

Waste Data System User's Manual

U.S. Department of Energy

Revision 9

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Waste Data System User's Manual

Revision 9

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CHANGE HISTORY SUMMARY

REVISION NUMBER	DATE ISSUED	DESCRIPTION OF CHANGES
1	8/24/10	<p>Definitions: Updated the definition of Layer of Confinement to be consistent with definition from source document.</p> <p>Section 3.0: Editorial revisions to clarify document scope.</p> <p>Section 3.1: Moved text to summarize edit/limit checks to Section 2.0, section 4.4: Updated connectivity information and login instructions. Section 5.1: Added summary information about the automated prompt for Land Disposal Restriction notification. Section 6.5: Added new information about the Automated Testing Tool that is available using the Packaging Dashboard. Section 6.14: Added a new subsection to describe the Business Reports dashboard. Section 12.0: Added a new section to describe the Report Builder function. Sections C.34, C.35, and C.36: Added descriptions of new reports that are available from the Transportation dashboard and Business Reports Dashboard. General: Updated/renamed figures, tables, and section numbering, and references to figures in various sections of the document as needed.</p>
2	11/18/10	<p>General: Removed information regarding submittal of document to OSTI. Definitions: Removed definition for terminal services. Section 4.0: Editorial update to further clarify access issues and connectivity. Section 4.4: Major rewrite of section regarding connectivity. Section 5.0: Updated RH container volumes to include 15-gallon drum. Section 6.9: Removed figure showing Data Administrator dashboard. Sections A.10, A.15 and A.17: Editorial updates to describe the various edit/limit checks that are performed for submittals of NS15 and NS30 drums and the canister. General: Minor editorial updates of reference to the Hazardous Waste Facility Permit.</p>
3	06/08/11	<p>General: Editorial updates to describe various edit/limit checks that are performed for submittals of SLB2 containers and the TRUPACT-III package. Section 5.0: Updated CH container volumes to include SLB2. Section 6.3: Added a summary about transportation data reports that are accessible from the Shipper Generator dashboard. Section 6.6: Editorial revision/update of reports that are available from the Packaging Dashboard. Sections A.2, A-9, A-14, A-16, and A-19: Updated edit/limit checks for SLB2 container records. Section A.7: Updated Certification data integrity edit/limit checks to include the check that recorded shipping purpose for the overpack matches the reported shipping purpose associated with each of the inner</p>

REVISION NUMBER	DATE ISSUED	DESCRIPTION OF CHANGES
		<p>containers. Section A-10: Updated certification data edit/limit checks to include weight limits for NS15 and NS30 drums. Added information about overweight TRUPACT-III shipments in various sections where appropriate.</p> <p>Appendix D: Updated Error Codes and descriptions.</p> <p>Section E.9: Updated information about display of data fields in Payload Planning. Section E.10: Added information to clarify expectations for users to include detailed comments when dunnage is included in a shipment. Section E.10: Added information about overweight shipments.</p> <p>Section E.10: Added clarification regarding reasons for shipment reset by the Shipper/Generator user.</p>
4	08/03/11	<p>Section 6.5: Updated information about Shipment Confirmation and the different types of reports generated in the Waste Confirmation Module. Removed outdated Figure 6-3a and replaced with a new screenshot. Renamed "6.3a" to "6-D" and updated other figure names in section 6 accordingly.</p> <p>Section 7.0: Editorial change: modified wording in the "Shipment Complete" status description to match HWFP Att. C(7) requirements.</p> <p>Section E-10: Updated information about Shipment Data Entry, Shipment DA review, and resetting instructions.</p>
5	09/29/11	<p>Section 6.0: Replaced Figures 6-G and 6-L with updated screenshots showing new reports that have been added.</p> <p>Appendix B: Deleted sections 7, 8, 9, 11, and 12 to align with operation of barcode reader system.</p> <p>Appendix C: Replaced Figure C-32 with updated screenshot showing new reference table reports. Added new sections C.42 and C.43 (including new Figures C-39, C-40, C-41, and C-42) to summarize new intersite summary reports.</p>
6	01/05/12	<p>Section 4.3: Updated instructions about password creation and password expiration.</p> <p>Section 4.4: Updated information about locking accounts and automatic timeout.</p>

REVISION NUMBER	DATE ISSUED	DESCRIPTION OF CHANGES
7	04/03/12	<p>Section 3.0: Added paragraph to summarize the features of the online help functions.</p> <p>Section 5.3: Added a new section to summarize information regarding MgO Excess Factor/Excess Deficit.</p> <p>Section 6.3: Added information regarding functionality that is available from the Shipper/Generator dashboard.</p> <p>Section 6.6: Removed information regarding manual container and shipment review functions by Packaging users.</p> <p>Section 9.4: Removed information regarding manual container and shipment review functions.</p> <p>Appendix A: Updated information about edit/limit checks for assay methods and NDE methods.</p> <p>Appendix C: Updated section C.38 to remove HTML reports; replaced Figure C-32 with updated screenshot.</p> <p>Appendix E: Clarified statements about the functionality of the overpack assistant.</p>

REVISION NUMBER	DATE ISSUED	DESCRIPTION OF CHANGES
8	06/26/12	<ul style="list-style-type: none"> • Global change: Updated all screen views in document. • Updated Acronyms and Abbreviations. • Definitions: Updated based on this revision. • Section 4.1: Removed System Requirements formerly described in section 4.2. System requirements are described in screen-level online help. • Sections 4.2 and 4.3: Switched order of sections. Added information in section 4.3 regarding system messages to notify users within two weeks of password expiration. Added information regarding email messages to notify users of account inactivity and/or inactivation. • Section 4.5: Removed Navigation section. • Section 5.0: Removed list of container volumes, added <i>Container Types Reference Data Report</i> reference. • Section 6.3: Inserted text that was formerly included in appendix E. Removed text describing Shipper/Generator dashboard functions and provided a reference to screen-level and context-level online help. • Section 6.4: Removed reference to appendix C and replaced with screen-level and context-level help. • Section 6.5: Removed text describing the Shipment Confirmation dashboard and provided a reference to screen-level and context-level online help that provides additional information and guidance. • Section 6.6: Removed text describing Packaging dashboard details and provided a reference to screen-level and context-level online help. • Sections 6.7, 6.8, 6.9, 6.10, 6.11, 6.12, 6.13, and 6.14: Replaced references to appendix C with screen-level and context-level help. • Section 8:0: Edited definitions to align with definitions in the Software Requirements Specification. • Sections 9.0, 9.1, 9.2, 9.3, and 9.4: Removed text describing ad hoc queries and provided a reference to screen-level and context-level online help. • Appendixes A, C, and E: Deleted. Information is now available via screen-level and context-level online help.
9	07/13/12	<ul style="list-style-type: none"> • Editorial revision to correct the “MgO Excess/Deficit” and “Excess Factor” equations in section 5.3.

ACRONYMS AND ABBREVIATIONS

CBFO	Carlsbad Field Office
CH	contact-handled
CHTES	CH-TRAMPAC Evaluation Software
CPR	cellulose, plastic, rubber
CTMA	CH-TRUCON Maintenance Application
DA	Data Administrator
DB	database
DOE	U.S. Department of Energy
DOT	U.S. Department of Transportation
DSA	Documented Safety Analysis
EPA	U.S. Environmental Protection Agency
ETS	Emplacement Tracking Software
FGE	fissile gram equivalent
g/cc	grams per cubic centimeter
HWFP	Hazardous Waste Facility Permit
ICV	Inner Containment Vessel
ID	identification
IP	Internet Protocol
IV	inner-vessel
kg	kilogram
LDR	Land Disposal Restrictions
LWA	Land Withdrawal Act
m ³	cubic meters
MgO	magnesium oxide
MTRU	mixed transuranic
NIST	National Institute of Standards and Technology
NMED	New Mexico Environment Department
NRC	U.S. Nuclear Regulatory Commission
OC	outer container
OCA	Outer Containment Assembly
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
PDF	Portable Document File
PE-Ci	Pu-239 equivalent Curie
ppm	parts per million
QA	Quality Assurance
RCRA	Resource Conservation and Recovery Act
RH	remote-handled
RHTES	RH-TRAMPAC Evaluation Software
RTMA	RH-TRUCON Maintenance Application
SLB2	Standard Large Box 2
SWB	standard waste box
TAA	TRU alpha activity
TAAC	TRU alpha activity concentration
TBO	to-be-overpacked
TDOP	ten-drum overpack
TRAMPAC	Transuranic Waste Authorized Methods for Payload Control
TRU	Transuranic
TRUCON	TRUPACT-II Content Code
TRUPACT-II	Transuranic Package Transporter Model II
TRUPACT-III	Transuranic Package Transporter Model III
TSR	Technical Safety Requirements
T3MA	TRUPACT-III TRUCON Maintenance Application
URL	Uniform Resource Locator
VE	visual examination
VOC	volatile organic compound
WAC	Waste Acceptance Criteria
WAP	Waste Analysis Plan
WDS	Waste Data System
WIPP	Waste Isolation Pilot Plant
WIPPIVE	WIPP Instant Virtual Extranet
WITS	Waste Information Tracking System
WSPF	Waste Stream Profile Form
WWIS	WIPP Waste Information System

WASTE DATA SYSTEM DEFINITIONS

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), one standard large box 2 (SLB2), or one ten-drum overpack (TDOP) that are packed for placement in a transportation package.

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

Certified Waste – Waste that has been confirmed under a formal program to comply with acceptance criteria under an approved waste certification program.

Characterization – Sampling, monitoring, and analysis to identify and quantify the constituents of a waste material, such as review of acceptable knowledge, nondestructive examination, visual examination, nondestructive assay, headspace gas sampling and analysis, or chemical analysis of the volatile or semi-volatile organic compounds or metals.

Content Code – Code that describes the generator or physical location of the waste, the physical and chemical form of the waste, and differences in packaging configurations used to demonstrate compliance with the applicable Transuranic Waste Authorized Method for Payload Control (TRAMPAC).

Database – The electronic storage of data in a way that allows data manipulation and retrieval. Databases may include tables, fields, and records.

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. A field 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 TRU waste containers that meets U.S. Department of Transportation (DOT) and other applicable requirements of the Certificate of Compliance for the shipping package used by the shipper. Inter-site shipments are those that originate at a TRU waste generator site and are being sent to a site for formal characterization, certification, and shipment to WIPP.

Layers of Confinement – Any boundary that restricts, but does not prohibit, the release of hydrogen gas across the boundary. Examples of confinement layers are plastic bags (smaller inner bags or larger container bags) with the allowable closure methods described in appendix 3.8 of the contact-handled (CH)-TRU Payload Appendices and metal containers fitted with filter vents.

Magnesium oxide (MgO) Target Factor – The targeted amount of excess MgO, over and above the cellulose, plastic, rubber (CPR) components of the waste, that has been emplaced in a WIPP disposal room.

Overpack Container – A payload container (85-gallon drum, SWB, TDOP) 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, Waste Acceptance Criteria (WAC), and Waste Analysis Plan (WAP).

Payload – (a) Two assemblies (e.g., two 55-gallon drum seven packs or two SWBs) or one TDOP placed in a TRUPACT-II for shipment; (b) one RH 72-B canister placed in a RH72-B Cask for shipment; or (c) one SLB2 placed in a TRUPACT-III for shipment.

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

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.

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 U.S. Nuclear Regulatory Commission (NRC)-certified Type B transportation packaging used for transportation of RH-TRU waste.

Shipment – A group of up to three reusable Type B shipping containers that will be shipped on 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 the Hazardous Waste Facility Permit (HWFP). The Permittees will use radiography, review of radiography audio/video recordings, and visual examination (VE), or review of VE records (e.g., VE data sheets or packaging logs) to examine at least 7% 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 Waste Data System (WDS) upon demand for any shipment that has been submitted to the WDS. The report contains the container identification (ID) numbers of every container in the shipment, listed by package number and by assembly ID number. The report also provides the 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 package. The report contains a summary of the WSPFs and hazardous waste numbers applicable to the containers in each package.

Waste Container Data Report – A report that may be generated from the WDS upon demand for any individual container that has been submitted to the WDS. These reports may also be generated on a waste stream basis or on a site basis. Each report provides a summary of the data that were supplied to the WDS and the most current container status. (Refer to screen-level and context-level help for details about the report.)

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.

WIPP Waste Information System (WWIS) – A computerized data management system used by WIPP to gather, store, and process information pertaining to CH and RH TRU waste destined for, or disposed of, at WIPP. The WWIS database is a subsystem of the WDS.

1.0 OVERVIEW

The Waste Data System (WDS) is a web-based software system used by the Waste Isolation Pilot Plant (WIPP) to gather, store, and process information pertaining to contact-handled (CH) and remote-handled (RH) transuranic (TRU) waste. The WDS incorporates data entry, data administration and reporting functionality for waste shipments between the U.S. Department of Energy (DOE) generator sites and DOE sites where waste processing and repackaging are performed. The WDS is used to create and store documentation about waste containers, shipments, and emplacement information at WIPP. The WDS is fully compliant with and implements the data requirements summarized in DOE/WIPP-02-3122, *Transuranic Waste Acceptance Criteria for the Waste Isolation Pilot Plant (WAC)*, and other specified authorization basis documents. The WAC serves as the DOE's primary directive for ensuring that CH and RH-TRU waste is managed and disposed of in a manner that protects human health and safety and the environment. The WDS includes all of the elements that were implemented in the WIPP Waste Information System (WWIS) to meet regulatory requirements for the operation of WIPP. The WWIS is a subsystem of the WDS.

The WDS allows users to upload container data, plan and create payloads using uploaded containers, and plan and create shipments using approved payloads. The WDS takes advantage of previously developed applications through direct integration and interfacing.

2.0 SUMMARY OF APPLICABLE AUTHORIZATION BASIS REQUIREMENTS

The WIPP WAC summarizes the requirements applicable to the transportation, storage, and disposal of CH and RH-TRU waste at WIPP. The WIPP authorization basis for the disposal of CH and RH-TRU waste includes the DOE National Security and Military Applications of Nuclear Energy Authorization Act of 1980 and the WIPP Land Withdrawal Act (LWA). The WAC summarizes the requirements and associated criteria imposed by these acts and the Resource Conservation and Recovery Act (RCRA) on the TRU waste destined for disposal at WIPP.

The DOE TRU waste sites must certify CH and RH-TRU waste payload containers to the WAC. The flow-down of applicable requirements to the WAC and integrated into the WDS are traceable to several higher-tier documents, including, but not limited to:

- Waste Isolation Pilot Plant Documented Safety Analysis (DSA)
- Transuranic Package Transporter-Model II (TRUPACT-II), Transuranic Package Transporter-Model III (TRUPACT-III), and HalfPACT Certificates of Compliance for the transportation of CH wastes, and CNS 10-160B and RH-TRU 72-B Certificates of Compliance for transportation of RH wastes
- WIPP LWA
- WIPP Hazardous Waste Facility Permit (HWFP)

- The U.S. Environmental Protection Agency (EPA) Compliance Recertification Decision and approval for polychlorinated biphenyls (PCBs) disposal
- The EPA letter of approval of the DOE's RH-TRU Waste Characterization Program

The WAC requires that sites transmit required characterization, certification, and shipping data to WIPP using the database. The electronic database is equipped with edit/limit checks to ensure that the data representing the waste payload containers are in compliance with the WAC. The WAC requires the sites to transmit the required waste characterization, certification, and shipping data via the database before shipping TRU waste payload containers from a WIPP-accepted waste stream to WIPP. The WDS implements the authorization basis requirements by edit/limit checks that are included as a software module.

2.1 Edit/Limit Checks

This section describes the edit/limit checks that are incorporated into the WDS software design. Additional information about edit/limit checks is available to users via screen-level and context-level online help.

2.1.1 WIPP HWFP – Waste Analysis Plan

The WDS container characterization edit/limit check evaluations are retrievable as a unit from the WDS middle-tier, and include the container characterization Waste Analysis Plan (WAP) evaluation and the container characterization data integrity evaluation. Appendix B lists and describes the WAP error codes.

2.1.2 WIPP WAC

The WDS container certification WAC evaluation includes the applicable WAC edit/limit checks based on the container handling code. For both CH and RH containers, the container certification WAC evaluation includes the CH container edit/limit checks and the RH container edit/limit checks. Appendix B lists and describes the WAC error codes.

2.1.3 Transuranic Waste Authorized Methods for Payload Control

The CH-TRUPACT-II Content Code (TRUCON) Maintenance Application (CTMA), RH-TRUCON Maintenance Application (RTMA), and TRUPACT-III TRUCON Maintenance Application (T3MA) are specialized reference data applications used to manage TRUCON Code and Shipping Category data. The data provide references for performing the associated Transuranic Waste Authorized Methods for Payload Control (TRAMPAC) evaluations. Appendix B lists and describes the TRAMPAC error codes.

2.1.4 WIPP DSA

The WIPP DSA provides a summary of limits to be imposed on CH and RH containers in accordance with the Nuclear Criticality Safety Evaluation. The WDS conducts edit/limit checks on CH and RH containers according to the values described in chapter 6 of the WIPP DSA. Refer to Appendix B for a list of DSA error codes and a description of each error code.

3.0 SCOPE

This user's manual provides users with summary information on data entry, data review, conducting searches, and producing output reports, and also describes helpful features contained in each topic-specific dashboard.

The software provides the ability to access the WDS User's Manual from each screen in the system after login. The software provides the ability to access screen-level help for each screen for which approved help content is available. The user can access context-sensitive help for individual sections of a screen for which approved block-level help content is available. On-screen help is also available for the TRUCON Code field on the Container Certification Data Submittal screen on TRUCON Code/Shipping Category associations for CH containers, (excluding SLB2 containers).

The magnesium oxide (MgO) barcode application is used to facilitate the receipt and emplacement of CH waste shipments at WIPP. The application was designed to be used by wireless barcode scanners and tied directly to shipment and container information provided by the application. Appendix A provides a summary of the Emplacement Tracking System barcode application and the WDS Manual Emplacement Screen.

A read-only version of the WDS application and database provides access to all report and query functions except for those that are available only from screens that perform database updates. The read-only version does not allow access to any screens or any functions that perform database updates except for updates to user preferences, password changes and Report Builder query saves/updates. The read-only version is accessible only to registered WDS users. The internet address is <https://wds.wipp.ws>.

4.0 SECURITY, ACCESS PRIVILEGES, PASSWORDS, AND CONNECTIVITY

Information about security, passwords, and connectivity. This information can also be found in User Preferences screen-level help. WDS users who are external to WIPP access the system via DOENet or the WIPP Instant Virtual Extranet (WIPPIVE) server. Users who are internal to WIPP in Carlsbad and at the WIPP site access the WDS via WIPPNet. User Preferences screen-level help also provides instruction for obtaining help from the WIPP Data Administrator (DA).

4.1 Security

Effective security is vital for safeguarding information and business processes. The WDS makes every reasonable effort to provide safe and secure access for its users while maintaining the highest levels of data security. This section summarizes components that comprise the overall security design for the WDS.

The goal of the WDS web server deployment is to closely follow the recommendations set forth in the National Institute of Standards and Technology (NIST) Guidelines on Securing Public Web Servers. The NIST guidelines provide comprehensive standards for securing web servers and the applications they contain. The security requirements and security controls that are in place to protect the accreditation boundary and the database have been implemented as described in the Department of Energy Office of Environmental Management Program Security Plan. System requirements are outlined in the screen-level help for each dashboard.

4.2 Connectivity and WIPP Technical Support Contact Information

Prospective users who require access to the WDS may contact a DA via email at DL_WDS_DA@wipp.ws to request access to WDS. Alternatively, the prospective user may contact a DA by telephone to obtain a WDS Access Request Form or requests for other support. The prospective user will be sent a WDS Access Request Form via email. The prospective user will then complete the form, provide justification of the need for access to the application, have the form approved by a management sponsor and return it via email or fax to the DA. Upon receipt of the completed WDS Access Request Form, the DA will set up the user's account in the application and interface with the WIPP Information Resource Management Group to assist the user with any connectivity issues that may prevent the user from accessing the WDS. If necessary, completion of additional forms may be required to establish access to the WIPP Secure Access (WIPPIVE), DOENet and WIPPNet. After all required application forms have been completed and approved, the prospective user will receive via email the Uniform Resource Locator (URL) (i.e., internet address) needed to connect to the system, along with instructions regarding security, and maintenance of passwords.

4.3 User Accounts and Passwords

Each registered user is assigned a User ID and creates a password that is used to log in to the WDS application. The “complex” password criteria described here are also covered in User Preferences screen-level help. The software will display the password expiration date based on the default 90-day password expiration period. At the end of the 90-day password expiration period, the user is required to create a new password. The user's password must be a "complex" password that meets the following criteria:

- Password must be at least 12 characters long
- Password must contain three of the following:
 1. Uppercase letters (A-Z)
 2. Lowercase letters (a-z)
 3. Numbers (0-9)
 4. Special characters (! @ # \$ % ^ & * () + - = ? space)
- Passwords must not contain the user's first or last name, or the account username
- Passwords cannot start with a number
- Old passwords cannot be reused
- Passwords must contain at least eight non-blank characters

When the user account is created, each user is assigned a primary role based on the functions that the user will perform when using the WDS. For example, users who upload and submit container data to the WDS and users who create payloads and shipments are assigned the Shipper/Generator user role. Connectivity, WIPP Technical Support Contact Information, and User Roles are explained in detail in screen-level help for each user role.

NOTE

In accordance with an approved program plan document, the DAs create, edit, and inactivate WDS user accounts, add or remove role associations to user accounts, and add or remove site/program associations with user accounts. Whenever an inactivated user account is reactivated, the password is reset. When a password is reset by the user or the DA, the password expiration date will be set based on the default password expiration period. The password can be changed at any time, which will initiate a new 90-day expiration period.

Users will receive a system message when their passwords are within two weeks of expiration. Users who have not logged on to the WDS within the past 30 days will be notified via email of account inactivity, and users will be notified again after 60 days of

inactivity. Accounts for users who have not logged into the WDS in the past 90 days will be automatically inactivated and the users will be sent an email message notifying them of their inactive account status.

Whenever a password is created or an existing password is reset, the user is required to confirm the new password by entering it a second time. Detailed instructions for creating and confirming a new password are outlined in screen-level help. After a user account has been established, the user is permitted to update the following account record fields by clicking the user preferences link at the bottom of the page: first name, last name, phone number, fax number, company, address, city, state, zip code, password, email address, and email notification flag. The User ID cannot be edited.



The screenshot displays the WDS login interface. At the top, a red banner reads "System Use Notification". Below this, a "Legal Notice" section contains the text: "** For Authorized Government Use Only **" and "WARNING: PRIVACY AND SECURITY NOTICE". The notice explains that the system is owned by the U.S. Department of Energy (DOE) and is not for public use. It states that users have no expectation of privacy and that DOE systems may be monitored for lawful purposes. A consent statement follows, indicating that using the system constitutes agreement to monitoring and recording. A "LOG OFF IMMEDIATELY" instruction is provided for users who do not agree. Below the notice is a checkbox labeled "I AGREE TO THE ABOVE TERMS OF USE." The login form includes a "WDS WASTE DATA SYSTEM" logo, a "Username" input field, a "Password" input field, and a "DB Instance" dropdown menu currently set to "prd01". A "LOGIN" button is positioned at the bottom right of the form.

Figure 4-A – WDS Login Page

NOTE

If the URL changes, users will be notified. At first login, the user may add the Internet Protocol (IP) address to Favorites as shown in Figure 4-A above.

When the URL is entered into the browser or selected from the user's Favorites list, the WDS login screen will appear as shown in Figure 4-A. Read the Privacy and Security Notice prior to logging in.

Use the following process to log in:

- Select the checkbox to agree to the terms of use.
- Enter a valid username in the User ID block.
- Enter a valid password in the Password block.
- Select the database that needs to be accessed from the database (DB) instance dropdown menu.
- Press the Login button.

NOTE

If the terms of use checkbox is unchecked, the user will be reminded to check the box before proceeding.

At first login, after the warning message has been confirmed and the login button is pressed, the software directs the new user to reset the password as shown below. Refer to this section and screen-level help for password requirements.

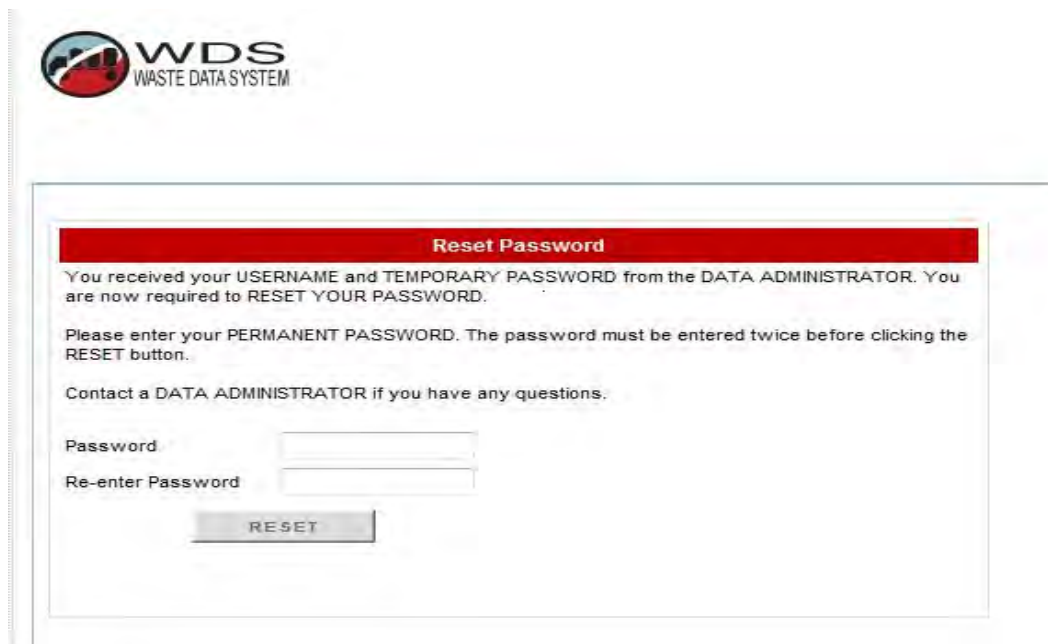


Figure 4-B – WDS Reset Password Page Example

The WDS stores the username, user IP address, and date/time of login attempt for any login attempt to the system. The WDS will automatically close the current session after 30 minutes of inactivity. The user must then reenter identification and authentication information to access the WDS. The WDS enforces a limit of three consecutive invalid access attempts by a user during a 15-minute period, after which the WDS locks the account.

NOTE

Once the threshold of bad login attempts has been reached, the account will be automatically locked for one hour or until a DA unlocks it. When an account is unfrozen, the WDS require the DA to generate the password. After the DA has reset a user password, the user is required to create a new password upon the first login. The user is required to confirm the updated password by entering it a second time with an exact match.

Upon a successful login, the software directs the user to the dashboard for the user's designated primary role. Dashboards are made available for selection by using the Dashboard dropdown menu. All current and unexpired system messages are displayed.

5.0 VOLUME CONVERSION, WEIGHT CONVERSION, PACKING FRACTIONS, AND MgO CALCULATIONS

This section provides a basic summary of standard volumetric conversions used in the database and instructions for navigating the WDS.

The container volume of a CH waste container is defined in cubic meters (m³) in the *Container Types Reference Data Report*.

The waste volume of a CH or RH payload container is calculated in m³ as the sum of the container volume of the waste container(s) comprising the payload container, excluding the volume of dunnage containers. The waste volume of each pipe overpack is equal to the volume of the respective pipe component.

The container volume of an RH waste container is defined in m³ in the *Container Types Reference Data Report*.

For weight conversion, the WDS converts kilograms (kg) to pounds by multiplying by a factor of 2.205. For all weight calculations, the software performs the entire calculation in kg and applies the conversion factor for pounds to the result when applicable. The waste container net weight is the sum of all material parameter weights for those material parameters identified as waste reported for the container.

5.1 Packing Fractions for Compacted Waste

The WDS determines the packing fraction based on the compaction level of a non-overpack container in grams per cubic centimeter (g/cc) of waste, based on the density of the CPR (excluding cellulosic and plastic packaging materials in pipe overpacks) present in the container compared to the density of polyethylene as follows:

- $$\text{CPR density (g/cc)} = ((\text{waste CPR weight (kg)} + \text{packaging CPR weight (kg)}) \times 1000 \text{ (g/kg)}) / (\text{container volume (m}^3\text{)} \times 1000000 \text{ (cubic centimeters cubed [cm}^3\text{/m}^3\text{)}))$$

- 20% poly density = $.20 \times .923 \text{ (g/cc)} = .1846 \text{ (g/cc)}$: If the container CPR density (g/cc) $>.1846 \text{ (g/cc)}$ and $\leq .6461 \text{ (g/cc)}$, the compaction level is defined as "partially compacted."
- 70% poly density = $.70 \times .923 \text{ (g/cc)} = .6461 \text{ (g/cc)}$: If the container CPR density (g/cc) $>.6461 \text{ (g/cc)}$, the compaction level is defined as "fully compacted."
- If the container CPR density (g/cc) $\leq .1846 \text{ (g/cc)}$, the compaction level is defined as "non-compacted."

The WDS determines the compaction level of an overpack container to be the highest level of compaction present in the individual containers in the overpack container. Refer to the *Constants Reference Data Report* for a listing of minimum/maximum values and units of conversion for reported radionuclide values that are used in the WDS.

5.2 Land Disposal Restriction Notification

If any waste stream profile associated with a shipment has not appeared on a previously sent shipment, or if any hazardous waste code has not appeared on a previously sent shipment in the waste stream profile associations present on a shipment, Land Disposal Restrictions (LDR) paperwork is required for the shipment. As an enhancement to ensure compliance with HWFP requirements regarding LDR notification, a message will appear on the shipment screen to prompt the user to initiate an LDR notification when needed.

5.3 MgO Excess Factor and MgO Excess/Deficit

The software calculates the MgO excess for a specified emplacement location (panel and room) using the following equation:

$$\text{MgO Excess/Deficit (lbs)} = [m_{MgO} - [t_{p,r} \times 6 \times [[m_c + m_r + (1.7m_p)] \div 162] \times 40.3]] \times 2.205$$

where

- m_{MgO} = Total mass of MgO sacks in the specified Panel/Room (kg)
- m_c = Total mass of cellulose (kg):
Cellulose in waste + cellulose in packaging + cellulose in MgO sacks + cellulose in emplacement assembly
- m_r = Total mass of rubber (kg):
Rubber in waste + rubber in packaging + rubber in MgO sacks + rubber in emplacement assembly
- m_p = Total mass of plastic (kg):
Plastic in waste + plastic in packaging + plastic in MgO sacks + plastic in emplacement assembly
- $t_{p,r}$ = Target excess factor for panel and room

The software calculates the MgO Excess Factor for a specified emplacement location (Panel and Room) using the following equation:

$$\text{Excess Factor} = m_{MgO} / [6 \times [[m_c + m_r + (1.7m_p)] \div 162] \times 40.3]$$

where

- m_{MgO} = Total mass of MgO sacks in the specified Panel/Room (kg)
- m_c = Total mass of cellulose (kg):
Cellulose in waste + cellulose in packaging + cellulose in MgO sacks + cellulose in emplacement assembly
- m_r = Total mass of rubber (kg):
Rubber in waste + rubber in packaging + rubber in MgO sacks + rubber in emplacement assembly
- m_p = Total mass of plastic (kg):
Plastic in waste + plastic in packaging + plastic in MgO sacks + plastic in emplacement assembly

6.0 DASHBOARD SUMMARIES


Depending upon assigned database privileges, the user will have the option to select one or more dashboards from the main menu. When the desired dashboard is selected, the user will then have the option to select the Functions tab to view the links to the functions and the Reports tab to view the links to the reports that are available from the dashboard. Screen-level and context-level help is available from the dashboard.

6.1 General Report Structure

The following items are displayed on all reports:

- Title page fields: report date/time, report title, version of the report, WDS instance on which the report was executed, User ID of the current user, total number of pages in the report, select criteria (as applicable)
- Header of each page: report title, "Waste Isolation Pilot Plant," page number

Reports are available in portable document file (PDF) format unless otherwise specified. The default selection criteria are set to a wildcard (%) or NULL value (blank). When a wildcard or NULL value is used for the selection criterion, the WDS will not restrict the query by that parameter. The default date is set to 1/1/1999 for all start date criteria fields, unless otherwise specified. The default date is set to the current date for all end date and single date selection criteria, unless otherwise specified by the user at the time the report is generated. When a container number, payload ID, or shipment number is input or otherwise displayed, the user is provided direct access to the corresponding container report (e.g., *container data report*, *overpack data report*, *canister data report*, *payload report*, or *shipment summary report*).

When establishing parameters to run reports in the WDS, the user may have the option to filter the report being run with a specified date range. This is accomplished using the date calendar function. The user clicks the  icon to open the calendar. The calendar for the current month with the current date highlighted appears on the screen (see Figure 6-A).

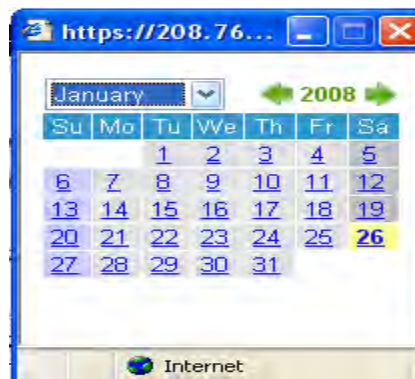



Figure 6-A – WDS Date Calendar Example

To insert a date into the date field, the user clicks the desired day on the calendar. If the start or end date of a different month is needed, the user selects the desired month from the dropdown list.  If either the start date or end date for the previous calendar year is required, the user uses the green arrows to toggle back to previous years. When the day, month, and year have been selected, the user clicks on the highlighted day to insert the date into the field on the report form.

6.2 General User Roles/Access to Reports

DA, Shipper/Generator, and Packaging users are allowed to access reports for container, overpack, canister, payload, and shipment records without regard to status.

Confirmation users and Transportation users are allowed to access shipment reports for shipments without regard to status. All other report types are restricted to approved or completed records only (containers, overpacks, payloads).

All other users (Waste Handling Operations, Transportation, New Mexico Environment Department (NMED), EPA, Carlsbad Field Office (CBFO), Safety and Emergency Response, WIPP and Business Management) are restricted to reports for approved or completed records only (containers, overpacks, payload, shipments). Access to reports concerning inter-site shipments is restricted to Business Management, DA, Shipper/Generator, and Packaging users.

NOTE

If reference data are not available for a site due to assignment of privileges, refer to the users' reference data report to review assigned privileges.

Refer to screen-level and context-level help for details about all reports that are available from all dashboards.

6.3 Shipper/Generator Dashboard Functions

The functions and reports available from the Shipper/Generator dashboard are shown in Figure 6-B. Additional details about the functions performed by Shipper/Generator users are described in screen-level help. Screen-level help provides additional details about reports accessible from this dashboard.

The WDS will allow users to upload container data, plan and create payloads using uploaded containers, and plan and create shipments using approved payloads. Access to the shipment data entry function is restricted to the Shipper/Generator user group. The Shipper/Generator user can create a new shipment record or edit an existing shipment record. Options are provided to allow the user to indicate the inclusion of dunnage in a shipment due to Weight limitation, fissile gram equivalent (FGE) limitation, Gas Generation limitation, or other limitation.

The user can associate one or more payloads with a shipment in the New Shipment (NEW_SHIP) status. The user can delete payloads and all associated packaging data, from the active shipment record if the shipment has a (NEW_SHIP) status. The WDS automatically populates the shipment Governing Shipping Period field with the minimum governing shipping period for the payloads associated with the shipment. Visual attributes are provided to enable users 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 within the shipment data entry function.

The WDS automatically populates the Handling Material Weight field with the Handling Material Weight specified in the Packaging/Container Types reference table for the given packaging and container type of the payload as the default value. Inner Containment Vessel/Inner Vessel (ICV/IV) Closure Date must include the time of closure. The WDS automatically provides a candidate list of payloads, where the selection criteria include all completed payloads saved to the database with the Shipping Program ID, Current Location, and Destination Site ID of the active shipment that have not been assigned to a shipment. As payloads are added to the shipment, the WDS limits the list of payload candidates to payloads of the same handling code of the payloads already assigned to the shipment. For each candidate payload, the WDS displays the payload governing shipping period and PCB indicator flag.

The WDS calculates and displays the following total fields for the payloads associated with the active shipment: Package Weight, Payload Weight and Error (kg), FGE and 2 x Error, Decay Heat & Error (W), and Pu-239 Equivalent Curies (PE-Ci). For each total shipment error field, the WDS automatically calculates the total as the Root Sum Square, or square root of the sum of the squares, of the payload errors.

The user has access to the payload data (via the *Payload Data Report*) for each payload associated with the active shipment. The user can save the shipment record without submitting the record. The WDS enables the save function if a unique shipment number has been entered. Upon successful save of a shipment that has not previously been saved, the WDS sets the shipment record to New Shipment status and records the insertion into the database in the shipment status history table. The overall shipment status is displayed (i.e., New, In Review, Complete, En Route, or Received). The overall shipment status is displayed with respect to the following three subcomponents of the shipment status: confirmed status, DA review status, and shipment data finalized status. When the shipment is submitted to the review process, the WDS executes the preliminary shipment edit/limit check evaluation. If the shipment passes the preliminary shipment edit/limit check evaluation, the WDS automatically sets the shipment status to In Review, records the status change in the shipment status history table, sends an email to the Confirmation Team distribution list stating that the shipment is ready for confirmation review (WIPP destination site only), and sends an email to the Data Administrator Team distribution list stating that the shipment is ready for DA review (WIPP destination site only). If the shipment fails the preliminary shipment edit/limit check evaluation, the WDS provides access to the detailed results for the shipment edit/limit check evaluation. The user can submit the active shipment to the final shipment edit/limit check evaluation if the shipment data have not already been finalized. The WDS updates the shipment data finalized status to TRUE and records

the shipment finalization in the shipment status history table if the shipment passes the final shipment edit/limit check evaluation. If the shipment fails the final shipment edit/limit check evaluation, the user is provided access to the detailed results for the shipment edit/limit check evaluation.

All shipment data, with the exception of Send Date, are protected from update for a shipment record with shipment data finalized status = TRUE. The user can update a shipment in Complete (COMPLETE_SHIP) status to En Route status and record the change in status in the shipment status history table. All shipment data, including the Send Date, are protected from update for a shipment with an En Route status. The applicable errors from the most recent shipment edit/limit check evaluation are displayed. The user can delete shipment records in New Shipment status or shipment records in In-Review status that are not confirmed and not DA approved. The WDS automatically clears all payload associations to the shipment when a shipment is deleted. The user can reset the shipment status to New Shipment for the active shipment and the WDS will automatically record the reset in the shipment status history table if it is in "In Review" status and has not been confirmed. If the shipment has DA approval, the WDS automatically removes the approval and sends an email to the confirmation team distribution list stating that the shipment is no longer available for confirmation review (WIPP destination site only).

The user can set the shipment data finalized status to FALSE if the shipment is in a status prior to En Route status. When the shipment data finalized status is set to FALSE, the WDS updates the shipment status to In Review and records the status change in the shipment status history table.

The user has access to the *Payload Assembly Transportation Certification Document (PATCD)* reports for one or more TRUPACT or HalfPACT payloads assigned to the active shipment. The user has access to the *PTCD report* for one or more RH 72-B payloads assigned to the active shipment. The user can access the *Payload Container Transportation Certification Document/Overpack Payload Container Transportation Certification Document (PCTCD/OPCTCD) report* for all payload containers assigned to the active shipment and for all payload containers and associated inner containers (as applicable) assigned to the highlighted payload. The user can access the *Shipment Summary report* for the displayed shipment.

6.3.1 Exporting Files

The Shipper/Generator dashboard provides access to the following file export functions:

- Containers meeting the selected overpack candidate query parameters
- Containers meeting the selected canister candidate query parameters
- Containers meeting the selected payload candidate query parameters

- Container activity query function that displays the total number of containers inserted, approved (first time DA certification approval), and shipped that meet the selected query criteria
- Container activity query results
- Containers in presubmittal certification status query
- Certified containers not shipped query
- Containers assigned to shipment query
- Shipment PE-Ci and FGE query

WDS WASTE DATA SYSTEM

Users Manual STRUM, MIKE LOG OUT

04/24/2012 11:03 HELP

DA DASHBOARD AD-HOC QUERY SCRIPT INTERFACE REPORT BUILDER

Container SEARCH

Dashboard SHIPPER GENERATOR DASHBOARD

FUNCTIONS

- Container Characterization Data Submittal
- Container Certification Data Submittal
- Canister Planning & Completion
- Overpack Planning & Completion
- Payload Planning & Completion
- Shipment Data Entry
- Data Upload Function
- Damage Container Data Entry
- Inter-site Shipment Receipt

REPORTS

Characterization	
Pre-submittal	58
Pending	10
Holding	0
Approved	61

Certification	
Pre-submittal	434
Pending	0
Holding	0
Approved	811

View Details Container History

Container [input] VIEW

Container Activity

Certification Program [dropdown] Destination [dropdown] Start Date [input] End Date [input]

Container Type [dropdown] Split Out Quick-to-WIPP? [dropdown]

Waste Stream [dropdown]

SEARCH EXPORT

Overpack Candidates

Certification Program [dropdown] Destination [dropdown] Current Location [dropdown] Waste Stream [dropdown]

Container Type [dropdown] SEARCH EXPORT

Canister Candidates

Certification Program [dropdown] Destination [dropdown] Current Location [dropdown] Waste Stream [dropdown]

Container Type [dropdown] SEARCH EXPORT

Payload Candidates

Shipping Program [dropdown] Certification Program [dropdown] Destination [dropdown] Current Location [dropdown] Waste Stream [dropdown]

Container Type [dropdown] SEARCH EXPORT

Shipment Candidates

Figure 6-B – Shipper/Generator Dashboard

6.4 Waste Handling Operations Dashboard

The functions and reports that are available from the WIPP Waste Handling Operations dashboard are shown in Figure 6-C. Details about the Shipment Receipt function performed by WIPP Waste Handling Operations and Transportation users are described in an approved WIPP TRU waste receipt procedure. The Manual Emplacement function must be used for emplacement of RH waste containers. Details about waste emplacement at WIPP are provided in WIPP Waste Handling Operations procedures. Screen-level and context-level help provides additional details about generating reports that are accessible from this dashboard.

The screenshot displays the WIPP Waste Handling Operations Dashboard. At the top left is the WDS logo (Waste Data System). The top right shows the user manual link, the date and time (05/09/2012 13:48), and a 'LOG OUT' button. Below the logo is a navigation menu with 'DASHBOARD', 'AD-HOC QUERY', 'SCRIPT INTERFACE', and 'REPORT BUILDER'. A search bar is located to the right of the menu. The main content area is titled 'Dashboard' and 'WASTE HANDLING OPERATIONS DASHBOARD'. It is divided into two main sections: 'FUNCTIONS' and 'REPORTS'. The 'FUNCTIONS' section includes three icons: 'Shipment Receipt' (a blue truck), 'Manual Emplacement' (a yellow and black container), and 'Barcode Application' (a handheld device). The 'REPORTS' section lists 15 reports, each with a right-pointing arrow: Closure Report, On-Site Waste Location Report, Controlled Shipment Report, Plot Emplacement Excess Factor and Volume Used, Daily Emplacement Volume Report, Reference Table Reports, Daily Report, Room Map, Emplacement by Container Type Report, Shipment Summary Report, Emplacement History Overview, Waste Emplacement Report, MgO Excess Factor Report, Weekly Shipment and Emplacement Summary Report, and Monthly Annual Emplacement Comparison Graph.

Figure 6-C – Waste Handling Ops Dashboard

6.5 Shipment Confirmation Dashboard

The Shipment Confirmation dashboard allows a user to view a series of detailed data reports on individual shipments. Requirements for TRU-Mixed waste confirmation are described in the WIPP HWFP, Att. C(7). The functions and reports available from the Shipment Confirmation dashboard are shown in Figure 6-D. Details about use of the functions that are available from this dashboard as well as details about generating the reports are further explained in screen-level and context-level help.

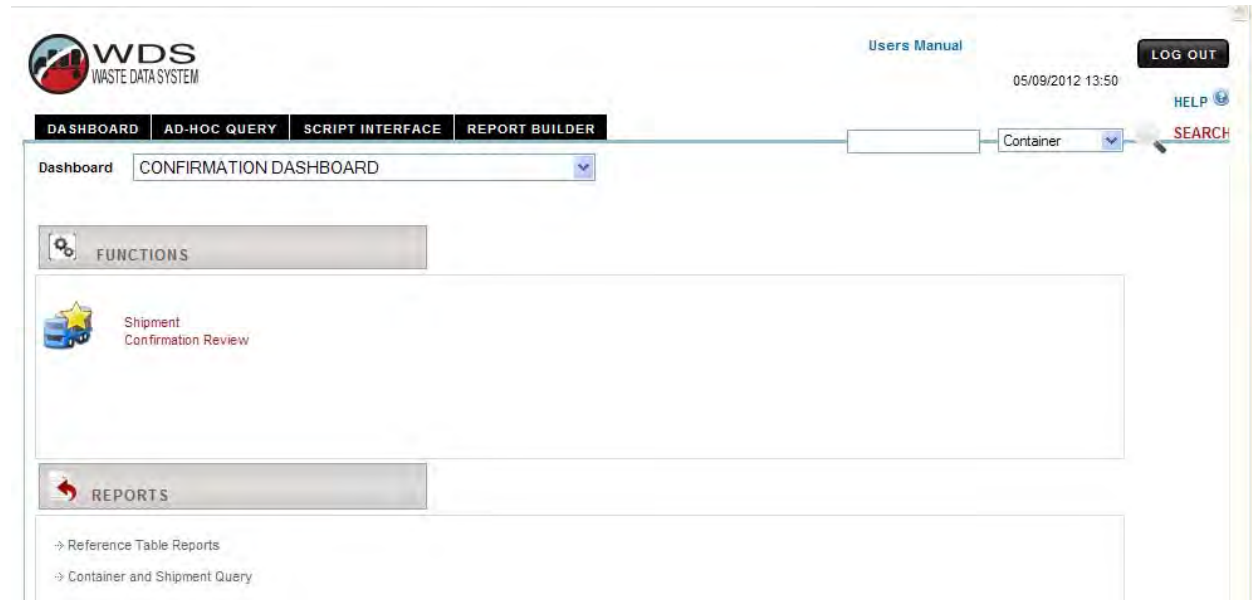


Figure 6-D – Confirmation Dashboard

The Shipment Confirmation Review page also provides several other report links:

The *Payload Container List report* generates a PDF listing of the container number and container type for each container in the shipment grouped by waste stream and payload.

After the confirmation process is complete, the user presses the confirm button located at the bottom of the form. The user is given the opportunity to cancel or to continue with the “confirmation” action. The shipment status will then be updated to Confirmed. Additional details about the functions performed by WIPP Shipment Confirmation users are contained in the WIPP HWFP and approved WIPP procedures for waste stream shipment confirmation. Screen-level and context-level help provides additional details about the reference table reports accessible from the Confirmation dashboard.

WDS WASTE DATA SYSTEM Users Manual 05/09/2012 13:57 LOG OUT HELP

DA SHBOARD AD-HOC QUERY SCRIPT INTERFACE REPORT BUILDER Container SEARCH

SHIPMENT CONFIRMATION REVIEW

Shipment Number

- IN110488
- IN110490
- IN110491
- IN110492
- LA110163
- OR110013

Selected Shipment: IN110490

Reset/Rejection Reasons

Date	Type	Reason

Reports

- Shipment Data Report
- Shipment Container Data Report
- Confirmation Container Data Report
- Payload Container List
- TRU Waste Confirmation Module Report

✓ The Waste Confirmation Module has been run.

Containers Selected Pending Approved

Waste Stream (Container Count)	Payload Num	#	Container Num	Rep	Container Type	
BN510.1(15)	95414	1	BN10399746		23 - 100 GAL DRUM (DIRECT LOAD)	
		2	BN10422745		23 - 100 GAL DRUM (DIRECT LOAD)	
		3	BN10422688		23 - 100 GAL DRUM (DIRECT LOAD)	
	95418	95418	4	BN10420143		23 - 100 GAL DRUM (DIRECT LOAD)
			5	BN10422654		23 - 100 GAL DRUM (DIRECT LOAD)
			6	BN10424484		23 - 100 GAL DRUM (DIRECT LOAD)
			7	BN10424657		23 - 100 GAL DRUM (DIRECT LOAD)
			8	BN10424661		23 - 100 GAL DRUM (DIRECT LOAD)
			9	BN10424908		23 - 100 GAL DRUM (DIRECT LOAD)
			10	BN10423432		23 - 100 GAL DRUM (DIRECT LOAD)

Local intranet

Figure 6-E – Shipment Confirmation Review Page

6.6 Packaging Dashboard

The functions and reports available from the Packaging dashboard are shown in Figure 6-F. Additional details about functions performed by WIPP Packaging Engineering users are described in approved procedures and in screen-level and context-level help. The dashboard provides access to the PCTCD, OPCTCD, PATCD, and PTCDC reports when viewing DA-approved containers or overpacks that are associated with completed payloads (PCTCD, OPCTCD). The dashboard provides access to the *Reference Table Reports*. Screen-level and context-level help provides details about generating the reports that are accessible from the Packaging dashboard.

The screenshot displays the WDS Packaging Dashboard. At the top, there is a navigation bar with 'DASHBOARD', 'AD-HOC QUERY', 'SCRIPT INTERFACE', and 'REPORT BUILDER'. The current dashboard is 'PACKAGING DASHBOARD'. A search bar is located on the right. The main content area is divided into several sections:

- Shipments Submitted for Review (22):** A table with columns: Shipment Number, Current Location, Destination Site ID, Shipping Program ID, DA Approved?, Confirmed?, Finalized?, Handling Code, Package Type(s), Send Date, Controlled Shipment?, High-Wattage Shipment?, Packaging Reviewed?, and Update Review Status.
- Payloads Of Interest:** A section with an 'Expand Search' link and a 'SHOW' button. Below it are three sub-sections, each with a 'SHOW' button:
 - Payloads with Inner Container CHTES Results of Interest: 0 Records:** Table with columns: Payload Number, Shipping Program, Current Location, Destination Site, Payload Type, Container, Flammability Index, AFGC (mol fr).
 - Payloads with High Payload FGE Totals: 0 Records:** Table with columns: Payload Number, Shipping Program, Current Location, Destination Site, Payload Type, FGE (g), FGE Error (g).
 - Payloads with Containers with High Decay Heat or Null/Zero Values: 0 Records:** Table with columns: Payload Number, Shipping Program, Current Location, Destination Site, Payload Type, Container, FGE (g), FGE Error (g), Decay Heat (w), Decay Heat Error (w).
 - Payloads with Containers with Unusual #s of Filters: 0 Records:** Table with columns: Payload Number, Shipping Program, Current Location, Destination Site, Payload Type, Container, TDOP with <9 Filters?, Drum with >1 Filter?
 - Payloads with Containers with High Hydrogen or Zero/Null Hydrogen/Methane: 0 Records:** Table with columns: Payload Number, Shipping Program, Current Location, Destination Site, Payload Type, Container, Analyte, Concentration (ppm).
- Containers with Conditional Status List:** A section with an 'Expand Search' link and a 'SHOW' button. Below it is a table with columns: Container Number, Certification Date, Current Location, Destination Site, Certification Program, TRUCON Code, Shipping Category, and Evaluations.
- FUNCTIONS:** A section containing two icons: 'Execute TRAMPAC Test Payloads' and 'Filters Administration'.
- REPORTS:** A section with a red arrow icon.

Figure 6-F – Packaging Dashboard

6.7 WIPP User Dashboard

The reports that are available to users from the WIPP User dashboard are shown in Figure 6-G. The WIPP user may view reports but does not perform any data input functions using the WDS. Screen-level and context-level help contains additional details about generating reports that are accessible from the WIPP User dashboard.



Figure 6-G – WIPP User Dashboard

6.8 CBFO Dashboard

The CBFO dashboard is accessible to users with the CBFO role. The CBFO dashboard provides access to the reports as shown in Figure 6-H. The CBFO user may view reports but does not perform any data input functions using the WDS. Screen-level and context-level help contains additional details about generating reports that are accessible from the CBFO dashboard.

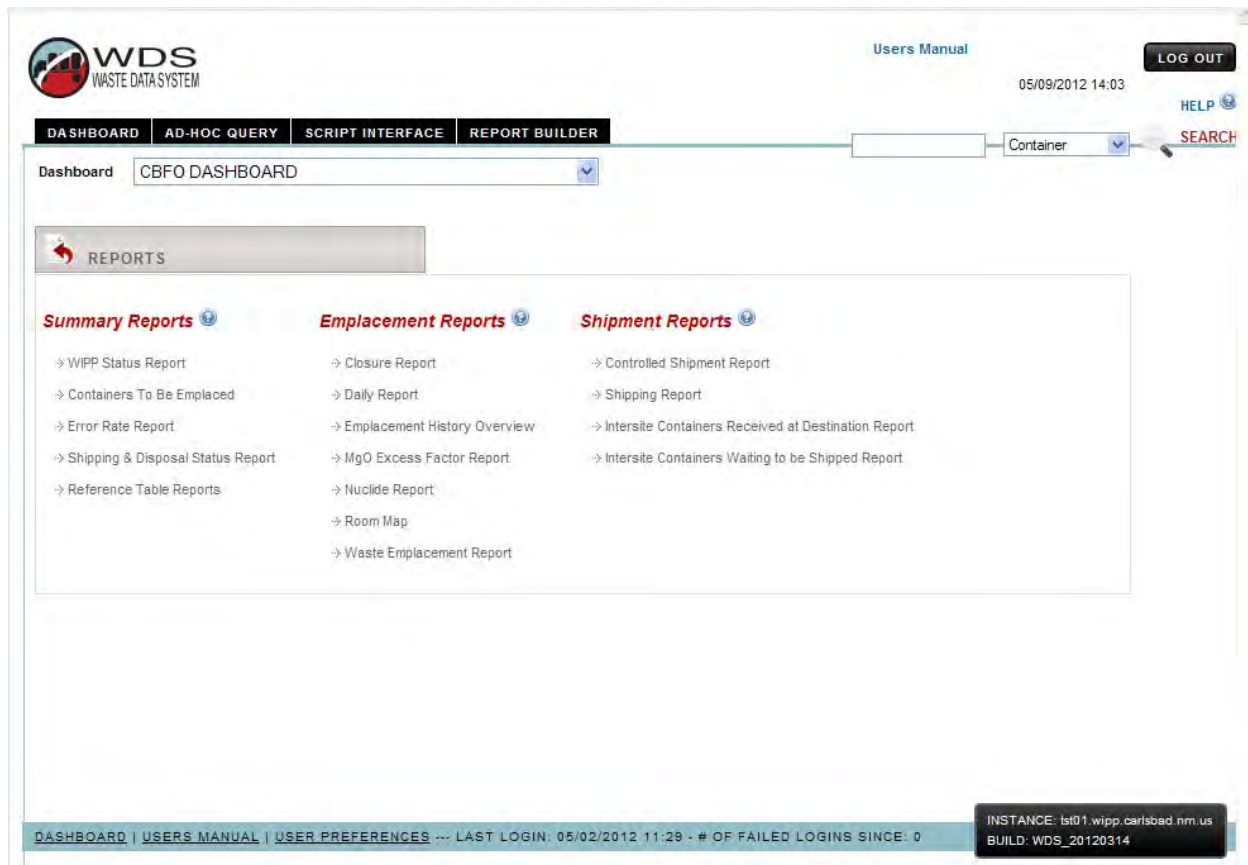


Figure 6-H – CBFO Dashboard

6.9 Data Administrator Dashboard

The functions and reports are available from the WIPP Data Administrator dashboard. Additional details about the Container/Shipment Review and Approval functions are summarized in an approved WIPP waste information tracking system (WITS) program plan. Details about the Data Administration reference table maintenance functions are described or summarized in an approved WIPP WITS program plan.

6.10 New Mexico Environment Department Dashboard

The reports that are available to users from the NMED dashboard are shown in Figure 6-I. The NMED users have access to reports but do not perform any data entry functions using the WDS. Refer to screen-level and context-level help for additional details about generating reports that are accessible from the NMED dashboard.

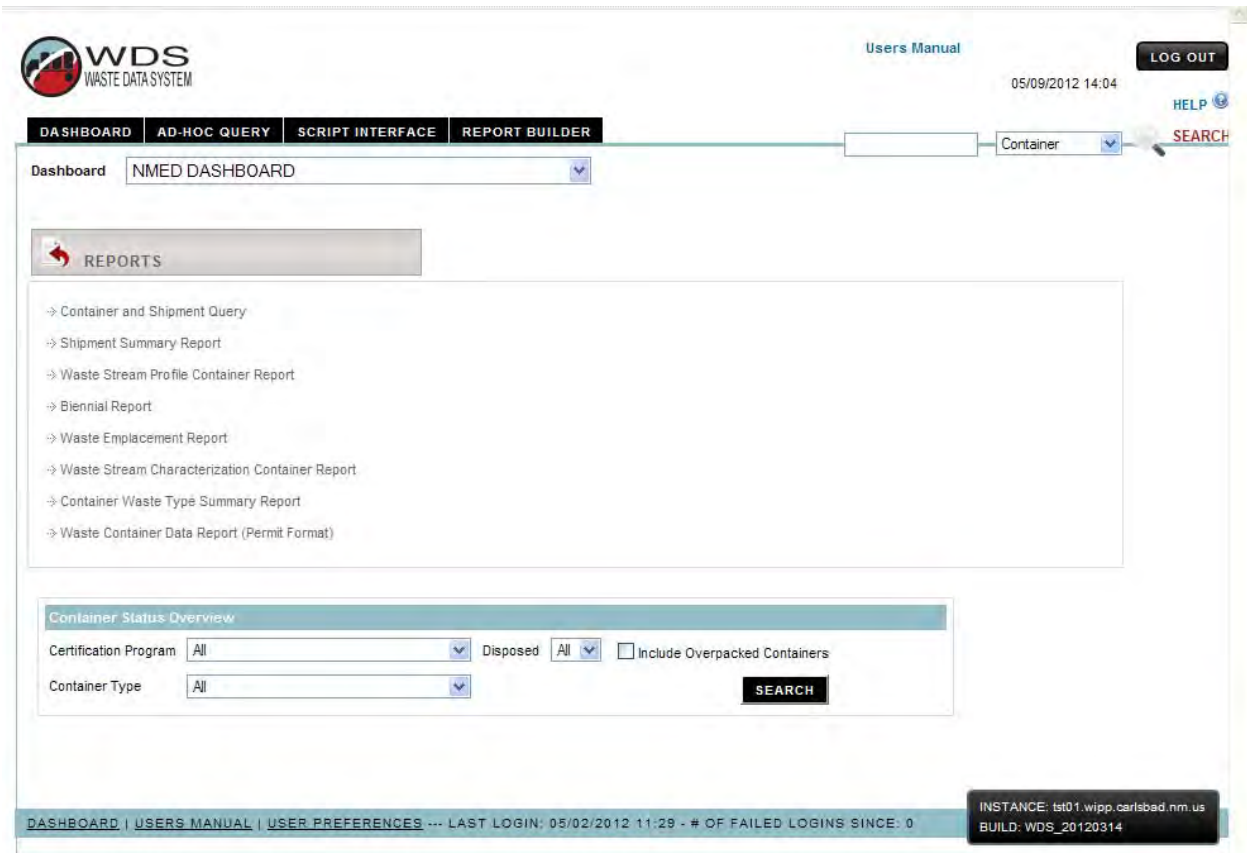


Figure 6-I – NMED Dashboard

6.11 Environmental Protection Agency Dashboard

The reports that are available to users from the EPA dashboard are shown in Figure 6-J. Screen-level and context-level help provides additional details about generating reports that are accessible from the EPA dashboard.

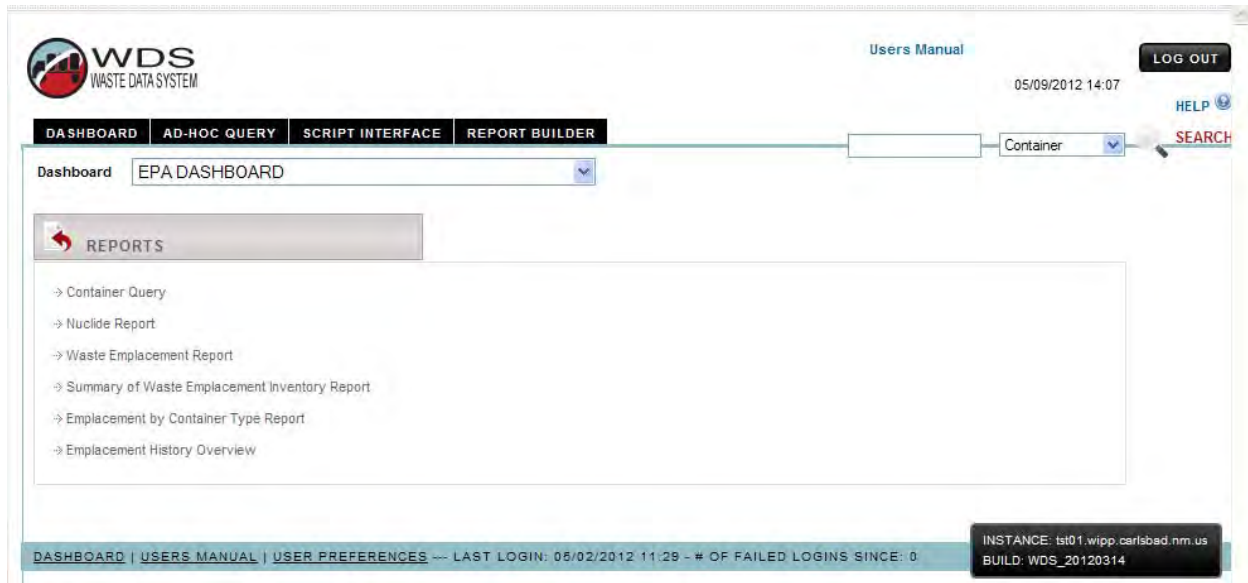


Figure 6-J – EPA Dashboard

6.12 WIPP Safety and Emergency Response Dashboard

The reports that are available to users from the Safety and Emergency Response dashboard are shown in Figure 6-K. Screen-level and context-level help provides additional details about generating reports that are accessible from this dashboard.

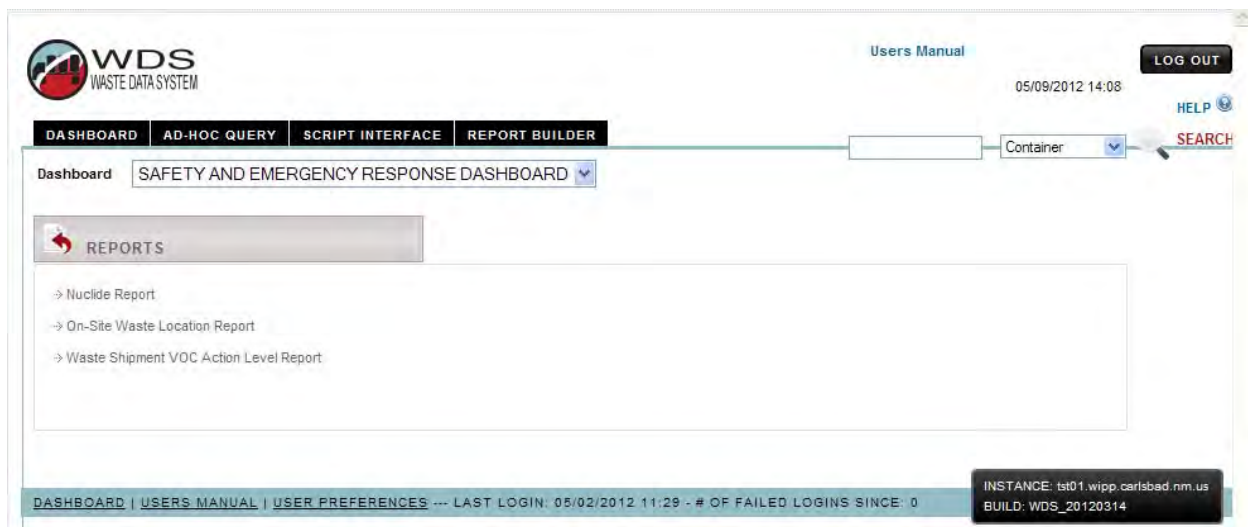


Figure 6-K – Safety and Emergency Response Dashboard

6.13 WIPP Site Transportation Dashboard

The functions and reports that are available to WIPP personnel from the Transportation dashboard are shown in Figure 6-L. Additional details about the Shipment Receipt function and the Tractor/Trailer Administration functions that are performed by Transportation users are summarized in approved WIPP procedures and in screen-level and context-level help. Details about the shipment receipt process at WIPP are described in an approved WIPP TRU waste receipt procedure and in screen-level and context-level help. Screen-level and context-level help provides additional details about generating reports that are accessible from the Transportation dashboard.

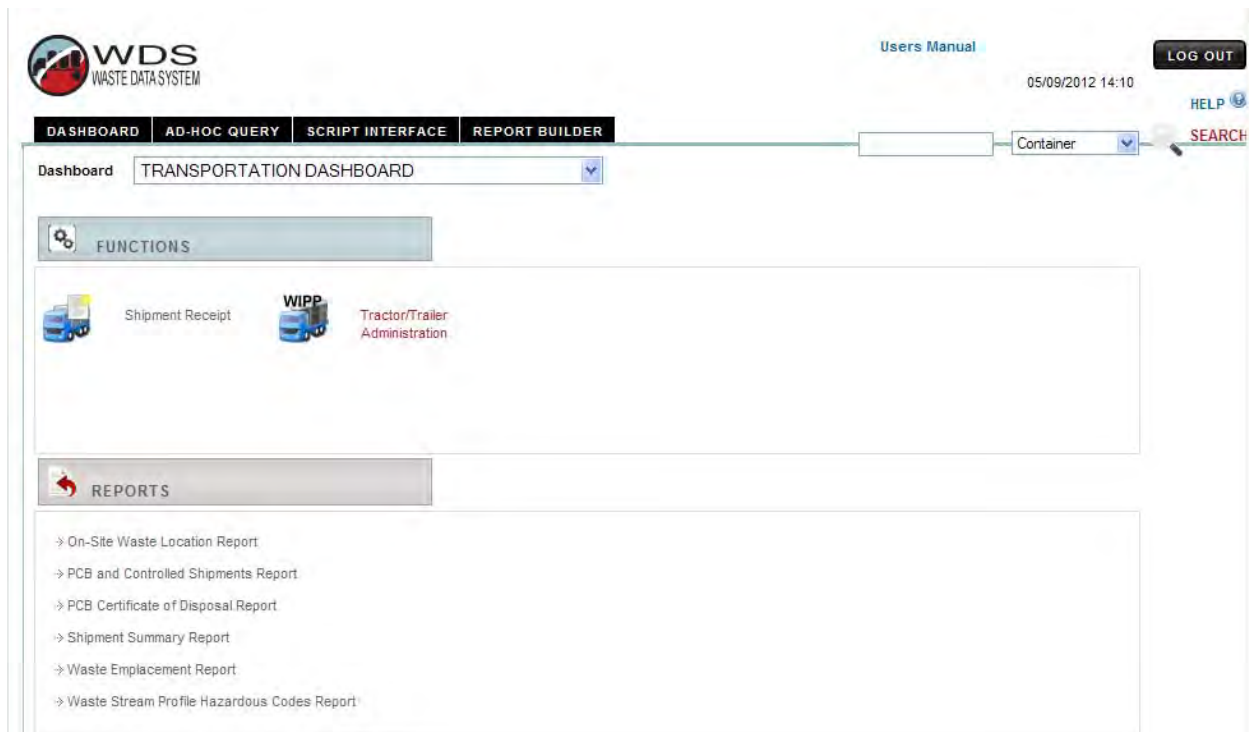


Figure 6-L – Transportation Dashboard

6.14 Business Reports Dashboard

The Business Reports dashboard is accessible only to users with the Business Reports role. The dashboard provides access to the reports shown in Figure 6-M. Screen-level and context-level help provides additional details about generating reports that are accessible from this dashboard.

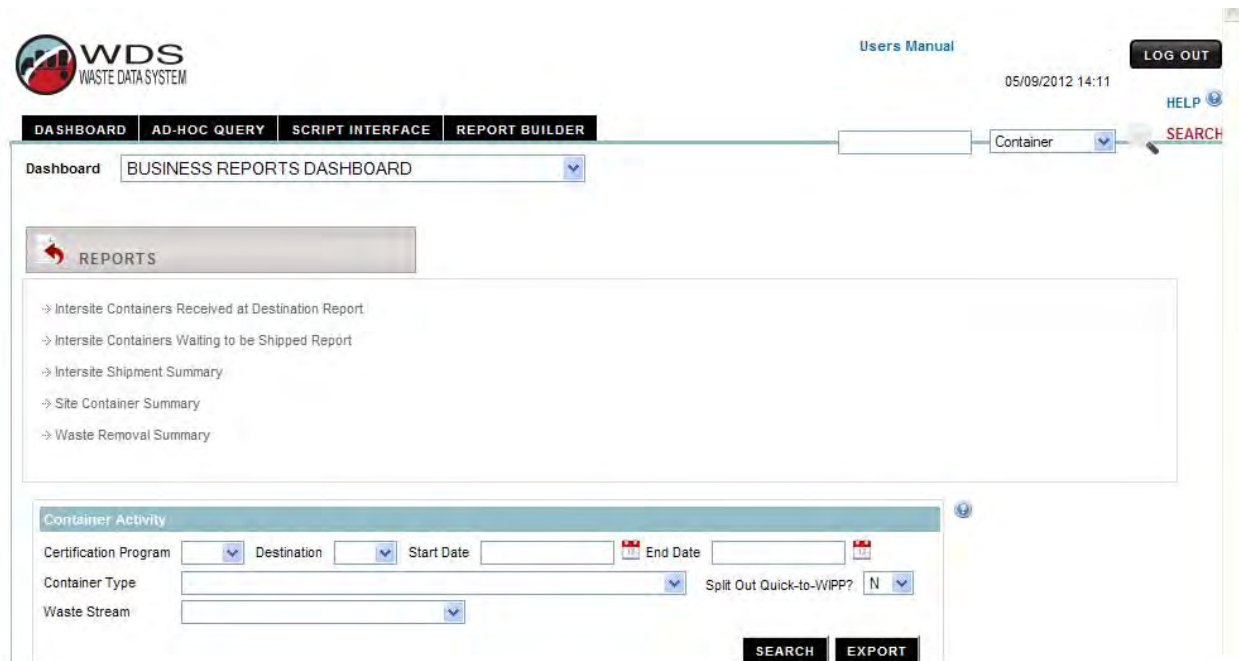


Figure 6-M – Business Reports Dashboard

7.0 SUMMARY OF WDS EVENT CODES

The following event codes are applicable to WDS container, shipment and disposal data. Users can also refer to the *Event Codes Reference Data Report* for an online summary of the codes and a summary description of each code.

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

When a container record is initially entered in the WDS, and if container data are never "saved," but are "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 a user "submits" a container record to the WDS for characterization approval, and the container data pass the edit/limit checks, this status is automatically assigned to the container. The container record is now available to the DA for potential characterization data approval, and cannot be modified by the user.

Holding for Characterization Data Approval (HOLDING_CHARZ) – A 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 DA will approve or reject the container data. Data for containers with this status cannot be modified by the user. The database design incorporates functionality for the DA to describe data issues and resolutions.

Characterization Data Approved (APPROVED_CHARZ) – This status is assigned by the WDS to a container record after a 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 WDS and "saved" (but not yet "submitted") to the database. This status is 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 DA or the Shipper/Generator user. Resetting container records from APPROVED_CERT to PRESUB_CERT is done to allow for correction of data entry errors that are discovered as part of the data quality checks conducted by the sites.

When container data are initially entered in the WDS, and if container data are never "saved," but are "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 DA to pre-submittal to certification approval status.

Pending Certification Data Approval (PENDING_CERT) – This status is assigned by the WDS 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 are evaluated by the automated WDS edit/limit checks and the CH-TRAMPAC Evaluation Software (CHTES) or RH-TRAMPAC Evaluation Software (RHES) container evaluation checks. This status is automatically assigned to the container record after the data have passed all automated edit/limit checks. The container record is now available to the DA for potential Certification Data Approval, and cannot be modified by the user.

Holding for Certification Data Approval (HOLDING_CERT) – The database design allows the DAs to place containers "on hold" to allow the Shipper/Generator to investigate a container data issue identified during the data review without deleting the container record from the database. Depending on the results of the investigation, the DA will approve or reject the container data. Data for containers with this status cannot be modified by the user. 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.

Certification Data Approved (APPROVED_CERT) – The WDS automatically sends an e-mail message to the 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 payloads.

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 (SWB) or ten-drum overpack (TDOP), the APPROVED_CERT status will be the final status for those inner containers, and the WDS 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 WDS.

Data must be entered into the Shipment Number data field 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.

NOTE

The following data fields may be NULL when a shipment is submitted: Manifest Number, Shipment Send Date, Tractor ID, Trailer ID, Transporter Name, Package Numbers, Outer Containment Assembly (OCA)/outer container(OC) Lid Numbers, Inner Containment Vessel (ICV)/inner-vessel (IV) Closure Dates, Dose Rates, Surface Contamination measurement results, and U.S. Department of Transportation (DOT) Description. These fields must be populated by the shipper in order to finalize the shipment. By design, shipments that have not been finalized cannot be electronically received at the Destination Site.

Pending Shipment Data Approval (PENDING_SHIP) – When a user "successfully submits" a shipment in the WDS, the shipment status becomes pending approval. The container status for each waste container assigned to that shipment is automatically set to pending shipment data approval by the database. The shipment data are now available to the DA 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 Complete (COMPLETE_SHIP) – This status is automatically assigned to a shipment after all of the required shipment data fields have been entered and submitted in the WDS, and after a DA and the Confirmation Team have reviewed the shipment data and completed the required approval steps. 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 En Route (EN_ROUTE) – This status is assigned to a shipment after the shipment has been finalized and has departed the shipper site.

Shipment Has Been Received (RECEIVED_SHIP) – When a shipment is received at the destination site, operations personnel enter the receipt date into the appropriate field on the shipment form. When the date is saved, the status for each waste container in that shipment is automatically set by the database to "Shipment Received." When waste containers are emplaced at WIPP, the disposal date and emplacement location information is record at the assembly level. A container is considered emplaced when its emplacement assembly has a non-NULL disposal date. An overpack payload container is considered emplaced when the overpack emplacement assembly has a non-NULL disposal date.

8.0 ROLES AND SITE PRIVILEGES

A user must obtain authorization from a sponsor and be familiar with the system before being allowed to log onto the database. Each user is assigned a role and site access privileges. Each Shipper/Generator user must be assigned both the Shipper/Generator role and access privileges for the site. Table 1 is a list of site IDs and locations. Refer also to the *Sites/Programs Reference Data Report* for additional details regarding site IDs and locations.

Table 1 – Site IDs and Locations

Site ID	Location
AE	Argonne National Laboratory – East
BC	Battelle-Columbus
BE	Bettis Laboratory (BAPL)
BN	Advanced Mixed Waste Treatment Facility – Idaho
C1	CCP at Savannah River Site – CH Waste
C2	CCP at Argonne National Laboratory – East
C3	CCP at Nevada Test Site
C4	CCP at Los Alamos National Laboratory
C5	CCP at Lawrence Livermore National Laboratory
C6	CCP at Oak Ridge National Laboratory – CH Waste
C7	CCP at Oak Ridge National Laboratory – RH Waste
C8	CCP at Idaho National Laboratory
C9	CCP at Idaho National Laboratory – RH Waste
CA	CCP at Los Alamos National Laboratory – RH Waste
CB	CCP at Savannah River Site – RH Waste
CC	CCP at GE Vallecitos – RH Waste
CD	CCP at GE Vallecitos – CH Waste
CF	CCP at Hanford
CG	CCP at Bettis Laboratory – RH Waste
CH	CCP at Sandia National Laboratories – CH Waste
CI	CCP at Nuclear Radiation Development, LLC – RH Waste
CJ	CCP at Sandia National Laboratory – RH Waste

Table 1 – Site IDs and Locations

Site ID	Location
GE	GE Vallecitos Nuclear Center
IN	Idaho National Laboratory
LA	Los Alamos National Laboratory
MD	Mound Site
NT	Nevada Test Site
NRD	Nuclear Radiation Development, LLC
OR	Oak Ridge National Laboratory
RF	Rocky Flats
RL	Hanford Site
SR	Savannah River Site
WI	Waste Isolation Pilot Plant

The following definitions have been developed for business management purposes:

Generator Site ID: Site that generated the waste.

Current Location Site: Site where the waste is physically located.

NOTE

The physical location of the waste containers is submitted to the database with the certification data and does not automatically change as container data moves through the WDS system.

Certification Program ID: Program that certifies the waste data prior to submittal to WIPP.

Shipping Program ID: Program that performs shipping activities and ships the waste.

Destination Site ID: Site that will be receiving a waste shipment for treatment, characterization, certification, or disposal.

Refer to the dropdown menus on the data entry forms or the *Sites/Programs reference data report* for a list of valid entries. Due to the variety of valid entries for a single location, site management should provide Shipper/Generator users with guidance for correct site entries prior to submittal of container and shipment data to the WDS.

9.0 AD HOC QUERIES

Access to ad hoc query is granted to users who are authorized for ad hoc query use by the DA when setting up the user account in WDS. Management approval for ad hoc query access is not required. NMED Users and EPA Users have ad hoc query built into the functions that are available from the dashboard and special access to ad hoc query is not required for these users. The ad hoc query functions may be accessed by

clicking the Ad-Hoc Query tab on the dashboard as shown in Figure 9-A. Details for all types of ad hoc queries are described in screen-level and context-level help.



Figure 9-A – Ad Hoc Query Tab

A query may be performed for a container, payload, or shipment, based on the input of a specific container ID, payload ID, or shipment ID using the input field and the dropdown menu at the top right hand corner of the screen.

10.0 SHIPMENT RECEIPT AT WIPP

The WIPP Emplacement Tracking Software tracks CH waste received and emplaced at WIPP. The WDS presents the list of shipments in En Route status with WIPP as the destination site. When a shipment arrives at WIPP, the shipment is considered received when a trained technician at WIPP enters the receipt date and time into the WDS. When each payload is unloaded, the payload is scanned or entered into the emplacement tracking software, where the status of each container is updated to the received status in the WDS. During the shipment receipt process, all container numbers are verified to ensure that the correct waste was received (correct packages on the shipment, correct assemblies in each package on the shipment, and correct containers in each assembly in the packages).

11.0 EMPLACEMENT OF WASTE AT WIPP

When the waste is emplaced in the repository, the WDS updates the status of each container and assigns and stores a unique location ID for each waste container to enable full traceability of all received and emplaced waste. Details about operation of the barcode reader software and the waste emplacement process are covered in approved WIPP procedures.

12.0 REPORT BUILDER

Access to the report builder functionality is limited to users who have been authorized for report builder use by management. Refer to report builder screen-level help for additional details about use of the report builder function

13.0 RECORDS

The records listed below that are generated as a result of implementing this manual are considered Quality Assurance (QA) records and shall be identified, classified, and maintained in accordance with WP 13-1, *Washington TRU Solutions LLC Quality Assurance Program Document*, and other implementing program documents/procedures at the sites. The following documents are maintained as QA Records.

- Waste stream profiles and/or process knowledge documentation that are approved by the destination site prior to first shipment of waste from the shipper site.
- Various reports from data management systems as required by the shippers' quality assurance program including, but not limited to, dose rate measurement reports and surface contamination records for all waste containers.
- Data entry spreadsheets (include formula copies of worksheets and supporting documentation of formula calculation validations, if any formulas were used in data entry).
- Container approval/rejection reports, copies of any e-mail correspondence, or both. Other correspondence explaining the rejection of a waste container should also be maintained.

The following transportation documentation should be maintained in accordance with established site records management program requirements and procedures.

- PCTCD/OPCTCD/PATCD
- Payload Assembly approval/rejection reports
- Shipment approval/rejection reports and results from scripts that generate data used for the purpose of documenting compliance with regulatory compliance parameters.
- Hazardous Waste Manifests or Bills of Lading

14.0 ACCEPTANCE CRITERIA

Proper completion and submittal of the records described in section 0 provides evidence of satisfactory implementation of QA record requirements.

15.0 TRAINING

All WDS Shipper/Generator users shall receive on-the-job training (OJT). Other personnel who have access to the WDS 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 program document is provided as a required reading OJT activity. Special training will be available on a case-by-case basis and is documented accordingly.

APPENDIX A – WIPP EMPLACEMENT TRACKING SOFTWARE

Appendix A – WIPP Emplacement Tracking Software

A.1 Emplacement of Magnesium Oxide (MgO Sacks)

The WIPP Emplacement Tracking Software (ETS) calculates the amount of MgO required in each room being populated with waste based on the amount of CPR included in the emplaced waste material and packaging material. The ETS displays the amount of MgO required, the amount emplaced, and the excess or deficit amount currently in the room. For full MgO traceability, the ETS also assigns and stores a unique sack ID and location data for each sack of MgO emplaced in the repository.

Other features of the ETS include automatic checks that verify that all emplaced waste has been assigned a unique location ID and has the correct status. The ETS performs automatic and manual gap checks to ensure that all empty emplacement locations are identified while it is still possible to fill them, or to indicate they are intentionally empty. The ETS performs automatic calculation and display of required MgO for expected shipments for production planning. The ETS performs user authorization checking and control to ensure that all users are properly authorized. The ETS provides full reporting capability for all open and closed room data, automatic emailing for daily report tracking, and process management support.

A.2 Barcode Reader

To use the barcode reader or the ETS, the user is required to logon to the system by entering a username and password, pressing the Login button, and reading/accepting the security acknowledgement.

A.3 WIPP ETS Home Page

Once a user is logged on, the WIPP ETS Home Page provides access to all emplacement tracking screens and functions. Functional areas include shipment unload data tracking and validation, emplacement data tracking and validation for waste containers, MgO sacks and dunnage containers, review functions to validate emplacement location data, and report functions for the generation of room closure reports, open room daily reports, MgO balance reports and graphical room display reports. The Home Page also provides access to the manual gap check and manual review check functions to provide further validation of emplacement data accuracy.

The *Unload* function is used to access the Shipment Unload screen. This allows the user at the destination site to unload the payload from the shipping package.

The *Emplace* function is used to access the Emplacement screen. This allows the WIPP Waste Handling Operations user to emplace waste containers, dunnage assemblies, and MgO sacks. Section A.8 describes the manual emplacement function.

Appendix A – WIPP Emplacement Tracking Software

The *Review* function is used by the WIPP Waste Handling Operations user to access the Emplacement Location Review screen. This allows the user (usually a supervisor or crew leader) to review and validate the accuracy of emplacement location data for waste containers.

The *Reports* function allows the user to access the Report Selection screen to retrieve the following reports:

- *MgO Balance Report*
- *Graphical Room Display Report*

The Review Check function allows the user to access the Manual Review Check screen and manually perform a location data validation review on a specific row in the selected panel/room combination.

A.4 Barcode Reader/ETS Assembly Validation Screen

The Assembly Validation screen displays the assemblies and associated waste containers recorded in the database to be in the selected package. The user scans in or manually enters a container number from the assembly, and the ETS validates that the entered number is actually included in the displayed list. After the user enters a container ID and presses the Validate button, the ETS compares the entered value with the recorded data to validate that the entered container number is associated with one of the displayed assemblies. If the entered number is invalid (not associated with any of the displayed assemblies), the Supervisor Reset screen is displayed for the Supervisor to acknowledge the data discrepancy and reset the system before the user can continue. After the Supervisor resets the system, the display returns to the Package Unload screen for the user to select another package to unload. If the entered container number passes the validation, the Assembly Accept/Reject screen is displayed to provide the user with the ability to validate additional containers in the assembly or accept or reject the entire assembly.

A.5 WIPP ETS Emplacement Location Data Entry Screen

The Emplacement Location Data Entry screen provides the user with the ability to display the current location of a container and associated assembly, assign emplacement location data to a waste container and associated assembly, or assign emplacement location data to a dunnage assembly or MgO sack. The ETS verifies that the assigned location is available for emplacement and prompts the user to enter a new location if the entered location is occupied. The software only allows emplacement where authorized for the different types of containers (Drums, Pipe Overpacks, SWBs, TDOPs, SLB2s, dunnage assemblies, MgO sacks, etc.). The screen is accessed by selecting the Emplace option on the Home Page.

Appendix A – WIPP Emplacement Tracking Software

A.6 WIPP Barcode Reader/ETS Emplacement Location Review

The Emplacement Location Review screen provides the user with the functionality to review location data accuracy for newly emplaced assemblies (including dunnage assemblies) and MgO sacks by location data or container number. An automatic review check is executed by the ETS at the completion of the first emplacement in each row. The ETS performs the automatic review on an entire row, two rows back from the row that triggered the automatic review. If the automatic review finds one or more locations in the row that have a status of Review or Rejected, the ETS halts all further emplacement activity until the status of these locations is updated to Accepted by a reviewer using this screen and the following Location Accept/Reject screen. After data are entered on the Emplacement Location Review screen and the Review button is pressed, the Location Accept/Reject screen is displayed to enable the reviewer to accept or reject the location data under review.

A.7 Report Selection Screen

The Report Selection screen provides access to all available WIPP ETS reports, including the *Balance Report* for MgO balance reporting on a specified room and the *Room Display Report*, which graphically displays occupancy and location status for all locations in a specified range of rows in a specified panel/room combination. The software provides the following location data entry fields: Panel Number, Room Number, Handling Type, Target Excess Factor, Expire Date, and Reason.

The report only displays closed rooms and includes all of the same parameters as displayed in a Daily Report.

Appendix A – WIPP Emplacement Tracking Software

A.8 Manual Emplacement of Waste

MANUAL EMPLACEMENT

Shipment Assemblies

Container: SEARCH

Cntr Num Shipment Assembly Num Shp Program
 Shipment Number Package Num Handling Code
 Excludes Dunnage Assembly

Handling Code	Shipment Program	Package Number	Shipment Number	Shipment Assembly Num	Includes Dunnage	Dunnage Assembly
CH	BN	508	IN120147	IN114042	N	N
CH	BN	185	IN120143	IN114053	N	N
CH	BN	185	IN120143	IN114054	N	N
CH	BN	184	IN120145	IN114059	N	N
CH	BN	184	IN120145	IN114060	N	N
CH	BN	139	IN120147	IN114065	N	N
CH	BN	139	IN120147	IN114066	N	N
CH	BN	510	IN120145	IN114071	N	N
CH	BN	137	IN120142	IN114080	N	N

On Site Created and Modified

Cntr Num Emplacement Assembly Num

Emplacement Assembly Num	Overpack Number	Includes Dunnage	Dunnage Assembly
021507		Y	Y
WD000051		Y	Y
WD000051		Y	Y
WD000101		Y	Y
WD000102		Y	Y
WD000104		Y	Y
WD000105		Y	Y
WD079993		Y	Y
WD082421		Y	Y

Assembly Num:
 Package Num:
 Disposal Date:
 Location:

Container Number	Container Type	Dunnage

Emplacement Destination

Panel Room: Row: Column: Height:

 Disposal Date: (MT)

MgO Type:

Selected In Use Emplaced Selected Destination

Emplacement Location Information

Viewing: CH
 Default Location:
 Show:
 MgO Without Location: 1

	1i	1	2	3	4	5	6	6i
S2								
S1								
Top								
Middle		SW		SW		SW		
Bottom		SW		SW		SW		

DASHBOARD | [USERS MANUAL](#) | [USER PREFERENCES](#) --- LAST LOGIN: 06/11/2012 08:13 -- # OF FAILED LOGINS SINCE: 0
 INSTANCE: prd01.wipp.carlsbad.nm.us BUILD: WDS_20120314

Figure A-1 – Manual Emplacement Form

Appendix A – WIPP Emplacement Tracking Software

Manual Emplacement is further described in approved WIPP Waste Handling Operations procedures and in screen-level online help.

APPENDIX B – LIST OF ERROR CODES AND ERROR DESCRIPTIONS

Appendix B – List of Error Codes and Error Descriptions

The following is a list and description of each error code that may be returned to the user when data submittals do not pass all edit and limit checks.

Error Code	Error Description
WAP_CHARZ_OVPK	Overpacks cannot be submitted to the WAP characterization evaluation.
WAP_CHARZ_CPN	The certification program ID is NULL or invalid.
WAP_CHARZ_WSPF	The waste stream profile code is NULL or invalid.
WAP_CHARZ_WSPFA	The waste stream profile code is approved. Unapproved waste stream profile code is expected.
WAP_CHARZ_WSCP	The recorded Certification Program ID is not listed in the reference tables for the waste stream profile.
WAP_CHARZ_GEN	The Generator Site is NULL or invalid.
WAP_CHARZ_WMC	The Waste Matrix Code is NULL or invalid.
WAP_CHARZ_LEI	The Liner Exists value must be Y or N.
WAP_CHARZ_LPN	A liner hole diameter or no lid must be specified if a liner is present.
WAP_CHARZ_LOP	The Layers of Packaging is NULL.
WAP_CHARZ_MPE	The container has no material parameter data.
WAP_CHARZ_MPI	One or more material parameter records are incomplete.
WAP_CHARZ_HCN	Hazardous codes must be specified for a MTRU waste stream profile code.
WAP_CHARZ_HCU	One or more container hazardous codes are not recorded for the waste stream profile code.
WAP_CHARZ_NDE	At least one set of NDE method data must be provided.
WAP_CHARZ_SAM	At least one set of sample data must be provided.
WAP_CHARZ_SAMI	One or more sample records are incomplete.
WAP_CHARZ_SAMP	The sample purpose associated with one or more sample records is not permit-related.
WAP_CHARZ_ADN	One or more sample records do not have associated analysis data.
WAP_CHARZ_ADI	One or more sample analysis data records are incomplete.
WAP_CHARZ_TAR	One or more target analytes were not included in the analysis set.
WAP_CHARZ_IDC	The IDC Code is NULL.
WAP_CERT_CPN	The certification program ID is NULL or invalid.
WAP_CERT_GEN	The Generator Site is NULL or invalid.
WAP_CERT_GWN	The gross weight is NULL.
WAP_CERT_GWUN	The gross weight uncertainty is NULL.

Appendix B – List of Error Codes and Error Descriptions

<i>Error Code</i>	<i>Error Description</i>
WAP_CERT_WMC	The Waste Matrix Code is NULL or invalid.
WAP_CERT_WSCP	The recorded Certification Program ID is not listed in the reference tables for the waste stream profile.
WAP_CERT_WSPF	The waste stream profile code is NULL or invalid.
WAP_CERT_WSPFA	The waste stream profile code is unapproved.
WAP_CERT_LEI	The Liner Exists value must be Y or N.
WAP_CERT_LPN	A liner hole diameter or no lid must be specified if a liner is present.
WAP_CERT_LOP	The Layers of Packaging is NULL.
WAP_CERT_MPE	The container has no material parameter data.
WAP_CERT_MPI	One or more material parameter records are incomplete.
WAP_CERT_HCIN	The handling code is NULL.
WAP_CERT_HCN	Hazardous codes must be specified for a MTRU waste stream profile code.
WAP_CERT_HCU	One or more container hazardous codes are not recorded for the waste stream profile code.
WAP_CERT_NDE	At least one set of NDE method data must be provided.
WAP_CERT_NDN	The neutron dose equivalent rate is NULL.
WAP_CERT_SAM	At least one set of sample data must be provided.
WAP_CERT_SAMI	One or more sample records are incomplete.
WAP_CERT_SAMT	One or more sample records have an invalid or NULL sample type.
WAP_CERT_ADN	One or more sample records do not have associated analysis data.
WAP_CERT_BGN	The beta/gamma dose equivalent rate is NULL.
WAP_CERT_CDN	The certification date is NULL.
WAP_CERT_CIN	The closure date is NULL.
WAP_CERT_CNN	The container number is NULL.
WAP_CERT_CTI	The container type provided is NULL or invalid.
WAP_CERT_FNP	At least one valid filter must be recorded for the container.
WAP_CERT_ADI	One or more sample analysis data records are incomplete.
WAP_CERT_TAR	One or more target analytes were not included in the analysis set.
WAP_CERT_IDC	The IDC Code is NULL.
WAC_ALL_APP	An unhandled exception caused the evaluation to end before completion.
WAC_ALL_ASCE	The removable alpha surface contamination exceeds the limit applied.

Appendix B – List of Error Codes and Error Descriptions

Error Code	Error Description
WAC_ALL_ASCN	The removable alpha surface contamination is NULL.
WAC_ALL_BGD	The beta/gamma dose equivalent rate is NULL.
WAC_ALL_BSCE	The removable alpha surface contamination exceeds the limit applied.
WAC_ALL_BSCN	The removable alpha surface contamination is NULL.
WAC_ALL_CDN	The certification date is NULL.
WAC_ALL_CPN	The certification program ID is NULL or invalid.
WAC_ALL_EPA	One or more EPA-tracked radionuclides are not in the container's input values.
WAC_ALL_FILZ	At least one filter record must be provided.
WAC_ALL_FMI	One or more filter model numbers are not in the reference tables.
WAC_ALL_HAZ	The container must have at least one hazardous code since the waste stream is marked as MTRU.
WAC_ALL_NASP	This certification program (based on its site) is not authorized to ship PCB waste.
WAC_ALL_NDR	The neutron dose equivalent rate is NULL.
WAC_ALL_FGE	The Pu-239 FGE is NULL.
WAC_ALL_FGEU	The Pu-239 FGE uncertainty is NULL.
WAC_ALL_NUC	No radionuclide records have been provided for the container.
WAC_ALL_NUCI	One or more radionuclide records have incomplete data.
WAC_ALL_NUCN	One or more radionuclide records have an activity, activity uncertainty, mass, or mass uncertainty value that is <0 and not equal to -1.
WAC_ALL_OOS	The container has PCB Waste = Y, so the PCB removal from service date must be recorded.
WAC_ALL_PCM	The container has PCB Waste = Y, so the estimated mass of PCBs must be recorded.
WAC_ALL_PECI	The Pu-239 equivalent activity value is NULL.
WAC_ALL_PRE	The container prefix cannot be checked because the Certification Program ID is NULL or does not have prefixes assigned to it.
WAC_ALL_PREU	The prefix on the container number is not authorized for the certification program.
WAC_ALL_REV	The WAC Revision number is not provided.
WAC_ALL_REVI	The WAC Revision number provided is not in the database.
WAC_ALL_TAAC	The container TRU Alpha Activity Concentration (nCi/g) is < the applied minimum.

Appendix B – List of Error Codes and Error Descriptions

Error Code	Error Description
WAC_ALL_UNQ	The combination of container number and generator site is not unique.
WAC_ALL_WSCP	The recorded Certification Program ID is not listed in the reference tables for the waste stream profile.
WAP_CERT_WSPF	The waste stream profile code is NULL or invalid.
WAC_ALL_WSPFA	The waste stream profile code is unapproved.
WAC_CH_B100	The Be < 100kg flag must = Y for a drum with Be present and non-compacted waste.
WAC_CH_BED	The Be < 1% flag must = Y for an SWB/TDOP with Be present = Y.
WAC_CH_BES	The Be<=1%% flag [%s] must = Y for an SLB2 with Be present = Y.
WAC_CH_CTN	The PE-Ci limit could not be determined because the container type is NULL or invalid.
WAC_CH_DOSE	The container total dose rate is > the applied limit.
WAC_CH_FGE	The container FGE + 2x Uncertainty is > the limit applied.
WAC_CH_FGEN	No FGE limit was found due to invalid selection of Be, Compaction, and/or polyethylene density flags.
WAC_CH_NES	The Machine compacted flag must be N for SLB2s.
WAC_CH_OPC	The overpack configuration (number and type of inner containers) is not authorized by the WAC.
WAC_CH_OPU	The overpack type is not a WAC-authorized overpack container.
WAC_CH_PCOM	Pipe overpacks cannot contain machine compacted waste.
WAC_CH_PECI	The container Pu-239 equivalent curie (PE-Ci) is > the limit applied.
WAC_CH_SCN	The shipping category is NULL or empty.
WAC_CH_TCN	The container type provided for the container is NULL or is not valid based on the container base type reference structure.
WAC_CH_TYPE	The container type is not authorized by the WAC.
WAC_CH_WSPF	The PE-Ci limit could not be determined because the waste stream is NULL, invalid, or solidified/vitrified waste form is not indicated for the waste stream.
WAC_RH_APL	The canister activity averaged over the volume of the container exceeds the limit applied.
WAC_RH_BE1P	The Be <1 % must = Y for a canister with Be present and non-compacted waste.
WAC_RH_BE5	The Be <5 kg flag must = Y for an RH payload drum with Be

Appendix B – List of Error Codes and Error Descriptions

Error Code	Error Description
	present and compacted waste.
WAC_RH_CCN	The content code is NULL.
WAC_RH_CHC	This container should be classified as contact-handled.
WAC_RH_CNT	The recorded container type is not a valid RH payload container type.
WAC_RH_DOSE	The container total dose rate is > the applied limit.
WAC_RH_FEM	The recorded container type is not a valid RH payload container type.
WAC_RH_FGE	The container FGE + 2x Uncertainty is > the limit applied.
WAC_RH_FGEN	No FGE limit was found due to invalid selection of Be, Compaction, and/or polyethylene density flags.
WAC_RH_GWL	The recorded gross weight + uncertainty exceed the applied limit.
WAC_RH_PECI	The container Pu-239 equivalent curie (PE-Ci) is > the limit applied.
DSA_ALL_APP	An unhandled exception caused the evaluation to end before completion.
DSA_CH_BEL	CH drums containing non-compacted waste must be marked as Be < 100kg when Be is present.
DSA_CH_BES	The Be<=1%% flag [%s] must = Y for an SLB2 with Be present = Y.
DSA_CH_BE1P	Be must be marked as <1% when present in SWBs and TDOPs.
DSA_CH_CNT	The container type is NULL or not authorized by the TSR.
DSA_CH_FGE	The container FGE + 2x uncertainty exceeds the limit applied.
DSA_CH_FGEN	The container FGE + 2x uncertainty exceeds the limit applied.
DSA_CH_PECI	The container PE-Ci exceeds the applied limit.
DSA_CH_NCS	The Machine compacted flag [%s] must be N for SLB2s.
DSA_RH_CNT	The container type is NULL or not authorized by the TSR.
DSA_RH_FGE	The container FGE + 2x uncertainty exceeds the limit applied.
DSA_RH_FGEN	No FGE limit was found due to invalid selection of Be, Compaction, and/or polyethylene density flags.
DSA_RH_NUM	The number of drums in the canister must be 3 or less.
DSA_RH_PECI	The container PE-Ci exceeds the applied limit.
DI_ALL_APP	Data Integrity application error.
DI_BE_1PCT	The Be <1% flag must be set to Y or N.

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Error Code	Error Description
DI_BE_BPI	The Be Present flag must be Y or N.
DI_BE_BPN	The Be Present flag is NULL.
DI_BE_CMB	The Be chemically/mechanically bound indicator must be Y or N for direct-load canisters.
DI_BE_FGE	The FGE + 2xerror for the TBO container is > the limit.
DI_BE_FMM	The overpack has only one inner container - all overpack Be flags must match the inner container.
DI_BE_INC	When Be Present = N, all other beryllium flags must be NULL: Be <=1%% [%s], Be<=100kg [%s], Be chemically/mechanically bound (RH only) [%s].
DI_BE_MCI	The machine compacted flag must be Y or N.
DI_BE_MCN	The machine compacted flag is NULL.
DI_BE_OBF	One or more inner containers has Be present - the overpack must be marked as Be present = Y.
DI_BE_OCF	One or more inner containers have compacted waste - the overpack must be marked as compacted waste.
DI_BE_SON	The separation OK flag must be set for the container.
DI_BE_SOI	The separation OK flag must be Y or N.
DI_CERT_AMA	One or more assay method records have a characterization program ID that is not approved for use with the reported assay method.
DI_CERT_AMC	One or more assay method records have a characterization program ID that is not an approved characterization program.
DI_CERT_AMD	One or more assay method records have an invalid assay date (before 1/1/1970 or after the evaluation date).
DI_CERT_AMDO	One or more assay method records have an assay method that was not approved for use on the assay date.
DI_CERT_AMI	One or more assay method records are incomplete.
DI_CERT_AMN	At least one assay method record must be provided.
DI_CERT_CCN	The TRUCON Code (CH)/Content Code (RH) are NULL or empty.
DI_CERT_CDE	The recorded certification date is before 1/1/1970.
DI_CERT_CDL	The recorded certification date is after the evaluation date.
DI_CERT_CNIL	The container is not in the list of approved containers associated with the waste stream profile code.
DI_CERT_FDB	One or more filter records have a filter install date that is before 1/1/1970.
DI_CERT_FDL	One or more filter records have a filter install date that is

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Error Code	Error Description
	after the evaluation date.
DI_CERT_FD V	One or more filter records have a filter install date that is after the vent date.
DI_CERT_FF N	The fill factor is NULL.
DI_CERT_FF O R	The fill factor is out of the valid range - 0% to 100%.
DI_CERT_F M I	One or more filter records have an invalid filter model number.
DI_CERT_F Q I	One or more filter records have an invalid quantity (valid range is between 1 and 12).
DI_CERT_F R I	One or more filter records are incomplete.
DI_CERT_H Z M	One or more hazardous codes associated with the waste stream profile code were not reported for the container.
DI_CERT_H Z N	No hazardous codes have been reported for the container.
DI_CERT_I S P	An inner container [%s] shipping purpose is NULL.
DI_CERT_M S P	The inner container [%s] shipping purpose [%s] must match the overpack shipping purpose [%s].
DI_CERT_O S P	The overpack shipping purpose is NULL.
DI_CERT_P E C I	The container Pu-239 equivalent curie (PE-Ci) is > the limit applied.
DI_CERT_R N I	One or more radionuclide records have an invalid radionuclide.
DI_CERT_R N N	One or more radionuclide records have values including a negative one, but not all values are negative one.
DI_CERT_R N Z	One or more radionuclide records have values including a zero, but not all values are zero.
DI_CERT_T A A C	The TRU Alpha Activity Concentration is <0.
DI_CERT_T A A I	The TRU Alpha Activity is <0.
DI_CERT_T A A N	The TRU Alpha Activity is NULL.
DI_CERT_W S C C	The content code is not valid for the waste stream.
DI_ED_U N Q	The combination of container number and generator site is not unique.
DI_ED_D P I	The Destination Program ID is not in the reference tables or is expired.
DI_ED_D P N	The Destination Program ID is NULL or invalid.
DI_ED_D P R	The Destination Program ID is not a valid destination program.
DI_ED_I C U R	The Current Location ID is not in the reference tables or is expired.
DI_ED_N C U R	The Current Location ID is not a valid location.

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Error Code	Error Description
DI_ED_SPI	The Shipping Program ID is not in the reference tables or is expired.
DI_ED_SPN	The Shipping Program ID is NULL or invalid.
DI_ED_SPR	The Shipping Program ID is not a valid shipping program.
DI_ED_SPU	The Shipping Purpose is NULL or invalid.
DI_ED_HCN	The Handling Code is NULL.
DI_ED_INVHC	The entered Handling Code is not valid.
DI_ED_TCN	The Type Code is NULL or invalid.
DI_ED_INVTC	The handling code for the container type code does not match the handling code provided for the container.
DI_ED_TCE	The Type Code is expired.
DI_ED_CERN	The Certification Program ID is NULL or invalid.
DI_ED_CERI	The Certification Program ID is not in the reference tables or is expired.
DI_ED_NCER	The Certification Program ID is not a valid certifying program.
DI_ED_WSCP	The recorded Certification Program ID is not listed in the reference tables for the waste stream profile.
DI_EPA_RMI	The reported mass for one or more radionuclides is not within the allowable % difference of the calculated mass based on reported activity.
DI_EPA_TAA	The reported TRU Alpha Activity is not within the allowable % difference of the calculated value based on reported nuclide activities.
DI_EPA_TAAC	The reported TRU Alpha Activity Concentration is not within the allowable % difference of the calculated value based on reported nuclide activities.
DI_PCB_CGF	The recorded PCB concentration should be <50 ppm for non-PCB Waste.
DI_PCB_CLF	The recorded PCB concentration should be >50 ppm for PCB Waste.
DI_PCB_CLZ	The recorded PCB concentration is less than 0.
DI_PCB_FII	The PCB presence indicator must be Y or N.
DI_PCB_FIN	The PCB presence indicator is NULL.
DI_PCB_MGW	The PCB mass is > the weight of the waste.
DI_PCB_MLZ	The PCB mass is <0.
DI_PCB_MMM	The PCB mass should not be recorded if PCB Waste = N.
DI_PCB OSDI	The recorded PCB removal from service date is invalid - before 1/1/1970 or after the evaluation date.

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Error Code	Error Description
DI_PERC_FGE	The calculated FGE based on the reported radionuclide masses is not within the allowable % of the reported container FGE.
DI_PERC_MPW	The total material parameter weight is not within the allowable % of the container gross weight.
DI_PERC_SPW	The steel packaging material parameter weight is not within the allowable % of the container type tare weight.
DI_CHARZ_GEN	The Generator Site is NULL or invalid.
DI_CHARZ_GREF	The Generator Site is not in the reference tables or is expired.
DI_CHARZ_GNA	The site program provided is not an authorized Generator Site.
DI_CHARZ_LEI	The Liner Exists value must be Y or N.
DI_CHARZ_LHN	Liner hole size should not be specified if the lid is not present.
DI_CHARZ_LHP	The liner hole size must be >7.6
DI_CHARZ_LNS	The liner exists flag [%s], if recorded, must be N for SLB2s.
DI_CHARZ_LPN	The rigid liner properties - liner hole size and the 'no lid' flag must not be marked when a liner is not present.
DI_CHARZ_MPI	One or more material parameters are NULL or invalid.
DI_CHARZ_MPRI	One or more material parameter records are incomplete.
DI_CHARZ_MPW	One or more material parameters have a negative material parameter weight.
DI_CHARZ_WSPF	The waste stream profile has not been provided.
DI_CHARZ_NDE	At least one set of NDE method data must be provided.
DI_CHARZ_NDEI	One or more provided NDE method records are incomplete, or are not an NDE type method.
DI_CHARZ_NDES	One or more provided NDE method records are not approved for use with the characterization program.
DI_CHARZ_NDED	One or more provided NDE method records were not approved for use on the provided characterization date.
DI_CHARZ_NDEB	One or more provided NDE method records have a reported characterization method date before 1/1/1970 or after the current date.
DI_CHARZ_NDECP	One or more provided NDE method records have a characterization program ID that is not an approved characterization program.
DI_CHARZ_SAMD	One or more provided sample records have a sample date before 1/1/1970 or after the current date.

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Error Code	Error Description
DI_CHARZ_SAMPC	One or more provided sample records have a characterization program ID that is not an authorized characterization program.
DI_CHARZ_SRP	One or more sample and/or analyte records are incomplete.
DI_CHARZ_AND	One or more provided sample amount records have an analysis date before 1/1/1970 or after the current date.
DI_CHARZ_ADBS	One or more provided sample amount records have an analysis date before the sample date.
DI_CHARZ_AOR	One or more provided sample amount records have a concentration out of range (between 0 and 1000000).
DI_CHARZ_CAS	One or more provided sample amount records have an invalid CAS number.
DI_CHARZ_ADU	One or more provided sample amount records have an analysis date that does not fall within an approved date range for the method.
DI_CHARZ_HAZ	Hazardous codes can only be reported for waste streams that are MTRU.
DI_TRAMPAC_CHO	One or more inner cans have a hydrogen concentration that is <0 or >106.
DI_TRAMPAC_CCI	The content code is not listed in the reference tables.
DI_TRAMPAC_CCN	The content code is NULL.
DI_TRAMPAC_CDI	The Closure Date is invalid.
DI_TRAMPAC_CDN	The Closure Date is NULL.
DI_TRAMPAC_CNU	One or more inner can numbers are non-unique for the certification program.
DI_TRAMPAC_COR	The following analytes have NULL concentrations that are <0 or >100000.
DI_TRAMPAC_FRDN	The filter reduction date must be recorded when the reduced filter model is non-NULL.
DI_TRAMPAC_FRVD	The filter reduction date [%s] must be on or after the vent date [%s].
DI_TRAMPAC_GGS	Gas generation testing values for measured FGGR [%e] and measured TGRR [%e] must be NULL for an SLB2.
DI_TRAMPAC_GWN	The Gross Weight is NULL.
DI_TRAMPAC_GWUN	The Gross Weight Uncertainty is NULL.
DI_TRAMPAC_INVF	The filter diffusivity [%s] associated with the selected reduced filter model [%s] is not valid for use for reduced filtration for sampling.
DI_TRAMPAC_LHS	The liner hole size [%s] must be NULL for an SLB2.

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Error Code	Error Description
DI_TRAMPAC_LLS	The liner lid present flag [%s] must be NULL for an SLB2.
DI_TRAMPAC_LNS	The liner exists flag [%s], if recorded, must be N for an SLB2.
DI_TRAMPAC_NFIL	The quantity of filters reported must be >1 for at least one filter record.
DI_TRAMPAC_NTS	The most recent [%s] sample is not a transportation sample.
DI_TRAMPAC_RFMN	A valid value for the reduced filter model must be recorded when the filter reduction date is non-NULL.
DI_TRAMPAC_RFSN	Reduced Filtration for Sampling does not apply for the container TRUCON Code [%s] so both filter reduction date and reduced filter model must be NULL.
DI_TRAMPAC_SDE	The most recent VOC sample date [%s] must equal the most recent Hydrogen/Methane sample date [%s].
DI_TRAMPAC_SDI	The most recent %s sample date [%s] must be after the filter reduction date [%s].
DI_TRAMPAC_SNL	No %s sample has been provided, or the [%s] sample provided has a NULL sample date.
DI_TRAMPAC_TFS	The truncated FGGR test indicator [%s] and the truncated FGGR test period [%s] must be NULL for an SLB2.
DI_TRAMPAC_TCN	The TRUCON Code is not populated.
DI_TRAMPAC_SCN	The Shipping Category is not populated.
DI_TRAMPAC_SDN	Sample [Sample #] has a NULL sample date.
DI_TRAMPAC_TCI	The TRUCON Code is not in the reference table.
DI_TRAMPAC_SCI	The provided Shipping Category is not valid for the reported TRUCON Code.
DI_TRAMPAC_PKI	The Process Knowledge flag must be Y or N.
DI_TRAMPAC_AQI	The Aqueous Material flag must be Y, N, or NULL.
DI_TRAMPAC_VDN	The Vent Date is NULL.
DI_TRAMPAC_VDI	The Vent Date is invalid.
DI_TRAMPAC_TFI	There is an error with the Truncated FGGR test values.
DI_TRAMPAC_GGT	If gas generation testing was performed, non-NULL values must be recorded for both FGGR and TGRR.
DI_TRAMPAC_DHN	The Decay Heat is NULL.
DI_TRAMPAC_DHUN	The Decay Heat Uncertainty is NULL.
DI_TRAMPAC_FIL	One or more filters must be reported.
DI_TRAMPAC_DHI	The reported decay heat is not within the calculated decay heat based on the radionuclide masses.
SHIP_ALL_APP	An unexpected error caused the evaluation to end prematurely.

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Error Code	Error Description
SHIP_PRE_COM	Comments are required if the Shipment Limited Due To flag - Other is checked.
SHIP_PRE_COMF	Comments are required if more than one Shipment Limited Due To flag is checked.
SHIP_PRE_IPT	The shipment contains incompatible package types.
SHIP_PRE_NEP	The shipment must have one or more assigned payloads.
SHIP_PRE_SLF	At least one Shipment Limited Due To flag must be checked if the number of payloads assigned to the shipment is less than the maximum number listed in the reference tables.
SHIP_PRE_SLFD	At least one Shipment Limited Due To flag must be checked if the shipment contains dunnage.
SHIP_PRE_SNN	The shipment number is not recorded.
SHIP_PRE_TMP	The number of payloads assigned to the shipment is > the maximum number of payloads allowed for the packaging type
SHIP_FINAL_ASL	The Alpha Surface Contamination exceeds the limit for one or more payloads associated with the shipment.
SHIP_FINAL_ASN	The Alpha Surface Contamination has not been provided for one or more payloads associated with the shipment.
SHIP_FINAL_BSL	The Beta/Gamma Surface Contamination exceeds the limit for one or more payloads associated with the shipment.
SHIP_FINAL_BSN	The Beta/Gamma Surface Contamination has not been provided for one or more payloads associated with the shipment.
SHIP_FINAL_DOT	The DOT Description has not been provided for one or more payloads associated with the shipment.
SHIP_FINAL_DR1	The Dose Rate 1m has not been provided for one or more payloads associated with the shipment.
SHIP_FINAL_DR2	The Dose Rate 2m has not been provided for one or more payloads associated with the shipment.
SHIP_FINAL_DRC	The Dose Rate - Contact has not been provided for one or more payloads associated with the shipment.
SHIP_FINAL_HRCQ	The HRCQ has not been provided for one or more payloads associated with the shipment.
SHIP_FINAL_ICV	The ICV Closure Date has not been provided for one or more payloads associated with the shipment.
SHIP_FINAL_MTRU	The manifest must be recorded if the shipment contains one or more MTRU containers.
SHIP_FINAL_OCA	The OCA Lid Number has not been provided for one or more payloads associated with the shipment.

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<i>Error Code</i>	<i>Error Description</i>
SHIP_FINAL_PNN	The package number has not been provided for one or more payloads associated with the shipment.
SHIP_FINAL_RQ	The RQ has not been provided for one or more payloads associated with the shipment.
SHIP_FINAL_SDN	The send date is NULL.
SHIP_FINAL_TNN	The transporter name is NULL or invalid.
SHIP_FINAL_TRL	The trailer ID is NULL or invalid.
SHIP_FINAL_TRN	The tractor ID is NULL or invalid.
SHIP_DI_ASC	The Alpha Surface Contamination is negative for one or more payloads.
SHIP_DI_BSC	The Beta/Gamma Surface Contamination is negative for one or more payloads.
SHIP_DI_CDR	The Contact Dose Rate is negative for one or more payloads.
SHIP_DI_DR1	The 1m Dose Rate is negative for one or more payloads.
SHIP_DI_DR2	The 2m Dose Rate is negative for one or more payloads.
SHIP_DI_ICVA	The ICV Closure Date is after the evaluation date for one or more payloads.
SHIP_DI_ICVB	The ICV Closure Date is before 1/1/1970 for one or more payloads.
SHIP_DI_PKG	One or more payloads have NULL or invalid package numbers.
SHIP_DI_PKU	One or more payloads have package numbers that have already been used in the shipment.
SHIP_DI_SEND	The send date is not within 5 days of the evaluation date.
SHIP_DI_SVN	The shipment number and/or shipping program are NULL.
SHIP_DI_TRC	The tractor is NULL or invalid.
SHIP_DI_TRL	The trailer is NULL or invalid.
SHIP_DI_TRP	The transporter is NULL or invalid.
SHIP_DI_UNQ	The shipment number is not unique for the shipping program.