallon drum that is estimated to contain 5.5 gallons of waste is 10%).	NUMBER(3)	%
TMP_WST_CNTRS	GROSS_WEIGHT	The gross weight of a container.	NUMBER(10,2)	Kg
TMP_WST_CNTRS	GROSS_WEIGHT_UNCERT	Uncertainty reported as 1 Sigma or 1 x error associated with the gross weight of the container.	NUMBER(10,2)	Kg
TMP_WST_CNTRS	LAYERS_OF_PACKAGING	Identifies the number of layers of plastic confinement within a container.	NUMBER(3)	0-12

F.1   WWIS Data Dictionary

Table Name	Field Name	Definition	Field Format	Units
TMP_WST_CNTRS	PCB_CONC	The concentration of polychlorinated biphenyl's.	NUMBER(9,3)	Ppm
TMP_WST_CNTRS	PU239_EQ_ACT	The Pu-239 equivalent activity per container.	NUMBER(18,12)	PE_ci
TMP_WST_CNTRS	PU239_FISS_GM_EQ	The calculated Pu-239 fissile gram equivalent per container.	NUMBER	FGE
TMP_WST_CNTRS	PU239_FISS_GM_EQ_UNCERT	Uncertainty reported as 1 Sigma or 1 x error associated with the Pu-239 fissile gram equivalent per container.	NUMBER)	FGE
TMP_WST_CNTRS	ALPHA_SURF_CONT	The removable alpha emitting radionuclide surface contamination on the waste container.	NUMBER(4)	dpm/ 100cm2
TMP_WST_CNTRS	BETA_GAMMA_SURF_CONT	The removable beta/gamma emitting radionuclide surface contamination on the waste container.	NUMBER(5)	dpm/ 100cm2
TMP_WST_CNTRS	TRU_ALPHA_ACT	Calculated total alpha activity of the reported transuranic isotopes present in the container.	NUMBER(24, 18)	ci
TMP_WST_CNTRS	TRU_ALPHA_ACT_CONC	Calculated TRU alpha activity concentration of the transuranic isotopes divided by the mass of the waste within a container (excluding the weights of the container, liner, and any shielding). The reported value does not include any uncertainty.	NUMBER(24, 18)	ci/g
TMP_WST_CNTRS	TRU_ALPHA_ACT_CONC_UNCERT	Uncertainty reported as 1 Sigma or 1 x error associated with the TRU alpha activity concentration (optional field) per container.	NUMBER(24, 18)	ci

F.1   WWIS Data Dictionary

Table Name	Field Name	Definition	Field Format	Units
TMP_WST_CNTRS	TRU_ALPHA_ACT_UNCERT	Uncertainty reported as 1 Sigma or 1 x error associated with the TRU alpha activity per container.	NUMBER(24, 18)	ci
TMP_WST_CNTRS	WAC_REV_NUM	Revision number of the WIPP-WAC to which the waste was certified.	VARCHAR2(8)	
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.)	VARCHAR2(20)	n/a
TMP_WST_CNTRS	SHIPPING_CATEGORY	The shipping category assigned to the container.	VARCHAR2(10)	n/a
TMP_WST_CNTRS	ASPIRATION_METHOD_ID	Method used for aspirating a closed container that has been stored in an unvented condition prior to shipment. (Ref: TRAMPAC Document, Appendix 5.9)	VARCHAR2(2)	1, 2A, 2B, 3, T, or N
TMP_WST_CNTRS	TYPE_CODE	A maximum 3_digit container type code (e.g., 1 = Drum, 2 = SWB, 3 = TDOP) See Containers Reference Table.	VARCHAR2(3)	n/a
TMP_WST_CNTRS	WAC_EXCEPT_NUM	A number granted for an exception to the WAC. When used, the number should consist of the SITE_ID plus the last two numbers of the fiscal year that the request was made plus a sequential number beginning with one each year.	VARCHAR2(13)	n/a
TMP_WST_CNTRS	WST_STRM_BIR_ID	The waste stream BIR identification number.	VARCHAR2(15)	n/a
TMP_WST_CNTRS	WST_STRM_MWIR_ID	The waste stream MWIR identification number.	VARCHAR2(15)	n/a

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F.1 WWIS Data Dictionary

Table Name	Field Name	Definition	Field Format	Units
TMP_WST_CNTRS	GAS_GEN_RATE	Measured total gas generation rate for a container.	NUMBER(18,12)	moles/s
TMP_WST_CNTRS	GAS_GEN_COMP_DATE	The date of gas generation test completion for a container.	DATE	n/a
TMP_WST_CNTRS	GAS_HYD_METH_GEN_RATE	Measured hydrogen and methane gas generation rate for a container.	NUMBER(18,12)	moles/s
TMP_WST_CNTRS	LINER_EXISTS	Identifies the presence of container liner if applicable.	VARCHAR2(1)	n/a
TMP_WST_CNTRS	LINER_HOLE_SIZE	Size of Rigid Liner Hole	NUMBER(6,3)	mm
TMP_WST_CNTRS	PROCESS_KNOWLEDGE	A field (checkbox) that provides indication whether or not Process Knowledge was used to determine that total flammable VOCs is less than 500 ppm in the container headspace.	VARCHAR2(1)	n/a
TMP_WST_CNTRS	OVERPK_CNTR_NUM	The container number that is assigned to a waste container that overpacks Type 16, 17, 18, 19, 27, 28, and 29 inner containers.	VARCHAR2(16)	n/a
TMP_WST_CNTRS	OVERPK_TYPE_CODE	A designation that is assigned to a waste container that overpacks Type 16, 17, 18, 19, 27, 28, and 29 inner containers. (See also TYPE_CODE and Containers Reference Table.)	VARCHAR2(3)	n/a
TMP_WST_CNTRS	PCB_WASTE	The checkbox is checked when the concentration of PCBs exceeds 50 ppm.	VARCHAR2(1)	n/a

F.1   WWIS Data Dictionary

Table Name	Field Name	Definition	Field Format	Units
TMP_WST_CNTRS	PCB_MASS	Estimated weight of waste for containers with PCB articles or solidified PCBs.	NUMBER(10,2)	Kg
TMP_WST_CNTRS	PCB_OUT_OF_SERVICE	The out-of-service date for PCBs.	DATE	n/a
TMP_WST_CNTRS	AQUEOUS_MATERIAL	A field (checkbox) that provides indication whether or not the waste is solidified aqueous waste. Sites are not allowed to assign matrix depletion shipping categories to solidified aqueous waste containers.	VARCHAR2(1)	n/a
TMP_WST_CNTRS	BE_LE_100KG	A field (checkbox) that provides indication whether or not beryllium is present in quantities less than or equal to 100 kgs.	VARCHAR2(1)	n/a
TMP_WST_CNTRS	BE_LE_5KG	A field (checkbox) that provides indication whether or not beryllium is present in quantities less than or equal to 5 kgs.	VARCHAR2(1)	n/a
TMP_WST_CNTRS	BE_LE_1PCT	A field (checkbox) that provides indication whether or not beryllium is present in quantities greater than or equal to 1% by weight of the waste.	VARCHAR2(1)	n/a
TMP_WST_CNTRS	BE_SHAVINGS	A field (checkbox) that provides indication whether or not the physical form of beryllium present the waste is in the form of shavings or fines.	VARCHAR2(1)	n/a
TMP_WST_CNTRS	COMPACTED	A field (checkbox) that provides indication whether or not the waste is either machine compacted or super compacted.	VARCHAR2(1)	n/a
TMP_WST_CNTRS	BE_LE_18KG	A field (checkbox) that provides indication whether or not beryllium is present in quantities less than or equal to 18 kgs.	VARCHAR2(1)	n/a

F.1   WWIS Data Dictionary

Table Name	Field Name	Definition	Field Format	Units
TMP_WST_CNTRS	SEPARATION_OK	A field (checkbox) that provides indication whether or not there is ½ inch separation between containers with machine compacted or super compacted waste.	VARCHAR2(1)	n/a
TMP_WST_CNTRS	BE_LE_25KG	A field (checkbox) that provides indication whether or not beryllium is present in quantities less than or equal to 25 kgs.	VARCHAR2(1)	n/a
TMP_WST_CNTRS	BE_CHEM_MECH_BOUND	A field (checkbox) that provides indication whether or not beryllium if present in the waste is chemically or mechanically bound to the waste matrix.	VARCHAR2(1)	n/a
TMP_WST_CNTRS	FEM	The calculated U-235 fissile equivalent mass per container – RH Waste Only.	NUMBER	FEM
TMP_WST_CNTRS	FEM_UNCERT	Uncertainty reported as 1 Sigma or 1 x error associated with the U-235 fissile equivalent mass per container.	NUMBER	FEM
TMP_WST_CNTRS	TRUNC_FGGR	A flag to indicate whether the testing period for the flammable gas generation rate was truncated or not.	VARCHAR2(1)	n/a
TMP_WST_CNTRS	TRUNC_FGGR_PERIOD	Period of time in days that is associated with the flammable gas generation rate for a container that has undergone testing to determine the total gas generation rate.	NUMBER	Days
TMP_WST_CNTRS	WASTE_GEN_DATE	A date used in place of the closure date to determine qualification for matrix depletion.	DATE	N/A

F.1.1   WWIS Data Dictionary: Nuclides

Table Name	Field Name	Definition	Field Format	Units
TMP_WC_NUCLIDES	CNTR_NUM	A unique identification number assigned to each container.	VARCHAR2(16)	n/a
TMP_WC_NUCLIDES	SITE_ID	Two-digit identification code assigned to the site, which ships the waste.	VARCHAR2(2)	n/a
TMP_WC_NUCLIDES	RADIONUCLIDE	The radionuclide present in the waste container.	VARCHAR2(7)	n/a
TMP_WC_NUCLIDES	ACTIVITY	Activity of the individual radionuclide.	NUMBER(24,18)	Ci
TMP_WC_NUCLIDES	ACTIVITY_UNCERT	Uncertainty reported as 1 Sigma or 1 x error associated with the activity of the individual radionuclide.	NUMBER(24, 18)	Ci
TMP_WC_NUCLIDES	MASS	Mass of the individual radionuclide.	NUMBER(24,18)	G
TMP_WC_NUCLIDES	MASS_UNCERT	Uncertainty reported as 1 Sigma or 1 x error associated with the mass of the individual radionuclide.	NUMBER(24,18)	g
TMP_WC_NUCLIDES	DISPLAYED_SHIP	Flag (checkbox) to identify whether or not the associated radionuclide will be included on the shipment manifest.	VARCHAR2(1)	n/a

F.1.2   WWIS Data Dictionary: Filters

Table Name	Field Name	Definition	Field Format	Units
TMP_WC_FILTERS	CNTR_NUM	A unique identification number assigned to each container.	VARCHAR2(16)	n/a
TMP_WC_FILTERS	SITE_ID	Two-digit identification code assigned to the site that ships the waste.	VARCHAR2(2)	n/a
TMP_WC_FILTERS	FILTER_MODEL	Vendor model number of the filter(s) used to vent the container.	VARCHAR2(6)	n/a
TMP_WC_FILTERS	QTY	Number of filters associated with each FILTER_MODEL that were installed on the waste container prior to inter-site shipment or prior to shipment to WIPP for disposal.	NUMBER(2)	n/a
TMP_WC_FILTERS	FILTER_INSTALL_DATE	Installation date of the specified filter.	DATE	n/a

F.1.3   WWIS Data Dictionary: Waste Material Parameters

Table Name	Field Name	Definition	Field Format	Units
TMP_WC_MAT_PARMS	CNTR_NUM	A unique identification number assigned to each container.	VARCHAR2(16)	n/a
TMP_WC_MAT_PARMS	SITE_ID	Two-digit identification code assigned to the site that ships the waste.	VARCHAR2(2)	n/a
TMP_WC_MAT_PARMS	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).	VARCHAR2(40)	n/a
TMP_WC_MAT_PARMS	WGT_OF_MAT_PARMS	The estimated weight of the waste material parameter.	NUMBER(10,2)	Kg

F.1.4   WWIS Data Dictionary: Assay Methods

Table Name	Field Name	Definition	Field Format	Units
TMP_WC_ASSAY_METHODS	CNTR_NUM	A unique identification number assigned to each container.	VARCHAR2(16)	n/a
TMP_WC_ASSAY_METHODS	SITE_ID	Two-digit identification code assigned to the site, which ships the waste.	VARCHAR2(2)	n/a
TMP_WC_ASSAY_METHODS	RADIO_ASSAY_METHOD	Identifies the site-specific/certified assay method or system that was used to identify and quantify the radionuclide masses and activities. (See also Assay Methods by Site Reference Table.)	VARCHAR2(20)	n/a
TMP_WC_ASSAY_METHODS	ASSAY_DATE	The date the assay was completed at the site that certified the waste for inter-site shipment or for shipment to WIPP for disposal.	DATE	n/a

F.1.5   WWIS Data Dictionary: Characterization Methods

Table Name	Field Name	Definition	Field Format	Units
TMP_WC_CHARZ_METHODS	METHOD_ID	Identifies the site-specific/certified characterization methods or systems that were used to obtain the waste characterization data using radiography, visual examination, headspace gas analysis, or solid sampling. (See also Characterization Methods by Site Reference Table.)	VARCHAR2(20)	n/a
TMP_WC_CHARZ_METHODS	SITE_ID	Two-digit identification code assigned to the site that ships the waste.	VARCHAR2(2)	n/a
TMP_WC_CHARZ_METHODS	CNTR_NUM	A unique identification number assigned to each container.	VARCHAR2(16)	n/a
TMP_WC_CHARZ_METHODS	CHARZ_METHOD_DATE	The date that the characterization was completed prior to inter-site shipment or prior to shipment to WIPP for disposal.	DATE	n/a

F.1.6   WWIS Data Dictionary: Hazardous Waste Codes

Table Name	Field Name	Definition	Field Format	Units
TMP_WC_HAZ_CODES	CNTR_NUM	A unique identification number assigned to each container.	VARCHAR2(16)	n/a
TMP_WC_HAZ_CODES	SITE_ID	Two-digit identification code assigned to the site that ships the waste.	VARCHAR2(2)	n/a
TMP_WC_HAZ_CODES	HAZ_CODE	Waste Stream specific hazardous waste code ID assigned to the waste container. This is a multiple occurring field.	VARCHAR2(4)	n/a

F.1.7   WWIS Data Dictionary: Samples

Table Name	Field Name	Definition	Field Format	Units
TMP_WC_SAMPLES	CNTR_NUM	A unique identification number assigned to each container.	VARCHAR2(16)	n/a
TMP_WC_SAMPLES	SITE_ID	Two-digit identification code assigned to the site that ships the waste.	VARCHAR2(2)	n/a
TMP_WC_SAMPLES	SAMPLE_ID	The identification number assigned to the sample.	VARCHAR2(15)	n/a
TMP_WC_SAMPLES	SAMPLE_TYPE	An acronym for the type of sample being taken (e.g., head space = HS).	VARCHAR2(8)	n/a
TMP_WC_SAMPLES	DATE_SAMPLED	The date the sample was taken.	DATE	n/a
TMP_WC_SAMPLES	LAYER_NO_SAMPLED	The layer of confinement within a waste container where a headspace gas sample was taken.	NUMBER(2)	0 – 6

F.1.8   WWIS Data Dictionary: Sample Amounts

Table Name	Field Name	Definition	Field Format	Units
TMP_WC_SAMPLE_AMOUNTS	CNTR_NUM	A unique identification number assigned to each container.	VARCHAR2(16)	n/a
TMP_WC_SAMPLE_AMOUNTS	SITE_ID	Two-digit identification code assigned to the site that ships the waste.	VARCHAR2(2)	n/a
TMP_WC_SAMPLE_AMOUNTS	SAMPLE_ID	The identification number assigned to the sample.	VARCHAR2(15)	n/a

F.1.8 WWIS Data Dictionary: Sample Amounts

Table Name	Field Name	Definition	Field Format	Units
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.	VARCHAR2(20)	n/a
TMP_WC_SAMPLE_AMOUNTS	METHOD_ID	Identifies the approved/certified characterization methods that were used to obtain the data as applicable to each sample.	VARCHAR2(20)	n/a
TMP_WC_SAMPLE_AMOUNTS	DATE_ANALYZED	The date that the sample was analyzed.	DATE	n/a
TMP_WC_SAMPLE_AMOUNTS	REPORTING_FLAG	Designator which was used by the analytical laboratory to indicate that reporting flags were not applicable to the sample.	VARCHAR2(2)	n/a
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).	VARCHAR2(2)	n/a
TMP_WC_SAMPLE_AMOUNTS	REPORTING_FLAG_E	Designator which was used by the analytical laboratory to indicate that the analyte exceeds the calibration curve.	VARCHAR2(2)	n/a
TMP_WC_SAMPLE_AMOUNTS	REPORTING_FLAG_J	Designator which was used by the analytical laboratory to indicate that the analyte concentration is less than PRQL but greater than or equal to MDL.	VARCHAR2(2)	n/a
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.	VARCHAR2(2)	n/a

F.1.8   WWIS Data Dictionary: Sample Amounts

Table Name	Field Name	Definition	Field Format	Units
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.	VARCHAR2(2)	n/a
TMP_WC_SAMPLE_AMOUNTS	CONC_PPM	The analyte concentration in ppm.	NUMBER(10,3)	ppm

F.1.9   WWIS Data Dictionary: Comments

Table Name	Field Name	Definition	Field Format	Units
TMP_WC_COMMENTS	CNTR_NUM	A unique identification number assigned to each container.	VARCHAR2(16)	n/a
TMP_WC_COMMENTS	SITE_ID	Two-digit identification code assigned to the site that ships the waste.	VARCHAR2(2)	n/a
TMP_WC_COMMENTS	COMMENTS	Data field to be used to provide additional information when relevant.	VARCHAR2(200)	n/a
TMP_WC_COMMENTS	COMMENT_TYPE	A general category field for comments.	VARCHAR2(25)	n/a
TMP_WC_INNER_CANS	SITE_ID	Two-digit identification code assigned to the site that ships the waste.	VARCHAR2(2)	n/a
TMP_WC_INNER_CANS	CNTR_NUM	A unique identification number assigned to each container.	VARCHAR2(16)	n/a
TMP_WC_INNER_CANS	CAN_NUM	A unique number obtained from site packaging records for a can containing RH waste.	VARCHAR2(16)	n/a
TMP_WC_INNER_CANS	PARENT_CAN_NUM	A unique number obtained from site packaging records for a can containing RH waste that is directly packaged within the can or inner cans containing RH waste	VARCHAR2(16)	n/a
TMP_WC_INNER_CANS	DECAY_HEAT	The calculated rate of deposition of thermal energy within the can associated with the decay of radionuclides. The terms "decay heat," "watts" and "thermal power" are synonymous.	NUMBER(10,6)	watts
TMP_WC_INNER_CANS	DECAY_HEAT_UNCERT	Uncertainty reported as 1 Sigma or 1 x error associated with the calculated decay heat value for the can.	NUMBER(10,6)	watts

F.1.9 WWIS Data Dictionary: Comments

Table Name	Field Name	Definition	Field Format	Units
TMP_WC_INNER_CANS	CLOSURE_DATE	Date the can was closed.	DATE	n/a
TMP_WC_INNER_CANS	VENT_DATE	The date when the can was vented.	DATE	n/a
TMP_WC_INNER_CANS	FILTER_DIFFUSIVITY	The hydrogen diffusivity value that is associated with the filter that is installed in the lid of the can.	NUMBER(12,8)	n/a
TMP_WC_INNER_CANS	FLAM_GAS_GEN_RATE	Measured total gas generation rate for the can.	NUMBER(18,12)	moles/s
TMP_WC_INNER_CANS	HYDROGEN_CONC	Measured hydrogen concentration for the can.	NUMBER(7,4)	Vol%
TMP_WC_INNER_CANS	SAMPLE_DATE	Sample Date for measured hydrogen concentration for the can.	DATE	n/a

F.2 Edit Limit Check		Characterization		Certification		Inner Container		Overpack	
Procedure Name	Purpose	CH	RH	CH	RH	CH	RH	CH	RH
call_rhtes_cntr_eval	Calls appropriate RHTES evaluation based on type code.				Y		Y		Y
call_wtes_cntr_eval	Calls WTES container evaluation.			Y		Y			
call_wtes_opk_eval	Calls WTES overpack evaluation.							Y	
ck_alpha_surf_cont	Alpha Surface Cont required.			Y	Y			Y	Y
ck_analysis_approved_date	Date Analyzed must be in approved date range for Method and Site.	Y	Y	Y	Y	Y	Y		
ck_analysis_approved_proc	Date Analyzed must be in approved date range for at least one of the procedures associated with the Method and Site.	Y	Y	Y	Y	Y	Y		

F.2 Edit Limit Check		Characterization		Certification		Inner Container		Overpack	
Procedure Name	Purpose	CH	RH	CH	RH	CH	RH	CH	RH
ck_analyte	Analyte required; must be valid for waste stream.	Y	Y	Y	Y	Y	Y		
ck_aqueous_material	Aqueous Material flag must by Y, N, or NULL.			Y	Y	Y	Y	Y	Y
ck_aspiration_method	Aspiration Method required; must be valid.			Y	Y	Y	Y		
ck_assay_approved_date	Assay Date must be in approved date range for Radio Assay Method and Site.	Y	Y	Y	Y	Y	Y		
ck_assay_approved_proc	Assay Date must be in approved date range for at least one of the procedures associated with the Radio Assay Method and Site.	Y	Y	Y	Y	Y	Y		
ck_assay_date	Assay Date required.	Y	Y	Y	Y	Y	Y		
ck_assay_method	Assay Method required; must be valid.	Y	Y	Y	Y	Y	Y		
ck_bg_dose_rate	Beta/Gamma Dose Rate required.			Y	Y	Y	Y	Y	Y
ck_bg_surf_cont	Beta/Gamma Surface Cont required.			Y	Y			Y	Y
ck_cert_date	Cert Date required; <= submittal date.			Y	Y	Y	Y	Y	Y
ck_cert_site	Cert Site ID required; must be valid.			Y	Y	Y	Y	Y	Y
ck_charz_approved_date	Charz Date must be in approved date range for Charz Method and Site.	Y	Y	Y	Y	Y	Y		
ck_charz_approved_proc	Charz Date must be in approved date range for at least one of the procedures associated with the Charz Method and Site.	Y	Y	Y	Y	Y	Y		
ck_charz_method	Charz Method required; must be valid.	Y	Y	Y	Y	Y	Y		
ck_closure_date	Closure Date required; <= submittal date.			Y	Y	Y	Y	Y	Y
ck_cntr_cond_status	Looks at the conditional exit codes and the container type code and determines whether the container should pass or fail. Called by call_wtes_cntr_eval.			Y		Y			
ck_cntr_num	Container Number is required; must be unique.	Y	Y	Y	Y	Y	Y		
ck_cntr_prefix	Beginning characters of the container number match one of the container prefixes specified for the site.			Y	Y			Y	Y

F.2 Edit Limit Check		Characterization		Certification		Inner Container		Overpack	
Procedure Name	Purpose	CH	RH	CH	RH	CH	RH	CH	RH
ck_comment	Comment required (for each comment record).	Y	Y	Y	Y	Y	Y	Y	Y
ck_comment_type	Comment Type required (for each comment record); must be valid.	Y	Y	Y	Y	Y	Y	Y	Y
ck_compacted_flag	Compacted flag must by Y, N, or NULL.			Y	Y	Y	Y	Y	Y
ck_conc	Analyte must be valid; Sample Type must be valid.	Y	Y	Y	Y	Y	Y		
ck_conc_ppm_limit	Conc (ppm) <= conc limit for analyte from Analytes table.	Y	Y	Y	Y	Y	Y		
ck_decay_heat	Decay Heat required.			Y	Y	Y	Y	Y	Y
ck_decay_heat_uncert	Decay Heat Uncert required.			Y	Y	Y	Y	Y	Y
ck_fem	U-235 FEM must be null (temporary)			Y	Y	Y	Y	Y	Y
ck_fem_uncert	U-235 FEM uncertainty must be null (temporary)			Y	Y	Y	Y	Y	Y
ck_fill_factor	Fill Factor required; must be between minimum and maximum fill factor limits in WAC Limits table.			Y	Y	Y	Y	Y	Y
ck_filters_pk	If Filter Model not null; Filter Install Date required and Filter Model must be valid.	Y	Y	Y	Y	Y	Y	Y	Y
ck_filters	Filter Model required and must be valid; Filter Qty required and must be in range of 1 to 12; Filter Install Date required and must be <= submittal date; If payload container, Filter Model must be approved.	Y	Y	Y	Y	Y	Y	Y	Y
ck_generator_site	Generator Site ID required; must be valid.	Y	Y	Y	Y	Y	Y	Y	Y
ck_gross_weight	Gross Weight required.			Y	Y	Y	Y	Y	Y
ck_gross_weight_uncert	Gross Weight Uncert required.			Y	Y	Y	Y	Y	Y
ck_handling_code	Handling Code required; must be CH or RH.	Y	Y	Y	Y	Y	Y	Y	Y
ck_handing_type_code	Handling Code and Type Code must be compatible.	Y	Y	Y	Y	Y	Y	Y	Y
ck_haz_codes	If TRU, haz code not allowed; if MTRU, haz code required. Haz code must be valid for waste stream profile.	Y	Y	Y	Y	Y	Y	Y	Y

F.2 Edit Limit Check		Characterization		Certification		Inner Container		Overpack	
Procedure Name	Purpose	CH	RH	CH	RH	CH	RH	CH	RH
ck_inner_can_num	Can Num ID is required and must be unique for the Site.		Y		Y		Y		
ck_layers_of_packaging	Layers of Packaging required.			Y	Y	Y	Y	Y	Y
ck_liner_exists_hole_size	Liner Exists must be Y or N; if Y, Liner Hole Size >= minimum liner hole size in WAC Limits table.			Y	Y	Y	Y		
ck_mat_parms	Material Parm required and must be valid; Weight of Mat Parm required.	Y	Y	Y	Y	Y	Y	Y	Y
ck_matrix_code	Matrix Code required; valid for waste stream.	Y	Y	Y	Y	Y	Y	Y	Y
ck_num_inner_cntrs								Y	Y
ck_neut_dose_rate	Neutron Dose Rate required.			Y	Y	Y	Y	Y	Y
ck_opk_mat_parms	Material Parm required and must be valid; Weight of Mat Parm required.							Y	Y
ck_parent_can_num	Parent Can Num must be in the same container as the inner can being checked.		Y		Y		Y		
ck_pcb_conc	Not negative; if value >= maximum pcb concentration limit from WAC Limits table, PCB Waste must = Y			Y	Y	Y	Y	Y	Y
ck_pu239_eq_act	Pu-239 Eq Act required.			Y	Y	Y	Y	Y	Y
ck_pu239_fge	Pu-239 Fiss Gm Eq required.			Y	Y	Y	Y	Y	Y
ck_pu239_fiss_gm_eq_uncert	Pu-239 Fiss Gm Eq Uncert required.			Y	Y	Y	Y	Y	Y
ck_radionuclide	Radionuclide required; must be valid.	Y	Y	Y	Y	Y	Y	Y	Y
ck_radionuclide_amts	Activity, Activity Uncert, Mass, and Mass Uncert required; activity and mass must BOTH be <LLD, zero, or greater than zero; if cert, difference between calculated mass and reported mass must be within range specified in WAC Limits table.	Y	Y	Y	Y	Y	Y	Y	Y

F.2 Edit Limit Check		Characterization		Certification		Inner Container		Overpack	
Procedure Name	Purpose	CH	RH	CH	RH	CH	RH	CH	RH
ck_sample_amt_nulls	CAS Number required; Method ID required; Date Analyzed required and <= submittal date; at least one reporting flag required; Reporting Flag NA must be NA or null; Reporting Flag B must be B or null; Reporting Flag E must be E or null; Reporting Flag J must be J or null; Reporting Flag U must be U or null; Reporting Flag D must be D or null; Method ID must be valid for Site; Method ID must be valid Method Type = A.	Y	Y	Y	Y	Y	Y		
ck_sample_nulls	Sample ID required; Date Sampled required and <= submittal date; Sample Type required and must be valid.	Y	Y	Y	Y	Y	Y		
ck_separation_ok_flag	Separation OK flag must by Y, N or NULL.			Y	Y	Y	Y	Y	Y
ck_ship_site_id	Site ID required; must be valid.	Y	Y	Y	Y	Y	Y	Y	Y
ck_tru_alpha_act	TRU Alpha Activity required.			Y	Y	Y	Y	Y	Y
ck_tru_alpha_act_uncert	TRU Alpha Activity Uncert required.			Y	Y	Y	Y	Y	Y
ck_trunc_fggr	Truncated FGGR flag and Truncated FGGR period must be in alignment			Y	Y	Y	Y	Y	Y
ck_type_code	Type code required; must be valid.	Y	Y	Y	Y	Y	Y	Y	Y
ck_vent_date	Vent Date required; <= submittal date.			Y	Y	Y	Y	Y	Y
ck_wac_exception	WAC Exception Number must be valid.			Y	Y	Y	Y	Y	Y
ck_wac_rev_num	WAC Rev Number required; must be valid.			Y	Y	Y	Y	Y	Y
ck_wspf_cntrs	Container is in list of approved container for waste stream (if applicable).			Y	Y	Y	Y		
ck_wst_strm_bir_id	Waste Stream BIR ID required.	Y	Y	Y	Y	Y	Y	Y	Y
ck_wst_strm_mwir_id	Waste Stream MWIR ID required.	Y	Y	Y	Y	Y	Y	Y	Y
ck_wst_strm_profile	Waste Stream Profile required; valid; approved (cert), not approved (charz)	Y	Y	Y	Y	Y	Y	Y	Y

F.2 Edit Limit Check		Characterization		Certification		Inner Container		Overpack	
Procedure Name	Purpose	CH	RH	CH	RH	CH	RH	CH	RH
perf_assay_checks	Calls ck_assay_method, ck_assay_date, ck_assay_approved_date, and ck_assay_approved_proc.	Y	Y	Y	Y	Y	Y		
perf_be_flag_checks	Be flags must be Y, N or NULL; Be flags must be consistent; if overpack, inner container Be flags must be consistent with overpack Be flags; Be flag must be consistent with Be criteria for container type.			Y	Y	Y	Y	Y	Y
perf_charz_checks	Calls ck_charz_method, ck_charz_date, ck_charz_approved_date, and ck_charz_approved_proc.	Y	Y	Y	Y	Y	Y		
perf_comment_checks	Call ck_comment_type and ck_comment.	Y	Y	Y	Y	Y	Y	Y	Y
perf_filter_checks	Call ck_filters.	Y	Y	Y	Y	Y	Y	Y	Y
perf_haz_checks	Call ck_haz_codes.	Y	Y	Y	Y	Y	Y	Y	Y
perf_inner_can_checks	Call ck_inner_can_num.		Y		Y		Y		
perf_mat_parm_checks	Calls ck_mat_parms.	Y	Y	Y	Y	Y	Y	Y	Y
perf_nuclide_checks	Calls ck_radionuclide and ck_radionuclide_amts.	Y	Y	Y	Y	Y	Y	Y	Y
perf_parent_can_checks	Call ck_parent_can_num.		Y		Y		Y		
perf_pcb_checks	PCB Mass not negative; PCB Mass <= Gross Weight; PCB Waste must be Y or N; if PCB Waste = Y, PCB Out of Service Date required and <= submittal date and PCB Mass > 0; if PCB Waste = N, PCB Out of Service Date and PCB Mass must be NULL.			Y	Y	Y	Y	Y	Y
perf_sample_amount_checks	Calls ck_sample_amt_nulls, ck_analyte, rck_date_analyzed, ck_conc, ck_conc_ppm_limit, ck_analysis_approved_date, and ck_analysis_approved_proc.	Y	Y	Y	Y	Y	Y		
perf_sample_checks	Call ck_sample_nulls.	Y	Y	Y	Y	Y	Y		
rck_alpha_surf_cont	Alpha Surface Cont < limit in WAC Limits table.			Y	Y			Y	Y

F.2 Edit Limit Check		Characterization		Certification		Inner Container		Overpack	
Procedure Name	Purpose	CH	RH	CH	RH	CH	RH	CH	RH
rck_bg_surf_cont	Beta/Gamma Surface Cont < limit in WAC Limits table.			Y	Y				
rck_calc_fge	Difference between calculated FGE and reported FGE must be within range specified in WAC Limits table.			Y	Y	Y	Y		
rck_calc_taa	Difference between calculated TRU Alpha Activity and reported TRU Alpha Activity must be within range specified in WAC Limits table.			Y	Y	Y	Y		
rck_calc_taac	Difference between calculated TRU Alpha Activity Conc and reported TRU Alpha Activity Conc must be within range specified in WAC Limits table.			Y	Y	Y	Y		
rck_date_analyzed	Date Analyzed >= Date Sampled; Number of days between date analyzed and date sampled must be <= analyte limit from Sample Amount Limits table.	Y	Y	Y	Y	Y	Y		
rck_gross_weight	Gross Weight <= limit in Container Types table.					Y	Y	Y	Y
rck_missing_analytes	ALL target analytes must be reported.	Y	Y	Y	Y	Y	Y		
rck_missing_haz_codes	All haz codes associated with the waste stream must be reported.	Y	Y	Y	Y	Y	Y		
rck_missing_nuclides	All EPA-tracked radionuclides are required.	Y	Y	Y	Y	Y	Y		
rck_pu_239_eq_act	Pu-239 Eq Act <= limit based on container type and waste form (solidified/vitrified).			Y	Y	Y	Y	Y	Y
rck_pu_239_fge	Pu-239 Fiss Gm Eq <= limit based on container type, compaction and Be content.			Y	Y	Y	Y	Y	Y
rck_sum_wgt_of_mat_parms	Sum weight of Steel must be within range specified in WAC Limits table of the container tare weight from the Container Types table. Summed weight of all material parameters must be within range specified in WAC Limits table of the reported container gross weight.			Y	Y	Y	Y		
rck_tot_dose_rate_limit	Total Dose Rate <= maximum limit in Dose Rate Limits table; If RH, value > CH limit in Dose Rate Limits table.			Y	Y	Y	Y	Y	Y

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F.2 Edit Limit Check		Characterization		Certification		Inner Container		Overpack	
Procedure Name	Purpose	CH	RH	CH	RH	CH	RH	CH	RH
rck_tru_alpha_act	If negative value (<MDC), must be inner container type; If RH, TAA value/container volume must be <= RH limit in WAC Limits table.			Y	Y	Y	Y	Y	Y
rck_tru_alpha_act_conc	If negative value (<MDC), must be inner container type; must be > minimum TAAC in WAC Limits table.			Y	Y			Y	Y
rck_type_code	Type code cannot be inner container or overpack type.								
rck_wst_strm_profile	Inner container Waste Stream Profile = Overpack Waste Stream Profile.							Y	Y

F.3 WWIS Version 5.0 Menus/Screens

F.3.1 Characterization and Certification Data Entry – Container Subscreens

F.3.1.1 Radionuclide Data Entry Screen

NOTE: The List on Shipment checkbox is an optional field. All radionuclides are automatically listed on the Shipment Summary Report.

F.3.1.2 Waste Material Parameters Data Entry Screen

NOTE: The Waste Weight, Packaging Weight, and Total Material Weight fields are automatically populated when the disk icon is pressed or when the data is saved.

F.3.1.3   Filter Models Data Entry Screen

NOTE: This screen is available in certification only and when the filter model number is entered, the filter description field is automatically populated.

F.3.1.4   Characterization Methods Data Entry Screen

NOTE: When the Charz Method ID is entered, the description field is automatically populated.

F.3.1.5   Assay Methods Data Entry Screen

NOTE: When the Assay Method ID is entered, the description field is automatically populated.

F.3.1.6   Hazardous Waste Codes Data Entry Screen

NOTE: When the Haz Code is entered, the description field is automatically populated.

F.3.1.7 Hazardous Waste Codes

| Label	Description	Label	Description
D004	Arsenic	F004	Spent non-halogenated solvents
D005	Barium	F005	Spent non-halogenated solvents
D006	Cadmium	F006	Waste water treatment sludge
D007	Chromium	F007	Spent cyanide plating bath
D008	Lead	F009	Spent stripping solution
D009	Mercury	P015	Beryllium
D010	Selenium	P120	Vanadium Oxide
D011	Silver	U002	Acetone
D018	Benzene	U019	Benzene
D019	Carbon tetrachloride	U037	Chlorobenzene
D021	Chlorobenzene	U043	Chloroethene
D022	Chloroform	U044	Trichloromethane
D026	Cresol	U052	Methylphenol
D027	1,4-dichlorobenzene	U070	O-Dichlorobenzene
D028	1,2-dichloroethane	U072	P-Dichlorobenzene
D029	1,1-dichloroethylene	U078	1,1-Dichloroethylene
D030	2,4-dinitrotoluene	U079	1,2-Dichloroethylene
D032	Hexachlorobenzene	U105	2,4-Nitrotoluene
D034	Hexachloroethane	U122	Formaldehyde
D035	Methyl ethyl ketone	U133	Hydrazine
D036	Nitrobenzene	U151	Mercury
D037	Pentrachlorophenol	U154	Methanol
D038	Pyridine	U159	Methylethylkeytone (MEK)
D039	Tetrachloroethylene	U210	Tetrachloroethylene
D040	Trichloroethylene	U220	Toluene
D043	Vinyl chloride	U226	Methylcholoroform
F001	Spent halogenated solvents	U228	Trichloroethene
F002	Spent halogenated solvents	U239	Dimethylbenzene
F003	Spent non-halogenated solvents		
NOTE: Other hazardous waste codes may also be approved. Check WIPP WAP or WWIS reference tables for official list. Contact WWIS DAs to add codes to reference tables. State Hazardous Waste Codes that apply to shipments should be entered into the Comments field in the Shipment module.			

F.3.1.8 Samples/Sample Amounts Data Entry Screen

F.3.1.9 Comments Data Entry Screen

F.3.2 Waste Container Data Report

To generate a Waste Container Data report for a waste container, enter the container number in the container number field and press the green traffic light at the top of the screen.

To generate numerous container data reports from a site or from a particular waste stream, leave the container number field blank and enter a Site ID and Waste Stream ID number and press the green traffic light at the top of the screen.

If the user wants to refine their search, they must use the data status code dropdown menu, select one of the status codes, and press the green traffic light at the top of the screen.

F.3.3 Shipment Summary Report

NOTE: To generate a Shipment Summary Report, enter the shipment number in the block and press the green traffic light at the top of the screen.

Appendix G: Change History

CHANGE HISTORY

REVISION NO.	EFFECTIVE DATE	PAGES REVISED	REASON FOR CHANGE
4	07/29/02	All	Original Release.
4	07/29/02	Table 1 A	A RH container submitted with a Beta/Gamma Dose Rate <= 200 and a total dose rate > 200 does NOT result in a dose rate error. A RH container submitted with a Beta/Gamma Dose Rate <= 200 and a total dose rate <= 200 results in a dose rate error. A RH container submitted with a Beta/Gamma Dose Rate > 200 and a total dose rate > 200 does NOT result in a dose rate error.
4	07/29/02	Table 1A	A RH container submitted with a Neutron Dose Rate <= 200 and a total dose rate > 200 does NOT result in a dose rate error. A RH container submitted with a Neutron Dose Rate <= 200 and a total dose rate <= 200 results in a dose rate error. A RH container submitted with a Neutron Dose Rate > 200 and a total dose rate > 200 does NOT result in a dose rate error.
4	07/29/02	Table 1A	When transferring a container, with all data complete except shipping category, the container is not transferred and an error appears in the detailed errors window.
4	07/29/02	Appendix H	When the exit button is clicked, the user will not have the option to save.
4	07/29/02	Appendix H	In 'Enter Query' mode, the shipment number and default values will be displayed when the shipment number is entered or selected and 'Build 741' is clicked.
4	07/29/02	Appendix H	Project number is an optional field.
4	07/29/02	Appendix H	When a shipment is rejected (deleted), all NMMSS data tied to the shipment is also deleted. Deleting a shipment that has had a 741 submitted DOES NOT result in an error.
4	07/29/02	Section 8.12.5	The TRACTOR_VIN data entry field had been replaced by the TRACTOR_ID field. When the Tractor ID number is entered into the TRACTOR_ID field, in eTRAMPAC, the TRACTOR_ID field in the WWIS Shipping Module will be automatically populated when the shipment information is saved in eTRAMPAC and submitted to the WWIS.
4	07/29/02	Section 8.12.15	The TRAILER_VIN data entry field had been replaced by the TRAILER_ID field. When the Trailer ID number is entered into the TRAILER_ID field in eTRAMPAC, the TRAILER_ID field in the WWIS Shipping Module will be automatically populated when the shipment information is saved in eTRAMPAC and submitted to WWIS.
5	09/30/03	Section 6.3.2	Revised explanation of connection to terminal server.
5	10/30/03	Section 7.2	Added explanation to summarize rounding in numeric data fields.
5	10/30/03	Section 7.2.1	Added section on Reporting PCB Concentrations.

REVISION NO.	EFFECTIVE DATE	PAGES REVISED	REASON FOR CHANGE
5	10/30/03	Section 7.2.2	Added Table 7-1, Waste Material Parameter Types, to Section 7.2.2.
5	10/30/03	Section 7.2.4	Added new section to summarize input of assay methods and characterization methods and automated container data check/functionality.
5	10/30/03	Section 7.2.5	Added a new section to summarize overpacking.
5	10/30/03	Section 7.2.6	Added a new section to summarize container reset and hold functionality.
5	10/30/03	Section 7.3	For inter-site shipments, added instructions for building assemblies, payloads, and shipments in the test instance.
5	10/30/03	Section 7.6	Added a new section to summarize functionality of the Utility Module.
5	10/30/03	Sections 8.2.3, 8.2.4, 8.2.6	Added instructions for reporting headspace gas analytical data for composite sampling.
5	10/30/03	Section 8.4	Provided clarification that eTRAMPAC and WWIS checks of approved filter models are applicable to payload containers. Added Table 8-4, Filter Models.
5	10/30/03	Section 8.7	Added discussion about beryllium in quantities > 1% by weight and associated transportation limits.
5	10/30/03	Section 8.11.1	Added Table 8-7, Container Types.
5	10/30/03	Appendix A	Added new appendix for automated tracking function for certified assay methods, characterization methods, and approved procedures.
5	10/30/03	Appendix B	Extensive revision of instructions for consolidation of data for drums overpacked in a standard waste box or ten-drum overpack.
5	10/30/03	Appendix G	Reformatted WWIS Data Dictionary to improve legibility and updated all screen figures.
6	05/04/04	Definitions	Removed acronyms from Definitions and created separate acronym list.
6	05/04/04	Section 6.3.2	Revised explanation of connection to terminal server.
6	05/04/04	Section 7.2	Provided summary information about automated edit/limit checks for DATE fields.
6	05/04/04	Section 7.0	Renumbered entire section starting after 7.2.
6	05/04/04	Section 7.3	Removed a NOTE regarding DOE approval of a WAC Revision to fully implement requirements for reporting PCB quantities.
6	05/04/04	Sections 7.5, 7.6, 7.7	Provided summary information and details about automated edit/limit checks for TRU Alpha Activity, TRU Alpha Activity Concentration and Radionuclide Mass and Activity fields.
6	05/04/04	Section 7.8	Removed a NOTE regarding reporting Waste Material Parameters prior to the release of WWIS Version 4.8.
6	05/04/04	Section 7.8	Added Waste Material Parameter 15, Cellulosic Packaging to Table 7-1.

REVISION NO.	EFFECTIVE DATE	PAGES REVISED	REASON FOR CHANGE
6	05/04/04	Section 7.9	Added information about how to populate the LAYER_NUMBER_SAMPLED field when a drum has a rigid liner.
6	05/04/04	Section 7.11	Added a sentence to implement the requirement that each waste container selected for payload management must contain at least one TRU isotope where the activity exceeds the LLD of the assay system used to characterize the waste.
6	05/04/04	Section 7.13	Revised instructions for logon to electronic data transfer to eliminate input of username and password.
6	05/04/04	Section 7.14	Added a 4th bullet to explain that dunnage containers do not need to be created for placement in SWBs and TDOPs.
6	05/04/04	Appendix B, Section B.5	Simplified discussion about parameters that must be identical for all overpacked waste drums by removing parameters identified to be redundant or not applicable.
6	05/04/04	Appendix B, Section B.7.5	Removed discussion regarding calculation of TRU Alpha Activity Concentration and Uncertainty that are no longer used.
6	05/04/04	Appendix C	Removed entire appendix. The ETRF_TRUCON program is not used by shipper/generator users.
6	05/04/04	Appendix D	Updated to include the most current WIPPNet Remote Access Form and instructions for completing the form.
6	05/04/04	Appendix F	Changed the resolution of the TRU_Alpha_Activity and TRU_Alpha_Activity Concentration data fields from NUMBER (18,12) to NUMBER (24,18).
6	05/04/04	Appendix F	Changed the resolution of the Radionuclide Activity and Mass data fields from NUMBER (18,12) to NUMBER (24,18).
7	05/12/04	Section 5.1	Upgrade to new server hardware; added a diagram depicting WWIS hardware configuration.
8	12/16/04	All	This revision is a complete rewrite. All sections have been revised and the Shipping Module has been integrated back into the WWIS; eTRAMPAC evaluations have been rewritten to be compliant with TRAMPAC Rev. 20; CH SAR beryllium requirements have been incorporated; the PCB-related fields have been modified.
9	12/11/05	General	Updated/renamed Figures, Tables and Section numbering, and references to figures in various sections of the document as needed.
9	12/11/05	WWIS Abbreviations and Acronyms	Added the acronym for WTES WIPP TRAMPAC Evaluation Software.
9	12/11/05	WWIS Definitions	Added definitions for Direct Loaded and Overpack.
9	12/11/05	Section 6.3.2	Added/enhanced discussion about development of passwords and updated internet addresses that are used to connect to the database.

REVISION NO.	EFFECTIVE DATE	PAGES REVISED	REASON FOR CHANGE
9	12/11/05	Section 6.3.3	Added a new section to describe connectivity to WIPP Instant Virtual Extranet (IVE).
9	12/11/05	Section 6.3.5	Added/enhanced discussion about development of passwords.
9	12/11/05	6.3.4	Added a new table as an enhancement to summarize functionality descriptions of WWIS database instances.
9	12/11/05	7.2	Added a new section as an enhancement to describe/summarize the various WWIS data statuses.
9	12/11/05	7.3	Revision to rounding discussion regarding the Pu-239 FGE and Pu-239 FGE Uncertainty fields.
9	12/11/05	8.0	Added discussion to clarify configuration of the WSPF Administrative Table and submittal of container data to the characterization module.
9	12/11/05	8.0	Added a note to summarize the review process for waste stream lot and the edit/limit check of the container numbers on the approved container list.
9	12/11/05	9.0	Added a statement to clarify that hazardous waste codes that are listed in the WSPF Administrative Table must be reported for each container when submitted to the WWIS database.
9	12/11/05	9.0	Added a statement to clarify and/or provide guidance for implementation of a new requirement for adding site a specific prefix to container numbers (CNTR_NUM) prior to submittal to Certification prior to shipment.
9	12/11/05	9.4	Added a statement to clarify that the WWIS has a built-in edit/limit check to ensure that the EPA- tracked radionuclides are reported for each waste container when submitted to the database.
9	12/11/05	9.7	Added a statement to clarify that the WWIS has a built-in edit/limit check to ensure that the difference in the reported versus the calculated FGE for each waste container does not exceed 5 percent when submitted to the database.
9	12/11/05	9.13	Updates to summary discussion regarding DSA beryllium and FGE Edit/Limit checks
9	12/11/05	10.1.1	Inserted two paragraphs to provide an explanation about database design elements for including containers in shipment subassemblies that have passed all of the edit/limit checks but have not been approved by a Data Administrator.
9	12/11/05	10.2 and 10.3	Added summary information to explain database design attributes for color coding of data fields
9	12/11/05	10.3	Added a Note regarding CBFO preapproval of shipments with payloads that will not exceed regulatory weight limits or FGE limits but will contain dunnage.

REVISION NO.	EFFECTIVE DATE	PAGES REVISED	REASON FOR CHANGE
9	12/11/05	10.3	Added a bullet for entry of Send Date and removed the summary discussion regarding Highway Route Control Quantity Determination, Recordable Quantity Determination, and Fissile Exempt Determination.
9	12/11/05	10.3	Provided two paragraphs to further clarify guidelines about required notifications to CBFO when dunnage is to be included in payloads that do not exceed regulatory FGE and weight limits.
9	12/11/05	10.3	Two clarifications that the shipment status must be NEW_SHIP to either delete or make corrections to shipment records.
9	12/11/05	10.3	Removed the paragraph that provided a summary discussion about the Remote-Handled Data Entry Form and removed Figure 9-8 that depicted an example of the form. The form was developed in WWIS Version 5.1 but was not actually included in the production instance of the database.
9	12/11/05	10.3.1	Removed entire subsection that described the HRCQ calculation and updated the discussion about the DOT Description field.
9	12/11/05	10.3.2	Removed entire subsection that described the Reportable Quantity (RQ) Calculation.
9	12/11/05	10.3.4	Removed the entire subsection that described the Fissile Exempt calculation.
9	12/11/05	B.1	Added summary information to describe changes in functionality of edit/limit checks associated with the Overpack Data Entry form.
9	12/11/05	B.3	Minor text changes to provide clarification to discussion of overpack configurations.
9	12/11/05	B.5, B.6, B.7, B.8, B.9, B.10.3, B.10.7, B.10.8, B.10.9, and B.11	Removed all sections and replaced with a new summary table from the WWIS Software Requirements Specification that more effectively communicates information about data rollups for overpacks.
9	12/11/05	Table B-1	Removed entire Table. Error messages are covered in Appendix E.
9	12/11/05	Appendix D	Update Instructions for completion of WIPPNET Access Form and updated the form.
9	12/11/05	Appendix E	Removed Table E-1 Drum Age Criteria Options. For details about Drum Age Criteria requirements, refer to the TRAMPAC.
9	12/11/05	Appendix E	Revised Section E.3 to provide a reference to the CBFO List of Approved Filter Vents and removed Table E-3 Filter Models from the document. The list of approved filter vents may be accessed from the WIPP Homepage on the Internet.

REVISION NO.	EFFECTIVE DATE	PAGES REVISED	REASON FOR CHANGE
9	12/11/05	Appendix E	Revised Section E.6 to provide a reference to WIPP-WAC, Table 3.3.2.1 and removed Table E-5, Container FGE Limits, from the Document. Removed the NOTE about CH WAC limits and discussion about beryllium that is now covered in other sections of the document.
9	12/11/05	Appendix E	Removed discussion from Section E.7 regarding TRUCON Codes and the process for approval of TRUCON Codes.
9	12/11/05	Appendix F	Revised the field format for the WAC_REV_NUM field to VARCHAR2(8) and added a new line item for the ½ inch separation checkbox.
9	12/11/05	Appendix G	Removed entire Appendix. Troubleshooting information applicable to previous versions of the WWIS and e-TRAMPAC is no longer applicable. Up-to-date troubleshooting information for connectivity is included in Section 6.3.3.
10	07/14/06	General	Updated/renamed figures, tables and section numbering, and references to figures in various sections of the document as needed.
10	07/14/06	General	Updated Acronyms, Definitions, and made minor editorial corrections in various sections of the document as needed.
10	07/14/06	Section 1.0	Introduction: Removed two sentences that provided NMMSS summary description.
10	07/14/06	Section 2.0	Purpose: Removed one sentence that provided reference to NMMSS:
10	07/14/06	Section 4.0	Removed one sentence that required the SPM to develop a local interface regarding submission of NMMSS 741 reports.
10	07/14/06	Section 6.3.6	NMMSS 741 User Roles: Section deleted. NMMSS functionality has been disabled.
10	07/14/06	Section 7.3	Removed discussion regarding submittal of numeric values and rounding conventions. Number format fields have been expanded to make rounding unnecessary.
10	07/14/06	Section 9.0	Payload Container Identification/Numbering: Removed two sentences to make the discussion more accurate and to align with database design.
10	07/14/06	Section 9.1.1	Preliminary Evaluation: Added discussion and a new figure to describe the eTRAMPAC container evaluation.
10	07/14/06	Section 10.4	Removed two paragraphs that provided NMMSS summary discussion.
10	07/14/06	Appendix A	Added summary discussion about granting of privileges to users to update characterization methods, assay methods and procedures administrative tables.

REVISION NO.	EFFECTIVE DATE	PAGES REVISED	REASON FOR CHANGE
10	07/14/06	Appendix B	Preliminary Evaluation: Added discussion and a new figure to describe the eTRAMPAC container evaluation.
10	07/14/06	Appendix B	Added a new section to describe new reporting functionality associated with material parameters in Overpack containers
10	07/14/06	Appendix G	Desktop Instruction for NMMSS Reporting: Deleted. NMMSS is no longer functional.
11	11/16/06	General	Updated/renamed figures, tables and section numbering, and references to figures in various sections of the document as needed.
11	11/16/06	General	Updated Acronyms, Definitions, and made minor editorial corrections in various sections of the document as needed.
11	11/16/06	Section 1.0	Updated introductory information about newly developed software programs that interface with the WWIS to perform transportation-related data evaluations for waste containers and shipments. Added introductory information about the RH-TRUCON Maintenance Application (RTMA).
11	11/16/06	Section 3.0	Added a paragraph to summarize the scope of RTMA.
11	11/16/06	Section 4.0	Added a paragraph to summarize responsibilities associated with use of the RTMA.
11	11/16/06	Section 4.0	Added a paragraph to direct WWIS users to contact the Confirmation Team if an issue or if a question arises about the confirmation process or the confirmation status of a shipment.
11	11/16/06	Section 7.0	Added a description about the functionality of the Edit module that has been added to the main menu.
11	11/16/06	Section 7.0	Removed Table 7.1, Sources of WWIS Data and replaced it with a new table in Appendix F.2, WWIS Edit/Limit Checks
11	11/16/06	Section 7.2	Edited text to include information about waste confirmation.
11	11/16/06	Section 9.2	Updated to include RH waste containers.
11	11/16/06	Section 9.8	Updated the section to include information about reporting waste material parameters for RH waste.
11	11/16/06	Section 9.13	Updated to include summary information about the flag where it can be indicated whether beryllium is chemically or mechanically bound to the waste matrix.
11	11/16/06	Section 9.14	Added a new section to explain use of the database for entry and submittal of RH waste packaged in metal cans.
11	11/16/06	Section 10.0	Added a paragraph to summarize functionality of the Shipping Module and updated Figure 10-1.
11	11/16/06	Section 10.3	Added new text to explain the functionality of the maximum shipment weight check.

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11	11/16/06	Section 10.3	Added a new paragraph that summarizes activities/WWIS interface conducted by the Confirmation Team.
11	11/16/06	Section 10.3	Added two bullets to summarize a new requirement for reporting surface contamination smear results on shipping packages prior to shipment.
11	11/16/06	Section 10.3.4	Added a new subsection to describe how to access the PTCDs for RH-TRU 72-B canisters and the 72-B Package.
11	11/16/06	Section 10.4	Added information regarding Waste Confirmation in Notes 1 and 2 and provided a summary about the process that may be used for off-normal situations when the DA provides indication that confirmation activities have been performed
11	11/16/06	Section 10.4	Added a new Figure that depicts the Shipment Confirmation Form.
11	11/16/06	Appendix B	Inserted information into various subsections to include requirements that are applicable to RH canisters.
11	11/16/06	Appendix E	Inserted information about exit codes and resolution of error messages for the RH 72B Cask, the RH canister and the 10-160B Cask.
11	11/16/06	Appendix F	Added information to the WWIS Data Dictionary about new data fields associated with Inner Cans containing RH waste.
11	11/16/06	Appendix F	Added a new table that provides summary information about edit/limit checks for waste containers when submitted to Characterization or Certification.
12	4/1/07	General	Updated/renamed figures, tables and section numbering, and references to figures in various sections of the document as needed.
12	4/1/07	General	Updated Acronyms, Definitions, and made minor editorial corrections in various sections of the document as needed.
12	4/1//07	Definitions	Added a definition for Beta Testing.
12	4/1//07	Section 1.0	Added a sentence to the Introduction section to establish/summarize the requirement for sites to perform beta testing prior to the release of each major revision to the WWIS software.
12	4/1//07	Section 4.0	Added information to summarize responsibilities for performance of beta testing prior to the release of each major revision to the WWIS software.
12	4/1/07	Section 4.0	Removed Table 4-1-WWIS Team Telephone Numbers to reduce identified security vulnerability. Document is accessible to the public on the internet.
12	4/1/07	Section 5.3	Removed Section. Information about disc space and memory to address problems generating reports and printing is no longer needed.

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12	4/1/07	Section 6.1	Removed two sentences regarding internet connectivity and VPN access to address social engineering risk identified on the electronic Risk Assessment Management System (eRAMS)
12	4/1/07	Section 6.3.1	Removed entire section regarding internet connectivity to address social engineering risk identified on the electronic Risk Assessment Management System (eRAMS)
12	4/1/07	Section 6.3.2	Removed entire section regarding WIPPIVE connectivity to address social engineering risk identified on the electronic Risk Assessment Management System (eRAMS)
12	4/1/07	Section 6.3.3	Removed discussion regarding WWIS database instances and server numbers to address social engineering risk identified on the electronic Risk Assessment Management System (eRAMS)
12	4/1/07	Section 8.0	Revised the note regarding edit/limit checks of container lists from waste stream lots. These edit/limit checks will be conducted for waste stream #BNINW216 and BNINW218 only and for other waste streams as directed by CBFO.
12	4/1/07	Section 9.1	Provided clarification that RHTMA performs TRAMPAC evaluations for RH waste at the canister level.
12	4/1/07	Section 9.13	Bullet 2: Corrected the typographical error in FGE value from 100 to 200 FGE to align with the limit published in the WIPP Safety Analysis Report/Technical Safety Requirements.
12	4/1/07	Section 9.14	Revised/provided additional clarifications regarding database functionality for RH waste inner cans.
12	4/1/07	Section 10.1	Clarified discussion regarding placement of dunnage in an RH canister.
12	4/1/07	Section B.5.2	Corrected the total diffusivity limit for the RH Canister to $1.48 \times 10^{-5.}$
12	4/1/07	Table E.2	Removed minimum filter diffusivity requirements for RH inner cans and Steel Inner Liners.
12	4/1/07	Section E.10.1	Section Removed. E-TRAMPAC does not perform any evaluations for compliance with Center of Gravity requirements.
12	4/1/07	Table F.1	Provided a clarification in the description regarding fill factor.
13	12/11/07	General	Updated/renamed figures, tables and section numbering, and references to figures in various sections of the document as needed.
13	12/11/07	General	Updated acronyms and definitions, and made minor editorial corrections in various sections of the document as needed.
13	12/11/07	Section 6.1	Provided additional information to users about the WWIS Security Briefing that is required before a new user is provided access to the database.

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13	12/11/07	Section 7.1	Provided summary information and a new Figure 7-4 that shows various function keys that are available to database users.
13	12/11/07	Section 8.0	Provided summary information and a new Figure 8-8 that describes functionality for entry of inner can data for RH waste in the Characterization Module.
13	12/11/07	Section 9.7	Provided summary information regarding new fields that have been added to the Certification Data Entry form for reporting a calculated Fissile Equivalent Mass (FEM) – RH waste only.
13	12/11/07	Table 9.1	Added a new material parameter to the table to inform users that the weight of steel liners in drums may be reported separately.
13	12/11/07	Section 9.13	Total rewrite of section pertaining to limits for waste containers with varying quantities of beryllium and containers with machine-compacted waste, in accordance with the WIPP WAC.
13	12/11/07	Appendix E	Extensive revisions to tables where error messages or exit codes are described.
14	3/14/08	General	Updated/renamed figures, tables and section numbering, and references to figures in various sections of the document as needed.
14	3/14/08	General	Updated acronyms and definitions, and made minor editorial corrections in various sections of the document as needed.
14	3/14/08	Section 12.0	Added a new section to describe Sample Data Transfer functionality.
15	5/7/08	General	Updated/renamed figures, tables, and section numbering, and references to figures in various sections of the document as needed.
15	5/7/08	General	Updated acronyms and definitions, and made minor editorial corrections in various sections of the document as needed.
15	5/7/08	Section 10.3	Removed prescriptive requirement for shippers to obtain preapproval of shipments containing dunnage and CH shipment comprised of less than three packages.